494

ECONOMY IN GOVERNMENT PROPERTY MANAGEMENT—PROCUREMENT OF DATA PROCESSING EQUIPMENT

HEARING

BEFORE THE

SUBCOMMITTEE ON ECONOMY IN GOVERNMENT

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIRST CONGRESS

SECOND SESSION

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ECONOMY IN GOVERNMENT PROPERTY MANAGEMENT—PROCUREMENT OF DATA PROCESSING EQUIPMENT

WEDNESDAY, JULY 1, 1970

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ECONOMY IN GOVERNMENT
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The Subcommittee on Economy in Government met, pursuant to notice, at 10:10 a.m., in room S–407, the Capitol Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire; and Representatives Griffiths and Brown.

Also present: John R. Stark, executive director; Richard F. Kaufman, economist; and Ray Ward, consultant.

Chairman PROXMIRE. The subcommittee will come to order. During this subcommittee's hearings in November and December 1967, we learned that the Government's bill for the purchase and rental of automatic data processing equipment (ADPE) was about $3 billion per year. I now understand informally that it is somewhere in the magnitude of $4 to $6 billion a year and hope that today's witnesses will give us the current figure. In November 1967 we also learned that Government agencies were procuring the computer systems and so-called peripheral equipment almost entirely from the large systems producers and that the small business manufacturers of this type of equipment were left out for one reason or another.

On November 30, 1967, Mr. Lewis R. Caveney, representing some 50 small peripheral manufacturers gave us some interesting and important testimony that the small manufacturers, if given an opportunity to supply some of the Government's needs, could do so at large savings to the taxpayers. He cited some specific examples and the subcommittee asked the General Accounting Office to check into the validity of Mr. Caveney's statements.

The General Accounting Office made a detailed study and issued an excellent report, B–115369, on June 24, 1969, entitled "Study of the Acquisition of Peripheral Equipment for Use With Automatic Data Processing Systems." This report indicated that very large savings, running into millions of dollars, were possible through utilizing the smaller sources of supply, instead of relying exclusively upon the large systems manufacturers.

This report was sent to the Budget Bureau and other executive agencies with the suggestion that action programs be initiated toward more economical procurement of computers and their components.

The subcommittee's report of April 1968, which was based upon the hearings, had two specific recommendations: (1) regarding the need

to conduct Government procurements of automatic data processing equipment so as to include the smaller manufacturers and that specifications should not be designed around the products of certain large companies, thus restricting competition, and (2) that the pending inventory of Government-owned ADPE, including that in the hands of contractors, should be completed as soon as possible and kept current so as to prevent unneeded future purchases.

These are the principal points upon which the hearings will be based today. We will have witnesses from the GAO, BOB, GSA, DOD, and industry. We have also asked that representatives from the National Bureau of Standards and the Office of Emergency Preparedness be present to answer questions if need arises.

At this time, I want to publicly compliment Comptroller General Staats, Mr. Ed Mahoney, and other members of the GAO staff for the excellent work they have done in this important segment of Government procurement. Without objection the GAO report, B–115369 (see appendix II), will be included in the record, together with Budget Bureau Bulletin No. 70–9.

(Budget Bureau Bulletin No. 70–9 referred to above follows:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., February 2, 1970.

BULLETIN No. 70–9

To: The Heads of Executive Departments and Establishments.
Subject: Acquisition of peripheral components for installed ADP systems.

1. *Purpose.*—This Bulletin requires Federal agencies to review and make certain determinations on whether leased peripheral equipment components in computer systems supplied by the system manufacturer should be replaced with less costly equipment available from independent peripheral manufacturers or other sources.

2. *Background.*—According to information provided by agencies under the ADP Management Information System (see BOB Circular A–83), there are many ADP systems in operation in which certain peripheral components currently being leased from the system supplier could be replaced with comparable components offered by independent manufacturers at substantial cost reductions. The Comptroller General's report of June 24, 1969, discusses in detail the possibility of achieving economies through a program for replacing installed equipment with "plug-to-plug" compatible peripheral units.

3. *Agency reviews.*—Federal agencies will review all installed leased peripheral components for which there are compatible, reliable and comparable substitutes available at lesser cost to determine where substitutions should be made for cost saving reasons. To facilitate this review, the General Services Administration will, by February 6, 1970, transmit to each Federal agency a listing of all installed leased components which, as of June 30, 1969, were scheduled to be retained for a period long enough to assure the achievement of the potential cost reduction. Instructions on the use of this listing will be provided by the General Services Administration.

Each agency upon receipt of the listing will review it in consideration of the agency's present equipment retention plans and/or component substitution plans currently under way, and determine those instances in which substitution actions would be consistent with the plans. Following this determination and no later than April 15, 1970, the agency will advise the General Services Administration of the substitutions that should be made by returning an annotated copy of the listing. From the consolidated replies, the General Services Administration will be in a position to determine the additional procurement actions that should be taken and, in coordination with the agencies involved, will institute appropriate action. For those peripheral components on the General Services Administration listing which the agency determines should not be replaced with a lower cost substitute, the reason for such

decision will be shown on the annotated list by the use of a decision code which will be included in the instructions provided by the General Services Administration.

ROBERT P. MAYO, *Director.*

Chairman PROXMIRE. I understand, Mr. Staats, that you will give us a 15 to 20 minute review of your prepared statement which will be included in full in the record. We are delighted to have you.

STATEMENT OF HON. ELMER B. STAATS, COMPTROLLER GENERAL, ACCOMPANIED BY EDWARD J. MAHONEY, DEPUTY DIRECTOR, OFFICE OF POLICY AND SPECIAL STUDIES (OPSS); HARRY J. MASON, JR., ASSISTANT DIRECTOR (OPSS); AND JAMES HAMMOND, ASSOCIATE DIRECTOR, DEFENSE DIVISION; U.S. GENERAL ACCOUNTING OFFICE (GAO)

Mr. STAATS. Thank you very much, Mr. Chairman.

I will brief my statement and try to hold within 15 minutes, recognizing you have other witnesses here this morning.

In the prepared statement, we bring out the growth in the Government's investment in computers, as you have already pointed to in your opening remarks.

Next, we have simply here listed a number of reports that we have done in this field to give you some notion as to how active we have been in our interest in this subject.

GAO RECOMMENDED BETTER INVENTORY OF ADPE

Next, we point out the early work of the GAO in recommeding a better inventory of automatic data processing equipment, which had something to do with the Budget Bureau Circular which was issued in 1959, and which has led to the annual publication of inventory.

The most recent Budget Bureau issuance on this is referred to in the prepared statement, and they will, I am sure, go into this in greater detail: Circular A–83, which prescribed a management information system for governmentwide use.

Now, although the executive agencies have been and are now required to submit information on their computer resources in accordance with BOB Circulars A–55 and A–83, our reviews have shown that the reporting system does not necessarily produce the accurate, complete, and useful information that is necessary to facilitate the making of proper management decisions on procurement and the utilization of APD resources.

NEED FOR BETTER DATA TO IMPROVE REUTILIZATION OF ADPE

First, as we point out in the prepared statement, there is need for realistic and timely projections of acquisitions and releases of ADP equipment by the Federal agencies to improve reutilization efforts—to provide assistance for use in Government-wide contract negotiations and also to prevent unneeded ADP purchases.

There is also a need for inclusion of information regarding software and its use in Government operations—to reduce duplication of effort and unnecessary costs.

NEED FOR CURRENT AND RELIABLE INFORMATION ON ADPE

We were told by some Federal agencies that little use had been made of the management information system because the system lacked current and reliable information. For example, computer printouts of the June 30, 1969, reports were not available to GSA until December 15, 1969, and distribution of copies of these reports to the agencies was not made until February 20, 1970. So there is a considerable lag here. We don't minimize the difficulty, Mr. Chairman, of maintaining an accurate, complete and timely inventory, but we do feel that it is important to point out that the present inventory is not having the full intended effect because of these difficulties.

With respect to the peripheral equipment acquisition from independent peripheral manufacturers that you referred to, we covered that in the prepared statement. We made an early study of this subject, I might point out back in April of 1968, and then following the hearings and the result of our study, as we point out in the prepared statement, we went into this subject in greater detail. We conducted a separate study, issued our report to which you have referred, the Study of Acquisition of Peripheral Equipment for Use with Automatic Data Processing Systems, which was issued June 24, 1969. (Text in app. II.)

COMMON PRACTICE TO PROCURE ALL ADPE FROM SYSTEMS MANUFACTURERS

The study pointed out that it is common practice for Government ADP managers to obtain all required ADP equipment from computer systems manufacturers even though certain items of equipment can be procured more economically from the original manufacturers or from alternate sources of supply.

We identified selected computer components that are directly interchangeable (plug-to-plug compatible) with certain other systems manufacturers' components and are available at substantial savings. We found that a number of private organizations had installed available equipment of this type and had achieved substantial savings. Yet we found only a few instances where Federal agencies had availed themselves of this economical means of acquiring computer components. We expressed the belief that central agency leadership could provide impetus for achieving similar savings in the Federal Government.

POSSIBILITIES FOR LARGE SAVINGS

We estimated that, if plug-to-plug compatible components were rented from independent manufacturers rather than from systems manufacturers, annual savings would amount to at least $5 million. We estimated also that, if such components were to be purchased, they could be purchased for $23 million less from the component manufacturers than from the systems manufacturers.

We also expressed the belief that, in addition to the estimated savings in acquiring plug-to-plug compatible components, savings are available in the acquisition of non-plug-to-plug components from sources other than the systems manufacturers. We estimated that the purchase cost of such components—now being leased for about $50 million a year—from the systems manufacturers would be about $250

million whereas the acquisition price for similar components from an alternative source of supply probably would be about $150 million—a difference of about $100 million.

NEED FOR INTERFACING DEVICES

One of the problems associated with the use of non-plug-to-plug components involves the compatibility of components with the main computer system. In this regard, the state of the computer industry today is such that, with the exception of plug-to-plug compatible peripheral devices, components cannot generally be directly interconnected with other manufacturers' components or systems. In this respect, both an electronic and a software interface generally have to be provided before the equipment can be interconnected.

INDUSTRY WORKING ON STANDARD INTERFACE MEDIA

A solution to this problem, which is now being considered by the industry, is the possibility of standardizing the interface media between peripheral equipment and the central processing unit. Interface standardization would stimulate competition in the peripheral equipment industry and would allow the user to select the peripheral equipment best suited to its requirements.

To this end, the American National Standards Institute, a privately supported organization acting as the national clearinghouse and coordinating agency for voluntary standards in the United States, has created a committee to consider the feasibility and practicality of input/output interface standardization.

SLOW PROGRESS BY INDUSTRY

Although the committee has been in operation since early 1967, progress has been slow in accomplishing desired objectives.

We believe that the development of a standard interface will promote industry competition and result in certain economies. It will provide the users with increased flexibility in the selection and use, regardless of the manufacturer, of those components best suited to achieve the desired objectives. Under such circumstances, the users will be in a better position to match system specifications with available equipment.

NATIONAL BUREAU OF STANDARDS (NBS) RESPONSIBILITY

It is our view that, if an industrywide standard cannot be established in the near future, the National Bureau of Standards should be directed to develop a Federal standard interface program in order to achieve the significant savings which should result from increasing the compatibility of major components with main frame equipment.

LACK OF FUNDS IN NBS

We have been advised that the Bureau of Standards has been handicapped by a shortage of funds in this area, and we believe, Mr. Chairman, that this is a matter that not only this committee but other committees of Congress should particularly consider because this is really

the key to what we are talking about in our report. Unless greater effort on the Government side is devoted to this, we do not think that we are going to be able to make very satisfactory progress.

Now, the Bureau of Standards currently has some 20 standards in process, as I understand it. They have only 14 professional staff members to do all of this work. Only one-half of 1 man-year is estimated to be devoted to this area of interface which is the key to the purchase of the compatible equipment that we are referring to in our report. We believe that this is a matter that you may wish to go into with the Bureau of Standards, but we certainly believe that this is not in proportion to the importance of the problem.

I might say I have read this part of my report because I think it is the main story that we have to set forth to the committee this morning.

I will skip over the page in the prepared statement where I point out that the Budget Bureau has issued a bulletin on the acquisition of peripheral components for installed ADP systems. I am sure they will go into this with you in great detail.

GAO MAKING FOLLOW-UP STUDY TO REPORT B-115369

We also have in process currently, as a GAO study, a follow-up on our report, to see what steps have been taken to implement recommendations in our report.

The lead on this study is being taken by our Boston office working with our other regional managers, but I must say that progress in acquiring peripherals from independent component manufacturers to date is really pretty discouraging. I will cite just a couple of instances and then I will be glad to insert more information on our study in the record if you wish.

For example, as of April 6, 1970, the Army had issued an RFP for only four plug-to-plug compatible tape drives. The Navy has completed one procurement for 40 tape drives; a procurement is in process for about 20 tape drives; and a third procurement is being prepared for a Navy and Marine Corps replacement program that will involve about 500 tape drives.

The Air Force has identified about 155 second generation tape drives which can be replaced by plug-to-plug compatibles. However, these tape drives are being used on computer systems that are scheduled to be phased out and have an average remaining system life of less than 10 months. We have many examples of this and we will be glad to put these in the record if you wish. But I did want you to know we are following up on our report.

Chairman PROXMIRE. Yes, without objection that will be put in the record.

(The information referred to follows:)

MEMORANDUM—GENERAL ACCOUNTING OFFICE, JUNE 22, 1970

To: Deputy Director, OPSS—E. J. Mahoney.
From: Regional Manager, Boston—Joseph Elder.
Subject: Follow-on to the Study of the Acquisition of Peripheral Equipment for use with Automatic Data Processing Systems.

Ever since the subject report was issued we have been following up on the actions Federal agencies were taking as a result of our recommendations or suggestions. In addition to the favorable actions summarized by your Office

in March 1970, there was the letter received from the Veterans Administration and the General Services Administration (GSA) letter concerning its "actions" on plug-to-plug replacements.

We all know that it is far easier to issue regulations, policies and requirements than to police these requirements. Studies such as described in Department of Defense's letter of August 21, 1969 to the Comptroller General in response to our report and permissive regulations such as issued by GSA often are followed by further delays in implementation or complete inaction.

It is now a year since the report was issued. In view of the significant sums involved we believe that we should now find out and report on the actions actually being taken on our recommendations. We should examine into the delays, and attendant losses in those instances where no action was taken which should have been taken. Additionally we should point out the need for more effective management of the vast Government ADP resources. Our plan for this follow-up review is enclosed. To date we are concerned with the first priority of the enclosure. Our reasons for this are due to the information we have gathered in following up on this matter, as summarized below.

We have contacted manufacturers and distributors of plug-to-plug compatible peripheral equipment to determine the extent of their sales and rentals to Federal agencies. Of 18 firms contacted 5 have had sales or rentals to the Federal Government, 11 had no Federal sales or rentals when contacted and returns from two vendors have not yet been received. The total quantity of installed plug-to-plug compatible tape drives and disk drives sold to date is 229; associated firm savings are about $1.3 million.

In a contact with Mr. L. R. Caveney of Bryant Computer Products he expressed dissatisfaction with GSA negotiations for a Federal Supply Schedule. He stated that GSA insists on treating his company like a total systems manufacturer and refuses to recognize that use of his disk drives simply requires switching plugs.

One of the vendors contacted expressed concern over plans GSA, the Army, Navy or Air Force may have to issue large quantity RFP's for plug-to-plug compatibles. He explained that very large quantity buys would severely limit the number of vendors who could be responsive and that an economic order quantity for procurements should be used to insure competition among a number of vendors.

As of April 16, 1970 the Army had issued an RFP for only four plug-to-plug compatible tape drives. The Navy has completed one procurement for 40 tape drives; a procurement is in process for about 20 tape drives; and a third procurement is being prepared for a Navy and Marine Corps replacement program that will involve about 500 tape drives.

The Air Force has identified about 155 2nd generation tape drives which can be replaced by plug-to-plug compatibles. However, these tape drives are being used on computer systems that are scheduled to be phased-out and have an average remaining system life of less than 10 months. Under a delegation of authority from GSA, the Air Force has released a letter of intent to vendors for replacing these tape drives with rented plug-to-plug compatibles. Under these conditions it may be difficult to obtain peripheral vendors interested in installing and maintaining a piece of equipment for such a short period of time. In fact, many of the systems may be phased out before the planned conversion to plug-to-plug peripherals can take place. Since GSA is currently undertaking a Government-wide replacement program (see item below) the question arises as to why the replacements being planned by the Air Force could not be purchased rather than rented and then be transferred to other Federal installations when their use is no longer required by the Air Force.

The Air Force Directorate of Data Automation is currently working on another list of peripherals for third generation computer systems for a replacement program with plug-to-plug compatibles. However, the Air Force policy on new system procurements continues to be to procure entire systems from systems manufacturers.

Utilizing data contained in the ADP/MIS, GSA has identified 2,867 rented peripheral components which if replaced by rented plug-to-plug compatibles would reduce annual rental costs $8.6 million; if all items are purchased a $31.4 million cost reduction is possible.

On February 16, 1970 GSA issued each Federal agency a listing of those peripherals rented by that agency which could be replaced by plug-to-plug compatibles. Each agency was requested to endorse this listing and indicate which

components, if any, should not be replaced and the reasons therefore. The listings returned to GSA are to serve as the basis for issuing RFP's for a Government-wide replacement program. When last contacted GSA indicated that complete returns had not been made by Federal agencies and the RFP's had not yet been prepared.

As indicated above, the major using agencies are following divergent and inconsistent paths on plug-to-plug procurements. There is little or no evidence of any activity on non plug-to-plug where potential savings are much greater.

COMMON FACILITY FOR FOREIGN AFFAIRS COMMUNITY

Mr. STAATS. I would like to turn to some other areas that we have been interested in in the ADP field; in the prepared statement for example, we cite as an example a recommendation for the establishment of a common data processing facility in the foreign affairs community. This we feel could be useful not only as a matter of economy but also supplying to AID, USIA, and the State Department common information which all three are acquiring separately today. There is activity going on in this front but it has been very, very slow. But we do cite this case as an important example of what can be done through common use of a data processing systems.

REVIEWS BEING MADE OF COMPUTER SYSTEMS

In the prepared statement we cite several governmentwide reviews of the management of computers and related communications systems. These are all in process currently. We list four specific areas there, Mr. Chairman. I won't take the time to read them. But in the prepared statement we point out several other areas. Some 20 projects having governmentwide implications where we are concerned with the use of ADP equipment.

In the prepared statement we point out that in several agencies we have some 20 additional surveys and reviews primarily directed to evaluating specific ADP systems used by individual Government agencies or their contractors, and then in the defense area our efforts here have been directed more toward specific requests of the House Committee on Appropriations, primarily the degree of management control exercised over the computer systems within the Defense Department. We have a number of studies of this type which are set forth in the prepared statement.

USE OF SMALLER MANUFACTURERS

Then finally, in conclusion, the results of our reviews, we believe, Mr. Chairman, support your committee's recommendation that GSA should make it possible for smaller manufacturers of ADP equipment to furnish part of the Government's requirements. Specifications should not be designed around the products of certain companies, which would have the effect of eliminating competition and stifling the incentive of the smaller manufacturers.

LEGAL RESPONSIBILITY OF GSA

As we know, your recommendations that GSA take action to accomplish this objective fits in with GSA's responsibilities in the field of ADP equipment procurement as established by law.

We cite here a Comptroller General's decision of November 1967, by the way, in support of the idea that GSA, under the law, does have the authority, exclusive, to procure all Government general purpose ADP equipment and related supplies and equipment for use by all Government agencies.

We think that this places in the hands of the GSA a very, very important and very powerful instrument to effect economies in this area.

This concludes the statement and I hope I haven't abbreviated it too much.

Chairman PROXMIRE. Well, thank you very much, Mr. Staats.

(The prepared statement of Mr. Staats follows:)

PREPARED STATEMENT OF HON. ELMER B. STAATS

Mr. Chairman and Members of the Committee; as requested in your letter of June 1970, my statement today will cover certain matters as they relate to:

inventory practices with respect to Government-owned automatic data processing (ADP) equipment, including equipment furnished to contractors, and

the need for procurement specifications which will afford free and full competition to all qualified potential bidders, including the small manufacturers of peripheral equipment.

The United States Government is the world's largest user of automatic data processing equipment. Billions of dollars have already been invested by Federal agencies in efforts to develop and install computers and computer systems for use in Government operations.

The number of electronic computers in use by Government agencies has increased greatly in recent years. These computers have doubled in numbers and cost since 1965. The number of Government computers in use has increased from 2,412 installed in 1965 to approximately 5,000 expected to be installed in 1970. Also, annual cost has increased from a little over $1 billion in 1965 for in-house use of computers to over $2 billion in 1970, exclusive of military operational and intelligence systems.

REPORTS TO THE CONGRESS

Overall reports are issued from time to time to provide the Congress with information on some of the broader management problems relating to ADP systems, which require attention if improvements are to be achieved in the efficiency and economy with which these systems are employed. Seven reports of of this type have been previously submitted to the Congress. These are as follows:

Survey of Progress and Trend of Development and Use of Automatic Data Processing in Business and Management Control Systems of the Federal Government as of December 1957 (B–115369, June 27, 1958)

Review of Automatic Data Processing Developments in the Federal Government (B–115369, December 30, 1960)

Study of Financial Advantages of Purchasing over Leasing of Electronic Data Processing Equipment in the Federal Government (B–115369, March 6, 1963)

Review of Problems Relating to Management and Administration of Electronic Data Processing Systems in the Federal Government (B–115369, April 30, 1964)

Management of Automatic Data Processing Facilities in the Federal Government (B–115369, August 31, 1965)

Maintenance of Automatic Data Processing Equipment in the Federal Government (B–115369, April 3, 1968)

Study of the Acquisition of Peripheral Equipment for use with Automatic Data Processing Systems (B–115369, June 24, 1969)

GOVERNMENT INVENTORY PRACTICES REGARDING ADP EQUIPMENT

Several of these reports contain comments on the need for central information regarding the Government's ADP resources. At the time of our initial study in

this field, we found that there were no procedures in operation for collecting data on Government agency ADP resources and planned acquisitions. Therefore, as part of the first Government-wide survey of progress and trends of development and use of ADP in the Federal Government, we collected data on ADP resources from Federal agencies. These data were published in our first survey report to the Congress in June 1958, which presented, as of December 31, 1957, the first Government-wide inventory report of ADP equipment.

Subsequently, in order to avoid unnecessary duplication of effort, it was agreed among representatives of our Office, the staff of the House Post Office and Civil Service Committee, and the Bureau of the Budget (now the Office of Management and Budget) that the Bureau would undertake to regularly collect this kind of information. By its Bulletin No. 60–4, dated October 9, 1959, and subsequent revisions over the years, the Bureau prescribed reporting procedures to be followed by executive agencies in rendering annual reports on ADP equipment.

The data collected under these procedures have been published annually from 1960 through 1966.

Public Law 89–306 dated October 30, 1965, was enacted to improve methods of purchase, lease, maintenance, operation, and utilization of the Government's ADP equipment. The implementation of this law was facilitated in April 1967 by the Bureau of the Budget's issuance of Circular A–83 which prescribed a management information system for Government-wide use. The law assigned to GSA responsibility for operating and maintaining the system and to BOB responsibility for fiscal and policy control.

The inventory information collected under these procedures has been published for fiscal years 1968 and 1969.

Although the executive agencies have been and are now required to submit information on their computer resources in accordance with BOB Circulars A–55 and A–83, our reviews have shown that the reporting system does not necessarily produce the accurate, complete, and useful information that is necessary to facilitate the making of proper management decisions on procurement and the utilization of ADP resources.

Our current review of the General Services Administration (GSA) Government-wide management information system for data processing shows that certain changes have been made to the reporting system which should contribute to an improved system. These changes, however, do not provide for the inclusion of certain information in the data bank or for refinements which we believe are necessary for the efficient management of the Government's ADP resources. Improvements could be made with regard to the following matters.

There is a need for realistic and timely projections of acquisitions and releases of ADP equipment by the Federal agencies to improve reutilization efforts—to provide assistance for use in Government-wide contract negotiations and also to prevent unneeded ADP purchases.

There is also a need for inclusion of information regarding software and its use in Government operations—to reduce duplication of effort and unnecessary costs.

During our current review, we found that the management information system still did not provide accurate and timely reports, as we reported earlier, and that, as a result, agencies had made only limited use of the system.

We were told by some Federal agencies that little use had been made of the management information system because the system lacked current and reliable information. For example, computer printouts of the June 30, 1969, reports were not available to GSA until December 15, 1969, and distribution of copies of these reports to the agencies was not made until February 20, 1970.

Potential Savings Available By the Acquisition of Peripheral Equipment From Independent Peripheral Manufacturers

During our recent study of the maintenance practices of Federal agencies, B–115369, April 3, 1968, we noted a few instances where aggressive managers saved their activities significant sums of money by not purchasing ADP system components and repair parts from the computer manufacturers but by purchasing the items directly from the actual manufacturers of the components and parts or from other sources of supply.

The officer in charge of the U.S. Fleet Numerical Weather Facility pointed out to us that, because the Facility maintained its own equipment, it was in a position to determine the best method of procurement and that this led to the

purchase of components and parts from the manufacturer of the component rather than from the Main Frame computer manufacturer.

For example, the Facility made two negotiated procurements of drum-storage devices and related controllers from the actual manufacturers of the components and parts. Equivalent equipment from the computer manufacturer could have cost an additional $475,200 computed as follows:

Purchase No. 1:	
Computer manufacturer's price	$530,000
Drum manufacturer's price	480,500
Savings	49,500
Purchase No. 2:	
Computer manufacturer's price	845,500
Drum manufacturer's price	419,800
Savings	425,700

The examples found during our maintenance study suggested to us that there was a possibility for Government agencies to achieve significant savings or other benefits through using procurement procedures which would provide for direct procurement of certain computer components and spare parts from original manufacturers or alternative sources of supply rather than relying on sole-source procurement from computer manufacturers. We conducted a separate study of this matter and issued our report on the Study of the Acquisition of Peripheral Equipment for Use with Automatic Data Processing Systems on June 24, 1969 (B-115369).

The study pointed out that it is common practice for Government ADP managers to obtain all required ADP equipment from computer systems manufacturers even though certain items of equipment can be procured more economically from the original manufacturers or from alternate sources of supply.

We identified selected computer components that are directly interchangeable (plug-to-plug compatible) with certain other systems manufacturers' components and are available at substantial savings. We found that a number of private organizations had installed available equipment of this type and had achieved substantial savings. Yet we found only a few instances where Federal agencies had availed themselves of this economical means of acquiring computer components. We expressed the belief that central agency leadership could provide impetus for achieving similar savings in the Federal Government.

We estimated that, if plug-to-plug compatible components were rented from independent manufacturers rather than from systems manufacturers, annual savings would amount to at least $5 million. We estimated also that, if such components were to be purchased, they could be purchased for $23 million less from the component manufacturers than from the systems manufacturers.

We also expressed the belief that, in addition to the estimated savings in acquiring plug-to-plug compatible components, savings are available in the acquisition of non-plug-to-plug components from sources other than the systems manufacturers. We estimated that the purchase cost of such components—now being leased for about $50 million a year—from the systems manufacturers would be about $250 million where as the acquisition price for similar components from an alternative source of supply probably would be about $150 million—a difference of about $100 million.

One of the problems associated with the use of non-plug-to-plug components involves the compatibility of components with the main computer system. In this regard, the state of the computer industry today is such that, with the exception of plug-to-plug compatible peripheral devices, components cannot generally be directly interconnected with other manufacturers' components or systems. In this respect, both an electronic and a software interface generally have to be provided before the equipment can be interconnected.

A solution to this problem, which is now being considered by the industry, is the possibility of standardizing the interface media between peripheral equipment and the central processing unit. Interface standardization would stimulate competition in the peripheral equipment industry and would allow the user to select the peripheral equipment best suited to its requirements.

To this end, the United States of America Standards Institute, a privately supported organization acting as the national clearinghouse and coordinating agency for voluntary standards in the United States, has created a committee

to consider the feasibility and practicality of input/output interface standardization.

Although the committee has been in operation since early 1967, progress has been slow in accomplishing desired objectives.

We believe that the development of a standard interface will promote industry competition and result in certain economies. It will provide the users with increased flexibility in the selection and use, regardless of the manufacturer, of those components best suited to achieve the desired objectives. Under such circumstances, the users will be in a better position to match system specifications with available equipment.

It is our view that, if an industrywide standard cannot be established in the near future, the National Bureau of Standards should be directed to develop a Federal standard interface program in order to achieve the significant savings which should result from increasing the compatibility of major components with Main Frame equipment. We have been advised that the Bureau of Standards has been handicapped by a shortage of funds in this area. We recommend that the Congress take steps to improve funding to the Bureau of Standards to promote this extremely important program.

REPORT RECOMMENDATIONS

The report contained the recommendations that:

The head of each Federal agency take action to implement steps requiring replacement of leased components that can be replaced with more economical plug-to-plug compatible units.

The Bureau of the Budget and the General Services Administration provide more specific guidelines for the evaluation and selection of plug-to-plug compatible equipment and of other components.

Pending the issuance of specific policies, the factors described in the report be used by Federal agencies to evaluate sources of ADP equipment, and

Inasmuch as third-party leasing arrangements generally result in savings when compared with rental arrangements available from equipment manufacturers, the head of each Federal agency consider this method of procurement when purchase of the equipment is determined not to be advantageous.

In September 1969, our report was given specific consideration by top Federal ADP managers at a conference on the selection and procurement of computer systems by the Federal Government. The conference, conducted at the Federal Executive Institute by the Bureau of the Budget, was attended by officials of agencies which were major users of ADP systems in the Federal Government. The report of the conference, which summarized the consensus of the participants, contained the following statement:

"Leased peripheral equipment components in systems now installed should be replaced by components available from independent peripheral manufacturers or other sources, if it is determined that such components are comparable, compatible, reliable, less expensive, and can be adequately maintained. Similar consideration should be given when adding to or modifying existing systems. These determinations should be made on a case-by-case basis in consideration of the particular circumstances that exist."

On February 2, 1970, the Bureau of the Budget issued its Bulletin No. 70–9 on the acquisition of peripheral components for installed ADP systems. The bulletin requires Federal agencies to review and make decisions on whether leased peripheral components in computer systems supplied by the system manufacturer should be replaced with less costly equipment available from independent manufacturers of peripheral equipment or other sources. Some agencies have completed their reviews and have made replacements which have already resulted in substantial savings to the Government. For example, in the case of the Veterans Administration (VA), a cost reduction of $1.5 million will be realized over the next 5 years by replacing 75 tape drives with less costly equipment supplied from a small manufacturer of peripheral equipment.

Before concluding, I would like to make a few comments regarding our current and planned audit work in the ADP area.

Because of the widespread and increasing use of computers by Government agencies, the General Accounting Office conducts continuing reviews of specific ADP systems in Federal agencies and of related management problems. Reports to the Congress relating to specific ADP systems used by individual Government agencies or their contractors are issued where we find unnecessary costs, losses, or other adverse effects of significance.

For example, the GAO has recommended the establishment of a common data processing facility for the foreign affairs community. Although the proposed facility has not yet been established, a joint working group of representatives from the foreign affairs agencies has been in existence since 1968 and some progress has resulted from its efforts.

The Department of State and the Agency for International Development formed the joint working group in response to our proposal for merging their data processing systems which we made in a report to them dated July 14, 1967. We suggested, at that time, that State and AID should jointly reconsider the merger of their data processing activities to achieve more economical and effective utilization of equipment without unnecessary proliferation and to improve systems design and programming for more effective management of ADP operations. In establishing the joint working group, State and AID agreed to explore not only a bilateral integration but a common data processing capability for the foreign affairs community.

We have kept in touch with the joint working group since it was formed in 1968. The group consists of representatives of State, AID, USIA, ACDA, and the Peace Corps who have been meeting monthly to discuss and plan their activities.

We have agreed that the establishment of a hardware center to serve all of the foreign affairs agencies might be a promising first step approach, but we believe that more than a hardware center will be needed if full economical and operating advantages are to be gained. We have advocated that the group direct its efforts toward the development of common systems to the maximum extent possible, the improvement of systems design and programming of all computer applications, and the consideration of existing or proposed plans of the various agencies for the upgrading and changing of their computer systems.

Currently we are undertaking Government-wide reviews of the management of computers and related communication systems, covering such significant problem areas as:

performance measurement of Federal automated systems—to ascertain the most effective means of improving the utilization of the total computer inventory of the Federal Government.

Government-wide management of software—to determine ways and means of improving the Government's position with respect to the heavy investment being made in software activities and to find ways to eliminate some of the duplication of effort which currently exists in the field.

interrelationship of computer systems with communication systems—to inquire into the entire area of management of computers and related communication systems on a Government-wide basis.

use of computer techniques to audit computer-based systems—to assist all Government auditing organizations to improve programs which involve the auditing of computer-based systems.

Within the next 6 months, we shall perform some 20 surveys and reviews of certain aspects of ADP activities having Government-wide implications. We have scheduled, in addition to our current review of GSA's Government-wide management information system for data processing previously referred to, reviews of the utilization of ADP equipment; the acquisition of general purpose ADP equipment; the procurement of general-use program packages; the procurement of punch card equipment; and the adequacy of controls over computerized systems. We shall also explore certain other areas of cost reduction potential such as the feasibility of rehabilitating instrumentation tape and the multiyear leasing of ADP equipment as opposed to short-term leasing. We shall inquire into the actions presently being taken to implement the "single purchaser" concepts included in Public Law 89-306, dated October 1965.

In the civil agencies, we have planned some 20 additional surveys and reviews directed primarily to evaluation of specific ADP systems used by individual Government agencies or their contractors. Such work will include inquiry into the acquisition and utilization of particular computer systems, the effectiveness of computer applications, management controls of computer uses, and computerized management information systems.

In the defense area, our efforts have been directed toward specific requests of the House Committee on Appropriations involving primarily the degree of management control exercised over costly computer systems within the Department of Defense. During the past 2½ years we have inquired into the practices followed by the military services in acquiring and installing new automatic data processing equipment.

We have suggested minimum criteria which we believe should be followed in the advance planning of computer system projects. We pointed out the need to minimize the development of management systems by one service without regard to interservice compatibility or the relationship of systems. We have issued reports on the Army's Combat Service Support System, on its Tactical Fire Direction System, on its centralization of Supply Management Operations System, and on the need to improve its Tank Automotive Command's Supply Management System. We have in process a review of the need, requirements, and implementation features of two large acquisitions: the Worldwide Military Command and Control System and the Air Force Advanced Logistic System, as well as a report covering the management of Department of Defense automatic data processing systems. We also plan to perform reviews of the Defense Supply Agency's Standard Automated Materiel Management System and the Navy's Integrated Command/Management Information System.

In support of international activities, we plan a review of the operations of the Regional Data Processing Center at Paris, France.

In summary, our practice over the past several years and our plans for the foreseeable future are to perform selected reviews of the planning for and installation of computers; controls over computer operations; the acquisition and utilization, of computers, peripheral equipment, and software; and the effectiveness of computers as they support program operations. We shall probe for areas in which cost economies, by maximizing competition or improving operations, are possible and shall perform reviews to promote effective management through the use of computers or other means. We shall approach this both at individual agencies and on a Government-wide basis. We have long recognized that the expanding use of computers warrants our continued attention.

Reporting systems applicable to computer inventories and computer utilization, as well as the promotion of competition in procurement of ADP equipment, software, and services, will continue to be high among the areas of our audit emphasis.

In conclusion, Mr. Chairman, the results of our reviews support your Committee recommendation that GSA should make it possible for smaller manufacturers of ADP equipment to furnish part of the Government's requirements. Specifications should not be designed around the products of certain companies, which would have the effect of eliminating competition and stifling the incentive of smaller manufacturers.

As you know, your recommendation that GSA take action to accomplish this desirable objective fits in with GSA's responsibilities in the field of ADP equipment procurements as established by law.

In a Comptroller General decision of November 21, 1967 (B–151204) (B–157587), we held that, under section 111 of the Federal Property and Administrative Services Act of 1949, as amended by Public Law 89–306, the General Services Administration had exclusive authority to procure all general-purpose ADP equipment and related supplies and equipment for use by all Government agencies.

This concludes our statement. We shall be pleased to discuss any of these matters in further detail or to answer any questions the Subcommittee may have on our statement.

STAFFING NEEDS OF NBS

Chairman PROXMIRE. You place a great deal of emphasis on this interface problem of making systems compatible and you seem to think, you recommend, that we consider increasing personnel in the Bureau of Standards because you say they have only a half a man-year a year, is that it? In other words, if one man works about 6 months on the average.

Mr. STAATS. On the interface problem.

Chairman PROXMIRE. On the interface problem, and it is a problem you think could yield a great return if more personnel were put on it?

Would you have an estimate yourself before I ask Mr. Johnson of the Bureau of Standards how many men would be necessary, how much of an investment the Government would require to be able to break through here?

Mr. STAATS. I think he can give you a much better judgment on that, Mr. Chairman, than we could. We feel it is quite obvious that the present effort is inadequate.

Chairman PROXMIRE. Is this really, am I correct and accurate in saying, if we could provide this kind of personnel that in your view there is every likelihood that we could have a compatibility that would permit greater competition and would permit substantial significant savings to the Government?

Mr. STAATS. Yes. We are not saying, we are not suggesting, that nothing is going to happen unless this is done. Obviously it will, because there are other efforts on the part of the industry and on the part of the Budget Bureau and the GSA. But we do think a very important piece of this is in the Bureau of Standards, not only on the standard interface question, Mr. Chairman, but on the whole question of standardization and compatibility of Government equipment. I would like to point out this is really not a new point at all, because I chaired back in the Bureau of the Budget, before I became Comptroller General, an interagency task force and assisted in preparing a report that President Johnson made to the Congress on the whole subject of management of automatic data processing in the Federal Government. One of the recommendations in the report and one of the conclusions reached by the Congress, in part based on this report, was that the National Bureau of Standards should be responsible for the day-to-day guidance and monitorship of an ADP standardization program for the development of criteria for determining standards primarily for Government needs but also to be responsive to nongovernment requirements and developments in industry working, of course, with the Bureau of the Budget and the GSA in carrying this out.

Chairman PROXMIRE. Could I ask, is Mr. Johnson here, Mr. Johnson of the Bureau of Standards?

TESTIMONY OF ROBERT L. JOHNSON, OFFICE OF THE SECRETARY OF COMMERCE, ACCOMPANIED BY JAMES P. NIGRO, CHIEF, DIVISION OF INFORMATION PROCESSING TECHNOLOGY, NATIONAL BUREAU OF STANDARDS

Mr. JOHNSON. Yes; I am Mr. Johnson, but I am a staff member of the Office of the Secretary of Commerce: not the Bureau of Standards. Mr. Nigro of the National Bureau of Standards is here with me.

NBS BASICALLY AGREES WITH GAO

Chairman PROXMIRE. Well, would either you or Mr. Nigro tell me, do you agree with the conclusions by Mr. Staats?

Mr. NIGRO. I think for actual assigned personnel he is probably correct, from my knowledge of the center. They are attached to the office and their entire work is development of ADP standards and activity in NASA and other Federal agencies.

Chairman PROXMIRE. The main thrust of my question, Mr. Nigro, is whether you agree that if we can provide more personnel to work on this interface problem of making it compatible, would this, in your view, enable us to be in a position to get greater competition and to reduce the costs of the Government in this area?

Mr. NIGRO. I basically believe that. It is a difficult job but I think if we devote our time and some technical effort to it we should assist in the more equitable distribution of peripheral equipment among the different manufacturers.

Chairman PROXMIRE. You feel that this is the heart of it, as Mr. Staats seems to feel?

Mr. NIGRO. I think one of the biggest problems we are going to be faced with is not necessarily the peripherals now in use with the third generation machines, but how do we approach the long-range program. In other words, as new computers come out we need, I might say, standards of convention or rules to follow in design of computers versus interfaces so we don't have to treat each one as a black box.

Chairman PROXMIRE. Could you give us a notion of what this means in terms of numbers of personnel, time that they would be assigned to this, perhaps man-years would be a better term, and also the amount of saving, potential saving, that is involved?

Mr. NIGRO. Well, the potential saving, I think from my point of view, I have to agree with the potential saving analysis that has been made by GSA and by the Comptroller General of GAO. I am not going to question that. I think they are valid.

Chairman PROXMIRE. Yes; that is fine.

Mr. NIGRO. I have no further comment on that.

Now, as far as our technical effort on this activity, we need, in addition to the 14 which are working on other programs, and this half man-year that is working on interfaces, I would say, eight to 10 engineering type people and analysts, and probably—do you want a dollar value of additional moneys needed for this?

Chairman PROXMIRE. Yes; it would be helpful—what you would need in the way of personnel and how much is the budget request.

Mr. NIGRO. I would say round it off to 10 extra additional people either hired or reprogramed within our own center to tackle this job and about, I would say, over a 2-year period probably an increase of roughly, I would say, $300,000 to $400,000 a year in our budget.

Chairman PROXMIRE. About $300,000 a year, did you say, in your budget?

Mr. NIGRO. That is right.

Chairman PROXMIRE. And about 10 people?

Mr. NIGRO. That is right—increase.

Chairman PROXMIRE. Congresswoman Griffiths?

CURRENT USE OF NBS STAFF

Representative GRIFFITHS. What are the 14 people doing now?

Mr. NIGRO. We have people actively involved in the software program the validation of the COBOL package, working on the Fortran packages, standards of documentation, which will permit more efficient use of other programers' output because the format will be the same so they can both understand without having to redo or invent the wheel.

We are working on the area of the media for computers, in other words, magnetic tape, the disk packs, We are involved in—by the way we produce the National Standard unrecorded reference tape within this center for industry to use and Government.

Representative GRIFFITHS. Is that any saving to the Government?

Mr. NIGRO. Yes. On the particular reference tape, I think it can be supported by General Services Administration. After we came out with this unrecorded reference tape which is used by GSA in the qualified products list (QPL) of computer tape purchases, the number of qualified manufacturers has risen and they all appear to be in a much better spectrum of what I call the recording characteristics. So we can now have a better quality of tape, and lower price.

SAVINGS ON MAGNETIC TAPES IN MILLIONS ANNUALLY

Representative GRIFFITHS. How much money did it save the Government?

Mr. NIGRO. Well, I think as a result of our tape, plus the procurement policies of GSA, why I think the price of tape, I can't give you a total, has gone from say $28 a reel down to $13 to $15 over the last year or so, which gives you some indication of saving. I think we buy several millions of tape reels a year.

Representative GRIFFITHS. What do you think it saved us, Mr. Staats?

Mr. MAHONEY. I, of course, have been very close to this whole program in the Bureau of Standards and this one specific effort on magnetic tape certainly is saving us several million dollars annually.

Representative GRIFFITHS. But this interface is going to save hundreds of millions. Let's put the first one first.

Mr. NIGRO. Speaking in my present capacity, and I think I am speaking for the Director of the Bureau of Standards, beginning this fiscal year, we are going to reevaluate some of our effort to see if we can't apply more activity in the interface program. In fact, it is apparent that we have to.

GAO ESTIMATES ADPE ANNUAL COSTS $4 TO $6 BILLION

Chairman PROXMIRE. I would like to ask both of you men, Mr. Staats, what's your best estimate of the amount spent annually by the Federal Government for the purchase and use of automatic data equipment for all agencies. As you know, I said in my opening statement it had been $3 billion, and now it is estimated at between $4 and $6 billion, can you give us something more precise and accurate than that?

Mr. STAATS. If I may, I would like to ask Mr. Mahoney because my estimate has to be looked at both for general purpose and specialized use such as intelligence, weaponry, and space. But the focus we have had primarily in this statement today on interface has to do with general purpose type of equipment.

Chairman PROXMIRE. I understand.

Mr. MAHONEY. Yes. The earlier cost that was mentioned of $4 to $6 billion seems reasonably close. Now you have to recognize that the Federal Government reporting system reports on equipment installed in-house. We have no comparable system for equipment installed in contractor facilities and equipment used by Government contractors in grant-in-aid programs, universities, and things of that sort. So——

Chairman PROXMIRE. Let me interrupt this for a moment, Mr. Mahoney. You know as much about this as anybody that I can think of. You have been inquiring into it, spending a lot of time on it, is that

right or is there somebody else you think would be perhaps better able to give us an accurate figure?

Mr. MAHONEY. I spend most of my waking hours worrying about this.

$4 TO $6 BILLION FANTASTIC SPREAD

Chairman PROXMIRE. You gave us an estimate before of between $4 and $6 billion, that is a fantastic spread. We ought to have some notion whether it is $4, $4½, $5, or $5½ billion—what it is? As a matter of fact, we ought to know it to the nearest hundred million. Now we don't even know it to the nearest billion. So can you give us a little more accurate figure as to how much the Government spends in this area?

Mr. MAHONEY. No, sir; we certainly agree with your concept that there ought to be better information on it.

Chairman PROXMIRE. Why isn't there? Why doesn't anybody know? Why doesn't the Bureau of the Budget know?

GOVERNMENT CONTRACTORS NOT REQUIRED TO FURNISH COSTS ON GOVERNMENT-OWNED ADPE

Mr. MAHONEY. Well, for some of the reasons I mentioned, Mr. Chairman, the fact that Government contractors are not required to report this kind of information. People use this equipment in grant-in-aid programs, universities, State programs, and so on, and are not required to report this directly.

Chairman PROXMIRE. Let me get this straight. That means that we hire a contractor to do a particular job and then he doesn't break down his component costs to include the amount that he spends for automatic data processing.

Mr. MAHONEY. Yes, sir; I believe the Department of Defense and the Bureau of the Budget are prepared to address this question further with you.

Chairman PROXMIRE. Well, you see they can't give us an overall picture. They can tell us perhaps what they spend, but they can't very well give us an overall picture which I was hoping you could give us.

Mr. MAHONEY. This, basically, is the responsibility of the Bureau of the Budget to direct the agencies to report spending under this program.

ADPE COST BREAKDOWN FOR DOD, AEC, AND NASA

Chairman PROXMIRE. Have you asked the Bureau of the Budget for this figure? They are coming up later. All right, we will ask the Bureau of the Budget when they come up.

Can you give us a breakdown as to how much of the total can be attributed to the Department of Defense, and to Atomic Energy, to Space, and how much to general purpose?

DOD COSTS ARE 62 PERCENT OF IN-HOUSE TOTAL

Mr. MAHONEY. Yes; these figures are available, again as I say, with regard to the in-house Government equipment or equipment operated by Government contractors, GOCO type contractors, and the Bureau of the Budget is again prepared to address this. As I understand it, the Department of Defense is about 62 percent of the overall in-house total.

Chairman PROXMIRE. Space is about how much?

Mr. MAHONEY. Space would be probably the third highest user, I think Atomic Energy is second and Space third.

Chairman PROXMIRE. Sixty-two percent for Defense. Do you have any figures at all, to break it down for Atomic Energy?

Mr. MAHONEY. We have that figure, Mr. Chairman.

Chairman PROXMIRE. We will defer to the Bureau of the Budget.

Representative GRIFFITHS. May I ask a question? Do you mean that with Government contractors, Mr. Mahoney?

Mr. MAHONEY. Yes.

ADPE PURCHASE BY CONTRACTORS

Representative GRIFFITHS. We have contracts with the contractor to buy this equipment under the contract. Do we know whether he has used it for our work exclusively or partially for some other work, or are we paying rent for his own piece of equipment during the hours that he uses it? Which is the case?

Mr. MAHONEY. We have a whole range of activities on this where contractors acquire the equipment, where they are principally Government contractors; where they are partially Government contractors; and so on.

Now, the Department of Defense regulations address primarily those contractors that are 100 percent negotiated defense contractors. The Bureau of the Budget regulations call for 100 percent Government contractors to report their equipment for this annual inventory publication that comes out which does break it out by agency and by percentages. It also breaks out the purchase versus lease, and so on.

This inventory report that was mentioned earlier, in Mr. Staats' testimony is the Bureau of the Budget report which covers the size of the inventory for in-house Government agencies and it also covers what is included in the inventory, as far as the contractors go, however, the problem is that our reporting requirements in Government do not make provision to include all of the contractors reporting all of the equipment they use.

Representative GRIFFITHS. Yes; I found that out some years ago.

Mr. MAHONEY. Yes.

Representative GRIFFITHS. And I found out, secondly, that the contractors were buying equipment and we were buying equipment for them. And they were using it for commercial work within 3 months of the time it was purchased, and we were not getting anything. Do you mean this is also true of computers? We don't know whether they bought the computer with our money, whether they are using it for us or whether they are using it for somebody else or whether they are renting it.

Mr. STAATS. Mr. James Hammond of our Defense Division.

CONTRACTORS PAY RENT FOR IPE USED COMMERCIALLY

Mr. HAMMOND. The Department of Defense for equipment that is in the industrial property area does provide for the contractors to pay rent for commercial use.

If a contractor buys the equipment himself and depreciates it against a Government contract, then it is considered to be his equipment.

Representative GRIFFITHS. What about the ones we buy?

Mr. HAMMOND. If we buy the equipment and furnish it to the contractor, then the Government maintains an inventory of it, and then if he uses that on commercial work, the company pays rent to the Government.

Representative GRIFFITHS. What about our having sense enough in the first place to negotiate a contract where we know what it is going to cost, and actually either let them use our computers or put money in especially for depreciation. The idea of permiting them to depreciate a computer against our money is about like letting Schreiber 15 years ago buy that Thompson-Ramo-Woolridge plant for $20 million that he had already paid for.

Mr. HAMMOND. I think where the Government can predict the use they have for it and the total cost is going to be charged to the Government, certainly the Government should take action to buy rather than pay full rental for it and then have it owned by someone else.

WHEN DOES CONTRACTOR TAKE TITLE ON PURCHASE-RENTAL EQUIPMENT?

Representative GRIFFITHS. How many times are we doing this anyhow in contracts? We are letting them own the equipment in their name when in reality we are buying the equipment. How much of this is done?

Mr. HAMMOND. I don't believe I could answer that. Although this is a real important question when it is pretty much a hundred percent Government contractor. When it is split between Government and commercial work, then both pay for the computer.

Representative GRIFFITHS. Well, I would think certainly with Defense, with Atomic Energy, and with Space we ought to know. I would really think we should ask the question how many billions of dollars have these people invested in computers that we are paying for and don't own. It is a big expense, isn't it?

Mr. HAMMOND. I believe it is.

ADPE PROCURED UNDER VARIOUS TYPES OF CONTRACTS

Mr. STAATS. I think we have to look at this though, Mrs. Griffiths, in terms of the overall policy of Government as it relates to cost-type contracts and other negotiated contracts. As of now, there are three ways this equipment can be furnished, not just computers but any type of equipment, as you know, can be Government furnished, in which case the contractor has to pay the Government rental if he uses it for something other than on that contract. It can also be a cost-type contract where the contractor either elects to rent a computer or rent any other piece of equipment or buy it himself. We have done a very comprehensive study on the advantages of purchase as against lease under these circumstances, and the Defense Department now has a regulation which says that in computing the cost of computers and other equipment, you will take the lesser of the cost of lease as against purchase, you see; so from the Government's standpoint the Government does not pay for any disadvantage that accrues from the fact that the contractor decides to lease rather than buying equipment where it would be to everybody's advantage to buy that equipment instead of leasing it.

Then you get other situations where the contractor is doing substantial amounts of work in the commercial field, where the Government contract may be only a small part of it, and here you get down to the question purely of being able to price out what it should be, the proper charge on a negotiated or cost-type contract against that piece of equipment. This is a matter of procurement negotiation on a case-by-case basis. But the standard of the lesser of the cost of lease versus purchase price is pretty well established.

Representative GRIFFITHS. But, Mr. Staats, none of these things have worked well. You know very well that the greatest blockbuster report you people made in a long time was the report that answered the question I asked of how much property is in defense plants that we have paid for, that we don't own. We are not even getting anything back for it, and I would assume that this is also true in these computers. These people don't know where the computers are, nor who has paid for them, nor how much use we are getting out of them. I am trying to find out.

Mr. STAATS. Of course, the study you referred to is of government-owned equipment placed in contractors' plants.

Representative GRIFFITHS. That is correct. From my understanding of many of the places where these computers are being placed, I would say, in general, that the Government is the main contractor, and that the work being done otherwise is very limited.

BOB AND GSA INVENTORY OF GOVERNMENT ADPE

Mr. STAATS. It is my understanding that the inventory that the Budget Bureau and GSA now have does include all the Government-owned and furnished computers that are in the hands of contractors. It is the contractor-leased or the contractor-owned computers that represent the uncertainty as to the total numbers that the Government is partially financing.

Representative GRIFFITHS. I would like to find out where they are and how much we are paying.

ADPE INVENTORIES OF DOD, AEC, AND NASA

Mr. MAHONEY. Mr. Chairman, with regard to the inventory I mentioned before, who has the equipment and so on, there is a complete listing as of last year as published by the Bureau of the Budget, which shows the Department of Defense has 2,772 computers including the Government-owned inventory, Atomic Energy, 731, and NASA, 650. And there is a complete list if you want that for the record.

Chairman PROXMIRE. Well, that is a list but does that tell us about our expenditure, which was the question that we are aiming at?

Mr. MAHONEY. Yes, total dollars are also included in this.

Chairman PROXMIRE. Fine. At any rate you say the Bureau of the Budget is the agency that can give us the answers on that?

Mr. MAHONEY. Yes, this is their document.

Chairman PROXMIRE. You said that 62 percent of the computers were owned or used by Defense. Is that your figure?

Mr. MAHONEY. Yes. Government-owned.

Chairman PROXMIRE. Of Government-owned computers used by Defense.

Mr. MAHONEY. Or used in-house by Government. This is as contrasted—these figures included in-house computers, and also computers that are used by GOCO-type contractors.

Chairman PROXMIRE. So what the percent refers to is the total number of computers and the number that are used by the Defense Department?

Mr. MAHONEY. Yes, sir.

USE OF ADPE FOR COMMERCIAL WORK

Chairman PROXMIRE. All right. Do we know how those are used, how much of the time they are used for commercial work and how much for defense work?

Mr. MAHONEY. These numbers that I have been talking about are used almost exclusively, about 100 percent, toward Government effort.

Chairman PROXMIRE. How about those that are used part-time for Government and part-time for commercial?

ADPE USED PART TIME GOVERNMENT AND COMMERCIAL NOT IN INVENTORY

Mr. MAHONEY. These are not covered in the numbers we have been talking about here this morning. As far as I know, there is no exact inventory of those kinds of computers.

Chairman PROXMIRE. Why isn't there? Why shouldn't we know that? I am talking about Government-owned computers——

Mr. MAHONEY. Government-owned, all right, we do have these computers in the Government inventory, they are included in these figures.

Chairman PROXMIRE. Are you telling me Government-owned computers are not used to any significant degree for commercial work?

Mr. MAHONEY. Where they are Government-owned they are used principally, almost 100 percent, on Government work; yes, where they are Government owned.

Chairman PROXMIRE. Is that based on studies; do you say that with assurance?

Mr. MAHONEY. Where they are Government-furnished equipment; yes. There was a study made about 4 or 5 years ago by Assistant Secretary Moot which went into this whole area to quite a degree and that information I am sure the Department of Defense will be happy to furnish to you.

REGULATIONS CONTROLLING USE OF ADPE

Chairman PROXMIRE. You see my question is, Does the Government ADP in the hands of contractors come under regulations which give you control so you will be able to—so you can—answer that question with complete confidence? Is it under the control of the Government; can they insist that they monitor this?

Mr. STAATS. I think the answer, to the best of our knowledge, Mr. Chairman, it is subject to the same type of controls as any other Government-furnished equipment.

ADPE IN HANDS OF CONTRACTORS NOT COVERED BY DEP REG. 8555.1

Chairman PROXMIRE. Well, the staff tells me that it doesn't come under OEP regulation 8555.1, which is the controlling regulation.

Mr. STAATS. I believe that the Defense Department as well as other Government agencies follow BOB regulations on ADPE reporting. I could stand to be corrected on it, but I don't believe that the computer equipment is excepted from the general rules that apply to any other Government-furnished equipment.

ACQUISITION OF ADPE BY CONTRACTORS

Chairman PROXMIRE. How do the large corporations get ADP equipment, do they buy on a rental basis, does the Government pay the bill?

Mr. STAATS. Are you thinking about contractors, Mr. Chairman?

Chairman PROXMIRE. Yes.

Mr. STAATS. They are free now to either buy or lease. But as I indicated to Mrs. Griffiths, the rules now are that the Government, on a cost-type contract or on a negotiated contract, will only pay up to the amount that would be the lesser cost of either rental or purchase, and this is determined case by case. In general, our study would indicate that it is cheaper to buy, and this regulation was put into effect in part because of studies that we had made showing just that.

Chairman PROXMIRE. Well, I have here on page 216 of this subcommittee's hearings of 1967 a listing of the equipment the Department of Defense has that is covered under the provisions of the OEP regulation, and it does not list ADPE.

Mr. STAATS. We would be glad to check into that or perhaps others here today will be able to answer the question. I was not aware it was exempted but I am reasonably certain it is covered by DOD regulation.

Chairman PROXMIRE. I note in your testimony in 1967 and that of Secretary Morris, we arrived at an estimate of the Government-owned property in contractors plants as follows: real property $2.6 billion; plant equipment $4.3 billion; materiel, $4.7 billion; special tooling and test equipment $3 billion, for a total of $14.6 billion. Automatic data processing equipment was not individually identified.

In what category would that fall or would that be in addition to this?

Mr. STAATS. It was included as far as I recall.

Chairman PROXMIRE. In what?

Mr. STAATS. It would be in equipment.

Chairman PROXMIRE. In equipment.

Mr. HAMMOND. I believe some of the ADP equipment for tape drive for machines would be in IPE. It would not be a large amount for equipment for operating automatic lathes and that type of equipment.

Mr. STAATS. Mr. Chairman, we do not have with us this morning the backup on the figures that you referred to in our previous testimony, but we would be glad to go back and see if we can break that out for you if you would like.

STATEMENT THAT CONTRACTORS GET TITLE TO GOVERNMENT COMPUTERS

Chairman PROXMIRE. Let me ask you to comment on this. I would like to read a statement and see if this statement in your view is incorrect and the extent to which it is or is not correct:

The defense contractors are using government money to acquire ownership of computers. The procurement regulations are purposely written so that the contractors consider any computer which is not used 100 percent of the time on

a government contract as their computer, even though the Government may be paying up to 95 percent of the rental for the computer. This means that the rental credits which accrue from 20 percent to 80 percent of the costs of the computer go to the contractor and he can purchase and later sell these computers at a handsome profit. Also, this means the contractor does not have to share excess time of these computers with other government contractors or other government agencies in the area.

Is that statement, in your view, not correct and if it isn't, in what sense is it not accurate?

Mr. STAATS. I am not in a position to say that is not still a correct statement. This was 1967.

Chairman PROXMIRE. No, this is a statement which I received in the last few days.

Mr. STAATS. I would hesitate to answer that categorically, Mr. Chairman. I think we are talking in this statement about two different kinds of situations though, if I understand it correctly.

Chairman PROXMIRE. All right.

Mr. STAATS. One is a situation where the contractor buys a computer for us in connection with a Government contract, that is his equipment, just as if it were a lathe or any other piece of equipment. The Government pays an appropriate charge against that based on the useful life of the piece of equipment. This would be the same as if he were, you know, competing in any kind of a market. I think that is one kind of situation.

The other kind of situation, which is much more difficult, which is where the Government—where he buys that piece of equipment just for a particular contract, and that contract runs out, then the question is who owns that piece of equipment. This is a much more difficult situation.

Chairman PROXMIRE. Who does?

Mr. STAATS. I believe as of now he does, the contractor owns it.

Chairman PROXMIRE. Well, wouldn't this be a situation, No. 1, that might be quite common and, No. 2, would be inequitable and unfair? Many of these contracts do run for a very long time but most of them run for a period of perhaps a year or two or three, and certainly the computers last longer than that, much longer.

Mr. STAATS. The Defense Department can comment on this specifically as to computers but I do know that the regulations provide that this be a matter of agreement in the contract itself, so that when the contract is entered into this is a part of the consideration that goes into it as to ownership of the property on the termination of the contract.

Chairman PROXMIRE. All right.

Well, I would like to thank you very much for your testimony.

COST OF ADPE FOR DOD

Representative GRIFFITHS. I would like to ask some questions. How much are we spending for ADPE in the Department of Defense?

Mr. MAHONEY. As of the latest report, the Department of Defense totals $1,354 million.

Representative GRIFFITHS. Per year?

Mr. MAHONEY. Per year.

Representative GRIFFITHS. How much do we spend for property management?

Mr. STAATS. For all property?

Representative GRIFFITHS. Yes.

Mr. STAATS. We would have to supply that. We do not have it with us.

(The information requested by Representative Griffiths of Mr. Staats was not available at the time of printing the hearings.)

Representative GRIFFITHS. Well how about inventory control? How much do we spend for inventory control?

Mr. STAATS. I couldn't answer that question.

Representative GRIFFITHS. How much are we spending for accountants?

Mr. STAATS. Well, this would be a matter of getting the number of personnel—in the Defense Department?

Representative GRIFFITHS. Yes.

Mr. STAATS. We would have to supply that for you. This would be easy, this would be relatively easy, to supply.

OVER BUY AND USE OF COMPUTERS

Representative GRIFFITHS. It is my understanding that out of these computers come a million sheets of paper per month. What do you do with the paper? Where do you store it, how much does it cost to store it?

Mr. STAATS. Your question is certainly a good one from the standpoint of whether or not computers are being utilized——

Representative GRIFFITHS. That is what I am getting at.

Mr. STAATS (continuing). To the optimum way because the criticism that we hear so frequently, and we are doing some work, by the way, in this field, is the extent to which you overbuy and then you use up your computer time simply because you have got so much overhead attached to it and this is a common problem in both government and industry. A report of the American Management Association indicates that roughly maybe 50 percent of the computers are being used in private industry today for noneconomic purposes because they did not do a good job in planning the acquisition of those computers. But once you get a computer in operation, you have to have the overhead, and the tendency is to fill up the time and use it even though the part of the use is marginal or submarginal.

NEED FOR GOOD PLANNING BEFORE BUYING ADPE

Representative GRIFFITHS. It is actually costing you money if you are wasting time, storing the million sheets of paper that are useless, isn't it?

Mr. STAATS. This is one of the reasons that both, I think, the Budget Bureau and GSA have emphasized so much the importance of careful planning before you buy computer equipment, because it is a tremendous investment and it is a very difficult investment to displace or to get off the, off of your budget after you make your investment.

Representative GRIFFITHS. I believe it has just been pointed out recently you can't fire a computer.

Mr. STAATS. That is certainly true. It is pretty hard to dispose of it, too.

QUALITY OF MANAGEMENT OF $47 BILLION STORES IN DOD

Representative GRIFFITHS. That is right. How good is the management of the $47 billion of stores in the DOD?

Mr. STAATS. I don't think I can answer that question.

Representative GRIFFITHS. Can any of the rest of you?

What kind of management improvement program do we have in these areas of extreme costs and high priority in the top agencies of Government?

Mr. STAATS. Well, I think the Budget Bureau can answer this question really better than I. There is a very active program centrally in the Budget and GSA. We have also been working closely with the Defense Department trying to improve the central management in the computer field in the Defense Department. We have made several reports in this area, and the Defense Department, I think, has, we would have to say, really made a strenuous effort to improve the control on this equipment in the last few years that I can speak of first-hand.

Representative GRIFFITHS. Have they ever gotten the prices of items on those cards out there in Battle Creek?

Mr. STAATS. You would have to ask them.

Representative GRIFFITHS. I am sure they haven't.

CHAIRMAN OF HOUSE APPROPRIATIONS COMMITTEE INTERESTED IN ADPE COSTS

Mr. MAHONEY. I might just add a little bit to that, Mrs. Griffiths. The chairman of the House Appropriations Committee has been very actively interested and concerned about the management of cumputers in the Department of Defense, and a major effort on the part of GAO in the last 6 months or 8 months or maybe a little longer has been concerned with that exact question, that is, are computers centrally controlled and managed in the Department of Defense, or should the Department be organized somewhat differently to improve the management of computers in the Department of Defense. We have made several studies of major systems' use of computers in the Department of Defense, which we have made explicitly at the request of the Chairman of the Appropriations Committee. We are still working on these studies and there is a great concern on the part of the Appropriations Committee that there is need for improvement in the way that DOD is managing and directing this program.

Representative GRIFFITHS. I think it is quite interesting that we have all these billions of dollars worth of computers in other agencies of Government and that the House itself has spent months trying to decide whether they could pay a hundred million dollars, I think, for a computer, and would they get any information out of it and could they get useable information. Evidently, nobody is worried too much in the Defense Department whether the information was really useable or not.

GAO AUTHORITY TO SET CONTROLS OVER GOVERNMENT PROPERTY

Mr. Staats, does the GAO have the authority to see that adeqaute controls are set up over Government property in the hands of contractors?

Mr. STAATS. We do not have any authority to issue directives. If we find that something, of course, is spent for illegal purposes or contrary to law, we have direct authority in those cases. But beyond that, our role is one of studies and reporting to the Congress and working with the agencies trying to get them to take action in line with our recommendations.

REMUNERATION TO GOVERNMENT BY CONTRACTORS

Representative GRIFFITHS. Are you satisfied that the Government is getting proper remuneration for equipment used by contractors on commercial work?

Mr. STAATS. We haven't done a follow-up on the rentals, and the inventory controls since the major study to which you referred a few minutes ago. I think this would probably be a good thing for us to do after we have had a reasonable period of time to see how effectively those controls—because there were a number of new controls established, as you will recall, after our report and after the hearings of this committee. Perhaps Mr. Hammond could comment on that further, but I do not believe we have made a follow-up study since we made a major report.

GAO FOLLOW-UP STUDY

Mr. HAMMOND. No, we haven't. As Mr. Staats indicated, there were several changes made at that time which should have improved it but we haven't made a follow-up. Possibly we should consider that now.

MACHINE-BY-MACHINE USE RECORDS OPPOSED BY SOME COMPANIES

Representative GRIFFITHS. Are there adequate records now in use? Do we have machine-by-machine records?

Mr. HAMMOND. Not in all cases. Some of the companies contend that machine-by-machine records are impractical. Some companies have put in machine-by-machine records. We felt that it would be good to have, but in some cases the companies felt that it was just too expensive.

Representative GRIFFITHS. How do the companies take care of their own machines?

KIND OF RECORDS KEPT BY COMPANIES

Mr. HAMMOND. Some of the companies have records on each individual machine, some have them in pools by dollar or number of machines in one pool.

I think that, for the most part, they do not really follow very much different inventory procedure with respect to Government equipment than private equipment. Each case has to be considered as to what is reasonable based on the number of items that you have.

Representative GRIFFITHS. I find that very difficult to believe. I think the ones that have made money know what they own, and I think in general that they really haven't cared to know what the Government owns. I wouldn't pay any attention to what the company said. I would make up my own mind as to how it can be done. I don't think you can keep records any way except if it were in a pool. Perhaps every-

thing in Room 212 belongs to the Government, but even then I think you would have to have some identifying characteristics, machine-by-machine. You know, whereas the general public may not, that a lot of these machines are not $10,000 machines. Some of these machines cost as much as a quarter of a million dollars. This is the Government's property, the people paid for it, and they have a right to get something for the money. We don't even know if we get price reduction because of it.

WHAT TOP AGENCIES EXERT MANAGEMENT CONTROL?

What top agencies are responsible for establishing management controls?

Mr. STAATS. Well, of course, in this case the Defense Department is subject to regulations of the Budget Bureau and the GSA. But with respect to other types of equipment, we may not have this specific kind of control in either of those agencies, unless it is a part of the reserve, of the machine tool reserve, for example, OEP has the control.

FOLLOW-UP COLLECTION ACTION ON CONTRACTORS USING GOVERNMENT EQUIPMENT

Representative GRIFFITHS. Do you know if there has been any improvement in collection from contractors for the use of Government property?

Mr. HAMMOND. We have not made a follow-up review. We do know we were not satisfied with the collections made in the last review. Defense instituted revised procedures to recompute, in some cases, to make the rental payments more reasonable in relation to the value of the equipment and get greater assurance that the Government knew when use was made for commercial purposes. We have not made a follow-up review to see how well the changes have been instituted.

Representative GRIFFITHS. I suppose if you make a more reasonable rental, you are looking at the price of the equipment now, the sale value of the equipment now. In general, when they are selling to you they are looking at replacement value. I recommend that you compute the rent based on replacement value and you will do better.

GAO TO CHECK INTO RENTAL-PURCHASE AGREEMENTS

Chairman PROXMIRE. Could I ask, Mr. Staats, will you check into the rental purchases of three or four typical contractors and let us know who owns the computer after it is paid for by the Government, how it is used, and so forth, what regulations govern its purchase; can you do that?

Mr. STAATS. Yes, I think this could be done without great difficulty.

Chairman PROXMIRE. As I would like to ask you, Mr. Mahoney, also if you will make available to us when it becomes publicly available, you might submit the report that you referred to—that you are sending the chairman of the House Appropriations Committee with regard to cost of computers and so forth, anything of course for him confidentially I wouldn't pretend that we should have, but anything that is public we would like to get also.

Mr. STAATS. All right, we will be glad to do that.

Chairman PROXMIRE. Then I would like to ask before you leave the stand, I understand that Messrs. Gaskill and Drury of the Office of Emergency Preparedness are here, is that correct?

TESTIMONY OF ALBERT F. SANDERSON, OFFICE OF EMERGENCY PREPAREDNESS (OEP), EXECUTIVE OFFICE OF THE PRESIDENT

Mr. SANDERSON. I am here.

Chairman PROXMIRE. I don't have the right names this morning. You are from the Office of——

Mr. SANDERSON. OEP.

OEP ORDER 8555.1 DOES NOT COVER ADPE

Chairman PROXMIRE. Fine. Do you know if the automatic data processing equipment comes within the scope of the OEP order that I referred to, that is 8555.1?

Mr. SANDERSON. It does not.

Chairman PROXMIRE. It does not.

Mr. SANDERSON. No, sir.

Chairman PROXMIRE. Can you advise us under what order or regulation it would come?

Mr. SANDERSON. We have no responsibility in that area whatsoever.

Chairman PROXMIRE. You are not responsible?

Mr. SANDERSON. No responsibility whatsoever for ADP.

Chairman PROXMIRE. All you can tell us is it would not come under that particular order.

Mr. SANDERSON. That is right, sir.

Chairman PROXMIRE. Thank you.

Mr. Staats, can you tell us, can you give us any idea, under what order it would come, what regulation?

Mr. STAATS. We would have to supply it, Mr. Chairman, but I think we would have to find it in the Defense Department's own regulations but Mr. Ward could be quite right this could not be covered but we will check it and if so we will supply the appropriate reference.

Chairman PROXMIRE. Here is what I want to know: I want to know the regulation which limits the commercial use of industrial plant equipment owned by the Government, and I want to know whether it has been amended to forbid use, if it is Government owned, of more than 25 percent of the time in commercial areas.

Mr. STAATS. We will check it.

Chairman PROXMIRE. As I understand——

OEP AMENDMENT REG. 8555.1 TO FORBID USE OF IPE MORE THAN 25 PERCENT COMMERCIALLY

Mr. SANDERSON. May I speak to that? Our regulation covers machine tools and production equipment but not ADP and we do have a policy on the 25-percent commercial use of such equipment but such use is being abolished. We have not authorized any for the last 18 months and we are revising the regulation right now to forbid, except in unusual cases, any commercial use of the equipment covered by our directive for more than 25 percent of the time it is available for use.

Chairman PROXMIRE. So it is not a matter of reporting them, you just flatly forbid it, it can't be used more than 25 percent.

Mr. SANDERSON. That is correct, over 25 percent.

Chairman PROXMIRE. This does not affect ADP.

Mr. SANDERSON. No, sir.

Mr. STAATS. Nor would it affect other government-furnished equipment not in the OEP inventory.

Chairman PROXMIRE. I see. Then as I understand one of the main purposes of your testimony was to tell us that the Bureau of Standards simply doesn't have the manpower to do the interface compatability work which is necessary in order to permit effective competition and reduce the costs in procurement.

NBS BUDGET REQUEST FOR INTERFACE RESEARCH

Let me just ask before I ask you, sir, could you tell us whether you have requested the Bureau of the Budget for this personnel, whether your agency has?

Mr. NIGRO. Well, may I clarify it a little deeper. We are in the middle of a study now within the computer center in the Bureau of Standards.

Chairman PROXMIRE. You have known about it for some time. You have only been able to put a certain number of people on this work, that it would save the Government enormous sums.

Mr. NIGRO. It has gone through the budget cycle but for various reasons we have never received an increase.

RESPONSIBILITY FOR BUDGET REQUEST

Chairman PROXMIRE. That is not satisfactory. Your agency has requested the Bureau of the Budget for additional money or personnel; have you or have you not?

Mr. NIGRO. Not specifically for this up until this coming fiscal year.

Chairman PROXMIRE. Then the burden is on the Department of Commerce, it is not on the Bureau of the Budget. If they don't get a request they can hardly give you more money than you are asking.

Mr. NIGRO. Well, partly I would say.

Chairman PROXMIRE. Why isn't it very largely on the Secretary of Commerce?

Mr. NIGRO. Well, as I am trying to point out, we are in the middle of a study within our own center now as to what we can do better to promote efficiency and this is one of our high priority items, and in fiscal 1971 we will start a program with our present assigned monies and definitely ask for additional monies to move on for this program.

Chairman PROXMIRE. This is something which has been going on for a long time for years.

NBS HAS FAILED TO GET A STANDARD BY CONSENSUS

Mr. NIGRO. Yes, for years; but our activity has been mainly for years working with the American Standards Institute and participating committee memberships where you try to establish a standard or philosophy by consensus. I won't go into that at this time.

Chairman PROXMIRE. No. As a Democrat I hate to say we had 5 years of that.

Mr. NIGRO. It is very difficult to get consensus when quite often something is really not to the good of everybody at the conference table, and you may understand what I am talking about.

Chairman PROXMIRE. At any rate, I think the most useful thing I can do, you are not responsible for the Department, but the Secretary of Commerce, you are giving us the answers you can, maybe the thing for me to do is write the Secretary of Commerce and ask him whether or not he has included it and if not, why not.

NBS HAS PROGRAM IN 1972 BUDGET CYCLE

Mr. NIGRO. I think that is unnecessary, sir, because in our coming budget cycle for 1972 this program is in there. They are in our study, and we have communicated with the Bureau of the Budget concerning our immediate plans to tackle this problem.

POSSIBILITY OF A SUPPLEMENTAL REQUEST?

Chairman PROXMIRE. Any prospects at all that you could consider asking for a supplemental request? You are losing money every day.

Mr. NIGRO. It is possible.

Chairman PROXMIRE. As Mrs. Griffiths points out, it is a matter of well over a hundred million dollars.

Mr. NIGRO. I cannot answer that. I can request it, but it is up to somebody higher in Commerce about a supplemental.

INTERFACE PROBLEM OF PARTICULAR IMPORTANCE

Mr. STAATS. Mr. Chairman, if you go back on the question you raised with me as to the main thrust of our statement here this morning, I think what we tried to do is aside from giving you a kind of a general picture of all the ramifications of work that we are doing that relates to the Government's investment in computers, is to emphasize particularly the importance of this interface question, but again that is only one piece of the broader question of how can we get greater compatability and standardization in the whole field insofar as the Government is concerned, and using the Government's investment, the Government's leadership, leverage here to bring this about for the whole economy.

The report made to the Congress in 1965 that I referred to earlier has a chapter on this whole subject, and this is a matter that was dealt with at great length in the hearings before the House and Senate Government Operations Committee that took place prior to the enactment of the 1965 legislation. So this is a very important piece of the total problem, as we see it, and we don't believe that nearly enough attention has been given to this aspect of it.

Chairman PROXMIRE. Thank you very much. Do you have any more questions?

You did, I think, a very helpful job considering this, and I don't mean any offense to you at all. I think you are one of the finest civil servants we have but there is a sea of ignorance in which we are operating here and I think we will have to see if we can get more information out of the Bureau of the Budget and the Defense Department in this area when they come forth.

Mr. STAATS. I don't believe there is as much lack of information about numbers here as perhaps could be concluded from this. It has been mostly in the area of contractor leased or contractor owned equipment that constitutes this range that is of concern to you.

Chairman PROXMIRE. Thank you very much.

Next is Mr. Dwight A. Ink.

Mr. Ink we are delighted to have you. We have your prepared statement here. You might identify the distinguished gentlemen who are with you.

STATEMENT OF DWIGHT A. INK, ASSISTANT DIRECTOR FOR EXECUTIVE MANAGEMENT, OFFICE OF MANAGEMENT AND BUDGET, ACCOMPANIED BY JOSEPH F. CUNNINGHAM AND CLARK R. RENNINGER, AUTOMATIC DATA PROCESSING STAFF

Mr. INK. Yes, Mr. Chairman. I have on my right Mr. Joseph F. Cunningham and on my left Mr. Clark R. Renninger who are on our automatic data processing staff.

NEW OFFICE OF MANAGEMENT AND BUDGET (OMB)

Mr. Chairman, as Mr. Brown knows, there is no longer a Bureau of the Budget; that went out of existence last night, and for those people who are delighted, I have discouraging news because it is back in operation as the Office of Management and Budget. We are in a period of transition in the two organizations, and although I do not have responsibility for the ADP area, I am concerned with management and, Mr. Chairman, I would like to make some comments this morning.

There are parts of my prepared statement, Mr. Chairman, which I think have been covered and if you don't mind I would be happy to skip some of it as I go through depending upon what you wish.

Chairman PROXMIRE. Yes, we would appreciate it if you would get through with it in 15 minutes or so if possible, because there are three of us here and we would all like to ask questions.

Mr. INK. Yes, sir.

ADPE INVENTORY SYSTEM FOR GOVERNMENT

When Mr. Hughes, then Deputy Director of the Bureau of the Budget, testified before this subcommittee on November 30, 1967, he reported that a new automatic data processing equipment inventory system had been put into effect through the issuance of Bureau of the Budget Circular No. A–83. He likewise reported that initial inputs had been received from agencies and were at that time being processed by the General Services Administration. We anticipated problems would be encountered in securing accurate initial informatioin for establishing the master files which form the basis for a perpetual inventory system.

However, Mr. Chairman, at that time the Bureau underestimated the difficulties which were involved in establishing the perpetual inventory system and the effort and time which would be required to minimize or eliminate errors. We continue to experience difficulties in the accuracy and timeliness of the data inputs.

However, the second report was much better than the first in amount of errors and in amount of time, and the third report coming up now, Mr. Chairman, we believe that the major problems will be under control, although I am sure it will lack perfection.

With this experience as background, the Office of Management and Budget and the General Services Administration, with the cooperation of the using Federal agencies, are introduuing a new concept for validating the recorded inventory information which we plan for the inventory as of June 30, that is the GSA file of June 1969, as updated by reported changes, will be listed and the listing validated by the agencies to reflect June 1970 data that will be available and published this year.

We are using this approach to avoid the yearly reporting coming in from each agency which we think is unnecessarily burdensome, and which we think would add to the timing problem, and by merely sending out this data to the agencies that is already on file and asking them for changes and validation and have it come back we believe this will both minimize the paperwork and the processing and as a result of that enable us to handle it in a minimum of time.

4,666 ADPE SYSTEMS IN FEDERAL INVENTORY

In the prepared statement we talk about the total Federal inventory. We say there were 4,666 automatic data processing equipment systems in the Federal inventory as of June 30, 1969, and almost 3,000 or approximately 62 percent of this total inventory is owned by the Federal Government, and when we testified before your subcommittee in 1967, the Government owned 50 percent of its inventory. So the trend here has been toward less leasing and toward greater purchase.

I won't go into these different categories since that goes in the record, but I would like to point out the distribution of the Federal inventory according to supplier, which I think is interesting.

FEDERAL GOVERNMENT AND NATIONAL CENSUS OF COMPUTERS

This table, which is in my prepared statement for the record, shows the comparison of the Federal Government with the national census of computers that was published by John Diebold, Inc., for the same suppliers, and we believe that this does show, Mr. Chairman, the result of effort on the part of both the Congress, the General Accounting Office, and the agencies, to get a better balance and be less dependent upon one major supplied. (See pp. 38, 57–58.)

This, of course, the problem of getting greater competition in the peripheral area isn't alleviated by this, so I am not suggesting this as indicating that we have that problem under control, because clearly we do not.

EQUIPMENT IN HANDS OF CONTRACTORS

In the prepared statement we talked about equipment in the hands of the contractors, and I merely would like to mention, Mrs. Griffiths, that these categories are included. I don't think my prepared statement is entirely clear. They are included in the inventory, and in the utilization reports and, of course, there are dollar figures that are available on them. There are categories of other kinds of contractors which Mr.

Staats mentioned for which we do not have this kind of information, grantees is probably the best example that I can think of.

PROCUREMENT FROM SMALL PRODUCERS

In the prepared statement, recommendation No. 7 of the subcommittee report states that GSA should make it possible for smaller manufacturers of ADPE to furnish part of the Government's requirements. The statistics that I quoted a few minutes ago on Federal inventory across suppliers, show a more equitable distribution in the Federal Government across the supplier range than exists in the national census. The commentary accompanying the subcommittee recommendations identifies more specifically the intent of the subcommittee in that it indicates "numerous smaller producers of so-called peripheral equipment might well participate to a larger extent in furnishing the Government's requirements directly." And we certainly agree with that.

And there, of course, followed the report of the Comptroller General which has already been discussed.

UNBUNDLING BY IBM

Concurrent with the GAO report, a fundamental change was taking place in the computer industry, or at least a part of it. This change was the announcement by the IBM Corp. that some elements of the "software" programs, which cause the interaction of all peripheral and main computer components and regulate their process in responding to a user's application needs, would be separately priced. Prior to this announcement, these products were included in the price of the equipment. This decision was popularly referred to in the press as "unbundling." With it came some changes in the prices of hardware to accommodate to the increased cost associated with buying the software. The other suppliers did not immediately adopt the IBM practice.

The opportunity to purchase software separately from hardware systems and the existence of a large software industry suggested that softwater and peripheral equipment had much in common from a procurement point of view. In other words, if there were savings possible in the procurement of peripheral hardware units, savings should also be possible in the procurement of software "packages."

The instances cited in the Comptroller General's report dealt only with computer installations which had replaced components after initial selection and it recognized the difficulty of selecting equipment provided by a wide range of suppliers. If potential problems were serious where only hardware was concerned, greater difficulty would certainly be involved in the selection of interacting hardware and software.

KEY CONFERENCE CALLED BY BOB

To consider this technological problem and determine courses of action to be taken. The Bureau of the Budget convened a meeting of key Government people involved in the administration, selection and procurement of automatic data processing equipment on September 15–17, 1969. In addition to the Government representatives, the various

facets of the industry concerned (i.e., systems suppliers, software suppliers, and peripheral suppliers) were invited to participate in the discussion, listen to a statement of the problem posed to the Government, and present their ideas for solution of the problem.

CONFERENCE CONCLUSIONS

In the prepared statement we summarized the primary conclusions of this conference.

1. Separate pricing of the various elements of the computer system may ultimately work toward the benefit of the Government and the Government action should therefore be directed toward capitalizing on the benefits obtainable from this trend.

This really, Mr. Chairman, confirms what most of us had believed to be true, but it was a confirmation from groups that are associated with the industry as well as Government people.

2. The Federal Government should retain the use of the "systems integrator" concept for the acquisition of the new systems until the implications of deviating from this method are clearly defined and evaluated.

3. Intensive work should begin now to develop appropriate interface standards looking toward the full implementation in the next generation of equipment.

4. Leased peripheral equipment components and systems now installed should be replaced by components available from independent peripheral manufacturers or from other sources, if it is determined that such components are comparable, compatible, reliable, less expensive and can be adequately maintained.

5. A catalog should be developed which would document, for the benefit of all Federal agencies, information about the hardware devices, software packages and related items that are currently available.

6. There is a need to find ways for reducing both the time and cost involved in the selection and procurement process.

Then I would like to comment on several of these recommendations.

The first one, to respond to the recommendation that the Government capitalize on the benefits of separate pricing, the National Bureau of Standards has prepared a proposal for the development of an interface standard which if found upon careful examination to be acceptable and implementable should respond in part to the problem involving the selection process.

The Bureau of Standards can comment on that proposal, and at the end of my testimony I will comment briefly upon the question you have already raised with respect to the adequacy of resources in the Bureau of Standards.

Also, with respect to this same problem area, the General Services Administration will testify on their progress to date on a special procurement test designed to assemble a system on a component rather than a total system basis. We are extremely anxious to see the results of this.

The second recommendation states that the process involving the systems integration concept remain the standard practice and any change in this direction would partly be dependent upon the adequacy of the interface standard and its acceptance by the industry,

and the results of the procurement test which the General Services Administration will discuss.

With regard to the recommendation four on replacement of peripheral components in installed systems, subsequent to the conference, the Veterans Administration, the Navy Department and the Department of the Air Force instituted programs in collaboration with the General Services Administration to replace certain peripheral components of their installed systems.

BOB BULLETIN 70–9

The Bureau of the Budget issued Bulletin 70–9, a copy of which I would like to offer for the record, which required that GSA use the information in the ADP Management Information System, prepare a listing of all leased components for which there were compatible reliable substitutes available at lesser costs to determine where substitutions should be made for cost saving reasons. (See p. 2.)

This action illlustrates, as I said I would at the outset of my testimony, where the ADP Management Information System has been used in the handling of a specific decision process. It is through this type of use of an information system that the quality of the system is improved. The user sees the value of providing accurate data, otherwise it is to him just another requirement that is imposed upon him from the Congress or the Bureau of the Budget or the White House.

This provides an incentive for him to provide accurate information.

The Veterans' Administration procurement has been completed, the Air Force and the Navy procurements are now in process; and I am sure that GSA, when they testify, will include in their report what we can anticipate.

AMENDED BOB CIRCULAR NO. A–11

Another step which we have taken to assure the accuracy of the MIS inventory inputs and the relationship of long-range planning data developed therein to the budget process has been by amending Bureau of the Budget Circular No. A–11, subject: "Preparation and Submission of Annual Budget Estimates" to require the projects and plans represented by the ADPE/MIS to be carried over to the budget process. This should improve the accuracy of the projections used in both processes, and there are some other actions that are in process to improve the quality of the data in the ADP Management Information System.

Mr. Chairman, that covers the points in my prepared statement.

(The prepared statement of Mr. Ink follows:)

PREPARED STATEMENT OF DWIGHT A. INK

Mr. Chairman and Members of the Subcommittee; we welcome the opportunity afforded by your June 12, 1970, request to appear and discuss the two areas of ADP management which we have been informed are the subjects of this hearing. These areas are those identified in the Report of the Subcommittee on Economy in Government of the Joint Economic Committee dated April 1968 as:

"*Recommendation No. 6.*—The inventorying of all Government-owned automatic data processing equipment (ADPE), including equipment fur-

nished to contractors, should be completde as soon as possible and kept current so as to prevent unneeded future purchases.

"*Recommendation No. 7.*—GSA should make it possible for smaller manufacturers of ADPE to furnish part of the Government's requirements. Specifications should not be designed around the products of certain companies which have the effects of eliminating competition and stifling the incentive of smaller manufacturers."

I would like to take each of these items individually first, and then tie the two together subsequently during the course of this testimony.

When Phillip S. Hughes, then Deputy Director of the Bureau of the Budget, testified before this Subcommittee on November 30, 1967, he reported that a new automatic data processing equipment inventory system had been put into effect through the issuance of Bureau of the Budget Circular No. A–83. He likewise reported that initial inputs had been received from agencies and were at that time processed by the General Services Administration. We anticipated problems would be encountered in securing accurate initial information for establishing the basis for a perpetual inventory system. At that time, we underestimated the difficulties which were involved in establishing the perpetual inventory system and the effort and time which would be required to minimize or eliminate errors. We continue to experience difficulties in the accuracy and timeliness of the data inputs. However, the actions we have taken are reducing the size of the problem. With this experience as background, the Office of Management and Budget and the General Services Administration with the cooperation of the using Federal agencies are introducing a new concept for validating the recorded inventory information which we plan for the inventory as of June 30—to be available in published form in September of this year. Even with these difficulties the information system provides a useful base for analyzing the Federal inventory and I would like to provide you with a few statistics with respect to that inventory for your general information. They are:

(*a*) *Total Federal Inventory*

There were 4,666 automatic data processing equipment systems in the Federal inventory as of June 30, 1969. 2,910 or approximately 62 percent of this total inventory is owned by the Federal Government. (When we testified before your Subcommittee in 1967, the Government owned 50 percent of its inventory.) 3,039 are used for the general data processing functions, such as inventory control and other logistical functions; laboratory research, engineering and statistical purposes; personnel accounting, payroll and statistics; research; and similar types of applications. The remaining 1,629 are in a special or exempt category because their use is dependent upon the complexity of the environment in which they are employed. These partial exemptions are as follows:

(1) *Control Systems Equipment.*—EDPE which is an integral part of a total facility or larger complex of equipment and has the primary purpose of controlling, monitoring, analyzing, or measuring a process or other equipment is exempt from EDPE Utilization reporting and Summary ADP Manpower and Cost reporting.

(2) *Classified Systems Equipment.*—EDPE, the physical location of which is classified, is exempt from EDPE Utilization reporting and Summary ADP Manpower and Cost reporting. In other reporting (ADP Unit Identification) location information which is unclassified should be used.

(3) *Mobile Systems Equipment.*—Mobile EDPE installations on ships, planes, or vans are exempt from EDPE Utilization reporting only. This exemption includes EDPE installed with military units which are deployed or subject to deployment in areas of active military operations against an enemy force.

(*b*) *Distribution of Federal Inventory According to Supplier*

The following table shows the distribution of the percentages of the 4,666 ADPE systems in the Federal Government supplied by the principal suppliers and the percentages of the national census of computers published by John Diebold, Inc., for the same suppliers.

[In percent]

Supplier	Federal Government	National census
IBM	28.1	57.7
UNIVAC	20.4	7.0
CDC	8.7	3.0
DEC	7.1	7.6
Honeywell	5.8	5.2
NCR	5.7	4.7
XDS	4.5	1.8
Burroughs	4.2	2.5
RCA	4.1	2.1
GE	1.6	2.0
Other	9.8	6.4
Total	100.0	100.0

(c) *Equipment in the Hands of Contractors*

This category of equipment includes those Government contractors, including educational institutions and other not-for-profit contractors or organizations who operate ADP equipment in the performance of work under cost reimbursement types of contracts or subcontracts when—

(1) equipment is leased and the total cost of leasing is to be reimbursed under one or more cost reimbursement type contracts, or

(2) when equipment is purchased by the contractor for the account of the Government or title will pass to the Government, or

(3) when equipment is furnished to the contractor by the Government, or

(4) when the equipment is installed in Government-owned, contractor-operated facilities.

The accumulation of these categories of Government contractors represents approximately 875 computers out of the Federal inventory of 4,666.

The difficulties of establishing and maintaining the rather detailed system which is prescribed by Bureau of the Budget Circular No. A-83 did not preclude its use for day-to-day operating problems, one of which I will discuss during the course of the next portion of my testimony which will deal with the purchase of peripheral equipment.

Recommendation No. 7 of the Subcommittee Report of 1968 states that the "GSA should make it possible for smaller manufacturers of ADPE to furnish part of the Government's requirements." The statistics, which I quoted a few minutes ago on the distribution of Federal inventory across suppliers, show a more equitable distribution in the Federal Government across the supplier range than exists in the national census. The commentary accompanying the Subcommittee recommendations identifies more specifically the intent of the Subcommittee in that it indicates "numerous smaller producers of so-called peripheral equipment might well participate to a larger extent in furnishing the Government's requirements directly." As you know, the Subcommittee Report was followed by a Report of the Comptroller General dated June 24, 1969, "Study of the Acquisition of Peripheral Equipment for Use With Automatic Data Processing Systems." The Comptroller General estimated that if "plug-to-plug" compatible equipment (i.e., directly interchangeable substitutes) were used to replace similar components rented by the Government, the annual savings would be at least $5 million and if such components were purchased the savings would exceed $23 million.

The Comptroller General further estimated that if "non-plug-to-plug" compatible units (i.e., those tape drives for which an alternate source of supply is not available) could be acquired, a savings of approximately $150 million could be made.

The General Accounting Office in their report recognized that the potential savings must be evaluated in light of the costs associated with the combining of the components into a total computer system.

Concurrent with the GAO Report, a fundamental change was taking place in the computer industry. This change was the announcement by the IBM Corporation that some elements of the "software" programs, which cause the interaction of all peripheral and main computer components and regulate their process in responding to a user's application needs, would be separately priced. Prior to this announcement, these products were included in the price of the equipment. This decision was popularly referred to in the press as "unbundling." With

it came some changes in the prices of hardware to accommodate to the increased cost associated with buying the software. The other suppliers did not immediately adopt the IBM practice.

The opportunity to purchase software separately from hardware systems and the existence of a large software industry suggested that software and peripheral equipment had much in common from a procurement point of view. In other words, if there were savings possible in the procurement of peripheral hardware units, savings should also be possible in the procurement of software "packages."

The instances cited in the Comptroller General's Report dealt only with computer installations which had *replaced* components after initial selection and it recognized the difficulty of selecting equipment provided by a wide range of suppliers. If potential problems were serious where only hardware was concerned, greater difficulty would certainly be involved in the selection of interacting hardware and software.

CONFERENCE CONVENED BY BOB

To consider this technological problem and determine courses of action to be taken, the Bureau of the Budget convened a meeting of key Government people involved in the administration, selection and procurement of automatic data processing equipment on September 15–17, 1969. In addition to the Government representatives, the various facets of the industry concerned (i.e., systems suppliers, software suppliers, and peripheral suppliers) were invited to participate in the discussion, listen to a statement of the problem posed to the Government, and present their ideas for solution of the problem. The representatives were selected through trade organizations like the Business Equipment Manufacturers Association and the Association of Independent Software Companies. The representatives of the various industry components who spoke to the Government representatives are listed in an attachment to my testimony.

These representatives discussed the problems facing the Government constructively from the standpoint of their industry. Theirs was a significant contribution to the purposes of the Conference. They were all sympathetic with the approach the Government was taking to resolve the issues and capitalize on the opportunities. They were unanimous in agreement that there was a need for a systems integrator to assure the integration and operation of the principal components of the system. Where they varied was largely in who ought to be the system's integrator and how he should function.

CONFERENCE RECOMMENDATIONS

I would like at this point, Mr. Chairman, to introduce into the record a copy of the Report on the Conference on the Selection and Procurement of Computer Systems, dated September 15–17, 1969. A brief summary of the Conference recommendations is as follows:

1. Separate pricing of the various elements of the computer system may ultimately work toward the benefit of the Government and the Government action should therefore be directed toward capitalizing on the benefits obtainable from this trend.
2. The Federal Government should retain the use of the "systems integrator" concept for the acquisition of the new systems until the implications of deviating from this method are clearly defined and evaluated.
3. Intensive work should begin now to develop appropriate interface standards looking toward the full implementation in the next generation of equipment.
4. Leased peripheral equipment components and systems now installed should be replaced by components available from independent peripheral manufacturers or from other sources, if it is determined that such components are comparable, compatible, reliable, less expensive and can be adequately maintained.
5. A catalog should be developed which would document, for the benefit of all Federal agencies, information about the hardware devices, software packages and related items that are currently available.
6. There is a need to find ways for reducing both the time and cost involved in the selection and procurement process.

COMMENTS ON RECOMMENDATION

Mr. Chairman, with respect to these recommendations, I would like to comment as follows:

Reference Recommendation No. 1.—To respond to the recommendation that the Government capitalize on the benefits of separate pricing, the National Bureau of Standards has prepared a proposal for the development of an interface standard which if found upon careful examination to be acceptable and implementable should respond in part to the problem involving the selection process. The General Services Administration will testify on their progress to date on a special procurement test designed to assemble a system on a component rather than a total system basis.

Reference Recommendation No. 2.—The process involving the system integration concept remains the standard practice and any change in this direction would partly be dependent upon the adequacy of the interface standard and its acceptance by the industry, and the results of the procurement test which the General Services Administration will discuss.

Reference Recommendation No. 3.—I have already referred to the status of the interface standard.

Reference Recommendation No. 4.—With regard to the recommendation on replacement of peripheral components in installed systems, subsequent to the Conference, the Veterans Administration, the Navy Department and the Department of the Air Force instituted programs in collaboration with the General Services Administration to replace certain peripheral components of their installed systems. The Bureau of the Budget issued Bulletin 70–9, a copy of which I would like to offer for the record, which required that GSA use the information in the ADP Management Information System, prepare a listing of all leased components for which there were compatible, reliable substitutes available at lesser costs to determine where substitutions should be made for cost saving reasons.

This action illustrates, as I said I would at the outset of my testimony, where the ADP Management Information System has been used in the handling of a specific decision process. It is through this type of use of an information system that the quality of the system is improved. The Veterans Administration procurement has been completed; the Air Force and the Navy procurements are now in process; and I am sure that GSA, when they testify, will include in their report what we can anticipate.

Another step which we have taken assure the accuracy of the MIS inventory inputs and the relationship of long-range planning data developed therein to the budget process has been by amending Bureau of the Budget Circular No. A–11, subject: "Preparation and Submission of Annual Budget Estimates" to require the projects and plans represented by the ADPE/MIS to be carried over to the budget process. This should improve the accuracy of the projections used in both processes. Other actions have been taken or are in process to improve the quality of the data in the ADP management information system.

Mr. Chairman, this concludes my prepared statement.

NBS RESOURCES INADEQUATE

Mr. INK. You were raising earlier the question of the adequacy of the budget request and the resources in the Bureau of Standards dealing with the computer standardization problems, and I would also agree that the resources are not adequate, have not been adequate.

NBS APPROPRIATION CUT FOR ADP WORK

I would suggest that there is one other part of the equation which also needs to be considered here, and that is the appropriation side of it. According to my information, the last several years the congressional appropriation action has actually cut the dollars that have been requested in the ADP area for the Bureau of Standards, and we have these figures which we can also make available to the committee.

Last year, for example, the request was for not quite $2.2 million, and the appropriation was $1.8 million, and the same pattern was true before. It had nothing to do with political problems. There didn't seem to be any different pattern under one party than the other.

We would agree that there is need, and I was delighted with the committee's interest here as the Commerce Department, as has already been indicated, is taking a harder look, and it may be that we can come up with a better justification than we have in the past.

JUSTIFICATION FOR FUNDS FOR INTERFACE

Chairman PROXMIRE. Have you ever come in with a justification which pointed out if you could get more manpower concentrated in the interface capability area that you could save an enormous sum, tens of millions of dollars?

Mr. CUNNINGHAM. I believe the Commerce presentations do point out the area in which the moneys were needed for achieving economies in other sections of the Government.

Chairman PROXMIRE. But on this specific point did they come in and argue that they were only able to apply a half a man-year and they needed more for this?

Mr. INK. I can't answer that, Mr. Chairman, but as I indicated I would be surprised if we can't improve upon the justification.

Chairman PROXMIRE. Well, I would think so because the Department of Commerce man, Mr. Nigro testified, that they didn't ask for it. My question was going to be why doesn't the Bureau of the Budget, when you can see a great saving with a small investment, ask for that investment of manpower and follow up to see that it is applied for and granted.

Mr. INK. Yes, sir, we will do that.

TOTAL EXPENDITURES FOR ADPE

Chairman PROXMIRE. How much is being spent annually for automatic data processing equipment purchases and rentals for all Government agencies. Can you be more specific than the $4 to $6 billion estimate that we have so far.

Mr. CUNNINGHAM. Yes, sir.

$1.9 BILLION SPENT FOR ADPE IN GOVERNMENT INVENTORY

The total cost of operation of the ADPE in the Government inventory is $1.9 billion a year. That includes rentals, purchase, capital funds that are expended for purchases and the payment of individuals' salaries who work with computers and with other forms of automatic data processing equipment, such as punch card equipment.

COMMUNICATIONS ADPE, ETC., NOT INCLUDED IN INVENTORY

This does not include the cost of computer operation that is intricately involved in other operations such as communications systems where a computer regulates the operation of the communication line. It is a part of a total process and we don't attempt to break the costs of that operation out. But the project itself is costed.

Chairman PROXMIRE. Why wouldn't it be useful to break that out.

Mr. CUNNINGHAM. If you do break it out, you do it statistically. It is almost impossible to walk into a communications center, for example, and determine which portion thereof is the computer and which

portion is communications, which portion of costs and personnel are attributable to each.

Chairman PROXMIRE. Shouldn't you know what you bought?

Mr. CUNNINGHAM. We do know, we know what we bought. It is included in the inventory of the equipment.

COSTING ADPE IN SYSTEMS

Chairman PROXMIRE. Why can't you cost it on an annual basis?

Mr. CUNNINGHAM. It is costed in the inventory, yes, sir, but it is not costed on an annual operating basis.

Chairman PROXMIRE. Why not?

Mr. CUNNINGHAM. For the reason that the operating costs is tied in with the complete function.

Mr. INK. What you are saying is that the operating cost is so enmeshed with the overall operation of that technical operation that although it is not impossible to come up with costs, it is certainly difficult and time consuming to get reliable costs with respect to that portion of the operations that relates to the——

OVERALL COSTS OF ADPE

Chairman PROXMIRE. Certainly if the Congress is to adopt intelligent policies in this area and particularly if the Budget Bureau is going to do so they should have some idea whether they are spending $4, $5, or $6 billion in the computer area.

Mr. CUNNINGHAM. I think we do.

Chairman PROXMIRE. Which is it?

Mr. CUNNINGHAM. The cost is $1.9 billion.

Chairman PROXMIRE. Yes, but what is the total cost, however?

BOB PUTS TOTAL ADPE COST—$2.19 BILLION

Mr. CUNNINGHAM. I don't have the total cost with me but I can put it together for you.

Chairman PROXMIRE. Will you for the record?

Mr. CUNNINGHAM. Yes, sir.

(The following information was subsequently supplied for the record by the Office of Management and Budget:)

The total cost is made up of the $1.937 billion, plus $29 million in rental, $39 million for purchases and an extrapolation of $185 million in personnel, support and services for the exempt categories. This makes the total cost $2.19 billion for FY-69.

Representative BROWN. If you will yield for a clarifying question about salaries. Are you talking about the salaries of personnel from private firms who help in the installation of this equipment or are you speaking of salaries for Government employees who operate the equipment?

Mr. CUNNINGHAM. Salary for the operation of the equipment.

Representative BROWN. By Government employees?

Mr. CUNNINGHAM. By Government employees or by contractors where contractors operate the equipment for us.

Representative BROWN. Thank you.

INVENTORY REPORT FILED WITH COMMITTEE

Mr. INK. The personnel is on the operating side and, Mr. Chairman, we would be happy to provide the committee with a copy of the inventory which does break these costs out for you not only in total but by agency, and for each of the last 3 years.[1]

RELIABILITY OF ADPE COSTS

Chairman PROXMIRE. Are you quite confident of this $6 billion upper limit? Would you rule out the possibility that it could be up as high as $10 billion spent in ADPE?

Mr. CUNNINGHAM. If, in addition to our definition of ADPE, you add computers used for any purpose both by the Government and the contractors I certainly would agree.

Mr. Ink mentioned, as one of the items of cost the Comptroller General apparently included in his figure, the grant program. There are many instances in which the Government makes a grant to a university for various and sundry purposes associated with computer use. When a university acquires a computer it is used in the educational process and/or the administration of the university. Such computers are university property and are not included in our inventory. As a matter of fact, the extension beyond the kind of computers currently included in our inventory was written out of the original Public Law 89–306.

Chairman PROXMIRE. I am not sure I follow. If you procure a computer for MIT, for example, to be used at MIT in connection with some Government work and they use it for educational work you don't——

Mr. CUNNINGHAM. No; if we procure the computer it is required to be in the Government inventory. If we make a grant to the university to help them——

Charman PROXMIRE. And in the process of a contract they procure the computer.

GOVERNMENT-OWNED ADPE ONLY INCLUDED IN INVENTORY

Mr. INK. Yes; the Government-owned equipment, Government-owned computers, are in the inventory.

Chairman PROXMIRE. You have given me the figure on that, as I understand it, the annual cost of $1.9 billion.

Mr. CUNNINGHAM. Yes.

Mr. INK. But he is talking, for example, about a grant going to a university or to a city or to a State which may be for the purpose of carrying out an urban renewal program. They may use a computer in the process of carrying that out and there may be computer costs. It is not a Government-owned computer, and we do not have a system for reporting in the value of that equipment or the operating costs.

85 PERCENT OF ADPE COSTS FOR DOD, AEC AND SPACE

Chairman PROXMIRE. How much of the total outlays for ADP can be attributed to DOD, AEC, and Space?

[1] A copy of the inventory may be found in the committee room files.

Mr. CUNNINGHAM. That is in the inventory and it is about 85 percent.

Chairman PROXMIRE. How much for DOD, 62 percent?

Mr. CUNNINGHAM. That is approximate.

Chairman PROXMIRE. Would that be correct for the costs, too?

Mr. CUNNINGHAM. Yes, sir.

Mr. INK. Again that is in the listing.

Chairman PROXMIRE. How much again for Atomic Energy?

Mr. INK. It is $156 million out of that total.

Chairman PROXMIRE. Then how much for Space?

Mr. INK. By coincidence $158 million.

Chairman PROXMIRE. So it is more for Space than Atomic Energy; you have got the figures the other way.

ADPE INCLUDED AND OMITTED FROM DOD FIGURES

What types of ADPE are covered and what types are not covered in your figures for the Department of Defense?

Mr. CUNNINGHAM. In the inventory figures all general-purpose ADPE of the type we are discussing are included.

The cost figures do not include operating costs where a computer is used in the integral operation of communications systems, control systems, and so forth.

WEAPONS' SYSTEMS ADPE NOT INCLUDED

Chairman PROXMIRE. For example, each P–3 aircraft used by the Navy for antisubmarine warfare has the equivalent of a general-purpose computer. Are the costs of this computer included in your costs of DOD?

Mr. CUNNINGHAM. No, sir.

GENERAL-PURPOSE ADPE ON SHIPS ARE INCLUDED

Chairman PROXMIRE. How about ADPE for ships and aircraft?

Mr. CUNNINGHAM. ADPE of the general-purpose category on ships is included in the inventory. The computer that you mentioned I am not familiar with. It may be similar to some kind of a general-purpose-type computer, but it is built for a specific function, and those computers are a part of the aircraft program, not a part of the ADPE management program.

Chairman PROXMIRE. Why not?

Mr. CUNNINGHAM. There is little or no utility for it once you take it away from the basic purpose for which it is used. We have tried over a period of years and there are studies on the record to determine the economics of applying equipment designed for a particular military purpose to a nonmilitary use and the economic factors make it impractical.

Chairman PROXMIRE. I am not worried about that. You see, what concerns me is I want to know how much we are paying for computers. You keep telling us about general-purpose computers. I want to know if you are including the computers that are used for defense, military purposes.

MILITARY PROCESS COMPUTERS OMITTED

Mr. CUNNINGHAM. I am not including computers designed for military process.

Chairman PROXMIRE. Then it could be as high as $10 billion if we include all of the computers, couldn't it, including military purposes?

Mr. CUNNINGHAM. I would hesitate to make a guess.

Chairman PROXMIRE. You just don't know.

Mr. CUNNINGHAM. That is correct.

Chairman PROXMIRE. But you wouldn't say it wouldn't be that high, you wouldn't deny it, you just cannot estimate it?

Mr. CUNNINGHAM. With the current cost of aircraft, I wouldn't quarrel with it, no, not from that point of view.

Chairman PROXMIRE. So the figures you have given us do not relate to the operational computers used for military purposes by aircraft, and for many other purposes by the military?

Mr. CUNNINGHAM. In a physical weapon, yes.

Chairman PROXMIRE. In a physical weapon.

Mr. CUNNINGHAM. On the other hand, where we use ADPE or the general-purpose type in the control of forces such as in the command post such computers are included in the inventory. If the command post went out of business or if it were upgraded it would be perfectly possible for DOD or GSA to take that computer, possibly with some difficulty but no major problem, and apply it to another Government requirement.

Chairman PROXMIRE. Is there no place we can—I suppose we can with the Defense Department when they come up this afternoon, but wouldn't the Bureau of the Budget have any notion, any feeling of responsibility for finding out how much we are spending?

Mr. CUNNINGHAM. The Defense Department may have some figures on computers that are in the military systems. The fact that they are not automatic data processing equipment, the fact they are not interchangeable, the fact we can't do anything else with them, while they are in the weapon, and it is very difficult to find anything to do with them when they come out of the weapon, has kept them excluded from any consideration in the general category of ADPE.

Mr. INK. There is no sharing potential. The utilization is buried, is a part of a factor of the utilization of the weapons system itself.

Chairman PROXMIRE. How about the computers on a spaceship like the Apollo program?

Mr. INK. That would not be included.

Mr. CUNNINGHAM. That is right.

Chairman PROXMIRE. But would it be included or excluded—you say the same.

Mr. INK. It would be excluded.

Chairman PROXMIRE. The same as on an aircraft.

Mr. INK. I am in error.

Mr. CUNNINGHAM. It would be excluded.

Mr. INK. No; he said, equipment in the Apollo would be excluded, that is right.

Chairman PROXMIRE. Well, now do you have any idea how much is involved in those kinds of computers?

Mr. INK. No, I don't.

Chairman PROXMIRE. Atomic Energy Commission, are there any similar operational computers that are not general purpose that would be also outside of your inventory?

Mr. CUNNINGHAM. I don't know of any in the Atomic Energy Commission. There are computers associated with the various atomic energy devices such as bevatrons, acceletrons, and so forth. They are included in the inventory because in an entirely different environment, they can be used in general-purpose computers.

Chairman PROXMIRE. So you can't really tell us what the Government is spending for computers. You don't know, and if you don't know I guess nobody knows. You are the only ones who would have the overall view.

Mr. INK. Yes, sir; we do not have a figure on those operational, the computers that are part of those operational systems.

Now, I want to make one thing clear, with respect to NASA, the computers that are on the ground, that are involved in the tracking and all that sort of thing are, of course, included in the inventory and what you are talking about is just what is in the Apollo spaceship itself. That is the only thing that is excluded which, I think, is an extremely small part of the NASA inventory. With respect to the Defense Department——

Chairman PROXMIRE. No. Those spaceships are fantastically expensive and I am sure in the military part of it, I am not sure, I would speculate, it might be a great deal more.

Mr. INK. I think that is correct, Mr. Chairman. I think on the military side——

Chairman PROXMIRE. It is excluded.

Mr. INK (continuing). This would represent a much more sizable grouping.

Chairman PROXMIRE. My time is up.

Mr. Brown?

HISTORY OF GOVERNMENT PARTICIPATION IN USE OF ADPE

Representative BROWN. Mr. Ink, I am interested in the history of Government use of computers. When were the first automatic data processing computers purchased by the Government or when did we start in the program of computerizing for the Government?

Mr. CUNNINGHAM. In 1951 the first computer was delivered to the Census Bureau.

Mr. INK. Some of the early computers were actually built in Government laboratories.

Representative BROWN. By Government personnel?

Mr. INK. More often many of them by contractor personnel in Government-owned and Government-operated facilities, such as the weapons area. The Atomic Energy Commission, for example, has what we call the GOCO kind of operation, but solely at Government expense.

Representative BROWN. When did the acquisition or purchase of computers begin in earnest, when did it really pick up?

Mr. INK. Well, it moved along gradually increasing in the late 1950's.

Representative BROWN. Do you have a list or a figure of annual ex-expenditures?

GROWTH IN USE OF COMPUTERS

Mr. INK. We have a table which again is in this inventory we are providing to the committee that shows the growth and number of computers, and in 1959, it goes back to 1959, it shows 403 at that time.

Representative BROWN. So 1959 we had 403 computers. Do you have a figure, a cost figure?

Mr. INK. I had better go to 1960 then because that is the first year that this table shows the cost—1960, 581 computers, and the cost as $541 million.

Representative BROWN. I want to be sure I know what we are talking about.

Mr. INK. Yes, sir.

Representative BROWN. Is that 581 computers purchased that year, or is that 581 computers in inventory?

Mr. INK. No, sir; that is the number in inventory.

Representative BROWN. Is the $541 million the expenditure that year or the value of the inventory?

Mr. INK. Well, that is the expenditures for that year.

Representative BROWN. For that year?

Mr. INK. Yes, sir.

Representative BROWN. This will be helpful. Go ahead.

Mr. INK. And then that increased in a relatively steady growth until 1969 which are the last full figures, we have the number of 4,666 computers.

Representative BROWN. What about the growth in expenditures, annual expenditures?

Mr. INK. In 1969, the same year, $1,938 million.

Representative BROWN. Can you give me 1963 and 1966, just to give me some other figures?

Mr. INK. In 1963, first, with respect to numbers of computers, 1,326, and in 1966 the numbers were 3,007. With respect to total costs 1963, the table shows $785 million, and 1966 shows $1,284 million. You can see from the chart when it is charted out, it is a relatively even increase over that period.

Representative BROWN. The figures which you give about the distribution of the Federal inventory according to supplier fascinate me. IBM supplied 28.1 percent of all Government computers, but supplied 57.7 percent of all computers nationally.

Mr. CUNNINGHAM. That is what IBM supplied out of the national census.

Mr. INK. Yes; in other words, of those in the inventory, this is correct.

Representative BROWN. What inventory are we talking about? Are we talking about the inventory of computers in the various departments exclusive of these other categories such as the aircraft and the ship computers and so forth?

Mr. INK. Exclusive of those operational systems, that is right, and that matches up with the totals that are in this document.

Representative BROWN. But the 1969 total of 4,666 computers, is that a total——

Mr. CUNNINGHAM. That is a hundred percent of the Federal inventory, sir.

Mr. INK. Exactly.

Mr. CUNNINGHAM. The hundred percent equals the 4,666 computers.

Mr. INK. Of those in the Federal inventory this includes all of them. It doesn't include the operational systems we were talking about earlier which are not included in these figures.

Representative BROWN. What about the classified systems?

Mr. INK. They are included.

Representative BROWN. They are included.

Mr. INK. Yes, sir.

Representative BROWN. You say the operational systems, that is the term you are using for——

Mr. CUNNINGHAM. That is an introduction——

Representative BROWN. Does it include the mobile systems?

Mr. CUNNINGHAM. Yes; this includes the mobile systems.

Representative BROWN. So this is the total of all the computers purchased by the Federal Government and in inventory, is that correct?

Mr. CUNNINGHAM. Except for those computers installed physically in missiles and weapons and in things such as the Apollo spaceship that are designed into that system.

Representative BROWN. Aircraft?

Mr. CUNNINGHAM. Aircraft, yes. It is not included.

Representative BROWN. It is not included, and you have no idea how much those are?

Mr. CUNNINGHAM. The Defense Department had a figure on that, Mr. Brown, but I don't recall what it is.

Representative BROWN. Do you have any indication of where those came from by supplier?

Mr. CUNNINGHAM. No.

SUPPLIERS OF ADPE TO THE GOVERNMENT

Representative BROWN. Do you have any indication whether the Federal Government inventory by supplier has evened out in recent years?

Mr. CUNNINGHAM. It has changed dramatically over the past 6 years.

Representative BROWN. Could you give me some idea of what the inventory was back in 1960, 1963, and 1966?

Mr. CUNNINGHAM. Yes.

Representative BROWN. As to suppliers.

Mr. CUNNINGHAM. I will have to pick ours because the ones I picked——

Representative BROWN. Pick your own year and give me the figures slow enough so I can jot them down.

Mr. CUNNINGHAM. In 1962, IBM supplied 66 percent of the Federal inventory. Do you want all of them? I can leave a copy of this with you if you want or I am perfectly willing——

Representative BROWN. What did Univac supply, as I believe Univac was the other leading supplier?

Mr. CUNNINGHAM. Univac supplied 6.3 percent.

Representative BROWN. What was your next largest supplier after IBM?

Mr. CUNNINGHAM. Univac.

Representative BROWN. Do you have another year?

Mr. CUNNINGHAM. 1966, 34 percent.

Representative BROWN. 1966, do you want to give me 1966?

Mr. CUNNINGHAM. All right, IBM supplied 34 percent.

Representative BROWN. That is the total inventory?

Mr. CUNNINGHAM. That is of our total inventory then.

Representative BROWN. And the next largest supplier?

Mr. CUNNINGHAM. Univac 19.8 percent.

Representative BROWN. It occurs to me that the National Census may have changed in that time.

Mr. CUNNINGHAM. Dramatically.

Representative BROWN. Is that the case?

Mr. CUNNINGHAM. It has changed dramatically. Both in numbers, it has increased at a much greater rate than our numbers, I don't have the figures again.

Representative BROWN. I am interested in the supplier source.

Mr. CUNNINGHAM. I would have to look this up—it has changed downward but not to the same degree.

Representative BROWN. I don't know what you mean by changed downward.

Mr. CUNNINGHAM. It has changed in the sense that one company supplies a large percentage of the national inventory.

Representative BROWN. Larger now than formerly?

Mr. CUNNINGHAM. No, smaller now than formerly in the national inventory. You have to, if I may, realize that it was not until maybe 1956 that more than two companies were in the general purpose computer business, coming in.

Representative BROWN. Let's be specific. Are you suggesting that prior to 1956 IBM had a large portion of the market? Is that right?

Mr. CUNNINGHAM. I think it is the other way around. Prior to 1956 Univac had the largest portion.

Representative BROWN. I see.

Mr. CUNNINGHAM. Let me answer your question, if I may, in another way. The earlier computers were delivered by what is now the Univac Division of Sperry Rand. IBM, to my recollection, did not announce its first computer until 1952 or 1953, and by 1955 or 1956, IBM had a dominant position in the market.

Representative BROWN. Do you suppose that they were producing more or less than 66 percent nationally?

Mr. CUNNINGHAM. Nationally, I would presume more.

Representative BROWN. My line of questioning is stimulated because of the number of computers the Government has available in relation to the number of Government commissions. I seem to recall that over the 8 years previous to the 1968 election about every time we created a Government commission Mr. Tom Watson of IBM was named to that commission. I find it very curious that the number of IBM computers seems to have some kind of a correlation with the number of times Mr. Watson was named to a commission. I don't know whether it is a quid pro quo for his public service or not, but I would like to inquire about the political contributions made in that same general connection. It seems to me that there is a specific connection between those interests and maybe we can pursue that further.

Mr. INK. I do think it is a significant though that at the present time their percentage of the Federal market is very significantly smaller than the percentage in the national market.

Representative BROWN. When did it start to get smaller? My time is up.

Mr. INK. I can't tell you.

Mr. CUNNINGHAM. It started down in 1964. They were at their crest in 1962, sir.

Chairman PROXMIRE. Congresswoman Griffiths?

IMPACT OF DELAY ON INTERFACE PROBLEM

Representative GRIFFITHS. I would be interested also. Every day that the Bureau of Standards delays on the interface question aids IBM, doesn't it?

Mr. INK. Well, of course, IBM has come out with a separate pricing, but I would agree that the competition, our need for getting more competition, is dependent, in part, upon the interface standards program moving forward and I would certainly agree, Mrs. Griffiths, that it ought to move forward and more rapidly than it is.

Representative GRIFFITHS. As a matter of fact, had you ever checked—I understand that it is geared now not to objectivity, but to IBM.

Mr. INK. I was not aware of that.

Representative GRIFFITHS. Well, maybe you ought to check, if that is within your realm. They are not really studying how you can put these parts in, but how you can put IBM parts in.

Mr. INK. I have the impression that the study effort was directed toward how to get more competition and interface which would permit competition.

Representative GRIFFITHS. That is what we wanted it to do.

The figures that you were giving Congressman Brown were the hardware costs, weren't they? You didn't include software in that figure.

Mr. CUNNINGHAM. No, that includes that total cost, operating expenditures for that year includes hardware, software.

Representative GRIFFITHS. It does?

Mr. CUNNINGHAM. It does. It included our own programing costs.

Mr. INK. And, Mrs. Griffiths, at the top of the legend here you will see the breakdown that he is referring to.

Representative GRIFFITHS. I see.

RECORDS KEPT BY SUBCONTRACTORS VERSUS PRIME CONTRACTORS

Did you hear the questions that we just asked the last group that was here? Are you aware that subcontractors must keep 100-percent detailed records of reporting to prime contractors, or inventory issued to or owned by the Government? 100-percent records? And yet, the last people who testified pointed out that the prime contractors really didn't want to keep records, real detailed records, on the inventory owned by the Government. Don't you think that you could correct this?

You see the primes have real good sense. I mean they are in the business to make money, so they want to know exactly what we are issuing to subcontractors because they are going to move the prices down.

Mr. CUNNINGHAM. You are speaking there, Mrs. Griffiths, about all kinds of equipment.

Representative GRIFFITHS. Yes.

Mr. CUNNINGHAM. Well, there have been, I am not competent to comment on them, but there have been changes made in the OEP regulations and in defense regulations, and I am sure that the defense people would be able to tell you about it. I can tell you though with respect to that group of questioning that we do have an inventory of ADPE that we provide to contractors or which they own that is used exclusively for the benefit of the Government and the figure is in the order of magnitude of 850 out of that 4,666 computers.

Representative GRIFFITHS. Couldn't we set up one of these computers to keep check on the computers?

Mr. CUNNINGHAM. Well, I think in a sense that is what the information system we put in with GSA has done. The GSA computer is used to evaluate, as Mr. Ink testified, to identify those areas in which we could replace installed equipment at a lower cost.

Mr. INK. I assume this inventory is a computer printout, Mrs. Griffiths, so I think your comment——

Representative GRIFFITHS. That is one of 1 million sheets.

Mr. INK. So I think you are very perceptive. We haven't come to that million yet.

USE OF BREAKOUT IDEA FOR OTHER EQUIPMENT PURCHASES

Representative GRIFFITHS. May I ask you also, since we have found that you really can save money by having the Government buy these parts of a computer separately from the whole, have you ever considered how much money we might save if we applied this to the Defense Department, for instance, in airplanes, and any big piece of equipment?

Mr. INK. Well, yes; and that is a very legitimate but also very difficult question. Just as here, one of the offsets, and that is part of the study and part of the experience we have to gain, is the amount, the price we pay for integrating, that is when you do go to a manufacturer for a package system, of course, he provides the service in terms of integrating.

Now, I agree with you that in most instances that is more than offset through competition by, one, the greater selectivity you can have with respect to the components that you really need, whereas in a package you may be purchasing things that are part of the package and that you really don't need.

Second, I am a great believer in competition and competition does, I think, tend to drive costs down.

LACK OF IN-HOUSE CAPABILITY IN GOVERNMENT

But the problem of integrating is a tremendously complex management undertaking when you are talking about these large systems, and I think that in a good many instances we don't have really the in-house capability that we perhaps ought to have in this kind of integration.

In the case of Admiral Rickover's program you have a great deal of very strong in-house capability to tie together whatever needs to be tied together.

In some areas, in my judgment, we have not really retained the kind of strength and the kind of management capacity to fully take advantage of the potential of competition that I think is there, I think industry can afford, if we are able to take advantage of it.

Representative GRIFFITHS. I would like to thank you for the answer. That is really as good an answer as I have received, and I have been sitting here 16 years with a bill in this Congress that would require all subs to tell the prime and up through the subs the costs, and then the prime can give to the Government the price they pay to subs down to the last one. For three administrations I have been told that it would be humanly impossible to do it.

NEED TO KNOW ITEM COSTS

Now, of course, I know it isn't, and with all these computers it certainly isn't. I was told in World War II that the auto companies beat the Government on this business of integrating the purchases. They just couldn't make the line run. Of course, that is silly; they could have done it. But people didn't want to do it. They could have acquired that skill. We really ought to be able to acquire the skill in these purchasing departments to know the cost of every single item, and put them together so that we can reduce the prices we are paying. I hope you dedicate the whole new department of which you are a part to seeing to it that we do it.

I think you really gave the best answer I have had in the 16 years I have been sitting here.

Thank you.

Chairman PROXMIRE. In the prepared statement you speak of developing an interface standard. Is it developed by the Government, examined by the Government, is the determination as to whether it is possible to implement it made by the Government?

Mr. CUNNINGHAM. As Mr. Ink testified, Senator, we had a meeting of Government people to try to pull together the problem of how to handle procurement in, let's say, the environment that we now have. That group looked at the problem and said, "You now have certain kinds of equipment installed. There is nothing you can do with that. So put some speed into developing a standard which we can hope the industry will follow in the newer announcements of computers to come."

Chairman PROXMIRE. You see what I am getting at is the role of the industry, the role of the private parties here. Are these decisions dependent upon the views of private industry representatives serving on committees. Do, for instance, the private parties through organizations such as ASI, or USASI have a practical or effective veto over what the Department of Commerce has?

POSSIBLE FOOT-DRAGGING ON INTERFACE STANDARDS

Mr. CUNNINGHAM. No, I don't think they have with respect to Government procurement. But they may footdrag as seems to be the case in trying to get a standard interface through the standards program.

But if we specify it, if we can design something that is workable, and specify it, I am sure that they will support it. Now those that don't support it——

Mr. INK. The problem here, Mr. Chairman, is getting standards which are workable and realistic, which requires industrial input because of their background, because of their experience. We can come up with standards, in effect, by edict insofar as Government procurement is concerned, but we don't want to come up with standards for the sake of standards. We want to come up with standards that are workable.

If we come up with standards that are unrealistic and unworkable, we could actually lose——

INFLUENCE OF INDUSTRY IN MAKING STANDARDS

Chairman PROXMIRE. But that determination ought to be made by you. You see what concerns me there is obviously, as Mrs. Griffiths very skillfully brought out, I thought, a vested interest by the big, very powerful and influential firms in the field to prevent this cost-reducing competition. They are doing mighty well under present circumstances, and if competition gets tough and drives down the cost to the Government their profits are going to diminish.

So they have a real vested interest in exercising their position to drag their feet as long as they can.

We are familiar with this particularly in the housing area, where you have the same kind of footdragging with regard to codes and getting the industry to accept codes which are in the public interest and will do the job and provide the safety, and so forth, and do so at minimum cost. But the vested interests have been very effective in that area. They have almost paralyzed the housing industry, and we are very much concerned, I am concerned, maybe the same kind of thing is happening here.

At any rate, Mr. Cunningham and you, Mr. Ink, are telling us that the determination is made by the Department of Commerce, that you consult but they have no practical veto whatsoever, is that right?

PRIVATE INDUSTRY HAS NO VETO

Mr. CUNNINGHAM. Private industry has no veto.

Mr. INK. Yes.

Mr. CUNNINGHAM. As a matter of fact, we have one standard, we have a set of three standards approved in——

Chairman PROXMIRE. How about USASI, do they have a veto?

Mr. CUNNINGHAM. As now called the American National Standards Institute, Dr. Branscomb, Director of NBS, is on the board of ANSI, members of the Department of Defense, GSA and NBS are on the committee that builds standardization into the computer field. The report to which Mr. Ink referred said it looks like they are going too slow, and the report recommended that NBS embark on a well publicized program to develop a standard.

Chairman PROXMIRE. How long have they taken?

Mr. CUNNINGHAM. I think that I heard from Comptroller General Staats that ANSI started in 1966 and they have made very little progress.

Chairman PROXMIRE. Well that is the point.

Mr. CUNNINGHAM. That is why I would like to point out——

GOVERNMENT KNOW-HOW IN MAKING STANDARDS

Chairman PROXMIRE. Why doesn't the Government have the know-how to make these standards. I can see why you would want as much information as you can get from the industry, they have a right to come in and testify and give you any kind of opinion they may have, but I would think the Government should have the know-how there and you just ought to say "we are going to go ahead in 3 months" or 6 months or a reasonably limited period.

DEPENDENCE ON EXTERNAL IDEAS BY NBS

Mr. INK. Mr. Chairman, I am afraid on this one I would like to defer to the National Bureau of Standards with respect to the technicalities that are involved, but I would hope though, I would share your concern, that we do need more strength in the Bureau of Standards and I think with stronger resources that they would be in a position to move forward more rapidly and be less dependent upon external ideas.

Chairman PROXMIRE. I am very concerned about the lack of some kind of comprehensive overall control or knowledge at least of the computers that are used throughout the Government because we are moving more and more into an area where the weapons are becoming computers. The ABM, the computer cost of that is very large; the electronic battlefield on which we have already expended $2 billion without an authorization and we expect to expend $20 billion, is very largely an electronic operation.

This subcommittee has been responsible for exposing a number of enormous overruns and again and again we are reminded of the fact that the overruns are often largely the result of electronic devices.

The Stubbings report which you recall—Mr. Stubbings is in your organization.

Mr. INK. Yes, sir.

NEED FOR COMPUTER COSTS AND ANALYSES

Chairman PROXMIRE. Made a very devastating indictment, I thought, of the electronic weapons systems throughout the 1960's, found they were 100 to 200 percent in overrun, and it seems to me that somehow we have lost control of our computer investment and we don't seem to have any kind of effective economic analysis as to whether it is wise to rely as much as we are relying and move as much as we have into the computer area.

The costs are great, and the returns don't seem to be satisfactory, and again and again these weapons not only cost a lot more, they just aren't performing well.

As Mr. Stubbings pointed out in his report, of the 11 major weapons systems, electronic systems, procured at a cost of $40 billion in the first part of the 1960's, they performed, only two of the 11 major weapons systems performed, up to standard, and six or a majority performed, met less than 25 percent of their standard specifications.

Now it would seem to me that the Bureau of the Budget would have a real reason for at least getting for us the rudimentary figures, as to how much we are putting into computers overall and then be

able to proceed to an economic analysis as to whether the investment is wise.

Mr. INK. Well, Mr. Chairman, the Bureau of the Budget has a very sizable portion of that, of course, is included in inventory. But we have discussed at the hearing there is also a significant portion which is not included.

Chairman PROXMIRE. It sounds as if less than half is included.

ROLE OF OFFICE OF MANAGEMENT AND BUDGET (OMB)

Mr. INK. Mr. Chairman, as we move from the Bureau of the Budget to the Office of Management and Budget we will get back to the committee with respect to our views on this.

Chairman PROXMIRE. I am reminded that this is one of the reasons why the military spending is out of control is because the Bureau of the Budget just has not been looking at this.

Mr. INK. Mr. Chairman, as you know, the role of the Bureau was different last year than it has been heretofore, and I am sure there will be further changes.

GOVERNMENT EQUITY IN ADPE

Chairman PROXMIRE. Who keeps account of the Government equity in this ADPE?

Mr. CUNNINGHAM. General Services Administration.

Chairman PROXMIRE. I see. And they would be in the position or could you tell us how much by years the Government has paid in rentals for ADPE?

Mr. CUNNINGHAM. It is included in the inventory report.

Chairman PROXMIRE. Included in that.

POTENTIAL SAVINGS FROM INTERFACE STANDARDS

Do you agree, Mr. Ink, with the estimates by Mr. Staats that the potential savings involved in the interface capability point that he made?

Mr. INK. Yes, sir; we do agree that there are——

Mr. PROXMIRE. Tens of millions of dollars?

Mr. INK. The studies and the experience will enable us to pinpoint it further, but we are in full agreement this is desirable and will save money.

Chairman PROXMIRE. Mr. Brown?

NATIONAL CENSUS OF ADPE BY SELECTED YEARS

Representative BROWN. Would it be possible for you to give me the national inventory or national census figures for the years 1962 and 1966 or get them for me?

Mr. CUNNINGHAM. We will get them for you and send them to you; yes, sir.

Representative BROWN. Also I would like to have a copy of that inventory.

Does the information on the rental program indicate the company involved in the rental arrangement?

Mr. CUNNINGHAM. Well, not in the actual amount of funds paid to the company which is not included in here. We know that from the GSA report on obligations against schedules, which is a large portion of our total payments to companies and if you want it by——

Representative BROWN. I would like to have that information.

It strikes me as interesting that in 1962, 66 percent of the computers in the inventory were with IBM or were IBM equipment, and that the national census now is 57.7 percent, and if I understand what has happened the 1962 national census would indicate that not that many were then IBM.

Mr. CUNNINGHAM. No, sir; it would be a lot higher. IBM about 1962 had in the vicinity of 75 to 80 percent of the national market.

Representative BROWN. Of the national market?

Mr. CUNNINGHAM. Of the national market. They had about 66 percent of our market. These are order of magnitude figures.

Representative BROWN. Can you give me some indication of the rental arrangements at that time?

Mr. CUNNINGHAM. By dollars you mean?

Representative BROWN. By dollars.

Mr. CUNNINGHAM. Or the manner——

Representative BROWN. By numbers of contracts, anything that is available.

Mr. CUNNINGHAM. Yes, sir.

(The following information was subsequently supplied for the record by the Office of Management and Budget:)

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF MANAGEMENT AND BUDGET,
Washington, D.C.

Hon. GEORGE E. BROWN, JR.,
House of Representatives,
Washington, D.C.

DEAR MR. BROWN: At the Joint Economic Committee hearings on July 1, 1970, you asked for tables showing the distribution of automatic data processing systems produced by U.S. manufacturers. Those tables are attached—one a numerical, the other a percentage distribution, by supplier and by year. Also enclosed are comparable data for the Federal inventory.

A problem we have been unable to resolve is finding a source of industrywide statistics that is both stable and reliable. Hence, the attached shows three sources for the national figures; the differences between 1968 and 1969 data are presumably attributable to the differences in the methods of the two sources.

If you have any further questions in this area, please feel free to contact me or Joe Cunningham, Chief, ADP Management Staff, telephone 395–4960.

Sincerely,

DWIGHT A. INK,
Assistant Director.

NATIONAL CENSUS OF ADP EQUIPMENT—DISTRIBUTION BY SUPPLIERS

	1960	1962	1964	1966	1968	June 1969
U.S. total	4,683	13,177	23,497	34,362	60,360	61,977
IBM	2,927	9,341	14,076	19,813	37,700	35,811
Non-IBM subtotal	1,756	3,836	9,421	14,549	22,660	26,166
Burroughs	163	241	747	1,113	1,370	1,542
Control Data Corp	30	259	864	1,441	2,107	1,885
Digital Equipment Corp	0	0	188	587	2,611	9,707
General Electric	9	130	277	787	1,600	1,230
Honeywell	10	104	375	1,115	2,740	3,219
National Cash Register	43	394	1,057	2,046	3,254	2,934
RCA	46	244	645	881	1,190	1,293
Scientific Data Systems	0	0	183	495	980	1,095
Univac	467	663	2,859	4,293	5,340	4,344
Other	988	1,801	2,226	1,791	1,458	3,917
Federal total	531	1,030	1,862	3,007	4,232	4,666
IBM	272	682	990	1,032	1,200	1,311
Non-IBM	259	348	872	1,975	3,032	3,355
Percent Federal to total	11.3	7.81	7.92	8.75	7.01	7.52

Source: Federal data from annual inventory of ADP equipment; national data: 1960–62 from "Introduction to Automatic Computers," by Ned Chapin; 1964–68 from "Computers and Automation" magazine; 1969 from Diebold census, published by ADP Newsletter.

NATIONAL CENSUS OF ADP EQUIPMENT—DISTRIBUTION BY SUPPLIERS

[Percentages]

	1960	1962	1964	1966	1968	1969
U.S. total	100.0	100.0	100.0	100.0	100.0	100.0
IBM	62.5	70.8	59.9	57.6	62.4	57.7
Non-IBM sub	37.5	29.2	40.1	42.4	37.6	42.3
Burroughs	3.4	1.8	3.1	3.2	2.2	2.4
Control Data	.6	1.9	3.6	4.1	3.4	3.0
Digital Equipment Corp	0	0	.8	1.7	4.3	7.5
General Electric	.2	.9	1.1	2.2	2.6	1.9
Honeywell	.2	.7	1.5	3.2	4.5	5.1
National Cash Register	.9	2.9	4.4	5.9	5.3	4.7
RCA	.9	1.8	2.7	2.5	1.9	2.0
Scientific Data Systems	.0	.0	.7	1.4	1.6	1.7
UNIVAC	9.9	5.0	12.1	12.4	8.8	7.0
Other	21.4	14.2	10.0	5.8	3.0	7.0
Federal total	100.0	100.0	100.0	100.0	100.0	100.0
IBM	51.2	66.2	53.1	34.3	28.3	28.0
Non-IBM	48.8	33.8	46.8	65.7	71.7	72.0

FEDERAL INVENTORY OF AUTOMATIC DATA PROCESSING EQUIPMENT—DISTRIBUTION BY SUPPLIERS AS OF JUNE 30, 1969, SHOWING SUPPLIER REPRESENTATION IN THE FEDERAL INVENTORY

Manufacturer	1960	1962	1964	1966	1968	1969
IBM	272	682	990	1,032	1,200	1,311
Burroughs	55	40	37	175	193	195
Control Data	35	64	170	332	400	404
Digital Equipment (PDP)	0	0	20	72	214	331
G.E	0	18	37	45	70	75
Honeywell	1	9	22	145	247	271
NCR	7	15	192	188	249	268
RCA	5	43	99	145	176	189
SDS	0	0	18	112	186	209
UNIVAC	50	65	131	596	903	950
Other	106	94	146	165	394	463
Total	531	1,030	1,862	3,007	4,232	4,666

FEDERAL INVENTORY OF AUTOMATIC DATA PROCESSING EQUIPMENT—DISTRIBUTION BY SUPPLIERS AS OF JUNE 30, 1969, SHOWING THE SUPPLIER PERCENTAGES OF FEDERAL INVENTORY

[Amount in percent]

Manufacturer	1960	1962	1964	1966	1968	1969
IBM	51.2	66.2	53.2	34.3	28.4	28.1
Burroughs	10.4	3.9	2.0	5.8	4.6	4.2
Control Data	6.6	6.2	9.1	11.0	9.5	8.7
Digital Equipment (PDP)	0	0	1.1	2.4	5.1	7.1
General Electric	0	1.7	2.0	1.5	1.7	1.6
Honeywell	0.2	0.9	1.2	4.8	5.8	5.8
NCR	1.3	1.5	10.3	6.3	5.9	5.7
RCA	0.9	4.2	5.3	4.8	4.2	4.1
SDS	0	0	1.0	3.7	4.4	4.5
UNIVAC	9.4	6.3	7.0	19.8	21.3	20.4
Other	20.0	9.0	7.8	5.5	9.3	9.9
Total	100	100	100	100	100	100

Representative BROWN. I would like some indication as to which companies the Government did business with. I, of course, don't want to jump to any false conclusions, but I gather from your earlier remarks that this is a business that really began initially with the Federal Government anyway, didn't it?

Mr. CUNNINGHAM. Yes, sir.

Representative BROWN. Is not private industry in this field today largely a spinoff from Federal undertaking in this area?

Mr. INK. A very large portion of it. The early impetus came heavily from the Government and actually from the nuclear weapons system.

Representative BROWN. I suppose you could develop a company around a few good Government contracts for either purchase of equipment or rental of equipment.

Mr. INK. I don't know just how the first companies were set up, but certainly the Government indeed played a heavy part in it.

Representative BROWN. Maybe we ought to get another statistic and that is the percentage of computers in the Federal inventory as opposed to those in the national census.

Mr. CUNNINGHAM. That is what you have, the percentage figures are right in the testimony.

GOVERNMENT OWNERSHIP VERSUS PRIVATE OWNERSHIP

Representative BROWN. No, I am talking about the number of computers owned by the Federal Government as opposed to the number of computers owned in private industry.

Mr. CUNNINGHAM. OK; the total computers in the country today are in excess of 62,000.

Representative BROWN. Right.

Mr. CUNNINGHAM. That is an order of magnitude figure. Those are computers used in the companies. When you say owned——

Representative BROWN. The Federal Government has something in excess of 4,666 as opposed to 65,000?

Mr. CUNNINGHAM. That is right.

Representative BROWN. I don't know whether we can include—once again——

Mr. CUNNINGHAM. Those figures are comparable. The 4,666 and the approximate 62,000, I will give you the full figures.

Representative BROWN. In 1962 of all the computers being sold how many were sold to the Federal Government, 1 in 12 or 1 in 15?

GOVERNMENT OWNED 12–15 PERCENT OF NATIONAL CENSUS IN 1962

Mr. CUNNINGHAM. The Government inventory represented about 12 to 15 percent in 1962. It now represents about 7 percent of the national census.

Representative BROWN. You see there is a big difference.

Mr. CUNNINGHAM. It is going down.

Representative BROWN. That is right. But back when the industry was developing——

Mr. INK. Well, the Government would have been a much higher percentage.

GOVERNMENT IMPACT ON INDUSTRY DEVELOPMENT

Representative BROWN. That is right, 1 in 7 and, of course, the Government had a greater impact back in the early 1960's on which companies grew and how much the industry as a whole developed.

STEPS IN RENTING OR BUYING ADPE

Mr. INK. I think there is no question but what that is true.

Representative BROWN. Let me ask you this question about the purchase or the rental of computer equipment. Suppose I am a member of an agency in HEW or some other place, and want to get a computer for such and such a purpose. How do I obtain the computer using Federal procurement procedures?

Mr. CUNNINGHAM. The over simplified version is you have to make what is called a feasibility study to determine whether that is the least expensive, most efficient way of doing the job. It is then subject to program review by the agency and subject to review in the budget process.

Before they can go out for an acquisition they have to send a requirement to GSA where GSA determines how to go about the procurement.

Representative BROWN. When you say it is subject to review by the budget process, what do you mean, who?

Mr. CUNNINGHAM. The budget process in the agency and in the Office of Management and Budget.

Representative BROWN. I understand the agency part. Let's assume the agency and the Department both decide they want the computer. Does the Office of Management and Budget then make the determination as to whether or not it should be purchased?

Mr. INK. They make the determination as to whether funds will be in the budget that the President recommends.

Representative BROWN. Well, isn't that the same thing as determining whether or not the purchase for the agency involved is to be made?

Mr. INK. Yes.

Representative BROWN. Where is that decision made in the Office of Management and Budget; is it made by a wide variety of people or made by a few individuals?

Mr. INK. Well, the recommendations are made by the examiners, and it is made much the same way that any other item is made.

Representative BROWN. As a Member of Congress I am somewhat baffled by what it means. What does it mean?

Mr. INK. I am also baffled. I worked on the agency side a good many years, and the budget total, of course, is decided by the President.

Now you want to know practically what it means. As a practical matter——

DECISIONS BY OFFICE OF MANAGEMENT AND BUDGET

Representative BROWN. I am only worrying about the computer at the moment; I am not worried about the total national budget. Where in the Office of Management and Budget is the decision made whether the computer should be purchased or rented?

Mr. CUNNINGHAM. That decision is made or recommended by the agency in the budget process. They may recommend leasing and we may disagree with them or they may recommend purchasing.

Representative BROWN. That is what I want to know. Who in the Office of Management and Budget says don't buy the computer, rent it or go ahead and get it?

Mr. INK. All right. The reason we are having trouble answering it is because it may happen in several places. It may be that a division, head of a division, in the Office of Management and Budget will say to the Department that he is not in position to recommend money for that. Then the Department will decide whether in the face of that adverse recommendation they want to go, they may nevertheless want to include it in their request for resolution either at the level of the director of the OMB or failing that resolution with the President.

EXPERTISE IN OMB

Representative BROWN. Is there anybody in the Office of Management and Budget who is an authority on computers and decides whether or not the computer should be acquired?

Mr. CUNNINGHAM. A member of my staff will work with the examiner on that and frequently make the decision "no, you should buy it. Don't rent it because you are going to have it a long time."

STAFF IN OMB

Representative BROWN. How many people in your division?

Mr. CUNNINGHAM. Five.

Representative BROWN. How long have they been there?

Mr. CUNINGHAM. An average of 3, 4 years.

Representative BROWN. Anybody with a memory that goes back to 1960, 1962, and 1963?

Mr. CUNNINGHAM. That predates me.

Representative BROWN. No, that wasn't the question. The question is have you got anybody——

Mr. CUNNINGHAM. Yes, I have one person who goes back to that time.

Representative BROWN. Now, presumably they don't decide where the computer is purchased, just whether or not one is needed?

Mr. CUNNINGHAM. That is right.

DECISION ON WHERE TO BUY

Representative BROWN. Where is that decision made?

Mr. CUNNINGHAM. You mean from whom it is purchased?

Representative BROWN. From whom it is purchased or with whom the contract is written.

Mr. CUNNINGHAM. That is made in GSA procurement action.

Mr. INK. General Services for general purpose computers. They would not make that decision for a weapons computer in, going into, a weapons system.

Representative BROWN. I understand that, but are a fairly sizable percentage of the computers general-purpose computers?

Mr. INK. Yes.

Representative BROWN. How large is that office?

Mr. CUNNINGHAM. Mr. H. A. Abersfeller is going to testify later, I believe he has something in the neighborhood of 60 people.

Representative BROWN. Were any of these people there in the sixties?

Mr. CUNNINGHAM. I am sure they have some people there.

Mr. INK. We would assume this but we don't know, Mr. Brown.

Representative BROWN. Is there an interrelationship between that section in the Bureau of the Budget which decides whether purchases or rentals of computers shall be undertaken and that section in the GSA which makes the decision on where the computers are to be acquired?

OMB NOT IN PROCUREMENT ACTION

Mr. CUNNINGHAM. No, the Office of Management and Budget people are totally out of procurement action.

Representative BROWN. How long has that been true?

Mr. CUNNINGHAM. Insofar as computers it has been true so long as I can remember.

Representative BROWN. In other words, GSA has had the authority to make these decisions?

GSA IS PROCURING AGENCY

Mr. CUNNINGHAM. GSA has the procuring authority, the agency has the authority under the law for the selection of the equipment, and the General Services has the responsibility for the procuring of it.

Mr. INK. We look upon it as an operational activity which we like to keep out of the Executive Office of the President.

Representative BROWN. Let me back up; is it correct that the decisionmaking capacity which the Bureau of the Budget exercises as to whether or not the computer will be purchased, or purchased versus rental, has existed since the Government began purchasing computers?

Mr. INK. No, no, sir.

SPECIAL PROGRAM FOR ADPE SETUP IN BOB IN 1966

This goes back before my time, too, in the beginning the agencies, of course, handled this themselves. There was, in the early years, no special arrangement under which computers were handled, but as a result of interest, by Congressman Brooks, the General Accounting Office, and the Bureau of the Budget, there was established this arrangement

under which General Services Administration had the responsibility for the procurement of general purpose equipment. Then a special unit was also established in the Bureau of the Budget to give special attention to computer activities.

Representative BROWN. When was that?

Mr. CUNNINGHAM. 1966.

Representative BROWN. And prior to that?

Mr. CUNNINGHAM. It had been a part of another staff.

Representative BROWN. Where?

Mr. CUNNINGHAM. In the Bureau of the Budget.

Representative BROWN. Where?

Mr. CUNNINGHAM. There were only two staff members working on computer activity.

Mr. INK. There was special attention given to computers at the earlier date, I will have to supply that to you for the record, but it didn't have much muscle, and was a pretty low key, relatively low key, operation until 1966 when this special unit was set up.

Representative BROWN. What I would like is the organizational history of computer procurement by the Federal Government.

Mr. INK. Yes, sir. We will supply that for the record.

Representative BROWN. Thank you.

HISTORY OF ADP ACTIVITIES IN OMB

(The following information was subsequently supplied for the record by the Office of Management and Budget:)

A study of Government-wide ADP responsibilities conducted by the Bureau of the Budget between September 1958 and June 1959 led to the immediate establishment of a small, full-time staff in the Office of Management and Organization devoted to the development of an ADP Management Program.

Earlier, in 1957, the Bureau had been instrumental in organizing and sponsoring an Interagency Committee on ADP which gave consideration to common problems relating to the growing use of computers by many agencies.

In January 1966, after enactment of P.L. 89—306 in October 1965, Joseph F. Cunningham was appointed Chief, ADP Management Staff, with an allocation of six professional positions which constitute the present staff. Organizationally, the staff is currently located in the General Government Management Division.

LACK OF DATA ON TOTAL GOVERNMENT OWNERSHIP

Chairman PROXMIRE. In your answer to Congressman Brown on the percentage of computers owned by the Federal Government you were talking about a very limited ownership by the Federal Government apparently because you don't know how much in computers the Federal Government owns that are used for military purposes, which is a very, very big area. To my understanding it is a lot bigger than your general purpose computers, and you can't include that because you don't know what it is so when you say 7 percent that is 7 percent for general-purpose computers used by the Government and there may be another very large percentage used for military purposes, there is another very large percentage undetermined, unknown, that is used by Government contractors on Government contracts for which the Goverment pays for but is owned by the private contractor.

So in Federal work the amount of computer use is undoubtedly many times 7 percent, it could be more than 50 percent?

Mr. INK. I don't believe so, Senator Proxmire, but you are right in that I can't tell you what that percentage is, and it would be something above the 7 percent.

Chairman PROXMIRE. How do you know it is not a great deal above it?

Mr. INK. I can't tell you how much above it it is but a good portion of the military, of course, is included here, and all of the Government-owned are included.

Chairman PROXMIRE. Not all the Government-owned that are used by the military by any means.

Mr. INK. No, outside the operational side, they are included.

Chairman PROXMIRE. You see, one of the things I am getting at is when you take that military, I think that IBM could be a great deal higher than 28.1 percent. That statement you have got in the prepared statement is only apparently for the general-purpose computers owned by the Federal Government.

Mr. CUNNINGHAM. I would like to point out though the 28.1 percent is comparable with the national census, our figures are comparable with the national census figures.

Chairman PROXMIRE. They may be comparable with the national census but that does not obviate the fact that IBM may be selling 90 percent of the computers that the military are using.

Mr. CUNNINGHAM. That is possible.

Chairman PROXMIRE. So when you add those two things up it could be that IBM is selling far more overall.

Mr. INK. It could very well affect those percentages. It would undoubtedly affect them in some way. I don't know what the impact would be.

IBM'S NEW 370 SERIES

Chairman PROXMIRE. Let me ask, what is the significance of IBM's brand new 370 series? Will this simplify interfacing?

Mr. CUNNINGHAM. It was announced yesterday. I am not sure. I think with regard to that since the IBM Corp. has as large a percentage as we have been discussing of the market, much of the compatible peripheral equipment is compatible only with IBM.

Now the 370 looks superficially to us, it has two characteristics, one of which is recognized in the announcement that the standards approved by the President under the instruction issued by the Secretary of Commerce last year for certain standards were cranked into the equipment. These are not the interface standards we are talking about but they are standards which deal with making information acceptable from one computer to another.

This was put into effect in 1969, July 1, 1969.

Now for the first time we have seen an announcement by a major supplier that says that "our equipment accommodates to these standards."

The second thing is that the technological characteristics of the computer are difficult to evaluate in this short period of time, but it seems as though there is an increase in capacity of the kind that we had expected in prior announcements.

CONGRESSIONAL INTEREST IN COMPUTER COSTS

Chairman PROXMIRE. I would just like to ask one other question, Mr. Ink. What other congressional committees have been interested in, to your knowledge, interested in attempting to get this interface compatibility so that it would be possible to have more competition in the computer area?

Mr. INK. Well, of course, Mr. Brooks' committee on the House side has been taking a very strong and sustained interest in just about every aspect of computers, including this. I will turn to Mr. Cunningham for comments by the others.

Mr. CUNNINGHAM. That is the principal committee that has been interested in the problems of compatibility and the use of computers.

Chairman PROXMIRE. Has Mr. Brooks' committee been pressing you also to provide a comprehensive inventory——

Mr. CUNNINGHAM. Yes.

Chairman PROXMIRE (continuing). Of the computers owned by the Government including the military?

Mr. CUNNINGHAM. Not including the military.

Mr. INK. Again when we say not including the military, I think we understand that it is split, part of it is included and part of it is not.

Chairman PROXMIRE. Included, the part of the military that is not included. There is no problem on the part of the military that is included, I take it.

Has Mr. Brooks' committee indicated any interest in the part that is not owned by the Government but is part of the cost of Government procurement because, as you let a contract and the contractor uses computers, of course, the Government has to pay for that computer use. Has there been any expression on the part of Members of Congress to you for you to secure this?

Mr. INK. I was under the impression that the committee has been interested in just about everything. I don't believe this has been one of the major thrusts of the committee but you can speak to that better than I can. There is almost nothing in the computer area that I don't think has come up in the course of the discussions of that committee because it has been very thorough.

Chairman PROXMIRE. Except for weapons systems.

Mr. CUNNINGHAM. That is right. Weapons systems have not been gone into.

Chairman PROXMIRE. The Appropriations Committees of neither the House nor the Senate have, the Appropriations Committees of the House or Senate.

Mr. CUNNINGHAM. Yes. Appropriations Committee with defense, yes.

Chairman PROXMIRE. Mr. Mahon's committee in the House.

Mr. CUNNINGHAM. Yes.

Chairman PROXMIRE. But there has been no study to determine why there is this terrific increase in costs, and why the very poor performance has been so characteristic of our computer oriented weapons, to your knowledge.

Mr. CUNNINGHAM. Not to my knowledge, in the Bureau of the Budget. It may be to other people.

FOLLOW-UP ON STUBBINGS REPORT

Chairman PROXMIRE. That Stubbings report was just an invitation to Congress and to the administration to get to work in the area and find out. Of course, that is what this committee has been trying to do.

Mr. INK. Again, Mr. Chairman, I have not been involved in this area in the Bureau before now so if I might see if there is something that I am not aware of that I could provide the committee on the record because I might be shortchanging someone here without intending to.

Chairman PROXMIRE. I would also like to know if Mr. Stubbings has been as richly rewarded for his insights and revelations as was Mr. Ernest Fitzgerald for his revelations on the C5A, and Mr. McGee who disclosed the pilfering of millions of dollars of fuel oil in Thailand, and if similar reward for Mr. Stubbings—has he been promoted, where is he now?

Mr. INK. He is still in the Bureau.

Chairman PROXMIRE. I am glad to hear that.

Mr. INK. He is still active. I don't know just what his assignment is, but the last I saw him on the elevator he was very active and working on some other problems.

Chairman PROXMIRE. He wasn't operating the elevator, was he? [Laughter.]

Mr. INK. No, sir, Mr. Chairman. Sometimes I wish someone was. I was stuck in that elevator for an hour a little while ago.

Representative BROWN. It is probably operated by a computer. [Laughter.]

Mr. CUNNINGHAM. It is.

Mr. INK. It is, and I must say, Mr. Chairman, I never have understood why the programing of elevators in this day and age isn't more effective.

Chairman PROXMIRE. To get back to Mr. Stubbings, I understand he doesn't feel free, somebody has put him under wraps so he won't talk to Members of Congress and the press or the public about his study. Is there any restraint you know of from the Budget Bureau on Mr. Stubbings?

Mr. INK. I am not aware of any.

Chairman PROXMIRE. Would you let us know whether he is free to testify, free to come up and disclose his own estimates? He made a very valuable study, as we all know.

Mr. INK. It is the practice of the Bureau of the Budget to provide full information, whenever requested, through policy level spokesmen, either the Director, Deputy Director, or one of the Assistant Directors of BOB. The Budget examining staff provides assistance to these officials.

Chairman PROXMIRE. Fine.

Mr. Brown?

ETHICAL STANDARDS APPLYING TO OMB AND GSA PERSONNEL

Representative BROWN. Our previous discussion indicated that the decisions on computer procurement are centered in the Bureau of the Budget and the General Services Administration. The Bureau of the

Budget determines whether the computer should be acquired, and, if so, whether purchased or rented; GSA implements the Bureau's decision and acquires the computer by the method determined.

What disclosure laws cover the possibility of abuse in either one of these two areas. Are the people who make determinations about computer procurement required, as Members of Congress are now, to disclose their personal holdings or investments?

Mr. CUNNINGHAM. Yes, all the members on the Government staff are required to disclose their holdings and investments. The job is split, as you can see, in several segments, which offers another feature for prevention of any kind of hanky-panky.

Representative BROWN. But, for instance, are the people in the Bureau of the Budget who make the decisions as to whether or not we get another computer for whatever price included under these disclosure requirements?

Mr. INK. Yes, sir.

Representative BROWN. Those people have their investments on public display; is that correct?

Mr. INK. Yes, sir.

Representative BROWN. How long has that been the case?

Mr. CUNNINGHAM. It has been the case since I joined the Bureau in 1966. We had to submit a financial statement.

Mr. INK. We will have to supply for the record when the disclosure policy went into effect.

(The following information was subsequently supplied for the record by the Office of Management and Budget:)

Executive Order 11222 (below), prescribing standards of ethical conduct for Government officers and employees, was issued on May 8, 1965, and revoked a number of earlier issuances.

EXECUTIVE ORDER 11222—PRESCRIBING STANDARDS OF ETHICAL CONDUCT FOR GOVERNMENT OFFICERS AND EMPLOYEES

By virtue of the authority vested in me by section 301 of title 3 of the United States Code, and as President of the United States, it is hereby ordered as follows:

PART I—POLICY

SECTION 101. Where government is based on the consent of the governed, every citizen is entitled to have complete confidence in the integrity of his government. Each individual officer, employee, or adviser of government must help to earn and must honor that trust by his own integrity and conduct in all official actions.

PART II—STANDARDS OF CONDUCT

SECTION 201. (a) Except in accordance with regulations issued pursuant to subsection (b) of this section, no employee shall solicit or accept, directly or indirectly, any gift, gratuity, favor, entertainment, loan, or any other thing of monetary value, from any person, corporation, or group which—

(1) has, or is seeking to obtain, contractual or other business or financial relationships with his agency;

(2) conducts operations or activities which are regulated by his agency; or

(3) has interests which may be substantially affected by the performance or nonperformance of his official duty.

(b) Agency heads are authorized to issue regulations, coordinated and approved by the Civil Service Commission, implementing the provisions of subsection (a) of this section and to provide for such exceptions therein as may be necessary and appropriate in view of the nature of their agency's work and the duties and responsibilities of their employees. For example, it may be appropriate to provide exceptions (1) governing obvious family or personal relationships

where the circumstances make it clear that it is those relationships rather than the business of the persons concerned which are the motivating factors—the clearest illustration being the parents, children or spouses of federal employees; (2) permitting acceptance of food and refreshments available in the ordinary course of a luncheon or dinner or other meeting or on inspection tours where an employee may properly be in attendance; or (3) permitting acceptance of loans from banks or other financial institutions on customary terms to finance proper and usual activities of employees, such as home mortgage loans. This section shall be effective upon issuance of such regulations.

(c) It is the intent of this section that employees avoid any action, whether or not specifically prohibited by subsection (a), which might result in, or create the appearance of—

(1) using public office for private gain;
(2) giving preferential treatment to any organization or person;
(3) impeding government efficiency or economy;
(4) losing complete independence or impartiality of action;
(5) making a government decision outside official channels; or
(6) affecting adversely the confidence of the public in the integrity of the Government.

SEC. 202. An employee shall not engage in any outside employment, including teaching, lecturing, or writing, which might result in a conflict, or an apparent conflict, between the private interests of the employee and his official government duties and responsibilities, although such teaching, lecturing, and writing by employees are generally to be encouraged so long as the laws, the provisions of this order, and Civil Service Commission and agency regulations covering conflict of interest and outside employment are observed.

SEC. 203. Employees may not (a) have direct or indirect financial interests that conflict substantially, or appear to conflict substantially, with their responsibilities and duties as Federal employees, or (b) engage in, directly or indirectly, financial transactions as a result of, or primarily relying upon, information obtained through their employment. Aside from these restrictions, employees are free to engage in lawful financial transactions to the same extent as private citizens. Agencies may, however, further restrict such transactions in the light of the special circumstances of their individual missions.

SEC. 204. An employee shall not use Federal property of any kind for other than officially approved activities. He must protect and conserve all Federal property, including equipment and supplies, entrusted or issued to him.

SEC. 205. An employee shall not directly or indirectly make use of, or permit others to make use of, for the purpose of furthering a private interest, official information not made available to the general public.

SEC. 206. An employee is expected to meet all just financial obligations, especially those—such as Federal, State, or local taxes—which are imposed by law.

PART III—STANDARDS OF ETHICAL CONDUCT FOR SPECIAL GOVERNMENT EMPLOYEES

SEC. 301. This part applies to all "special Government employees" as defined in section 202 of title 18 of the United States Code, who are employed in the executive branch.

SEC. 302. A consultant, adviser or other special Government employee must refrain from any use of his public office which is motivated by, or gives the appearance of being motivated by, the desire for private gain for himself or other persons, including particularly those with whom he has family, business, or financial ties.

SEC. 303. A consultant, adviser, or other special Government employee shall not use any inside information obtained as a result of his government service for private personal gain, either by direct action on his part or by counsel, recommendations or suggestions to others, including particularly those with whom he has family, business, or financial ties.

SEC. 304. An adviser, consultant, or other special Government employee shall not use his position in any way to coerce, or give the appearance of coercing, another person to provide any financial benefit to him or persons with whom he has family, business, or financial ties.

SEC. 305. An adviser, consultant, or other special Government employee shall not receive or solicit from persons having business with his agency anything of value as a gift, gratuity, loan or favor for himself or persons with whom he has family, business, or financial ties while employed by the Government or in connection with his work with the Government.

SEC. 306. Each agency shall, at the time of employment of a consultant, adviser, or other special Government employee require him to supply it with a statement of all other employment. The statement shall list the names of all the corporations, companies, firms, State or local governmental organizations, research organizations and educational or other institutions in which he is serving as employee, officer, member, owner, director, trustee, adviser, or consultant. In addition, it shall list such other financial information as the appointing department or agency shall decide is relevant in the light of the duties the appointee is to perform. The appointee may, but need not, be required to reveal precise amounts of investments. The statement shall be kept current throughout the period during which the employee is on the Government rolls.

PART IV—REPORTING OF FINANCIAL INTERESTS

SECTION 401. (a) Not later than 90 days after the date of this order, the head of each agency, each Presidential appointee in the Executive Office of the President who is not subordinate to the head of an agency in that Office, and each full-time member of a committee, board, or commission appointed by the President, shall submit to the Chairman of the Civil Service Commission a statement containing the following:

(1) A list of the names of all corporations, companies, firms, or other business enterprises, partnerships, nonprofit organizations, and educational or other institutions—

(A) with which he is connected as an employee, officer, owner, director, trustee, partner, adviser, or consultant; or

(B) in which he has any continuing financial interests, through a pension or retirement plan, shared income, or otherwise, as a result of any current or prior employment or business or professional association; or

(C) in which he has any financial interest through the ownership of stocks, bonds, or other securities.

(2) A list of the names of his creditors, other than those to whom he may be indebted by reason of a mortgage on property which he occupies as a personal residence or to whom he may be indebted for current and ordinary household and living expenses.

(3) A list of his interests in real property or rights in lands, other than property which he occupies as a personal residence.

(b) Each person who enters upon duty after the date of this order in an office or position as to which a statement is required by this section shall submit such statement not later than 30 days after the date of his entrance on duty.

(c) Each statement required by this section shall be kept up to date by submission of amended statements of any changes in, or additions to, the information required to be included in the original statement, on a quarterly basis.

SEC. 402. The Civil Service Commission shall prescribe regulations, not inconsistent with this part, to require the submission of statements of financial interests by such employees, subordinate to the heads of agencies, as the Commission may designate. The Commission shall prescribe the form and content of such statements and the time or times and places for such submission.

SEC. 403. (a) The interest of a spouse, minor child, or other member of his immediate household shall be considered to be an interest of a person required to submit a statement by or pursuant to this part.

(b) In the event any information required to be included in a statement required by or pursuant to this part is not known to the person required to submit such statement but is known to other persons, the person concerned shall request such other persons to submit the required information on his behalf.

(c) This part shall not be construed to require the submission of any information relating to any person's connection with, or interest in, any professional society or any charitable, religious, social, fraternal, educational, recreational, public service, civic, or political organization or any similar organization not conducted as a business enterprise and which is not engaged in the ownership or conduct of a business enterprise.

SEC. 404. The Chairman of the Civil Service Commission shall report to the President any information contained in statements required by section 401 of this part which may indicate a conflict between the financial interests of the official concerned and the performance of his services for the Government. The Commission shall report, or by regulation require reporting, to the head of the agency concerned any information contained in statements submitted pursuant to regulations issued under section 402 of this part which may indicate a

conflict between the financial interests of the officer or employee concerned and the performance of his services for the Government.

SEC. 405. The statements and amended statements required by or pursuant to this part shall be held in confidence, and no information as to the contents thereof shall be disclosed except as the Chairman of the Civil Service Commission or the head of the agency concerned may determine for good cause shown.

SEC. 406. The statements and amended statements required by or pursuant to this part shall be in addition to, and not in substitution for, or in derogation of, any similar requirement imposed by law, regulation, or order. The submission of a statement or amended statements required by or pursuant to this part shall not be deemed to permit any person to participate in any matter in which his participation is prohibited by law, regulation, or order.

PART V—DELEGATING AUTHORITY OF THE PRESIDENT UNDER SECTIONS 205 AND 208 OF TITLE 18 OF THE UNITED STATES CODE RELATING TO CONFLICTS OF INTEREST

SECTION 501. As used in this part, *department* means an executive department, *agency* means an independent agency or establishment or a Government corporation, and *head of an agency* means, in the case of an agency headed by more than one person,the chairman or comparable member of such agency.

SEC. 502. There is delegated, in accordance with and to the extent prescribed in sections 503 and 504 of this part, the authority of the President under sections 205 and 208(b) of title 18, United States Code, to permit certain actions by an officer or employee of the Government, including a special Government employee, for appointment to whose position the President is responsible.

SEC. 503. Insofar as the authority of the President referred to in section 502 extends to any appointee of the President subordinate to or subject to the chairmanship of the head of a department or agency, it is delegated to such department or agency head.

SEC. 504. Insofar as the authority of the President referred to in section 502 extends to an appointee of the President who is within or attached to a department or agency for purposes of administration, it is delegated to the head of such department or agency.

SEC. 505. Notwithstanding any provision of the preceding sections of this part to the contrary, this part does not include a delegation of the authority of the President referred to in section 502 insofar as it extends to:

(a) The head of any department or agency in the executive branch;

(b) Presidential appointees in the Executive Office of the President who are not subordinate to the head of an agency in that Office; and

(c) Presidential appointees to committees, boards, commissions, or similar groups established by the President.

PART VI—PROVIDING FOR THE PERFORMANCE BY THE CIVIL SERVICE COMMISSION OF CERTAIN AUTHORITY VESTED IN THE PRESIDENT BY SECTION 1753 OF THE REVISED STATUTES

SECTION 601. The Civil Service Commission is designated and empowered to perform, without the approval, ratification, or other action of the President, so much of the authority vested in the President by section 1753 of the Revised Statutes of the United States (5 U.S.C. 631) as relates to establishing regulations for the conduct of persons in the civil service.

SEC. 602. Regulations issued under the authority of section 601 shall be consistent with the standards of ethical conduct provided elsewhere in this order.

PART VII—GENERAL PROVISIONS

SECTION 701. The Civil Service Commission is authorized and directed, in addition to responsibilities assigned elsewhere in this order:

(a) To issue appropriate regulations and instructions implementing parts II, III, and IV of this order;

(b) To review agency regulations from time to time for conformance with this order; and

(c) To recommend to the President from time to time such revisions in this order as may appear necessary to ensure the maintenance of high ethical standards within the executive branch.

SEC. 702. Each agency head is hereby directed to supplement the standards provided by law, by this order, and by regulations of the Civil Service Commission with regulations of special applicability to the particular functons

and activities of his agency. Each agency head is also directed to assure (1) the widest possible distribution of regulations issued pursuant to this section and (2) the availability of counseling for those employees who request advice or interpretation.

SEC. 703. The following are hereby revoked:

(a) Executive Order No. 10939 of May 5, 1961.

(b) Executive Order No. 11125 of October 29, 1963.

(c) Section 2(a) of Executive Order No. 10530 of May 10, 1954.

(d) White House memorandum of July 20, 1961, on Standards of Conduct for Civilian Employees.

(e) The President's Memorandum of May 2, 1963, Preventing Conflicts of Interest on the Part of Special Government Employees. The effective date of this revocation shall be the date of issuance by the Civil Service Commission of regulations under section 701(a) of this order.

SEC. 704. All actions heretofore taken by the President or by his delegates in respect of the matters affected by this order and in force at the time of the issuance of this order, including any regulations prescribed or approved by the President or by his delegates in respect of such matters, shall, except as they may be inconsistent with the provisions of this order or terminate by operation of law, remain in effect until amended, modified, or revoked pursuant to the authority conferred by this order.

SEC. 705. As used in this order, and except as otherwise specifically provided herein, the term *agency* means any executive department, or any independent agency or any Government corporation; and the term *employee* means any officer or employee of an agency.

LYNDON B. JOHNSON.

THE WHITE HOUSE, *May 8, 1965.*

Representative BROWN. Are those people required to disclose to individual companies?

Mr. INK. You are talking about the GSA?

Representative BROWN. Yes.

Mr. INK. I would suggest you ask them as to what their disclosure policy is.

Representative BROWN. The reason I pursue this kind of questioning is that this is an area where the product is a highly tailored and not open for generalized bidding; doesn't the decision to purchase or rent a computer depend to a large degree on the discretion of the people who make the request and approve it?

Mr. INK. Yes, sir.

Well, except that the dollars, the availability of dollars, of course, go through this budget process.

For example, when I was in HUD we forwarded a request for a computer, and the estimate, it had a $5 million price tag on it. Now had we come forward with something else with a $5 million price tag on it that would have been also reviewed by the Bureau. Now something that is in the neighborhood of $20,000 isn't, as an item.

I might say also that none of the three of us here own any stock in any computer company.

Representative BROWN. That is comforting.

The only point I make, Mr. Ink, and I am sure you appreciate this, is that if you were in private business and put in a request for a $5 million computer somebody would say, "are you going to save $5 million or are we going to make $5 million on the computer over a reasonable period of time," and I trust that is the general responsibility of the Bureau of the Budget.

Mr. INK. Yes, sir.

Representative BROWN. As to whether or not some similar type of judgment is made.

Mr. INK. Yes, sir.

Representative BROWN. But unfortunately not squared on the same requirement.

Mr. INK. In that instance that I mentioned, for example, when I was then in the department we had to provide justification to the Bureau first for the need for the computer and the timing of that need. They raised very severe questions with us as to whether our program would move along at the pace that we estimated and, therefore, required the computer at that date. They fairly soon were convinced that we needed the computer but they were unconvinced for some time that we needed it when we said we needed it, and they asked for and received the analysis with respect to purchase versus lease.

All of that was preliminary to the hearings that we had at the Bureau of the Budget in which this was one of several items that was taken up with the Bureau.

Representative BROWN. If I can go on with my analogy, purchasing department in private industry usually buys the least expensive shelf item available or buys on a bid basis; however, if the item must be tailored there will be some decision as to where the item is to be acquired—such factors as business relationships, family relationships, et cetera, often enter into the decision. I am trying to determine how much these type of factors enter into the purchase of computers by GSA.

Perhaps we will have a chance to pursue it with them.

Mr. INK. Yes.

LOCATION OF COMPUTERS BY DEPARTMENTS

Representative BROWN. What is the book inventory breakdown of the numbers of computers in the Government; do you have a breakdown as to the departmental location of those computers?

Mr. CUNNINGHAM. Yes, sir.

Representative BROWN. The agencies and so forth.

Mr. INK. Yes, sir; it is included here.

Representative BROWN. Do you have a breakdown as to the utilization or is there any way that you have been able to follow up on the utilization of the computers as to whether or not the requests for purchase or rental of the computer proved to be accurate? Do you know, to put it another way, how many times you have been conned?

INVENTORY SHOWS HOURS OF SERVICE

Mr. INK. Well, the inventory report itself includes one index to this in the average monthly hours in service. Now that is only a part of the analysis, of course, but I think that is a very useful and important tangible proof.

Representative BROWN. Does that vary widely?

Mr. INK. Yes, sir.

Representative BROWN. What would be the high monthly hours versus the low monthly hours of service?

Mr. INK. Well, just looking here at one of the sheets, I see this particular page ranged from about 652 hours down to 98 hours. That is the kind of range that I see on this particular page.

Representative BROWN. Presumably then, somebody who had 652 hours of service on their computer would have a need for a computer that would be greater than somebody who had a computer that they used for only 98 hours, is that a fair or an unfair statement?

Mr. INK. Generally, yes. But, of course, some areas have higher priorities than others, and some high-priority problems don't take a lot of hours, might be in the smaller numbers. Mr. Renninger is just telling me that the average for small computers is 295 and 512 for the largest computers, if that helps give you a range. I don't have a median figure.

Representative BROWN. What is that figure again; what is the 295 and the 512?

Mr. INK. Well, first, I just at random opened one of the pages of the inventory and gave you the range on that particular page of the utilization that was reported. Mr. Renninger then is saying that an overall average, this is not the median, an overall average for small computers is 295, and for the largest computers 512.

Representative BROWN. But again, what is the 295 figure?

Mr. INK. Hours per month.

Mr. CUNNINGHAM. Productive hours per month.

Mr. INK. Productive hours per month, that is what all these figures are that I have been reciting.

Representative BROWN. That is nearly round the clock use then, is that right?

Mr. INK. Yes.

Representative BROWN. Presumably you only have 720 hours a month?

Mr. INK. Yes, sir; it does and we would hope it would on these larger ones.

Mr. Chairman, I think that what we have talked about, what the General Accounting Office has talked about, represent some significant steps forward in terms of better information and better control. I think we are all in agreement that this is a part of the story. There certainly are steps that need to be taken and some of those that we are in the midst of taking we think we ought to be moving ahead on more rapidly.

Chairman PROXMIRE. Well, thank you very, very much, gentlemen. This is most helpful. I didn't mean to be too critical of you personally at all. I know that, after all, you are relatively new and your office is brand new, this is the first day, as you said, and so Happy Fiscal Year.

Mr. INK. We hope to improve, Mr. Chairman.

Chairman PROXMIRE. Well, I am sure you will do that.

(Laughter.)

So the subcommittee will stand in recess until 2 this afternoon when we have the General Services Administration, Department of Defense, and the Peripheral Manufacturers Association represented.

(Whereupon, at 12:55 p.m., the subcommittee was recessed, to reconvene, at 2 p.m., the same day.)

Afternoon Session

Chairman PROXMIRE. At the suggestion of Mrs. Griffiths, and I think it would be helpful, is Mr. Caveney here at the moment? Won't

you come to the table here, so the three of you gentlemen can be together, and you can cheerfully agree or disagree.

Our first witness is Mr. H. A. Abersfeller, Commissioner of Federal Supply Service, GSA. Commissioner, you go right ahead. I think, why don't all of you gentlemen go ahead with your statements and then we will question you in turn?

STATEMENT OF HEINZ A. ABERSFELLER, COMMISSIONER, FEDERAL SUPPLY SERVICE, GENERAL SERVICES ADMINISTRATION; ACCOMPANIED BY GEORGE W. DODSON, JR., ASSISTANT COMMISSIONER, OFFICE OF AUTOMATED DATA MANAGEMENT SERVICES, FEDERAL SUPPLY SERVICE

Mr. ABERSFELLER. Mr. Chairman, and members of the subcommittee, I am Heinz A. Abersfeller, Commissioner of the Federal Supply Service of the General Services Administration. On behalf of the Administrator of General Services, Robert L. Kunzig, I wish to express our appreciation for this opportunity to appear before your subcommittee. With your permission, Mr. Chairman, and in order to conserve the overall time of the committee, I will present a summary statement of the actions the General Services Administration has taken in support of Public Law 89–306, the Brooks bill, and our active concern in improving the overall management of ADP in the Federal Government.

May I say, I have with me Mr. George W. Dodson, Jr., Assistant Commissioner, Office of Automated Data Management Services for the Federal Supply Service.

COSTS REDUCED $93.5 MILLION ON ADPE

Since our appearance before you on November 12, 1967, we have:

During fiscal year 1969 and 1970 been able to obtain reduced costs, through improved and continuing Federal supply schedule terms and conditions of $43 million, plus an additional $50.5 million in reduced costs of individual ADP systems procurements, compared to schedule costs, for a total of $93.5 million.

During fiscal year 1969 and 1970 we achieved a total cost reduction of about $19.5 million in the procurement of magnetic tape compared to Federal supply schedule tape prices in force prior to the development of a tape specification and competitive procurement.

During fiscal year 1970, just ended, increased the number of Federal supply schedule contracts with independent manufacturers of peripheral and accessorial equipments used with ADP equipment to 71 with an estimated annual volume of $12 million in sales, compared to 42 such contracts and a volume of $10.7 million during fiscal year 1969. Included in these 71 schedule contracts were four manufacturers of plug-to-plug compatible tape and disk drives and six independent suppliers of disk packs, for a fiscal year 1970 estimated volume of $350,000 which compares to a volume of $89,500 for fiscal year 1969.

We developed a specification and qualified products list for the six high disk pack, obtained government-wide requirements, and made plans to issue a competitive solicitation by mid-July 1970.

We implemented Bureau of the Budget bulletin No. 70–9, subject, "Acquisition of Peripheral Components for Installed ADP Systems,"

by identifying 2,867 such units, which if determined by the using agencies to be replaceable, would at least equal the $5 million annual cost reduction estimated by the Comptroller General in his report to the Congress on this subject No. B–115369 dated July 24, 1969.

I might digress for a moment. As of this morning we have a report from the agencies of 2,138 will be replaced at a savings of in excess of $6 million.

Chairman PROXMIRE. Do you have a date as to when they will be replaced?

Mr. ABERSFELLER. No, it is a continuing thing. I don't have a final time period, some in fact have already been replaced but we don't have a time phase.

Chairman PROXMIRE. Roughly over the next year or two.

Mr. ABERSFELLER. I would say within the next 12 months at the outside.

We delegated procurement authority to the Veterans' Administration and the Defense Supply Agency for replacement of installed ADP peripherals with plug-to-plug compatibles which resulted in completed action with reported annual savings of $300,000 and $220,000, respectively.

We issued a request for proposals on May 1, 1970, for a test procurement to separate the requirements for the central processing unit from the peripheral requirements in order to offer individual ADP equipment components for quotation in a new ADP system procurement. In connection with the procurement test, we held a vendors' conference on May 27, 1970, at which 14 firms were represented: these were, two leasing companies , one software house, two consulting firms, eight computer manufacturers, and one peripheral equipment manufacturer.

We issued a Federal property management regulation on January 17, 1969, immediately after your last hearings ended, which provided for the procurement of the several components, including peripheral equipment, of a ADP system, or augmenting an existing system, from a number of different sources, if such multiple source action is in the best interests of the Government.

We clarified the reporting instructions for the ADP management information system in order to improve agency reporting accuracy.

We monitored agency reporting timeliness in coordination with BOB in order to improve timeliness of the data base.

We monitored agency projected gains and losses against actual reports and fed back differences in order to enhance agency projections and correct reporting errors.

We used the ADP management information system data base to generate recurring reports used daily by the GSA guided Government-wide sharing exchanges; to compute purchase/lease analysis; and to prepare special one-time management reports, at the call of the legislative and executive branches.

As an example GSA required 106 of these special reports to support our Public Law 89–306 mission. The Bureau of the Budget required 25 special reports, the Department of Commerce three, and the Department of Defense 43. In all, 10 agencies, and the General Accounting Office have required 218 special management information system reports.

We published for the public more than 6,000 copies annually of the

"Inventory of Automatic Data Processing Equipment in the United States."

We provided to the public copies of the data base in magnetic tape form.

We organized with the BOB, and major agencies concerned, a project to review the circular A–83 requirements to develop, on a phased basis, a revised information system giving special attention to:

Timeliness of submission and perpetual data requirements;

Correlation of projected acquisitions and release with BOB A–11 submissions;

Component versus system level reporting;

Computer and application usage;

Leased equipment credits;

Expanded edit criterion;

Analog and telecommunication devices; and

Maintenance and manpower costs.

Mr. Chairman, in your letter of June 12, 1970, you requested information on space and storage requirements caused by the expanding use of ADPE. We have not been able to attribute any net increased space requirements to the expanding use of ADPE. We have found that paper records produced by automatic data processing equipment are relatively short lived from a records management point of view. We are incidentally reviewing alternative methods of recording data for archival purposes with the objective of achieving a substantial compaction in data storage compared to that density normally achieved with digital data recorded on magnetic tape.

If we are successful here we will, of course, be able to turn back into use several thousand reels of magnetic tape.

FUTURE PLANS OF GSA

Mr. Chairman, turning now to the future, I would like to inform you of our most significant plans for the future which are, to test the economic and technical feasibility of expanding Federal data processing center services to include time sharing.

To reduce the proliferation and maintenance of similar bread and butter computer applications which are common to many agencies by offering central Government-wide system services through the Federal data processing centers such as:

Payroll and manpower statistics;

Property accounting;

Appropriation and revolving fund accounting; and

Mailing lists.

To increase our advertised procurements by developing specifications for:

Eleven high disk packs; and

Scientific magnetic tape.

To improve the ADP procurement process by the development of a uniform ADP contract clause handbook.

Mr. Chairman, this concludes my summary statement. Mr. Dodson and I will be pleased to respond to any questions or comments that you or members of the subcommittee may have.

(The prepared statement of Mr. Abersfeller follows:)

PREPARED STATEMENT OF HEINZ A. ABERSFELLER

Mr. Chairman and Members of the Subcommittee, I am Heinz A. Abersfeller, Commissioner of the Federal Supply Service, of the General Services Administration. On behalf of the Administrator of General Services, Robert L. Kunzig, I wish to express our appreciation for this opportunity to appear before your Subcommittee. The following is a full statement of the actions the General Services Administration has taken in support of Public Law 89–306 and our active concern in improving the overall management of ADP in the Federal Government. I have with me a principal member of my staff, Mr. George W. Dodson, Jr., Assistant Commissioner, Office of Automated Data Management Services for the Federal Supply Service.

Progress in Procurement of ADPE

In the general area of procurement of ADPE we have continued to make progress in efforts to achieve benefits and economies to the Government. As indicated in testimony before your Committee in November 1968, improved Federal Supply Schedule contractual terms and prices were obtained for FY 69. For FY 69 and 70 these benefits, together with continuing prior-year items, resulted in reduced costs of about 43 million. We further indicated that in FY 69 we had also included for the first time in Federal Supply Schedule contracts for computers a maximum order limitation. During FY 69 and FY 70 we have continued to review agency requests for Proposals—RFP's—, requests for delegations of procurement authority, and provided assistance and advice to the agencies. During these years we have undertaken a number of individual procurements for agencies totaling $163.0 million and have been able to obtain reduced costs by about $50.5 million compared to Federal Supply Schedule prices.

Testimony Before Committee

In Testimony before your committee in November 1968, we indicated the need for development of additional specifications in order to get competition. GSA has, over the past three (3) years been successful in reducing the Government's acquisition costs for digital EDP tape by more than 50% as a result of the development of a Federal Specification and a Qualified Products List. Except for occassional negotiated contracts for special requirements, based on adequate justification, all Federal Supply Schedule, definite quantity and requirements contracts are consumated on a formal competitive bids basis. All ½'' EDP tape procured, except for occassional non-standard requirements, conforms with the specification and is inspected and tested before it is released for shipment. During Fiscal year 68 and Fiscal year 69 cost reduction of $3.4 million and $9.1 million respectively were achieved. The competitive pricing structure again prevails for Fiscal year 70 with current volume approximating 0.9 million reels annually, at prices ranging from $9.88 to $12.48 per reel, depending upon quantity, type of contract and delivery zone as compared to an average price of $23.36 prior to the development of the specification. This represents a cost reduction of about $10.4 million for FY 70.

In Testimony before your Committee on November 12, 1968. we advised you of our actions in the area of providing procurement opportunities to numerous producers of so-called independent peripheral equipments. We indicated that we would continue to study the area so that we could reach further determinations and take additional actions. I am pleased to advise you of these additional actions.

In the area of independent peripheral procurements, we have continued to provide opportunity for the smaller manufacturers of ADP peripheral and accessorial equipments to furnish part of the Government's requirements.

Contracts to Independent Manufacturers

We have during Fiscal year 70, just ended, made additional progress in awarding Federal Supply Schedule contracts to independent manufacturers of peripheral and accessorial equipments used with ADPE. During Fiscal year 70 we have a total of 71 such contracts with an estimated annual volume of $12.0 million, as compared to 42 in the previous fiscal year with a volume of $10.7 million. Among these were contracts with four manufacturers and suppliers of plug-to-plug compatible tape and disk drives and six independent suppliers of disk packs at prices lower than available from computer manufacturers. Equip-

ment prices ranged from 20% to 43% lower than original equipment manufacturers' prices and disk pack prices from 31% to 61% lower than those manufactured by the original equipment manufacturer. The FY 70 estimated volume for these contracts is $350,000 which compares to $89,500 for FY 69.

These contracts identify the equipments with which these peripherals are compatible and packs that are replaceable. We have also issued notices to all Federal agencies advising them of these contracts and identifying on a comparative basis the prices, discounts, and compatibility features to assist agencies in making decisions on the evaluation and selection of these system components.

While we now have Federal Supply Schedule contracts for disk packs at considerably lower prices than that offered by computer manufacturers, these contracts were issued pending the development of a Federal specification and a Qualified Products List for six high disk packs to permit competitive procurements for future use requirements.

Specification and Qualification Testing

We feel that the use of the specification and qualification testing will provide a better quality product at lower prices. We have required the agencies to determine and report to GSA their replacement and additional Fiscal year 71 requirements. We have prepared an appropriate solicitation for this government-wide requirement which we expect to issue within the next week to ten days. We plan to do the same thing for eleven high disk packs as soon as we complete work on the development of a Federal Specification.

We have also taken certain other actions. In August of 1969 we sent a letter to the several agencies pointing out the recommendations contained in the Comptroller's General Report to the Congress on a "Study of the Acquisition of Peripheral Equipment for Use With Automatic Data Processing Equipment—June 24, 1969, and offered GSA assistance in putting recommendations into effect pending issuance of more specific policies by BOB and GSA. We delegated procurement authority to the Veterans' Administration to competitively procure plug-to-plug compatible replacements for 75 original computer manufacturer tape drives. This action has been completed with a reported savings of $300,000 annually. We also delegated procurement authority to Defense Supply Agency for replacement of 57 tape drives. This action has been completed with a reported savings of $220,000 annually.

Plug-to-Plug Compatibles

Further, in the area of plug-to-plug compatibles, the Bureau of the Budget sponsored a conference held at the Federal Executive Institute in September 1969. One of the conclusions reached at the conference indicated the need for an immediate replacement program for installed leased equipment wherever it could be determined that plug-to-plug compatibles were available at lesser costs. As a result the Bureau of the Budget issued Bulletin No. 70–9 subject, "Acquisition of Peripheral Components for Installed ADP Systems."

This issuance was implemented by the General Services Administration, using the inventory data in the ADP Management Information System as a source. Listings were furnished to agencies containing the entire federal inventory of different types and models of tape drives and disk drives installed and being leased from computer manufacturers. There were 2,867 such units identified, and if each item was determined to be replaceable with less costly plug-to-plug compatibles, the estimated potential cost reduction in annual leases would at least equal $5.0 million estimated by the Comptroller General in his report to the Congress. Each agency was required to review these listings and identify those items, which could be replaced in consideration of the then current equipment retention plans and/or current component substitution plans. We have received the agencies' statement of requirements, and are currently reviewing this matter in order to develop a solicitation to be issued to industry and/or other action that may be necessary. In the meantime, as a part of the 2,867 units identified above, we have delegated procurement authority to the Department of the Navy to replace 858 tape and disk drives and the Department of the Air Force to replace approximately 140 tape and disk drives due to immediate needs. These agencies have issued solicitations for their requirements.

In Testimony before your committee in 1968 it was brought out that it was possible for the Government to separate central processing unit from peripheral computer system requirements in order to offer individual components for quota-

tion, provided adequate technical and other resources were available. We indicated that we would continue to study the entire area to determine the technical and economic feasibility of this method of procurement. To reach valid conclusions regarding this matter we determined to operationally test this method of procurement and make comparisons with the currently used procurement techniques. We therefore constructed a Request for Proposals which was issued on May 1, 1970 and a competitive procurement is now underway for the purpose of acquiring a computer system which will permit competitive offers by independent peripheral manufacturers and others during initial system acquisition. The Request for Proposals was structured by GSA to explore full potential for savings in the separate procurement of peripherals for complete systems during initial systems procurement. Equipment manufacturers or others will be required to supply all or any part of the system requirements with safeguards to insure compatible operations as a computer system. Proposals from vendors are due to be received no later than July 1, 1970. Selection and award is contemplated by October 20, 1970. On May 27, 1970, a vendors' conference was held. Fourteen firms were represented. There were representatives from two leasing companies, one software house, two consulting firms, eight computer manufacturers, and one peripheral equipment manufacturer.

On a regulatory basis, Bureau of the Budget Circular A–54, Revised, provides for the development of non-equipment oriented specifications which are not designed around the products of any particular company. Our GSA Federal Property Management Regulations issued on January 17, 1969 covering the procurement of ADPE specifically provide for the ability of the agencies to procure components, including peripheral equipment, of a system or augmenting an existing system, from a number of different sources.

BOB Circular A–83 (4/20/67)

In accordance with BOB Circular A–83 (dated April 20, 1967) which contains the basic policy and requirements for the ADP Management Information System, General Services Administration has operated and is maintaining a Government-wide inventory record of ADP equipment and other management data such as cost and utilization. In order to improve the timeliness of data in the system, we have notified delinquent reporting agencies and requested prompt reporting. This action was taken in coordination with the Bureau of the Budget. We are, based on BOB guidance, currently gearing ourselves to revise the system on a calculated phased basis in order to improve its effectiveness and responsiveness to agency and Government-wide management needs.

Management Information System (MIS)

The Management Information System (MIS) as presently constituted consists of five major subsystems. These subsystems are: ADPE Inventory; Computer Utilization; ADP Manpower and Cost; Computer Acquisition History; and ADP Unit Identification.

All Federal agencies who use or plan to use ADPE are required to report under the MIS. In addition, all Government contractors who operate ADPE in the performance of work under cost reimbursement-type contracts or sub-contracts are required to report when:

(*a*) The ADPE is leased and the total cost of leasing is reimbursed under one or more cost reimbursement-type contracts, or

(*b*) The ADPE is purchased by the contractor for the account of the Government or title will pass to the Government, or

(*c*) The ADPE is furnished to the contractor by the Government, or

(*d*) The ADPE is installed in Government-owned, contractor-operated facilities.

The ADPE Inventory includes all general purpose computers and punchcard accounting machines. The only computers that are not reported are: analog computers and computers which are built or modified to special Government design specifications and are integral to a weapons system. The present system requires an "across the board" on-hand inventory every June 30. Projected acquisitions or gains and projected releases or losses of computers are required each June 30 and December 31. In order to improve the quality of projections plus timely system gain and loss reporting, GSA has routinely compared agency projections to actual for the corresponding time periods. If they did not agree, agencies were requested to confirm the accuracy of their gain and loss reporting. The Bureau

of the Budget has advised us that action has been taken to assure that agency projections of ADP equipment acquisitions and releases for Fiscal year 1971 will be more correlated with Bureau of the Budget Circular A–11 submissions. The reporting of actual ADP systems acquisitions and releases are required to be reported as they occur. Thus on an ADP system basis, the inventory is perpetual in nature.

The inventory of ADPE is maintained at the computer system and component level. Thus, at the component level the ADP/MIS provides data on the manufacturer, type and model of equipment; the actual or projected installation date, release date, and purchase price of equipment; and the monthly maintenance cost and rental cost.

The MIS employs a system of management categories which recognize the major variety of environmental conditions under which agencies operate or acquire ADPE. These categories are as follows:

a. Control Systems Equipment.—Computers which are an integral part of a total facility or larger complex of equipment and have the primary purpose of controlling, monitoring, analyzing, or measuring a process or other equipment.

b. Classified Systems Equipment.—Computers located at a classified location.

c. Mobile Systems Equipment.—Mobile computer installations on ships, planes, or vans.

d. Reutilization Equipment.—Government-owned computers acquired through Government reutilization programs.

Based on the current BOB Circular A–83, ADP/MIS reporting requirements, while all computers must be reported for inventory purposes, complete reporting for other purposes is not required when the system is used under the above outlined environmental and acquisition conditions. Specifically, ADP manpower and cost reporting and computer utilization reporting are not required for computers used as control or classified systems equipment. Utilization reporting is not required for mobile systems equipment and acquisition history reporting is not required for Government-owned computers which are reutilized within the Government.

The sub-system concerning utilization provides information concerning the equipment hours devoted to inservice use, maintenance, and hours provided to and received from others. The Manpower and Cost sub-systems provides information such as the number of man-years devoted to ADP efforts, the capital cost for site preparation and equipment purchases, and the operating costs for salaries, rentals, and contractual services. The Acquisition History sub-system provides information such as the date selection of a computer was approved by the agency, the date equipment and software delivery was required and delivered; the date equipment installation was required and made; and the date software and equipment was accepted. The ADP Unit Identification sub-system provides for the integration of all sub-systems of the MIS by providing such information as the name of the agency, office/command within the agency and the actual location of the reporting ADP unit.

The MIS has contributed to management's need for effecting actions directed at the improved utilization and acquisition of ADPE. The following represnt some examples of the use GSA has made of the data contained in the MIS:

(*a*). The regular, recurring, MIS reports containing data on Inventory, Utilization, and Manpower information are used on a daily basis by GSA Central Office and Regional Offices, agencies operating Sharing Exchanges under GSA guidance, and all ADP installations requiring additional ADP capacity for peak workload and other situations such as downtime and conversion. This information is the common "working data" used throughout GSA's nationwide sharing referral network which is dedicated to obtaining maximum utilization of existing ADP resources.

(*b*) Regular recurring MIS reports with data of agency procurement plans, as reflected by Projected Gains and Losses, are used on a daily basis by GSA in order to achieve continued use of Government-owned and leased ADPE rather than making new procurements. An example of the use of this data involved the projected loss of a B–5500 computer leased by NASA. This computer was purchased by the ADP Fund on the basis of secondary usage by the Department of Interior commencing February 1969.

(*c*) GSA purchase/lease analysis are made and, where indicated, consideration of purchasing the equipment through funds available to the agency or through the ADP Fund is made.

(*d*) Special one time reports, containing data not in the regular recurring reports, such as, specific types and models of equipment, are continually extracted from the system for use; such as, in Federal Supply Schedule Contract negotiations in order to simulate the impact of proposed price increases and to estimate potential savings resulting from proposed offers by vendors. GSA has required 106 of these Special one time reports in support of its Public Law 89–306 mission. Of interest, BOB has required 25 special reports. The Department of Commerce (NBS), has required 3 of these special reports and the Department of Defense 43. Currently 10 agencies and the General Accounting Office have required a total of 218 special MIS reports.

In order to encourage broad interagency use of information contained in the MIS, GSA has the capability to provide all desired special report information within twenty-four hours of a request. Frequently the turn around time on a priority request is as little as six to twelve hours.

GSA, in light of the Public Information Act, makes information contained in the MIS available to the public. Annually, we publish more than 6,000 copies of the "Inventory of Automatic Data Processing Equipment in the United States Government." In addition, we provide the public more detailed information contained in the system on a request basis. Information is provided in hard copy or magnetic tape form.

As indicated, GSA has been operating the system prescribed by Circular A–83 for approximately three years. During this time we have recognized certain shortcomings. We are presently engaged, in conjunction with BOB and major agencies concerned, in an effort to revise the system on a carefully phased basis. Plans call for a review of such elements of the system as timeliness of submissions and perpetual data requirements; projected acquisitions and release data correlation to BOB A–11 budget submission requirements; components vs system level reporting; computer language and application usage; leased equipment purchase credits, expanded edit criterion, inclusion of analog and certain telecommunication categories maintenance manpower costs, and other elements which may require further analysis.

Mr. Chairman, in your letter of June 12, 1970, you requested information on space and storage requirements caused by the expanding use of ADPE. We have not been able to attribute any net increased space requirements to the expanding use of ADPE. We have found that paper records produced by automatic data processing equipment are relatively short lived from a records management point of view. We are reviewing alternative methods of recording data for archival purposes with the objective of achieving a substantial compaction in data storage compared to that density normally achieved with digital data recorded on magnetic tape.

Mr. Chairman, turning now to the future I would like to inform you of our most significant plans which are:

To test the economic and technical feasibility of expanding Federal Data Processing Center Services to include time sharing.

To reduce the proliferation and maintenance of similar bread and butter computer applications which are common to many agencies by offering central Government-wide system services through the Federal Data Processing Centers such as:

Payroll and manpower statistics.
Property accounting.
Appropriation and revolving fund accounting.
Mailing lists.

To increase our advertised procurements by developing specifications for—

Eleven high disk packs.
Scientific magnetic tape.

To improve the ADP procurement process by the development of a uniform ADP contract clause handbook.

Chairman PROXMIRE. Fine. You wouldn't be inconvenienced if we asked you to remain while the other witnesses delivered their statement and then question the three of you.

Mr. ABERSFELLER. Not at all.

Chairman PROXMIRE. Colonel Warren, we are delighted to have you. You have quite a detailed prepared statement which is 15 pages, and

I would appreciate it if you could summarize it. The entire prepared statement will be printed in full in the record including the schedules you have in the back.

Colonel WARREN. All right, sir.

Chairman PROXMIRE. If you could give it to us in about 15 minutes it would be very helpful to us.

Colonel WARREN. Yes, sir.

STATEMENT OF COL. JOSEPH B. WARREN, U.S. AIR FORCE, DEPUTY COMPTROLLER FOR DATA AUTOMATION, OFFICE OF THE SECRETARY OF DEFENSE; ACCOMPANIED BY COMDR. JAN S. PROKOP, U.S. NAVY, ASSISTANT DEPUTY COMPTROLLER; ROBERT A. RAUP, DIRECTOR FOR AUTOMATION POLICY; AND HENRY LICHSTEIN, DIRECTOR FOR ADVANCED COMPUTER TECHNIQUES

Colonel WARREN. I am Col. Joseph B. Warren, Deputy Comptroller for Data Automation, Office of the Secretary of Defense. I will present a summary of ADP management in the Department of Defense and address automatic data processing procurement practices of the Department of Defense, especially as they relate to free and full competition, procurement of peripheral equipment and inventory practices in respect to contractor-held automatic data processing equipment.

I will leave a more comprehensive prepared statement for inclusion in the record of the hearing. I have with me my principal assistants, Comdr. James S. Prokop, USN, Assistant Deputy Comptroller, Mr. Robert A. Raup, Director of Automation Policy, and Mr. Henry Lichstein, Director for Advanced Computer Techniques.

ACTION SINCE COMMITTEE REPORT

This subcommittee's interest in the use and management of automatic data processing equipment (ADPE) within the Department of Defense was reflected in the subcommittee report of April 1968. My own concern and interest in this subject closely parallels that of the committee members. Since the April 1968 report, a number of significant and strong management actions have taken place within the DOD and the results have been reflected in our management reports and statistics. I would like to discuss the most important of these actions and the results in recognition of your concern in this area.

The June 1968 establishment of an ADP policy office for the DOD-wide ADP functions resulted in the creation of the Office of Deputy Comptroller for Data Automation, at which time I assumed my present responsibilities. This Office has been staffed with experienced professionals in ADP matters and serves to advise the Secretary on policy and technical considerations. One of the principal motives in the establishment of this Office was to provide a dispassionate technically competent staff which would be the advocate of no system, and which could provide advice on ADP policy to be applied evenly in all functional areas.

This office is not an operational unit. It does not operate automated data systems or procure automated data processing equipment (ADPE). The Office develops policies which are implemented by the

military departments and the agencies of the DOD. These policies concern the selection, acquisition, utilization and management of automatic data processing equipment and associated computer programs throughout the DOD. Other responsibilities of the Office include the monitorship of DOD participation in programs for Government-wide sharing and reutilization of ADPE, the administration of the DOD data standardization program, and the review of major DOD automated data systems.

The development of large automated data systems is closely monitored by the OSD as well as DOD component review offices in line with our thinking and with the guidance of the Department of Defense Appropriations Subcommittee. My office has been active in the onsite review of a number of automated data systems in the past year. During calendar year 1969, we visited and reviewed 12 major systems onsite. These reviews were conducted in full cooperation with the responsible functional managers and have resulted in major decisions concerning the design, development and implementation of these systems. So far this year, we have reviewed 20 major automated data systems.

The process of systems review and cost-effective justification has been in effect for some time in the DOD. However, recent emphasis has been given to this review and evaluation procedure. On February 6, 1970, the Deputy Secretary of Defense, Mr. Packard, signed a memorandum which effectively stopped expansion or implementation of all automated data systems until the planning, cost-effectiveness and the system review plans were evaluated, documented and specific departmental or agency level approval for continuance or expansion had been obtained.

My office is responsible for monitoring these reviews. When these reviews of automated data systems are completed, each significant system which is undergoing development or expansion will have either explicit documented approval for continuance or will be given instructions on deficiencies to be corrected prior to approval. This action constitutes a major milestone in our program to improve management of ADP systems in the DOD.

In line with the stronger policy role in the OSD which has evolved, there have been corresponding changes, where necessary, in the Services' and Agencies' ADP organizations. The central approval and selection of ADPE within the services and agencies has been strengthened and improved.

I would like to review briefly the steps in the ADPE procurement process in the DOD. As you know, while GSA is charged with the procurement of all ADPE in the Government, the separate Departments are responsible for determination of their requirements. The determination of requirements includes selection of ADPE. The selection process and the procurement process are closely intertwined and the DOD and GSA act as a team in carrying out the selection and procurement of ADPE. In some cases GSA may elect to delegate the procurement authority, a team is formed with representatives from the DOD component selection offices and the GSA, and all actions are closely coordinated in accordance with mutually agreed upon procedures. In either case, the DOD component selection offices are intimately involved in each of these major steps of the selection process:

1. Systems specifications.—These specifications are developed independently of any particular manufacturer's equipment and are designed to insure full and free competition among qualified manufacturers.

2. Request for Proposal (RFP) and Selection Plan.—All interested vendors are formally invited to submit proposals. A comprehensive description of selection criteria is established. Factors which will affect the selection are made known to all vendors.

3. Proposal evaluation.—This is a combination of technical evaluation and cost analysis. Representative computer programs are run to determine the capability of the proposed equipment to fulfill the specifications, and life cycle costs of the system are computed. Negotiations are conducted with all qualified vendors and final contract terms agreed upon.

4. Contract award.—The lowest cost bidder who qualifies technically is awarded the contract.

PROCUREMENT OF PERIPHERAL EQUIPMENT

In line with this subcommittee's recommendations concerning the substitution of independently produced compatible peripherals for presently installed equipment, I would like to discuss with you what we have done in this area.

In late 1968 a task group of our DOD ADP policy committee examined the possibilities for carrying out such a program in DOD. In October 1969 we asked the senior ADP policy officials of the defense components to give personal attention to the development and progress of programs designed to: (1) give independent peripherals manufacturers (and other qualified sources) fully competitive consideration when replacing or augmenting peripherals components, and (2) replace installed leased punch card machine equipment and peripherals on a bulk basis where such a replacement would reduce costs.

In response to our direction, the Air Force, Navy and Defense Supply Agency initiated requests for proposals for the competitive replacement of plug-to-plug compatible periherals and they have been issued. Relacement of additional peripherals for the Army and other DOD components will be accomplished as part of the government-wide GSA procurement.

The Bureau of the Budget, as a follow-up to the conference at the Federal executive center at Charlottesville in October 1969, issued their Bulletin No. 70–9, dated February 2, 1970. This bulletin required Federal agencies to review and make certain determinations regarding the replacement of installed peripheral equipment with more economical equipment produced by independent peripheral manufacturers. This was implemented in the DOD on March 3, 1970, to cover peripherals for which competitive replacement action had not already been initiated by DOD components.

A complete list of all peripheral equipment in the Department of Defense was prepared by the GSA from the ADPE inventory requires by BOB Circular A–83 and distributed by office to the services and defense agencies. Each piece of equipment was identified by them as either being available for substitution or not, and if not, why not. The annotated list was returned to GSA, to provide them with planning data for their bulk procurement action.

As I previously mentioned, actions have been undertaken by Defense components to substitute significant amounts of independently produced peripherals for that presently installed. I would like to discuss some of the more important actions with you.

NAVY

The Navy and Marine Corps have completed action on one replacement procurement, are nearing completion on a second, and are in the midst of competition for a large general buy.

The Army has collected requirements for replacement of 80 installed tape drives and disc drives and forwarded these to GSA for inclusion in the GSA competition.

AIR FORCE

An RFP was released June 10, 1970, calling for the replacement of approximately 150 IBM 729 (second-generation) tape drives, currently installed at various Air Force locations in the United States.

The Defense Communications Agency has identified requirements for seven devices, to be included in the GSA multidepartmental buy.

IN SUMMARY

A total of 1,227 tape and disc drives will be competitively selected for DOD as a result of DOD and GSA actions now complete, underway, or to be initiated within 60–90 days. We estimate that these actions will result in savings of at least $4.4 million per year. They are summarized in table 1 of the prepared statement.

From these examples, it is apparent that DOD is vigorously pursuing a peripheral replacement program, which has and will result in immediate and substantial savings to the Government. Experience with installed compatible equipment is generally favorable, and ADP management officials throughout the Department of Defense recognize the benefits and opportunities of competition in this area.

An important topic that may be of interest to this subcommittee relates to the initial procurement of a computer system with components which come from different manufacturers. Such an approach would be an extension of the concept of procuring independently produced peripherals to replace installed equipment but it presents a number of technical problems regarding system integration and system maintenance. The GSA has issued a request for proposal for a computer system which may be made up of equipment from different manufacturers. We expect that the experience gained in that procurement will be directly useful to DOD, and we are following it with great interest.

Now I would like to turn to the ADP inventory. The Department of Defense maintains an inventory of automatic data processing equipment as required by Bureau of Budget Circular A–83. The inventory includes ADPE used by Government contractors when one of the following conditions obtain: (1) the equipment is leased and the total cost of the lease is reimbursed under one or more reimbursement-type contracts, or (2) the equipment is purchased by the contractor for the account of the Government or where title will pass to the Government,

or (3) the Government furnishes the equipment to the contractor, or (4) the equipment is installed in Government, contractor-operated facilities. Responsibility for reporting contractor used or operated equipment rests with the military department or defense agency responsible for administering the contract.

180 CONTRACTOR-OPERATED COMPUTER SYSTEMS IN DOD INVENTORY 6/30/69

As of June 30, 1969, 180 compuuter systems were reported in the DOD inventory of ADPE as being operated by Department of Defense contractors in Government and contractor facilities. 92 of these systems were furnished by the Government and 88 were provided by the contractors.

The value of this equipment, as measured by the manufacturers' purchase price, is $134 million. The value of the Government-furnished equipment is approximately $61 million. Detailed data regarding ADPE operated by contractors are shown as table 2 in the prepared statement.

CONTRACTOR PROCUREMENT OF ADPE

There are two provisions within the Armed Services Procurement Regulations that warrant mentioning. First, before a contractor is permitted to acquire ADPE for the account of the Government, the requirement must be submitted to the Defense Supply Agency where it is screened against reported ADPE excesses to determine whether the requirement can be satisfied from already available ADPE resources. Only when the requirement cannot be so satisfied and the Defense Supply Agency has formally certified to this fact, is the contractor permitted to acquire new ADPE.

REPORTS OF EXCESS ADPE BY CONTRACTORS

Second, at the point when ADPE which the Government owns or has fully vested rights in is no longer needed to perform the contract, the contractor is required to submit a report of excess personal property to the Defense Supply Agency where it is made available to other DOD and Government agencies through the ADPE reutilization program.

REUTILIZATION OF EXCESS ADPE BY CONTRACTORS

The increasing success of contractor use of the ADPE reutilization program is attested by the fact that contractors have acquired $22 million of ADPE through this source to meet approved requirements during the first 11 months of fiscal year 1970 compared to $9 million in all of fiscal year 1969. In addition, the amount of ADPE reported by contractors as being available for DOD and Government-wide reutilization increased from $32 million in fiscal year 1969 to $67 million in fiscal year 1970.

That ends my summarized statement.

(The prepared statement of Colonel Warren follows:)

PREPARED STATEMENT OF COL. JOSEPH B. WARREN

Mr. Chairman and Members of the Subcommittee, I am Colonel Joseph B. Warren, USAF, Deputy Comptroller for Data Automation, Office of the Secretary

of Defense. I will present a summary of ADP management in the Department of Defense and address automatic data processing procurement practices of the Department of Defense, especially as they relate to free and full competition, procurement of peripheral equipment and inventory practices in respect to contractor-held automatic data processing equipment.

I have with me my principal assistants, Commander Jan S. Prokop, USN, Assistant Deputy Comptroller, Mr. Robert A. Raup, Director for Automation Policy, and Mr. Henry Lichstein, Director for Advanced Computer Techniques.

This Subcommittee's interest in the use and management of automatic data processing equipment (ADPE) within the Department of Defense was reflected in the Subcommittee Report of April 1968. My own concern and interest in this subject closely parallel that of the Committee members. Since the April 1968 Hearings, a number of significant and strong management actions have taken place within the DoD and the results have been reflected in our management reports and statistics. I would like to discuss the most important of these actions and the results in recognition of your concern in this area.

The June 1968 establishment of an ADP Policy Officer for the DoD-wide ADP functions resulted in the creation of the office of Deputy Comptroller for Data Automation, at which time I assumed my present responsibilities. This office has been staffed with experienced professionals in ADP matters and serves to advise the Secretary on policy and technical considerations. One of the principal motives in the establishment of this office was to provide a dispassionate, technically competent staff which would be the advocate of no system, and which could provide advice on ADP policy to be applied evenly in all functional areas.

This office is not an operational unit. It does not operate automated data systems or procure automated data processing equipment (ADPE). The office develops policies which are implemented by the Military Departments and the Agencies of the DoD. These policies concern the selection, acquisition, utilization and management of automatic data processing equipment and associated computer programs throughout the DoD. Other responsibilities of the office include the monitorship of DoD patricipation in programs for Government-wide sharing and reutilization of ADPE, the administration of the DoD Data Standardization Program, and the review of major DoD automated data systems.

The development of large automated data systems is closely monitored by the OSD and DoD Component review offices. My office has been active in the on-site review of a number of automated data systems in the past year. During calendar year 1969, we visited and reviewed twelve major systems on-site. These reviews were conducted in full cooperation with the responsible functional manager and have resulted in major decisions concerning the design, development and implementation of these systems. So far this year, we have reviewed twenty major DoD automated data systems.

The process of systems review and cost-effective justification has been in effect for some time in the DoD. However, recent emphasis has been given to this review and evaluation procedure. On February 6, 1970, the Deputy Secretary of Defense, Mr. Packard, signed a memorandum which effectively stopped expansion or implementation of all automated data systems until the planning, cost-effectiveness and the system review plans were evaluated, documented and specific Agency level approval for continuance or expansion had been obtained. My office is responsible for monitoring these reviews. When these reviews of automated data systems are completed, each significant system which is undergoing development or expansion will have either explicit documented approval for continuance or will be given instructions on deficiencies to be corrected prior to approval. This action constitutes a major milestone in our program to improve manageemnt of ADP systems in the DoD.

In line with the stronger policy role in the OSD which has evolved, there have been corresponding changes, where necessary, in the Services' and Agencies' ADP organizations. The central approval and selection of ADPE within the Services and Agencies has been strengthened and improved.

I would like to review briefly the steps in the ADPE procurement process in the DoD. As you know, while GSA is charged with the procurement of all ADPE in the Government, the separate Departments are responsible for determination of their requirements. The determination of requirements includes selection of ADPE. The selection process and the procurement process are closely intertwined and the DoD and GSA act as a team in carrying out the selection and procurement of ADPE. In some cases GSA may elect to delegate the procurement authority to the DoD Component. When GSA retains procurement authority, a team is formed with representatives from the DoD Component se-

lection offices and the GSA, and all actions are closely coordinated in accordance with mutually agreed upon procedures. In either case, the DoD Component selection offices are intimately involved in each of these major steps of the selection process:

1. *Systems specifications.*—These specifications are developed independently of any particular manufacturer's equipment and are designed to insure full and free competition among qualified manufacturers.

2. *Request for Proposal (RFP) and Selection Plan.*—All interested vendors are formally invited to submit proposals. A comprehensive description of selection criteria is established. Factors which will affect the selection are made known to the vendors.

3. *Proposal evaluation.*—This is a combination of technical evaluation and cost analysis. Representative computer programs are run to determine the capability of the proposed equipment to fulfill the specifications, and life cycle costs of the system are computed. Negotiations are conducted with all qualified vendors and final contract terms agreed upon.

4. *Contract award.*—The lowest cost bidder who qualifies technically is awarded the contract.

In line with this Subcommittee's recommendations concerning the substitution of independently produced compatible peripherals for presently installed equipment, I would like to discuss with you what we have done in this area.

In late 1968 a Task Group of our DOD ADP Policy Committee examined the possibilities for carrying out such a program in DOD. In October 1969 we asked the Senior ADP Policy Officials of the Defense Components to give personal attention to the development and progress of programs designed to: (1) give independent peripherals manufacturers (and other qualified sources) fully competitive consideration when replacing or augmenting peripheral components, and (2) replace installed leased PCME and peripherals on a bulk basis where such a replacement would reduce costs.

In response to our direction, the Air Force, Navy and Defense Supply Agency initiated Requests for Proposals for the competitive replacement of plug-to-plug compatible peripherals and they have been issued. Replacement of additional peripherals for the Army and other DoD Components will be accomplished as part of the Government-wide GSA procurement.

The Bureau of the Budget, as a follow-up to the conference at the Federal Executive Center at Charlottesville in October 1969, issued their Bulletin No. 70–9, dated February 2, 1970. This Bulletin required Federal Agencies to review and make certain determinations regarding the replacement of installed peripheral equipment with more economical equipment produced by independent peripheral manufacturers. This was implemented in the DOD on March 3, 1970, to cover peripherals for which competitive replacement action had not already been initiated by DOD Components.

A complete list of all peripheral equipment in the Department of Defense was prepared by the GSA from the ADPE inventory required by BoB Circular A–83 and distributed by my office to the Services and Defense Agencies. Each piece of equipment was identified by them as either being available for substitution or not, and if not, why not. The annotated list was returned to GSA, to provide them with planning data for their bulk procurement action.

Actions To Substitute Independently Produced Peripherals

As I previously mentioned, actions have been undertaken by Defense Components to substitute significant amounts of independently produced peripherals for that presently installed. I would like to discuss some of the more important actions with you.

Navy

The Navy and Marine Corps have completed action on one replacement procurement, are near completion on a second, and are in the midst of competition for a large general buy. The actions cover the following equipment and locations:

1. Potter Instrument received an award last September to replace second-generation tape drives at the Ship Parts Control Center, Mechanicsburg, Pennsylvania, and at Bureau of Personnel facilities. Forty tape drives have been installed, at a rental cost 36 percent below the price paid for previous vendor equipment. Savings are estimated by the Navy at $120,000 per year.

2. The Navy ADP Equipment Selection Office (ADPESO) is now ready to award a contract for replacement of IBM third-generation tape drives and disc

drives at Marine Corps Headquarters. Sixteen tape drives and three disc drives are involved. Bids have been received from six vendors, and an award is expected before August 1. Savings resulting from this action are estimated at $112,000 annually.

3. ADPESO is also evaluating replies to RFP 001–70, issued April 30 of this year. This group buy will allow up to 536 devices to be installed at 51 Navy and Marine Corps locations in the United States. Options in the RFP allow Navy installation of up to 683 tape drives and 175 disc drives. This is the largest single Government procurement known to date in the compatible peripheral area. A preliminary RFP was issued in early 1970 for vendor comments. At this writing, 15 vendor responses had been received. Equipment to be replaced is the following:

IBM designation:	*Quantity*
2311 disc drive	49
2314 disc drive	60
729 tape drive	100
7330 hypertype	36
2401 tape drive	291
Total	536

Contract awards are to be made August 10, with first installation in September. Navy estimates savings of $7 million over the three year systems life. If options are exercised, these savings could be larger.

Army

The Army has collected requirements for replacement of 80 installed tape drives and disc drives and forwarded these to GSA for inclusion in the GSA competition. If a "requirements"-type contract is obtained by GSA, they may order more drives using this contract. Estimated annual savings of this action is $129,000.

GSA indicates that this action will be released for bids around August 1, with awards made November 1, and deliveries soon thereafter.

Also. on November 5, 1969, Army Headquarters sent to the field commanders a letter recommending local analysis of the potential of compatible peripherals, and encouraging local installations to request replacement when advantageous. Analysis is to be performed whenever peripherals are replaced or augmented.

Air Force

An RFP was released June 10, 1970, calling for the replacement of approximately 150 IBM 729 (second-generation) tape drives, currently installed at various AF locations in the U.S. Selection is being handled by AF Systems Command, Electronic Systems Division, Bedford, Massachusetts. Thirty-five requests for the RFP have been received and about 10 proposals are expected. Proposal deadline is July 13. This action is estimated to result in recurring annual savings of $372,000, although $52,000 of one time charges will be incurred during the first year.

DCA

DCA has identified requirements for seven devices, to be included in the GSA multidepartmental competition.

Summary

A total of 1227 tape and disc drives will be competitively selected for DoD as a result of DoD and GSA actions now complete, underway, or to be initiated within 60–90 days. We estimate that these actions will result in savings of at least $4.4 million per year. They are summarized in Table 1.

From these examples, it is apparent that DoD is vigorously pursuing a peripheral replacement program, which has and will result in immediate and substantial savings to the Government. Experience with installed compatible equipment is generally favorable, and ADP management officials throughout the Department of Defense recognize the benefits and opportunities of competition in this area.

An important topic that may be of interest to this Subcommittee relates to the initial procurement of a computer system with components which come from different manufacturers. Such an approach would be an extension of the concept of procuring independently produced peripherals to replace installed equipment but it presents a number of technical problems regarding system integration and system maintenance. The GSA has issued a Request for Proposal for a computer system which may be made up of equipment from different manufacturers. We expect that the experience gained in that procurement will be directly useful to DoD, and we are following it with great interest.

Multi-vendor procurement differs from the normal in two important aspects: first, it encourages responses from a broad range of vendors, including systems integration firms and peripheral equipment manufacturers as well as original equipment manufacturers; and second, it indicates explicitly that the Government may, if it chooses, act as the systems integrator itself. This is a departure from the so-called "prime vendor" concept, where the selected vendor must provide the entire system.

There was general agreement by the participants at the conference at the Federal Executive Center at Charlottesville that acquisition of multi-vendor systems should be approached carefully because this may shift the burden of hardware systems engineering from the vendor to the Government, and necessitate a large number of benchmark tests to validate performance of each proposed peripheral with each proposed CPU. This might complicate and stretch out the computer acquisition process.

The Department of Defense maintains an inventory of automatic data processing equipment as required by Bureau of Budget Circular A–83. The inventory includes ADPE used by Government contractors when one of the following conditions obtain: (1) the equipment is leased and the total cost of the lease is reimbursed under one or more reimbursement-type contracts, or (2) the equipment is purchased by the contractor for the account of the Government or where title will pass to the Govenment, or (3) the Government furnishes the equipment to the contractor, or (4) the equipment is installed in Government-owned, contractor-operated facilities. Responsibility for reporting contractor used or operated equipment rests with the Military Department or Defense Agency responsible for administering the contract.

As of June 30, 1969, 180 computer systems were reported in the DoD Inventory of ADPE as being operated by Department of Defense contractors in Government and contractor facilities. Ninety-two of these systems were furnished by the Government and 88 were provided by the contractors.

The value of this equipment, as measured by the manufacturers' purchase price, is $134 million. The value of the Government furnished equipment is approximately $61 million. Detailed data regarding ADPE operated by contractors are shown as Table 2.

There are two provisions within the Armed Services Procurement Regulations that warrant mentioning. First, before a contractor is permitted to acquire ADPE for the account of the Government, the requirement must be submitted to the Defense Supply Agency where it is screened against reported ADPE excesses to determine whether the requirement can be satisfied from already available ADPE resources. Only when the requirement cannot be so satisfied and the Defense Supply Agency has formally certified to this fact, is the contractor permitted to acquire new ADPE.

Second, at the point when ADPE which the Government owns or has fully vested rights in is no longer needed to perform the contract, the contractor is required to submit a Report of Excess Personal Property to the Defense Supply Agency where it is made available to other DoD and Government Agencies through the ADPE Reutilization Program.

The increasing success of contractor use of the ADPE Reutilization Program is attested by the fact that contractors have acquired $22 millions of ADPE through this source to meet approved requirements during the first eleven months of FY 1970 compared to $9 million in all of FY 1969. In addition, the amount of ADPE reported by contractors as being available for DoD and Government-wide reutilization increased from $32 million in FY 1969 to $67 million in FY 1970.

On March 21, 1969, GSA signed Government-wide "requirements contracts" with five vendors to replace installed IBM Punched Card Machine Equipment (PCME) with nearly identical equipment at greatly reduced rentals. The terms and conditions of these contracts were similar though not identical to those within the IBM contract. However, not all the IBM Punched Card Machine Equipment and features were incorporated into these contracts.

SAVINGS IN DoD

In order that the Department of Defense Components should quickly move forward with this replacement, in early May the Assistant Secretary of Defense (Comptroller) notified the Components of this offering and requested that the Components report periodically on the progress of the replacement. To date, DoD has been allocated 698 pieces of equipment which is 71% of the allocations made by GSA and annual savings of nearly $520,000 are anticipated from these contracts. Annual savings of $351,000 have already been realized. An additional $130,000 of annual savings are also expected through a separate but similar Air Force lease-back contract for PCME for 242 pieces of equipment. This separate solicitation was initiated before release of the "requirements contracts."

This program has and is still receiving detailed attention of my office. We have experienced some problems. First, we must incur the immediate expense of shipping the replaced equipment back to IBM. This significantly reduces the initial savings. Second, often we are unable to replace entire installations with equipment from one contractor, either because of equipment non-availability or feature incompatibility (such as mark-sensing devices). This increases the complexity and cost of administering the replacement. Third, there were concerns within the Department of Defense Agencies that the larger pieces of equipment were not exactly compatible to the installed equipment. In fact, the Army National Guard conducted extensive tests of the replacement for the computing accounting machine and did discover incompatibilities which required some modification to the new equipment.

The National Guard is now replacing the leased IBM equipment on a phased basis, which will allow time for the vendor and the National Guard to iron out these problems. Finally, problems during the conversion period have been experienced due to the age of the equipment and slight operating incompatibilities. These problems typically last for about a month and, once overcome, normal operation is regained. Where the new vendor has provided maintenance, it has appeared adequate thus far.

Most DoD Components and activities use one-year lease arrangements for a large portion of their ADPE. There are many instances where economic analyses reveal that purchase, rather than lease, is more favorable to the Government over the life of the equipment and DSD has for some time encouraged purchase of such equipment. Much equipment which is not economical to purchase, however, remains in Government use for one to four years. The use of one-year lease arrangements for these computers and components, rather than longer-term leases, results in higher lease costs.

The OSD(C) Data Automation office is now studying the potential savings that could be obtained by using long-term leases, and also the legal and administrative environment. As you know, ADPE leases are funded with Operations and Maintenance appropriations, and the Comptroller General has ruled that such long-term contracts are not, in general, legal use of O&M funds. This is because in many cases annual recompetition, rather than "locked in" long-term leases, is the best way to get lower costs. However—because of training and software costs—annual recompetition is not practical or economic in the case of ADPE.

What we seek is an effective way to legally take advantage of the lower rates provided by long-term leases, for those ADPE items which will be used longer than one year but are not economically advantageous purchases.

On January 5, 1970, the Comptroller issued a memorandum to all DoD Components giving them guidance on the acquisition of certain services offered by IBM following IBM's announced changes in their pricing structure. These changes, generally referred to as "unbundling," price such services as system engineering or training separately from the equipment itself. Our guidance was intended to aid activities in presenting their needs to local procurement officials.

The memorandum took cognizance of the need to subject requirements for specialized services to more careful scrutiny when they are priced on an as-used basis. This is in contrast to the relatively low management attention such services received when they were free. It suggested that many risks previously performed by an equipment vendor without additional charge, ideally could be performed with in-house resources. Current practices with regard to computer training needed to be reviewed since the training cost for each person was now to be charged to the Government. We recognized that the quantity and types of

services received in the past may not have been accurate indications of current needs.

As a final caution, we pointed out to the Components that personalized services contracts were not to be used. Specifically, the creation of an employer-employee relationship between the Government and contractor was to be avoided.

In addition to the above plans and actions, the following items are of major interest in evaluating the DoD management of automated data systems:

1. The ADP Policy Committee, consisting of the senior ADP officials from the DoD Components and chaired by the Deputy Assistant Secretary of Defense (Systems Policy & Information), has been increasingly active in identifying critical problems and recommending solutions. Examples: Management of ADP Systems Development, ADP Installation Emergency Plans, Economic Analysis of Computer Purchases.

2. There is a continued expansion in the development and implementation of DoD standard data elements and codes in all functional areas to assure compatibility among DoD data systems and to facilitate the interchange of data with a great reduction in costly data conversion or translation. Some 200 standard data elements, comprised of about twelve million data items, have been standardized and are being effectively introduced into our data systems, about 1,000 more data elements are in some phase of standardization.

3. Sharing of ADP resources in lieu of purchase of equipment or services has increased. Reimbursements reported by the Components for ADP services were: FY 1969 $27,015,000; FY 1970 $29,086,000 (Forecast).

Reutilization of Equipment Has Increased

4. Reutilization of equipment has increased:

Reutilized within DoD:

FY 1968, $39,764,000.
FY 1969 $59,384,000.
FY 1970 (1st half), $38,715,000.

Reutilized from Other Agencies:

FY 1968, $4,264,000.
FY 1969, $4,692,000.
FY 1970 (1st half), $4,186,000.

Equity in Leased Equipment

Equity in leased equipment was also retained by reuse of ADPE: FY 1968 $19,838,000; FY 1969 $23,994,000; and 1st Half FY 1970 $14,835,000.

Projected Decline in DOD Computers

5. The total number of DoD computers is projected to decline. There was an actual decline in the DoD percentage of all Federal Government computers, as reported in the Bureau of the Budget A–83 report:

	Fiscal year		
	1968	1969	1970 (projected)
Computers	2,694	2,898	2,772
Department of Defense (percent)	63.6	62.1	58.2

TABLE 1.—COMPATIBLE PERIPHERALS—SUMMARY OF CURRENT REPLACEMENT ACTIONS

Component	Locations	Tape	Disk	Count	Selection responsibility	Status	Estimated annual savings (in thousands)
Army	Several	X	X	[1] 80	GSA	[2]	$129
Navy	Marine Corps Headquarters	X	X	19	Navy	Awarded by Aug. 1	112
Navy	SPCC, Mechanicsburg, Pa./ Bureau of Personnel.	X		40	do	Complete	120
Do	Several	X	X	[3] 536	do	Bid evaluation	2,330
Air Force	do	X		[1] 150	AF	Proposals due July 13	372
DSA	do	X	X	109	DSA	IFB 60 days	[4] 140
DSA	DLSC, Battle Creek, Mich	X		57	DSA	Complete	220
DCA	NMCS Support Center, Washington, D.C.	X	X	9	GSA	[2]	[4] 28
Total				1,227			4,422

[1] Approximate.
[2] GSA estimates award by Nov. 1, 1970, and delivery soon thereafter.
[3] Navy options will allow up to 858 devices; savings computed only for 536.
[4] OSD estimate assuming 20 percent savings.

TABLE 2.—VALUE OF ADPE OPERATED BY CONTRACTORS (MEASURED BY PURCHASE PRICE) IN GOVERNMENT AND CONTRACTOR FACILITIES AS OF JUNE 30, 1969

[In thousands of dollars]

	Total	Government owned	Government leased	Contractor owned	Contractor leased
Operated by contractor in Government facility:					
Army		421	1,641	0	2,096
Navy		6,503	1,150	809	235
Air Force		15,648	14,167	12,735	20,000
Total		22,572	16,958	13,544	22,331
Operated by contractor in contractor facility:					
Army		0	0	0	0
Navy		6,642	302	7,325	2,542
Air Force		24,358	0	568	17,009
Agencies		189	0	0	0
Total		21,189	302	7,893	19,551
Grand total:					
Army	4,158	421	1,641	0	2,096
Navy	25,498	13,145	1,452	8,134	2,777
Air Force	104,485	40,006	14,167	13,303	39,009
Agencies	189	189	0	0	0
Department of Defense	134,141	53,761	17,260	21,437	41,882

Chairman PROXMIRE. Thank you very much, Colonel Warren.
Mr. Caveney, you are our next witness. You may proceed.

STATEMENT OF L. RICHARD CAVENEY, PRESIDENT, COMPUTER PERIPHERAL MANUFACTURERS ASSOCIATION

Mr. CAVENEY. Yes, Mr. Chairman.
Mr. Chairman, I am Mr. L. Richard Caveney and I appear here as President of the Computer Peripheral Manufacturers Association. These hearings are extremely significant to the peripheral community, the so-called manufacturers of computer peripherals. In fact, Mr. Chairman, I appear here today as the official voice of those members of the Computer Peripheral Manufacturers Association and for the ma-

jority of those manufacturers of computer peripherals within the peripheral community.

PROGRESS MADE SINCE NOVEMBER 30, 1967

Since my appearance before this committee on November 30, 1967, charging the U.S. Government with locking out the peripheral manufacturers from bidding on peripheral equipment direct to the U.S. Government, and thus wasting the taxpayers' dollars, I am very pleased to report the peripheral community has, in fact, penetrated to a small degree the U.S. Government market which has resulted in a sizable savings of tax dollars, which can be substantiated by the General Accounting Office.

During this campaign, I attained many titles, but the one I cherish most is "The Unbundler." The most titles I reaped and the hostility I met within the executive branch, indicated progress was being made. I might add that when the Comptroller General of the United States issued his report and directive in June 1969, whereby the Bureau of the Budget was directed to implement proper procurement procedures to reduce the cost of electronic data processing equipment leased, or to be purchased, by utilization of peripheral equipment from other than the original computer manufacturer, I was contacted and asked that if I were invited to attend a meeting with key officials of the Government to implement the Comptroller General's directive, would I attend but be unbiased. Needless to say, I did not attend the meeting but this is one of the many fine responses one receives from the Government when one "rocks the boat." I do not expect to receive the Nobel Peace Prize, but knowing we have successfully rocked the boat and moved this complicated monster called Government to react to change is a satisfaction few people can attain.

I would like to add the success achieved could not have been accomplished without the support of the news media and of this committee and my deepest and sincere gratitude must go to two specific members of the committee, the Honorable Martha W. Griffiths and the Honorable William B. Widnall, because without their continual support, guidance, and assistance, the equal competitive position which the peripheral community achieved and the savings of tax dollars could ever have been accomplished. I would like to state further the President of the United States, specifically his staff, commencing in early 1969, were instrumental in providing the necessary exposure to this problem to all elements within the executive branch which also assisted greatly in reducing waste of tax dollars and thus allowed the peripheral manufacturers a competitive position with Snow White and the Seven Dwarfs. Peripheral manufacturers who formerly could not even receive the correct time of day from the executive branch of Government are today being treated, in the majority of cases, as equal competitors and receiving some contract awards.

MORE ACCEPTANCE OF GAO FINDINGS AND RECOMMENDATIONS NEEDED

A great deal more acceptance of the General Accounting Office's findings and recommendations by the various elements within the Executive Branch of Government must be achieved before billions of dollars in tax waste can be realized because only token acceptance has

been achieved to date. Unless the Executive Branch will allow the peripheral community to compete on an equal and impartial basis, otherwise this Association will be forced to use every possible means to achieve the objectives we seek.

We in the Association are very proud to report one major department of the Executive Branch is doing an outstanding effort in respect to evaluating peripheral equipment from the entire computer industry which will provide the U.S. Government with the best possible equipment; to do the best job; and at the best possible price. In short, this department is exercising sound management efforts and recognizing the savings the peripheral community can provide. This same department I mentioned in my testimony in November 1967, which was one of the first pioneers in the U.S. Government to achieve the highest order of savings in hardware savings, that is, this department did buy peripheral modules from various suppliers to their prescribed specifications and thus achieved a total computer system which they required but not just from one source, but from many sources within the computer industry. The department of which I speak is the U.S. Navy. They have an EDP selection office which is compact, efficient, competent, and they are actually accepting the benefits that can be derived from pust plain common horsesence. They are very courteous and cooperative and treat everyone in the computer industry on an equal basis and it is a pleasure to see one large segment of the executive branch operate in an efficient and skilled manner. We pray this disease of the U.S. Navy will spread to the entire executive branch.

Dealing with the electronic data processing group within the General Services Administration is really an experience. I have had numerous contacts with GSA, like the majority of the peripheral community, with each having had the same experience. Receiving a Federal supply contract is like climbing to the top of Mount Everest without any equipment or assistance. It is the association's firm belief that GSA could be more flexible in negotiations with the peripheral community instead of trying to make us fit the total computer manufacturer's requirements and giving us the feeling they wish we would go away.

Also, we cannot understand the over 2 years' time span it has taken for any peripheral manufacturer to receive more than token contract awards from GSA and I know personally a few awards were achieved reluctantly from GSA but only because of congressional insistence which should not have to be applied if sound procurement and management ethics were being adhered to. The association is still not convinced of GSA's role in EDP procurements because of the snails' pace they have exhibited to the peripheral community to date. However, we will watch, we will evaluate, but we will not wait as GSA has had ample time to perform their responsibilities.

DOCUMENT BY FEDERAL EMPLOYEE

The following document was written by a highly qualified Federal employee whom the peripheral community considers is one of the most competent individuals in Government, but due to the Federal employee system which seems to aspire to Peter's Principle: "If one is incompetent, he will be promoted," this Federal employee will never be pro-

moted and, therefore, his talents will be wasted and another waste of taxpayers' dollars will prevail. I have received his permission to use this document which is appropriate to my testimony:

CONTINUED DOCUMENTATION OF CURRENT WASTE IN COMPUTER PERIPHERAL PROCUREMENT BY THE U.S. GOVERNMENT

SUMMARY OF FACTS ON ONE RECENT U.S. CONTRACT AWARD

This paper documents the waste of $160 million U.S. Tax Dollars in one recent contract award. These funds were wasted by paying 75 percent more for Electronic Data Processing (EDP) equipment than necessary. This award was made after congressional testimony, suggestion awards, and personal conversations had previously pinpointed this waste for Administration officials.

RELEVANT FACTS ON FEDERAL NON-AWARDS

On his May fifth nationwide television show, "First Tuesday," Sander Vanocur reported that Federal Government cut-backs in medical funds this year were forcing emergency clinics to close, were pushing the U.S. medical schools into a financial crisis, were definitely taking American lives at this time, and would be responsible for the loss of many more lives in the immediate future.

He referred specifically to the imminent closing of the Jacoby Emergency Clinic in the Bronx (New York) because of the Federal withdrawal of only $450,000 per year. The dean of the St. Louis University Medical School, Dr. R. Felix, testified that his medical school may have to close because of the recent withdrawal of Federal funds. Dr. Felix noted that several medical schools faced this crucial decision in a time of expanding need for physicians in the country.

Vanocur diagnosed the present condition of the United States health delivery system as "financial anemia." His prognosis concerning the future delivery of health services to the U.S. public was bleak and harrowing.

FACTS ON FINANCIAL GLUT IN EDP PROCUREMENT

The extraordinary waste in present U.S. Government electronic data processing procurement is described quite simply in the opening paragraph of the CalComp brochure. This brochure could be from any of fifty EDP peripheral manufacturers. The CalComp sales office is within walking distance of my office, so I picked up their current sales material to illustrate my point. CalComp says:

"The CD1 is plug-to-plug interchangeable and format compatible with the IBM 2311 disc storage unit, yet its cost is much lower and it is more than twice as fast . . . The only differences between the CalComp unit and the IBM unit are price and performance—and the CD1 is the winner on both counts."

Stated another way, the evidence shows the CalComp unit to be at least two times less expensive and two times more productive than the IBM machine—a four-to-one competitive advantage.

A FOUR-TO-ONE ADVANTAGE IS NOT ENOUGH

As a Government purchase, the CalComp instrument is 48.6 percent less expensive, yet produces "more than double" the "work" of the IBM unit. The CalComp unit has a purchase price of $12,720; the IBM unit it replaces sells for $24,750. Stated in dollars, this says that for every purchase dollar in "CalComp Dollars," we would be required to spend at least $3.84 in "IBM Dollars." Yet CalComp has not placed one CD1 unit within the Federal Government since its announced availability eight months ago, while the General Services Administration has just recently awarded IBM a $330 Million lease contract in "IBM Dollars."

On a leasing arrangement, the CalComp rents for $359 per month for *all hours* in the month; the IBM (2311) rents for $725 per month for *eight hours* a day only—additional usage is billed at hourly rates. The price disparity would be larger than four-to-one if usage was high and the equipment leased—the most usual case.

INFLATION—IBM STYLE; $160 MILLION WASTED

Assuming that 65% of this $330 Million is for peripheral devices and terminals as the Diebold Research Program Projection indicates the relationship to be (chart attached), this means that the $214.5 Million (65% of $330 Million) given in "IBM Dollars" could have been matched by $53.6 Million in "CalComp Dollars" or "Other Peripheral Manufacturers Dollars". The difference, *$160 Million is wasted* in real American "GNP Dollars", which could be put into budget deficits or housing or whatever.

ONE HUNDRED EMERGENCY CLINICS AND EIGHTY-THREE MEDICAL SCHOOLS

This documented example shows we could have kept *over one hundred emergency clinics* going this year, without any loss of capability in the electronic data processing sector. At the same time, we would have given over a Million Dollars *tax-free to every medical school* in the country, with money left over to start a couple more to meet the United States doctor shortage.

SHOULD THE OFFICE OF THE PRESIDENT ACT?

From my vantage point, it is unconscionable to allow such procurement practices to continue when people are being allowed to die for lack of money and facilities, as Vanocur has reported.

Rapid remedial action is indicated not by what we are doing, but more importantly, by what we are *not* doing.

HAVE OTHERS ACTED? IS THERE PRECEDENCE FOR CHANGE?

Government and non-Government data processing installations using disc drives in this country number about 14,000. Within these 14,000 installations, there are some 28,000 IBM 2311 disc drives, as there are multiple units in some installations. An additional 6,000 other peripheral manufacturers' disc drives now exist in installations throughout this country—all non-Federal Government. Yet the General Services Administration is still looking into the "feasibility" of using these devices for Government applications as though private industry is not capable of making valid assessments regarding cost and performance.

Is indisputable evidence enough? These facts are indisputable and have been with us for some time. One original suggestion concerning a $700 million to $1 billion saving on tape drives (a different peripheral device) is 2½ years old yet was disapproved by the Bureau of the Budget based on reasons bordering on pure stupidity.

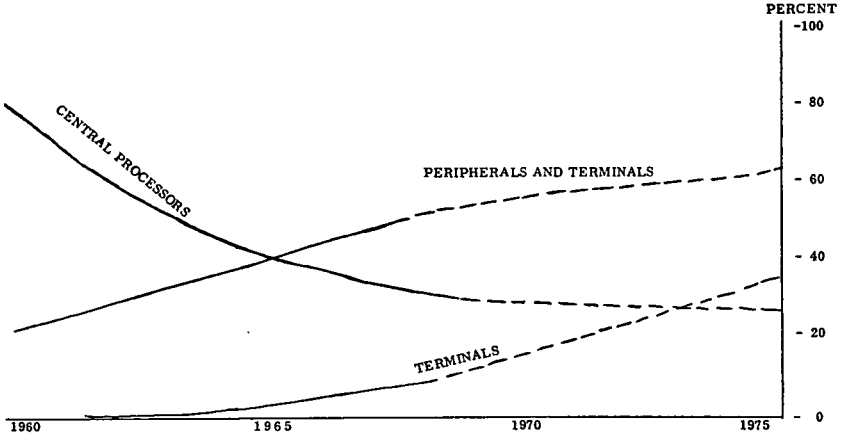
Approval of this valid suggestion could have realized savings way back in the latter part of 1967 or early 1968 if competent people in the Federal suggestion program would review, act, and implement and not sit on their hands and disapprove because they don't understand or because it might require change, and this is the real point. Why must Congress always intercede where savings are very apparent, and why must the taxpayer come forth to Congress and badger and show that these things exist in Government?

Why can't Government, the executive branch, do it themselves, why?

HARDWARE COMPONENTS AS A PERCENT OF TOTAL SYSTEM COST*

Year	1960	1965	1970	1975
Component		Millions of Dollars		
CPU	280	1,300	3,400	5,000
Peripherals:				
Terminals		100	1,600	5,500
Other Peripherals	120	1,250	3,500	5,000

*Source: The Diebold Group, Inc.



One major point is brought out by this document. In November 1967 (plus or minus a few weeks) GSA states—if the peripheral maufacturers would apply for a Federal supply contract they could then be considered for an award once they were isued a Federal supply contract from GSA. This brings up a very sound question. If peripheral equipment manufacturers were issued Federal supply contracts from GSA for fiscal year 1970 and IBM had not been approved for fiscal year 1970, then why did GSA wait for IBM to be approved and then give them an award approximating $330 million and, further, we would like to know how many awards were given to those peripheral manufacturers that had a Federal supply contract during this same period when IBM had not yet been awarded a Federal supply contract. We have come up with some substantial answers to these questions which could lead one to assume dual procurement policies prevail and thus the conclusion can be made that it appears some hanky-panky is going on which indicates to us unethical procurement practices are still persisting and is the rule rather than the exception.

This is not a threat, but if ethics appear not to be the rule, then the CPMA will have to counter with the "goodies" we have in our medicine bag.

SOFTWARE AS POTENTIAL AREA FOR ECONOMY

There is one major area of savings within the EDP area in Government which needs the immediate attention of Congress to facilitate

further savings in respect to data processing equipment. This area of savings is in the software costs associated with and required of computer systems with all areas of hardware and software costing the Federal Government well over $6 billion per year and, of this amount, a good $2 billion could be saved without the slightest deficiency of any Government entity. The major components of computer expenditures are hardware costs and software costs. "Software" is what makes the "hardware" run.

The Comptroller General of the United States has given a "horseback estimate" of the Federal hardware costs as "something in excess of $3 billion." He estimates software to be about equal to the hardware costs. This estimate of Federal software costs is grossly understated, since General Services Administration (GSA) computes software costs for the Comptroller General by multiplying the number of people on duty as programers by their average grade salary. This is comparable to considering the average salary of carrier pilots as the software costs required to maintain a wing of carrier aircraft (the hardware) at sea.

The computer revolution has become a revolution in software. Great redundancy exists in software development throughout the Federal Government. Personnel accounting; financial management; supply and procurement systems for all agencies are autonomous and duplicating. At this time, no Federal policy has been enunciated that could change the great waste in personnel and money that this redundancy spawns. Responsible estimates place the potential savings at $3 billion of the Government's true costs.

The reported "hardware" expenditures of some $3 billion seems to be little more than a "horseback estimate" as the submitted suggestion by a Federal employee indicated a savings of at least $700 million to $1 billion could have been realized on tape drive purchases alone back in the early part of 1968. Mr. Kelly of the Bureau of the Budget disapproved this suggestion in 1968 as his letter of disapproval points out that to implement this suggestion "would require complete revision of our present concepts of EDP systems and procurement". "Our" being the Executive Office of the President, Bureau of the Budget—the Federal Establishment. He notes "many questions have to be answered * * *" and "that implementation of such specific suggestions ($700 million savings) is impossible without making other major changes". (See p. 133 et seq.)

Major changes and questions to be answered be damned. The private sector accomplished this without any changes—or did questions have to be answered—it is no wonder citizens of this country become frustrated and disgusted with government. The President of the United States appointing an ombudsman is a sound step and the office of the ombudsman should be permanent as the first ombudsman appointed by the President did permit the outside world to communicate with the President.

My congressional testimony on Federal EDP hardware procurement policy in November 1967, reported great savings would result from a new procurement policy. One example given in my testimony in 1967 clearly indicated a savings of $500,000 to be realized from one $900,000 system with over 100 such systems to have been procured at that time, savings totaling over $40 million.

GOVERNMENTWIDE COMPUTER UTILITIES

Recent technological advances in both software and hardware make new public policy possible. The extraordinary capacities of today's hardware are insulated from the average user by a thick blanket of programing systems. The development of Governmentwide computer utilities for the development and maintenance of standard software for certain classes of activities, such as personnel accounting; payroll; inventory and contract control, etc., are now technically present.

If such a concept of uniform software for every portion of the executive branch were implemented, it would mean that a central group would be responsible for the collection of those programs now developed that are tried and proven and would provide for the central maintenance of such programs and documentation. In this way, any error—logical or procedural—found in any agencies' activities is corrected for all Government users. Compatibility resulting from common software, in turn allows for the maximum utilization of hardware and communication facilities—all of which would sharply reduce governmental operating costs.

SOFTWARE

DECENTRALIZED	CENTRALIZED
$50,000 to $500,000 per program.	$5,000 to $40,000 per program, because of multiple use and distribution of costs over larger number of activities.
6 months to 1 year required to design and build any significant program—doesn't count the months getting rid of bugs.	Programs available now, tried and proven, error-free. For example, CSC personnel package.
Individual unit must bear all on-going maintenance costs.	Central program maintenance provided for all users for a small "fee". Every logical or procedural error that is found by any agency's activities is corrected for all Government users.
Frequently incomplete, costly documentation that makes programs useless if certain key individuals move on. Typing and/or printing done on individual installation basis.	Comprehensive documentation at all levels at "no additional cost". Can utilize advanced electronic printing techniques and mass distribution techniques.
Tailored to fit a single hardware configuration, and frequently written many times so as to be intelligible to only one individual.	Flexible programs—usable on many configurations. Common user manuals to interface to hardware.
Patching, "fire-fighting", required to keep up with individual agencies' changing needs resulting in many cases from Government-wide legislation.	Generalized programs applicable to ongoing needs, which are modified centrally to meet new legislation reporting requirements.
Programs written in various computer languages and in special "shorthand" known only to the individual programmer.	Programs written in generalized higher order languages such as COBOL or FORTRAN, which are easier to maintain than machine oriented languages and applicable on a wide variety of instrumentation.
Skilled programmers tied up on redundant work, continually "re-inventing the wheel".	Skilled programmers free for your "unique" requirements.
"Uniqueness" of programs and codes used to incorporate data precludes data interchange.	Creates ability to interchange data between organizations (computers).
Complete rewrite to update new equipment.	Already in higher language for new equipment.

Compatibility that results from common software allows the maximum utilization of hardware and communications facilities.

In November 1967, the following was presented to the committee and the writing of specifications by private industry for Government still persists and is stagnating and wasting tax dollars.

The laxity by certain Government procurement facilities to write their own specifications stimulate the lock out of independents as the Government calls on a major computer manufacturer to write the specifications for the Government and naturally the specifications are written to that manufacturer's equipment. The Government places these specifications in a Request for Quote and then invokes that portion of Armed Services Procurement Regulations (ASPR) which will not allow any deviations and the manufacturer who wrote the specifications is assured that he will receive the award because all the other bidders cannot meet the specification without deviation.

Further stimulates to the freeze of independents and *even computer manufacturers* by the Federal Government is expressed in procurement *ethics* of the U.S. Air Force as stated by the November 22, 1967 issue of "The Wall Street Journal" with the following statements quoted verbatim:

"Some IBM competitors say that Government buying practices over the years also helped IBM gain dominance. The head of one rival computer makes claims that Federal "Procurement specifications are written around IBM machines," a charge that Government purchasing men deny.

This computer executive also maintains that Air Force purchasing officers "want aerospace firms to stick to IBM machines" and, in some cases, have refused to allow aerospace companies to buy from other manufacturers on the ground that costly new computer programs would have to be prepared for non-IBM machines."

All the independent peripheral manufacturer is asking is to have an equal opportunity, on a competitive basis, to be considered for Government business on his own merits of price, delivery, maintenance, logistic support, reliability, reputation and performance. Today this is no sure road to success since the major manufacturers are all dedicated to building their own peripheral equipment and, in effect, freezing out the independent manufacturer from this growing and important segment of the computer business which is right in the free enterprise system but to have the Federal Government literally lock out independents is not right. The main frame is becoming less and less the major cost item in the average computer system. The difference in performance between computer systems of the future may well rest in the efficiency and reliability of the input/output devices. For the Government to obtain the most of its taxpayer's dollar in the electronic data processing field the Government must immediately recognize the fallacy in their current procurement methods involving the purchase of total computer systems from one manufacturer. The degree of sophistication of some Government users is increasing and today some scientific branches of the Government are actually purchasing computer systems and equipment, with hardware and software often coming from different sources, with even maintenance being supplied by a third party. Some large industrial users are going this same route and the trend is definitely toward the acquisition in major computer user organizations of *hardware-oriented* people to make the purchasing decisions on the basis of merit of the individual equipment or service, whether it be manufactured by computer makers or from an independent supplier.

QUOTATION FROM PRESIDENT TRUMAN ON NEGOTIATED CONTRACTING

Also, in my testimony in November 1967, the following was presented and the CPMA strongly urges H.R. 1366 granting unprecedented freedom to the executive branch from specific procurement restrictions during peacetime is being used not in the best interest of the United States but in my mind to benefit a few, which to the CPMA indicates dictatorial procurements can be made by law.

Former President of the United States, Harry S. Truman, said in his White House letter dated February 19, 1948, when he signed into law H.R. 1366, which granted unprecedented freedom to the Executive Branch from specific procure-

ment restrictions during peace-time, that this bill had a hidden danger. This freedom, he said, was given to permit the flexibility and latitude needed in national defense activities. The basic need, however, remains to assure favorable price and adequate service to the Government. To the degree that restrictions have been diminished, therefore, responsibility upon the Executive Branch of Government, which includes the Defense Establishment, has been increased. The danger, he said, is the natural desire for flexibility and speed in procurement will lead to excessive placement of contracts by negotiation and undue reliance upon large concerns, and this he said must not occur—it has and is.

The CPMA is very proud to have the first and, to the best of our knowledge, the only minority group enterprise in the computer industry as a member of our association. The name of this firm is Software Programming Associates, Inc. Mr. C. M. Darden, president of this minority group enterprise, contacted me and requested the association's assistance in proposed efforts with both the U.S. Government and private industry. The board of directors of CPMA authorized my office to assist to the fullest extent possible and I was very pleased with the reception, honest effort, and cooperation I received from the President of the United States' staff. I am also delighted to report this firm has just recently been awarded their first contract from the Department of Agriculture, and I would also like for this committee to know the Small Business Administration, and with their new young division, minority group enterprise division, SBA has a tough road but they will make it and we certainly will support them as they are doing an excellent job.

The Association feels the President of the United States' policy on minority group enterprises will reap many rewards for not only the citizens but for the Nation as a whole. CPMA supports the President's policy because working within the policy and with a minority group enterprise gives one the insight to the President's objectives and seeing and doing is believing; it is working, and although it is a young policy, it is rapidly accelerating to a positive action force which will benefit the entire United States. CPMA is dedicated to assist both the President of the United States and minority group enterprise firms within the computer industry to achieve a successful goal.

The CPMA feels the increased budgets of NASA and the DOD are very necessary to provide the technological achievements necessary for our society, however, without the waste of tax dollars. We, like the majority, are not naive enough to believe that waste can ever be eradicated totally because some waste will always persist in Government as it does within the framework of private industry. NASA and the DOD create an abundance of employment necessary to push into the sciences and provide new products which are released to the free enterprise system which then creates many business entities and thus new employment is created by such new business firms being formed. This cycle increases the private industry base, increases the national economy, and provides a steady growth of employment which results in increased tax dollars to support this monster called Government and, likewise, the Government in return spends these tax dollars which again creates employment. After all, economics is a two way street.

The peripheral community has enjoyed many of the benefits derived through the exploration of the sciences by NASA and the DOD as our growth rate over a shot span of 5 years will substantiate, with the end result of approximately one million in new jobs have been provided to the population of the United States. It irks me personally

that the attitude of various segments of our society and certain Members of the Congress really believe we can take billions of dollars from the productivity of the executive branch and literally hand it out in the form of free cash disbursements to the nonproductive portions of our society. This to me does nothing but increase unemployment as those productive portions of the executive branch must cut back in programs and thus employment must be decreased and this decrease also forces sharp decline in the amount of tax dollars that can be collected and thus the intake of tax dollars is substantially decreased. Total result, nonproductive portions of our society increases and will be provided with free cash but the amount of taxpayers is decreasing. Oh yes, I missed one point—the U.S. Government can print more money. If this is so, let's all stop working—let the Government print more money and hand it out free. Which brings up one last and paramount question—who will print the money?

The President's new department of managing the executive branch is a firm step in demanding an affirmative and constructive spirit regarding institutional changes within Government. We must also encourage the development of those attributes within the Governmental service that will steadily push the frontier of knowledge farther into the area marked unknown while managing in a manner that will evoke the best from those that labor at all levels of Government.

This country can settle for nothing less.

Before I make my closing statement, I would like to introduce, Mr. Chairman, Mr. George O. Harmon, whose testimony today has brought out one major and critical area within the computer industry, and where the end user, mainly the Government, and that is maintenance. It is a very costly expenditure of taxpayers' money, and I would like Mr. Harmon to elaborate, if I may, at this time and I will end my testimony at this point.

Thank you.

Chairman PROXMIRE. Is Mr. Harmon here? Mr. Harmon, do you have a brief statement?

Mr. HARMON. Yes, I have.

Chairman PROXMIRE. We hoped Mr. Caveney could complete his whole statement in 15 minutes. We are over that now.

We will be happy to print your full statement in the record.

STATEMENT OF GEORGE O. HARMON, PRESIDENT, COMMA CORP., NEW YORK, N.Y.

Mr. HARMON. Yes, sir. Mr. Chairman, I am George O. Harmon and I appear here as president of Comma Corp., located at 1250 Broadway, New York, N.Y. This hearing is of great importance to small business enterprises who are attempting to compete in the EDP market place. I appear here not only as a representative of Comma Corp., but also as a member of the Computer Peripheral Manufacturers Association.

MULTIPLE VENDORS BRING COMPLEX MAINTENANCE PROBLEMS

We have seen the industry evolve from the first generation computer in the early 1950's to multiple vendors from which an end user may

choose his configuration, both hardware and software. This evolution has presented the user with one remaining problem, as was borne out by Colonel Warren's testimony, and that is the multiple sources of maintenance. Additional savings can be realized through procurement of independently manufactured peripheral equipment, provided the user can look to one company to solve his machine problems when they occur, and he should not be put in the position of being a mediator among a number of manufacturers.

POTENTIAL FOR SAVINGS ON ADPE MAINTENANCE

In 1968, the Boston Computer Group, at the direction of GSA, undertook a study on the maintenance of automatic data processing equipment. Let me point out a few of the significant findings of this study.

The Federal Government could realize an annual savings of $9.4 million in ADPE/PCAM maintenance costs.

This would be accomplished by the use of maintenance alternatives such as in-house, time, and material versus maintenance agreement, and third party maintenance or,

Local negotiations of contracts with third party organizations that are financially sound, and

Organizations maintaining equipment, not of their manufacture, should be encouraged to compete for Government maintenance business.

Maintenance of ADP equipment has generally been a neglected area due to the, quoting from the Boston Computer Group's report, "lack of awareness on the part of management as to the process and problems involved; the rental syndrome, where the manufacturer's rental policy disconnects the user, both legally and psychologically, from maintenance; and the small annual expenditure in ADPE maintenance relative to the total ADPE expenditure, 4 percent for the equipment, personnel, supplies, and service."

There is a growing industry of compatible peripheral equipment manufacturing which further complicates the maintenance marketplace. The selection of economical equipment by the user, coupled with the rental syndrome, forces the user into the untenable position of negotiating with two or more service organizations, neither of which is either capable or permitted to solve problems from an overall perspective.

There have been, and are, several local kinds of companies supplying maintenance services on selected equipment in selected areas and locations. These services range from refurbishing and reconditioning to maintenance on equipment owned by themselves or other manufacturers. Until recently, there was no independent maintenance organization in existence who could offer a complete line of maintenance services as their only product.

In December of 1969, Comma Corp., a nationwide computer maintenance company, was formed by three former executives from IBM's field engineering division.

Comma Corp. is the first major nationwide independent company that is offering an alternative to the original manufacturer's maintenance service of large scale computer equipment. The company is offering their services to both Government and commercial users on owned

or third party leased IBM 1400, 7000, and system 360 series computers, and plug-to-plug compatible peripheral equipment.

A broad range of services have been structured by a team of professional field service personnel, all of whom have had extensive training and experience with a wide range of hardware and software. This training and experience gives them the edge when competence means the difference in keeping a system operational.

One of Comma Corp.'s major thrusts is providing service on the mixed computer system, that which is composed of units from more than one manufacturer. Not only is Commo Corp. providing excellent reliable service, but the rates are substantially lower than those being offered by the major manufacturer. This contributes to a new source of economy in the procurement of data processing service. The U.S. Government, as a whole, can benefit greatly by availing themselves of those services. Annual savings could be in the millions of dollars, with equal or improved service. And that, Mr. Chairman, concludes my prepared statement.

Chairman PROXMIRE. Thank you very much. Mr. Caveney, you are over your time. Can you give us just a brief summary of your final statement?

Mr. CAVENEY. Yes, we in the peripheral community feel that a great deal more could have been done and a great deal more savings could have been accomplished, and we also feel that there is a growing abundance of executive management people in Government who do not understand the technical philosophies of not only the computer industry but of other technical areas. As these stacks of suggestions from Federal employees point out, and specifically, this one here which my entire article, titled "$1 Billion Refused by Government" was written around. One suggestion which could have saved the taxpayers $1 billion, and this suggestion was disapproved for reasons beyond the realm of reason, and yet based on testimony here today, the Federal Government is in fact doing exactly what this Federal employee said, and I think he should be recognized and his suggestions should be approved. There are stacks of such technical suggestions from the low elements of the Government that are just literally being tossed in the wastepaper basket which could save millions of dollars of tax dollars, but it can never happen until competent personnel can review such suggestions, and this brings up that point again, why can't the executive branch without the continual insistence of the Congress, manage the executive branch without continual prodding from committee hearings, and this is our philosophy if it can't be done by the executive branch we will be here to prod Congress.

Chairman PROXMIRE. Well, thank you, gentlemen, very much.

Mr. Abersfeller, you had the first word, Mr. Caveney had the last word, how do you meet Mr. Caveney's assertions, as I understand it, which are that GSA, among others, seems to treat peripherals somewhat cavalierly, the CalComp case was a clear mathematical example of an apparent excess cost to the Government for failure to procure on an efficient basis.

Mr. ABERSFELLER. Mr. Chairman, of course, I haven't had the opportunity to examine Mr. Caveney's statement nor did I know what he was going to say but I think we would need to get together and find out a little more about his computation.

There were, as of June 30, 1969, 416 of the particular units to which he referred—IBM 2311 disk storage drives—in the entire Government-leased inventory, and based on our calculations, as of February 1970, if we were to purchase them from an independent peripheral company, we could save about $2 million.

I don't know how he has extended this figure up to $160 million.

Chairman PROXMIRE. $2 million out of how much; what would be the total?

Mr. ABERSFELLER. If we replaced by purchase all of the 2311 disk storage drives that the CalComp CD–1 is compatible with.

Chairman PROXMIRE. What would the total cost be is my question? I am just trying to find out what $2 million would represent as a savings.

Mr. ABERSFELLER. It would be on the order of 25 percent. We would pay about $7.2 million as against $9.2 million.

Chairman PROXMIRE. 25 percent.

Mr. ABERSFELLER. That is generally what it runs in that area.

Chairman PROXMIRE. It is a very handsome saving; isn't it?

Mr. ABERSFELLER. Indeed, and we are working on that particular thing now. That happens to be part of the inventory of the peripherals that we talked about earlier in my testimony, in getting the agencies to get them replaced with peripheral equipment made by other than the original equipment manufacturer.

TRUTH IN NEGOTIATIONS ACT, APPLICABILITY TO COMPUTER BUYING

Chairman PROXMIRE. I do want to proceed to more general questions to the extent we have time I want to pin it down.

What about the Truth in Negotiations Act, Mr. Abersfeller, previous testimony indicated widespread noncompliance with the Truth in Negotiations Act by the manufacturers of computers. What is the situation now up to date? Are all computer contractors being required to supply the Government with cost and pricing data under the Truth in Negotiations Act?

Mr. ABERSFELLER. When applicable they are being requested to, Mr. Chairman, but to the best of my knowledge, they are not providing it.

Chairman PROXMIRE. They are not. Why not?

Mr. ABERSFELLER. That is correct.

ONE-SIDED ACT INAPPLICABLE TO INDUSTRY

Chairman PROXMIRE. Why can't you enforce the law?

Mr. ABERSFELLER. Well, the law is a one-sided law, Mr. Chairman. It does not apply to the industry. It applies to the contracting officer. It also allows a waiver to be provided by the head of the agency if the equipment is required by the agency; the head of the agency is offered no alternative but to grant the waiver and that is exactly how they have been bought over the years.

Chairman PROXMIRE. I am delighted to get that kind of response because it indicates that maybe we can improve it here in Congress, it is our fault if that law is one sided and I would like very much if you would suggest proposed language which would strengthen that Truth in Negotiations Act and make it two sided, and make it possible to make the contractor responsible, too.

Mr. ABERSFELLER. All right, sir. (See pp. 150–153.)

GSA TO OFFER IMPROVED LANGUAGE

Chairman PROXMIRE. Admiral Rickover in his testimony indicated that too many waivers are being granted. Why are they granting so many waivers?

Mr. ABERSFELLER. With regard to ADP?

Chairman PROXMIRE. Yes, sir.

Mr. ABERSFELLER. Did he mean——

Chairman PROXMIRE. Under the Truth in Negotiations Act.

Mr. ABERSFELLER. Again I think it goes back to the issue of the contractors unwillingness to provide the information and the agency——

Chairman PROXMIRE. They are unwilling. All you feel you can do is give them a waiver.

Mr. ABERSFELLER. That is all you can do if you need the equipment and the contractor will not supply the data, Mr. Chairman.

Chairman PROXMIRE. So you are in position where it is up to him to cooperate, he does so voluntarily. Obviously if it would in his view diminish his profit he wouldn't cooperate, at least in his long term profit.

Mr. ABERSFELLER. I am not here to support the industry on this issue but there is another side to it. The industry does have a problem. If you get to push the state of the art, and I presume the Admiral was talking about procurement made by the AEC; they are one of the principal users of equipment which is far out. The producer doesn't know how much he is going to produce and obviously to be able to get cost and pricing data in meaningful form you ought to have some kind of judgment as to how many of the items he is going to produce to be able to divide that into his estimated costs, to come up with cost and pricing data and the allocation of overhead and things of that nature.

I think this presents a very serious and real accounting problem to the industry. I think the industry is reluctant to provide the information to begin with.

Chairman PROXMIRE. Certainly under those circumstances there ought to be some kind of a finding that you have a situation where the technology is so uncertain and research is so indefinite that costs are likely to be great, under those circumstances I think that is right, you have a different situation, and perhaps the Truth in Negotiations would have to be handled somewhat differently. But certainly in something that is relatively standardized there should be no exceptions.

Mr. ABERSFELLER. There is no problem in the relatively standardized items, Mr. Chairman, because all of those are sold in substantial quantities commercially and the data is not required.

Chairman PROXMIRE. Then I come back to my original statement, if you would suggest language to help us strengthen that.

Mr. ABERSFELLER. Very good.

GSA PROCUREMENT OF ADPE FOR DOD

Chairman PROXMIRE. Does GSA procure any computers or ADPE for the Defense Department?

Mr. ABERSFELLER. Yes, sir, we do.

Chairman PROXMIRE. How much?

Mr. ABERSFELLER. Mr. Chairman, let me provide that for the record. I thought I had it but I don't have it.

(The following information was subsequently supplied for the record by Mr. Abersfeller:)

The dollar volume for FY 70 is as follows:

Federal supply schedule rentals, purchases, and maintenance by DoD [1]	$285,000,000
Separate contracts by GSA for DoD	76,000,000
Total	361,000,000

[1] Estimated value based on FY 69 DoD percentage of total Federal Supply Schedule volume and actual FY 70 ADPE Federal Supply Schedule volume.

Chairman PROXMIRE. Is it fair to say GSA purchases ADP equipment for Defense which does most of its own purchasing?

Mr. ABERSFELLER. I think we do most in dollar volume of general purpose ADPE even for defense, Mr. Chairman.

Chairman PROXMIRE. In other words, you purchase more of the defense procurement than Defense does?

Mr. ABERSFELLER. I think so.

Chairman PROXMIRE. Is that your understanding, Colonel Warren, too?

Colonel WARREN. I have the figures here in total which I could give you if you would like.

Chairman PROXMIRE. Fine.

Colonel WARREN. For fiscal year 1970 we had 62 selections total for 124 computers with a purchase value of $145,612,000, and of that GSA did the procurement for 34 of the computers with a purchase value of $56,063,000. Forty-six computers with a purchase value of $47,151,000 of the total computers were purchased through the GSA Federal Supply Schedule contract. The remaining 44 computers with a value of $42,399,000 were acquired under a delegation from GSA.

Chairman PROXMIRE. You are talking about general purpose computers?

Colonel WARREN. Yes, sir.

DOD PROCURES ADPE FOR MILITARY EQUIPMENT

Chairman PROXMIRE. You are not talking about the ones used in military equipment which I guess Defense would purchase all of those.

Colonel WARREN. We purchase all of those; yes, sir.

Chairman PROXMIRE. Aircraft, ships, and so forth, you do all of that?

Colonel WARREN. Yes, sir; special-purpose computers and weapons systems computers are not handled by GSA.

Chairman PROXMIRE. Colonel Warren, would that, in your view and in your judgment—I guess it is a guess because nobody seems to have the figure—would that exceed in volume and cost the amount of general-purpose computers that Defense uses?

COST OF SPECIAL ADPE PROBABLY EQUALS GENERAL PURPOSE

Colonel WARREN. Yes, sir. I do not have any specific information on costs, but I feel that it is a safe assumption to say that we spend probably as much on computers for weapons systems and special-pur-

pose equipment as we do on the general-purpose ADPE which we are managing and giving special management attention.

Chairman PROXMIRE. Can you give those figures for the record to the extent they are not classified?

Colonel WARREN. I don't have those figures.

Chairman PROXMIRE. Does anybody have them?

Colonel WARREN. I have all of the figures for the general-purpose ADPE which we manage and I do not believe the other figures are available.

Chairman PROXMIRE. Does anybody know what they are? Would the Secretary of Defense know or anybody in his office?

Colonel WARREN. I really don't know whether a figure would be available. It would be part of a total weapons system cost, and the total weapons systems costs would be broken out in some detail, and to the extent that computers or ADPE are detailed as part of the total cost it would be available. In some cases it is and in some cases it isn't, but I do not believe that we have a one-round total figure for ADPE for weapons systems; no, sir. The project manager for each weapons system should have a number or figure as to what the ADPE hardware and software cost are as part of his system.

GENERAL PURPOSE ADPE COST $720 MILLION IN FISCAL YEAR 1969

Chairman PROXMIRE. Mr. Abersfeller, can you tell us the total amount spent for purchases or rental of ADPE by all Federal agencies?

Mr. ABERSFELLER. Yes. In fiscal year 1969, reported total procurement and contract award value for general-purpose computers and punchcard equipment exceeded $720 million.

Chairman PROXMIRE. How much?

Mr. ABERSFELLER. $720 million and, by the way, Mr. Chairman, again I don't have the dollar volume of procurements for defense and we will provide that if you would like so far as the general purpose computers.

Chairman PROXMIRE. I would like to reconcile that with the estimate made by the Comptroller General this morning, that—you may have heard it.

Mr. ABERSFELLER. I did not.

Chairman PROXMIRE. He made an estimate that the total Federal estimated costs of ADPE, which may be different from the question I asked, are from $4 to $6 billion per year. Is that excessive and how do you reconcile it with the much lower figure you gave me.

Mr. ABERSFELLER. You were asking about the procurement. I don't know, $6 billion is a brandnew figure to me, Mr. Chairman.

Chairman PROXMIRE. In other words, what you gave me and I think what you gave me your answer to was completely responsive. You told me what the procurement and rental costs are and I take it that what the GAO was talking about is the ultimate cost of all computer operations including the contract where the contractor may be using a computer and charging that to the Government.

Mr. ABERSFELLER. He also must have been talking about the acquisition costs of the equipment, Mr. Chairman, because in this report he submitted to the committee——

Chairman PROXMIRE. Weren't you talking about the acquisition costs?

Mr. ABERSFELLER. Yes, sir; I am talking about the acquisition costs of $720 million.

Chairman PROXMIRE. All right.

Mr. ABERSFELLER. But he estimates in this report $2 billion annual costs and we have used historically since the days of the Ramspeck Commission $3 billion per year.

Chairman PROXMIRE. The GAO said for general purpose that was $1.9 billion, $2 billion.

Mr. ABERSFELLER. That would coincide with this.

Chairman PROXMIRE. Right. But there were other costs they just couldn't estimate for computers, which they said was between $4 and $6 billion. Can you give us any more precise figure?

GSA PROCURES 84.5 PERCENT OF ALL GENERAL PURPOSE COMPUTERS

Mr. ABERSFELLER. No, sir; I have nothing on that. I do know about the general purpose computers but that is all. I was simply going to add, Mr. Chairman, that of the $720 million spent in 1969, $112.7 million or about 15.5 percent of that figure was delegated to other agencies including defense for procurement. So said another way, GSA buys or contracts for 84.5 percent of all the computers used by the Federal Government, all the general purpose computers.

Chairman PROXMIRE. Now, in connection with the general purpose computers, you have no figures, of course, on the special military operations?

Mr. ABERSFELLER. No; I have not.

Chairman PROXMIRE. DOD buys under a delegation from GSA when it does buy, doesn't it, in the general purpose area?

Mr. ABERSFELLER. Yes, sir.

Chairman PROXMIRE. Do you check on the Defense Department purchases in any way, do you determine whether they are bought at a fair price to the Government or do you simply accept their decisions?

Mr. ABERSFELLER. Well, with regard to the final decision we accept their decision since we delegate it but we do require rather detailed submission on the part of that department or any other before we grant the request.

Chairman PROXMIRE. Well, that is what I had in mind, you don't grant the delegation until you are sure in your mind?

Mr. ABERSFELLER. And we review the RFP and things of that type and delegate it to them for the procurement and there are plenty of caveats in the authority I sign to be sure it does conform to procurement regulations and our excess reutilization program.

Chairman PROXMIRE. Are there occasions when they have been ready to proceed to purchasing and you have said the price was too high, you had better look at it again?

Mr. ABERSFELLER. There have been none where we have delegated it. I happen to think Defense is doing a very good job in that area, Mr. Chairman.

Chairman PROXMIRE. It is a question of timing here, you see. What I am trying to get at is whether or not your agency exercises any control over the Defense Department in the areas where they make the purchases.

Mr. ABERSFELLER. Not after we delegate it; no, sir. We do not.

Chairman PROXMIRE. I see, because I had first understood you to indicate that you delegated it after you had a chance to look at the specific purchase.

Mr. ABERSFELLER. No, sir; I am sorry, I didn't make that clear.

Chairman PROXMIRE. All right. I understand.

Colonel WARREN. I might say all the delegations we receive from GSA carry the stipulation that in all cases we must equal or exceed the terms of the Federal supply schedule, so we never are allowed to buy anything which costs more, or on terms less favorable than those carried in the Federal supply schedule.

Chairman PROXMIRE. And that Federal supply schedule is pretty much GSA determined?

Mr. ABERSFELLER. Yes, sir.

Chairman PROXMIRE. They have that kind of control?

Mr. ABERSFELLER. Yes, sir.

Chairman PROXMIRE. My time is up. Mr. Brown?

METHOD OF MAKING AWARDS

Representative BROWN. Mr. Abersfeller, what is the method by which a determination is made that a system will be purchased from one company over another?

BENCHMARK SYSTEM USED BY GSA

Mr. ABERSFELLER. Well, actually the system generally used is referred to as the benchmark system first, Congressman Brown. The request for quotations is submitted to the entire industry for competitive negotiation. Responses come in and then the equipment is benchmarked to see that it meets the requirements of the specification.

That equipment which does the best job at the lowest cost is then procured.

Representative BROWN. The specification then plays a great part in determining who will meet the requirements of the system; is that right?

Mr. ABERSFELLER. Yes.

EXTENT OF COMPETITION

Representative BROWN. How much competitive bidding in fact is there? Is it frequent that the specification will be written in such a way that only one company meets the requirements?

Mr. ABERSFELLER. I know of no instance, Mr. Brown, in the many years I have been in this program——

Representative BROWN. How many years is that?

Mr. ABERSFELLER. Six years, well since the enactment of the bill, it is not that long, it is 5 years, in which there has been the absence of competition in the case the chairman and I were speaking about a moment ago, and this is the far out equipment that agencies like AEC require, not produced commercially, specially made or in the case of security agency requirements, or in some other exceptions generally following the requirements of the law. Section 302(c) of the Federal Property and Administrative Services Act governs pretty much what you can negotiate for on a sole source basis.

Representative BROWN. What percentage of computer purchases are competitive?

NEARLY 100-PERCENT COMPETITION ON GENERAL PURPOSE COMPUTERS

Mr. ABERSFELLER. Of the general purpose computers there are, I would say, well nearly a hundred percent have competition. There may be an occasional one or two where there is not. I am not familiar with all of the security agency procurements in terms of knowing whether those were sole sources or not.

Representative BROWN. You said that you purchased 84.5 percent of the general purpose computers.

Mr. ABERSFELLER. Yes, sir.

Representative BROWN. So are you saying that a hundred percent of 84.5 percent are competitively awarded?

Mr. ABERSFELLER. Well, a hundred percent of 84.5 percent is competitively awarded, with again a further qualification.

MULTIPLE AWARD SCHEDULES USED

The initial Federal supply schedules are entered into on a negotiated basis with many different companies in the industry. This is known as multiple-award schedules.

Now to the extent that an agency orders from that schedule a particular manufacturer's piece of equipment, to add on to an existing equipment, that might not be competitive in that sense. But in the sense of those contracts which are entered into to meet specific needs, systems needs, those are all competitively awarded.

Representative BROWN. Can you give me what percentage that is?

AGENCIES ORDER DIRECTLY FROM SCHEDULES

Mr. ABERSFELLER. No. The problem I have, Mr. Brown, is the agencies order directly from the schedule contract and constitutes almost $520 million worth of procurement from that source.

Representative BROWN. That is about a third, isn't it?

Mr. ABERSFELLER. Yes, sir. And it is almost a half, well a little over a half, in fact. And I am not certain how many of those are ordered in a low dollar range as add-ons to existing equipment.

Now agencies are required to get competition, make judgments and do it competitively in those cases where they are considering new systems or substantial parts of new systems and even add-ons where competitive equipment is available.

I don't want to make this any more complex than it is. Let me try it another way. Assume with me for the moment that agency Y has an IBM main frame which was awarded competitively. They now need another memory device of some sort. If there was no plug-to-plug capability with another peripheral manufacturer of that memory device, they would almost be obliged to procure that from IBM, that is the thing I am talking about as the exception. I think, I don't have the figure, but my professional judgment would be a very, very small percentage, but I truly do not know.

Representative BROWN. We heard earlier this morning that when an agency decides they would like to have a computer they must first

get their budget okay from BOB based on the total budget, and then divide that down to the priority needs within the agency. The section of BOB which has special knowledge about computers reviews the application before permission of BOB generally is given for the purchase or rental. Then that the request goes to GSA for purchase.

Now, are you telling me that many of the agencies make their own decision without reference to GSA on the equipment that they get or the kinds of equipment that they might rent.

Mr. ABERSFELLER. Well, they make their own decisions within the framework of the rules and regulations which both we and the Bureau of the Budget prescribe, which are very restrictive. Additionally the Federal Supply schedules of which I spoke deal and have certain limitations in them so far as dollar volume is concerned or as far as quantities are concerned.

As an example, it cannot be more than one CPU, if your agency and you want more than one Central Processing Unit you cannot buy it from the schedule. That is a limitation. It must come to us and either we decide to buy the two or three that is required or we delegate it back to the agencies. They can't spend more than $400,000 for multiple peripheral devices. Those are the kinds of restrictions we have in the schedule.

Within the framework of those restrictions, within the framework of the requirement to get competition, to make judgments as to which would be the least expensive, agencies do have the free choice within those restrictions to place orders with the schedule contractors.

Representative BROWN. And that restriction results in your purchasing 84.5 percent of all items in this field.

Mr. ABERSFELLER. Well, actually the 84.5 percent which I quoted earlier includes our contracting for the Federal supply schedules. But the restriction results in our getting involved more and more in the procurement of ADP. We are gradually—of course, the whole purpose here is to try to bring a quantity level together which would encourage better prices and reduce costs.

Representative BROWN. The agency may turn to you for purchase assistance even though they have the authority to purchase on their own or have received it from BOB.

Mr. ABERSFELLER. For purchase assistance; yes, sir. It would be rather unusual. If they were able to order directly from the schedule contractor I think they would do so.

Representative BROWN. One of my concerns about this entire operation is that we have an industry here which some years ago was developed to a great extent as an in-house industry of the Federal Government, or in-house technology with the Federal Government, and when private industry got into the business the needs for computers were predominantly in the Government. So that in the late 1950's or early 1960's the Federal Government tended not only to have dominated the technology of the original development but also the dollars of early purchase with the Federal procurement being exercised in a fairly limited area of the Bureau of the Budget and the company from which to purchase or rent the equipment was being determined by a small group in GSA, is that correct?

Mr. ABERSFELLER. Well, the Federal supply schedules, Mr. Brown, have always been available to any company who chooses to participate

providing, of course, we can arrive at a fair and reasonable price. And this goes back to the early 1930's actually.

So as far as computer manufacturers being placed on schedule or our contracting with them to be placed on schedule that always has been open.

With regard to your point about the number of people with whom you would negotiate, that in like manner has been open.

The law which applies equally to all agencies with regard to this point at least, the Federal Property and Administrative Services Act requires competition, it is the sense of the Congress that competition be obtained. The only limited areas in which you can negotiate the procurement of ADP happen to fall in that area but that is competitive negotiation. The only essential difference when we use the word "negotiation" the only essential difference between that and advertised bidding is the fact you don't publicly open the bids, otherwise all the other conditions are met. You solicit the same number of people you would if you were going to open the bids publicly, and I know of no instance, at least except with the exceptions I mentioned earlier, the far out equipment that AEC and to extent NASA and other agencies buy, intelligence agencies buy, the occasional occurrences where you need to add on a kind of modular device, and with those exceptions, I know of no others, and I believe that there has been competition in every other case.

Representative BROWN. My time is up. We will come back to the point.

Chairman PROXMIRE. Congresswoman Griffiths?

AGENCY STEPS IN GETTING COMPUTERS

Representative GRIFFITHS. Thank you. I would like to ask you, Mr. Abersfeller, for any agency asking for a computer do they have to prove need or savings or what do they have to prove besides that the money is available?

Mr. ABERSFELLER. In the first step I believe they have, would be to go to the Bureau of the Budget. BOB since we appear before them, too, do a very credible job in analyzing the requirements that are presented to them.

With regard to the procedure beyond that point they are required by the Bureau of the Budget regulation to develop feasibility studies which must prove that the particular application or applications they choose to or plan to use must be verified as being the economic thing to do.

This is covered in Bureau of the Budget Circular A–54.

Beyond that point they make no justification to us, Mrs. Griffiths, at all. We do not get involved in that. The Brooks bill places with the agency the responsibility for determining its requirements. The only place we interfere, if that is a proper term, and I suspect some of the Government agencies feel we do, is when we believe that the procurement is restrictive. We then insist that it be rewritten so it is not restrictive. So that all the computer manufacturers, and peripheral producers, if that is appropriate, can bid on the particular procurement that is involved, and that is the extent essentially of our involvement in the justification process. We do the buying or control the buying through delegations.

PROCUREMENT OF SYSTEMS AND COMPONENTS

Representative GRIFFITHS. To what extent do you buy parts of a computer from various peripheral sellers and put it together? Do you buy only replacement parts or do you deal only with the original?

Mr. ABERSFELLER. We have contracts now with 71 peripheral and accessorial producers, again under Federal supply schedule, and in most instances agencies would order them direct.

Representative GRIFFITHS. You are not responding. I am asking, when you buy a complete new computer for an agency, do you buy the whole computer from one seller, or do you buy the parts of the computer from various sellers?

Mr. ABERSFELLER. At the moment the end results are that they are being bought from one seller.

Representative GRIFFITHS. Why?

Mr. ABERSFELLER. Well, there may be a couple of reasons, Mrs. Griffiths. One, we have had no great indication other than Mr. Caveney's testimony before the committee, that peripheral people are interested in bidding.

An example of that, the last time we appeared before this committee Mr. Caveney said there were 50 people who wanted to bid and Senator Proxmire asked me would I write to them, and I did, and out of all that we got offers from nine, and in fiscal year 1970 we have entered into contracts with seven of them. That may be one problem.

It also may be the problem, Mr. Caveney spoke about, that maybe the invitations are so structured as to discourage it and this is an area we are examining now and we do want, and this is actually one of the reasons we called meetings we have called, to try to get that input to find out if we could by restructuring the invitations provide for more participations than now being provided for.

Representative GRIFFITHS. If I were buying, and I looked at a computer where a peripheral part had been supplied as a replacement part, I wouldn't have to bother with asking them to bid. I would ask them their price. It seems to me it is that simple.

Mr. ABERSFELLER. Well, Mrs. Griffiths, let me just say this so far as I know, and I think I am reasonably up to date on this, the peripheral manufacturers only have plug-to-plug capability with one manufacturer, and that is IBM. So if you were going to buy Univac or RCA or CDC you in fact have no plug-to-plug capability for the peripherals. Now that makes a difference.

If, on the other hand, you knew in advance, and we really don't, that IBM would end up successful in the main frame, then you could perhaps do it. This is why we believe at the moment at least, and we are trying to make the inroad on replacements, where there are existing IBM equipments so we can go to plug to plug on that.

Representative GRIFFITHS. I see.

DETERMINATION OF NEED AND COST JUSTIFICATION IN ARMY

Colonel Warren, who, in the Army, decides whether or not a computer is not only needed but is costwise justifiable?

Colonel WARREN. The senior ADP policy official in the Army passes on the requirements for computers, and the senior ADP policy

official is now located in the Assistant Secretary of the Army for financial management's office.

Representative GRIFFITHS. Who checks up afterwards to find out if it really worked out that way?

Colonel WARREN. As I mentioned earlier, we, my office, as well as the Army ADP office go out and make onsite visits and examine the systems to see if they are meeting their objectives and if, in fact, they are operating as they planned, and we have made some 20 visits this year, as I mentioned.

Representative GRIFFITHS. I would like to see from somebody something that shows some real savings because computers have been purchased. Were people displaced, was there information available that had never been made available before?

STORAGE OF RECORDS

Mr. Abersfeller, you responded to a question of the Chairman that you didn't need any space to store the records. What happens to the records? Do they use the information that day and forget it, or what exactly happens to it?

Mr. ABERSFELLER. Generally, the printed information is used for a very short period of time, and this is to actually conserve space. Most of the information that is maintained is either maintained on tape or some other microfilming kind of device which conserves the use of space.

Representative GRIFFITHS. I would like to ask you, Mr. Caveney, what happened to the man who made the suggestion that, in your judgment, would have saved a billion dollars?

Mr. CAVENEY. What happened to him?

Representative GRIFFITHS. Yes.

Mr. CAVENEY. He is in the same position he was back in 1967.

USE OF EMPLOYEE SUGGESTION SYSTEM

Representative GRIFFITHS. As you were talking, I wondered to myself since this committee was set up really for economy in Government, supposing employees were asked to send these suggestions in in duplicate, and one suggestion would come to this committee, since we supply everybody else with money. I don't suppose it would be impossible that we set up a staff of our own and go over the suggestions. And we could then see they were implemented and rewarded.

Mr. CAVENEY. Well, I think this should be done because, as I stated in my "One Billion Dollars Refused by Government" article which was placed in the Congressional Record evolved around this one suggestion. I maintain, like so many people, these ungodly wastes wouldn't occur, at least not as many. They will occur because Congress or the President does not have a review body of technical people to act before an award.

The executive branch does it in little bitty closets within its structure, and you can't do anything about waste of tax dollars until it pops up and is after the fact and then they want more money because they had an overrun.

Representative GRIFFITHS. You see, this committee had some problems with this, where the man who revealed what was wrong was fired

for revealing it to this committee. So if we could just find out what the suggestions of the employees were, and if a suggestion were really a worthwhile suggestion, and saved money, we might make it so worthwhile for the employee that he could afford to risk his job and make the suggestion.

Mr. CAVENEY. I think it should be set up by this committee. It is obvious it can't be accomplished by the executive side who currently is responsible for the Federal suggestion program, and if they are not going to carry out this responsibility on an ethical basis, then it should be transferred to the legislative side to give the little guy in Government a right to be heard. That is why I like the ombudsman policy of the President because I have had some contact with Mr. C. Mollenhoff which were strictly personal and it is great to know you can go there, pound on the desk, and at least something goes to maybe the Great White Father, but I think you ought to pull the suggestion program into the Congress as evidence clearly indicates it is not wanted on the executive side.

Representative GRIFFITHS. I think the suggestion program should be, too, and, you know, I like this idea that some of the people coming new into an agency, and having looked it over can figure out some new things to do that would be money saving. I think there is a great deal of merit to the suggestion, and I think that they should be encouraged to do just exactly that.

Now, I suppose that if the suggestion is taken higher than the boss, it will not necessarily be desirable, but I think that the ones that are good ought to be considered.

Mr. CAVENEY. The Federal employees who attempt to utilize the suggestion program are highly skilled technical people but the problem is the guy on top, he hasn't got the mental capability to understand what he is reading, and then, of course, his out is, easy out that is, disapprove it.

Representative GRIFFITHS. I agree.

Mr. CAVENEY. Then this example of Peter's Principle frustrates the whole system because he represents Peter's Principle, you know, "I am incompetent, I will make it."

Representative GRIFFITHS. Thank you very much.

Thank you, Mr. Chairman.

Representative BROWN. I just wanted to ask on that point do you think this committee is competent to review those technical——

Representative GRIFFITHS. I wasn't going to have us do it, Mr. Brown. I was going to set up a really competent group of people reporting to us, let them look it over.

Mr. CAVENEY. I think you could draw upon different associations that have the technical competency to assist. After all we are taxpayers and we like to lower our tax base to the Federal Government.

NBS HAS COMPETENT BUT INSUFFICIENT STAFF

Chairman PROXMIRE. How about the Bureau of Standards people, Mr. Caveney, are they competent?

Mr. CAVENEY. They are competent but they just don't have enough people.

Chairman PROXMIRE. All right. That is fine, that is what I wanted to know. If they don't have enough people you would concur then

in the testimony we had this morning that they simply don't have the bodies and if they did have the people on the basis of the competence they have now they could do the job, at least in this interface area that we were talking about?

Mr. CAVENEY. Yes, because one thing we like about the Bureau of Standards it is a disinterested party. You have a more impartial group of people, and they do have the competency and they do have the management ability and what they need is strength, strength in people and dollars.

Chairman PROXMIRE. Colonel Warren, do you agree Standards is not staffed to do a full interface job?

Colonel WARREN. Bureau of Standards?

Chairman PROXMIRE. Yes, sir.

Colonel WARREN. Well, they haven't accomplished the interface job yet, but I wouldn't want to speculate on the reasons. I am not really familiar with their staffing.

Chairman PROXMIRE. Were you here this morning?

Colonel WARREN. No, sir; I was not.

Chairman PROXMIRE. I see. We had strong testimony from both the Office of Management and Budget and from the Bureau of Standards and from GAO. There was unanimity of agreement they needed more people. That was their problem.

Do you agree, Mr. Abersfeller?

Colonel WARREN. I would certainly agree we could use a great deal more activity from the Bureau of Standards in the standards area.

Chairman PROXMIRE. In other words, you don't disagree, you simply say that on the basis of the information you have you can't make a judgment?

Colonel WARREN. Yes, sir.

Mr. ABERSFELLER. I would have to join Colonel Warren. I know the people and know them well, but I am not certain whether there are enough or not enough to do the job. Again the standards is a difficult area and does take time but I would like to point out, Mr. Chairman, standards are not the only answer.

Chairman PROXMIRE. What is that, sir?

Mr. ABERSFELLER. Standards are not the only answer for capability. It is an answer.

Chairman PROXMIRE. At any rate would you agree with Colonel Warren that they are not doing the job?

Mr. ABERSFELLER. Yes.

EXTENT OF COMPETITION IN BUYING ADPE

Chairman PROXMIRE. How competitive is the procurement of ADP. Your answer to Congressman Brown seemed to indicate that you felt there was a considerable degree of competition. I wonder. In the first place pheripheral manufacturers have been excluded except to a small extent, purchases are then restricted even further, according to your testimony, to a handful of suppliers, who might qualify, and then specifications are sometimes, apparently, custom made to correspond with the suppliers existing ADPE and finally when there is no competition and the approach is through negotiation the Government fails to insist on compliance with the Truth in Negotiation Act and grants a waiver.

So how much real competition do we have and how hard does the Government bargain to secure a procurement at the lowest price?

Mr. ABERSFELLER. I think we have very real competition, Mr. Chairman. The number of procurements we make, or the agencies make, that involve the waiver, because of the Truth in Negotiations Act, is very small, very small, I would think just less than 1 percent of the total dollar value.

There are, generally, three or four, sometimes five or six companies involved in the process of negotiations.

With regard to the peripheral manufacturers, I would want to make the point clear——

Chairman PROXMIRE. Three or four or five or six, and then you have your custom specifications so that very often you would only have one or two companies that would qualify?

Mr. ABERSFELLER. You have the general approach to the problem generally for the reasons I mentioned to Mrs. Griffiths and, at least to the best of my knowledge, virtually all the compatible plug to plug stuff works with IBM and IBM alone and, therefore, not knowing what the main frame is going to be it is very difficult for others, and I think the peripheral manufacturers are reluctant to come in on that basis. But Mr. Caveney mentioned the great savings that could be achieved with CalComp and while I disagree with him on the extent of the savings, the savings are obviously there to some extent, I do want to point out to the chair, that CalComp, if it is the same company, California Computer Products Corp. is what I have, is that correct, Mr. Caveney?

Mr. CAVENEY. Yes.

Mr. ABERSFELLER. Well, they sent an offer to us on the 30th day of March, and we are negotiating with them and have been since that time, for the schedule. It is a little difficult to suggest that we are not giving them an opportunity. I think indeed we are, but we are not going to enter into contracts with people when we do not believe we are getting a fair and reasonable price, and that may be the issue here.

Chairman PROXMIRE. When three or four compete, and you therefore have what you call competitive negotiations, under those circumstances do you require the compliance with the Truth in Negotiation Act?

Mr. ABERSFELLER. No, sir; because generally those items would be sold in substantial quantities commercially, there is competition, and they would therefore not be required to furnish the data.

Chairman PROXMIRE. Three or four?

Mr. ABERSFELLER. Oh, yes, sir; the Truth in Negotiations Act exempts all procurements——

Chairman PROXMIRE. So there is no waiver, there is an exemption it seems?

Mr. ABERSFELLER. The act itself exempts it.

Chairman PROXMIRE. Well, Mr. Caveney, do you want to comment?

Mr. CAVENEY. Yes.

I believe he has missed the point. The document is taking a U.S. tax dollar and converting it to an IBM dollar and a CalComp dollar to indicate the difference in IBM dollars and CalComp dollars pertaining to the GSA award of $330 million to IBM, with the point being the.

CalComp dollar is real, but the IBM dollar value must be $3.84 to each $1 of CalComp dollar, or a waste of $160 million. Another point. since IBM was not on the schedule, the committee must understand GSA issues a Federal supply contract, and if you are not on that supply schedule, as we were told we had to be in 1967 by Mr. Abersfeller, or we could not receive an award. GSA does not negotiate specifications, just terms and conditions of the contract, as the selection is not made by GSA, it is made by the specific department within the executive branch.

Now, the peripheral community, on this particular point, would like to ask one question. All those peripheral manufacturers who were on the schedule for fiscal year 1970, while IBM was not yet approved, we would like to know how many received awards while IBM was not on the schedule? Yet why was IBM allowed all of a sudden to receive a $330 million contract, when they hadn't been on the schedule for the latter 4 months of the fiscal year 1970; if these are the rules, and this is what we were told in 1967, what are the answers?

Mr. ABERSFELLER. If I said that in 1967, Mr. Caveney, we will let the record speak for itself, I made a mistake.

The facts are you do not have to be on Federal supply schedule to compete on competitive negotiated or advertised procurements. Obviously no one can place an order with you under the Federal supply schedule concept unless you are under, on the Federal supply schedule, but this does not preclude competitive procurement involving any company that is not on schedule where the solicitations go out separately, that is where we are buying a group of equipments.

Additionally I want to point out, and I may be misreading your testimony, Mr. Caveney, but you are referring here to CD–1 as being plug interchangeable with IBM 2311 disk storage unit. You then relate that to the $330 million and relating the costs between what you call CalComp dollars and IBM dollars and then suddenly relate that to the $330 million on the assumption the disk storage units constitute a certain percentage of that $330 million, and I simply suggest you are wrong.

Mr. CAVENEY. We are not making that connection.

Mr. ABERSFELLER. Anyway there are only 416 of this particular unit in the entire leased inventory as of June 30, 1969, of the Federal Government and, as I said, Mr. Chairman, we could save on the order of $2 million, and we will give you for the record what the total value of those units is. But so far as the $330 million are concerned we negotiated with IBM all year for the schedule, they didn't get paid for their equipment, and this was simply because it was issued late in the game, and simply was made retroactive to the first of the year.

(The following information was subsequently supplied for the record by Mr. Abersfeller:)

As of June 30, 1969, the total net purchase price is $9.2 million.

IMPACT OF COMMITTEE PRESSURE AND HEARINGS

Chairman PROXMIRE. Could I ask you, Colonel Warren, do you think the pressures from the Congress and hearings into this problem give backing to those who would take a hard nosed attitude toward procurement?

Colonel WARREN. Yes, sir; I certainly do. I think our actions in ADP management reflect the interests of this committee as well as the House Appropriations Committee and the House Government Activities Subcommittee of the Committee on Government Operations.

COST AND PERFORMANCE OF ADPE IN WEAPONS SYSTEMS

Chairman PROXMIRE. Is the Defense Department satisfied with the record of costs and technical performance of ADPE in the weapons systems?

Colonel WARREN. I am really not prepared to comment on that.

Chairman PROXMIRE. You are not. This is not your field?

Colonel WARREN. That is not in my area; no, sir.

Senator PROXMIRE. Who would be? I have a series of questions in that area and I would like to be able to either ask them to testify at some time later or write them to find out.

Colonel WARREN. Well, I think it would be someone in the Office of the Director of Defense Research and Engineering (O.D.D.R. & E.).

Chairman PROXMIRE. Will you double check that for us?

Colonel WARREN. Yes, sir.

Chairman PROXMIRE. And when you correct your remarks indicate who it is specifically.

Colonel WARREN. Yes, sir.

(The following information was subsequently supplied for the record by Colonel Warren:)

Dr. John S. Foster, Jr., Director of Defense Research and Engineering, is the appropriate Department of Defense official to address the subject of costs and technical performance of ADPE in weapons systems.

ANY DISCRIMINATION AGAINST SMALL MANUFACTURERS?

Chairman PROXMIRE. Mr. Caveney, other than the specific testimony, which I think is very helpful you have given us here, in your opinion is there now any real discrimination against the small manufacturers?

Mr. CAVENEY. I would rather wait a few more months before answering in order to see how my G–2 compares with the real facts. Right now we feel great strides are being made but we would like to see more than token acceptance, and until the Navy has completed their contracts on tape drives, I would rather wait until a later date to comment but I do see a great deal being done, and we like what we see so far but only the surface has been scratched as the savings should be in the billions of dollars range.

Chairman PROXMIRE. That is encouraging.

MAINTENANCE CONTRACTS BEING DISCUSSED WITH GSA

Mr. Harmon, have you talked to GSA about maintenance contracts?

Mr. HARMON. Yes, sir; we have.

Chairman PROXMIRE. Has the conversation been constructive and useful? Do you think you have made any progress?

Mr. HARMON. Very constructive to date. It should be recognized that we have only been in business 6 months. The Atomic Energy Commission Brookhaven Laboratory was one of our first customers, and we do have some conversations in progress with GSA.

SPECS SOMETIMES RESTRICTIVE

I might comment, however, on the negative side just a little bit. Sometimes the qualifications that come out in some of the specifications from GSA restrict a number of the peripheral manufacturers. This is particularly true as far as service might be concerned, due to the fact that they specify a requirement to have people available on-site to provide service or to have service personnel every place there might be an Air Force Base or other Government installations. It was in recognition of this, as well as other reasons that we establish Comma to try to fill that gap, to help them compete and provide services for them in all of these locations. The restriction on service is one of the reasons why the number of independent peripheral manufacturers did not respond to the RFP Mr. Abersfeller commented on in his testimony, where only two responded yet there were 50 or more in business at that time. I would say there has been great improvement made in this area. I predict that when the responses to the Navy bid on the 2311 replacement are revealed, there will be a great number more than the two responding to that RFP.

COMMITTEE HOPED TO EXPAND COMPETITION

Chairman PROXMIRE. That is encouraging because, of course, we had hoped that the suggestion of the committee would bring a number of new competitors and apparently it didn't do it. But you say now the situation is improving.

Mr. Abersfeller, earlier you said something to the effect that the interface compatibility situation couldn't be solved just by the Bureau of Standards. You feel it is more than that, to bring the greater competition into this operation. I would like to know more about that because the testimony this morning indicated that that really was the crux of it; if we could cross that bridge we would be in good shape.

DIFFICULT TO MAKE STANDARDS

Mr. ABERSFELLER. Well, there are other techniques. I happen to believe very strongly that no matter how many people within reason that you pour into the National Bureau of Standards it is still going to take a long time to get standards out on a very complex subject.

The alternative I alluded to was peripheral manufacturers could today if they chose, and it was obviously profitable to do so, make plug-to-plug compatible equipment for other manufacturers equipment. That is something that could be done immediately if it were profitable to do for the peripheral manufacturers.

An example, you can make tape and disk drives for Univac, RCA, CDC, and so forth. Standards themselves, Mr. Chairman, is a very complex subject. We have people on all the standards committees ourselves. It takes a good deal of time but, as I recall, it took us 2 to 3 years to simply get a standard on how you related the information on tape, which we thought was a rather simple kind of standard but it turned out to be very complex and takes a very long period of time. The capability approach is difficult.

Chairman PROXMIRE. My time is up. I am in a difficult situation. Mr. Caveney would like to make a comment. I have to leave for the

floor and go down for a rollcall vote, Mrs. Griffiths has to leave. If Mr. Brown would like to stay he can, I think, with our enthusiastic support, act as chairman of the committee, so if Mr. Caveney would like to answer then it is your turn, Congressman Brown, and I am going to have to leave and I will read it in the record. Incidentally, I would appreciate it very much if you gentlemen would agree to answer questions in the record from any of us in the event that we have to leave before we are through with questioning.

Representative GRIFFITHS. I want to say I have enjoyed the testimony of all of you here.

I would like to see the Army, which is my favorite, do at least as well as the Navy in purchasing.

Representative BROWN (presiding). Mr. Caveney, did you want to respond to a question?

USER SHOULD SET THE STANDARD—NOT THE SUPPLIER

Mr. CAVENEY. Yes. I would like to make the point here, Senator Proxmire, Mrs. Griffiths, they brought out a very strong point this morning about standards. And Mr. Abersfeller, unknowingly does the same thing, and every one in the industry recognizes the same illness. The peripheral community must abide by what is being marketed by Snow White and the Seven Dwarfs. Now I agree with this committee when it stated the standards will be set by the need of the end user community, not by any one particular company, and that is what I wanted to make very clear here, and Mr. Abersfeller, maybe mentally like we all do, tend to believe Snow White is the standard of the industry.

But they are not, the end user is, as he should be.

The standards should be set by an unbiased disinterested party in Government, with the assistance, as Mrs. Griffiths said this morning, of the computer community at large and the end users. That standard must be set impartially, and we take issue with the fact the peripheral community must immediately embark upon what either Snow White or the Seven Dwarfs determine what is needed.

Representative BROWN. If I may pursue that question and then a couple of others.

In the setting of standards, however, where does that expertise come from that develops those standards, if it is not, in fact, from the technology that has been developed by either the large manufacturer or the large consumer?

Mr. CAVENEY. From both, but not alone. The Navy came up with the simplified language library for the Government, which has been since transferred to the computer industry as a standard, and the Government has the competency to do these things if they want to as this is proof it can be done. They have more technical in-depth today than probably private industry does except they are scattered, and that is why I maintain, I think DOD could really forge and mold this group at the Bureau of Standards because they have got the talent and by reshuffling their priorities they could come up with a very fine group to do this.

Representative BROWN. Let me just suggest one danger in that, if I may, and get your comment on it. I am inclined to think that when we combine various procurement efforts to meet separate procurement

needs that we have a tendency to put together a lot of little mistakes into one great big mistake.

Mr. CAVENEY. I don't mean procurement, I am talking about standards.

Representative BROWN. I understand, but even in the writing of standards is it not possible that the ADP requirements could differ by department and the development of a new and better method obtaining, utilizing, storing data for the Government by one department might require that this new and better method be implemented in all departments? Could you get one department's development of standards somewhat more advanced than another department's development of standards and what they wanted in the way of equipment? In effect could a competition for development of standards develop rather than having one Government standard? Do you see what I am trying to get at?

STANDARDS FOR PERSONNEL ACCOUNTING

Mr. CAVENEY. Yes.

Well, in a sense you are half there, but it is like what I stated in my testimony. As an example, personnel accounting. Instead of having 160 different types of software programs being done in the Government for personnel accounting establish one standard to be used in Government. Likewise you can set santdards on a high order of technology for your languages by one body which would be common to both the commercial and Government end users.

Representative BROWN. If you will, accounting is a language which is helpful for a common exchange process; in Government there are hundreds, thousands, perhaps even millions of items purchased for a number of different needs, and the need that you may have in one branch of the Government for even a typewriter might be entirely different from what a typewriter specification in another branch of Government might be. I dare say that those typewriters in the White House that type on the high bond paper are somewhat different from the typewriters I recall when I was in the Navy that had to be able to tilt with the ships so the carriage wouldn't shoot off at the end.

Mr. CAVENEY. You are talking about hardware now. I am talking about language, software, the intangibility of a computer system.

Representative BROWN. But you are also talking about the hardware, too?

Mr. CAVENEY. Oh, yes; the hardware and software to make a system. But Mr. Abersfeller, what he is driving at in his testimony, which I agree with—the software is very costly and by allowing different programers who have got the same objective in Government, like personnel accounting, to go their merry way with a variety of different kinds of programs instead of saying, "You are going to use this type of personnel accounting program," you wouldn't have all this different variety of programs for personnel accounting and you could thus reduce costs by saying, "We are going to have one system for Federal employees, military, and Congress to keep accountability of personnel." The software, to make the hardware run, would be identical, because the computer doesn't know the difference whether it is a Congressman or whether it is a janitor; that is the point.

The point is the software would be the same for all personnel accounting required of Government; I don't know how many they have

got today but I know they have a variety of personnel accounting systems.

Representative BROWN. Again I tend to buy that argument with reference to systems. Although I do get concerned that possibly it ties us into a system that can't be improved by somebody developing something different in Government. I think there is a danger in an old big business over a new small business as once in a while a new small business finds a better way to do it.

I buy to a great extent the argument for common software systems because I think it would make the Government a great deal more manageable if we could get the common procedures adopted. We have been working on planned program budgeting, and have experienced a great deal of difficulty with it.

I would, however, like Mr. Abersfeller's comment on that. Also Mr. Abersfeller when there is a need for different hardware, and you put a company on the schedule, to provide one kind of hardware, is the company on the schedule to provide any kind of hardware or can it provide only that kind of hardware?

I would rather have you answer that question later after you comment on Mr. Caveney's statement.

Mr. ABERSFELLER. All right, I will comment on Mr. Caveney's point first. I do not share the view totally that standards is a singular answer to the problem that we are facing, and you, in fact in your line of questioning, brought out my principal reason. I think standardization in the software area is essential and we are moving forward in that it is an internal Government system and software programs ought to be standardized.

As you turn to hardware, and this is not an internal Federal Government situation—as I understand it—from the BOB, roughly 7 percent of the equipment now being sold by producers is bought by the Federal Government and 93 percent, if that is true, sold commercially.

I am deeply concerned when standards are set which apply to the total Nation that we then do not accommodate the individual who has found a better way of doing it. The standards system is not flexible enough and, in my view, will never be flexible enough to accommodate the better mousetrap that is built by someone. I am talking now about standards as it deals with compatibility, as between peripheral and main frame equipment or hardware.

I have grave misgivings if we take that approach and that approach alone, that we will end up with a situation of actually at some point in time being considerably behind times.

With regard to your second point, when we enter into a contract with a company on Federal supply schedule it is only for that type of equipment, and that is listed, that we contract with him for.

Representative BROWN. May I just suggest in response to the first part of your comment that one method of keeping an eye on the setting of standards is to have a standard-setting group review the work being done individually by departments, and to assure that they meet standards, then I suppose what you need is a reprise group in each department to be sure the standards-setting group meets the needs of each department.

Let me, if I may, get into another area of questioning that I pursued with the Bureau of the Budget this morning. After the Bureau of

the Budget approves the purchase of a computer by a department or agency, it becomes GSA's responsibility in some cases to determine where that computer will be purchased; is that correct?

Mr. ABERSFELLER. You mean from which company?

Representative BROWN. Yes.

Mr. ABERSFELLER. Our major interest is to be certain that all companies are solicited and are able to respond.

Representative BROWN. But after you have done all that who makes the final determination as to where the equipment is purchased?

Mr. ABERSFELLER. If we have delegated the authority, the agency to which we have delegated the authority makes the judgment. In those instances where we have not we make the judgment.

Representative BROWN. And that is 84.5 percent of the cases?

Mr. ABERSFELLER. Yes, sir.

Representative BROWN. In those 84.5 percent of the cases, or even in the 100 percent of the cases, do you check on the basic decision made by the Bureau of the Budget as to the economic logic of the computer being purchased?

Mr. ABERSFELLER. No, we do not.

Representative BROWN. In other words, that is a decision left totally up to the Bureau of the Budget?

Mr. ABERSFELLER. Between the Bureau and the Congress in appropriating the funds and the agency in its judgment.

Representative BROWN. I wish I had asked this of the BOB, but I will ask you and you can respond to the best of your ability—after the Bureau of the Budget has determined whether or not to get the computer do they in turn go back and check on whether the computer obtained was the one that would meet the needs of the agency?

Mr. ABERSFELLER. I don't know if they do that or not. I don't think they do. But I would prefer to defer to them.

Representative BROWN. The agency, however, may very well let you know that you haven't gotten just exactly what they want sometimes in the way of the purchase you have made?

Mr. ABERSFELLER. We would not make the purchase without coordinating it with the agency. In other words, we are not working alone on this. As Colonel Warren pointed out, we work very, very closely together not only with Defense but the other agencies.

Representative BROWN. So the people in your operation responsible for computer procurement would have some input from the agency as to what computer would be purchased or rented, is that correct?

Mr. ABERSFELLER. In fact we work as a team, we do this buying, it is a team effort.

Representative BROWN. How many people in GSA are in the computer procurement field?

Mr. ABERSFELLER. I am informed by Mr. Dodson we have on the order of 16 professional procurement people on these teams. With the supporting clerical and legal staff I would say on the order of 22.

Representative BROWN. Well, the people who make the procurement decisions, 16 to 22 people, have they been with the GSA for some time, do any of them go back to 1960, 1962, the 1950's?

Mr. ABERSFELLER. Some go back that far, yes. But most of them are 1 to 3 years with the agency.

Representative BROWN. Are legal requirements placed on them for full disclosure of their investments and possible conflict of interest?

Mr. ABERSFELLER. Yes, we have that in GSA as is true, I think, in most agencies, we have standards of conduct. Each person——

Representative BROWN. Are those regulations promulgated by GSA or are they required by law?

Mr. ABERSFELLER. I believe they are promulgated——

Representative BROWN. I mean by statutory law.

Mr. ABERSFELLER. I am not certain of statutory law provisions. I know they start from the Civil Service Commission. I do know all of us who are involved in procurement have to file annually and update it our interest in, of all stocks, bonds and assets we have, whether it is with companies we deal with or not, and there are prohibitions against owning stock in companies in which you deal.

Representative BROWN. Or industries?

Mr. ABERSFELLER. Or industries.

Representative BROWN. If I may, let me turn to Colonel Warren in reference to the requirements for disclosure.

Colonel WARREN. Yes, sir.

Representative BROWN. The decisions are made by the Defense Department and the separate branches with reference to companies from which procurements of ADPE equipment are made. Could you give me some idea of how many people there are, how long they have been in this area, and what their status is?

Colonel WARREN. Each of the services and agencies has their own ADP selection office staffed by professionals, and I don't have with me the number of people and qualifications of the people in those offices but I could get it for you.

Representative BROWN. I wish you would submit that, and also advise me whether they are civilian or military, their approximate length of service in this area, and their particular interest area or responsibility area.

Colonel WARREN. Yes, sir.

(The following information was subsequently supplied for the record by Colonel Warren:)

TABLES OF PERSONNEL IN THE DEPARTMENT OF DEFENSE WHO ARE DIRECTLY CONCERNED WITH THE SELECTION OR PROCUREMENT OF ADPE

Position title	Military rank/ GS grade	Number of years incumbent in position	Number of years experience in ADPE procurement or selection	Highest academic degree received
OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER), DEPUTY COMPTROLLER FOR DATA AUTOMATION				
Deputy Comptroller for Data Automation	Colonel	2	2	B.S.
Assistant Deputy Comptroller for Data Automation.	Commander	1	1	Ph.D.
Director for Automation Policy	GS-15	5	15	M.P.A.
Director for Advanced Computer Techniques	GS-13	2	2	M.S.
Operations research analyst	GS-12	2	2	M.S.
Systems analyst	1st Lieutenant	2	2	M.S.
Operations research analyst	do	2	2	M.B.A.
Digital computer systems specialist	GS-15	2	2	H.S.
Do	GS-14	2	2	H.S.

TABLES OF PERSONNEL IN THE DEPARTMENT OF DEFENSE WHO ARE DIRECTLY CONCERNED WITH THE SELECTION OR PROCUREMENT OF ADPE—Continued

Position title	Military rank/ GS grade	Number of years incumbent in position	Number of years experience in ADPE procurement or selection	Highest academic degree received
DEPARTMENT OF THE ARMY				
Acting chief, Office Management and Data Systems, OASA (FM).	GS–15	3	8	M.S.
Director, Management Information Systems, Office, Assistant Vice Chief of Staff, U.S. Army.	Brigadier general.	0	0	M.S.
Commanding officer, U.S. Army Computer Systems Support and Evaluation Command.	Colonel	1	1	M.S.
Deputy, USACSSEC	GS–15	2	13	B.S.
Director, Business Systems Evaluation, USACSSEC.	GS–15	2	9	H.S.
Deputy Director, Business Systems Evaluation, USACSSEC.	Major	2	2	M.S.
Project officer	GS–14	2	8	H.S.
Do	GS–14	1	8	H.S.
Do	Major	2	2	B.S.
Do	do	1	1	B.S.
Action officer	GS–13	3	3	B.S.
Do	GS–13	2	2	H.S.
Do	GS–13	0	2	M.S.
Do	GS–13	4	6	H.S.
Do	GS–13	3	3	H.S.
Do	GS–13	6	4	H.S.
Do	GS–13	1	3	B.S.
Do	GS–13	2	3	H.S.
Do	GS–12	0	2	B.S.
Director, Scientific Systems Evaluation, USACSSEC.	GS–15	2	8	B.S.
Deputy Director, Scientific Systems Evaluation, USACSSEC.	Major	1	3	B.S.
Project officer	GS–14	2	6	B.S.
Do	GS–14	3	4	B.S.
Do	GS–14	8	8	B.S.
Action officer	GS–13	0	8	B.S.
Do	GS–13	0	2	B.S.
Do	GS–13	3	3	B.S.
Do	GS–13	4	8	B.S.
Do	GS–11	1	3	B.S.
Director, Inventory and Acquisition Management.	GS–14	1	12	B.S.
DEPARTMENT OF THE NAVY				
Director, DON ADPE Selection Office	Captain	3	6	M.B.A.
Deputy Director/ADEPSO	Commander	1	2	M.B.A.
Director, RFP and Evaluation Group	GS–15	3	10	B.B.A.
Head, Business and Logistics Systems Division	GS–15	3	7	B.S.
Computer equipment analyst	GS–14	2	2	B.S.
Do	GS–14	2	7	A.A.
Do	GS–14	2	2	B.A.
Head, Scientific and Engineering Systems Division.	GS–15	3	10	M.S.
Computer equipment analyst	GS–13	2	2	B.A.
Do	GS–13	2	3	B.A.
Head, Software and Cost Division	GS–15	3	7	B.S.
Computer equipment analyst	GS–12	5	2	B.S.
Do	GS–14	2	7	B.A.
Director, Specifications and Analysis Group	GS–15	3	7	B.A.
Head, Business and Logistics Systems Division	GS–15	2	8	H.S.
Computer equipment analyst	GS–14	2	5	M.S.
Head, Scientific and Engineering Systems Division.	GS–15	2	6	H.S.
Head, Analog and Special Projects Division	GS–15	3	6	B.B.A.
Computer equipment analyst	GS–14	3	4	M.S.
Head, Techniques Development Division	GS–15	3	9	M.S.
Head, Planning and Control Division	GS–15	3	10	M.S.
Contracting officer	GS–15	2	5	B.A.

TABLES OF PERSONNEL IN THE DEPARTMENT OF DEFENSE WHO ARE DIRECTLY CONCERNED WITH THE SELECTION OR PROCUREMENT OF ADPE—Continued

Position title	Military rank/ GS grade	Number of years incumbent in position	Number of years experience in ADPE procurement or selection	Highest academic degree received
DEPARTMENT OF THE AIR FORCE				
Computer systems analyst	GS-14	7	10	H.S.
Data automation officer	2d Lieutenant	1	1	M.B.A.
Computer programer	GS-13	2	2	H.S.
Do	GS-13	2	2	B S.
Computer systems analyst	GS-13	3	3	B.S.
Data automation staff officer	Lieutenant colonel.	2	2	B.A.
Computer equipment analyst	GS-13	1	1	B.S.
Computer systems analyst	GS-14	6	23	H.S.
Computer equipment analyst	GS-12	1	8	H.S.
Data automation officer	1st Lieutenant	1	1	B.S.
Electrical engineer	do	2	2	B.S.
Computer specialist	GS-13	2	2	H.S.
Computer equipment analyst	GS-13	4	5	B.S.
Computer programer	GS-15	7	15	H.S.
Computer systems analyst	GS-14	7	7	B.S.
Do	GS-13	4	14	B.S.
Computer equipment analyst	GS-14	5	15	M.S.
Data automation plans officer	GS-14	7	9	A.A.
Data automation staff officer	Colonel	2	2	M.A.
Computer specialist	GS-14	7	13	M.E.D.
Computer equipment analyst	GS-9	1	1	M.A.
Computer systems analyst	GS-14	6	10	B.A.
Do	GS-13	3	7	A.A.
Do	GS-15	7	7	H.S.
Computer equipment analyst	GS-13	6	6	B.S.
Data automation officer	1st lieutenant	2	2	M.B.A.
Computer programer	GS-13	3	3	H.S.
Data automation officer	1st lieutenant	2	2	M.B.A.
Computer programer	GS-13	1	3	B.A.
Data automation officer	Captain	1	1	B.S.
Cost analyst	do	2	2	B.A.
Computer programer	GS-14	4	4	B.S.
Data automation officer	1st lieutenant	1	1	B.S.
Chief, equipment review branch	Colonel	1	1	M.B.A.
Computer equipment analyst	Major	2	2	M.B.A.
Do	do	1	1	B.A.
Do	Major	3	3	B.A.
Do	GS-15	4	4	A.A.
Electronic engineer	GS-14	8	10	H.S.
Computer equipment analyst	GS-14	3	4	H.S.
Do	GS-14	4	4	H.S.
Do	GS-14	1	15	B.S.
Do	GS-14	3	6	H.S.
Do	GS-14	3	4	A.A.
Do	GS-13	1	2	M.B.A.
Do	GS-13	1	4	B.E.E.
DEFENSE SUPPLY AGENCY				
Supervisor computer equipment analyst	GS-15	8	8	LL. B.
Assistant counsel	GS-15	6	6	J.D.
Computer equipment analyst	GS-14	5	5	B.S.
Systems program director (auditor)	GS-14	2	4	B.S.
Computer equipment analyst	GS-13	3	0	H.S.
Do	GS-13	3	0	H.S.
Procurement analyst (contracting officer)	GS-13	1	1	J.D.
Chairman ADP Selection Board	Rear admiral	1	1	M.B.A.
Member selection board (counsel)	GS-17	6	6	LL. B.
Member selection board	GS-16	2	4	M.S.
Do	GS-16	2	3	LL. B.
Do	GS-15	6	6	B.S.
Do	GS-15	6	6	J.D.

Representative BROWN. Then there is also a group in the Defense Department, is that correct?

Colonel WARREN. Yes, sir, in my office.

Representative BROWN. How many people do you have?

Colonel WARREN. Those in my office involved in this area total 10

people, eight professionals and two secretaries, not including myself, my deputy and one secretary.

Representative BROWN. How long have they served on the average?

Colonel WARREN. I could furnish all that. (See pp. 126–128.)

Representative BROWN. Do you have anybody who goes back to 1960?

Colonel WARREN. Yes, sir.

Representative BROWN. The reason for my curiosity about the extended length of service of people in this area is to determine whether or not any new personnel are coming into the process of selection of ADP equipment, and also to determine whether or not there are loophole possibilities with reference to either systems favoritism or corporate favoritism on the part of those people who are making these selections. There could be a relationship between the procurers and those from whom procurements are made that would not be in the interest of the Government or even though it might be in the interest of the Government might more specifically be in too great an interest of the individual provider or purveyor of equipment.

Colonel WARREN. Yes, sir, well——

Representative BROWN. You might comment if you will on what steps are taken to insure that this does not occur.

Colonel WARREN. Anyone involved in the procurement process or who might have a bearing on a procurement in the Department of Defense must file a statement of any interest they have or holdings or stock in a company with which the Government is doing business. That is a requirement.

Now, I think in the computer selection process to some extent it is self checking in that the procedures require the awarding of the contract to the lowest bidder who meets the specifications.

Representative BROWN. Ah, but there is the rub.

Colonel WARREN. Yes, sir, the specifications. Well, great care is taken to insure that broad competition is allowed by the specifications, and further than that, once the contract is awarded, all losing vendors are debriefed and basis for the award explained and the terms of the contract are public knowledge. Any time that a losing vendor feels he has not been fairly treated he does have recourse.

Mr. ABERSFELLER. I think a very good example of that, Mr. Chairman, was a case involving two well-known companies a couple of years ago in which a decision was made and it was appealed and reversed and ended up with a third company. The point you make——

Representative BROWN. The appellant did not necessarily win.

Mr. ABERSFELLER. The appellant didn't win and the original winner didn't win but the third party won.

Representative BROWN. I hope there is no message in that conclusion, however, for those who wish to appeal.

Mr. ABERSFELLER. No, we would hope not.

The point that you make is very well taken. It is a real possibility for those of us responsible for the multibillion dollar procurement program of the Federal Government is obviously of constant concern. Not only do we repeatedly emphasize to the staff the need for propriety in this but we rely to a very large extent on the other companies in the business to report these things to us. Very frankly we don't have very much of that. I have had none in ADP alleging the preferential kind of treatment. We do have occasional instances

in other areas. Those are examined in GSA by a part of our investigative staff which reports only to the Administrator, and we are obliged by his results to report those things to that office. They investigate them, get the facts and we make judgments based on the facts.

I think it is simply safe to say if someone is of that inclination, and if all the systems that we have fail, then it can be done. It is a little bit like trying to avoid someone breaking into your own home. If someone has it in mind to do that I suggest they will, and it is very difficult to guard against in that totality. But I think, I happen to believe very strongly, that people whom we have, not only in GSA but in the other Federal agencies are true professionals, and do abide very strictly by the rules of conduct that are prescribed by the Congress for the Federal employees, and I know of only rare instances, and only those I have read about, where people have abridged those rules, and have been severely disciplined.

Representative BROWN. Mr. Caveney?

Mr. CAVENEY. I believe I know the one he is talking about, the big buy, it was the largest computer buy, and before the icing was put on the cake, most of the seven dwarfs were appealing the decision of the U.S. Air Force. The clincher came from a professor at one of the leading universities who provided the knowledge, a Government analyst, who recommended the original awardee left Government and it could have been assumed a close relationship existed between that individual and the awardee. The information was passed on to the Government operations department, which was instrumental in reversing the decision. But you are very right in your assumption.

Representative BROWN. I would go further. The reason for my concern about the era of 1960 and before is not partisan, but rather from the standpoint that in the early days of a new and developing system, particularly one that sprang originally from the Federal Government, it seemed the opportunity to provide Federal funds for a company or companies to develop and get either a toehold or a lock on the technology in this new field was much greater then than it is now as currently there are more people in the field with the technology spread more broadly. A clear misdoing, or any misdoing, would be more obvious now perhaps than it would have been then, but the total culpability is no less. I am concerned about not only how some of these apparent situations developed historically, but how they are working now.

Mr. CAVENEY. One other comment. I receive a great deal of data about the negotiations with Government, but when you are dealing as a seller to a buyer I can understand what Mr. Abersfeller is saying, but that just isn't how the real game is played. A seller takes the position, "boy, if I say anything, this bird told me I would never receive another contract." So we swallow hard. Sometimes we have to go through the backdoor to get to the front door but I don't think anyone in this room is naive enough to think that there isn't a little hanky-panky, because there is. And it is too bad we can't go through the front door but the seller is placed in a very hairy position and will not jeopardize his firm's future.

Representative BROWN. Let me suggest, Mr. Abersfeller or Colonel Warren or anybody can then comment that there should be some kind of a separate review board on procurement. I don't know whether it should be this committee, although Mrs. Griffiths' suggestion is quite interesting, but it seems to me it should exist some place to be sure that a contract is properly awarded. There ought to be another party brought in to check on the procurement procedures to be sure they are valid because as an individual Member of Congress, I know situations where an unsuccessful competitive purveyor was debriefed, then challenged the award stating that the contract recipient would never deliver as they promised under the contract, and sure enough the unsuccessful bidder was right. The contract recipient never did deliver, but by this time the damage had been done and there wasn't any way out of the problem; the procurement office had to say "well, yes; I guess we were wrong, after all."

Now, what do you do about that?

Colonel WARREN. Well, sir, I would like to address the question, if I understood you correctly, as to whether or not some check is required on the procurement process to be sure it is conducted in a fair and impartial manner, and I would like to address myself solely to the ADPE selection process which is handled in a special manner now in that we have to develop our requirements for ADP and submit them to the GSA, which examines them to be sure that they give fair and full competition to everyone and the opportunity to compete. The selection process is a long process.

It takes almost 11 months from the time we issue an RFP to the time we make a selection. After the RFP is issued the equipment is examined on-site, and benchmark tests are run. There are two separate agencies in the Government intimately involved in the selection process which is closely monitored by industry as a whole, and I believe that the opportunity for anything but a fair selection is slight, and I really do not feel that the selection of ADP needs any additional rules, regulations, or checks as far as the competitive selection process is concerned.

Mr. ABERSFELLER. I share that view. I think in some instances the time lags that take place through the exhaustive review checks means substantial amounts of money are lost by the absence of new modern equipment.

In terms of harming a company, as regrettable as that particular case is, the occasions do arise, I really don't know what another body might do in terms of examining because it seems to me you would have to rely on professional people.

We had a case of our own, not involving ADP but a similar product, where our plant inspector felt the low bidder could do what he claims he could do. This was his professional judgment.

The facts were that he wasn't able to do it. I don't know, and I looked into that before the award was made, it happened to be the kind of thing that I would examine before the award was made. I have standing before me a man who has a great professional reputation, who tells me that the man can produce, and really I am pretty hard put to disagree with him, unless really to hire two or three men to examine this man's finding, but it happens very very seldom.

Representative BROWN. I assume at this point the review agency has discretion of keeping tab or keeping a file on these people who made the bad judgment and after they had fallen down a number of times a review would be taken of your administration of those personnel rather than anything else.

Mr. ABERSFELLER. It may very well be. In this case, it turned out our man was right. I did send some people up afterwards, our man was right. They did have the capability of producing but they didn't have the intent. They decided not to and, frankly, for reasons beyond me because it costs them a pretty penny, but that is something that is pretty hard for anyone to judge as to what a person intends.

Representative BROWN. Colonel, let me be more specific. What about a review of weapons systems? Can you think of any way that can be done?

Colonel WARREN. Most of the major weapons systems receive a pretty thorough review now.

Representative BROWN. You mean a separate agency review now?

Colonel WARREN. I would just like to restrict my comments to ADP, if I could, because that is what I am here to talk about.

Representative BROWN. Any further comments from any of you gentlemen?

CORRESPONDENCE ON EMPLOYEE SUGGESTION (DHEW) RE TAPE DRIVES

Mr. CAVENEY. I would like this suggestion inserted in the record in its entirety.

Representative BROWN. I am sure that will be taken care of.

(The following information was supplied for the record by Mr. Caveney:)

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., April 25, 1968.

Mr. HOWARD JORDAN,
Department Suggestion Coordinator,
Department of Health, Education, and Welfare,
Washington, D.C.

DEAR MR. JORDAN: The main thrust of the employee's suggestion resubmitted with your letter of April 3, 1968, was not overlooked in our orginal evaluation. In our answer we generalized from the particular component, magnetic tape units, to the entire class of computer components because the major considerations apply equally to many components.

After reading Mr. Chalmers' memo to you, I appreciate the uncertainty caused by our response. I hope that I can clarify our reasons for rejecting further consideration.

Procurement of Electronic Data Processing Equipment in the Federal Government today is largely through competitive bidding. In most cases the requests for proposal require bidding a complete system not part of a system or one component such as a tape unit. In addition to supplying the hardware, the bidder must also supply software needed to use the system efficiently. Computer systems also require provisions for maintenance, and training of personnel. Most of the maintenance and much of the training today is performed by the manufacturers' personnel. This is almost always the case when the equipment is rented rather than purchased.

Most magnetic tape units are cabled directly to the computer and their operation is dependent upon the control of the computer.

To provide for direct bidding of magnetic tape units or other computer system components, as separate pieces of equipment in all procurements would require complete revision of our present concepts of EDP systems and procurement. Many questions have to be answered before evaluating the desirability of this

action. For example, if a computer is rented, can we require one manufacturer to cable connect another manufacturer's tape units to his system? Who provides maintenance? In case of failure how do you determine which part of the system is at fault? Should we have one set of policies for rented equipment and another for purchased equipment?

Very critical and broad questions of the above type are pertinent whether the particular component under discussion is a tape unit, a disc unit or any other directly connected device. These kinds of questions are the ones under study by the General Services Administration and also the General Accounting Office.

Specific suggestions such as that of this employee led to identification of the broader questions because implementation of such specific suggestions is impossible without making other major changes. Evaluation of the total impact can be made properly only when the broader questions have been analyzed.

I hope that our reasons for rejecting further consideration are more meaningful to the suggester than our first letter.

Sincerely,

EDWARD F. KELLEY,
Budget and Management Officer.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
Washington, D.C., April 3, 1968.

Subject: Employee Suggestion Concerning Substitute of Other Brands for IBM Tape Drives, submitted anonymously by a Public Health Service employee.

Mr. EDWARD F. KELLEY,
Incentive Awards Office, Executive Office Building,
Bureau of the Budget,
Washington, D.C.

DEAR MR. KELLEY: We have been requested by the Suggestion Coordinator of the Public Health Service to submit this suggestion for further consideration and re-evaluation, since the previous evaluation does not appear to be responsive to the main items proposed. We enclose a copy of a memorandum from Public Health Service which lists three items that should be considered.

Sincerely yours,

HOWARD JORDAN,
Department Suggestion Coordinator.

Enclosures.

MEMORANDUM, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE, MARCH 19, 1968

To: Mr. Howard Jordan, DHEW Suggestion Coordinator.
From: PHS Suggestion Coordinator, MPS, OSG.
Subject: Request for Reevaluation of Anonymous Suggestion OSG–68–11 (HEW–68–A30).

Subject case is hereby returned and reevaluation requested. The March 8, 1968 letter of rejection signed by Mr. Kelley, Bureau of the Budget, does not seem to be responsive to the main thrust of the suggestion.

The suggester used many words in paragraph 12 of the suggestion form to propose, in essence, that:

1. The Government validate claims of superior performance of newly advertised tape drives.
2. If the claims of the manufacturers of the new tape drives are found valid by test, they should be included in the GSA schedule. and
3. Use of the improved tape drives be encouraged by Government installations (or required) where a net cost benefit would result.

It is recognized that the thrust of the employee suggestion could easily be overlooked when considering the large amount of additional data the suggester submitted pertaining to the calculation of cost benefit to be derived, information regarding sources of improved equipment, etc. It is requested that this memorandum accompany the case when it is resubmitted for evaluation.

ALFRED A. CHALMERS.

Enclosure.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., March 18, 1968.

MR. HOWARD JORDAN,
Department Suggestion Coordinator,
Department of Health, Education, and Welfare
Washington, D.C.

DEAR MR. JORDAN: We have read the material submitted by you on February 1, 1968, with the employee suggestion number HEW–68–A–30–OSG–68–11 proposing substitution of other brands for IBM tape drives.

The suggestion that the Government procure EDP components separately and directly from their manufacturers is not a new one. For example, congressional testimony before the Subcommittee on Economy in Government of the Joint Economic Committee on November 30, 1967, dealt with this subject in some detail. The many facets of such a proposed procedure are currently being studied by the General Services Administration. Since the idea is already under evaluation, further consideration of the subject suggestion is not warranted.

The suggester, however, should be commended for his interest in improving management practices in the Government.

Sincerely,

EDWARD F. KELLEY,
Budget and Management Officer.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE,
OFFICE OF THE SECRETARY,
Washington, D.C., February 1, 1968.

MR. EDWARD F. KELLEY,
Incentive Awards Office, Executive Office Building,
Bureau of the Budget, Washington, D.C.

DEAR MR. KELLEY: The enclosed employee suggestion proposes substitution of other brands for IBM tape drives. Although the technical evaluation of the suggestion will probably be done by the National Bureau of Standards, we have forwarded the suggestion to you because of the Bureau of the Budget's leadership role in fostering better ADP practices and effecting economies throughout the Government.

Please keep us advised on the evaluation progress.

Sincerely yours,

HOWARD JORDAN,
Department Suggestion Coordinator.

Enclosures.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, EMPLOYEE SUGGESTION FORM

INSTRUCTIONS TO SUGGESTER

1. Read information on other side before preparing this form.
2. Describe your idea on this form, *filling in all numbered items.*
3. Use additional sheets of paper and include drawings or sketches as necessary.
4. Submit this form to your immediate supervisor or incentive awards official.

Suggestion number, OSG–68–11.
Date Received 1/25/68.
1. Name of suggester: Mr. Arthur L. Kenney.
2. Position Title: Special Assistant.
3. Grade: San. Director.
4. Organization: OPPE, OSG, PHS.
5. Office Address: North Bethesda Office Center, 11420 Rockville Pike, Rockville, Maryland 20852.

I hereby agree that, upon acceptance of a cash award, the use of this suggestion by the United States shall not form the basis of a further claim of any nature upon the United States by me, my heirs, or assigns.

6. Date: Jan. 23, 1968.
7. Signature: Arthur L. Kenney.

8. Office Phone: Code 14 68793.

9. May your name be used during the processing of this suggestion? Yes (☐) No (☒).

10. This suggestion concerns: Substitute Other Brands for IBM Tape Drives.

11. The situation as it now exists (*Briefly describe the present practice, condition, etc. which you believe should be changed.*) At this time, responsible estimates place the number of magnetic tape drives currently being used in all U.S. computer installations at approximately 100,000 units. Considering $750/month to be an average rental value per tape unit, this represents a $75 million *per month* national expenditure. The government's portion of the magnetic tape drive market is large; some experts estimate it at over 50 percent of the population, or about 50,000 tape units—a government cost approaching $37 million *per month.*

IBM had a 90+% share of the data processing market at the time it became a real market in 1958, down to its presently estimated share of 70+%. This places the currently installed, IBM megnetic tape drive population in the U.S. at about 80,000 units.

For purposes of estimation in this suggestion, we will assume that the government's share of the magnetic tape unit population is not over 50%, but rather that it is 40% or 40,000 units, of all types. We are assuming only 75% of these are IBM tape units, or 30,000 tape units, for the purposes of exposition and in order to generate cost analysis.

Each tape drive must have an average number of tapes that can be "assigned" to it, as tape libraries are a large and important function in any computer installation. Our assumption is that there must be a minimum of 500 existing government-owned tapes per existing tape drive of 30,000×500=15,000,000 tapes at $30/tape or a $450 million existing investment in magnetic tapes.

Thus government rental costs approaching $27,000,000 per year (30,000 tape drives×$750×12 months) are coupled to a burgeoning, government-owned inventory of magnetic tapes valued at $450 million using original costs and the above assumptions. The expansion of these investments appears inevitable and warrants close scrutiny.

12. Idea for improvement (State your idea as clearly as possible. Tell how and where it may be used and what it will accomplish.) This suggestion concerns recent advances in technology which appear to make the currently marketed IBM tape drives no longer the instruments of first choice, either technically or economically, as the attached advertisement by MAI Equipment Corp. and Ampex indicates. MAI contends that the government might well expect to save $6,000 to $24,000 on each magnetic tape unit it owns or rents by utilizing directly interchangeable magnetic tape units—MAI's for IBM. This is a "savings" ranging from $180 million to $720 million, if differences in purchase prices are used as the criteria for savings. Ampex and Potter Instruments also claim they have more efficient and less expensive tape drives.

This suggestion is that the Federal government, Exec. office of the President, test the units described in the attached materials immediately, to see if they meet the specifications the manufacturers (MAI-Potter and Ampex) has act out for them in their advertising, because utlization of these tape drives appear to offer enormous cost reductions on existing government computer equipment.

These tests should take place as soon as possible in order to place these units within the reach of government users, because, at this time, these units *are not on GSA schedule.*

Successful test results should result in an immediate requirement that government organizations make cost comparisons of their present IBM equipment and the MAI and/or Ampex equipment with the ultimate aim of reducing tape drive costs.

The purchase agreement of MAI machines clearly indicated that, ". . . each MAI unit will perform operating functions in a maneer equal to (or better than) an IBM Unit of the aforesaid type and model with which it is interchangeable, except with respect to rewind speed." The slower rewind speed is part of the design that eliminates pinchfeed rollers and tension arms. High speed rewind is accomplished within the vacuum columns themselves, reducing friction and tape breaks; rewind speed is compromised for increased tape life. MAI expects at least a"doubling" of tape life by this technique. Ampex, which uses a similar technique, contends that tapelife will be extended by "an order of magnitude" (10 times).

This increased tape life could lead to substantial savings on magnetic tapes alone, not counting the cost avoidance that results from not having to restruc-

ture magnetic tape data files because of tape breaks, or rerun programs because of tape malfunctions. In addition, we need not process purchase orders ordering replacement magnetic tapes throughout the government. At one agency, Social Security, there are 100,000 tapes; a 50% increase in tape life (a fraction of that claimed) represents a cost-avoidance of $1.5 million at that agency alone. Across the Federal establishment, this cost avoidance would be in the tens of millions of dollars.

For example, NASA's Goddard Space Center in Maryland with over 150 tape drives could show a rental savings at $22,500 per month on tape drives ($150 × 150=$22,500 per month savings on tape drive rentals). Internal Revenue Service has over 75,000 tapes and 140 tape drives and could show equivalent savings. These organizations represent only a few of the installations that are affected by this suggestion.

13. Savings and/or other benefits which will result from your idea (see explanation sheet attached).

	Rental	Purchase
A. Direct rental savings on tape drives ($150 average × 30,000 × 12) (year)	$54,000,000	
B. Purchase price savings of current tape drive population ranges from $120 to $720 million (assumes purchase of all units in 1st year)		[1] $420,000,000
C. Reduced tape wear (average) initial year savings (future year savings of $22,500,000)	275,000,000	275,000,000
D. Computer time saved	12,500,000	12,500,000
E. Clerical time saved	150,000	150,000
Total savings calculated for the initial year. Rental savings for following years reduce to $89,150,000 per year	[2] 341,650,000	[2] 707,650,000

[1] Average.
[2] 1st year.

EXPLANATION OF SAVINGS

A. Direct Rental Savings on Tape Drives, $54,000,000

An average rental "savings" figure was approximated from the "usual" configuration of tape drives and the appended MAI Inc. schedule of rental prices, which range from $75 to $190 per month below IBM's.

This figure of $150 per month was multiplied by the estimated government population of IBM tape drives of 30,000 units and then by the number of months in a year, which yields $54,000,000 ($150 x 30,000 x 12).

B. Purchase Price Savings, $420,000,000

The MAI advertisement attached tells us that we may expect to save $6,000 to $24,000 per unit purchased. This gives a purchase savings "range" of $180 to $720 million ($6,000 x 30,000 and $24,000 x 30,000) on the existing government operated magnetic tape drives. An average value of $14,000 was chosen as a representative savings "across the board." This $14,000 x 30,000 tape units gives us an "average" purchase savings government wide of $420 million.

C. Reduced Tape Wear, $275,000,000

Each of the two manufacturers of this new tape drive transport design predict a great savings in tape life due to lack of wear and "pinching." The extended life is quoted at "double present" to "an order of magnitude (10 times) better." If we use double life, the lowest estimate given, on our current stock of magnetic tapes ($450 million), we would be effecting a savings of $275 million on our existing tape population. Savings on future tape purchases would amount to $22,500,000 per year (the difference between $45,000,000, the cost of 10% per year tape replacement, and $22,500,000, the cost of 5% per year tape replacement).

D. Computer Time Saved, $12,500,000

If the increased tape life and lack of wear on the oxide surface leads to one minutes greater reliability and therefore a lack of computer difficulty of "one minute per existing tape" (a conservative estimate), we will have saved one minute times the tape population in computer time, or 15 million computer minutes, which is equal to 250,000 hours of computer time. The average value of an hour of computer time is about $50, when one considers all costs including personnel, utilities and indirect items. Therefore, this one minute savings is worth $12,500,000 ($50 x 250,000 hours) throughout the Federal Government.

E. Clerical Time Saved, $150,000

If we assume that we can double the life of the tapes currently owned by the government, this would be the equivalent of not ordering replacement tapes for this coming year. Replacement tapes would be valued at $45 million, if we assume a ten-year life expectancy for tapes. This means that the government would have to replace 10% of the existing $450,000,000 magnetic tape inventory each year.

It is generally agreed that it costs the government $10 to process single purchase order regardless of its "value"—a one cent item or million dollar item. If we assume 100 tapes are placed on each purchase order on the average, it will require 15,000 purchase orders yearly to replace our tape inventory. This leads to a cost avoidance of $150,000 (15,000 x $10) in clerical savings per year.

"Meet the Competition" Response by IBM, $54,000,000

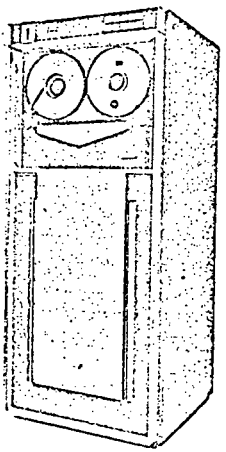
The possibility exists that IBM might "meet the competition" and reduce its prices across the board if presented with an elaboration of these facts in a government-wide cost-analysis. The savings to result from such a move should be the same as the rental savings above, $54,000,000 per year. In this eventuality, we would not realize the savings on tape wear and clerical costs outlined above.

No one could expect 30,000 replacement units to be available in a short space of time, so there will be a growth curve to these "savings" under the normal business condition.

new products

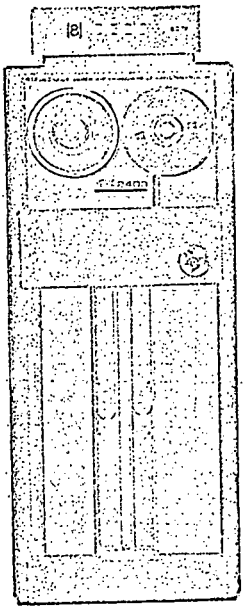
• • •

New Ampex Model TM-16 digital tape transport is plug-interchangeable with IBM 729 and 2400 units and features straight-line tape path design for maximum operator speed and convenience. The TM-16 also is designed to incorporate phase encoding, the method of doubling maximum data packing density from 800 to 1600 bits per inch. The transport offers tape speeds ranging from 75 to 150 inches per second, and 75 or 112½ ips in the IBM-replaceable version.



For more information, circle No. 73 on the Reader Service Card

• • •



Saves you $6,000 to $24,000
(Doesn't cost a cent for conversion)

The new MAI Magnetic Tape Unit is directly interchangeable with your 729/2401 units—plug for plug, reel for reel. We hook up an MAI unit and it's ready to go to work.

Initial equipment costs for each MAI unit are at least $6,000, and in some cases, as much as $24,000 less than the comparable 729/2401 unit.

So an MAI unit pays for itself in 2-3 years in direct savings over your current rental costs. And then saves you another $5,000 to $10,000 a year. Every year.

A new kind of tape unit. No tape wear and tear from pinch-feed mechanisms on this tape unit. Its *single capstan* drive mechanism handles tape the way it should be handled. Gently.

During operation, the recording surface of the tape touches nothing but the read-write head. And that retracts to eliminate tape wear during loading and rewinding.

A new kind of systems reliability. Because the unit's design is so simple, you improve systems reliability. Read-write reliability equals or exceeds that of your present tape units. Downtime *has* to go down because the MAI unit is so easy to maintain. (It requires no mechanical adjustments, and a minimum number of electrical adjustments.)

So you'll save on an MAI maintenance agreement too. And without worrying about quick service. MAI has branch offices in 45 principal cities from coast to coast.

If you'd like more information, call your local MAI branch office, or write us.

MAI EQUIPMENT CORPORATION, 300 East 44th Street, New York, N. Y. 10017

The MAI Magnetic Tape Unit

1. Increases Tape Life:
   - (*a*) Single point contact with the recording surface.
   - (*b*) Eliminate Pinch Feed Rollers and Tension Arms
   - (*c*) High speed rewind in the vacuum columns.
2. Maximizes Data Reliability:
   - (*a*) Single point contact.
   - (*b*) Eliminate pinch feed rollers and tension arms.
3. Minimizes Service Requirements:
   - (*a*) No mechanical adjustments.
   - (*b*) Simplicity of tape path design.

(c) Dynamic braking.
(d) Service from the front.
(e) Minimum number of moving parts.

4. Increases Operator Efficiency:
(a) Straight line loading.
(b) Automatic threading.
(c) Completely fail safe drive system.

5. Plug-to-Plug Compatibility:
(a) No programming conversion.
(b) No tape conversion.

MAI EQUIPMENT CORPORATION—PRICE LIST

Type-model	Speed	MAI rental	IBM rental	MAI purchase	IBM purchase
2401–2	60 KB	425	500	16,000	22,700
2401–3	90 KB	650	810	21,700	36,760
729–IV	62.5 KC	720.00	900	17,700	41,250
729–V	60 KC	637.50	750	16,000	37,200
729–VI	90 KC	760.00	950	18,000	42,450

WARRANTY

1. Plug-to-Plug Interchangeable.
2. Compatible with all IBM Systems with which the comparable IBM drive is compatible.
3. *Equal or better Performance*, except for rewind speed.

729 to 2400 Upgrade Available.

Addendum to agreement for purchase of MAI Machines, dated as of the _____ day of _____, 196__, between MAI Equipment Corporation ("MAI") and_____
(Purchaser's Full Legal Name)

The above-described agreement is hereby amended by adding the following provisions immediately after the first paragraph under the caption "Warranty":

MAI hereby warrants as follows:

First, that each of the following types of MAI magnetic tape unit ("MAI Unit") is plug-to-plug interchangeable with a type and model of magnetic tape unit manufactured by International Business Machines Corporation ("IBM Unit"), as follows:

MAI Unit		*IBM Unit*
MAI 2402	is interchangeable with	IBM 2401, Model 2.
MAI 2403	is interchangeable with	IBM 2401, Model 3.
MAI 7294	is interchangeable with	IBM 729, Model IV.
MAI 7295	is interchangeable with	IBM 729, Model V.
MAI 7296	is interchangeable with	IBM 729, Model VI.

Second, that each MAI Unit represented herein as being plug-to-plug interchangeable with a type and model of IBM Unit is compatible with all IBM systems with which such IBM Unit is compatible; and

Third, that each MAI Unit will perform operating functions in a manner equal to (or better than) an IBM Unit of the aforesaid type and model with which it is interchangeable, except with respect to rewind speed.

If the Purchaser believes that any Machine is not performing in accordance with any warranty set forth above, the Purchaser shall so notify MAI, detailing the operating deficiencies of such Machine. MAI shall thereafter have an opportunity, over a reasonable period of time (but not less than thirty (30) days or more than (90) days) to modify, adjust or repair such Machine as required to satisfy such warranty. If, at the end of such period, such Machine is not performing in accordance with such warranty, then, at the request of the Purchaser, MAI shall accept the return of such Machine (as the property of MAI) and shall pay to the Purchaser the Adjusted Unit Price for such Machine (or, if the Purchaser and MAI shall mutually so agree, MAI shall instead replace the Machine at MAI's expense), all as set forth in Section "7C" below.

No warranty set forth above shall apply to any Machine if any person other than an MAI Customer Engineer (or other person authorized by MAI), without MAI's consent, shall modify, adjust or repair such Machine or perform any maintenance service on it.

Accepted by:
MAI Equipment Corporation

(Purchaser's Full Legal Name)

By_____

Officer's Title_____

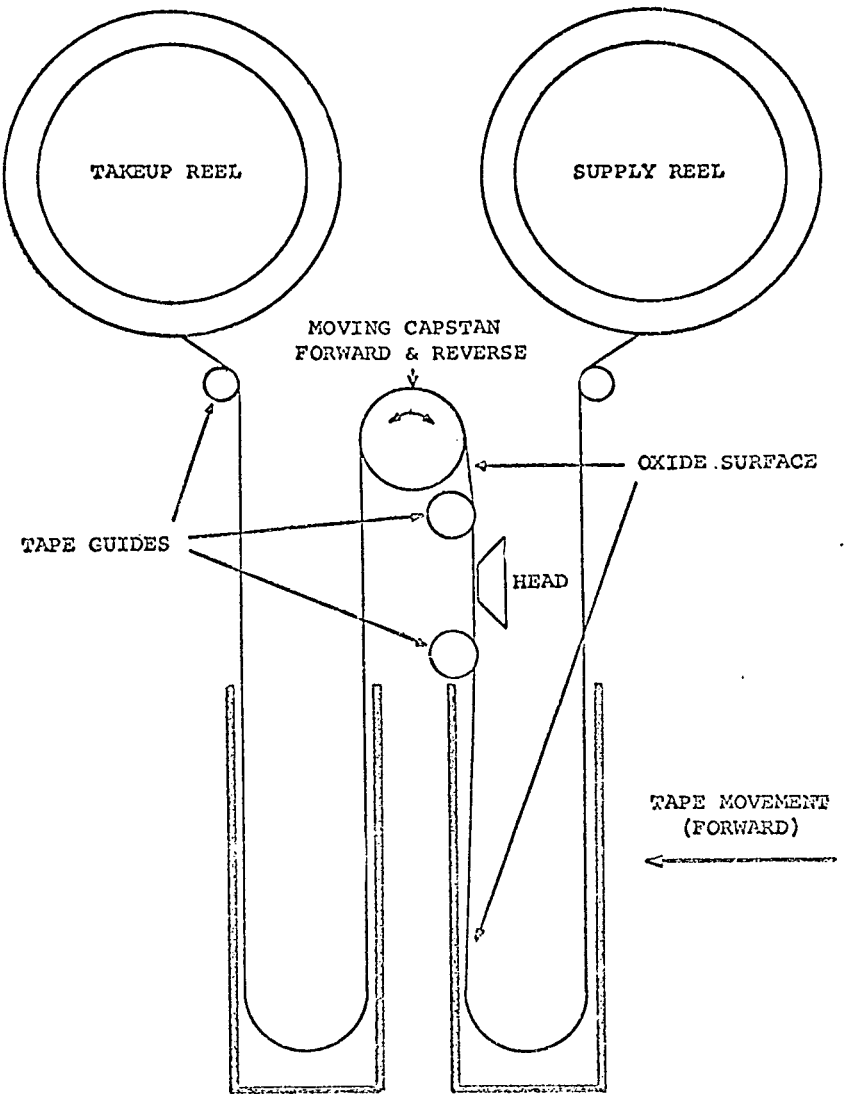
Date_____

Accepted by:

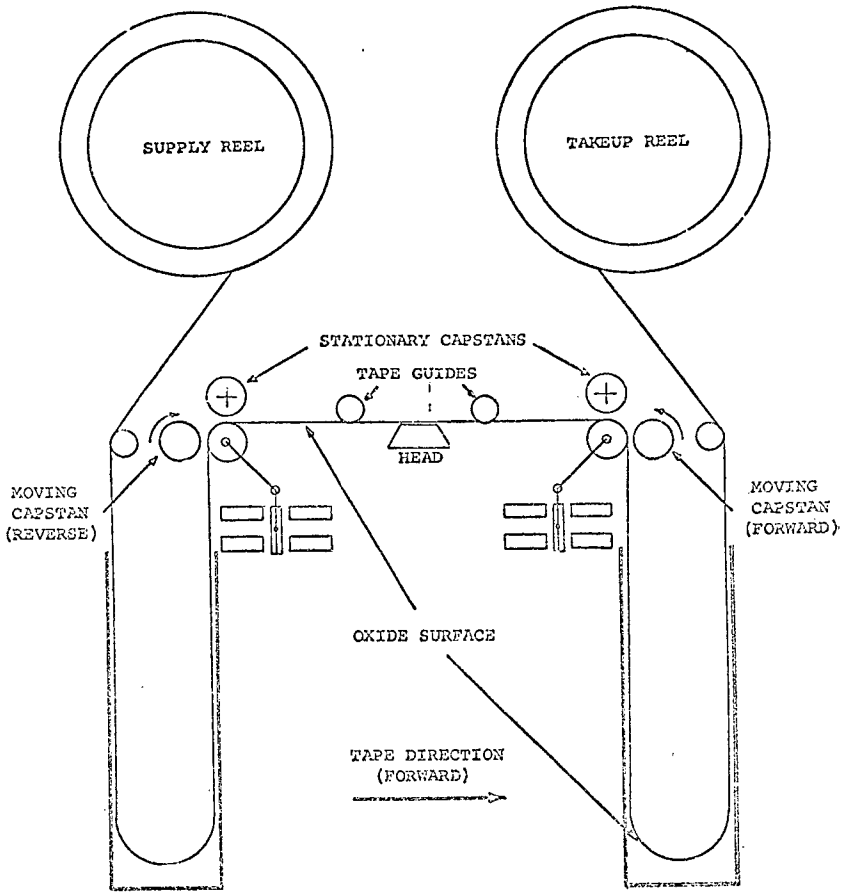
By_____

Officer's Title_____

Date_____



MAI VACUUM DRIVE



PINCH ROLLER DRIVE

POTTER INSTRUMENT CO., INC.,
Silver Spring, Md., July 5, 1968.

MR. ALAN TAYLOR,
Computer World,
Newton, Mass.

DEAR MR. TAYLOR: The Potter Instrument Company unequivocally supports the position of Bryant Computer Products with regard to the right of independents to bid on portions of ADP systems being procured by agencies of the Federal Government. It is especially difficult in this period of tight fiscal policy to understand why there is such indfference to this proposition. One would expect the Government to actively pursue manufacturers who could demonstrate significant cost savings with no system degradation.

In the particular case of the Potter Instrument Company's tape drives which are plug-to-plug and program-to-program interchangeable with the corresponding IBM tape drives, the situation is even more difficult to understand. Here is a unit which not only offers sinificant cost advantages, but unquestionable technological advantages. It contains no gears, pulleys, belts, brakes or clutches. It has no pinch rollers or prolay assemblies and requires no mechanical adjustments. It rewinds tape under vacuum control preventing tape damage if power is interrupted. It has a simple straightforward tape path whereby the oxide touches only the

magnetic head and tape cleaner. To date, commercial establishments have ordered over 600 units. The Federal Government has ordered none. Yet it could save hundreds of thousands of dollars this fiscal year by the direct substitution of Potter drives. Since the design of these units is simple and straightforward, additional savings could be realized by in-house maintenance as recently urged by GAO. (Potter supplies free training classes). Other long-term savings would result as the drive's gentler tape handling extends tape life.

In spite of these possible savings, the Federal Government is likely to gain very little this year unless some impetus for change can be generated in the hierarchy. We in marketing will be forced to visit each agency in turn, plead our case, and ferrite out the hero who will stick his neck out to change the status-quo. This takes time—time during which the taxpayer is paying a premium for this type equipment.

The failure to act in the face of the advantages to be gained is theoretically justified on the basis of the anticipated problems associated with multi-vendored systems. Superficially the problems seem like many and without solution. In reality they all reduce to the fear that two vendors will be blaming each other's equipment while valuable production time is lost. This could conceivably happen in the case of tape drives if the computer had only one drive attached. With two or more drives on a system the faulty equipment can be determined with only the most elementary deductive reasoning. Of course, full advantage is also taken of existing IBM diagnostic tests and IBM field test equipment in localizing problems.

In the final analysis the hard facts are that there are significant savings to be realized by utilization of equipment of this type. The element of risk associated with multi-vendored systems has already been investigated and discounted by commercial users with profit and loss responsibility. We hope to see a corresponding amount of initiative demonstrated by the Federal Government in the near future.

If you have any questions or require any more detail, I would be more than happy to work with you in developing this theme.

Sincerely yours,

GEORGE B. MCFARLAND,
Area Manager.

Potter model number	IBM model number	Basic monthly rental		Purchase price			Monthly maintenance charge	
				Potter		IBM		
		Potter	IBM	Quantity 1	Quantity 5 or more	Quantity 1	Potter	IBM
SC–7294	729 mod 4	N.A.	$900	$18,500	$16,300	$41,250	$90	$114
SC–7295	729 mod 5	N.A.	750	17,000	14,950	37,200	90	108
SC–7296	729 mod 6	N.A.	950	18,500	16,300	42,450	90	119
SC–2402	2400 mod 2	$450	500	18,200	15,450	22,700	85	70
SC–2403	2400 mod 3	600	810	21,100	17,950	36,760	90	86
SC–2405	2400 mod 5	500	550	20,800	17,700	25,030	95	82
SC–2406	2400 mod 6	650	860	25,000	21,250	39,090	100	98

1. It is a fact that the Federal Government purchases almost all of its ADP equipment through competitive bidding which requires the bidder to supply the entire system. The inflexibility of this approach robs the government of the opportunity to avail itself of the latest technological advances in peripheral equipment to say nothing of tremendous cost savings. For instance, an IBM model 729 VI sells for $42,450. The Potter counterpart, the SC–7296, sells for $18,500 in a quantity of one and $16,300 in a quantity of five (5) or more.

2. If the Government were to solicit bids for peripherals separately from the main frame, the software would still be supplied with the main frame. Plug-to-plug peripherals are specifically designed to interface to the main frame manufacturers equipment with no hardware or software modifications.

3. All manufacturers provide maintenance and training. In fact, the newer peripherals such as the Potter Tape Drives are simple in design so as to require very little training for maintenance and in fact very little maintenance.

If the Drives are rented maintenance is provided in the rental package. If the drives are purchased or leased the maintenance can be contracted for separately. In any case, maintenance and training is available.

4. All magnetic tape units are cabled to the computer manufacturers equipment and their operation does depend upon commands from the computer—so what?

5. If a computer is rented, the user can ask one manufacturer to let another manufacturer cable directly to his equipment. This is covered in IBM's multiple supplier bulletin (copy attached.)

6. Maintenance of each manufacturer's equipment would be the responsibility of the individual manufacturer. This works very well especially in the case of IBM who actually bends over backwards to help.

7. Determining which part of the system is at fault in case of failure is quite easy, especially in the case of tape drives. If the computer has four drives on line and one drive is acting up, it is obviously a tape drive. If all drives are acting up they all can be disconnected and checked in turn with an IBM field tester. They can each then be reconnected and tested on line. If none of the four (4) drives operates after being checked off-line, it most obviously is the computer that is at fault. Actually the case where one would not be sure whether the tape drive of the computer was at fault would be a one-in-a-million occurrence.

MULTIPLE SUPPLIER SYSTEM BULLETIN

This Bulletin has been published to define more fully IBM's responsibilities and its relationships between other suppliers and yourself in the installation and maintenance of a system comprised of equipment and/or services supplied by IBM and other suppliers. It also includes those situations in which an alteration is made to an IBM unit whether or not the unit is a part of a Multiple Supplier System. This Bulletin supersedes the Alterations and Attachments Information Bulletin for Customers and includes those situations previously referred to as an Alteration or Attachment.

DEFINITION

A Multiple Supplier System is one in which a system or unit marketed by another supplier is mechanically, electrically, or electronically interconnected with an IBM supplied machine or system. Alterations are defined as any changes made to the physical, mechanical, or electrical arrangement (including microcode) of an IBM machine or system whether or not additional devices or parts are required.

TECHNICAL GUIDANCE AND SYSTEMS, APPLICATIONS AND PHYSICAL INSTALLATION PLANNING

In Multiple Supplier Systems, IBM does not assume responsibility for support of the other supplier's portion of the system nor for the integration of such equipment into the system. We will willingly meet with you and the other suppliers(s) to achieve a common understanding of each party's responsibility in the support of the units each provides.

MAINTENANCE SERVICE

1. Servicing of IBM Machines in Multiple Supplier Systems

a. IBM will provide maintenance and repair services for the unaltered portion of the IBM machines or systems, unless attachment of a non-IBM unit or an alteration creates a safety hazard. Upon notice from IBM, the hazard is to be eliminated before IBM will continue service.

b. If any alteration to an IBM machine or the attachment of a non-IBM unit results in an increase in IBM maintenance on IBM machines (under an IBM lease or maintenance agreement), at IBM's option, such increased maintenance will be billed to you at the then prevailing per call rates and terms and/or IBM may request you to discontinue the attachment or correct the alteration. Maintenance documentation or special tools and test equipment made necessary by the alteration or attachment will be made available by you.

c. IBM will normally provide or procure installation and/or maintenance services for non-IBM equipment proposed and marketed by IBM. Special tools and test equipment, parts and supplies, wiring diagrams, engineering support, instructional materials, and other maintenance data which IBM deems necessary will be excluded from the maintenance service and will be made available by you at your expense.

2. Servicing of Units Provided by Other Suppliers

IBM's maintenance objective is to provide service for products which it manufactures and markets. Because of the number of devices involved, it is imprac-

tical for IBM to train its customer engineers on non-IBM equipment. *Under certain circumstances* IBM *may elect to provide service for non-*IBM *products upon written customer request.* The guidelines relative to IBM service on non-IBM equipment are as follows:

a. It is not IBM's policy to provide maintenance service support for competitive equipment. Any questions regarding the status of specific units should be referred to your IBM representative.

b. If your other supplier's equipment provides a function not offered by IBM, approval for IBM maintenance service may be given based upon the unique circumstances of each case and providing the following conditions are met:

The training requirements must be specified, assessed, and approved by IBM and a fee will be charged for this training;

No exposure to safety hazards exist, as determined by IBM;

The IBM equipment involved is a significant part of the equipment to be maintained at each location;

Special tools and test equipment parts and supplies, wiring diagrams, engineering support, instructional materials, and other maintenance data which IBM deems necessary to make installation or repair will be made available by you at your expense.

Installation and/or maintenance will then be performed by IBM at the per call rates and terms then in effect provided prior written permission is secured from the owner of the non-IBM equipment.

3. Systems Maintenance Management

Systems Maintenance Management is an IBM service designed to meet the requirements of complex systems installations involving common carrier and/or non-IBM equipment. Details of the Systems Maintenance Management service are available upon request from your IBM representative. Among the necessary qualifications for this service are that your IBM equipment must be a significant part of your installation and, in IBM's judgment, a substantial maintenance management coordination is required.

IBM PROGRAMMING SYSTEMS (DIAGNOSTICS, TYPE I, TYPE II)

The following points are included for your review on the possibility that an alteration or the equipment provided by other suppliers may require modification to programming systems provided by IBM.

1. It is your responsibility to modify and to maintain any modifications to IBM programs. IBM representatives will assist to the degree practicable in identifying the types of efforts with which you will be involved.

2. The program support material normally supplied our customers will be provided to you.

3. Programs, teaching aids, and other material may be obtained under the then existing IBM policies.

Maintenance and service implications of customer modification to IBM programs should be reviewed with your IBM representative.

MODIFICATIONS TO EQUIPMENT OR PROGRAMS

Subsequent modification by IBM to its equipment or to its programs may require rework on your part to re-establish a compatible interface to the other supplier's equipment.

PATENTS

Since the total system design is the customer's responsibility including the selection of non-IBM equipment to be interfaced to IBM machines, IBM does not accept responsibility for the infringement by our customers of patents which relate to equipment not manufactured by IBM of patents which relate to the combination of non-IBM equipment with IBM equipment.

With respect to equipment manufactured and sold by IBM, IBM's standard indemnification will apply: however, in those situations where IBM proposes and markets non-IBM equipment, IBM's indemnity is limited to that which can be passed on to the customer as the result of the manufacturer's grant of indemnity to IBM.

ENDORSEMENT

IBM's installation and continued servicing and maintenance of its equipment in Multiple Supplier Systems does not constitute approval or endorsement of the non-IBM equipment.

LIABILITY

IBM does not assume liability for personal injury or property damage arising out of or caused by an alteration or by the equipment provided by other suppliers. IBM does not assume responsibility for the quality of a non-IBM unit except when marketed by IBM. IBM assumes no responsibility for damage to interconnected non-IBM equipment that may result from the normal operation and maintenance of the IBM equipment.

RESTORATION

When you return a leased machine to IBM or if you are notified by IBM that an alteration or attached equipment provided by other suppliers conflicts with the Alterations and Attachments paragraph of our Agreement for IBM Machine Service, you will restore the IBM unit to its normal condition.

MODERN DATA SYSTEMS,
Farmingham, Mass., September 9, 1968.

Mr. RICHARD L. CAVENEY,
Director of Government Marketing,
Bryant Computer Products,
Walled Lake, Mich.

DEAR MR. CAVENEY: Thank you for the opportunity to examine the correspondence relating to the employee's suggestion from the Department of Health, Education and Welfare, which was in my opinion not given sufficient consideration by those evaluating it. As you have pointed out, this single suggestion alone has the potential of saving about one billion dollars in Federal expenditures. The conclusion is inescapable that, through this and many other similar suggestions, the Federal budget could be brought into balance without the need for new taxes, surtaxes, or inflation-generating deficits.

As you well know, we at MODERN DATA Systems magazine have advocated the Peripheral Equipment Manufacturers Association, one function of which would be to help inform governments (lobby, if you will) of the potential savings to be made in the procurement of computing equipment through a thorough examination of the potential sources. Certainly drastic changes need to be made, and we at MODERN DATA Systems are willing to advise, criticize, investigate, publicize, or do whatever else is necessary to assist this revamping of the Federal procurement procedures. I know that your personal influence in this matter is great through your testimony before the Congress of the United States, and the purpose of this letter is to express both my personal support of your efforts and the general support of my magazine. If my testimony before the Congress will serve any useful purpose of enlightenment or expression of opinion, I shall be very happy to appear.

I look forward to our significant progress along these lines in the remainder of this Congress and in the next.

Sincerely,

DAN M. BOWERS,
Editor-in-Chief.

Representative BROWN. I am sure you know that one of my other parochial interests, the Government Operations Committee, created a commission to study the procurement practices of the Government, and one of the objectives of this commission is to try to balance this question of complex requirements with the question of whether requirements are so complex that they keep the small company or the new company from coming in and doing business with the Federal Government.

I have family connections with some people who have a relatively small business and their attitude about doing business with Uncle Sam because of the requirements of the procurement regulations would make very interesting reading but not necessarily very flattering reading in these hearings.

You mentioned in some instances a procurement procedure took 11 months and some of these small companies are not interested in this type of procedure.

Without objection, and I rather assume there will be none, all relevant material will be put in the record. We will hold the record open for 10 days so that we can include any additional written questions from members of the subcommittee, and we trust that we will have your cooperation in getting a response.

Thank you very much, gentlemen. The subcommittee will stand adjourned.

(Whereupon, at 4:25 p.m., the subcommittee was adjourned, subject to the call of the Chair.)

APPENDIXES

APPENDIX I

SUPPLEMENTAL DATA

GENERAL SERVICES ADMINISTRATION,
FEDERAL SUPPLY SERVICE,
Washington, D.C., August 7, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR PROXMIRE: As you requested I have examined Mr. Caveney's prepared statement, and I find a number of allegations which are not accurate according to records available to GSA. I am therefore submitting a detailed enclosure regarding his statement.

You also requested that I provide language to strengthen the Truth in Negotiations Act (P.L. 87–653). I pointed out during my testimony that it was a one-sided law. If the equipment is required, and if the contractor refuses to submit the data, the head of the agency has no alternative but to grant the waiver. I find it difficult to recommend language which would "force" a contractor to do business with the Government under circumstances that he finds significantly objectionable. In response to your request, however, I am enclosing four possible changes in the law for your consideration. (See pp. 150–153.)

Sincerely,

H. A. ABERSFELLER,
Commissioner, Federal Supply Service.

Two Enclosures

There are a number of statements in Mr. Caveney's testimony which are not accurate according to records available to the General Services Administration. The purpose of this enclosure is to place in the record the facts regarding these statements based upon our records.

I. Mr. Caveney states that during the past two years only token contract awards from the General Services Administration were received by independent peripheral manufacturers. Furthermore, he contends that a few awards were given reluctantly and only because of Congressional insistence. In fact, in FY 70 we issued a solicitation to industry for systems, peripherals, and accessorial equipment. This solicitation was mailed to 491 companies of which 460 were independent and accessorial manufacturers, and we received a total of 124 offers in reply. There were 102 contracts awarded of which 71 were to manufacturers of peripheral and accessorial devices who were other than computer systems equipment manufacturers.

These facts clearly indicate that the General Services Administration has given more than token consideration to our commitment to the Subcommittee on Economy in Government in 1967. We are actively seeking and working with independent peripheral manufacturers to provide them with an opportunity to become Federal Supply Schedule contractors. Furthermore, a review of our records did not reveal a single instance in which a contract award was made by the General Services Administration as a result of the insistence of any member of the Congress or his staff.

II. Mr. Caveney indicates in his prepared statement that dual procurement policies prevail and, therefore, that unethical procurement practices still persist. He appears to base his statement on inaccurate information regarding the award approximating $330 million to IBM and a lack of information as to awards given to peripheral manufacturers during the period when IBM had not yet been awarded a contract.

The facts are that the $330 million award to IBM was the estimated dollar volume of the Federal Supply Schedule Contract for FY 70 for the rental of Automatic Data Processing Equipment (ADPE) and Punch Card Accounting Machines (PCAM) already installed and to be installed, the purchase of ADPE and PCAM, maintenance of both PCAM and ADPE and licensing of certain software. The proportion of the contract attributable to the rental and purchase of computer equipment, including central processing units as well as peripherals, is about $220 million.

This contract was awarded March 23, 1970, but was retroactive to July 1, 1969. The reason such a contract had to be retroactive to July 1, 1969, was to cover installed rented equipment as well as maintenance performed by IBM during the earlier period during which no firm contract existed.

We were unable to finalize a FY 70 contract with IBM until March 23, 1970, because we could not reach agreement on the changed terms, conditions and prices resulting from IBM's changed marketing practices announced June 23, 1969. There was no other reason for this delay. During the period between July 1, 1969, and March 23, 1970, Federal Supply Schedule Contract awards to independent, peripheral and accessorial manufacturers totaled 66. Government agencies had these contracts available and were able to make awards in individual cases whenever a determination was reached by the agencies that it was technically and economically advantageous to do so.

III. Mr. Caveney contends that $160 million would have been saved if contracts had been awarded to independent peripheral manufacturers for all the peripherals in the $330 million IBM contract. His allegation is based entirely on a series of improper and inaccurate deductions. For example, the $330 million Federal Supply Schedule Contract award to IBM for FY 70 included only $220 million attributable to the rental and purchase of computer equipment. This was only his first error, for Mr. Caveney also failed to exclude terminal devices from his calculations. The percentage of *all* peripheral equipment dollars, leased and purchased, within the $220 million should more accurately be 45%, not 65%. Mr. Caveney then improperly assumed that there are plug-to-plug compatibles for *all* IBM peripherals, and further that increased peripheral performance ratios lead directly to equal overall system productivity increases. Finally, the average saving for all plug-to-plug compatible peripheral replacements will be approximately 30% not the 48.6% Mr. Caveney used and which was based only on the one Calcomp device.

Calculations based on Mr. Caveney's deduction and estimates are of no value. As I advised the Committee, we have used the tool of the Government-wide Management Information System and Government-wide agency contacts to identify the approximately 2,800 leased peripherals in the Government inventory for which plug-to-plug compatible replacement is available at lower cost.

Of these approximately 2,800 units, 2,138 are the subject of current replacement action and will be replaced at a saving in excess of $6 million. The remaining machines (less than 700) are currently planned for retention by the using agencies because of various considerations including security and difficulties posed by multi-vendor support. General Services Administration plans a detailed review of these retention decisions with the using agencies. Although this is a difficult problem we feel that we are approaching it so as to take maximum advantage of the availability of lower cost peripherals from independent manufacturers.

POSSIBLE AMENDMENTS TO "TRUTH IN NEGOTIATIONS ACT", P.L. 87-653

Subsection 2306(f) is amended as follows:

1. (f) Anyone doing business within the United States, its territories, or possessions, shall be required to submit cost or pricing data on items sought for procurement when requested by the head of the agency, and shall be required to certify that, to the best of his knowledge and belief, the cost or pricing data he submitted was accurate, complete and current.

(Any prime contract or change or modification thereto under which such certificate is required shall contain a provision that the price to the Government, including profit or fee, shall be adjusted to exclude any significant sums by which it may be determined by the head of the agency that such price was increased because the contractor or any subcontractor required to furnish such a certificate, furnished cost or pricing data which, as of a date agreed upon between the parties (which date shall be as close to the date of agreement on the negotiated price as is practicable), was inaccurate, incomplete, or noncurrent:

Provided, That the requirements of this subsection need not be applied to contracts or subcontracts where the price negotiated is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.)

2. (f) Anyone doing business within the United States, its territories, or possessions, shall be required to submit cost or pricing data on items requested for procurement when such information is determined by the head of the agency to be necessary to national defense or national security and states in writing his reasons for such a determination, and shall be required to certify that, to the best of his knowledge and belief, the cost or pricing data he submitted was accurate, complete and current.

(Any prime contract or change or modification thereto under which such certificate is required shall contain a provision that the price to the Government, including profit or fee, shall be adjusted to exclude any significant sums by which it may be determined by the head of the agency that such price was increased because the contractor or any subcontractor required to furnish such a certificate, furnished cost or pricing data which, as of a date agreed upon between the parties (which date shall be as close to the date of agreement on the negotiated price as is practicable), was inaccurate, incomplete, or noncurrent: Provided, That the requirements of this subsection need not be applied to contracts or subcontracts where the price negotiated is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.)

3. (f) Anyone doing business within the United States, its territories, or possessions, shall be required to submit cost or pricing data on items requested for procurement when such information is determined by the head of the agency to be necessary to national defense or national security and states in writing his reasons for such a determination, or under the circumstances listed below:

(1) When the award of any negotiated prime contract under this title is expected to exceed $100,000:

(2) When the pricing of any contract change or modification for which the price adjustment is expected to exceed $100,000, or such lesser amount as may be prescribed by the head of the agency.

(3) When the award of a subcontract at any tier, where the prime contractor and each higher tier subcontractor have been required to furnish such a certificate, if the price of such subcontract is expected to exceed $100,000; or

(4) When the pricing of any contract change or modification to a subcontract covered by (3) above, for which the price adjustment is expected to exceed $100,000, or such lesser amount as may be prescribed by the head of the agency.

(Any prime contract or change or modification thereto under which such certificate is required shall contain a provision that the price to the Government, including profit or fee, shall be adjusted to exclude any significant sums by which it may be determined by the head of the agency that such price was increased because the contractor or any subcontractor required to furnish such a certificate, furnished cost or pricing data which, as of a date agreed upon between the parties (which date shall be as close to the date of agreement on the negotiated price as is practicable), was inaccurate, incomplete, or noncurrent: Provided, That the requirements of this subsection need not be applied to contracts or subcontracts where the price negotiated is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.)

4. (f) A prime contractor or any subcontractor shall be required to submit cost and pricing data on items requested for procurement, at any time after initial bids are received, when such information is determined by the head of the agency to be necessary to negotiate a fair and reasonable price, and states in writing his reasons for such a determination, or under the circumstances listed below:

(1) When the award of any negotiated prime contract under this title is expected to exceed $100,000;

(2) When the pricing of any contract change or modification for which the price adjustment is expected to exceed $100,000, or such lesser amount as may be prescribed by the head of the agency;

(3) When the award of a subcontract at any tier, where the prime contractor and each higher tier subcontractor have been required to furnish such a certificate, if the price of such subcontract is expected to exceed $100,000; or

(4) When the pricing of any contract change or modification to a subcontract covered by (3) above, for which the price adjustment is expected to exceed $100,000, or such lesser amount as may be prescribed by the head of the agency.

(Any prime contract or change or modification thereto under which such certificate is required shall contain a provision that the price to the Government, including profit or fee, shall be adjusted to exclude any significant sums by which it may be determined by the head of the agency that such price was increased because the contractor or any subcontractor required to furnish such a certificate, furnished cost or pricing data which, as of a date agreed upon between the parties (which date shall be as close to the date of agreement on the negotiated price as is practicable), was inaccurate, incomplete, or noncurrent: Provided, That the requirements of this subsection need not be applied to contracts or subcontracts where the price negotiated is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.)

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., June 12, 1970.

Hon. ELMER B. STAATS,
Comptroller General of the United States,
Washington, D.C.

DEAR MR. STAATS: As Chairman of the Subcommittee on Economy in Government, I am pleased to learn that you will able to testify before us on Wednesday, July 1, 1970, at 10:00 AM in Room AE-1 (S. 407) in the Capitol.

The report of April 23, 1968, of the Subcommittee on Economy in Government had specific recommendations as to (a) inventory practices in respect to government-owned automatic data processing equipment, including equipment furnished to contractors, and (b) the need for procurement specifications which would afford free and full competition to all qualified potential bidders, including the small manufacturers of peripheral equipment.

The Subcommittee is pleased to note the constructive reports which the GAO has issued since that date and is also cognizant of work being done by the Executive agencies. It is, therefore, our belief that it would be expedient to evaluate the progress that has been made, the savings accomplished, and to consider what needs to be done to bring about the optimum in economy and efficiency in this important and costly field of procurement.

We are asking the witnesses to confine their formal presentation to 15 or 20 minutes so that substantial time will be available for the question and discussion period. You are invited to file a longer, more comprehensive statement of your testimony or exhibits, if appropriate, for inclusion in the printed record of the hearings.

It would aid the Committee and the working press if we could have 100 copies of your opening statement 48 hours in advance of your testimony. Please send them to Mr. Hamilton Gewehr, Joint Economic Committee, New Senate Office Building, Washington, D.C., 20510.

If you have any questions, please contact Mr. Ray Ward, Staff Consultant, Joint Economic Committee, Code 180, X-7940.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on
Economy in Government.

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., June 12, 1970.

Hon. ROBERT P. MAYO,
Counselor to the President,
Executive Office Building,
Washington, D.C.

DEAR MR. MAYO: As Chairman of the Subcommittee on Economy in Government, I am pleased to learn that you will be able to testify before us on Wednesday, July 1, 1970 at 11:00 AM. We are aware, in general, of the work that is being carried on by the General Accounting Office, the Budget Bureau, and other Execu-

tive Agencies, but we would like to hear your ideas on the progress made, savings accomplished, pending actions, and the things that need to be done at this time to improve economy and efficiency in this area. The session will be held in Room AE–1 (S. 407) in the Capitol.

We are asking the witnesses to confine their formal presentation to 15 or 20 minutes so that substantial time will be available for the question and discussion period. You are invited to file a longer, more comprehensive statement of your testimony or exhibits, if appropriate, for inclusion in the printed record of the hearings.

It would aid the Committee and the working press if we could have 100 copies of your opening statement 48 hours in advance of your testimony. Please send them to Mr. Hamilton Gewehr, Joint Economic Committee, New Senate Office Building, Washington, D.C. 20510.

If you have any questions, please contact Mr. Ray Ward, Staff Consultant, Joint Economic Committee, Code 180, X–7940.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on
Economy in Government.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., June 29, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
Joint Economic Committee,
U.S. Senate,
Washington, D.C.

DEAR SENATOR PROXMIRE: As suggested in your letter of June 12, 1970, Mr. Joseph F. Cunningham of our staff has been in touch with Mr. Ray Ward, Staff Consultant, who advised that the hearings on July 1 will cover recommendations 6 and 7 of the Subcommittee report of April 1968.

Enclosed are 100 copies of my testimony on these matters.

Sincerely,

DWIGHT A. INK,
Assistant Director for
Executive Management.

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., June 12, 1970.

Hon. ROBERT L. KUNZIG,
Administrator, General Services Administration,
Washington, D.C.

DEAR MR. KUNZIG: As Chairman of the Subcommittee on Economy in Government, I am pleased to learn that you will be able to testify before us on Wednesday, July 1, 1970, at 2:00 PM concerning the progress that has been made by GSA in expanding competition in the procurement of peripheral equipment for use with ADPE systems, savings made, and pending action. Your suggestions for further improvements will be most timely. The session will be held in Room AE–1 (S. 407) in the Capitol.

The report of April 23, 1968, of the Subcommittee on Economy in Government had specific recommendations as to (a) inventory practices in respect to government-owned automatic data processing equipment, including equipment furnished to contractors and (b) the need for procurement specifications which would afford free and full competition to all qualified potential bidders, including the small manufacturers of peripheral equipment. Information as to space and storage requirements caused by the expanding use of ADPE will also be useful to the Subcommittee.

We are asking the witnesses to confine their formal presentation to 15 or 20 minutes so that substantial time will be available for the question and discussion period. You are invited to file a longer, more comprehensive statement of your testimony or exhibits, if appropriate, for inclusion in the printed record of the hearings.

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It would aid the Committee and the working press if we could have 100 copies of your opening statement 48 hours in advance of your testimony. Please send them to Mr. Hamilton Gewehr, Joint Economic Committee, New Senate Office Building, Washington, D.C. 20510.

If you have any questions, please contact Mr. Ray Ward, Staff Consultant, Joint Economic Committee, Code 180, X–7940.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government.

JUNE 12, 1970.

Hon. MELVIN R. LAIRD,
Secretary of Defense,
Washington, D.C.

DEAR MR. SECRETARY: As Chairman of the Subcommittee on Economy in Government, I am pleased to learn that you or your designated representative will be able to testify before us on Wednesday, July 1, 1970, at 3:00 PM, in Room AE–1 (S. 407) in the Capitol.

The report of April 23, 1968, of the Subcommittee on Economy in Government had specific recommendations as to (a) inventory practices in respect to government-owned automatic data processing equipment, including equipment furnished to contractors, and (b) the need for procurement specifications which would afford free and full competition to all qualified potential bidders, including the small manufacturers of peripheral equipment.

Of particular interest will be a review of procurement made for peripheral equipment by the Automatic Data Processing Equipment Section (ADPESO) since April, 1968, and savings made thereunder. We will want to be assured that the bid specifications afford free and full competition for all qualified suppliers. Information as to the adequacy of inventory practices in respect to contractor-held ADPE will be expected also.

We are asking the witnesses to confine their formal presentation to 15 or 20 minutes so that substantial time will be available for the question and discussion period. You are invited to file a longer, more comprehensive statement of your testimony or exhibits, if appropriate, for inclusion in the printed record of the hearings.

It would aid the Committee and the working press if we could have 100 copies of your opening statement 48 hours in advance of your testimony. Please send them to Mr. Hamilton Gewehr, Joint Economic Committee, New Senate Office Building, Washington, D.C. 20510.

If you have any questions, please contact Mr. Ray Ward, Staff Consultant, Joint Economic Committee, Code 180, X–7940.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government.

CONGRESS OF THE UNITED STATES,
JOINT ECONOMIC COMMITTEE,
Washington, D.C., June 12, 1970.

Mr. LEWIS R. CAVENEY,
President, Computer Peripheral Manufacturing Association,
Satellite Beach, Fla.

DEAR MR. CAVENEY: As Chairman of the Subcommittee on Economy in Government, I am pleased to learn that you will be able to testify before us on Wednesday, July 1, 1970, at 3:30 PM in Room AE–1 (S. 407) in the Capitol.

The Subcommittee on Economy in Government issued a report dated April 23, 1968, which, among other things, made some recommendations concerning the procurement of peripheral equipments for Automatic Data Processing systems.

We find that considerable action has been taken by the General Accounting Office, Bureau of the Budget, General Services Administration, the Department of Defense, and the Bureau of Standards with regard to these matters. It is timely, therefore, to make a review of progress made, actions pending, and improvements now required to obtain further economy.

Your testimony, as President of the Computer Peripheral Manufacturing Association, should give particular regard to the extent of progress made, the

participation of small manufacturers in Federal procurements, the presence, or absence, of restrictive conditions in invitations to bid, and suggestions for further improvements in the program.

We are asking the witnesses to confine their formal presentation to 15 or 20 minutes so that substantial time will be available for the question and discussion period. You are invited to file a longer, more comprehensive statement of your testimony or exhibits, if appropriate, for inclusion in the printed record of the hearings.

It would aid the Committee and the working press if we could have 100 copies of your opening statement 48 hours in advance of your testimony. Please send them to Mr. Hamilton Gewehr, Joint Economic Committee, New Senate Office Building, Washington, D.C. 20510.

If you have any questions, please contact Mr. Ray Ward, Staff Consultant, Joint Economic Committee, Code 180, X–7940.

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government.

GENERAL COUNSEL OF THE DEPARTMENT OF COMMERCE,
Washington, D.C., June 24, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, Congress of the United States, Washington, D.C.

DEAR MR. CHAIRMAN: The Secretary has asked me to thank you for your recent letter inviting the Department to have an observer present at the July 1 hearings before your Subcommittee on the subject of inventory records of government owned automatic data processing equipment and the procurement of peripheral equipment for the data processing systems.

Mr. Robert Johnson, Department of Commerce ADP Planning Officer, Office of the Assistant Secretary for Administration, will be pleased to represent the Department at these hearings as an observer.

Sincerely,

JAMES T. LYNN,
General Counsel.

REPORT TO THE CONGRESS

Study Of The Acquisition Of Peripheral Equipment For Use With Automatic Data Processing Systems B-115369

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-115369

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on the study of the acquisition of peripheral equipment for use with automatic data processing systems.

Copies of this report are being sent to the Director, Bureau of the Budget, and to the heads of Federal departments and agencies.

Elmer B. Staats

Comptroller General
of the United States

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COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

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D I G E S T

WHY THE REVIEW WAS MADE

The General Accounting Office (GAO) performed this study because of:

--Preliminary indications that significant savings could be achieved in the procurement of selected computer components.

--The increasing investment of the Federal Government in automatic data processing (ADP) equipment.

--The widespread congressional interest in the procurement, management, and use of such equipment.

FINDINGS AND CONCLUSIONS

Recently, numerous independent manufacturers of peripheral equipment--magnetic tape units, disk storage drives, etc.--have made a concentrated effort to compete with the systems manufacturers and to offer selected items of equipment directly to users.

The study shows that it is common practice for Government ADP managers to obtain all required ADP equipment from computer systems manufacturers even though certain items of equipment can be procured more economically from the original manufacturers or from alternate sources of supply.

GAO identified selected computer components that are directly interchangeable (plug-to-plug compatible) with certain other systems manufacturers' components and are available at substantial savings.

GAO found that a number of private organizations had installed available equipment of plug-to-plug compatibility and had achieved substantial savings. Yet it found only a few instances where Federal agencies had availed themselves of this economical means of acquiring computer components. Central agency leadership

could provide impetus which would achieve similar savings in the Federal Government. (The General Services Administration (GSA) has recently started a test to determine the possibilities of achieving savings by using equipment of plug-to-plug compatibility.)

On the basis of observations at commercial organizations visited during the study, GAO believes that the acquisition of plug-to-plug compatible components for ADP systems, either in operation or on order, provides an opportunity for Federal agencies to achieve significant savings in costs, an objective which is in line with the President's program of cost reduction in the Federal Government.

GAO believes that, if more systematic attention is given to acquiring non-plug-to-plug components by the executive branch of the Federal Government, significant savings also can be achieved.

GAO estimates that, if plug-to-plug compatible components were used to replace similar components rented by the Government, annual savings would be at least $5 million. If such components were to be purchased, savings would exceed $23 million. (See p. 19.)

GAO believes that, in addition to the estimated savings in acquiring plug-to-plug compatible components, savings are also available in the acquisition of non-plug-to-plug components from sources other than the systems manufacturers.

It is estimated that the purchase cost of such components, now being leased for about $50 million, from the systems manufacturers would be about $250 million; whereas the acquisition price for similar components from an alternative source of supply probably would be about $150 million, a difference of about $100 million. (See p. 27.)

GAO suggests, however, that the potential savings must be evaluated in light of costs associated with combining the components into a total computer system.

RECOMMENDATIONS OR SUGGESTIONS

GAO recommends that the head of each Federal agency take immediate action to implement steps requiring replacement of leased components that can be replaced with more economical plug-to-plug compatible units.

GAO recommends also that the Director, Bureau of the Budget, and the Administrator of General Services provide more specific guidelines for the evaluation and selection of plug-to-plug compatible equipment and for other components.

GAO recommends that, pending the issuance of specific policies, the factors described in this report be used by Federal agencies to evaluate alternate sources of ADP equipment.

Also, inasmuch as third-party leasing arrangements generally result in savings when compared with rental arrangements available from equipment manufacturers, GAO believes that the head of each Federal agency should consider this method of procurement when purchase of the equipment is determined not to be advantageous.

AGENCY ACTIONS AND UNRESOLVED ISSUES

The use of plug-to-plug compatible components for Federal ADP equipment is currently being studied by the General Services Administration. Present plans call for GSA to study also the acquisition of other components and peripheral equipment from alternate sources at a later date. GAO believes the GSA study to be important and that it should be accelerated to provide a basis for promulgating more specific policies for the guidance of Federal agencies in obtaining ADP components from the most economical source of supply.

MATTERS FOR CONSIDERATION BY THE CONGRESS

This report summarizes the findings of the study and is issued to inform the Congress and the head of each Federal agency of the opportunities for obtaining savings when acquiring computer components from sources other than the ADP systems manufacturers.

STUDY OF THE ACQUISITION OF PERIPHERAL EQUIPMENT FOR USE WITH AUTOMATIC DATA PROCESSING SYSTEMS

INTRODUCTION

The General Accounting Office has examined into the acquisition by Federal agencies of peripheral[1] equipment for use with automatic data processing systems. Our review was concerned primarily with (1) the feasibility of the Federal Government's procuring such equipment from sources other than the manufacturer of the ADP system, (2) the advantages of such procurement, and (3) the considerations required in making such acquisitions.

During our review, we examined into:

--The policies established by the Bureau of the Budget and the General Services Administration regarding the selection and procurement of ADP equipment.

--Activities of GSA in the procurement of ADP equipment under Public Law 89-306, an act which provides for the economic and efficient purchase, lease, maintenance, operation, and utilization of automatic data processing equipment by Federal departments and agencies.

--The marketing of peripheral equipment by the computer industry.

--The policies and practices of Federal agencies and commercial organizations relative to the selection and procurement of ADP systems and components.

--The savings available to the Government if certain components were to be obtained from sources other than the manufacturer of the ADP system.

--The factors affecting decisions concerning the acquisition of peripheral equipment.

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[1]Various units or machines that are used in combination or conjunction with the main frame of computer systems, such as magnetic drums, magnetic tape units, printers, storage units, etc.

During our study, we reviewed our conclusions and recommendations with officials of the Bureau of the Budget, the General Services Administration, and the National Bureau of Standards and their views were considered in the final preparation of this report.

CONGRESSIONAL INTEREST

During November and December 1967, the Subcommittee on Economy in Government of the Joint Economic Committee held hearings and obtained testimony relating to the procurement of ADP equipment. Specifically, the Subcommittee was especially concerned that Government procurement practices had tended to favor larger manufacturers of ADP equipment, thus stifling competition from smaller companies. In addition, testimony before the Subcommittee indicated that the numerous smaller producers of peripheral equipment might well participate to a larger extent in furnishing the Government's requirements directly.

In a report[1] entitled "Economy in Government Procurement and Property Management," dated April 23, 1968, the Subcommittee stated that:

> "The General Services Administration should make it possible for smaller manufacturers of ADP equipment to furnish part of the Government's requirements. Specifications should not be designed around the products of certain companies which have the effects of eliminating competition and stifling the incentive of smaller manufacturers."

Subsequent to the hearings, the Chairman of the Subcommittee requested that we examine into the financial advantages of procuring peripheral equipment directly from peripheral or component manufacturers. In our reply to the Subcommittee, dated September 19, 1968 (see app. II), we pointed out that, under certain circumstances, savings might be available to the Government through the procurement of selected ADP components from peripheral manufacturers and suggested the need to adequately consider all the potential technical implications.

We also advised the Subcommittee that we were preparing a more complete report to the Congress on this subject. One purpose of our more complete report is to inform the Congress and all Federal agencies of the opportunities for obtaining such savings and other available benefits in acquiring computer components from sources other than the ADP systems manufacturers.

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[1]Report of the Subcommittee on Economy in Government of the Joint Economic Committee, 90th Congress, 2d Session, Congress of the United States.

GROWTH OF THE COMPUTER INDUSTRY

Although a few experimental computers were assembled during the late 1940s, the general-purpose digital computer did not have its beginning until the early 1950s. Since that time, the growth of the computer industry has been tremendous. By 1955, some 400 computers had been installed in the United States. By 1960, the number of installations approximated 6,000, and, by the end of 1968, the number of computer installations exceeded 67,000. The computer hardware market is believed to have reached a value of about $7.2 billion during 1968 and is expected to grow at a 15 to 20 percent annual rate over the next 5 years.

The computer industry is generally dominated by the computer systems manufacturers whose marketing efforts are devoted to providing complete computer systems along with the necessary technical assistance required to properly utilize the system.

Recently, however, numerous independent manufacturers of peripheral equipment have made a concentrated effort to compete with the systems manufacturers and offer selected items of peripheral equipment for computer systems directly to the user market. These manufacturers generally restrict their marketing efforts to a single product or to individual items of peripheral equipment and concentrate on providing individual equipment components at a lower price than offered by the systems manufacturers.

GROWTH IN USE OF COMPUTERS IN THE FEDERAL GOVERNMENT

In the past several years, there has been very substantial growth in the use by the Federal Government of ADP equipment. The Federal Government now spends about $2 billion annually for the purchase, lease, and operation of ADP equipment. The following statistics accumulated and reported by the Bureau of the Budget and GSA show this growth in the Federal Government's use of computers[1]:

[1] These statistics exclude most contractor-operated equipment and equipment used in military tactical and intelligence operations.

At June 30	Number of systems
1962	1,030
1963	1,326
1964	1,862
1965	2,412
1966	3,007
1967	3,692
1968	4,232
1969 (estimate)	4,620

Notes: Data subsequent to 1966 is based on the new "ADP Management Information System" administered by the GSA.

Excluded from the above totals are analog computers and computers which are built or modified to special Government design specifications and are integral to weapons systems.

Data on contractor-operated equipment is excluded unless the equipment is operated in the performance of work under cost-reimbursement-type contracts and subcontracts when (1) the equipment is furnished by the Government or (2) the equipment is installed in Government-owned, contractor-operated facilities.

ELEMENTS OF A COMPUTER SYSTEM

A computer system, sometimes referred to as an ADP system, consists of a machine or a group of automatically intercommunicating machine units capable of entering, receiving, storing, classifying, computing, and/or recording data, and includes at least one central processing unit, one or more storage facilities, and various units of input and output equipment. Those units of the computer systems that are defined as input or output devices or as external information storage devices are referred to as peripheral equipment.

Computer hardware includes all the physical components used in a computer system. Computer software includes the programs necessary to make the computer hardware operative. Computer support includes all manpower and other assistance necessary to make and keep the computer hardware and software operative.

In terms of hardware, a typical computer configuration might consist of a central processing unit and the following pieces of peripheral equipment[1]:

[1]List does not include all types of peripheral equipment .

--Disk storage drive

A storage device that magnetically records on flat rotating disks.

--Magnetic tape unit (See P. 16 for photograph.)

Handles magnetic tape. It usually consists of a tape transport, reading or sensing and writing or recording heads and associated electrical and electronic equipment.

--Card read/punch.

Punches holes in cards at designated locations to store data. The device is also capable of sensing and translating the holes in punched cards for internal storage of data.

--Printer.

Spells out computer results as numbers, words, or symbols.

--Plotter.

Inscribes visually a dependent variable.

--Communication devices.

Transfers information from one point, person, or device to another.

--Character readers.

Scans documents to identify characters.

ACQUISITION OF ADP SYSTEMS

FEDERAL GOVERNMENT POLICIES AND PRACTICES

Broad policies and guidelines governing the selection of ADP equipment to be acquired from manufacturers are set forth in Bureau of the Budget Circular No. A-54, dated October 14, 1961, revised by Transmittal Memorandum No. 1 dated June 27, 1967, and Transmittal Memorandum No. 2, dated January 7, 1969. This circular prescribes policies on (a) making selections of equipment to be acquired for use in the ADP programs of the executive branch and (b) making determinations as to whether the ADP equipment to be acquired will be leased, purchased, or leased with an option to purchase.

Also, Public Law 89-306 (Brooks Bill) dated October 30, 1965, provides exclusive authority to the GSA for procuring all general-purpose ADP equipment for use by Federal agencies. However, the law prohibits GSA from exercising responsibilities related to determining ADP equipment requirements, selecting types and configurations, and the use to be made of such equipment. Accordingly, GSA has, limited its involvement in this area to reviews of large computer procurements and to negotiations for the annual Federal Supply Schedules.

Both the Bureau of the Budget and GSA have broad responsibilities relative to the evaluation, selection, and procurement of ADP equipment. In addition, Public Law 89-306 authorizes the Secretary of Commerce (through the National Bureau of Standards) to provide agencies with scientific and technological advisory services relating to automatic data processing and related systems.

We found that as late as May 1, 1969, none of the three agencies had issued specific guidance for determining the feasibility of substituting peripheral equipment from independent manufacturers into systems manufacturers' computer systems. Some actions have been taken, however, which reduce the obstacles that have made such procurements difficult. These actions include adopting as mandatory Federal standards, industry standards concerning character code, magnetic tape, and paper tape. These Federal standards, and others under consideration, will increase compatibility and thereby reduce the technical difficulties in considering procurement of components from sources other than the systems manufacturers.

As mentioned above, steps that the central offices of the executive agencies have taken toward implementation of Federal standards and the work under way in validating certain software to ensure their compliance with basic specifications are additional prerequisites to overcoming existing incompatibility. Although the executive agencies are

moving in the direction of enforcing for Federal use those standards adopted by the United States of America Standards Institute, greater support by the computer suppliers in using such standards in the design of their hardware and software would greatly accelerate the elimination or minimization of incompatibility.

We did note that GSA in its Federal Property Management Regulations amendment E-56, dated January 17, 1969, stated that:

> "Nothing in this section 101-32.407 is intended to preclude or otherwise detract from the procurement of the several components, including peripheral equipment, of a system, or augmenting an existing system, from a number of different sources, if such action will be in the best interests of the Government. Suitable equipment not on a Federal Supply Schedule contract, as well as that which is on such a contract, must be considered."

PROCUREMENT OF COMPLETE SYSTEMS VS. INDIVIDUAL COMPONENTS

The acquisition of an ADP system is usually a major expenditure for an organization. Therefore, the prospective user must carefully weigh all the factors which could have either a direct or an indirect influence on the determination of which system meets his requirements at the lowest overall cost. The difficulty faced by the user in accurately assessing the merits of various systems offered by competitive manufacturers is compounded by many intangible factors, such as, equipment reliability, availability, competence of the manufacturer's support personnel, software performance, and programming complexity among others.

A computer system is made up of a complex combination of various pieces of electronic and electromechanical equipment designed to function as a whole. Each individual component of a computer system is not functional until it is joined to other components and until the proper software is introduced into the system to make it perform. For this reason, some Federal agencies utilize benchmark tests to determine whether a manufacturer's system is capable of fulfilling the system specifications. These benchmark tests consist of representative problems, the solution of which, the system manufacturer is required to demonstrate and run on his proposed equipment configuration within a stipulated time period.

Both the Federal Government and private industry in general follow the practice of relying on a computer system manufacturer to assemble a series of components into a workable system. This method imposes upon the system manufacturer the burden of having to plan for and perform the necessary interfaces [1] and of developing an operative software

[1] Interface - a surface forming a common boundary between two systems or two devices.

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system. Of course, the computer system manufacturer is compensated for this effort and offers the end user a complete system with the following advantages:

--A fully integrated and operational system.

--An available, effective, and operative software system.

--Educational services for training operating personnel.

--A maintenance service for the entire system.

--Expertise and support personnel to assist in initial installation and implementation.

--Back-up-equipment support for initial testing and emergency situations.

The price of computer equipment obtained from a system manufacturer necessarily includes the cost of many of the services described above. On the other hand, independent manufacturers of components do not normally provide these services, specializing instead in the marketing of a particular component or group of components at lower prices. We believe that more and more situations arise when some users do not require all of the support services made available by the system manufacturer. To alleviate the inequity of having these users pay for services not required, it would be necessary for the industry to develop a separate pricing structure for each and every service that is provided. Certain industry sources are promoting such a change in the pricing structure and, if this situation develops, savings now obtainable by procuring components from other than computer system manufacturers might be reduced.

The state of the art today is such that, in selecting a computer, one cannot randomly select various components from various manufacturers with any assurance that, when all this equipment is put together, it will operate as a system. In this regard, once the equipment has been obtained, electronic interface must be accomplished and then the necessary software system must be developed either in-house or by contract with an outside firm. Although this concept of purchasing components from various manufacturers is a complex one, it is generally recognized in the industry that, by so doing, the sophisticated user can obtain at a savings the best available equipment for a particular application.

The recent efforts made by independent peripheral manufacturers to market their equipment directly to the end users of computer systems should generate added competition within the industry and should result in greater exposure of such equipment to the end users. Greater familiarity with what is being offered will make it possible for end users to

consider for procurement a greater variety of components. However, if the Government users are to benefit from this added competition, they must reappraise their procurement practices and make provisions for soliciting and evaluating components offered by these manufacturers. We have found that the general practice in the past has been to deal exclusively with systems manufacturers. Consideration was given to independent peripheral manufacturers only in those situations where special purpose equipment was required or in other very unusual situations.

We recognize that limiting the computer procurement process to systems manufacturers is the most expedient method of procurement; however, such a method does not recognize the possibility of obtaining increased competition for certain components nor of achieving the potential benefit to be derived from use of another manufacturer's components. We also recognize that to expand procurements to include every conceivable manufacturer in the industry would be impracticable under the present selection system because of the infinite variety of components that might be proposed to fill the Government's requirements. We do believe, however, that procurement procedures should be established to give more consideration to independent peripheral manufacturers' components.

It is apparent that, at the present time, the Government users must place a great deal of reliance on the computer systems manufacturers. However, we believe that Government agencies can and should develop the necessary technical expertise required to conduct a marriage of various computer components. This expertise, we believe, can be developed gradually if agency officials give consideration to the following procedures in procuring computer components from sources other than computer systems manufacturers:

--To replace or add a component to an installed system

--To replace a component being procured as part of a total system with one available from another source

--To assemble components into an integrated computer system

The most complex method of computer procurement is when each component of a system is procured on an individual basis and when the necessary system engineering and the necessary software operating system are to be developed in-house or are to be contracted for. Recognizing that such a sophisticated manner of procurement may not be practical at the present time, we believe that considerable savings could result if:

(1) for existing computer installations, consideration were to be given to the procurement of additional or replacement components either from the original equipment manufacturer or a supplier of components that are equivalent to and can directly replace (are plug-to-plug compatible) components offered by the system manufacturer or

(2) after having selected a system manufacturer's computer for procurement, an effort is made to determine if selected components could be obtained from an alternative source. Of course, in each case, the component manufacturer would have to demonstrate that his component offers financial savings and can be interfaced with the computer manufacturer's system with no resulting degradation in system operation or major effect on previously run benchmark tests or evaluations.

Although the above procedures are concerned primarily with the procurement of a new system and the addition to or replacement of an individual component, we believe that data processing managers in general should be alert to the marketing of new products by manufacturers of peripheral equipment who can easily replace, at a savings, a system manufacturer's components. Such an example would include the above-described plug-to-plug compatible components which are generally sold or leased at a lower cost than the system manufacturer's components and do not result in any interface or software problems.

NEED TO CONSIDER MORE ECONOMICAL SOURCES OF SUPPLY FOR COMPONENTS

We have found that in certain instances Federal agencies can achieve significant savings through the use of more economical sources of supply for ADP system components. Rather than relying on procurement of ADP systems from computer systems manufacturers, we believe Federal managers should consider the following:

--Procurement of equivalent plug-to-plug compatible components.

--Procurement of components that are not plug-to-plug compatible directly from the original manufacturer.

--Procurement of components from alternate sources of supply.

--Competitive procurement of magnetic disk packs.

PROCUREMENT OF EQUIVALENT PLUG-TO-PLUG COMPATIBLE COMPONENTS

During the past 2 years, certain manufacturers of independent peripheral equipment have emphasized the development and marketing of equivalent plug-to-plug compatible components at prices which can result in considerable savings to computer users. These components are plug-to-plug compatible in the sense that the computer system manufacturer's component can be unplugged from the computer and immediately replaced with the independent manufacturer's component. (See pp. 16 to 17.) Both components function in the same or similar manner and the computer functions just as though the computer system manufacturer's component is still being utilized. No changes to the computer programming system are necessary.

During our review, we focused our attention on two types of plug-to-plug compatible components being marketed by manufacturers of independent peripheral equipment as replacements for similar components marketed by a large computer manufacturer. These components were magnetic tape transports (also called tape drives) and disk storage drives.

We found at least three independent companies that were marketing plug-to-plug compatible magnetic tape transports at savings in purchase costs of up to 58 percent below the computer manufacturer's price. Savings in monthly leasing costs would amount to as much as 25 percent. (See p. 20.)

We also found at least three independent companies that were marketing plug-to-plug compatible disk storage drives. These units were being offered at as much as 29 percent below the purchase price of the computer manufacturer's component and 24 percent below the computer manufacturer's monthly leasing price. (See p. 22.)

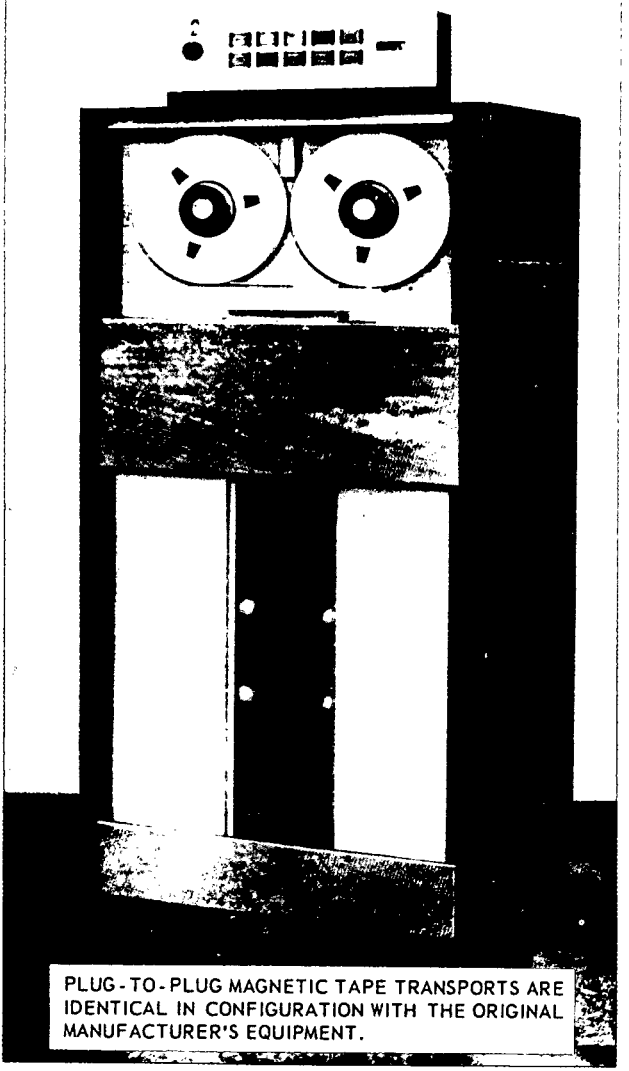
Although this type of equipment has been generally available since 1967, only a few Government installations have ordered or installed plug-to-plug compatible equipment. Also, we found that in August 1968 the Chief of Naval Material had directed the Commander, Naval Supply Systems Command, to investigate the feasibility of replacing certain tape drives located at the Ships Parts Control Center in Mechanicsburg, Pa., with plug-to-plug compatible tape drives marketed by peripheral equipment manufacturers. Although the results of the study were not available for our review in March 1969, the directive brought out the following significant factors:

1. The connectors on the new tape stations and the present brand X tape stations are identical. Interfacing with the present brand X computers and intermixing with present brand X tape stations are as simple as plugging the new stations into the tape control unit. No modification of software is required and present tape reels are freely interchangeable between the present brand X tape stations and the new tape stations.

2. Compared to the second-generation brand X tape stations, the new third-generation tape stations provide the advantages of automatic loading, longer possible tape life, integrated electronic circuitry, fewer parts, and no mechanical maintenance adjustments.

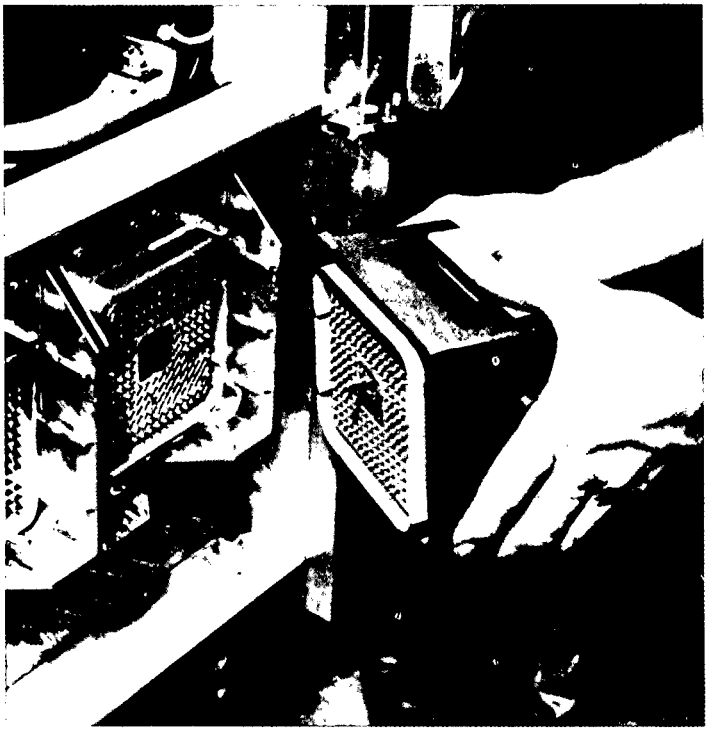
3. There are in excess of 500 rented brand X tape stations connected to brand X computers at activities under the Naval Material Command. Replacement of all of these tape stations could result in a considerable rental savings to the Navy. In addition, replacement of such a large quantity of tape stations should open the way to replacement of other rented peripheral components on the brand X computer systems with completely interchangeable and lower cost peripherals now being marketed by other vendors, such as line printers, page printers, disk units, removable disk packs, conversational terminals, and high-speed batch terminals.

FRONT VIEW OF
PLUG-TO-PLUG
MAGNETIC TAPE UNIT



PLUG-TO-PLUG MAGNETIC TAPE TRANSPORTS ARE IDENTICAL IN CONFIGURATION WITH THE ORIGINAL MANUFACTURER'S EQUIPMENT.

**ATTACHMENT OF PLUG-TO-PLUG
MAGNETIC TAPE TRANSPORT
TO COMPUTER SYSTEM**



PICTURE ABOVE SHOWS AN EQUIVALENT PLUG-TO-PLUG COMPATIBLE MAGNETIC TAPE TRANSPORT BEING PLUGGED IN DIRECTLY, USING THE SAME POWER AND SIGNAL CONNECTORS AFTER THE ORIGINAL MANUFACTURER'S EQUIPMENT WAS REMOVED FROM THE EDP SYSTEM. THE COMPUTER INTERFACE CIRCUITRY IS IDENTICAL; PROGRAMS ARE IDENTICAL; TAPE LOADING IS IDENTICAL; DIAGNOSTICS FOR PREVENTIVE MAINTENANCE ARE IDENTICAL. NO MODIFICATION OF THE MAIN FRAME OR CONTROLLER IS REQUIRED.

To obtain further information on the feasibility and advantages of using plug-to-plug compatible equipment, we visited several private organizations that were using this type of equipment. They reported that they had no serious technical problems with the independent manufacturers' components and that cost savings were significant. The identity of these organizations and their estimates of savings are shown in the following tabulation. Brief resumes of the experiences of these organizations are included in the appendix.

Organizations visited	Annual rental savings	Purchase savings
American Airlines New York, New York	$ 82,000	
American Cyanamid Company Wayne, New Jersey	36,000	
McDonnell Douglas Corporation Douglas Aircraft Division Long Beach, California	54,000	
General Electric Company Missile and Space Division Valley Forge, Pennsylvania	40,000	$311,000
Johns Manville Service Corporation Finderne, New Jersey	7,500	
Lockheed-California Company Division of Lockheed Aircraft Corporation Burbank, California	129,000	
Long Island Lighting Company Hicksville, New York		200,000
The Reader's Digest Association, Inc. Pleasantville, New York	13,000	
A major industrial corporation		240,000

Savings available by using plug-to-plug compatible components

A plug-to-plug compatible component:

--Is directly interchangeable with another manufacturer's component, and

--Does not require any hardware or software modification for interface.

In view of the above, the rental and purchase prices of plug-to-plug compatible components can be effectively compared with the prices of the components which they can replace. During our review, we examined into the pricing of plug-to-plug compatible tape drives which were readily available from more than one market source.

Government-wide benefits immediately available

We estimate that annual savings of at least $5 million could be realized if selected models of tape drives and disk storage drives being used by the Federal Government were to be rented from independent manufacturers of peripheral equipment rather than from the systems manufacturers. If these same tape drives and disk drives were to be purchased rather than rented from manufacturers of independent peripheral equipment rather than the systems manufacturers, we estimate possible savings of about $23.5 million.

Our estimates of savings are based on information contained in the GSA inventory of computer equipment for the fiscal year 1968 and on the following factors:

--A total of 1,733 tape drives and 459 disk drives being rented by Government agencies and representing models currently available from independent peripheral manufacturers marketing plug-to-plug compatible replacements.

--The systems manufacturers' fiscal year 1969 Federal Supply Schedule price lists and the independent manufacturers' published price lists. Quantity discounts, which are published by the independent peripheral manufacturers, are not reflected in our estimates.

--Assumed one-shift-a-day usage. The system manufacturer has an extra-use charge for more than 176 hours of usage a month and the independent manufacturers generally provide unlimited use for the basic monthly charge.

We have found as further illustration of the potential impact on Government ADP expenditures that selected tape and disk storage drives, which are now owned by the Federal Government and which represent an investment of about $57 million, are of a type and model that are available for purchase from independent peripheral manufacturers of equipment for about $31 million, a difference of $26 million.

In view of the potential impact which this form of procurement could have on ADP expenditures, we strongly urge agency officials to immediately consider the use of plug-to-plug compatible tape and disk storage drives. If it should be determined that it would be advantageous to purchase such components, we believe that competitive bulk procurement by GSA would be most advantageous to the Government.

We believe also that efforts should be made by agency officials to investigate the availability from independent peripheral manufacturers of components other than tape and disk storage drives which might be available at similar savings.

Tape drives

The Government generally obtains from the computer system manufacturer a number of tape drives for each computer system installation.

Because the largest computer system manufacturer has the most tape drives already installed, independent manufacturers devoted their early efforts to the development and marketing of a plug-to-plug compatible replacement for this manufacturer's tape drives.

During our review, we identified at least three alternate sources for tape drives which can be directly interchanged with the system manufacturer's component. The following comparison of purchase prices shows that plug-to-plug compatible tape drives are available from alternate sources at savings of 17 to 58 percent as compared to the system manufacturer's purchase price.

Per unit purchase price

Model	System manufacturer	Alternate source		
		A	B	C
1	$36,000	-	-	$15,900
2	41,250	-	-	18,400
3	41,250	$17,700	$18,500	17,600
4	37,200	16,000	17,000	16,400
5	42,450	18,000	18,500	18,100
6	22,700	16,000	18,200	16,000
7	22,700	16,000	18,200	16,550
8	36,760	21,700	21,100	18,100
9	36,760	21,700	21,100	18,900
10	25,030	-	20,800	19,600
11	39,090	-	25,000	24,600

In the above schedule, the model 5 tape drive represents the greatest opportunity for savings.

The prices shown above for the alternate sources are for the purchase of one unit. If the user purchases more than one unit, quantity discounts of from 2 to 16 percent are available depending on the quantity ordered. One alternate source offers different quantity discounts for each model. The system manufacturer's prices which were taken from the fiscal year 1969 Federal Supply Schedule are also unit prices; however, the supply schedule does not provide for quantity discounts.

We have been advised by plug-to-plug compatible tape drive manufacturers that they have the capability to upgrade, at a nominal charge, a tape-drive model used with second-generation equipment to the model configuration needed for use with third-generation equipment.

In addition to the savings available in purchase prices, the following schedule shows savings of 9 to 26 percent in monthly rental prices.

Per unit monthly rental prices

Model	System manufacturer	Alternate source		
		A	B	C
1	$700	-	-	$580
2	900	-	-	-
3	900	$720	$700	720
4	750	637	651	625
5	950	760	700	760
6	500	425	450	425
7	500	425	450	425
8	810	650	600	648
9	810	650	600	648
10	550	-	500	468
11	860	-	650	688

As previously noted, model 5 offers the greatest potential for savings because it has the largest price variance and is the most commonly used replaceable tape drive in the Government.

The above monthly rental rates of the system manufacturer are from the fiscal year 1969 Federal Supply Schedule which allows the Government a maximum of 176 hours of usage per month. Additional usage in excess of 176 hours per month is charged at 30 percent of the basic monthly rate for models 1 through 5 and at 10 percent for the remaining models. The alternate sources of plug-to-plug compatible tape drives offer unlimited monthly use of their equipment with the exception of source "B" which charges 10 percent of the basic rate for use in excess of 176 hours per month on models 6 through 11.

With respect to maintenance costs, we found that the independent manufacturers of peripheral equipment offer maintenance plans which are comparable to those of the systems manufacturers and, when the equipment is purchased, maintenance plans are available at a slightly lower price.

Disk drives

Another item of peripheral equipment which the independent manufacturers have recently begun to market is a plug-to-plug compatible

disk drive. This item of equipment can also be used to directly replace, at a savings, the disk drive used by a major system manufacturer. As shown below, we identified three alternate sources of supply which offer savings of 20 to 29 percent in purchase prices and of 16 to 24 percent in rental costs. Comparable maintenance plans are also available at a savings.

	System manufacturer	Alternate sources		
		A	B	C
Purchase price	$25,510	$20,000	$18,100	$20,500
Monthly rental	590	496	450	483

In this comparison, the system manufacturer's purchase price and monthly rental rate were obtained from the fiscal year 1969 Federal Supply Schedule. As noted previously, the system manufacturer's monthly rental rate is for 176 hours of use. Additional monthly use is charged at 10 percent of the basic monthly rate. All of the above plug-to-plug compatible disk drive suppliers provide unlimited monthly use of their equipment.

Third-party leasing arrangements

In addition to the savings available by the leasing of plug-to-plug equipment from peripheral equipment manufacturers, we found that savings in rentals are available from third-party leasing firms. As shown in the appendix (see pp. 41 and 43), two of the commercial firms visited used third-party leasing arrangements for obtaining plug-to-plug compatible equipment. Because third-party leasing arrangements generally result in savings when compared to rental arrangements available from equipment manufacturers, we recommend that the head of each Federal agency consider this method of procurement when purchase of the equipment is determined not to be advantageous.

Technical characteristics

Although we did not make a technical evaluation of the plug-to-plug compatible equipment marketed by the independent manufacturers of peripheral equipment, we did determine that the technical specifications of their equipment generally equaled or exceeded those of the system manufacturer. In addition, the users which we visited generally indicated that the technical operation of the equipment met their requirements.

Recommendation

In view of the significant savings available from the purchase or lease of plug-to-plug compatible components and the ease with which such equipment can be installed, we recommend that the Director, Bureau of the Budget, and the Administrator of General Services issue more

specific central policy guidance and take the necessary steps to require that all agency heads give consideration to the feasibility of using such equipment.

In the meantime, we recommend that the head of each Federal agency require managers of their data processing installations to consider the use of plug-to-plug compatible peripheral components. We believe that such action should be taken not only in the case of computer systems already installed but also in those instances where systems are being evaluated and selected for procurement.

PROCUREMENT OF COMPONENTS THAT ARE NOT PLUG-TO-PLUG COMPATIBLE FROM THE ORIGINAL MANUFACTURER

Some computer systems manufacturers approach self-sufficiency while others are dependent on peripheral manufacturers to provide certain components. In some instances, the computer system manufacturer may rely on the manufacturer of peripheral equipment to provide the complete component which is to be included in his computer system. In other instances, the system manufacturer might purchase only selected or critical parts of a component and then complete the fabrication of the component.

We believe that there is a potential for the Government to obtain significant savings through the purchase of certain computer components direct from the original manufacturer. The following example demonstrates the type of savings possible when aggressive managers adequately evaluate the various sources of supply for computer components. Although the example may be somewhat unique, we believe that it illustrates the need to recognize and consider the savings possible through direct procurement.

When the United States Fleet Numerical Weather Facility at Monterey, California, required additional storage capacity for its computers, a determination was made that such equipment could be obtained, at a savings, directly from the original manufacturer of the equipment rather than through the computer system manufacturer. Therefore, the facility in 1966 and 1967 made two negotiated procurements of drum-storage devices and related controllers from the actual manufacturer of the equipment. Equivalent equipment from the computer system manufacturer would have cost an additional $475,200, as follows:

Purchase No. 1		
Computer system manufacturer's price	$530,000	
Drum manufacturer's price	480,500	
Savings		$ 49,500
Purchase No. 2		
Computer system manufacturer's price	$845,500	
Drum manufacturer's price	419,800	
Savings		425,700
Total savings		$475,200

Note: The computer manufacturer's prices are those appearing in the Federal Supply Schedule for the years 1966 and 1967.

It should be noted that, in the above example, the facility was able to specify that the equipment purchased had to operate with the existing standard drum read/write subroutines. Such a requirement alleviated the necessity to make any changes in the computer's programming system to accommodate the drum-storage device. This was possible because in this case the computer system already had, as a component, a drum-storage device which had previously been provided by the independent manufacturer to the computer system manufacturer and marketed as part of the system.

PROCUREMENT OF COMPONENTS FROM ALTERNATE SOURCES OF SUPPLY

The general policy of the Federal Government as set forth in the United States Code (41 U.S.C. 252 and 10 U.S.C. 2304) provides that all procurements shall be made on a competitive basis, whether by formal advertising or negotiation, to the maximum practicable extent. Although competitive procedures may be followed in the selection and procurement of a particular computer system, Federal agencies generally procure all of the individual components from the same computer system manufacturer. Also, if additional components are to be added to the system at a later date, an agency will generally obtain the component directly from the computer system manufacturer. We believe that, in both instances, savings can be achieved by considering, in addition to the computer system manufacturer, alternate sources of supply for selected individual computer components.

We recognize that various technical considerations are necessary when a component is to be procured from a source of supply other than the computer system manufacturer. Such technical consideration includes the need to provide a proper electronic (hardware) and software interface which is necessary to properly integrate the component into the system. However, when significant savings are possible, we believe that Federal agencies should study and consider the integration of computer components procured from alternate sources of supply.

During our review, we noted that a private research organization increased the storage capacity of its computer system by contracting with a peripheral equipment manufacturer for the addition of a controller and drum-storage unit. The decision to procure these units from a peripheral equipment manufacturer was made after an evaluation of various storage units available from both computer system and peripheral equipment manufacturers. This evaluation showed that purchase of the peripheral equipment manufacturer's unit would result in savings of about $100,000 when compared to the price of an equivalent unit sold by a computer system manufacturer.

The firm that supplied the drum-storage unit completed the necessary electronic interface and the research organization took on the task of modifying the computer executive[1] software system to accommodate the unit. It was estimated that the software interface would require about 5 man-months of effort by highly competent computer software personnel. Nevertheless, it was decided that the savings would far outweigh the cost of the software interface. Moreover, as a fringe benefit, the preparation of the software interface increased the knowledge and expertise of the research organization's programming staff.

In another example, we found that the University of California's Lawrence Radiation Laboratory, an Atomic Energy Commission contractor, obtained additional core memory capacity from sources other than the computer system manufacturer. In this instance, because the type of unit desired was not a part of the computer system manufacturer's standard line, it was necessary for the laboratory to prepare technical specifications for the type of unit that was desired. On the basis of bids received, equivalent units from the computer system manufacturer would have cost an additional $503,200, as follows:

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[1] An integrated collection of service routines for supervising the sequencing of programs by a computer.

Source No. 1	
6 units at $41,200	$ 247,200
2 units at $37,000	74,000
Source No. 2	
6 units at $37,600	225,600
Total	$ 546,800
Computer manufacturer's proposed price	
14 units at $75,000	1,050,000
Difference	$ 503,200

These examples illustrate the need for agency managers to seriously consider the various sources of supply rather than to rely on sole-source procurement from computer system manufacturers.

Potential savings available by using components that are not plug-to-plug compatible

According to the GSA inventory of computers in use in the Federal Government as of June 30, 1968, the Government has purchased many items of computer peripheral equipment (such as large core, drum, and disk storage devices) having a value of more than $240 million and, in addition, the Government rents similar equipment at an annual cost of more than $50 million. Inasmuch as the Federal Government has not in the past generally procured individual computer components on a component basis, this equipment was, for the most part, obtained as a part of a system acquired directly from the computer system manufacturer.

If the savings made available by independent manufacturers of peripheral equipment in the marketing of plug-to-plug compatible components and, if the savings illustrated by the examples included in this report (see pp. 20 to 22) are indicative of the possible savings that could be achieved if the Government obtained major items of peripheral equipment from alternate sources of supply, we estimate that the Federal Government could probably achieve savings of a magnitude sufficient to warrant a complete reappraisal of the current practice of acquiring computer systems on a systems basis.

We estimate that, if the $240 million worth of components already owned by the Federal Government had been acquired from alternative sources of supply, savings approximating $100 million might have been achieved. Moreover, for the components now being leased for about $50

49-580 O - 70 - 13

million a year, we estimate that their purchase value from the system manufacturer would be about $250 million; in comparison, the acquisition price for similar components from an alternative source of supply probably would be about $150 million or about $100 million less.

Our estimates are only rough approximations of the possible savings and do not reflect estimates of the costs that might be involved in solving the software and hardware interface problems. However, computer technology has developed rapidly in recent years and is still developing and the full impact on Federal Government operations and expenditures in this area cannot be accurately predicted. The potential savings in procurements for future years could be significantly larger than the totals shown above.

Recommendation

In view of the significant savings that may be realized when acquiring non-plug-to-plug components that are included in an ADP system, we recommend that the heads of all using departments and agencies investigate the feasibility of acquiring components from alternate sources of supply and interfacing the independent manufacturers' components into manufacturers' computer systems.

COMPETITIVE PROCUREMENT OF MAGNETIC DISK PACKS

A magnetic disk pack is a removable, interchangeable, random access memory device which is used in conjunction with a disk storage drive as a type of peripheral equipment for computer systems. A disk pack resembles a stack of phonograph records enclosed in a plastic case. The number of disks varies. However, the most popular model has an assembly of six magnetic coated disks. Magnetic disk packs are ideal for off-line storage of vast amounts of data which can be randomly accessed at a high rate of speed. Because of this versatility and large storage capability, the use of disk packs has increased both in the Federal Government and in private industry.

Disk packs are listed by the General Services Administration in the Federal Supply Schedule contracts along with disk drive equipment. Partly because of this, Federal agencies generally procure a number of disk packs along with each disk drive from the computer system manufacturer. Disk packs are generally standard in design; can be used interchangeably on most disk drives produced by system manufacturers; and are available from numerous sources. Accordingly, we believe that disk packs should be competitively procured.

During our review, we found that, generally, system manufacturers and independent manufacturers set the purchase price of their popular model disk pack at $490, which is the same as the price established by the largest manufacturer of computer systems. As of July 1968, two of the independent manufacturers had announced reductions in the price of their disk packs to $300.

In the recent past, the General Services Administration centrally procured magnetic tape for computers used by Federal agencies. Federal specifications were developed and selected suppliers were placed on a qualified product list. By formally advertising the bulk of its magnetic tape requirements, the Government was able to obtain about a 50 percent decrease in the previously negotiated prices. As a result of the savings achieved in magnetic tape procurements and the similarity of disk packs to magnetic tapes, the General Accounting Office in June 1968 sent a letter and brought to the attention of the General Services Administration the need for making a determination of the feasibility for developing Federal specifications for disk packs and the savings that could be achieved if the Government formally advertised its needs for these items. We believe that the price reduction of 39 percent announced by two disk pack suppliers in 1968 indicates the forces of competition at work and further supports our view that sizeable savings can accrue through the use of formal advertising procedures for the procurement of magnetic disk packs.

Recommendations

In view of the significant savings available and the interchangeability and standard design of magnetic disk packs, and the existence of numerous sources of supply, we recommend that the Administrator of General Services give priority to the development of Federal specifications and establishment of qualified product lists for use in the procurement of disk packs through formal advertising. In the meantime, we recommend that, in view of the price reductions extended by two independent manufacturers, the head of each Federal agency procure his magnetic disk pack needs from the most economical sources of supply.

NEED FOR DEVELOPMENT OF STANDARD INTERFACE

The state of the computer industry today is such that, with the exception of plug-to-plug compatible peripheral devices, components cannot generally be directly interconnected with other manufacturers components or systems. In this respect, both an electronic and software interface generally have to be provided before the equipment can be interconnected.

A solution to this problem, which is now being considered by the industry, is the possibility of standardizing the interface media between peripheral equipment and the central processing unit. Interface standardization would stimulate competition in the peripheral equipment industry and would allow the user to select the peripheral equipment best suited to its requirements.

To this end, the United States of America Standards Institute (USASI), a privately supported organization acting as the national clearinghouse and coordinating agency for voluntary standards in the United States, has created a committee for input/output interfaces in order to consider the feasibility and practicality of input/output interface standardization.

Although the committee has been in operation since early 1967, progress has been slow in accomplishing desired objectives. The problems associated with this undertaking are many, but basically stem from the following:

1. Standard interfaces can take several forms and can be located at several points in the system. The point in the system at which the interface is made will have a direct bearing on the ease in which components can be interconnected. For example, if the interface is made between the central processing unit and the peripheral control unit, the peripheral manufacturer will have to consider certain software implications. On the other hand, if the interface is made between the peripheral control unit and the peripheral device, the peripheral manufacturer will only need to provide for the proper electronic connections. Attachment of the peripheral device will be as simple as the attachment of plug-to-plug compatible equipment discussed elsewhere in this report. However, standardization of the interface at this latter point could well put some constraint on the system manufacturer in development of future systems.

2. It is recognized and agreed that a standard interface can be developed. However, it is not obvious whether a standard interface is economically practical or advisable for the

industry. Further, it is not clear to the committee members whether or not the ADP community desires a standard interface.

We believe that the development of a standard interface will promote industry competition and result in certain economies. It will provide the users with increased flexibility by allowing the selection and use, regardless of the manufacturer, of those components best suited to achieve the desired objectives. Under such circumstances, the users would be in a better position to match system specifications with available equipment.

FACTORS TO BE CONSIDERED IN MAKING PROCUREMENT DECISIONS

In evaluating whether it is more advantageous to procure components from sources of supply other than from the computer system manufacturer, it is not sufficient to consider only the differences in price. Procurement of ADP equipment is a complex undertaking and the integration of individual components into a system may present problems. In every instance where a more economical source of ADP equipment is being evaluated we believe that, as a minimum, the following factors should be considered:

--Operational capability of equipment
--Need for electronic and/or software interface
--Maintenance responsibility and availability
--Contract terms
--Relative costs
--Magnitude of procurement

All of these factors are important and, in our opinion, should be considered in the formulation of the Government's policies for making ADP equipment evaluations.

OPERATIONAL CAPABILITY OF EQUIPMENT

Since an ADP system is an integrated group of components which must operate as a whole, the operations of one component could affect the entire system. Accordingly, when Federal agencies are considering the use of a component not furnished by the computer system manufacturers, care must be exercised to insure that use of the component does not seriously affect the throughput operations of the ADP system.

For example, during our review we noted that certain plug-to-plug compatible tape transports had a slower rewind speed under certain conditions than the system manufacturer's equipment. Our inquiries into the use of such equipment revealed that the slower rewind speed was the result of an attempt to reduce certain malfunctions associated with tape transports and that, in actual use, there was no noticeable effect on overall computer operations. With regard to plug-to-plug compatible disc drives, we noted that one manufacturer had actually increased the speed of operation of his equipment in order to provide for a faster throughput time.

The question of operational capability is more important when an agency is considering the use of a component to be obtained from an alternate source of supply. Under these circumstances, the necessary electronic and software interface might affect the throughput or processing time required to complete the operation of the ADP system. However, we believe that such an effect should be evaluated in light of the requirements to be placed upon the system.

NEED FOR ELECTRONIC OR SOFTWARE INTERFACE

When a peripheral manufacturer's component, which is not plug-to-plug compatible, is to be used in conjunction with another manufacturer's component or ADP system, an electronic and software interface is generally necessary.

The electronic interface is generally accomplished by the peripheral manufacturer. In some cases, the peripheral manufacturer may also complete any necessary software interface. However, in other cases it might be the responsibility of the user to complete the interface. The peripheral manufacturer might provide the user with certain flow diagrams indicating how the software interface would have to be accomplished. The actual changes to the ADP programming system would then have to be prepared and made by the user.

The completion of a software interface is generally a complex task and therefore should be carried out only by individuals with the necessary experience and technical expertise. Further, such a task should not be undertaken if the estimated costs would exceed the anticipated savings--other benefits being equal. If savings warrant and the user lacks the necessary technical capabilities, consideration can be given to obtaining the required software expertise from outside commercial firms.

MAINTENANCE RESPONSIBILITY AND AVAILABILITY

When an ADP component, which is not provided by the computer system manufacturer, is installed for the Government, maintenance service may have to be provided by more than one group. We found that generally organizations having maintenance performed by more than one group experienced no particular difficulties as a result of the split maintenance responsibility. It is important to establish, however, that the peripheral manufacturer providing maintenance for his equipment can do so in a manner which does not result in degradation of system operation.

Where there are many different components from various companies that make up an ADP system, it may not be feasible to have the maintenance performed by many groups. In such a case, the user agency might consider negotiating with one manufacturer for all maintenance work. Federal supply contracts negotiated by the General Services Administration with computer system manufacturers generally provide that upon mutual agreement the system manufacturer will maintain, for a price to be agreed upon, items of equipment interconnected to the system but not provided by the computer manufacturer. As an alternative, users can subcontract the maintenance of the conglomerate system to a service organization.

Alternatives for maintenance

When a computer system is composed of components from more that one manufacturer, and the equipment is Government-owned, there are

generally four methods of maintaining such equipment:

1. By contracting with each equipment manufacturer.

   Each component manufacturer would provide maintenance service for its component.

2. By contracting with one manufacturer to maintain all equipment.

   The Government would probably contract with the manufacturer whose equipment made up a majority of the system. Federal Supply Schedules negotiated by the General Services Administration contain provisions for this type of maintenance.

3. By contracting with an independent service company to maintain all equipment.

   The maintenance function would be performed by service company personnel.

4. By establishing an in-house maintenance program.

   All equipment making up the system would be maintained by Government personnel.

Under rental contracts with the equipment manufacturers, maintenance usually is provided by the individual component manufacturer.

Maintenance problems anticipated by Government managers

Many reasons have been advanced by Government managers for their reluctance to utilize computer components available from sources other than the computer system manufacturers. We found that the most frequent reason cited was the anticipated problem of dual maintenance in those situations where each component manufacturer provided maintenance services for its own equipment.

We recognize that, if a computer system consisted of various manufacturers' components and each manufacturer provided its own maintenance, problems could conceivably arise especially in situations where an impasse is reached as to which manufacturer's equipment is at fault and responsible for a system failure. Based on our visits to private organizations that have operated their data processing center under dual maintenance arrangements, we found that maintenance personnel from different manufacturers can effectively maintain an overall computer system. Moreover, we believe it can be shown that, in the past, dual-maintenance has not affected the many data processing networks which have been operated with various manufacturers' equipment, including different types of communication links.

Advantages of in-house maintenance

The alternative practice of having the Government perform its own in-house maintenance would, we believe, be the ideal solution to the maintenance of a computer system consisting of components from more than one manufacturer. Moreover, in addition to the savings available in maintenance costs[1], maintenance engineers and technicians would have a thorough knowledge of the system operations. This knowledge and know-how might then be put to use in evaluating alternative sources of supply for components or in accomplishing necessary hardware or software interfaces.

When evaluating the feasibility of obtaining computer components from sources other than computer system manufacturers, Government managers should objectively analyze the dual maintenance situation. Moreover, the added benefit of system knowledge in regards to component procurement should be recognized when in-house maintenance practices are being considered.

CONTRACT TERMS

In doing business with peripheral manufacturers who have not as yet negotiated Federal supply contracts with the General Services Administration, Federal agencies should make an effort to obtain terms consistent with those provided by firms that have Federal Supply Contracts. Such terms could be most important in those situations where equipment is being leased.

For example, if any agency is leasing a major portion of an ADP system from a computer manufacturer and this equipment can be released by the agency upon 30-days' notice, an agreement generally should not be entered into with another manufacturer for a component which must, as a minimum, be leased for a period of one year. We believe that in such a case, an effort should be made to negotiate similar terms with both manufacturers.

Similarly, if all equipment is being leased, the agency might want to consider agreeing upon terms as to the responsibilities of all peripheral manufacturers if an equipment malfunction results in a need to reprocess data.

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[1]See Comptroller General's Report to the Congress on "Maintenance of Automatic Data Processing Equipment in the Federal Government" dated April 3, 1968 (B-115369).

Other factors which should be given consideration and agreed upon include:

--The need for an understanding of each party's responsibilities insofar as the accomplishment of a complete and proper interface.

--The responsibilities of each party and the extent of services to be rendered if one manufacturer should cause a change in his component resulting in the need for additional changes in other components.

RELATIVE COSTS

Since the use in an ADP system of components not provided by the computer manufacturer can result in various problems, we believe that an agency should not consider such an undertaking without an adequate evaluation of the potential savings and identification of all potential problems.

For example, in a situation where estimated savings are marginal and problems abundant, such an analysis would probably dictate use of one source of supply for most components. However, if the estimated savings are significant and the problems relatively insignificant, good management would dictate the use of more than one source of supply.

MAGNITUDE OF PROCUREMENT

When the Government procures a large number of computer systems, such as approximately 150 computer systems for the Air Force base level data automation, it would appear to be most beneficial to consider procurement of certain components from a source other than the computer system manufacturer.

Certain components marketed by peripheral manufacturers might have a greater capability to perform the job required when compared to the component marketed by the computer system manufacturer. Plug-to-plug compatible components would appear to pose little, if any, problems. Any savings to be obtained as a result of the procurement of a component for one system would represent only a small portion of the savings available in a multiple procurement. Moreover, the cost of any interface problems, once solved, would be spread over a large base, giving added support to such a method of procurement.

Recommendation

The several factors discussed above as warranting consideration in the procurement of ADP components from more than one source are all important. Pending issuance of more specific central policy guidance in the executive branch, we recommend that the heads of Federal agencies consider these factors in making their studies and reaching decisions on selection of ADP equipment.

ANTITRUST SUIT

The Attorney General of the United States, on January 17, 1969, entered a complaint against the International Business Machines Corporation (IBM), in the District Court of the United States for the Southern District of New York, charging violation of Section 2 of the Sherman Antitrust Act (15 U.S.C. 2). Among other charges, the complaint charges that IBM is pursuing a manufacturing and marketing policy that has prevented competing manufacturers of general purpose digital computers from having an adequate opportunity to compete for business. Section 2 of the complaint charges as follows:

> "(a) Maintained a pricing policy where by it quotes a single price for hardware, software and related support and, thereunder, (i) discriminated among customers by providing certain customers with extensive software and related support in a manner that unreasonably inhibited the entry or growth of competitors; and (ii) limited the development and scope of activities of an independent software and computer support industry as a result of which the ability of its competitors to compete effectively was unreasonably impaired;
>
> (b) Used its accumulated software and related support to preclude its competitors from effectively competing for various customer accounts;"

The possibility that IBM will change its marketing policy and the effect it will have on the other equipment manufacturers and the current method of acquiring complete ADP systems from main frame manufacturers as a result of the Justice Department's antitrust suit is a factor that cannot be fully evaluated at this time.

APPENDIXES

EXAMPLES OF ORGANIZATIONS USING PLUG-TO-PLUG COMPATIBLE COMPONENTS

Following are examples of private organizations which have benefited through the use of plug-to-plug compatible ADP components. This information is based on interviews with data processing officials and examinations of selected records.

The following pages include examples of organizations that replaced original equipment rented directly from the system manufacturer or leased from a third party with plug-to-plug compatible components or rented or purchased from the plug-to-plug compatible component supplier or leased from a third party. The financial benefits of replacing the original ADP components were substantially different for each organization. However, to calculate the full financial benefit of replacing original rental units with purchased plug-to-plug compatible equipment, it would be necessary to determine, among other things, the projected use of the equipment, the residual value, the cost of money required to purchase, and the effect of the purchase on the corporation's tax liability.

It is not the purpose of this presentation to disclose private information of the listed organizations but rather to point out that substantial benefits did accrue to those organizations which procured plug-to-plug components to replace components originally obtained from system manufacturers. Accordingly, in the examples which follow we have limited our estimates of savings to the difference between rental prices or purchase prices of the equipment discussed.

American Airlines, New York, N.Y.

This company has four major computer systems in operation. These systems include the SABRE System at Briarcliff Manor, New York, one of the world's most advanced airline reservation services; a maintenance control system for monitoring and directing all maintenance activity at its Tulsa, Oklahoma, facility; another system at Kennedy International Airport which is used in selecting optimum jet flight plans; and, an administrative system in New York City which ties all of the systems together into a meaningful whole and provides the basis for an automated management information system.

Recently, on three of its four systems, the company undertook a program to replace sixty-two tape drives, which were leased from the manufacturer of the computer system, with plug-to-plug compatible tape drives produced by a peripheral manufacturer. The number of tape drives to

be replaced represents a commitment to the peripheral supplier to supply tape drives for which a plug-to-plug compatible model is available. Based on a comparison between the basic monthly lease price of the original unit and the replacement unit, we estimate that the company will realize annual savings in equipment leasing costs of about $82,000.

The system manufacturer's basic rental charge provides for a monthly usage of 176 hours per unit. For every hour of usage over 176 hours, an additional rental charge is assessed. The peripheral supplier's base rental charge contains no such limitation. Accordingly, should the company utilize the peripheral manufacturer's tape drives for periods in excess of 176 hours a month, additional savings will be realized.

We were advised that, prior to undertaking the replacement program, the peripheral supplier provided a tape drive to the company for its use and evaluation. On the basis of the results of 100 hours of operation, and because of the apparent savings to be realized through reduced monthly leasing costs, the company undertook a two-phase replacement program. The first phase provided for replacement of twenty-six tape drives at the administration center in New York City. After these become operational, the remaining thirty-six drives will become part of the systems at Briarcliff Manor, New York, and Tulsa, Oklahoma.

Company officials advised us that they have had two minor problems with the new tape drives. However these problems were easily remedied. Additionally, there was some apprehension originally on the part of company officials with regard to the use of separate maintenance personnel for the tape drives. The Manager, ADP Operations, informed us, however, that he believed that the dual maintenance responsibility could be managed effectively. Finally, we were told that in view of the potential savings, the tape drive replacement program was worth the effort.

American Cyanamid Company
Wayne, New Jersey

This company, with divisions and subsidiaries located throughout the world, is a leader in the manufacture and sale of agricultural and consumer products as well as pharmaceutical, chemical, and certain building products. Through its wholly owned subsidiary, Formica Corporation, it is the leading producer of plastic laminates for industrial and decorative purposes.

At the company headquarters in Wayne, New Jersey, the administrative and financial data processing center recently replaced a total of ten tape drives with plug-to-plug compatible models marketed by an independent peripheral manufacturer. These tape drives are all used on the same computer system and replaced ones that were originally rented from the system manufacturer. Company officials stated that

the basic reason for the replacement was to realize savings in monthly rental costs. We were also informed that depending on the performance of the new tape drives, consideration would probably be given to replacing the tape drives used on other computer systems at the data processing center. We estimate that the company will realize annual savings of about $36,000 in tape drive rental costs as a result of the replacement of the ten system manufacturer's tape drives with the plug-to-plug compatible models of the independent manufacturer.

A company official informed us that, when the new plug-to-plug compatible tape drives were installed, no serious difficulties were encountered. Moreover, operation of the peripheral manufacturer's tape drives did not, in his opinion, affect the system operating efficiency or throughput capacity. Operational capability and performance of the new tape drives were considered to be equal to that experienced with the system manufacturer's tape drives. As to maintenance, both the tape drive manufacturer and the system manufacturer provide on site customer engineers for their equipment. Although some initial problems were encountered due to lack of familiarity with the computer main frame by the peripheral manufacturer's customer engineer, we were informed that these problems were resolved and that the dual maintenance arrangement was satisfactory.

McDonnell Douglas Corporation
Douglas Aircraft Division
Long Beach, California

The Douglas Aircraft Division of this company is engaged primarily in the manufacture of DC-8, -9, and -10 commercial aircraft and of certain military aircraft spare parts. In support of these activities, Douglas operates a general-purpose computer center in Long Beach which utilizes 14 various computer systems to perform business and technical applications on both Government and contractor funded activities.

In November 1967 and January 1968, Douglas leased a total of 22 plug-to-plug compatible tape drives under a third party leasing arrangement. These units were obtained to replace 20 of the system manufacturers' tape drives which were connected to two of the computer center systems. The leasing of the replacement units from a third party resulted in an annual rental savings of $54,000 over the rental price charged by the system manufacturer for comparable units and also provided two units for standby support at a monthly charge of only $125 each for maintenance service. These savings do not take into consideration the California sales use tax and do not provide an allowance for extra use rental which had to be paid to the system manufacturer but is now avoided because of an arrangement for unlimited usage of the plug-to-plug compatible tape drives.

Douglas officials advised us that installation of the plug-to-plug compatible tape drives did not require any modification to the computer systems. In addition, we were advised that maintenance provided for the tape drives was comparable in quality to that provided by the system manufacturer.

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General Electric Company
Missile and Space Division
Valley Forge, Pennsylvania

The Missile and Space Division of this company, headquartered at the Valley Forge Space Technology Center, Valley Forge, Pennsylvania, is a major Government contractor for various organizational elements of the Department of Defense and National Aeronautics and Space Administration. In support of its scientific and administrative operations, this division operates a multi-functional computer center located at King of Prussia, Pennsylvania.

On the basis of a cost study, this division instituted a program to replace a total of 29 rented magnetic tape drives used on three of its company-owned computer systems with plug-to-plug compatible tape drives provided by a peripheral equipment supplier. Of the 29 new tape drives, 17 units were purchased and the remaining 12 units were acquired on a rental basis. Company officials stated that the ultimate objective of this program was to maintain equal or better system efficiency and to take advantage of the economies to be realized by obtaining the replacement tape drives directly from a peripheral equipment supplier.

We estimate that the company saved about $311,000 in the initial price by purchasing 17 of the tape drives directly from the peripheral equipment supplier, instead of purchasing them from the system manufacturer. We also estimate that the company will realize annual savings in excess of $27,000 in rental costs for the 12 remaining units exclusive of the savings that may be realized in extra use charges. Additionally, we estimate that the company will realize annual savings in excess of $12,800 on maintenance costs for the 17 units purchased from and being maintained by the peripheral equipment supplier.

Company officials stated that only minor problems were encountered during the period of installation and acceptance testing for the tape drives acquired directly from the peripheral equipment supplier. Further, they believed that they have received good support through dual maintenance arrangements and stated that no serious problems have been experienced.

Missile and Space Division officials also advised us that details of the tape drive conversion project have been forwarded to other departments of the General Electric Company.

Johns Manville Service Corporation
Finderne, New Jersey

This company located in Finderne, New Jersey is one of five regional data processing centers which service some 70 Johns Manville operating locations handling in excess of 100 different product lines. Both accounting and statistical support is provided by the center's two large computer systems.

Because of company goals of reducing costs and improving performance, officials at the center initiated a program to replace six systems manufacturers' tape drives with faster plug-to-plug compatible units available from a peripheral equipment manufacturer. In addition to obtaining units with a 50 percent faster tape speed, we estimate that lower rental prices from the peripheral equipment supplier will result in an annual savings of $7,500.

Although use of the faster tape drives required modification of the tape drive controllers, we were advised that no other system changes were required and that operation of the new units was considered to be superior to those which they replaced. Since the new units are being rented, maintenance is being performed by the supplier. Johns Manville officials stated that no problems had been encountered with this type of maintenance arrangement.

Lockheed - California Company
Division of Lockheed Aircraft Corporation
Burbank, California

6th largest holder of M.E. See p. 10 Apr. 1968 report.

This company is primarily engaged in the manufacture of the L-1011 Airbus, Army helicopters, Navy anti-submarine warfare aircraft, and other aircraft. In support of these activities, the company has eight computer systems in operation which are used for business and technical applications related to both its Government and private work.

In 1967 the company entered into a five year, third-party leasing arrangement for 32 plug-to-plug compatible tape drives produced by a peripheral equipment manufacturer. Company officials reported an annual cost reduction of $129,000 as a result of the replacing of 31 of the system manufacturer's units with 32 of the peripheral manufacturer's plug-to-plug compatible units. In addition, the company has the added benefit of an extra tape unit which is used as a standby unit.

Prior to acquiring the units, the company developed a comprehensive evaluation and acceptance test procedure which was used to evaluate the performance of the tape drives during a 5-day acceptance period provided by the peripheral manufacturer. Company officials stated that connection of the new tape drives did not require any modifications to the computer hardware or software. They further stated that the new tape drives have had no significant effect on the computer system capabilities or performance, and that system downtime did not change significantly as a result of installing the plug-to-plug compatible units. We were also informed that the company is considering acquiring additional plug-to-plug compatible units to replace other system manufacturer's units.

As to maintenance, the independent tape drive manufacturer maintains his equipment and the system manufacturer maintains the balance of the equipment. The decision to have each manufacturer maintain his own equipment was based on the belief that each manufacturer could best maintain

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his own equipment. Company officials advised us that the independent tape drive manufacturer's maintenance service is comparable to that provided by the system manufacturer.

Long Island Lighting Company
Hicksville, New York

This company is a large gas and electric utility which services about 730,000 customers. At the company's Hicksville, New York, data processing center, there are five computer systems of varying size which are used to maintain customer accounts and perform various administrative functions.

In 1968, the company replaced twelve magnetic tape drives used on one of its company-owned computer systems with plug-to-plug compatible models available from a peripheral equipment supplier. The original tape drives were rented from the computer system manufacturer and were replaced by the company because of (1) the apparent savings in monthly costs and (2) the opportunity to replace six of the tape drives with more advanced models and still achieve an overall savings in monthly rental costs. The manager of the data processing center informed us that they decided to initially rent the new tape drives and after reliability of the units was established the company exercised an option to purchase contained in the rental agreement.

We estimate that the company realized savings in excess of $200,000 in the purchase of these tape drives from the peripheral equipment supplier.

We were also informed that the company has entered into an agreement to rent from the peripheral equipment supplier two additional tape drives for another of its computer systems. These tape drives, in addition to providing a monthly savings in rental costs of about $150, will provide management with data on which to evaluate the possible replacement, at additional savings, of the remaining tape drives now in use on this and on another computer system.

We were informed that the magnetic tape drives obtained from the peripheral equipment supplier were installed without any modifications to the computer system and are considered to have performed at a level equal to or better than the replaced equipment. We were also informed that the maintenance provided by the peripheral equipment supplier was equal to that previously provided by the computer system manufacturer and that no significant problems had been experienced due to the dual maintenance arrangement.

The Reader's Digest Association, Inc.
Pleasantville, New York

At its corporate headquarters in Pleasantville, New York, the Reader's Digest Association operates 11 automatic data processing systems for the administration of magazine and book subscriptions. With a magazine circulation in excess of 17 million copies per month, much of the work at the data processing center consists of customer account

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maintenance, preparation of address labels, and the printing of personalized advertisement material.

The company recently contracted with a peripheral equipment supplier for the rental of five plug-to-plug compatible tape drives which are to be used in conjunction with three of the data processing systems in operation. We were informed that the determining factors which led to the decision to use the plug-to-plug compatible tape drives were (1) their technical superiority as compared to the system manufacturer's units and (2) the savings in rental costs which we estimate to be about $12,000 per year.

Corporate officials also informed us that they are installing a plug-to-plug compatible disk storage drive which will replace a unit rented from the computer system manufacturer. In addition to reducing annual rental costs by an estimated $1000, the replacement unit is expected to increase the efficiency of the system because of faster access speed to the stored data.

Company personnel stated that no modifications to the computer systems were required in order to install the plug-to-plug compatible tape drives and that no difficulties had been encountered as a result of splitting the maintenance responsibility between different maintenance personnel. The experience in terms of performance of these units as compared with the performance of the units replaced, is not yet definitive.

A major industrial corporation

During our review we visited one of the largest industrial corporations with headquarters on the East Coast which operates a data processing center and offers computer power to all within the corporation. In this case, we are respecting the wishes of this major corporation for anonymity. The data processing center uses 18 computer systems to process administrative, statistical, engineering, and technical data for all operating divisions within the corporation. Included in these 18 systems are first, second, and third generation equipment, some of which is rented, some is under leaseback agreement, and one is company-owned.

We found that the data processing center has within the past two years replaced 12 magnetic tape drives rented from the computer system manufacturer with units purchased from a peripheral equipment manufacturer. These units are used with a first generation computer that is company-owned. Management of the installation stated that this replacement was made to take advantage of potential savings in equipment costs. We estimate that the corporation involved saved about $240,000 by purchasing these new units from a peripheral equipment supplier rather than from the computer system manufacturer.

Management stated that several power and timing modifications were

required on the replacement units since this was the peripheral equipment manufacturer's first experience at interfacing its tape drives with a first generation computer system. However, they further stated, that subsequent to the "shakedown period," the replacement tape drives have performed satisfactorily and that no significant problems have been experienced with the administration or performance of having maintenance done by the computer system manufacturer and the tape drive manufacturer.

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164462

SEP 19 1968

Dear Mr. Chairman:

This is in reply to your letter of December 18, 1967, requesting that we investigate certain points raised in a letter dated December 8, 1967, from the Honorable William B. Widnall concerning testimony given to the Subcommittee on Economy in Government on November 30, 1967, by Mr. Lewis R. Caveney of the Bryant Computer Products Division of Ex-Cell-O Corporation. Specifically, it was suggested that we (1) substantiate the illustration presented by Mr. Caveney to the Subcommittee which showed that, if the Government had procured a computer system on the basis of buying from peripheral manufacturers rather than from one system manufacturer, the savings to the Government would have amounted to $429,250 and (2) study computer procurements in both the General Services Administration and the Department of Defense to determine what savings could accrue to the Federal Government by direct procurement of peripheral parts of computer systems from peripheral manufacturers.

During our review of the details of the Mr. Caveney's illustration, we found that the peripheral manufacturer (Bryant Computer Products) does not publish a complete price list. Instead, a price is quoted for each installation, depending upon the amount of work involved in connecting the equipment to the computer manufacturer's system. We found that, in connecting a complex piece of equipment like a memory system to a computer manufacturer's system, it was necessary for the peripheral manufacturer to provide for the proper electronic interface between the equipment and the computer system or that it might be necessary to provide other arrangements to achieve this objective. Also, it might be necessary for the peripheral manufacturer and/or the user to complete the required modification to existing computer programs. This might involve reprogramming of the computer's control system to allow the computer to properly address and extract information from the memory system.

We were advised by Bryant Computer Products that the price quoted in its illustration did not include the additional software costs necessary to have a complete memory subsystem. Diagnostic programs used to test the equipment will be required if changes to a standard

operating system are involved or if it is necessary to reprogram the computer's control system. We were advised also that preparation of these programs might be subcontracted to Bryant or to independent software companies; or they may be written by the user of the system. It therefore is apparent that the savings claimed in the illustration were based on a comparison between the system manufacturer's price for a particular item of the equipment and the independent peripheral manufacturer's price for that item. However, the savings computed in this manner do not take into account (1) the additional software costs necessary to fit the peripheral manufacturer's component into the system and (2) other factors which are discussed below and which could result in additional costs.

As to the savings that could accrue to the Federal Government by direct procurement of peripheral parts of computer systems from peripheral manufacturers, we pointed out in our report to the Congress on "Maintenance of Automatic Data Processing Equipment in the Federal Government" (B-115369, April 3, 1968) that there was a possibility for Government agencies to achieve significant savings or other benefits through direct procurement of certain computer components and spare parts from original manufacturers or alternative sources of supply rather than to rely on sole-source procurement from computer manufacturers. To demonstrate the savings available, the report showed that the United States Fleet Numerical Weather Facility had saved $475,200 as a result of two negotiated procurements of drum-storage devices and related controllers from the actual manufacturer of the components and parts. These procurements were made in order to add additional components to an existing computer system and thereby increase operating capacity. We believe that this illustration points out a need for additional study and consideration of independent peripheral manufacturers as a source of supply for selected procurements. However, computer components have not been standardized, in general, to the point where one manufacturer's component can be directly utilized in conjunction with another manufacturer's component or system. Therefore, possible savings and other benefits from procurement from peripheral manufacturers must be evaluated in light of the following factors:

--The acceptance by the user of complete responsibility for software and hardware operation. Guarantees previously offered by the system manufacturer may not be available.

--The responsibilities of both the peripheral manufacturer and the user for necessary electronic and computer program modifications. If the user is to be responsible for the software interface, consideration must be given to the cost for undertaking such a task or contracting it out to a software company.

--The additional costs that may be required in the future to provide for improvements to the software operating system. Since the user's system will be operating with a nonstandard software system, improvements will have to be either developed by the user or adapted from improvements offered by the system manufacturer.

--The amount of technical support, education, and training that will be available if not all components are supplied by the system manufacturer.

--The effect on operations and costs as a result of dual maintenance agreements if the system manufacturer will not accept maintenance responsibility for components not provided as part of his system.

--The effect on operating efficiency and throughput capacity as a result of use of a peripheral manufacturer's component.

--The effect on system compatibility and standardization relative to other systems operated by the user.

--The ultimate effect on the pricing of components by the large system manufacturers.

Public Law 89-306 provides exclusive authority to the General Services Administration (GSA) to procure all general-purpose automatic

B-164462

data processing (ADP) equipment and related supplies for use by Federal agencies. Although GSA negotiates the ADP equipment contract terms and conditions, each agency is responsible for selecting the best system or equipment necessary to meet its needs.

Generally Federal agencies select a computer system on the basis of procuring all equipment from a single systems manufacturer. For example, the Air Force EDP Equipment Office, which is responsible for evaluating and selecting computer systems for the Air Force, does not, as a standard practice, directly solicit offers from peripheral manufacturers, but requires the system vendor to act as a prime contractor for the entire system. The peripheral manufacturers, therefore, under the standard practice, bid their equipment through or with a systems manufacturer who will be responsible for the entire computer system. This is the case even in those instances where independent manufacturers market peripheral components which are directly interchangeable with the equivalent computer manufacturers component. We did find during our study of peripheral manufacturer's products a number of instances where directly interchangeable components were available at a price substantially less than the price charged by the computer manufacturer for its comparable component.

Because benefits can accrue to the Government by acquiring certain components from independent peripheral manufacturers, we are preparing a more complete report to the Congress on this subject.

Please advise us if we can be of further assistance or if our representatives can provide you with additional details. We plan to make no further distribution of this report unless copies are specifically requested, and then we shall make distribution only after your agreement has been obtained.

Sincerely yours,

Comptroller General
of the United States

The Honorable William Proxmire, Chairman
Subcommittee on Economy in Government
Joint Economic Committee
Congress of the United States

APPENDIX III

U.S. General Accounting Office Index of Reports on Supply, Procurement, Facilities and Construction, Industrial Plant Equipment and Supplies, User Charges, and Other Subjects of Special Interest to the Subcommittee on Economy in Government During the Period November 14, 1967, to June 18, 1970

Index No.	B Number	Date	Title
			SUPPLY
1	B-146828	Nov. 14, 1967	Improved inventory controls needed for the Departments of the Army, Navy, and Air Force and the Defense Supply Agency (DOD).
2	B-133361	Dec. 5, 1967	Need for improvement in the system for managing nonexpendable equipment (Air Force).
3	B-146874	Jan. 23, 1968	Need for improvements in the Army's supply system to insure the recovery of repairable spare parts (Army).
4	B-163478	May 14, 1968	Need for improvement in utilization of available materiel in the Department of Defense (DOD).
5	B-146828	May 16, 1968	Savings available to the Government through elimination of duplicate inventories, General Services Administration, Department of the Navy (GSA and Navy).
6	B-160763	June 21, 1968	Need to improve management of Army supplies in Vietnam (Army).
7	B-164500	Sept. 17, 1968	Need for improvement in the processing of requisitions for materiels (DOD).
8	B-146772	Sept. 23, 1968	Need to improve the Army Tank-Automotive Command's supply management data system (Army).
9	B-146874	Oct. 23, 1968	Savings attainable by preventing condemnation of economically repairable equipment (Air Force).
10	B-165867	Mar. 12, 1969	Improvements made or to be made in the acquisition and management of nonexpendable personal property overseas (State).
11	B-146929	----do----	Opportunity for savings by increasing transfers of excess property among Federal agencies (GSA).
12	B-133044	June 30, 1969	Opportunities for better service and economies through standardization of pharmacy items and consolidation of bulk compounding facilities (VA).
13	B-161507	----do----	Army and Air Force controls over inventories in Europe (Army and Air Force).
14	B-166312	----do----	Improvements needed in Army supply management and stock fund activities in Korea (Army).
15	B-133396	----do----	Savings attainable through improved application of the economic order principle in the procurement of military supplies (DOD).
16	B-146828	July 30, 1969	Need for improvement in the receipt and storage of military supplies and equipment (DOD).
17	B-114807	Aug. 15, 1969	Effectiveness of meeting the supply requirements of overseas U.S. agencies (GSA).
18	B-132989	Sept. 9, 1969	Potential for savings by reduction of aircraft engine procurement, Department of the Navy and Department of the Air Force (Navy and Air Force).
19	B-157373	Jan. 14, 1970	Improvements needed in the management of aircraft modifications (Army).
20	B-144239	Feb. 27, 1970	Opportunities for improving management of excess property transferred to the Military Affiliate Radio System (DOD).
21	B-161319	Mar. 9, 1970	Examination into the transfer of 52 Federal supply classes from the Department of Defense to the General Services Administration (DOD and GSA).
22	B-160682	Apr. 21, 1970	Need to improve military supply systems in the Far East (DOD).
23	B-114807	May 22, 1970	Opportunities for savings through the elimination of nonessential stock items (GSA).
24	B-146828	May 28, 1970	Potential for reducing inventory investments in the Defense Supply Agency through improved computation of stock needs (DOD).
			PROCUREMENT
25	B-160334	Feb. 6, 1968	Potential savings in procurement of petroleum products for use by Navy contractors (Navy).
26	B-159868	June 4, 1968	Need to increase competition in procurements of anthracite coal by the U.S. Army for use in Europe (Army).
27	B-133396	June 25, 1968	Need for more competition in procurement of aeronautical spare parts (DOD).
28	B-163379	Jan. 10, 1969	Use of the 2d-phase method of contracting—a method that does not encourage maximum price competition (GSA).
29	B-162394	Feb. 5, 1969	Requirements contracting and other aspects of small purchases in the Department of Defense (DOD).
30	B-156556	Mar. 11, 1969	Review of certain management controls of the quality assurance system for the Apollo program (NASA).
31	B-159463	Apr. 17, 1969	Need for improvement in procuring and stockpiling jewel bearings (DOD, Commerce, GSA and OEP).

Index No.	B Number	Date	Title
32	B-162839	Apr. 25, 1969	Potential savings by improving evaluation of competitive proposals for operation and maintenance contracts (Air Force).
33	B-39995	July 14, 1969	Evaluation of 2 proposed methods for enhancing competition in weapons systems procurement (DOD).
34	B-163874	July 15, 1969	Reasonableness of prices questioned for bomb and hand grenade fuses under 3 negotiated contracts (Army).
35	B-165767	Aug. 25, 1969	Opportunities for increased savings by improving management of value engineering (design or manufacture simplification) performed by contractors (DOD).
36	B-39995	Dec. 3, 1969	Improvements needed in negotiating prices of noncompetitive contracts over $100,000 on the basis of contractors' catalog or market prices (DOD).
37	B-118710	Dec. 11, 1969	Questionable pricing of contracts negotiated for urgently needed bomb bodies (Navy).
38	B-162394	Dec. 17, 1969	Opportunities for more effective use of an automated procurement system for small purchases (Navy).
39	B-165006	Jan. 9, 1970	Prices negotiated for rock-crushing plants for use in the Republic of Vietnam (Army).
40	B-161366	Feb. 25, 1970	Incentive provisions of Saturn V stage contracts (NASA).
41	B-133170	Mar. 19, 1970	Weaknesses in award and pricing of ship overhaul contracts (Navy).
42	B-167714	May 6, 1970	Rental rates for barges used in the Republic of Vietnam included costs previously recovered by contractor (Army).
			FACILITIES AND CONSTRUCTION
43	B-164217	Aug. 5, 1968	Feasibility of consolidating military real property maintenance functions on Oahu, Hawaii, and in the Norfolk, Va., area (DOD).
44	B-133044	Sept. 9, 1968	Need to improve reviews of drawings and specifications prepared by architect-engineers before solicitation of hospital construction bids (VA).
45	B-156818	Oct. 23, 1968	Increased costs to the Government attributed to leasing rather than purchasing land and buildings by Department of Defense contractors (DOD).
46	B-159451	Nov. 13, 1968	U.S. construction activities in Thialand, 1966 and 1967 (DOD, State and AID).
47	B-133316	Feb. 18, 1969	Policies, procedures and practices for determining requirements for military family housing and bachelor officer and enlisted quarters (DOD).
48	B-133044	Jun. 6, 1969	Need for Veterans' Administration to acquire hospital sites before developing working drawings and specifications for construction of hospitals (VA).
49	B-159451	Jun. 12, 1969	Problems in the administration of the military building program in Thailand (DOD).
50	B-146782	Sept. 30, 1969	Improvements needed in the management of Government owned and leased real property overseas (State).
51	B-133376	Oct. 22, 1969	Unused engineering and design effort in the military construction program (DOD).
52	B-167400	Nov. 5, 1969	Basis for determining need for construction of messhalls in the Department of Defense (DOD).
53	B-167490	Nov. 25, 1969	Management of military owned household furnishings overseas; opportunities for improvement (DOD).
54	B-140389	Jan. 21, 1970	Construction of industrial facilities at Government-owned plants without disclosure to the Congress (Navy and Air Force).
55	B-118718	Mar. 24, 1970	Need to strengthen concrete inspections and testing requirements in the construction of low-rent public housing projects (HUD).
56	B-167490	May 14, 1970	Action being taken by the Department of Defense to achieve closer adherence to established policy for providing household furniture in the United States (DOD).
57	B-118638	June 9, 1970	Improvements made in building construction inspections to determine compliance with contract specifications (District of Columbia government).
			INDUSTRIAL PLANT EQUIPMENT AND SUPPLIES
58	B-140389	Nov. 24, 1967	Needs for improvements in control over Government-owned property in contractors' plants (DOD).
59	B-163691	May 23, 1968	Action taken to put inactive industrial plant equipment in Army arsenals to use (DOD).
60	B-140389	Apr. 7, 1970	Management of Government industrial plant equipment kept for possible future use should be improved (DOD).
61	B-140389	June 17, 1970	Opportunities for improvement in the management of Government materiels provided to overseas contractors (Army and Air Force).
			USER CHARGES
62	B-163136	Feb. 26, 1968	Need for improved controls in military departments to insure reimbursement for services provided to nonmilitary and quasi-military activities (DOD).
63	B-118678	Sept. 3, 1969	Opportunity for the Geological Survey to increase revenues through changes in its map-pricing practices (Interior and BOB).
64	B-125051	Oct. 7, 1969	Need to revise fees for services provided by the Immigration and Naturalization Service and U.S. marshals (Justice).
65	B-164031(2)	Dec. 12, 1969	Improvements suggested in accounting methods used in establishing fee for reimbursable testing and related services—Food and Drug Administration consumer protection and environmental health service (HEW).
66	B-114859	May 28, 1970	Need for specific criteria for adjusting the interest rate charged on insurance policy loans by the Veterans Administration (VA).
67	B-115378	June 18, 1970	Inequitable charges for calibration services; need for accounting improvements at National Bureau of Standards (Commerce).

Index No.	B Number	Date	Title
			OTHER
68	B-163453	May 10, 1968	Need for improvement in management of mission-support aircraft (Army).
69	B-164392	Sept. 18, 1968	Control over procurement, use, and disposition of magnetic computer tape in the Department of Defense (DOD).
70	B-166655	July 14, 1969	Status of development toward establishment of a unified national communications system (DOD, GSA, FAA, NASA, and others).
71	B-163762	Oct. 15, 1969	Cost reduction and management improvement program in selected departments and agencies (DOD, GSA, AID, Agriculture, and Interior).
72	B-157476	Dec. 18, 1969	Management of the logistics airlift system contracted for by the Air Force (Air Force).
73	B-132900	Jan. 2, 1970	Need for better coordination among, and guidance of, management evaluation groups in the Department of Defense (DOD).
74	B-133188	Jan. 16, 1970	Economies obtainable by increasing days at sea of oceanographic research and survey ships, Environmental Science Services Administration (Commerce).
75	B-163869	Feb. 4, 1970	Cost and balance-of-payments advantages of replacing foreign-made buses with American-made buses abroad (DOD).
76	B-118779	Feb. 24, 1970	Improvements needed in the operation of Government-owned vessels in support of military activities in Southeast Asia (Maritime and Commerce).
77	B-140389	Mar. 6, 1970	Financing agency programs other than by direct appropriation—revolving funds (selected agencies).

DIGESTS OF U.S. GENERAL ACCOUNTING REPORTS LISTED IN APPENDIX II

Index No. 1, B-146828, November 14, 1967

IMPROVED INVENTORY CONTROLS NEEDED FOR THE DEPARTMENTS OF THE ARMY, NAVY, AND AIR FORCE AND THE DEFENSE SUPPLY AGENCY—DEPARTMENT OF DEFENSE

In our review of controls over depot inventories within the Department of Defense, we found that substantial differences existed between stock record balances and the actual quantities of items in inventories throughout the depot supply systems. During fiscal years 1965 and 1966, stock records of selected depot inventories—averaging in value about $10.4 billion—had to be adjusted up or down an average of $2.4 billion annually in order to bring them into agreement with the physical inventory quantities.

We pointed out that these inaccuracies in the inventory stock records resulted from inadequate control over documentation affecting inventory records as well as inadequate control over the physical assets and that increased management attention was needed at all levels.

Department of Defense officials advised us that each of the military services and the Defense Supply Agency had initiated specific programs to eliminate the problems discussed in our report and were installing new procedures designed to provide more accurate inventory controls.

Index No. 2, B-133361, December 5, 1967

NEED FOR IMPROVEMENT IN THE SYSTEM FOR MANAGING NONEXPENDABLE EQUIPMENT—DEPARTMENT OF THE AIR FORCE

Our follow-up review showed that, although the Air Force had, since our earlier review (report to the Congress, B-133361, June 1961) significantly improved its procedures for the management of nonexpendable equipment, there was a need for further improvement in management controls over the two major elements of the equipment management system—the validity of authorizations and the accuracy of reported inventories of in-use assets.

We found that incomplete inventory information was reported and used in the fiscal year 1966 requirements computations. Our review showed that equipment valued at about $44 million was neither reported for use in computing requirements nor otherwise accounted for. We also found that the practices followed at the base in taking physical inventories did not provide the necessary controls to ensure that all assets would be counted and that the same assets would not be counted twice.

With respect to the validity of equipment requirements, we found evidence at various levels of responsibility that the prescribed procedures for establishing equipment authorizations were not being followed.

Our review of the data used in computing fiscal year 1966 procurement requirements showed that over $8 million of the $65 million of computed require-

ments was not needed, and about $20 million of the remaining $57 million was questionable. We discussed this with Air Force officials and, as a result, the requirements for several high cost items were recomputed and about $3 million of planned procurement was cancelled.

The Air Force generally concurred in our findings and proposals for improvements in the equipment management system. We were advised of actions either taken or planned to ensure closer adherence to prescribed procedures for forecasting and controlling equipment authorizations. These actions should help prevent recurrence of deficiencies at the inventory control point, major commands, and base levels.

We were also advised that the Air Force intended to study the feasibility of incorporating additional data into its computer programs for managing nonexpendable equipment to provide a basis for periodic verification and reconciliation of reported inventories of in-use equipment.

Index No. 3, B–146874, January 23, 1968

NEED FOR IMPROVEMENTS IN THE ARMY'S SUPPLY SYSTEM TO INSURE THE RECOVERY OF REPAIRABLE SPARE PARTS

Our review of about 12,000 issues of spare parts at seven military installations that should have resulted in the return of a like quantity of unserviceable parts showed that some 70 percent of these parts were not returned to maintenance activities for repair and reissue. The principal reasons were (1) incorrect and inconsistent recoverability codings in publications issued by the National Inventory Control Points and (2) inaction by supply activities to obtain the return of repairable items.

The Department of the Army concurred in our findings and took action to improve its management of repairable spare parts.

Index No. 4, B–163478, May 14, 1968

NEED FOR IMPROVEMENT IN UTILIZATION OF AVAILABLE MATERIAL IN THE DEPARTMENT OF DEFENSE

We examined into the effectiveness of the automated centralized screening system, maintained by the Department of Defense, for matching materiel available at various of its locations with the material needs of other locations. The system includes a master screening file of information on the needs and the availability of material, maintained by the Defense Logistics Services Center on the basis of periodic reports submitted by inventory control points.

Although this system has greatly benefited the Department of Defense, we found that certain improvements could make the system more effective.

As operated at the time of our examination, the system depended on the voluntary cooperation of the organizations involved. We found many instances where inventory control points had not reported the necessary information or had reported information which was not accurate and not current. It appeared to us that there was a need for an organization vested with the responsibility for ensuring that the Defense organizations followed prescribed operating policies and procedures.

We recommended that, since the responsibility for establishing basic policies related to the centralized screening system is vested in the Office of the Assistant Secretary of Defense (Installations and Logistics), the Secretary of Defense assign to that organization the responsibility for surveillance of the system.

On August 6, 1968, the Assistant Secretary of Defense (Installations and Logistics) advised that "Placing responsibility for surveillance of the centralized utilization screening to ensure effective implementation of the system at the OASD (I&L) level appears to be an excellent recommendation; however, in view of the recent actions that has been taken to achieve the stated objectives recommended by the GAO review and other DoD actions, it has been decided that this action is not necessary at this time. OASD (I&L) will, however, continue to maintain close surveillance of the program to ensure full accomplishment of stated objectives."

Index No. 5, B–146828, May 16, 1968

SAVINGS AVAILABLE TO THE GOVERNMENT THROUGH ELIMINATION OF DUPLICATE INVENTORIES—GENERAL SERVICES ADMINISTRATION AND DEPARTMENT OF THE NAVY

We reviewed the Navy's practice of stocking, for further distribution, material which is normally procured, stocked, and distributed to Government organizations by the General Services Administration (GSA). On the basis of our review, we concluded that Navy wholesale inventories, and similar GSA inventories held for Navy use, unnecessarily duplicated each other and resulted in duplicate management and warehousing functions in the Government supply system as a whole.

We concluded that inventories valued at about $8.5 million, and related management and warehousing functions, could be eliminated from the wholesale stocks of either the Navy or GSA. To the extent that duplication of stock could be eliminated, the Government would realize not only increased efficiency in stock management but also annual savings of up to $940,000. We suggested that, for those items stocked by GSA, the Navy overseas stock points, supply ships, and fleet activities within Continental United States waters requisition their requirements directly from GSA.

The Navy did not believe this would be feasible with respect to overseas stock points and supply ships but did agree to review the existing arrangements for supply support, GSA expressed the opinion that the procedure of direct requisitioning from GSA was the most economical method of supply support except in those cases where the volume of issues warrants the shipment of wholesale quantities direct from the manufacturers to the Navy.

We recommended that the Secretary of Defense and the Administrator of the General Service Administration jointly establish a working group to formulate the necessary policies and procedures for a supply support system which will eliminate the duplications cited in our report.

A joint GSA/DOD Working Group was established on November 1, 1969. As a result of a study and recommendations of this group, the Assistant Secretary of Defense (Installations and Logistics) on May 6, 1969, instructed the Navy to proceed with the implementation of a specialized support depot concept as rapidly as GSA's capability to process transactions under standard military procedures could be established. Under a specialized support depot concept, material owned and managed by GSA would be shipped directly from the manufacturer to the Navy stock point warehouses for the account of GSA. Subsequent issues to Navy activities would be made from this GSA stock at the Navy supply point. This, in effect, would establish GSA wholesale warehouses at the Navy locations and should eliminate the duplications cited in our report.

Index No. 6, B–160763, June 21, 1968

NEED TO IMPROVE MANAGEMENT OF ARMY SUPPLIES IN VIETNAM

We reviewed certain aspects of the Army's management of supplies in the Republic of Vietnam. In our opinion, the Army supply system has been responsive to the combat needs of the military units in Vietnam despite adverse conditions. The high level of support had been achieved however through costly and inefficient supply procedures.

The Army had recognized many of its supply management problems and initiated certain corrective actions prior to the time of our review. We noted, however, areas which, in our opinion, warrant additional management attention as follows:

—The development of accurate data relating to stocks on hand and consumed in order to facilitate determinations of supply requirements and preclude imbalances of stock.

—The identification and redistribution of the large quantities of excess material now in Vietnam.

—The development of programs which will ensure the prompt return of repairable components to the supply system.

—The institution of procedures designed to increase both intraservice and interservice utilization of available supplies.

—The enforcement of greater supply discipline in order to reduce to a minimum the costly shipment of supplies under high-priority requisitions.

The supply problems were due, in large measure, to the fact that the Army did not have a trained organization capable of assuming inventory management responsibilities in Vietnam when the buildup of forces was begun. Army officials advised us that a Quick Reaction Inventory Control Center was being organized which will be able to move into future combat situations—such as those in Vietnam—and to establish supply management capabilities within a short period of time.

Although the Army agreed with our findings, it did not agree with certain of our proposals for improved procedures. We recognized that the management emphasis being applied by the Army would tend to improve supply discipline and help to correct the problems. We believed, however, that such emphasis by itself was not sufficient. Therefore, we recommended to the Secretary of the Army that our proposals for improved procedures relating to the coding of requisitions with the type of demand, assignment of priorities to requisitions, and furnishing of certain information by operating organizations in Vietnam to inventory managers in the United States be reconsidered. In October 1968, the Army advised us of corrective actions taken or planned with respect to these proposals.

Index No. 7, B–164500, September 17, 1968

NEED FOR IMPROVEMENT IN THE PROCESSING OF REQUISITIONS FOR MATERIELS—DEPARTMENT OF DEFENSE

In a prior review of the ability of the military supply systems to respond to increased demands, we observed that the manner in which supply requisitions were processed under the Military Standard Requisitioning and Issue Procedures (MILSTRIP) system precluded realization of the maximum benefits of the system. Therefore, we undertook a limited examination at selected installations of the Army, Navy, and Air Force, of the processing of requisitions under the MILSTRIP system.

The MILSTRIP system is designed to

—provide uniformity of procedures for all requisitioners and suppliers of stock;

—meet essential requirements of all the military services;

—provide for interservice supply transactions and intraservice supply support operations; and

—accommodate the requisitioning on stocks of the General Services Administration.

We found that MILSTRIP had improved the processing of requisitions. Maximum benefits of MILSTRIP had not been realized, however, because large numbers of requisitions contained erroneous or incompatible data and could not be processed routinely. As a result, many of the requisitions were returned to the originators for additional information or revision and resubmission. Resubmission of requisitions is time-consuming, causes significant delays, and reduces supply support effectiveness.

The primary causes of erroneous or noncurrent information on requisitions were, in our opinion,

—preparation of requisitions by untrained and inadequately supervised individuals;

—inadequate review of requisitions before forwarding them to the next higher supply level; and

—absence of current and compatible catalog data at various supply levels.

We also found that the Defense Supply Agency (DSA) had not fully carried out its responsibility for surveillance of MILSTRIP. Surveillance by the DSA on a systematic basis could have identified the problems so that appropriate corrective actions could have been taken.

The Department of Defense agreed generally with our findings and proposals for corrective measures. The Department stated that its directive on MILSTRIP has been revised to define responsibilities more explicitly and that a study was being made of the requirement for, and the frequency of, catalog changes. The Department stated further that, pending completion of the study, a moratorium had been declared on unit-of-issue changes.

Index No. 8, B–146772, September 23, 1968

NEED TO IMPROVE THE ARMY TANK-AUTOMOTIVE COMMAND'S SUPPLY MANAGEMENT DATA SYSTEM

The Army Tank-Automotive Command (TACOM) has the mission of providing tank and automotive vehicles and repair parts for all the military services in the United States and overseas. As a part of our continuing program of review of management activities at TACOM, we examined into supply management, giving particular attention to problems in the computerized supply management data system.

For several years, TACOM has been unable to achieve the desired levels of supply support. During the period February 1965 to November 1967, for example, stock requisitions filled on time ranged between 33 and 78 percent as compared with the objective of 85 percent established by the Army Materiel Command. In November 1967 only about 46 percent of the requisitions were filled on time.

The situation stemmed primarily from the presence of inaccurate data in the computerized supply management records. Although TACOM and higher command officials had recognized the seriousness of this problem and had taken action to improve the accuracy of the data, these efforts generally have been unsuccessful. A 1967 study showed, for example, that about $94 million worth of material recorded as due-in had in fact been received and that about $83 million worth of material had been received but had never been recorded as due-in. These conditions can cause inventory managers to either procure unneeded supplies or fail to procure needed supplies.

In our opinion, the prime factor retarding improvement of supply support effectiveness has been the lack of coordination, evaluation, and follow-up efforts to clear up the computerized supply management records. Other factors—imposition of additional workloads, major reorganizations, and saturation of computer capacity—also have had an adverse effect.

We proposed that the Secretary of Defense establish a coordinated supply management program at TACOM to

—Improve supply records;

—prevent additional invalid data from entering the records;

—review additional workloads or special programs to be imposed on TACOM to prevent unnecessary interference with the current management improvement program;

—establish means to maintain organizational stability at TACOM and to prevent the constant movement of experienced supply personnel; and

—review the use being made of the existing automatic data processing equipment with the objective of eliminating or reducing lower priority projects so that the equipment can be used for matters vitally in need of correction.

The Army, in its reply on behalf of the Secretary of Defense, agreed with these proposals and stated that actions in keeping with the proposals had either been already taken or were planned.

Index No. 9, B–146874, October 23, 1968

SAVINGS ATTAINABLE BY PREVENTING CONDEMNATION OF ECONOMICALLY REPAIRABLE EQUIPMENT—DEPARTMENT OF THE AIR FORCE

Air force regulations provide for the return of certain unserviceable items to designated depots for repair if they cannot be repaired at the Air Force base level. However, the regulations permit the bases to condemn the items as scrap if (1) they are beyond repair, (2) repair costs exceed 65 percent of replacement cost or (3) their condemnation is specified by applicable technical orders. During 6 months of 1967 Air Force bases condemned about $6.7 million worth of the type of items designated for repair at the depots managed by the three Air Materiel Areas included in our review. The condemnation of a substantial portion of these items was based on determinations that repair costs were excessive in relation to replacement cost.

We tested 78 items that had been condemned at five bases and found that 51 of them could have been repaired for amounts significantly less than replacement cost. Many of the condemned items were in short supply and, in some cases, action had been taken to procure additional items.

The primary reason for improper condemnation was that maintenance personnel at the bases had made their determinations without adequate knowledge of depot repair costs, procedures, and capabilities. We proposed that the Air Force regulations be revised to require the bases to return the items to the depots unless the bases have been advised that the items are (1) not needed in Air Force stocks, (2) are obviously beyond repair, or (3) authorized for disposition under Air Force technical orders.

The Air Force advised us that its analyses indicated that the magnitude of improper condemnations did not warrant instructing the bases to return such items to the depots. The Air Force stated, however, that certain revisions were being made in exising regulations to require (1) the reporting of cost data to, and approval of the cost data by, the item managers prior to condemnation of items by the bases and (2) establishment of a review board at each base to maintain surveillance over condemnations based on cost criteria.

We were of the opinion that the action taken by the Air Force would serve to reduce but would not prevent improper condemnation of repairable items. We therefore recommended that the Air Force reconsider our proposal.

Subsequently, by letter dated December 11, 1968, the Air Force advised that a re-analysis of existing condemnation procedures had been made for the purpose of establishing "an optimum level of unit dollar value for repairable items to be returned to the depots for review and disposal." As a result, a new policy was implemented whereby all repairable items costing $300 or more are to be returned.

Index No. 10, B–165867, March 12, 1969

IMPROVEMENTS MADE OR TO BE MADE IN THE ACQUISITION AND MANAGEMENT OF NONEXPENDABLE PERSONAL PROPERTY OVERSEAS—DEPARTMENT OF STATE

The Federal Property and Administrative Services Act of 1949 requires each executive agency to maintain adequate inventory controls and accountability systems for the property under its control; continuously survey its property to determine what property is excess; and transfer or dispose of such property as promptly as possible.

Moreover, in September 1966, the President directed all Federal departments and agencies to hold down and reduce supply inventories; increase utilization of excess property and redistribute stock on hand in lieu of procuring new items; reduce the standard number of items in the various supply systems; review and revise equipment replacement standards; and establish tighter controls on proposed procurement actions.

This General Accounting Office review was undertaken to examine into the efficiency and effectiveness with which nonexpendable personal property was acquired and managed by the Department of State at its overseas foreign posts.

The General Accounting Office has concluded that there is a need for the Department to improve its management and control over nonexpendable personal property located at overseas foreign posts. The specific areas in which it was noted that improvements were needed were

—financial control over nonexpendable personal property;
—physical inventory taking;
—property recordkeeping;
—physical security arrangements;
—identification and disposition of excess property, and
—procurement.

In addition we noted a need for greater internal audit surveillance over this activity by the Department.

We recommended that:

—The Department develop and implement a satisfactory property accounting system that will meet the principles and standards of the Comptroller General for property accounting as set forth in 2 GAO 12.5(c), including the basis for control over property.

—The Department bring this report to the attention of the appropriate foreign post officials and instruct them to review their controls and procedures applicable to property management and report to the Department whether such controls and procedures comply with Department regulations.

—Appropriate follow-up procedures be established by the Department to determine whether corrective action promised by the foreign posts is actually implemented.

—Detailed and timely site audits be made of all aspects of property management at overseas foreign posts.

—Either the funds advanced to foreign post employee associations for procurement of personal property be reimbursed or the property purchased be identified as Government-owned property and included in the foreign post's property inventory.

Department of State officials generally agreed with our findings and recommendations as pointed out in the report, and corrective actions have been taken or planned.

We plan, as part of our continuing review of Department of State activities, to examine the result of actions taken on these recommendations.

Index No. 11, B–146929, March 21, 1969

OPPORTUNITY FOR SAVINGS BY INCREASING TRANSFERS OF EXCESS PROPERTY AMONG FEDERAL AGENCIES—GENERAL SERVICES ADMINISTRATION

We reported that:

1. The Federal Aviation Administration (FAA) had been permitted to report its excess property to the General Services Administration's (GSA) Area Utilization Officer who was responsible for undertaking only limited efforts to determine whether other agencies needed the property.

2. If GSA had followed the required procedures, it could have transferred some of the FAA property to the Department of Defense (DOD) and thereby reduced the DOD's commercial purchases. DOD had requirements for about $200,000 of excess property which GSA had transferred to a DOD affiliate which had no identified requirement for the property or had declared surplus and made available for sale to the public and donation to State agencies.

3. After we brought this matter to GSA's attention, property costing about $68,000 was transferred to DOD activities.

We suggested that GSA take action to ensure that:

1. Federal agencies reported their excess property to GSA regional offices in accordance with Federal Property Management Regulations.

2. GSA circularize lists of excess property adequately to Federal agencies for their review.

GSA agreed with the suggestions and stated that the agency had taken action to bring about the desired improvements in GSA's utilization program practices.

Index No. 12, B–133044, June 30, 1969

OPPORTUNITIES FOR BETTER SERVICE AND ECONOMIES THROUGH STANDARDIZATION OF PHARMACY ITEMS AND CONSOLIDATION OF BULK COMPOUNDING FACILITIES—VETERANS' ADMINISTRATION

On the basis of our review of certain aspects of pharmacy operations at VA hospitals and clinics, we pointed out that there are opportunities for reducing the cost of drugs used by VA installations in metropolitan areas through increased standardization of commonly used items and their dosages. We expressed the belief that the increased standardization and resultant decrease in drug costs could be achieved by the establishment of area interstation therapeutic agent and pharmacy committees and centralized bulk compounding and purchasing facilities.

Also, we noted that centralized bulk compounding and purchasing facilities would contribute to improved patient care by providing needed medications not commercially available, more assurance of the quality of drugs compounded, and better support for research and training activities.

Accordingly, we recommended that VA provide for the formation of interstation therapeutic agent and pharmacy committees in geographical areas containing several VA medical facilities. We recommended also that the committees, when established, study the feasibility of establishing centralized bulk compounding and purchasing operations within their respective geographical areas.

The VA advised us that it concurred in our recommendations and would establish such interstation committees.

Index No. 13, B-161507, June 30, 1969

Army and Air Force Controls Over Inventories in Europe

In August 1968 we issued a summary report on the movement of American Forces from France (Operation FRELOC) in 1966-67 (B-161507, August 7, 1968). In that report we pointed out that, during the operation, control had been lost over large quantities of supplies and equipment.

This report reviews in detail the problems connected with controls over inventories in Europe as summarized in the August 1968 report.

We found that control over assets moved from France by the Army and the Air Force was insufficient to ensure that shipments were received at the correct destinations in the quantities and in the condition specified. The loss of control was, in our opinion, symptomatic of a long standing problem: the high incidence of error in the stock records. The need to move most of the supplies and equipment stored in France on short notice highlighted the magnitude of the stock-record inaccuracies.

The problem was further complicated by the lack of advance information on shipments at the new receiving stations, the loss of documents needed for inspection and accounting purposes, the late inspection of receipts, the delayed recording of receipts, and the short period of time available to physically move the stocks.

At the conclusion of our examination months after the move, it appeared that the Army still did not know, with any degree of certainty, the quantities, locations, or conditions of its inventories in Europe. The Air Force, on the other hand, had been able to correct most of its stock records because of the significantly smaller volume of assets moved and the prompt action of the Air Force to physically inventory the assets at the new locations.

In response to these findings, the Department of Defense informed us of the actions taken after the conclusion of our fieldwork. The Department stated that the Army had taken the steps to overcome its inventory control problems and that the Air Force, for the most part, had accounted for its inventories.

Index No. 14, B-166312, June 30, 1969

IMPROVEMENTS NEEDED IN ARMY SUPPLY MANAGEMENT AND STOCK FUND ACTIVITIES IN KOREA

Our prior reviews of supply operations in the Eighth U.S. Army in Korea had disclosed that substantial management improvements were needed to ensure that using units obtained necessary supplies on a timely basis.

Our follow-up review showed that needed supplies were still not being obtained and stocked in Korea in the proper quantities. Because of inaccurate and incomplete financial and supply records, the Army found it difficult to forecast, with a reasonable degree of accuracy, the amount of funds needed to purchase proper quantities and types of supplies to support the military units in Korea.

Available funds were used, to a great extent, to obtain supplies in small quantities to meet individual requests of Army units in Korea instead of being used to obtain larger quantities for depot stocks.

We made certain suggestions for improvement in the stock records and in the budgeting and funding procedures concerning the Army in Korea. We suggested also that the Army Audit Agency increase the scope of its reviews in Korea. In reply the Army advised us of actions taken or planned which, if effectively carried out, will provide better control over supply and financial management matters.

Index No. 15, B-133396, June 30, 1969

SAVINGS ATTAINABLE THROUGH IMPROVED APPLICATION OF THE ECONOMIC ORDER PRINCIPLE IN THE PROCUREMENT OF MILITARY SUPPLIES—DEPARTMENT OF DEFENSE

The economic order quantity (EOQ) is that quantity which strikes a balance between (1) the higher procurement costs but lower storage costs of frequent purchases in small quantities and (2) the lower procurement costs but higher storage costs of less frequent purchases in larger quantities. Applicable Department of Defense (DOD) instructions for the use of the EOQ principle are sound but are in need of revision with respect to what types of items should be covered and when cost factors should be revised.

We found that current and accurate cost data were not available or were not being used by the military services in computing requirements under the EOQ principle. On the basis of the best cost data available, we estimated that, if the cost factors were updated and used:

The Air force, by initiating a one-time additional investment of $50 million in inventory, could reduce its annual operating costs by between $12 million and $17 million.

The Navy could reduce its investment in inventory by about $4 million and its annual operating costs by about $500,000.

The Army could reduce its investment in inventory by about $200,000 and its annual operating costs by about $400,000.

In response to our suggestions for improving the application of the EOQ principle, the Department of Defense stated that current instructions were being revised and that they would provide firm criteria relating to deviations from the EOQ concept. The Department stated also that the cost factors would be revised and updated periodically.

Index No. 16, B-146828, July 30, 1969

NEED FOR IMPROVEMENT IN THE RECEIPT AND STORAGE OF MILITARY SUPPLIES AND EQUIPMENT—DEPARTMENT OF DEFENSE

We made a review to evaluate the effectiveness of the policies, procedures, and practices of the Department of Defense and the Defense Supply Agency for the processing, storing and recording of materiel received at major supply activities. We found that

—Many depots could not readily identify and locate materiel recently received, and in the process of being stored, which was needed immediately to fill requisitions.

—Materiel received was not stored and recorded within the time established by the Department of Defense.

—Records maintained by the depots to identify and locate stored materiel contained significant inaccuracies.

As a result, shipments of materiel to fill requisitions were delayed and increased costs were incurred to locate and account for materiel that was on hand.

We proposed that the Department of Defense

—Require that receipt-processing systems at depots provide that materiel receipts not be reported to inventory control points for posting to stock records until the goods have been placed in storage and reflected on stock location records, unless adequate techniques and data processing capabilities exist at the depots to facilitate identification and location of unstored materiel.

—Direct that management information systems be improved and used to identify delays in the processing, to ensure that receipts are stored and recorded within prescribed time standards.

—Require that depot quality-control programs be expanded and used as a means to identify and correct the causes of inaccuracies in inventory records.

The Department of Defense cited certain actions taken to effect improvements in the receipt and storage of materiel. We believe that the actions, if properly implemented, will bring about the needed improvements.

Index No. 17, B-114807, August 15, 1969

EFFECTIVENESS OF MEETING THE SUPPLY REQUIREMENTS OF OVERSEAS U.S. AGENCIES—GENERAL SERVICES ADMINISTRATION

The General Services Administration (GSA) is the primary source of supply for civil agencies and the military services for a wide range of common-use supplies and equipment items.

Our review showed that:

1. Under agreements with military and civilian agencies GSA is required to process priority groups ONE, TWO, THEE, and FOUR export requisitions within 1, 3, 10 and 12 days respectively.

2. Of 6,449 export requisitions traced through all supply point processing phases during May and June 1967, GSA Region 9 filled only 775—about 12 percent—within the prescribed processing time.

3. Region 9's low effectiveness, in our opinion, could be attributed to the fact that operations were not geared to meet the supply demands of U.S. agencies overseas.

4. There was a need to (a) revise certain operating policies and procedures, (b) improve the management information system, (c) exercise management controls over the use of high-priority requisitions, and (d) reevaluate the supply source processing time standards.

To the Administrator of General Services we made several proposals to improve Region 9's export supply operations and to provide a higher level of supply effectiveness to U.S. agencies overseas. In general GSA management was receptive to our suggestions and took actions to carry them out.

Index No. 18, B–132989, September 9, 1969

POTENTIAL FOR SAVINGS BY REDUCTION OF AIRCRAFT ENGINE PROCUREMENT, DEPARTMENTS OF THE NAVY AND AIR FORCE

We made a review of the method used by the Air Force and the Navy to compute spare aircraft engine requirements. Our review was undertaken primarily to evaluate the adequacy and reasonableness of the requirements computations—common to both services—supporting their planned spare aircraft engine procurements for fiscal year 1969. The Army was not included in our review because at that time the Army was using a method different from that of the Air Force and Navy.

We found that the method used by the Air Force and Navy for computing the requirements included two factors—the depot stock factor and the safety factor—which were duplicative and provided quantities of engines to meet similar or identical contingencies. The purpose of the safety factor was to provide spare engines if order and shipping time were exceeded or the repair cycle took longer than planned. The depot stock factor was not supported by studies but, based on the explanations we obtained, its purpose was to provide for essentially the same types of contingencies.

We estimated that elimination of the depot stock factor could have reduced the planned procurement for fiscal year 1969 by about 200 engines valued at about $35 million. Future needs could be correspondingly reduced. We proposed that the Secretary of Defense

—Direct appropriate officials to reevaluate the need for the duplicate factors.

—Take prompt action to reduce the planned procurement of engines by the quantities attributable to the duplicate factors.

The Department of Defense stated that, in its opinion, the contingency factors in question were not duplicated and that notwithstanding its position on the duplication of the contingency factors, it was exploring another method of computing requirements for space aircraft engines.

Our analysis of the Department's reasons for believing the factors in question were not duplicative did not support the Department's position. Accordingly, we recommended that the Secretary of Defense reconsider the position taken on our proposals.

Index No. 19, B–157373, January 14, 1970

IMPROVEMENTS NEEDED IN THE MANAGEMENT OF AIRCRAFT MODIFICATIONS—DEPARTMENT OF THE ARMY

Aircraft are modified to make them safer, more effective, operationally compatible with newer equipment, and easier to maintain. The Army spent about $120 million for kits, parts, and tools for modifying aircraft during the fiscal years 1965 through 1968. We reviewed the procedures and techniques used in Army management of its aircraft modification program.

In many cases, modifications—including those classified as being urgent—were not applied promptly. For example, an urgent modification work order involving safety of the aircraft was issued in February 1967; however, a year later the Army record showed that 223 of the 1,650 affected aircraft had not been modified. As late as August 1969, 24 were still unmodified and 17 of the unmodified aircraft had been flown an average of 75 hours in that month.

The volume of modification work orders resulted in work loads beyond the capacity of maintenance activities. More effective management review of proposed modifications was needed to ensure that work loads could be accomplished within the specified time.

The Army found it necessary to procure more modification kits than were required on a one-for-one basis for aircraft because of apparent loss of kits

by local using units. Also, modifications were delayed in some instances because kits were not received in time for economical installation concurrently with overhaul of the aircraft.

We recommended that

—The Army require responsible commanders to specifically justify delays in modification work.

—Adequate controls be established to ensure that no modification work order is approved unless a statement of all prerequisites for completion of the work as well as anticipated penalty for nonadoption of the modification is prepared and reviewed.

—Recommendations for management of aircraft modifications, as presented by Army Aviation Systems Command officials to Army Materiel Command and Army Deputy Chief of Staff for Logistics, be given immediate attention by the Army.

—The Army improve management controls to ensure that officials who are responsible for significant modification programs have continuous visibility of the status of modification work order kits from the time the contractor delivers them to the time they are used.

We also made other recommendations to improve management of modification kits and their timely use.

The Army implemented the third of our four recommendations. The Army took no position on the other three recommendations pending completion of its own study and of a joint study of the subject being performed by the three military departments.

Index No. 20, B–144239, February 27, 1970.

OPPORTUNITIES FOR IMPROVING MANAGEMENT OF EXCESS PROPERTY TRANSFERRED TO THE MILITARY AFFILIATE RADIO SYSTEM—DEPARTMENT OF DEFENSE

The Military Affiliate Radio System was established by the Department of Defense (DOD) to provide auxiliary communications to military, civil, and disaster relief officials on a local, national, and international basis during periods of emergency. Generally, the System handles a large volume of quasi-official messages and phone calls for the morale of military and U.S. Government civilian personnel throughout the world. Units of the System operate within each of the military departments. The System includes radio stations, clubs, and operators, both civilian and military.

Transfers of excess and surplus Government property are made to the System on a priority basis primarily to supplement and improve capability of member stations. We made a review to ascertain the validity of the System's requirements for transferred property and the adequacy of its controls over the property.

During fiscal year 1968, the Army, Navy, and Air Force Military Affiliate Radio System organizations acquired excess and surplus Government property originally costing $56 million. Substantial quantities of the property were not needed by the organizations that acquired them but were needed, in many instances, by other Government agencies. The Military Affiliate Radio System exercised little control over either the property acquired and held in its warehouses or issued to individual members. Equipment was issued to individual members without consideration of their needs, or their ability to use certain types of equipment, and to former members no longer entitled to receive it.

We recommended that the Office of the Secretary of Defense establish adequate procedures and controls that would

—Limit the transfer of excess and surplus property to the Military Affiliate Radio System to only that property which is needed and can be used by member stations to improve their operating capability.

—Provide adequate accountability for excess and surplus property transferred.

—Require accountability over property issued to members and recovery of property from former members.

—Promote increased emphasis by management review groups, including internal auditors, on review of Military Affiliate Radio System activities.

DOD concurred in our conclusions and recommendations and advised that more effective, uniform procedures would be developed for the acquisition, distribution, and use of Government property by the System and that action had been taken to increase the surveillance of the operations of the System by management review groups.

Index No. 21, B–161319, March 9, 1970

EXAMINATION INTO THE TRANSFER OF 52 FEDERAL SUPPLY CLASSES FROM THE DEPARTMENT OF DEFENSE TO THE GENERAL SERVICES ADMINISTRATION

On July 1, 1967, stocks valued at about $19.5 million and representing 52 Federal supply classes were transferred by the Department of Defense (DOD) to the General Services Administration (GSA).

We reported that:

1. Our inventory tests at selected DOD depots after the 52-class transfer showed substantial quantity differences between GSA's recorded inventory and actual stocks on hand. After we brought these discrepancies to GSA's attention, DOD took physical inventories at several depots and compared their counts with GSA's inventory records. These comparisons showed that stock valued at about $3.8 million had not been recorded on GSA inventory records and therefore were "lost" to the supply system.

2. Subsequent physical inventories showed additional stocks valued at about $1.2 million that had not been recorded on GSA inventory records.

3. During the period in which the stocks were "lost" to the supply system GSA purchased identical stocks at a cost of $44,000 and did not, in some cases, fill requisitions for GSA-managed items on a timely basis, because it did not know that the items were on hand.

We recommended that the Chairman of the joint DOD/GSA Material Management Review Committee take action to ensure that:

1. Transfer procedures adopted as a result of our report to the Congress in May 1967 (B–161319) are adequately implemented.

2. Physical inventories based on up-to-date stock locator records are taken of all stocks to be transferred.

3. Periodic physical inventories are made of stocks remaining in the custody of the transferring agency and all resulting changes are transmitted to the managing agency.

4. GSA's inventory records show all GSA-managed stocks stored at DOD depots.

The Administrator of General Services and the Director, Defense Supply agency, agreed with our recommndations. They advised us that additional management controls would be applied to future transfers to ensure that past difficulties were not repeated.

Index No. 22, B–160682, April 21, 1970

NEED TO IMPROVE MILITARY SUPPLY SYSTEMS IN THE FAR EAST—DEPARTMENT OF DEFENSE

In our follow-up review of the responsiveness and economy of supply systems supporting military forces in the Far East, we found that the military services have continued to support adequately military units in the Far East—particularly the combat forces in Southeast Asia. However, we noted that the supply systems in the Far East, as well as the supporting systems in the continental United States, continue to be costly and inefficient.

We pointed out that (1) substantial imbalances between inventory records and stocks on hand resulted in part from the high volume of changes in item identification data; (2) significant inventory excesses and shortages existed because inappropriate methods and incorrect data were used to compute stock requirements; (3) inadequate controls over reparable items resulted in failure to recover, repair, and reuse expensive components and equipment; and (4) the large volume of unnecessarily high-priority requisitions were causing costly shipment of supplies and equipment.

As a result of our findings and recommendations, the military services have taken corrective action which to date has resulted in identifiable savings of approximately $49.5 million.

Index No. 23, B–114807, May 22, 1970

OPPORTUNITIES FOR SAVINGS THROUGH THE ELIMINATION OF NONESSENTIAL STOCK ITEMS—GENERAL SERVICES ADMINISTRATION

We reported that:

1. The General Services Administration (GSA) did not have either an effective program for the elimination of inactive and low-demand stock items or the data necessary to implement an effective elimination program.

2. An analysis of information extracted from GSA's automatic data processing system showed that:

a. There were over 15,000 items in the stock system for which less than six orders were received during fiscal year 1969.

b. No orders were received for about 6,275 of the items during that period.

c. The value of inventories of the 15,000 items exceeded $15 million.

3. Because of the rapid increase in the number of items in the GSA stock system, the implementation of a program to identify and eliminate inactive and low-demand items becomes increasingly important for purposes of efficiency and economy.

4. GSA had made little progress in eliminating uneconomical items from the stock system primarily because responsibility had not been effectively assigned.

We proposed that GSA implement effective programs to delete nonessential items from the stock system.

GSA agreed with our proposal and advised us that programs had been implemented to identify and to delete inactive and low-demand stock items.

Index No. 24, B–146828, May 28, 1970

POTENTIAL FOR REDUCING INVENTORY INVESTMENTS IN THE DEFENSE SUPPLY AGENCY THROUGH IMPROVED COMPUTATION OF STOCK NEEDS—DEPARTMENT OF DEFENSE.

The General Accounting Office reviewed the policies, procedures, and practices applied by the Defense Supply Agency in determining stock needs. Emphasis was placed upon identifying ways to improve computation of stocks needed to minimize accumulation of excess material.

At December 31, 1968, over $250 million worth, or about 23 percent of the stocks managed by three of the five Agency centers were excess to all known military needs. We found that substantial portions of these excess stocks accumulated because (1) Defense Supply Centers erroneously treated requisitions for "one-time needs" as repetitive, (2) projected future requirements were based, in part, on requisitions that customers had requested be canceled, (3) purchases were being made without considering all stocks on hand, and (4) lead times for obtaining new stocks were not based on actual experience. As a result, substantially more stock was procured than necessary, much of which will be disposed of eventually as surplus and at a substantial loss to the Government.

We proposed that the Agency revise its procedures for determining stock levels at all Centers to ensure that customers' demands are properly identified as recurring, nonrecurring or a special requirement, and that all assets on hand are considered before purchases are made. We also proposed that large and unusual orders be validated by customers and that actual procurement lead times be substituted for the standard lead times in requirements computations.

The Department of Defense, in responding to our draft report, attributed excess inventories to a multiplicity of causes and stated that changes were being made to reduce inventory investments, and the accumulation of excess stocks. For example, the Agency is installing a new computer system and uniform data processing procedures at all inventory control points. We believe that the new computer system and revised procedures, if carefully supervised during their installation and early operational phases, should help improve the management of the Agency's inventories.

Index No. 25, B–160274, February 6, 1968

POTENTIAL SAVINGS IN PROCUREMENT OF PETROLEUM PRODUCTS FOR USE BY NAVY CONTRACTORS

Our review showed that substantial annual savings could be realized if the Navy would furnish to its contractors the petroleum products used by them

in the testing of aircraft and aircraft engines instead of permitting the contractors to supply these products as a part of their contracts.

Our review was made at three plants where estimated requirements represented about 86 percent of the total petroleum needs of Navy aircraft and aircraft engine contractors. We estimated that during 1964 the Navy paid two of the contractors about $229,000 more than it would have paid if the products had been furnished to the contractors. We estimated that about $250,000 and about $400,000 could have been saved in 1965 and 1966.

With regard to the third contractor, our review showed that the contractual arrangements in effect were different and that the resulting profit rate was considerably less.

The Navy advised us that, in the case of one of the contractors, substantial savings might be realized if the Government were to furnish the petroleum products or, alternately, if a change in the contractual treatment of these products were negotiated and stated that negotiations were taking place.

With regard to the second contractor, the Navy stated that the savings would be small and that it was to be the overall advantage of the Government for the contractor to continue to furnish the petroleum products. Although the potential savings are not substantial, the Navy should consider negotiating new arrangements with the contractor.

Therefore, in the case of this contractor and other contractors under similar conditions, we recommended that the Navy consider negotiating new contractual arrangements.

Index No. 26, B-159868, June 4, 1968

NEED TO INCREASE COMPETITION IN PROCUREMENTS OF ANTHRACITE COAL BY THE U.S. ARMY FOR USE IN EUROPE

We reviewed the procurement of anthracite coal by the Army in fiscal years 1962 through 1967. The coal involved was mined in the United States and was procured by the Army from European importers under negotiated fixed-price contracts awarded on a competitive basis.

On the basis of our findings, we concluded that the competition was not sufficiently effective to ensure the lowest price to the Army. The contractual practices followed by the Army permitted the sources of supply to be limited almost entirely to one American exporter. The exporter, in turn, procured the coal from only a limited number of producers. The use by the Army of unduly restrictive specifications also limited competition.

The major anthracite suppliers have, under the provisions of the Webb-Pomerene Act, entered into agreements among themselves to set prices and allocate quantities of coal for export and ultimate sale to the Army. The general policy of most of the larger American anthracite suppliers is to offer their coal only to a certain coal export company. This company advised us that it purchased coal for the Army procurements only from members of the Anthracite Export Association—an association representing the larger anthracite producers—although there are other producers, not members of the association, that are qualified to meet specifications of the Army.

Because of these arrangements, the company was the only exporter in position to furnish enough coal to meet total needs of the Army. Furthermore, the exporter's quotations to European importers were conditioned on their purchasing from the exporter all of their requirements for the Army procurements. Members of the Anthracite Export Association, when participating in these procurements, furnished statements that, under the provisions of the Webb-Pomerene Act, they were not required to submit unqualified certifications of independent price determination. Therefore what little competition existed was limited to the importer functions where the costs generated—principally transportation costs—represented only a small fraction of the total cost of the coal to the Army.

Also, we found considerable evidence that the Army's specifications for ash content and ash-softening temperature may be more restricted than necessary and may have limited competition.

In response to our findings, the Army stated that, for the fiscal year 1969 procurement, offerors would not be permitted to claim exemption under the Webb-Pomerene Act from certifying that prices proposed were arrived at independently. The Army stated also that tests were being conducted by the Bureau of Mines to determine the minimum quality of coal which can be used economically

in Europe, that the tests would be completed in August 1968, and that the results of the tests would be considered in the specifications for the fiscal year 1970 procurement.

Index No. 27, B–133396, June 25, 1968

NEED FOR MORE COMPETITION IN PROCUREMENT OF AERONAUTICAL SPARE PARTS—DEPARTMENT OF DEFENSE

In response to the expressed interest of the Subcommittee on Economy in Government of the Joint Economic Committee, Congress of the United States, we made a Defense-wide survey of the procurement of aeronautical spare parts. We found that problems we had previously identified as restricting competition in procurement continued to require management attention and correction. In addition, many of the procurements reported by procuring activities as having been made competitively had not, in our opinion, been made under competitive conditions.

The Department of Defense advised us of the following corrective measures:

—Procedures were being revised to provide for earlier reviews of items to determine whether they could be procured competitively.

—A management reporting system would be established to document reasons for procurement without competition.

—A means for coordinating interservice spare-parts procurement was under study.

—Rules for reporting procurement actions had been revised.

—Aggressive action would be taken to correct the technical data deficiencies revealed by our survey.

Index No. 28, B–163379, January 10, 1969

USE OF THE SECOND-PHASE METHOD OF CONTRACTING—A METHOD THAT DOES NOT ENCOURAGE MAXIMUM PRICE COMPETITION—GENERAL SERVICES ADMINISTRATION

Under the General Services Administration's (GSA) second-phase method of negotiating Federal Supply Schedule (Schedule) contracts, GSA requests suppliers of similar items to submit prices at which they are willing to sell their products to the Government. GSA then affords those suppliers which had submitted higher priced offers an opportunity to meet the lowest price offered to GSA. Those suppliers which agree to meet the lowest price are awarded a contract and included on the Schedule for the item. Federal agencies then may procure their requirements for the item at the same cost from any supplier of that item listed in the Schedule.

In addition to the commodities previously reported on, we found that GSA was using the second-phase method in establishing contracts for three additional commodity groups—sound-recording and instrumentation tapes, heavy duty electrical batteries, and lithographing plates. We believe that:

1. The use of formal advertising was practical for many of these items because Federal specifications had been established and there was a sufficient number of suppliers to permit effective competition for the Government's requirements.

2. For the remaining items, the opportunity for GSA to obtain fair and reasonable prices would be enhanced if independent negotiations were conducted with each potential supplier.

We recommended to the Administrator of General Services that GSA:

1. Discontinue the use of the second-phase method of contracting.

2. Take the necessary steps to use formal advertising in establishing Schedule contracts where practical.

3. Use independent negotiations in establishing Schedule contracts for items that are not susceptible to formal advertising.

The Administrator of General Services advised us in August 1968 that GSA agreed that formal advertising should be used in establishing Schedule contracts whenever practical and feasible. The Administrator advised us further that existing Federal specifications for the above-mentioned three commodity groups were not adequate for competitive procurement and that until such time as specifications could be appropriately revised, GSA planned to award future Schedule contracts for these commodities through independent negotiations. In October 1968, GSA advised us that progress had been made in the development of specifications adequate for formal advertising.

Index No. 29, B-162394, February 5, 1969

REQUIREMENTS CONTRACTING AND OTHER ASPECTS OF SMALL PURCHASES IN THE DEPARTMENT OF DEFENSE

About 70 percent of the Department of Defense (DOD) procurement efforts are spent on a large number of transactions for small purchases—supplies and related needs in amounts which do not exceed $2,500. Although small purchases accounted for more than two-thirds of all DOD procurement transactions in fiscal years 1966 and 1967, they amounted to only 4 percent of the total DOD procurement dollars. Procurement regulations provide various methods for making small purchases. We undertook a review to consider whether one such method—requirements contracting—would be more economical than frequent small purchase transactions, and to evaluate the performance of certain other small purchase operations.

A requirements contract provides for filling all purchase requirements for specific supplies during a specified contract period, with deliveries to be scheduled by timely placement of orders upon the contractor. The advantages of requirements contracting are twofold. It permits supplies in storage depots to be maintained at lower stock levels, and provides a means of obtaining lower unit prices through purchases in larger quantities.

The military departments generally were not accumulating sufficient information concerning small purchases (volume of purchases by Federal Stock Class and by vendors) to serve as a basis for determining the most economical and appropriate procurement methods. We found that at those purchasing activities where such information was being accumulated, and was being used to contract for estimated annual requirements, favorable prices were being obtained and administrative costs were reduced. We expressed the opinion that substantial savings could be realized if this practice were more commonly used.

We recommended that the Department of Defense:

—Accumulate information on the volume of purchases at selected installations for selected commodities as a basis for ascertaining the most beneficial procurement method.

—Provide further guidelines to installations for determining when a requirements contract or some other method would be appropriate for procurement of a particular commodity or class of items.

In response, the Department stated that a test was being conducted which might provide a basis for anticipating the needs for requirements-type contracts and that our recommendations would be considered further at the conclusion of the test.

Index No. 30, B-156556, March 11, 1969

REVIEW OF CERTAIN MANAGEMENT CONTROLS OF THE QUALITY ASSURANCE SYSTEM FOR THE APOLLO PROGRAM—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Quality assurance is a planned and systematic pattern of all actions necessary to provide adequate confidence that the end items will perform satisfactorily in actual operations.

Our review showed that:

1. The Headquarters Apollo Reliability and Quality Assurance Office of the National Aeronautics and Space Administration (NASA) had not fully carried out its responsibilities for seeing that adequate manned space flight center plans were prepared, reviewed, and issued.

2. One of the three manned space flight centers which should have issued three quality assurance plans had not issued any. The two other centers had issued plans which did not contain all the established requirements.

3. Some prime contractor quality assurance plans either had not been approved on a timely basis or had not been approved at the time that our fieldwork had been completed.

4. NASA Headquarters had not made any audits of the quality assurance activities at the three manned space flight centers until May 1967—almost two years after the requirement for audits had been established.

5. Although audits of contractors quality assurance activities had been made by all three manned space flight centers, only one center was continuing to make periodic audits.

In our opinion, the objectives and benefits that were expected by NASA management with the issuance of the Apollo Reliability and Quality Assurance

Plan were not being fully realized because many of the requirements applicable to the two areas of the Plan were not being implemented or were not being implemented in the manner called for by the Plan.

We proposed to the NASA Administrator that a special study be made of the Apollo Quality Assurance Program with particular emphasis on:

1. Assessing the adequacy of recent actions by Apollo Program management to obtain more complete implementation of the program requirements for plans and audits and, where necessary, recommending any further actions required to ensure the necessary compliance.

2. Reviewing and evaluating the extent of compliance with other important requirements of the Apollo Reliability and Quality Assurance Plan.

We were advised by NASA that it had established a special study team to review the Apollo Reliability and Quality Assurance Plan.

Index No. 31, B–159463, April 17, 1969

NEED FOR IMPROVEMENT IN PROCURING AND STOCKPILING JEWEL BEARINGS—DEPARTMENT OF DEFENSE, DEPARTMENT OF COMMERCE, GENERAL SERVICES ADMINISTRATION, AND OFFICE OF EMERGENCY PREPAREDNESS

The William Langer Jewel Bearing Plant, Rolla, North Dakota, was established by the Government in 1952 as a Government-owned, contractor-operated domestic source of jewel bearings used in defense items to eliminate dependency upon foreign sources of supply which could be cut off in the event of war. The Langer plant is a mandatory source for jewel bearings contained in items purchased by the Government and for jewel bearings purchased for the national stockpile. Because available information indicated that the plant was not being fully used, we made a survey of the purchasing and stockpiling of jewel bearings with the objective of examining into compliance with the mandatory-source requirements and the adequacy of the existing stockpile to meet its objectives.

We found that there was a need for:

—Better enforcement of the mandatory requirement for the purchase and use of the bearings produced in the plant.

—Greater compliance with the requirement for the use of military-standard-size bearings.

—Review of the adequacy of the jewel bearing stockpile.

We proposed that:

—The mandatory-source requirement included in contracts for purchases over $2,500 be extended to purchases under $2,500 when the item being purchased is a jewel bearing or a mounted jewel bearing.

—Instructions be issued explaining the bases for granting waivers of the mandatory-source requirement.

—Current military standards for jewel bearings be studied and updated where appropriate and the Armed Services Procurement Regulation (ASPR) be revised to point out the need to use military-standard bearings.

—The jewel bearings in the stockpile be analyzed to determine whether they are applicable to military end items currently in use and can be used in the event of mobilization.

The agencies involved expressed agreement with certain of our proposals. The Department of Defense, however, did not agree with our proposal that the ASPR be revised to point out the need to use military-standard bearings. We recommended that the Department reconsider its position on this matter.

In June 1969, the Assistant Secretary of Defense (Installations and Logistics) advised us that the Department of Defense, after reconsidering its former position against including a statement in ASPR 1–315 on the policy with respect to the adoption of military standard bearings in military products, has decided that such inclusion may indeed be helpful in bringing to the attention of contractors and subcontractors the conditions under which adoption of the standard bearings is required as well as the benefits to industry, government, and the taxpayer if standard bearings are adopted voluntarily before the conditions for mandatory adoption occur. The Assistant Secretary indicated this will be a part of the revised ASPR 1–315.

Index No. 32, B-162839, April 25, 1969

POTENTIAL SAVINGS BY IMPROVING EVALUATION OF COMPETITIVE PROPOSALS FOR OPERATION AND MAINTENANCE CONTRACTS—DEPARTMENT OF THE AIR FORCE

We reviewed the procedures of the Air Force for evaluating competitive proposals in the award of negotiated contracts for the operation and maintenance of the Ballistic Missile Early Warning System (BMEWS), the Distant Early Warning Line (DEW Line), and the White Alice Communication System.

At the time of award of contracts for the operation and maintenance of the three systems, the Department of Defense (DOD) was prohibited by law from awarding such contracts for more than a 1-year period. A yearly award to a different contractor, selected through competitive negotiation, involves changeover costs (hiring and training of new personnel and obtaining required security clearances) each year. To reduce such costs, the Air Force was retaining competitively selected contractors for a 3-year period. The competitive selection of contractors was based on the price proposals for only the first year of the 3-year period—in line with DOD policy that contractors' proposals for subsequent years not be considered in awarding contracts for the first year.

This method gave the incumbent contractors a significant advantage over competitors. For example, had the Air Force been permitted to consider each offeror's first-year proposal combined with option prices proposed for the second and third years, it would have been found that the proposal of a competitor for the BMEWS contract, rather than that of the incumbent contractor, was the more favorable. About $8.8 million might have been saved by award of the contract to the competitor.

We suggested that, where there is reasonable certainty that (1) the options for the second and third years will be exercised and (2) failure to consider the option prices for the second and third years would result in substantially increased costs. DOD should explore the means to amend, or deviate from, its policy. DOD advised us that revisions to its policy were being considered.

On July 5, 1968, the President signed legislation (Public Law 90-378) that authorized certain contracts for services and incidental supplies to extend beyond 1 year (multiyear contracts).

The legislation is applicable to contracts awarded for services or incidental supplies outside the United States that are funded by 1-year appropriations and therefore is applicable to the operation and maintenance contracts of the type discussed in our report. This legislation should help alleviate some of the problems in the negotiation and award of such contracts.

In June 1969, the Assistant Secretary of Defense (Installations and Logistics) advised us that the Department's option policy was considered by the Armed Services Procurement Regulation Committee and that a revised policy providing for the evaluation of options under certain conditions was issued and published in Defense Procurement Circular No. 68.

The Assistant Secretary stated that the enactment of Public Law 90-378 authorizing multi-year procurements of services outside the United States has been implemented in ASPR 1-322 and published in Defense Procurement Circular No. 64. The Assistant Secretary indicated this method of procurement for services to be preferable to single-year contracts with options for the following years.

With regard to our suggestion that standard procedures for estimating phaseout cost be developed, the Assistant Secretary stated that this matter was considered by the Armed Services Procurement Regulation Committee. He indicated the Committee initially concluded that the computation of phaseout costs would vary significantly in each case and that estimating such costs was a matter of judgment. Therefore, it did not appear feasible to describe detailed procedures for use in this area. The Assistant Secretary stated that a reconsideration of this matter is being undertaken by the Committee, based on a recent LMI study of service contract methodology. He indicated the primary purpose of this effort will be to develop additional guidance for service contracting.

Index No. 33, B-39995, July 14, 1969

EVALUATION OF TWO PROPOSED METHODS FOR ENHANCING COMPETITION IN WEAPONS SYSTEMS PROCUREMENT—DEPARTMENT OF DEFENSE

The Chairman, Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, asked that we evaluate two methods, proposed by individuals

outside of the Department of Defense, for improving competition in procurement by the Department of Defense of weapons systems, components, spare parts, and related items. The two methods are referred to as "parallel undocumented development" and "directed technical licensing."

Parallel undocumented development—This method implies sustaining two or more contractors well into the period of engineering development—which normally is not done—and provides for competitive award and pricing of production on the basis of demonstrated prototypes instead of relying heavily on paper studies, plans, and proposals. Under this method, documentation ordinarily required by the Government for procurement, support, maintenance, and other purposes would be deferred—except for the data essential to the deveolpment process itself—until one of the production contractors is chosen.

We expressed the opinion that this procurement method has merit as an acquisition strategy for advanced weapons systems, subsystems, and other military goods which (1) have probable technological or strategic uncertainties or which intend to penetrate state-of-the-art frontiers (2) are to be produced in quantity, and (3) have a low or moderate ratio of development cost to total acquisition cost.

This procurement method is favored because it offers credible expectation that

—Rival performance of physical hardware can be tested and compared more effectively before a decision is made to go ahead with production.

—The cost overrun problem should diminish because contractors would not be forced to price out manufacturing costs before critical unknowns had been dispelled and a product made clearly visible.

—More than one design approach could be appraised.

It should be easier to back away from doubtful design concepts before heavy investment in the designs.

It should provide flexibility in the face of changing threats and accelerating technology and the design could be revised or canceled before the Government and the contractor are overcommitted.

There should be stimuli to creativity at work so that more innovations and breakthroughs may be achieved.

The competition would be analogous to the commercial market place in that contractors should seek to excel in manufacturing economies and achieve superior reliability, maintainability, and operating cost effectiveness in their competing products since these factors would help determine the winner.

We suggested that certain of the programs of the Department of Defense, in early development and under consideration by the Armed Services Committees, may be candidates for competitive prototyping under austere conditions. Some programs mentioned were the F–15 fighter aircraft, the Subsonic Cruise Armed Decoy (SCAD), and the AX close support aircraft. The extent to which such programs should be prototyped through initial flight testing as opposed to a fully integrated systems engineering development is a matter for considerable technical judgment. Where the situation is unclear, appropriate congressional committees may wish to obtain such judgments from independent experts.

Directed technical licensing.—This method proposes a clause for insertion in the early development contract allowing the Government to reopen competition for subsequent or follow-on production, select the winner, and appoint him as licensee. It is aimed at obtaining competition which is ordinarily very difficult to achieve, in the reprocurement of technological hardware. In return for royalty and technical assistance fees, the licensor would then provide the winner with manufacturing data and technical assistance to help the licensee produce successfully.

The main objectives of this method are attractive: competition to be reopened at reprocurement time and the Government role as an intermediary in transferring technical knowledge from one firm to another to be diminished. We expressed the opinion, however, that, despite its imaginative approach to the problem of transferring technology from one firm to another, this method posed problems which seem to evade a workable solution. Some of the problems include:

Motivating the contractors to cooperate.

Setting the magnitude of the fees.

Protecting trade secrets adequately.

Securing straightforward bidding procedures.

In addition to our evaluation of the two methods for improving competition in our procurement, we offered the following observations for consideration of the Congress and the Department of Defense.

—Multiple high-technology advances should not be sought simultaneously in a single weapon system when early deployment is contemplated, except in response to a sudden and grave threat to the Nation.

—Competitive prototyping is opposed in some quarters on the grounds of extra cost and time. If this point is correct—and there is no hard evidence either way—the increased cost will appear at the beginning of the program. Reduced procurement outlays should follow with confidence that the new device will perform its intended function. Also, cancellation or modification at the prototype stage would be much less costly than at the stage of advanced production.

—Because of funding and time constraints associated with major weapon systems, the tendency may be to limit use of the parallel undocumented development method of procurement to smaller less complicated hard goods. This would miss the point. The cost or feasibility of successful production of such items is not so uncertain as to cause enormous miscalculation of expenditures as in the case of high-risk major weapons systems.

—Major hard goods for which parallel prototyping is impractical should be competed further into engineering development before the single source is selected. Uncertain subsystems, at least, should be considered for competitive prototyping.

—The acquisition strategy to be used is one that best fits the kind of article to be procured. Its particularities, and the degree of risk involved. To help prevent the use of the wrong acquisition strategy and to moderate the impact of time and funding constraints, there should be a carefully designed decision-guide to identify the various acquisition strategies, lay out the features and characteristics of each, and show the most practical procurement situations for their use.

—The amount and kinds of documentation required and deferrable during development should be reexamined.

—Overemphasis on price competition at the outset of the development of technological hardware—the time of greatest uncertainty—may lead to underestimated cost and subsequent overruns.

Index No. 34, B–163874, July 15, 1969

REASONABLENESS OF PRICES QUESTIONED FOR BOMB AND HAND GRENADE FUZES UNDER THREE NEGOTIATED CONTRACTS—DEPARTMENT OF THE ARMY

We reviewed three contracts, awarded by the Army to a contractor for production of ammunition fuzes, to examine into the reasonableness of the prices negotiated subject to the provisions of Public Law 87–653—the Truth in Negotiations Act. The act requires contractors to submit cost or pricing data and to certify that such data are accurate, complete and current. We found that the prices negotiated for two of the three contracts included

—Estimated materiel and labor costs that were $3,499,800 higher than indicated by cost information available to the contractor but not made known to the Army.

—Estimates totaling $1,587,200 for anticipated price increases, for production lot losses, and for scrap and rework for which the contractor had no factual support.

The Army agreed with our proposal that it seek appropriate recoveries under the defective pricing data clauses of the contracts and stated that it had made demand on the contractor in the amount of $4,022,570 under these two contracts—$3.499.800 for overestimated material and labor costs plus $522,770, a portion of the unsupported costs of $1,587,200. The contractor advised the Army of its intent to appeal the Army's decision to the Armed Services Board of Contract Appeals.

Our review of the third contract showed that the target costs negotiated for materiel were $227,100 higher than warranted. Unless the target costs and target profits are adjusted, the Government would incur increased costs of $123,650 under the incentive provisions of the contract. The Army stated that it would take action to negotiate a reduction of $227,100 in the target costs.

Subsequent to the negotiation of these contracts, Defense regulations were revised to emphasize that contracting officers require contractors to submit, either actually or by specific identification, the available factual cost information in support of noncompetitive proposed prices expected to exceed $100,000. Contracting officials were also required, generally, to request evaluations of such proposed prices. Defense procurement management officials are currently reviewing practices of procurement activities to ascertain whether procurement regulations are understood, are complied with, or need further clarification.

Index No. 35, B-165767, August 25, 1969

OPPORTUNITIES FOR INCREASED SAVINGS BY IMPROVING MANAGEMENT OF VALUE ENGINEERING (DESIGN OR MANUFACTURING SIMPLIFICATION) PERFORMED BY CONTRACTORS—DEPARTMENT OF DEFENSE

In 1963 the Department of Defense established a value engineering program—defined as a systematic and creative effort to simplify the design and manufacture of products in order to obtain the lowest over-all cost to the Government—to provide for sharing with contractors the cost reductions resulting from changes to specifications and other contract requirements. The program is implemented by the use in contracts of one or two value engineering clauses—an incentive clause or a program requirement clause. The incentive clause merely encourages the contractor to submit value engineering change proposals. The program requirement clause obligates the contractor to conduct value engineering at an agreed upon level of effort for which the contractor is fully reimbursed. These clauses offer the contractor a share in cost reductions ensuing from approved change proposals. The Department of Defense reported that its share of cost reductions through value engineering was about $170 million for the five fiscal years through 1968.

We found that many of the contracts with the incentive clauses had not produced the desired results in that some contractors were not stimulated to develop proposals to reduce costs even though they would share in the cost savings. We expressed the belief that new techniques were needed to stimulate the contractors and that the value engineering performance of contractors could be improved if the Department of Defense officials identified the specific program most susceptible to value engineering and suggested to contractors that they concentrate their efforts on those programs.

We found that the administration of the value engineering program by the military departments could be improved and strengthened by

—Processing of contractors' value engineering proposals on a more timely basis.

—Informing the contractors in clear and concise language of the reasons for rejecting proposals.

—Modifying certain policies which tend to restrict value engineering effort.

—Incorporating accepted value engineering product changes promptly into concurrent related contracts.

—Evaluating results of value engineering effort under clauses requiring contractor effort so that potential cost savings may be applied in other contracts or in logistic support areas.

We proposed that the Secretary of Defense establish guidelines for identifying contracts or programs having substantial value engineering potential and establish savings goals for these programs in order to stimulate participation by contractors. We also made a number of other proposals to improve administration of the value engineering program.

Index No. 36, B-39995, December 3, 1969

IMPROVEMENTS NEEDED IN NEGOTIATING PRICES OF NONCOMPETITIVE CONTRACTS OVER $100,000 ON THE BASIS OF CONTRACTORS' CATALOG OR MARKET PRICES—DEPARTMENT OF DEFENSE

We examined negotiated contracts in amounts of over $100,000 to ascertain whether determinations of Department of Defense (DOD) officials—that negotiated prices were based on catalog prices of commercial items sold in substantial quantities to the general public—and related policies seemed to adequately carry out the objectives of Public Law 87-653. In accordance with the law, in such cases procurement officials normally rely on the competitive forces of market rather than cost or pricing data in determining whether proposed prices are fair and reasonable. We estimated that contract awards based on contractors' catalog prices probably have exceeded $1 billion annually.

In our review of 68 such contracts, we found that contracting officers had obtained a copy of the contractor's catalog or price list for each of the contracts prior to award at the catalog price. However,

—For 45 of the 68 contracts, the contracting officers had no record of having obtained factual information from contractors showing the quantity of commercial sales during a specific recent period.

—For 23 of the 68 contracts, the contracting officers had obtained contractors' sales data but had verified the data for only nine of the contracts.

DOD policies and criteria did not provide specific guidance with respect to the amount of commercial sales that should be considered "substantial." This has led to acceptance of diverse and/or seemingly minor amounts of commercial sales as "substantial." In this connection, the Renegotiation Act establishes for standard commercial items a specific percentage of commercial sales to total sales for determining whether the items are subject to the Renegotiation Board's profit review.

In some instances the largest individual commercial sales were in substantially smaller quantities than those purchased under the individual DOD contracts. Under these circumstances, there was no assurance that the prices paid by the Government for the quantities purchased would have been paid by commercial buyers of comparable quantities.

DOD has improved its guidance with respect to types of data to be obtained from contractors prior to the award of catalog- or market-priced contracts. However, it has not provided any new guidance as to how the data are to be used.

We recommend that DOD

—Provide more definite criteria for determining what constitutes substantial sales to the general public. In this connection, consideration should be given to establishing criteria similar to those for standard commercial items in the Renegotiation Act.

—Revise the Armed Services Procurement Regulation to require evidence, as a condition for acceptance of a catalog price, of recent individual commercial sales in quantities approximately similar to the proposed quantities for purchase by the Government.

—Consider requiring contracting officers to (1) obtain a certification from the contractor that the sales data being submitted are complete and accurate, (2) include a provision in each proposal and any resulting contract which would permit Government representatives to examine the contrator's pertinent books and records in order to verify the information submitted in support of the proposal, and (3) verify sales data obtained from the contractors.

DOD stated that it was undertaking a more thorough study of the adequacy of its catalog pricing policies and practices. With respect to our recommendations. DOD stated that it did not consider (1) the establishment of a specific percentage of commercial sales to be an appropriate ground rule for catalog price determination and (2) the criteria in the Renegotiation Act for standard commercial items to be analogous to the bases for substantial sales to the general public at catalog prices.

Index No. 37, B–118710, December 11, 1969

QUESTIONABLE PRICING OF CONTRACTS NEGOTIATED FOR URGENTLY NEEDED BOMB BODIES—DEPARTMENT OF THE NAVY

Early in 1965, because of the Vietnam conflict, there developed an urgent demand for general-purpose bombs. During the calendar years 1966–7, the Navy awarded contracts for the production of 4.5 million 250- and 500-pound bomb bodies. Firm fixed-price negotiated contracts amounting to about $472 million were awarded to six contractors. The contracts were subject to the Truth-in-Negotiations Act (Public Law 87–653) which provides that contractors be required to submit cost or pricing data and to certify that such data are accurate, complete, and current.

We examined into the prices negotiated in 34 procurements totaling about $343 million. Our examination was directed to evaluating the reasonableness of significant estimates, accepted by the Navy, in relation to cost data available to the contractors at the time of each negotiation.

We found that the prices could have been reduced by millions of dollars if the Navy had

—Required the contractors to submit, or identify in writing, accurate, complete, and current cost or pricing data in support of cost estimates included in price proposals.

—Made adequate reviews and evaluations of the factual data available to the contractors in support of the estimates.

More specifically, we found that

—Prices negotiated for 33 procurements totaling $309 million were higher by about $13.9 million than indicated by cost or pricing data available to the contractors prior to each of the negotiations.

—Prices negotiated for 12 procurements totaling $172 million included cost estimates of about $46 million for which sound and realistic cost or pricing data were not available.

—Navy contracting officials had not requested preaward audits for eight of the 34 procurements. Where the Navy requested such audits, it imposed time restrictions which limited the scope of the audits in several instances.

Since the time limitation and the absence of realistic cost data precluded adequate documentation of the contractors' proposals and agency audits, we believed that the Navy should not have used firm fixed-price-type contracts.

We proposed to DOD that it consider our findings, as well as any additional information available to DOD, to determine the extent of the Government's legal entitlement to price adjustments with respect to these procurements. The Navy agreed and stated that actions had been started to make the determinations we had proposed.

The Navy did not believe that it could recover the amounts included in firm fixed prices for unsupported cost estimates which had been accepted by both parties to accommodate the risks of production. The Navy stated that, at the time of awards, there was an emphasis by DOD officials on the use of firm fixed-price contracts to the maximum extent and there was an overzealous application of this high-level policy pronouncement by contracting officials. DOD has since recognized this over-reaction and has issued instructions concerning the misuse of firm fixed-price contracts.

DOD'S procurement management review group has reviewed the practices of its offices responsible for ammunition procurement and has noted procurement practices that need improvement similar to those we noted. Also, the Defense Contract Audit Agency has performed postaward audits of 20 ammunition contracts for defective pricing and has reported defective pricing in some instances.

Index No. 38, B–162394, December 17, 1969.

OPPORTUNITIES FOR MORE EFFECTIVE USE OF AN AUTOMATED PROCUREMENT SYSTEM FOR SMALL PURCHASES—DEPARTMENT OF THE NAVY

As of June 30, 1968, the Navy Aviation Supply Office (ASO) was responsible for the management of over 323,000 different aeronautical spare parts and assemblies. During fiscal year 1968 it processed about 93,000 small-purchase transactions—purchases under $2,500 each—totaling about $72 million. About 70 percent of these transactions were processed by automation. We reviewed the policies, procedures, and practices followed by ASO in operating the automated procurement system to determine whether more effective use of the capabilities of the system could be realized in processing small-purchase transactions.

We observed that the system could be improved by programming the automated equipment to

—Assist buyers in making price analysis of small purchases.

—Solicit quotations from all known supply sources.

—Consolidate requirements.

—Make maximum use of basic ordering agreements (BOAs). (A BOA is a written understanding with a contractor which describes goods or services that might be purchased from the contractor and provides a method for pricing them.)

—Process many of the small purchases that continue to be processed without the aid of automation.

We also noted a lack of comprehensive reviews of the automated system by audit groups of ASO, Navy, or Department of Defense.

During our review ASO made changes in its automated system which should help ensure that requirements for like items are consolidated and that sole-source requirements are placed, as applicable, under existing BOAs.

We suggested that ASO (1) consider programming the automated system to perform price analyses, solicit all known supply sources, and process other small purchases, and (2) provide for a periodic review of the operation of the system so that management can be informed of problem areas. In view of the present and potential use of automated procurement systems by other activities and the need for improvements in the existing system at ASO, we further suggested that the Secretary of Defense establish programs to monitor the implementation and improvement of automated procurement systems.

The Navy and the Department of Defense advised us of actions taken or planned by them which were generally responsive to our suggestions.

Index No. 39, B–165006, January 9, 1970

PRICES NEGOTIATED FOR ROCK-CRUSHING PLANTS FOR USE IN THE REPUBLIC OF VIETNAM—DEPARTMENT OF THE ARMY

In 1966 the Army procured, at a contract price of $3.5 million, eight rock-crushing plants for use in Southeast Asia road construction activities. The procurement was noncompetitive and subject to the Truth-in-Negotiations Act (Public Law 87–653) for submission of certified cost or pricing data. We reviewed the reasonableness of the price negotiated in relation to available cost information.

At the time of negotiations, cost information was available to the Army that the price proposed by the contractor was too high—by about $528,000. The contractor would not agree, however, to any discussion of the cost elements supporting its proposed price and no reduction was negotiated. The Army contracting officer was aware that the price was higher than indicated by available cost or pricing data and, under procurement regulations, was required to refer the matter to higher authorities in the Army before agreeing to the contract price. This, he did not do. In addition, it appears that the Government's right to a price adjustment under Public Law 87–653 has been impaired since the price was not negotiated on the basis of cost information submitted by the contractor.

The contractor stated to us that it believes the contract price was fair and reasonable and that it had negotiated fully and completely with the Army.

Although the price exceeded the cost of performance by about 35 percent, the contractor sought to avoid a determination of excessive profits by the Renegotiation Board on the grounds that rock-crushing plants qualify for an exemption in the Renegotiation Act with respect to sales of new durable productive equipment. The Renegotiation Board denied the exemption. However, the contractor can appeal the matter to the Tax Court.

We recommended that the Secretary of Defense emphasize to procurement officials the need for reporting to top officials, as required by Defense regulations, proposed procurement at prices considered to be unreasonably high, because of a contractor's refusal to negotiate. Had the regulations been followed in this case, top Army officials would have been alerted to consider whether other actions were desirable before the price was agreed upon.

The Army stated that the requirement, for contracting officers to report to higher authority situations where contractors refuse to negotiate, was not applicable in this instance because the contracting officer did not anticipate, at the time a letter contract was awarded, the problems which arose three months later during the price negotiations. Subsequently, however, Department of Defense officials stated that this requirement would be applicable whenever a final price is negotiated.

In March 1970, the Assistant Secretary of Defense (Installations and Logistics) in response to our recommendation, advised us that the upper levels of management in the Departments are available and ready at all times to consider and assist in the resolution of problems that arise in the field activities. He indicated that these matters are generally referred to higher echelons in the Departments when a resolution of the problem cannot be accomplished by the subordinate activity.

The Assistant Secretary stated that, considering this practice, the Department of Defense is of the view that the present case is not representative of a widespread problem warranting special emphasis, as our recommendation suggests.

Index No. 40, B–161366, February 25, 1970.

INCENTIVE PROVISIONS OF SATURN V STAGE CONTRACTS—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The National Aeronautics and Space Administration (NASA) incorporated about $26.2 million in incentive provisions into the S–IC and S–IVB stage contracts to accelerate delivery of these stages. In our opinion the incentives were not needed because:

1. Early delivery of the stages could have been obtained without additional payments to the contractors.

2. Adoption of air transportation for the S–IVB stage provided the desired scheduled acceleration.

3. Manufacturing of the S–II stage was at least 5 months behind schedule and had thus provided the additional time for testing and solving prelaunch checkout problems on the S–IC and S–IVB stages, which NASA stated it was attempting to obtain through the use of incentives.

4. Delivery of the stages for certain vehicles ahead of schedule was not consistent with an earlier decision to delay delivery of these stages.

NASA did not agree with our findings and conclusions and stated that the early delivery incentives reduced costs, permitted mission adjustments, and would keep total program costs to the minimum obtainable. However, in October 1969, NASA and the Department of Defense issued a joint incentive contracting guide that describes improved incentive contracting techniques. With respect to scheduled incentives, the new guide suggests that, usually, it is not advisable to provide rewards in order to advance delivery schedules and that, generally, penalty-only incentives are the most appropriate means of ensuring delivery on schedule.

Index No. 41, B–133170, March 19, 1970

WEAKNESSES IN AWARD AND PRICING OF SHIP OVERHAUL CONTRACTS—DEPARTMENT OF NAVY

Although about 90 percent of the value of initial award packages for ship overhauls was awarded under advertised contracts, the circumstances under which the awards were made were not conducive to keen price competition because

—The Navy's policy of having ships overhauled at or near home ports reduced the number of prospective bidders.

—The number of shipyards that could do certain types of overhauls was limited to the few that had capabilities for handling all sizes of vessels.

—The specialization of contractors within the ship repair market narrowed the choice of firms.

When such competitive constraints prevail, advertised procurement methods be used only when there are other assurances that prices are fair and reasonable. The Navy tried to get this assurance by making its own estimates and comparing them with bids submitted, but the Navy apparently lacked confidence in the reliability of its own estimating system and placed little reliance on the results of the comparisons.

As a rule, substantial additional work was added to the initial award package after a contract was awarded. The price for the additional work was generally negotiated on a sole-source basis because the ship was immobilized in the contractor's yard and it was impractical to solicit competition. This placed the Government in a disadvantageous bargaining position. The Government's disadvantage was further increased because

—Prices for the additional work were frequently negotiated after the work had been completed without knowledge by the Navy of the costs incurred.

—In the case of changes affecting the work called for in the initial award package, the Navy had no way of knowing what adjustment should be made in the initial award price.

—Considering the short period of contract performance (generally 90 days), the Navy's procedures did not seem adequate to handle the tremendous volume of changes in a timely manner.

We proposed to the Secretary of the Navy that

—Invitations for bids require contractors to submit itemized bids and that this information, together with Navy estimates, be used to develop histories that would provide a basis for identifying and resolving difference between bid prices and Navy estimates.

—Firm determinations be made as to the adequacy of competition obtained and the reasonableness of the bid prices and that, when the bid prices are significantly higher than the Navy's estimates and the differences cannot be justified, the bids be rejected and an attempt made to negotiate prices.

—The many low-dollar change orders be negotiated by Navy representatives stationed at contractors' shipyards at the time the work is authorized.

—Should it become necessary to negotiate after the work is completed, it seems reasonable that the Navy use the same cost information, as a basis for negotiation, as that available to the contractor.

The Navy agreed substantially with these proposals and stated that corrective action either had been taken or was planned. The Navy stated further that future contracts would include a clause requiring contractors to furnish itemized costs after completion of the work and that such cost information would be used to establish a data bank for evaluating bids on future overhauls.

Index No. 42, B–167714, May 6, 1970

RENTAL RATES FOR BARGES USED IN THE REPUBLIC OF VIETNAM INCLUDED COSTS PREVIOUSLY RECOVERED BY CONTRACTOR—DEPARTMENT OF THE ARMY

We reviewed the pricing of four negotiated contracts, totaling about $8.7 million, for rental of barges in Vietnam. The contracts were awarded to Luzon Stevedoring Corporation (Luzon), the Philippines, by the U.S. Army Procurement Agencies, Japan and Vietnam.

Daily rental rates were negotiated for barges that included Luzon's costs for towing the barges to Vietnam from the Philippines and returning them. The towing costs already had been provided for, and recovered, in rates negotiated under prior contracts for a number of the barges already in service in Vietnam.

We estimate that the Army could have saved $664,000 (1) had the towing costs been provided in the contracts as a separate item to be paid once for each barge to be delivered to Vietnam and (2) had such costs been eliminated from the daily rental rates. We believe that a critical analysis by Army officials of Luzon's cost estimates would have disclosed the charges for costs already recovered.

We recommended that the Secretary of Defense:

—Consider whether the Government is legally entitled to price adjustments under the terms of the four contracts.

—Review the rental rates negotiated on a noncompetitive basis under other contracts with Luzon and with other companies supplying barges, tugs, and other vessels in Vietnam; ascertain whether towing costs that had already been provided under previous contracts were included in daily rental rates and, if so, determine whether the Government is legally entitled to price adjustments.

—Negotiate towing costs as a separate item to be provided once for each piece of equipment in continuous service and not include such costs in the rental rates.

The Army has stated that it reviewed the rental rates negotiated under the four contracts in question. It will ask for voluntary refunds on two of the contracts and is also currently determining whether a refund can be obtained from the contractor under the defective pricing data clauses of the other two contracts. If such refunds are not attainable, voluntary refunds will be solicited. In addition, the Army is reviewing two other contracts with Luzon to determine whether a basis for price adjustment exists.

Index No. 43, B–164217, Aug. 5, 1968

FEASIBILITY OF CONSOLIDATING MILITARY REAL PROPERTY MAINTENANCE FUNCTIONS ON OAHU, HAWAII, AND IN THE NORFOLK, VIRGINIA, AREA—DEPARTMENT OF DEFENSE

We examined into the feasibility of consolidating the eight separate real property maintenance activities operated by the military services on the island of Oahu, Hawaii, and the 16 in the area of Norfolk, Virginia. These locations were selected for examination because the relatively limited geographical areas involved contained a large concentration of military installations and facilities.

Based on our examination, we concluded that consolidation of the maintenance activities at each of the two locations was feasible and would result in economies. We estimated that the consolidations would result in:

Annual savings of about $3.4 million in operating costs ($2.4 million on Oahu; $960,000 at Norfolk);

Annual savings in an indeterminate amount in replacement costs for equipment; and

Release of equipment valued at about $2.2 million for possible use elsewhere ($1 million on Oahu; $1.2 million at Norfolk).

We proposed that the Secretary of Defense consider consolidating real property maintenance organizations on Oahu and in the Norfolk area, each under a single manager, with supporting subactivities, as appropriate. We proposed also that the Secretary conduct studies at other locations having large concentrations of military installations to ascertain the feasibility of consolidation. We cited

New Orleans, Los Angeles, San Francisco, New York, and Washington, D.C., as examples of such concentrations.

In response, the Assistant Secretary of Defense (Installations and Logistics) advised us that his office had established an interdepartmental committee, under the Department of the Navy, to develop measures for effecting maximum consolidations on Oahu, at Norfolk, and at other locations of highly concentrated military installations. We were further advised that the committee was establishing local interdepartmental committees on Oahu and at Norfolk.

The guidelines provided the local committees indicated that the installation commanding officers involved would decide the extent of consolidation. In our report we recommend that decisions as to the extent of consolidation of real property maintenance activities be made on the basis of independent studies and that such decisions be made binding on the installations involved.

Local committees were established in 24 areas and their survey reports have been submitted to the Office of the Secretary of Defense which is in the process of requesting action by the local committees to implement certain recommendations they had made in their report.

Index No. 44, B–133044, September 9, 1968

NEED TO IMPROVE REVIEWS OF DRAWINGS AND SPECIFICATIONS PREPARED BY ARCHITECT-ENGINEERS BEFORE SOLICITATION OF HOSPITAL CONSTRUCTION BIDS—VETERANS' ADMINISTRATION

Our review showed that as of August 31, 1967, contract prices for construction of a hospital at Memphis, Tennessee and one at Long Beach, California (together with alterations to existing buildings at Long Beach) had been increased by about $804,000 and $269,000, respectively, because 479 change orders were negotiated under the two contracts.

We reported that:

1. Of 479 change orders, 181 involving work costing $655,800 had been issued because (a) VA's reviews of drawings and specifications submitted by the architect-engineers (A–Es) had not disclosed numerous errors and omissions, and (b) changes in plans were made after construction had started upon recommendation of hospital officials not previously consulted.

2. Errors and omissions probably were not detected because, as the result of conflicting submissions of other drawings and specifications for other hospital projects, the reviewers spent less time than was authorized for the reviewing process.

3. In addition to increased construction costs, administrative costs increased because change orders required the development of details, negotiation of prices and the processing of papers.

4. Advantages of competitive bidding were lost when major changes were made to specifications after the contract was awarded.

5. VA did not have (a) written procedures and/or requirements for the scheduling of submissions and reviews of drawings and specifications prepared by A–Es, or (b) written procedures regarding the method or techniques to be followed in making reviews.

6. Hospital officials of the hospital which was to be replaced were not allowed to participate in reviews of A–Es drawings and specifications during the design of the new hospital.

Veterans' Administration concurred in general with our proposals in respect of our findings and the Associate Deputy Administrator of Veterans Affairs directed that specific actions be taken to bring about improvements in the construction program.

Our review also showed that:

1. There was a need for VA to revise a construction standard with respect to the specific location of graphic control centers in all future hospital construction.

2. A study should be made to determine the architectural and economical feasibility of relocating the graphic control center in the main machine room of the Atlanta hospital because of a possible annual operating saving of $35,000.

We were advised that VA has taken steps to revise the construction standard and that it was planning to relocate the graphic control center at the Atlanta hospital.

Index No. 45, B-156818, October 23, 1968

INCREASED COSTS TO THE GOVERNMENT ATTRIBUTED TO LEASING RATHER THAN PURCHASING LAND AND BUILDINGS BY DEPARTMENT OF DEFENSE CONTRACTORS

We found that the leasing by contractors of land and buildings to be used almost exclusively in the performance of Government contracts resulted in greater costs to the Government than would have been the case if the facilities had been purchased by the contractors. Had the facilities been purchased, acquisition costs recoverable by the contractors would have been limited to the amount of depreciation. Our review of this matter as it related to the land and buildings at 20 locations of 17 major contractors showed that, by the end of the initial periods of the leases at the locations we reviewed, the additional costs to the Government could amount to about $55.8 million. If all renewal options are exercised, the additional costs could amount to as much as $99.3 million.

The decision to lease or purchase rests with the contractor. However, because contractors stand to gain by leasing or, in some cases, at least avoid the risk attendant on ownership, we believe that contractors may be swayed toward a course of action more costly to the Government since equal treatment is accorded costs associated with either course of action in negotiating profits and fees.

The weighted guidelines of the Armed Services Procurement Regulation for the negotiation of contractors' profits or fees do not make appropriate distinction between owned and leased facilities and therefore do not offer any motivation to contractors to select the method of acquisition most economical to the Government. We suggested to the Department of Defense, that, in negotiating profits and fees, consideration be given to the methods used by the contractor in acquiring real property for use under Government contracts.

The Department of Defense is considering new guidelines for negotiating profits and fees which will give consideration to the contractor's investment in facilities.

In December 1969, the Armed Services Procurement Regulation was revised to provide that (1) rental costs under long-term (more than 5 years) leasing are allowable only up to the amount the contractor would be allowed had he purchased the property unless he can demonstrate that long-term leasing will result in less cost to the Government, and (2) that rental costs under short-term (5 years or less) are allowable if reasonable.

Index No. 46, B-159451, November 13, 1968

U.S. CONSTRUCTION ACTIVITIES IN THAILAND, 1966 AND 1967—DEPARTMENT OF DEFENSE, DEPARTMENT OF STATE, AND AGENCY FOR INTERNATIONAL DEVELOPMENT

Military construction activities in Thailand were started in 1956. Initial dollar input was small. In recent years, however, the size of the program has increased dramatically. In early 1966, in anticipation of large increases in construction work, the Department of Defense (DOD) mobilized two cost-reimbursable contractors from the United States. By June 30, 1967, an estimated $165 million worth of construction had been assigned to these contractors.

The Thailand construction program was beset by constant changes in the scope of work. The General Accounting Office believes that the following matters might not have arisen had there been better management, as shown below.

After programming $19.8 million in January 1966 for the construction of a complete tactical air base to be operational by January 1967, DOD reevaluated the need for the project. In fact, in the same month that the cost-reimbursable contractor began mobilizing from the United States to build a complete base, the aircraft deployments intended for this location were deferred and funding was curtailed to the extent that most of the facilities necessary to the support of these aircraft could not be built. As a result of numerous changes in construction plans, a $15.2 million "bare base," consisting essentially of an unlighted runway and related airfield pavements, was built.

In order to use this base for one limited training exercise—its main use since being completed—the Air Force brought in from another base ground personnel, fuel, communications equipment, fire protection, and maintenance facilities. Normally, only a security detail is stationed at this location.

Reductions in the construction program left the two U.S. contractors with significant amounts of excess materials and equipment on hand. Redistribution

of these items may not be possible due to a 1956 agreement with the Thai Government, which provides that all U.S.-owned equipment and materials on hand at the completion of military construction projects revert to the Thai Government.

Costs of approximately $1.3 million had been incurred as of November 30, 1966, for various architectural and engineering services which we found to be of little or no value because of deletions or changes to the projects programmed for construction.

—The contractors were purchasing items locally that were available at significantly lower prices from U.S. sources. In some cases these local purchases did not result in any better delivery times. In other cases there did not appear to be an urgent need for the items.

—The Air Force used architectural and engineering contract personnel at a cost of about $1.2 million when civil employees could have been used at less cost.

We did not make specific recommendations in this report. However, opportunities for improved management of operations and increased efficiency were indicated in the report.

These matters were immediately brought to the attention of the Navy's Officer in Charge of Construction in Thailand during the initial review. Corrective action was taken on a number of matters within his cognizance prior to our follow-up review.

Index No. 47, B–133316, February 18, 1969

POLICIES, PROCEDURES AND PRACTICES FOR DETERMINING REQUIREMENTS FOR MILITARY FAMILY HOUSING AND BACHELOR OFFICER AND ENLISTED QUARTERS—DEPARTMENT OF DEFENSE

We made a survey of the policies, procedures, and practices of the Department of Defense in determining requirements for family housing and bachelor officer and enlisted quarters. Our survey was directed toward arriving at an informed opinion as to the general reliability of the studies, conducted by military installations, which formed the basis for the fiscal year 1968 request to the Congress for authorization and funds to build additional accommodations at specific locations.

We found that, although the family housing studies of the installations included in our survey were complex and, in our opinion unnecessarily costly, the results of the studies were of questionable validity, principally because a proper evaluation had not been made of existing available housing in nearby communities. For example, we identified about 950 vacant rental units that met Department of Defense criteria in the vicinity of the Naval Air Station, Alameda, California, and of the Naval Supply Center and the Naval Hospital, Oakland, California. This was about 600 more units than the 332 units identified in the studies of the three installations. Furthermore, according to the Federal Housing Administration, there were about 15,800 vacant rental units at that time in the counties in which the three installations are located.

We found also a variety of lesser shortcomings in the studies which added to the unreliability of the results of the family housing studies.

Our survey also showed a need for improvement in the determination of requirements for bachelor quarters. We found instances where need for construction of additional quarters had been determined (1) without adequate consideration of quarters available at a nearby installation or the housing facilities available in the community, (2) on the basis of questionable classification of existing quarters as being unsuitable—including permanent-type structures completed in recent years, and (3) on the basis of overstated projections of future personnel strength.

The military audit agencies and the installation internal review groups were generally not conducting independent audits and checks of the requirements for family housing and bachelor quarters at the installations included in our survey.

We recommended to the Secretary of Defense that:

—Procedures be revised to provide more comprehensive studies of the availability, both current and prospective, of private housing in the community.

—The military departments be required to establish a program for training key personnel in the policies, procedures, and practices to be followed in family housing surveys.

—The family housing surveys be simplified.

—The requirements computations made by installations for family housing and bachelor quarters be given appropriate attention by the military audit agencies.

The Assistant Secretary of Defense (Installations and Logistics) agreed, in general, with our conclusion that the determinations of requirements were in need of improvement and outlined corrective actions along the lines we recommended. He did not agree, however, with our conclusion that the studies which formed the basis for the fiscal year 1968 program were of questionable validity.

SUBSEQUENT DEVELOPMENTS

Following the issuance of our report to the Congress in February 1969, the Assistant Secretary of Defense (Installations and Logistics) sent a letter to the Comptroller General dated May 6, 1969. The purpose was to reaffirm the principal statements contained in the comments to the draft report and to offer a few additional comments. The Assistant Secretary reiterated his disagreement with our overall conclusion that DOD's Fiscal Year 1968s request was of questionable validity principally because a proper evaluation was not made of community support at certain of the bases we reviewed.

During the 2nd and 3rd quarters of Fiscal Year 1969 an audit of selected aspects of the family housing program including determination of housing needs was made at 33 installations. It was performed by the internal audit agencies of the Army, Navy and Air Force under the guidance of the Defense Deputy Comptroller for Internal Audit. The report was issued on July 31, 1969.

With respect to requirements, the report summary of findings reads:

"1. There were many weaknesses and deficiencies in conducting the 1968 family housing survey. These related to several procedural areas such as monitoring and editing of the questionnaires, inspecting housing, and considering local community existing and potential assets. *Taken collectively, the results of the survey and the housing requirements derived therefrom were questionable and raise doubt as to the reliability of the data from all installations.*" (Italic supplied.)

FURTHER ACTION TAKEN OR PLANNED

In the near future we plan to conduct another review of the policies, procedures and practices used to determine requirements for personnel housing. The purpose will be to determine whether the deficiencies noted in our review have been corrected.

Index No. 48, B–133044, June 6, 1969

NEED FOR VETERANS' ADMINISTRATION TO ACQUIRE HOSPITAL SITES BEFORE DEVELOPING WORKING DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION OF HOSPITALS

We reported that our review showed that, for seven VA hospital projects, VA had authorized architect-engineers to start the development of working drawings and specifications for the construction of hospital buildings before it acquired the selected hospital sites even though such documents are fully useful only for the construction of buildings on the sites for which the designs were prepared. For two of these hospital projects, the working drawings and specifications, which were developed at a cost of about $1.6 million, will have limited or possibly no use in the construction of these projects principally because VA has been unable to acquire the selected hospital sites.

The report pointed out that VA had not established a firm policy of requiring that hospital sites be acquired before starting the development of working drawings and specifications. The VA did not agree with our proposal that it establish such a policy so as to prevent the occurrence of situations similar to those discussed in the report.

PROBLEMS IN THE ADMINISTRATION OF THE MILITARY BUILDING PROGRAM IN THAILAND—DEPARTMENT OF DEFENSE

Appropriations for military construction in Thailand amounted to about $395 million from fiscal year 1965 through fiscal year 1969. We found that the organizational structure established to administer the program in Thailand was not adequate to enforce Department of Defense (DOD) policies regarding austere construction and to coordinate the siting of proposed construction projects. As a result.

—The types and costs of personnel housing differed substantially from DOD-prescribed austerity standards. Some of the housing projects cost an estimated $3.3 million more than they would have cost had DOD standards been adhered to.

—The lack of coordination among the various organizations responsible for base development in Thailand resulted in mistakes in the selection of project sites and in wasted design costs.

We suggested that, in future military construction programs of the nature of the Thailand program, the Secretary of Defense establish a single authority, sufficiently staffed, to ensure that all facets of the program are adequately coordinated and controlled.

The Deputy Assistant Secretary of Defense advised us that, as a result of lessons learned in Southeast Asia, a central organization and control such as that employed in Vietnam is advocated in the DOD published guidance. He advised us further that, in consonance with this policy, the Commander, U.S. Forces, Korea, had been provided with authority to exercise strong, centralized management and direction of the current construction program in Korea.

Index No. 50, B–146782, September 30, 1969

IMPROVEMENTS NEEDED IN THE MANAGEMENT OF GOVERNMENT OWNED AND LEASED REAL PROPERTY OVERSEAS—DEPARTMENT OF STATE

The Secretary of State has had the authority to acquire real property abroad since the passage of the Foreign Service Buildings Act in 1926. When title cannot be acquired by purchase, authority is granted to permit acquisition of leaseholds of not less than 10 years. Leases for less than 10 years have been authorized under separate legislation.

The Secretary is also authorized to alter, repair, and furnish such buildings. The Office of Foreign Buildings Operations (FBO) carries out these responsibilities for the Secretary.

The Department reported that, as of December 31, 1968, approximately $272.6 million was invested in 1,588 Government-owned and long-term-leased real properties and that 4,752 properties were leased for short-terms at an annual rental of about $22.8 million.

A number of areas in the foreign buildings program need improvement.. These include:

—management controls of the program;

—accumulation of Government-owned property not currently required but retained for a remote future need;

—coordination of the acquiring of building designs with the construction program;

—management practices over Government-owned property;

—alterations and improvements on short-term-leased property;

—definitive criteria for capitalizing alterations and improvements to Government-owned property;

—accurate and informative real property records and reports, and

—internal audit surveillance.

We have made 14 recommendations to the Department which we believe may strengthen the administration and management of the Foreign buildings program.

Actions have been initiated or are planned which will meet the objectives of our recommendations. We plan to review at a later date the effectiveness of the actions taken.

Index No. 51, B–133376, October 22, 1969.

UNUSED ENGINEERING AND DESIGN EFFORT IN THE MILITARY CONSTRUCTION PROGRAM—DEPARTMENT OF DEFENSE

We reviewed the engineering and design effort, expended in connection with proposed facilities, where the results of the effort were not used in connection with actual construction and the effort could therefore be considered "lost." Our review was directed to the basic causes of lost engineering and design effort and covered 72 selected projects which had indications of lost effort.

We found that, of the total design cost of $6.7 million for the projects, about $2.6 million represented lost effort. The $2.6 million included costs of about

$800,000 that could have been avoided and about $650,000 for projects that could not be constructed because construction funds were not appropriated.

We expressed the belief that the basic causes of lost effort were inadequate preliminary planning and insufficient coordination between the using activity and the design agency. We pointed out the need for (1) improved preliminary planning by the installations requiring the facilities, and (2) closer coordination between the installations and the design agencies before initiating design work and throughout the design phase. We suggested also that the design agencies of the military departments strengthen their procedures for the identification, accumulation, and reporting of lost engineering and design effort.

The Department of Defense stated that each of the military departments had taken steps to improve preliminary planning and to provide closer coordination between the user-installation and the design agency. The Department stated further that it would develop necessary procedures for identifying, accumulating, and prompt reporting of lost engineering and design effort.

Index No. 52, B–167400, November 5, 1969

BASIS FOR DETERMINING NEED FOR CONSTRUCTION OF MESS HALLS IN THE DEPARTMENT OF DEFENSE

We made a review of the policies, procedures, and practices of the Department of Defense in determining requirements for mess halls for enlisted personnel. Our review was directed toward examining into the utilization of existing mess halls and the effectiveness of the planning for, and the determination of, requirements for new mess halls.

We found that the criteria used by the military departments in computing requirements assumed that 85 percent of the enlisted personnel to be billeted in barracks on an installation would eat at the mess halls. At the five locations we visited, actual use of the mess halls was far less than 85 percent. We found also that the seating capacity of mess halls generally had been based on a 60-minute or 90-minute meal-serving period, reflecting, on an average, turnover time of 16 minutes a seat. In practice, the serving period was sometimes longer; thus the effective capacity of the mess halls was increased.

We expressed the belief that proper consideration of the actual utilization of existing mess halls at the installations we visited would have (1) prevented the unnecessary construction of two mess halls which cost about $1.4 million and (2) permitted a substantial reduction in the size of two other mess halls which cost about $2.3 million.

We suggested that—

The Department of Defense revise its criteria to provide that each installation consider the actual experienced rate of utilization of its mess halls in computing requirements for new mess halls.

The length of the meal-serving period be reviewed, when computing requirements for mess halls, to insure that it is as long as possible, consistent with installation mission requirements, and that the capacities of existing mess halls be computed on the basis of the length of the meal-serving period thus determined.

Local installation officials consider consolidating the operation of mess halls where the utilization of the existing mess halls is considerably below design capacity.

—The military departments reconsider their approved, but incomplete, mess hall projects to determine whether it is desirable and feasible to cut back or eliminate the projects on the basis of possible better utilization of existing facilities.

The Department of Defense agreed, in general, with our suggestions and advised us that

—It had adopted plans for collecting data relating to mess hall utilization and for developing revised criteria.

—It planned to develop additional controls and mandatory review procedures to ensure compliance with existing policy for consolidation or centralization of food service facilities.

—It had requested the military departments not to make any further contract awards for approved mess halls pending revalidation of the projects.

By letter dated December 1, 1969, the Department of Defense advised us that (1) several Army, Navy, and Air Force mess hall projects being redesigned at a lesser scope than originally planned, (2) review and revalidation of the

fiscal year 1970 program was continuing, and (3) the fiscal year 1971 Military Construction Program would reflect more realistic criteria. We were also advised that the reduction in costs for the projects being redesigned at a lesser scope was estimated at $3.16 million.

Index No. 53, B–167490, November 25, 1969

MANAGEMENT OF MILITARY-OWNED HOUSEHOLD FURNISHINGS OVERSEAS; OPPORTUNITIES FOR IMPROVEMENT—DEPARTMENT OF DEFENSE

The Department of Defense has household furnishings representing an investment of over $500 million, of which about $340 million worth are in overseas locations, including Alaska and Hawaii. Funds approved for procurement of new furnishings under the overseas household furnishings program have averaged about $17 million in each of the fiscal years 1967 through 1969. We reviewed the overseas household furnishings program to identify areas where management improvement appeared to be needed.

We found that each of the military departments was practically independent in managing and operating its portion of the program and that there was a need to improve centralized management of the program. At 11 installations we found that the military departments were

—Using differing and inadequate methods for determining requirements, which resulted in the accumulation of excess inventories of about $1.6 million.

—Providing different styles and finishes of furnishings, thereby hindering consolidated procurements and inter-service use of furnishings.

—Using differing methods and criteria for repairing, maintaining, and disposing of unserviceable furnishings.

We suggested that the Secretary of Defense take those actions necessary to

—Establish uniform realistic methods of computing furnishings requirements.

—Promulgate uniform criteria for determining whether to repair or replace furnishings in conjunction with a requirement for comparing the relative advantages of repairing either in-house or by contract.

—Promote procurement and use of furnishings which are alike in style, color, and finish by all installations in the same geographical area.

—Increase the use of consolidated procurements when advantageous to do so.

—Establish policies and procedures to increase interservice transfer and use of excess furnishings.

—Emphasize the need for review of household furnishings activities either by members of his own staff or by other internal audit groups.

The Department of Defense concurred in our conclusions and suggestions and stated that immediate steps would be taken in line with our suggestions.

On March 11, 1970, the Department of Defense issued instructions to the military departments which contain improved procedures on (1) the methods of computing furnishings requirements, (2) the factors to consider in determining whether to repair or replace furnishings, and (3) the reporting and redistribution of excess furnishings.

Index No. 54, B–140389, January 21, 1970

CONSTRUCTION OF INDUSTRIAL FACILITIES AT GOVERNMENT-OWNED PLANTS WITHOUT DISCLOSURE TO THE CONGRESS—DEPARTMENT OF THE NAVY AND DEPARTMENT OF THE AIR FORCE

The Department of Defense (DOD) manages 98 active Government-owned, contractor-operated industrial plants originally costing $2.2 billion for land and improvements. We noted that large additions were being constructed at some of these plants. Accordingly, we reviewed the procedures and controls relating to expansion and replacement of industrial plants and examined into acquisition of facilities constructed between late 1965 and 1968 at two Air Force and three Navy installations.

Each major addition to facilities at military installations requires congressional review and approval and is paid for out of military construction appropriations. However, major additions to facilities at Government-owned, contractor-operated defense plants are normally financed with funds from procurement or from research, development, test, and evaluation (RDT&E) appropriations. Under the latter procedure, proposed acquisitions are included as separately identified facility categories in procurement or RDT&E budget requests submitted to the Congress and the projects are sometimes individually presented to the congressional committees concerned.

We found that in some cases DOD had authorized contractors operating Government-owned plants to provide the financing for new facilities and to recover the costs involved through overhead charges against Government supply and research and development contracts over a period of years—usually 5 years. Title vests in the Government when the facilities are built. Proposed acquisition of facilities under this method are not specifically identified in budget presentations to the Congress.

At the five installations we reviewed, new buildings costing $31 million had been acquired by the Air Force and the Navy under supply and research and development contracts and financing was provided by the contractors who were being reimbursed over a period of years. We did not question the legality of these indirect acquisitions but pointed out that the lack of disclosure of such acquisitions to the Congress was inconsistent with the procedures applicable to construction projects funded directly by the Government under either military construction appropriations or procurement or research and development appropriations.

There are no specific provisions in DOD procurement regulations covering facilities acquisition by the Government through contractor financing and subsequent reimbursement of the contractor under a supply or research and development contract. Consequently DOD does not require reporting of such projects to the Congress in the budget process, nor does it provide guidance as to when this method of financing should be used.

We did not inquire into the relative economy of acquiring facilities indirectly through contractor financing as compared with acquiring facilities under the traditional method of direct financing by the Government. With respect to the financing charges, however, we noted that interest on the contractors' investment in the facilities was not charged to the Government. Also, the profit earned by the contractors on the facility costs charged as overhead over the amortization period appeared to be less than the interest cost the Government would have incurred if it had initially paid for the construction.

We recommended that the Secretary of Defense take action to revise DOD's budgetary procedures, as appropriate, to effect full disclosure in applicable budget submissions to the Congress of all proposed expenditures from procurement and RDT&E appropriations, either directly or indirectly, for construction of Government-owned facilities. We recommended also that, if it is deemed desirable to have contractors provide initial financing for Government-owned industrial facilities, the Secretary of Defense have the Armed Services Procurement Regulation (ASPR) revised, as necessary, to (1) provide clear criteria concerning when this method of financing should be employed and (2) spell out the controls to be exercised.

DOD advised us that it was reviewing its current budget policies and procedures to determine what changes may be necessary to ensure disclosure of industrial facilities acquired indirectly through other basic contracts and that it was considering whether ASPR should be revised to contain guidance in this area.

The House Committee on Appropriations, in its report accompanying the Department of Defense Appropriation Bill for fiscal year 1970, cited our findings and stated that the Committee desired that in the future all proposed major improvements to, and construction of, Government-owned facilities funded in any manner with procurement and research, development, test, and evaluation appropriations be clearly identified in budget requests.

By letter dated March 16, 1970, DOD advised us that it was revising its internal regulations to require disclosure in budget requests of all proposed industrial real property acquisitions to be financed with procurement or RDT&E funds. We were further advised that, since indirect financing was not deemed desirable, and would be precluded, it was not necessary to act upon our recommendation concerning the establishment of criteria and controls for use of indirect financing.

Index No. 55, B–118718, March 24, 1970

NEED TO STRENTHEN CONCRETE INSPECTIONS AND TESTING REQUIREMENTS IN THE CONSTRUCTION OF LOW-RENT PUBLIC HOUSING PROJECTS—DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

We reported that:

1. The Department of Housing and Urban Development (HUD) construction representatives and local housing authority inspectors did not enforce construction contract requirements regarding concrete testing to determine whether

the concrete used in the construction of low-rent public housing projects complied with contract specifications.

2. For some projects the frequency of concrete compressive-strength tests was not specified in the construction contracts, HUD did not require local housing authorities to adhere to generally accepted concrete-testing standards, even though concrete of a specified strength was required by the construction.

3. Visits to project construction sites by HUD construction representatives were relatively infrequent and of short duration. HUD regional officials stated that the construction representatives sometimes did not have sufficient time during their visits to local housing authority construction projects to make all the checks and evaluations required under HUD procedures.

We recommended to the Secretary of Housing and Urban Development that:

1. HUD's proposed revision to its construction procedures require that more effective use be made of HUD's construction representatives during their periodic visits of low-rent housing construction projects by having them place greater emphasis on determining whether the on-site inspections by the local housing authorities are adequate to ensure compliance with contract specifications.

2. HUD internal auditors schedule reviews of HUD regional office activities and controls relating to low-rent housing construction projects as an aid to management in protecting the Government's interest in such projects.

3. In the absence of specific contractual requirements for the testing of concrete, local housing authorities be required to adhere to generally accepted concrete-testing standards, unless advanced approval has been obtained from HUD for justifiable deviations from such standards.

HUD informed us that it recognized that certain administrative failures had occurred, that it would advise its regional offices to be more alert to such inspection failures, and that it would insist that greater attention be given to enforcing construction contract requirements.

HUD advised us that revised construction procedures to be issued would impress upon the local housing authorities and their architects the importance of carrying out all of their responsibilities and of fully enforcing all contract obligations, including inspections, which HUD considers to be of primary importance.

Index No. 56, B–167490, May 14, 1970

ACTION BEING TAKEN BY THE DEPARTMENT OF DEFENSE TO ACHIEVE CLOSER ADHERENCE TO ESTABLISHED POLICY FOR PROVIDING HOUSEHOLD FURNITURE IN THE UNITED STATES

Under a 1962 Bureau of the Budget policy directive, Government-owned furnishings are not, with certain exceptions, to be provided in housekeeping quarters within the United States. Several exceptions are authorized, including authority to provide (1) household equipment such as stoves, refrigerators, washers and dryers and (2) household furniture to supplement personally owned furniture.

We found that the Department of Defense (DOD) had not effectively implemented the Budget Bureau's policy. DOD had an inventory of about $114 million worth of household furniture in the United States, and had approved an average of about $6 million a year for fiscal years 1967–69 for maintenance, repair, moving, and handling of such furniture. Our tests at six military installations showed that household furniture was being maintained and provided with no assurance that the exceptions authorized by the Budget Bureau had been complied with.

We were advised by DOD officials that DOD intended to phase out the providing of furniture stocks in the United States as furniture stock were depleted through attrition. A practice of the last few years of not providing funds for procurement of new furniture was said to have reduced furniture on hand.

We expressed the belief that the DOD practice of attempting to phase out the stateside household furniture program by not buying new furniture while continuing to spend significant amounts on maintenance and repair is not the most economical and effective method of accomplishing the phaseout.

We suggested that the Secretary of Defense:

—Prescribe procedures to be followed by the military departments so that the providing and maintaining of household furniture in the United States complies with Budget Bureau policy.

Emphasize that military personnel must rely on the use of their own furniture.

—Consider transferring unneeded furniture being retained for housekeeping quarters in the United States to fill requirements for non-housekeeping quarters, and overseas housekeeping quarters.

DOD concurred and, on March 11, 1970, issued instructions to the military departments which restrict the providing and repairing of supplemental Government-owned furniture and facilitate redistribution of household furniture within the United States.

INDEX No. 57, B-118638, JUNE 9, 1970

IMPROVEMENT MADE IN BUILDING CONSTRUCTION INSPECTIONS TO DETERMINE COMPLIANCE WITH CONTRACT SPECIFICATIONS—DISTRICT OF COLUMBIA GOVERNMENT

We reported that:

1. Required and recommended tests and checks of concrete to determine compliance with contract specifications had not been made.
2. Concrete had been accepted even though tests and checks showed that it did not comply with contract specifications.
3. Required samples, shop drawings, descriptive literature, and certifications—relating to materials, equipment, and systems—used to determine compliance with contract specifications had not been received.
4. Compacted soil (fill and backfill) had been accepted even though tests showed that it did not meet specification requirements.
5. Although the District relied on its site inspectors to determine compliance with contract specifications, it had not provided them with needed guidance and test equipment.
6. The system for reporting and reviewing the results of the inspection activites needed improvement.

The Assistant to the Commissioner of the District of Columbia generally agreed with our findings and prompt action was taken to improve inspection policies and practices.,

Index No. 58, B-140389, November 24, 1967

NEEDS FOR IMPROVEMENTS IN CONTROLS OVER GOVERNMENT-OWNED PROPERTY IN CONTRACTORS' PLANTS—DEPARTMENT OF DEFENSE

We found a need for the Department of Defense to improve its system of controls over Government-owned facilities, special tooling, and material in the possession of contractors. Generally, our review disclosed weaknesses with regard to effective use of industrial plant equipment, rental arrangements, and accounting for and control of special tooling and material. Certain aspects of the work of Government property administrators and internal auditors were also in need of improvement.

We made a number of recommendations to improve the administration over Government-owned property. The Department of Defense took corrective action on most of these points. In particular, extensive revisions and additions were made to the Armed Services Procurement Regulation.

Index No. 59, B-163691, May 23, 1968

ACTION TAKEN TO PUT INACTIVE INDUSTRIAL PLANT EQUIPMENT IN ARMY ARSENALS TO USE—DEPARTMENT OF DEFENSE

We found that millions of dollars worth of industrial plant equipment—such as woodworking and metalworking machines, crane and crane shovel attachments, compressors, power and hand pumps, and electric motors—had been permitted to lie idle in Army arsenals for periods up to 10 years while similar equipment had been purchased for use elsewhere in the Department of Defense.

The Department of Defense agreed that there had been instances of Army retention of inactive industrial plant equipment for considerable lengths of time and stated that Army regulations relating to such retention were being revised.

Index No. 60, B–140389, April 7, 1970

MANAGEMENT OF GOVERNMENT INDUSTRIAL PLANT EQUIPMENT KEPT FOR POSSIBLE FUTURE USE SHOULD BE IMPROVED—DEPARTMENT OF DEFENSE

We found that the Army had retained industrial plant equipment reserved to meet production contingences, referred to as "packages", which did not meet Department of Defense (DOD) requirements. Some had the capability for more production than DOD estimated would be needed. Others did not contain enough equipment to meet planned production requirements. For others, contrary to requirements, no specific contractor or Government plant had been designated to use the packages in the production of defense items in the event of mobilization. In some cases, no requirement existed for items that the package was capable of producing.

As a result of our report, DOD is making a study of its package program, including policies and procedures for their establishment, justification, approval, retention and management, and intends to improve the program in accordance with the study recommendations. The Army has directed its Commanders to review all packages and to report to the Defense Industrial Plant Equipment Center any equipment found to be excess.

Index No. 61, B–140389, June 17, 1970

OPPORTUNITIES FOR IMPROVEMENT IN MANAGEMENT OF GOVERNMENT MATERIALS PROVIDED TO OVERSEAS CONTRACTORS, DEPARTMENT OF ARMY—DEPARTMENT OF AIR FORCE

We found that the operating contractors generally were not complying satisfactorily with the stock control provisions of their contracts and were not adequately supervised in this respect by Government property administrators.

As a result of our review about $3.8 million worth of Government material has been declared excess and available for redistribution. Further, outstanding requisitions for another $1.4 million worth of Government materials were excess to current requirements and cancelled. We found that contractors were not (1) periodically reviewing material requirements levels, (2) properly computing consumption data, (3) giving full consideration to all available stock on hand or due to arrive, (4) cancelling outstanding requisitions when found to be in excess of requirements, and (5) properly determining levels of materials to be retained for insurance purposes. Many of these unsatisfactory practices were known or should have been known by the Government property administrators responsible for monitoring the contractors' operations.

Although the primary responsibility for efficient management of Government-furnished material rests with the contractors, many of the deficiencies could have been prevented or corrected by more effective property administration by Government personnel.

We suggested that the Secretary of Defense consider increasing the size and quality of the property administration staffs and consider taking measures which would elicit more effective cooperation by contractors in the management of Government-furnished materials. We were advised that improved management efforts and training will be emphasized to increase the quality of property management, and consideration will then be given to increasing the staffing for property administration overseas.

Index No. 62, B–163136, February 26, 1968

NEED FOR IMPROVED CONTROLS IN MILITARY DEPARTMENTS TO ENSURE REIMBURSEMENT FOR SERVICES PROVIDED TO NONMILITARY AND QUASI-MILITARY ACTIVITIES—DEPARTMENT OF DEFENSE

We found that the military departments did not uniformly or consistently implement Department of Defense policy with respect to charges for services provided to nonappropriated fund activities and private interests. The practices varied among military installations. The military installations did not recover fully the costs of services provided, and they used military personnel in lieu of civilian employees for nonmilitary activities without first attempting to employ civilians.

We pointed out that the Office of the Secretary of Defense had not required military departments to issue uniform instructions and to comply fully with

Department of Defense instructions relating to such charges. Also, the military departments had not in all cases provided adequate surveillance at the installation level to ensure that charges for services, sufficient in amount for the recovery of applicable costs, were properly developed and consistently applied. Moreover, surveillance was not adequate to ensure that assignments of military personnel to nonmilitary and quasi-military activities were limited to positions of command supervision or were made only when qualified civilians were not available.

The Department of Defense concurred, in general, with our findings and acknowledged the need for added measures to improve the controls over user charges and military personnel assignments.

Index No. 63, B–118678, September 3, 1969

OPPORTUNITY FOR THE GEOLOGICAL SURVEY TO INCREASE REVENUES THROUGH CHANGES IN ITS MAP-PRICING PRACTICES DEPARTMENT OF THE INTERIOR—BUREAU OF THE BUDGET

We reported to the Congress that an opportunity exists for the Federal Government to realize additional revenues if the Geological Survey (Survey) would sell its maps at prices based on their fair market value. In the determination of its map-pricing structure, Survey has followed the practice of pricing its maps on the basis of costs essentially in accordance with that provision of Bureau of the Budget (BOB) Circular No. A–25 which deals with Government services rather than on the basis of the fair market value which is required by the circular when the Government sells property or resources.

We believe that maps are tangible commodities and that they would more properly be considered as resources or property and should not be sold at prices which are based solely on cost. Information obtained in our review indicates that the fair market value of Survey's maps is greater than the prices being charged. The potential additional revenues which could be realized if Survey sold its maps at prices based on their fair market value could be significant because of the large volume of maps sold by Survey—5 million in 1968.

The Department of the Interior disagreed with our finding. The Department is of the opinion that Survey's maps are a service and should be priced to recover essentially the cost of printing and distributing the maps.

BOB advised us, however, that it plans to undertake a review of the broader issue implied in the question raised in our report; that is, whether maps produced by Federal agencies, and probably other services or products supplied by the Government, are services or property. BOB's objective in this review will be to develop policy guidance for the pricing of services and products that may not fall clearly into either the service or product group discussed in BOB Circular A–25.

We consider BOB's planned review to be responsive to the matters discussed in our report. However, because of the potential additional cost recoveries that may be obtainable, we recommend that the Director, BOB, undertake the review as soon as possible.

Index No. 64, B–125051, October 7, 1969

NEED TO REVISE FEES FOR SERVICES PROVIDED BY THE IMMIGRATION AND NATURALIZATION SERVICE AND UNITED STATES MARSHALS—DEPARTMENT OF JUSTICE

We reported that certain fees charged by the Immigration and Naturalization Service (INS) for various services dealing with immigration and naturalization matters were not sufficient to recover the cost of these services by about $2.8 million during fiscal year 1967. Certain other fees exceeded the cost of the services by about $2.2 million during the same period.

Public Law 90–609 of October 21, 1968, in effect, authorized the Attorney General to revise all the fees charged for INS services in accordance with the Government's general policy that services provided to or for any person shall be self-sustaining to the fullest extent possible. As of June 30, 1969, none of the fees had been revised.

We also reported that statutory fees charged by the United States marshals (USMs) for serving processes (subpoenas, summonses, complaints, writs, and various other court orders) for private litigants were insufficient by about $470,000 during fiscal year 1968 to recover the costs incurred.

The INS method of computing the cost of providing services for which fees are charged needed to be revised to comply with Bureau of the Budget Circular No. A–25, Revised. Our review showed that INS's computation of the costs applicable to the services provided in fiscal year 1967 were understated by about $200,000. The Department does not develop costs for USMs' activities.

We recommended to the Attorney General that:

1. The INS fees be set at a level that will recover the cost of providing the services in accordance with law.
2. Procedures be established for determining the USMs' costs of providing services to private litigants.
3. Consideration be given to proposing to the Congress that the USMs' fees be revised to a level that will result in the recovery of the costs of providing the services or that authority for the revision of the fees be vested in the Attorney General.
4. INS be required to utilize the most current and complete information available to determine, on an annual basis, the cost of services provided for which fees are charged.

The Department of Justice officials generally agreed with our findings and recommendations and corrective actions have been planned.

Index No. 65, B–164031(2), December 12, 1969

IMPROVEMENTS SUGGESTED IN ACCOUNTING METHODS USED IN ESTABLISHING FEE FOR REIMBURSABLE TESTING AND RELATED SERVICES—FOOD AND DRUG ADMINISTRATION, CONSUMER PROTECTION, AND ENVIRONMENTAL HEALTH SERVICE, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Our review showed that the fees charged by the Food and Drug Administration (FDA) were not sufficient to provide for recovery of the full cost for testing, certification, and pesticide tolerance services because FDA, in determining the costs that were chargeable to these services:

1. Had not used reliable and sound methods for determining the applicable portions of certain costs.
2. As a matter of policy, excluded certain administrative costs.

Some costs actually applicable to the reimbursable services were paid from appropriated funds instead of being charged to the revolving fund in which the fees collected were deposited.

FDA has been developing an accounting system which, if carried out effectively, should provide the type of cost allocations needed. However, FDA has not fully devised the methods needed to put this system into effect.

We recommended to the Secretary of Health, Education, and Welfare that FDA should:

1. Give early attention to establishing an adequate basis for allocating costs chargeable to the certification and pesticide tolerance services.
2. Complete its studies of the fee structure of insulin and color additive certification, and pesticide tolerance services as soon as possible. If necessary, fees for these services should be adjusted.

The Department of Health, Education, and Welfare advised us of its belief that the new accounting system being developed for FDA would provide adequate support for fees charged.

Index No. 66, B–114859, May 28, 1970

NEED FOR SPECIFIC CRITERIA FOR ADJUSTING THE INTEREST RATE CHARGED ON INSURANCE POLICY LOANS BY THE VETERANS' ADMINISTRATION (VA)

The Veterans Administration (VA), on policy loans to veterans, has charged 4 percent interest since 1946. By law, the VA cannot charge more than 5 percent interest on policy loans under one of its insurance programs—United States Government Life Insurance.

We reported that:

1. The 4 percent interest rate did not appear to be reasonable because of the recent and substantial increases in market interest rates and in interest rates on investments of the insurance funds and the higher interest rates on loans on commercial insurance policies.
2. VA insurance program funds recently invested in Treasury securities were earning in excess of 7 percent.

3. An interest rate on policy loans which is substantially lower than market interest rates tends to encourage the policyholder to borrow his equity, and this reduces the insurance funds that can be invested in Treasury securities at more favorable rates.

4. When insurance funds are not used to make policy loans but are invested in Treasury securities having interest rates greater than those on policy loans, the interest earnings to the funds would increase and would benefit all policyholders.

5. A policy loan, to the extent not repaid, reduced the proceeds available under the policy in the event of death of the insured, and if the total indebtedness, including any unpaid interest, equals or exceeds the cash value of an insurance policy, the policy ceases and there is a complete loss of insurance protection.

In view of the reluctance of VA to adjust the interest rate, the Congress may wish to consider legislation that would:

1. Provide the Administrator of Veterans Affairs with specific criteria for the adjustment of the interest rate on policy loans.

2. Remove the statutory limitation now applicable to one program, United States Government Life Insurance, to give the Administrator the authority to establish the interest rate under this program in accordance with the criteria suggested above.

Index No. 67, B–115378, June 18, 1970

INEQUITABLE CHARGES FOR CALIBRATION SERVICES: NEED FOR ACCOUNTING IMPROVEMENTS AT NATIONAL BUREAU OF STANDARDS—DEPARTMENT OF COMMERCE

We reported that (1) fees charged to customers of the Bureau for calibration services were inequitable, (2) fees charged private industry did not include a factor for building depreciation and departmental overhead costs, and (3) the Bureau's accounting system needs to be improved to correct certain weaknesses. We commented in detail on these matters under three captions as follows:

1. *Inequitable charges to customers of Bureau calibration services*—The Bureau calibrates instruments for the Nation's scientific and industrial community—both in Government and private industry—and charges fees to recover the cost of providing this service.

Fees were inequitable and resulted in overcharges to the Department of Defense (DOD) and undercharges to private industry and other Federal agencies. During fiscal years 1966 through 1968, DOD was overcharged $806,000 of which $713,500 should have been paid by private industry.

The Bureau of the Budget and the Department of Commerce require that a charge be made to recover the cost of any services provided to identifiable members of the public when the services are above and beyond that provided to the general public.

We proposed that charges for calibration and testing services by the Bureau's Electronic Calibration Center be based on a uniform rate applied to all customers on the basis of direct labor hours. The Director informed us that, beginning in July 1969, the Bureau would adopt a system which would ensure the distribution of overhead among customers in proportion to actual direct workload. As of July 1, 1969, all Government customers are charged the same hourly rate to recover the Bureau's operating costs. We believe that this method will result in an eqiutable distribution and full recovery of overhead costs applicable to customers.

2. *Building depreciation and departmental overhead not recovered by the Bureau*—In fiscal years 1966 and 1967, the fees charged to private industry by the Bureau for calibration services did not include a factor for building depreciation and departmental overhead costs. Although a factor was included in the fees charged in fiscal year 1968, the fees were not high enough to fully recover Bureau operating costs and building depreciation and departmental overhead. In all, about $111,000 was not recovered from private industry during fiscal years 1966 through 1968. In addition, the factor is not being fully provided for under another Bureau program.

The Director of the Bureau informed us that beginning in fiscal year 1968 private industry was charged an additional 8.5 percent to cover building depreciation and departmental overhead. Although the Bureau is now including a factor for building depreciation and departmental overhead costs in its fees for electronic calibration services performed for the public, the Bureau is not fully providing for this factor under at least one of its other programs.

We recommended to the Secretary of Commerce that the Bureau ensure that user charges for services performed under all Bureau programs for private industry include a factor for depreciation of buildings and departmental overhead.

3. *Need for improvement in accounting system*—The Bureau's accounting system needs to be improved to correct the following weaknesses.

—Costs which benefit only a limited number of projects make up a significant portion of the Bureau's overhead costs which are distributed to all technical projects.

—Administrative labor costs were being distributed to projects of certain divisions located at Boulder, Colorado, inequitably.

—Unrealistic estimates of the useful life of equipment resulted in an inequitable distribution of depreciation costs among accounting periods, and in inequitable charges to customers.

—The Electronic Calibration Center was allocated more than its share of depreciation expense in fiscal year 1967.

The Director of the Bureau disagreed that there was a need for improving the accounting system in the manner recommended. The Director informed us that the Bureau had invested considerable effort in developing practical techniques for allocating costs and the system in use was similar to the cost accounting systems of private industry whereby overhead costs were distributed among productive projects according to a fixed formula.

After consideration of the Director's comments, we recommended that the Bureau be required to review its methods of allocating overhead costs and make revisions to correct methods which are inequitable or inconsistent. Specifically, the Bureau should:

(1) continue to periodically review Bureau overhead costs to remove those costs which do not primarily benefit all Bureau divisions or projects,

(2) clarify procedures to ensure that administrative labor costs will be distributed on a uniform basis,

(3) review determinations of useful life of research equipment periodically, and revise them when necessary, and

(4) allocate depreciation expenses to projects of the divisions located at Boulder, Colorado, on a more equitable basis.

Index No. 68, B–163453, May 10, 1968

NEED FOR IMPROVEMENT IN MANAGEMENT OF MISSION-SUPPORT AIRCRAFT—DEPARTMENT OF THE ARMY

We evaluated the system used by the Department of the Army to determine its aircraft requirements for (1) combat readiness training of rated officers and administrative support purposes for fiscal years 1966 through 1971, and (2) flying performed for mission support purposes during fiscal years 1965 and 1966. We found that, based on the utilization criteria established by the Department of Defense and the Army, the number of aircraft authorized at the locations we reviewed was generally about 25 percent more than the justifiable requirements. We believe that the overauthorizations resulted from the incomplete criteria and procedures prescribed and used for determining requirements and from insufficient evaluation of the justification for aircraft submitted by the user organizations.

We found also, at most of the locations we reviewed, that the transportation and traffic management policies of the Department of Defense were not being followed and aircraft were used uneconomically. The procedures in effect at the time of our review generally did not provide for a determination, as required by Department of Defense policy, of whether use of commercial or other means of transportation would be practicable and more economical.

We recommended that the Army establish an effective integrated system for managing aircraft for mission-support purposes and outlined the elements we believe should be included in such a system. The Army agreed, in general, with our recommendations and cited actions it was taking toward that end.

Index No. 69, B–164392, September 18, 1968

CONTROL OVER PROCUREMENT, USE, AND DISPOSITION OF MAGNETIC COMPUTER TAPE IN THE DEPARTMENT OF DEFENSE

At June 30, 1967, the Federal Government operated about 3,700 computers at various locations throughout the world. The Government has accumulated over

10 million reels of magnetic tape, valued at about $200 million, to serve these computers. The magnetic tape inventory of the Department of Defense—about 6 million reels valued at about $125 million—is about 60 percent of the Government-wide total. We reviewed the practices of the Department of Defense in the procurement, use, and disposition of its magnetic computer tape.

There is a need for the Department of Defense to centralize its management of magnetic tape. Although the Department has generally established centralized controls over its automatic data processing operations, it has, in our opinion, given inadequate attention to similiar controls over its magnetic tape activities. At the time of our review, the Air Force was the only service that had centralized its management of magnetic tape activities.

We found that in the absence of centralized management, local military commands had

—computed tape requirements without adequate knowledge of the quantity or condition of the tape on hand;

—procured tape with little regard to quantity discounts and other advantages of centralized procurement; and

—accumulated large quantities of used tape without testing or attempting to rehabilitate it for further use.

We found also that in some cases no specific instructions had been established for determining when tape was unserviceable, for disposing of unserviceable tape or for reporting and screening serviceable excess tape for possible use by others.

The Department of Defense was in general agreement with our proposals for corrective action. The Department advised us that

—action had been taken to screen tape for reuse;

—consideration was being given to consolidation of tape procurements throughout the Department; and

—studies would be made on the need for a uniform method of computing requirements for tape.

The need for guidance in the control and use of tape has been found necessary and is now being implemented.

Index No. 70, B–166655, July 14, 1969

STATUS OF DEVELOPMENT TOWARD ESTABLISHMENT OF A UNIFIED NATIONAL COMMUNICATIONS SYSTEM

On August 21, 1963, the President directed the establishment of a unified National Communications System (NCS) in order to strengthen the communications support of all major functions of the Government. The objective was to provide necessary communications for the Government under all conditions ranging from normal situations to national emergencies and international crises, including nuclear attack.

We found that many of the issues and problems that were hampering attainment of the objectives of the NCS were of long standing and in need of early resolution. The interest and concern expressed over the years by a number of congressional committees have not been dealt with in bringing about improvements in the policy formulation and direction of the telecommunications resources of the Government. In the more than five years that have elapsed since the President directed that the NCS be established, hundreds of millions of dollars have been expended annually in the procurement, construction, operation, and maintenance of component networks with little effective centralized direction and control.

Except for the President of the United States, there was no individual or organization in the Government with the authority, stature, and resources to provide the essential policy, direction, and control required to establish a unified system. Authority and responsibility were widely dispersed among the various departments and agencies involved. The functions of basic planning and general design control were performed largely in an agency-oriented environment rather than in an NCS frame of reference. Consequently, there was no basic plan to chart the course of the NCS from its present confederation of agency networks to the goal of a unified system. But even if there were such a plan, there was no effective or authoritative overview to ensure that agency planning and funding conformed with the plan.

We recommended that the President give consideration to a major realignment, of the existing structure and organizational arrangements of the NCS, which would establish an organization with sufficient stature, authority and resources

to provide a strong central authority as a focal point in telecommunications matters.

The Special Assistant to the President for Telecommunications assured us that our recommendation would be given thorough consideration. Other executive branch agencies and offices also recognized the need for a strengthened policy-making structure. There was, however, a diversity of opinion among them as to the organizational activity to which certain of the roles and functions should be transferred.

The Office of Telecommunications Policy was established in the Executive Office of the President on February 9, 1970, by the President's Reorganization Plan No. 1 of 1970. The Office is to (1) serve as the President's principal advisor on telecommunications policy, helping to formulate government policies concerning a wide range of domestic and international telecommunications issues; (2) help formulate policies and coordinate operations for the Federal government's own vast communications systems; (3) enable the executive branch to speak with a clearer voice and to act as a more effective partner in discussions of communications policy with both the Congress and the Federal Communications Commission. This should provide the focal point and overview which we recommended in our report.

Index No. 71, B–163762, October 15, 1969

COST REDUCTION AND MANAGEMENT IMPROVEMENT PROGRAM IN SELECTED DEPARTMENTS AND AGENCIES

We reviewed the operation of the Cost Reduction and Management Improvement Program (cost reduction program), in the Departments of Agriculture, Defense, and the Interior, Agency for International Development and General Services Administration.

Comments on the status of implementation of the programs in the five departments and agencies follow.

Department of Agriculture—Our review indicated that the Department had taken aggressive action to encourage employee participation in the cost reduction program and to disseminate program results throughout the Department. Deficiencies noted in the manner in which the program was carried out related principally to the procedures for validating claimed savings to ensure their conformance with prescribed criteria and the reporting of savings which, in the opinion of the Bureau of the Budget (BOB), had not represented true cost reduction items.

Department of Defense—The cost reduction program in the Department, initiated on a comprehensive basis in 1962 several years prior to the implementation of the program generally in the executive branch, had been aggressively implemented in all components of the Department. The policies and procedures that governed the operation of the program had been developed at the highest level of management and were outlined in several comprehensive instructions issued by the Department.

Department of the Interior—In our opinion the Department had not exercised effective management control over its cost reduction program. This opinion was based on our findings concerning (1) the reporting of savings which did not meet the criteria established in BOB Circular No. A–44, Revised, (2) the inadequate procedures for validating reported savings, and (3) the inadequate disseimination of cost reduction ideas throughout the Department.

Agency for International Development—AID had adopted a low-keyed approach to the cost reduction program, devoting a minimum of manpower and other resources to it. As a result the program was functioning at the minimum level needed to comply with the BOB requirements that each agency have a program and that semiannual accomplishments reports be submitted to the President.

General Services Administration—GSA's cost reduction program consisted of an internal program that covered management actions taken to improve the agency's internal operating efficiency and to reduce the cost of its internal operations and a Government-wide program that covered GSA's actions to improve operational efficiency and to contribute to the avoidance of expenditures in other Government departments and agencies. GSA had issued a handbook setting forth responsibilities and prescribing procedures for the organization and operation of its cost reduction program.

We made several suggestions to the five departments and agencies which we believed would strengthen and improve the operation of the cost reduction program. The Bureau of the Budget also gave consideration to a number of suggestions made by us in its latest revision of BOB Circular A–44.

Index No. 72, B–157476, December 18, 1969

MANAGEMENT OF THE LOGISTICS AIRLIFT SYSTEM CONTRACTED FOR BY THE AIR FORCE

The Air Force contracts for a logistics airlift system with commercial carriers to ship high priority cargo in the continental United States. This system, known as LOGAIR costs the Air Force about $35 million annually. Its primary function is to provide daily support for all first-line weapon systems of the Air Force. Another important function is to provide support to Air Force bases in remote areas which lack adequate commercial transportation. We made a review of the management of LOGAIR by the Air Force.

We found that the cargo capacity requirements for LOGAIR were not forecast accurately. On some routes, more capacity was scheduled than needed; on others, less was scheduled than needed. We also found that cost of day-to-day operations could be reduced by—

—Establishing controls to encourage prompt revisions to existing routes thereby avoiding the costs of chartering extra flights to provide additional capacity.

—Reducing the number of flights to some stations.

—Using truck service instead of LOGAIR service between stations near one another.

—Atttaining greater utilization of available aircraft space by improving the procedures for making cargo available for movement by LOGAIR.

We proposed that the Air Force Logistics Command (AFLC) devise a system that would enable it to accumulate accurate and complete data with respect to the movement of cargo eligible for air transport throughout the continental United States. We proposed that it study the possibility of using automaitc data processing equipment to assist it in solving the difficult problem of constructing and revising LOGAIR routes that provide optimum service at minimum cost. We also proposed that the Air Force evaluate the need for more than one daily LOGAIR flight to locations other than its Air Materiel Areas and Aerial Ports of Embarkation, and that AFLC take appropriate action to ensure that the potential benefits of LOGAIR are fully exploited by its users. In addition, we proposed to the Secretary of Defense that an analysis be made of the possibility of substituting truck service for LOGAIR between stations less than 100 miles apart.

The Air Force concurred in general with our findings and proposals and stated that

—Action has been started to standardize procedures and improve accuracy of forecasts of airlift requirements.

—The frequency of LOGAIR service to one station had been reduced.

—Five installations previously served by LOGAIR will be served by truck operations from other nearby LOGAIR stations.

—Corrective actions to attain more effective utilization of LOGAIR aircraft had been initiated at several installations and will be applied to other LOGAIR stations where practicable.

Index No. 73, B–132900, January 2, 1970

NEED FOR BETTER COORDINATION AMONG, AND GUIDANCE OF, MANAGEMENT EVALUATION GROUPS IN THE DEPARTMENT OF DEFENSE

In our day-to-day work within the Department of Defense (DOD) we had observed the existence of many groups performing management reviews and evaluations more-or-less independently of the efforts of other groups. Also, we had noted a growth in the number of such groups, striking sameness of authorized areas of interest, a seeming overlap of functions, some confusion as to assigned responsibilities, and an apparent need for some measure of overall coordination and guidance of the total review effort. We examined into the activities of the review and evaluation groups and the effectiveness of the coordination of the work of the groups.

The function of review and evaluation in DOD has not been defined, and, except in a relatively few cases, we found no evidence that guidance had been issued concerning the creation of new review and evaluation groups; the extent, number, and frequency of the evaluations to be performed; the prevention of overlapping of duties and responsibilities assigned to groups; the coordination of effort; the utilization and training of personnel; and the costs involved.

GAO's review showed a need to establish overall coordination of, and guidance for, the efforts of evaluation groups which are presently being carried out by a large number of widely scattered groups, each responsible for some facets of the review and evaluation function but operating on a generally independent basis.

We recommended that the Secretary of Defense take action to establish effective cordination among groups that provide review and evaluation services and also furnish guidance, and, where necessary, training, in order to achieve the maximum benefits obtainable from the total review and evaluation effort.

The Assistant Secretary of Defense (Administration) did not agree completely with our findings and conclusions, but stated that the following actions would be taken with respect to the problems we identified.

—Our report would be considered by the "Blue Ribbon Panel" which the Secretary of Defense was appointing to make an objective review of the organizations, functions, and control procedures of DOD.

—DOD would emphasize the need for the principal audit and inspection organizations to evaluate the performance of, and justification for, the decentralized review and evaluation groups and that the examinations of the justifications for review and evaluation personnel requirements at all levels would be intensified.

—Sudies would be made (1) of the essentiality for having three principal evaluation groups review procurement operations and (2) to identify areas of overlap and duplication between Inspectors General and internal audit activities and to consider the degree to which their functions might be merged.

DOD studies have identified areas which need improvement and actions have been taken to establish on a continuing basis better coordination of the efforts evaluation groups.

Index No. 74, B–133188, January 16, 1970

ECONOMIES OBTAINABLE BY INCREASING DAYS AT SEA OF OCEANOGRAPHIC RESEARCH AND SURVEY SHIPS—ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION DEPARTMENT OF COMMERCE

We reported that the Environmental Science Services Administration's (ESSA) utilization of its oceanographic research and survey ships averaged from 112 to 182 days a year at sea while the Military Sea Transportation Service (MSTS) operated similar ships from 244 to 258 days a year at sea. ESSA could operate its ships more days each year at sea if it were to (1) establish a manpower reserve similar to that maintained by MSTS, and (2) schedule available and necessary research and survey work in warm water area during winter months. In addition to the basic crew needed to operate its ships, MSTS maintains a 22-percent reserve for the purpose of replacing crew members who go on leave or are otherwise absent.

We also reported that, if action were taken to increase ship use to a level similar to that achieved by MSTS, ESSA could either (1) obtain more efficient use of its present ships or, (2) maintain its present level of program accomplishments with four fewer ships, which could result in savings of about $888,000 annually. Furthermore, if ESSA were to attain a level of ship use similar to that of MSTS, ESSA's planned ship requirements could be reduced by seven ships, which could result in a saving of about $59.3 million in ship construction costs over a 10-year period. Also, we estimated that savings in ship operating costs would be achieved each year during the construction period and would total about $1.2 million annually when all ships are placed in operation.

We recommended that the Secretary of Commerce should require ESSA to establish a manpower reserve and to schedule work during winter months. Also, that ESSA should consider the opportunity for increasing the use of its ships when planning construction of additional ships.

The Department of Commerce and the National Council on Marine Resources and Engineering Development expressed complete agreement with the basic finding that ESSA's fleet should be more fully utilized.

Index No. 75, B–163869, February 4, 1970

COSTS AND BALANCE-OF-PAYMENTS ADVANTAGES OF REPLACING FOREIGN-MADE BUSES WITH AMERICAN-MADE BUSES ABROAD—DEPARTMENT OF DEFENSE

The Department of Defense leased about 1,700 foreign-made buses at a cost of $7.7 million during calendar year 1968.

Our comparative cost calculations showed that significant cost and dollar savings could be realized by using American-made buses in place of foreign-made buses at some overseas locations. At other locations, calculations showed that existing leasing arrangements were the most economical.

There are certain practical difficulties in estimating overall financial advantages that could be realized by substituting American-made buses for foreign-made buses, but, there can be little doubt that the advantages would be substantial.

For example, using cost comparison data developed at certain review locations, we estimate that cost savings of from one-third to one-half million dollars could be realized annually. Annual reductions in dollar payments abroad could be $3.1 million.

Cost studies made by the military services in support of decisions to lease foreign-made buses have not been accurate or timely enough to provide a sound basis for allocating American-made buses to the overseas locations where the greatest budgetary and balance-of-payments advantages could be realized—primarily Japan, Vietnam, and Thailand.

For example:

—date on important cost factors and experience were not accurate and current and estimates often were based on inappropriate cost information and unrealistic assumptions.

—in comparing the relative cost of foreign leasing arrangements with an American-made bus capability, the military departments frequently did not compare the costs of buses of similar size and similarly equipped.

In arriving at its conclusions, we developed and used conservative comparative cost estimates for the use of American-made buses. Our estimates of the costs of using American-made buses include, for example a 10-percent factor as a margin for unknown costs.

We recommended to the Secretary of Defense that the military services develop better local operating and maintenance cost date and prepare more timely and accurate cost studies.

We also made a series of recommendations designed to increase the usage of American-made buses abroad, particularly at locations where our cost calculations showed that the greatest savings could be realized through such usage. Among the recommendations are that:

—budgetary requests be prepared for submission to the Congress, appropriately supported, for American-made buses to replace leasing arrangements at overseas locations where economic advantages (cost and/or balance of payments) can be realized by so doing.

—buses be distributed first to those overseas locations where the costs of leasing foreign-made vehicles exceed the cost of providing an American-made vehicle capability and/or where the greatest balance-of-payments advantages are realizable.

—a more equitable basis be followed in comparing the cost of American-made vehicles to foreign-made vehicles being leased.

—renewed consideration be given to the possibility of contracting with American firms for bus services at foreign locations.

Department of Defense officials stated that the military departments are in general agreement with the report's findings and conclusions. The Department advised us of specific steps the Department is taking along the lines of our proposals.

We believe that the measures the Department says that it will take should, if properly carried out, lead to increased economies through the use of more American-made buses abroad.

Index No. 76, B–118779, February 24, 1970

IMPROVEMENTS NEEDED IN THE OPERATION OF GOVERNMENT-OWNED VESSELS IN SUPPORT OF MILITARY ACTIVITIES IN SOUTHEAST ASIA—MARITIME ADMINISTRATION, DEPARTMENT OF COMMERCE

We reported that:

1. During the 3-year period ended December 31, 1968, crew shortages caused delays in 592 of 1,405 scheduled sailings despite significant efforts by the Maritime Administration, other Federal agencies, and private organizations to alleviate the problem. These delays resulted in additional operating costs of about $7 million.

2. The U.S. Coast Guard recognized the problem of crew shortages and waived its normal vessel-manning requirements as did the unions. During the 3-year period ended December 31, 1968, 1,145 of the 1,405 sailings were made without full crews.

3. During a period of considerable reduction in sealift requirements, additional costs of about $658,000 were incurred because vessels taken out of service were placed initially at commercial piers rather than at Government reserve fleet sites.

4. In 1967, Maritime had advanced excessive amounts of cash to its general agents for the operation of Government-owned vessels. Although these balances have since been reduced significantly, further reductions are believed possible.

We recommend that:

1. The Maritime Administration should take action with the Department of the Navy to provide for either Maritime or Navy to determine, prior to placing each vessel in reduced operational status, whether use of a reserve fleet site, rather than a commercial site would be preferable.

2. Maritime headquarters should also maintain closer surveillance over the adequacy of its coast districts' implementation of prescribed procedures for advancing funds to general agents.

We were advised by Maritime and Navy that actions would be taken to provide for consideration of use of reserve fleet sites under appropriate circumstances. Also Maritime advised us that cash advances had been the subject of much discussion and action and that its efforts to hold cash balances to a minimum had been very effective.

Index No. 77, B–1403890, March 6, 1970

FINANCING AGENCY PROGRAMS OTHER THAN BY DIRECT APPROPRIATION—REVOLVING FUNDS

Pursuant to its request for the Congress to be furnished, from time to time, with a summary of methods for financing governmental programs other than through direct appropriations, we reported on revolving funds to the Subcommittee on Economy in Government, Joint Economic Committee.

We stated that the use of revolving funds had certain advantages, such as the flexibility to more readily meet unforeseen conditions and the systematic disclosure of the relationship between revenue and expenses.

We discussed the characteristics of revolving funds, their legislative authority, methods of financing the funds, and fund accounting and budgeting.

We believe that the public interest is best served when congressional control over activities is exercised through annual reviews and affirmative action on planned programs and financing requirements through the appropriation processes. Therefore we advocate that programs be financed through direct appropriations or that legislation authorizing financing through other means provide for adequate and continuing congressional control. To maintain congressional control, proposed legislation to authorize program financing by means other than through the appropriation process should include provisions for annual review by the Congress, coupled with such limitations and allowances for flexibility as are deemed appropriate.

APPENDIX IV

Background Material on Economy in Government—1970

Introduction

The Federal Government's bill for property management activities, real and personal, utilizes a major part of the annual budget. The annual expenditures, however, reveal only part of the overall scope of these activities as the inventories and holdings of property by military and civilian agencies worldwide cost many billions of dollars as shown by the ensuing tables.

Past experience of the subcommittee shows that these large areas of activity provide fruitful and necessary opportunity for improved organization and management.

Scope of Federal Government Obligations

The summary of actual obligations by object classifications for 1969 and the estimates for 1970 and 1971 are shown on table 1. Table 2 shows detailed table on obligations by object classes for all agencies and table 3 shows the same data for the DOD (military and civil), HEW, AEC, GSA, and NASA.

OBJECT CLASS ANALYSIS

- Budget for Fiscal Year 1971 -

This analysis presents Federal obligations in terms of the object classification prescribed in Bureau of the Budget Circular No. A-12. The presentation is based on the detailed schedules contained in the Budget Appendix for 1971, and reflects a breakdown of total obligations incurred reconciled to the net obligations shown in Table 7 of the 1971 Budget.

GENERAL NOTES

- All years in the tables are fiscal years.
- Because of rounding, the detailed figures in the tables may not add to the totals, and the totals may differ from those in other budget tables.
- An asterisk (*) in the tables denotes less than $500 thousand.
- The amounts shown for Federal funds in a few of the tables of this analysis differ from those in Table B-3 of Special Analysis B, "Funds in the Budget." Figures in Table B-3 were drawn from preliminary computer runs which have now been corrected. The major differences result from Table B-3's erroneous inclusion in "Other independent agencies" of the 1970 and 1971 "Allowances" which are shown separately and apply to all agencies.

INTRODUCTION

Under Bureau of the Budget Circular No. A-12 provision is made for the uniform classification of financial transactions of the Federal Government in the following manner:

- Object classes describe the nature of the service or article for which obligations are incurred, regardless of the purpose or program served. Thus, obligations for purchasing an automobile are classified under object class 31, Equipment, whether the automobile is used for national defense, law enforcement, or construction activities.

- Object class data present the total amount obligated (or estimated) for purchase of articles or services. The price of an automobile, for example, may include charges by the supplier for transportation, and the entire amount is classified under object class 31.

The summary table which follows combines Federal and trust funds and provides a reconciliation between total obligations and net obligations. It also presents a distribution of net obligations between Federal and trust funds. In the summary and detailed tables, interfund and intragovernmental payments from one agency or fund to another are treated as offsets to total obligations to avoid double counting. Similarly, proprietary receipts, representing receipts that are market-oriented in character, are offset against total obligations to derive net obligations.

SUMMARY OF OBLIGATIONS BY MAJOR OBJECT CLASS
(In millions of dollars)

	Description	1969 actual	1970 estimate	1971 estimate
10	Personal services and benefits.....	48,451	52,233	51,834
20	Contractual services and supplies.....	79,377	76,944	72,971
30	Acquisition of capital assets.....	37,139	36,634	35,442
40	Grants and fixed charges.....	94,729	106,222	117,064
90	Other.....	3,359	2,670	7,608
	Total obligations incurred.....	263,054	274,703	284,919
	Deduct:			
	Reimbursements credited to appropriations:			
	Within the Government.....	34,537	32,909	32,627
	From the public.....	27,214	24,460	26,694
	Proprietary receipts.....	4,192	4,211	5,538
	Interfund and intragovernmental transactions	8,714	9,704	11,250
	Recoveries of prior year obligations.....	3,251	1,108	1,666
	Net obligations incurred.....	185,147	202,311	207,144
	MEMORANDUM			
	Federal funds.....	149,949	160,882	160,269
	Trust funds.....	42,745	49,764	56,481
	Intragovernmental transactions.....	-7,547	-8,335	-9,605

DETAILED TABLES ON OBLIGATIONS BY OBJECT CLASS

- Budget for Fiscal Year 1971 -

THE JUDICIARY
OBLIGATIONS BY OBJECTS 02/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(96)	( )	(96)	(113)	( )	(113)	(118)	( )	(118)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	73		73	86		86	89		89
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	2		2	2		2	2		2
OTHER PERSONNEL COMPENSATION.....	*		*	*		*	*		*
SPECIAL PERSONAL SERVICE PAYMENTS.	16		16	19		19	21		21
12 PERSONNEL BENEFITS.....	5		5	6		6	7		7
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES...	(11)	( )	(11)	(12)	( )	(12)	(14)	( )	(14)
21 TRAVEL AND TRANSPORTATION, PERSONS	5		5	6		6	7		7
22 TRANSPORTATION OF THINGS.....	*		*	*		*	*		*
23 RENT, COMMUNICATIONS AND UTILITIES	3		3	3		3	4		4
24 PRINTING AND REPRODUCTION.....	1		1	1		1	1		1
25 OTHER SERVICES.....	1		1	1		1	2		2
26 SUPPLIES AND MATERIALS.....	1		1	1		1	1		1
30 ACQUISITION OF CAPITAL ASSETS.....	(2)	( )	(2)	(2)	( )	(2)	(2)	( )	(2)
31 EQUIPMENT.....	2		2	2		2	2		2
32 LANDS AND STRUCTURES.....									
33 INVESTMENTS AND LOANS.....									
40 GRANTS AND FIXED CHARGES.....	( )	(1)	(1)	(*)	(1)	(1)	(*)	(1)	(1)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.									
42 INSURANCE CLAIMS AND INDEMNITIES..		1	1	*	1	1	*	1	1
43 INTEREST AND DIVIDENDS.....									
44 REFUNDS.....		*	*		*	*		*	*
90 OTHER.....	(*)	(*)	(1)	(4)	(1)	(5)	(1)	(1)	(2)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....	*	*	1	1	1	1	1	1	2
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....									
95 QUARTERS AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.				3		3			
TOTAL OBLIGATIONS INCURRED.....	110	1	111	131	1	132	133	2	137
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-2)	(*)	(-3)	(-6)	(-1)	(-6)	(-5)	(-1)	(-6)
REIMBURSEMENTS CREDITED TO APPROPS.									
FROM FEDERAL FUNDS.....	-1	*	-1	-1	*	-1	-1	*	-1
FROM TRUST FUNDS.....									
FROM THE PUBLIC.....									
RECOVERIES OF PRIOR YEAR OBLIGATIONS,									
PROPRIETARY RECEIPTS (NETTED).....	-2	*	-2	-5	-1	-6	-4	-1	-5
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	108	1	108	125	1	126	130	1	131
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			108			126			131

EXECUTIVE OFFICE OF THE PRESIDENT
OBLIGATIONS BY OBJECTS 03/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(22)	( )	(22)	(26)	( )	(26)	(33)	( )	(33)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	18		18	22		22	28		28
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	2		2	2		2	1		1
OTHER PERSONNEL COMPENSATION	1		1	1		1	1		1
SPECIAL PERSONAL SERVICE PAYMENTS	*		*	*		*	*		*
12 PERSONNEL BENEFITS	1		1	2		2	2		2
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*						
20 CONTRACTUAL SERVICES AND SUPPLIES	(10)	( )	(10)	(13)	( )	(13)	(13)	( )	(13)
21 TRAVEL AND TRANSPORTATION, PERSONS	1		1	1		1	1		1
22 TRANSPORTATION OF THINGS	*		*	*		*	*		*
23 RENT, COMMUNICATIONS AND UTILITIES	1		1	1		1	1		1
24 PRINTING AND REPRODUCTION	1		1	1		1	1		1
25 OTHER SERVICES	7		7	9		9	9		9
26 SUPPLIES AND MATERIALS	*		*	1		1	1		1
30 ACQUISITION OF CAPITAL ASSETS	(*)	( )	(*)	(*)	( )	(*)	(*)	( )	(*)
31 EQUIPMENT	*		*	*		*	*		*
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	( )	( )	( )	( )	( )	( )	( )	( )	( )
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.									
42 INSURANCE CLAIMS AND INDEMNITIES									
43 INTEREST AND DIVIDENDS									
44 REFUNDS									
90 OTHER	(*)	( )	(*)	(*)	( )	(*)	( )	( )	( )
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	*		*	*		*			
95 QUARTERS AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				*		*			
TOTAL OBLIGATIONS INCURRED	33		33	40		40	46		46
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-2)	( )	(-2)	(-1)	( )	(-1)	(*)	( )	(*)
REIMBURSEMENTS CREDITED TO APPROPS. FROM FEDERAL FUNDS	-2		-2	-1		-1	*		*
FROM TRUST FUNDS									
FROM THE PUBLIC	*		*						
RECOVERIES OF PRIOR YEAR OBLIGATIONS	*		*	*		*			
PROPRIETARY RECEIPTS (NETTED)									
INTERFUND TRANSACTIONS									
SUBTOTAL	31		31	39		39	46		46
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			31			39			46

SUMMARY - FUNDS APPROPRIATED TO THE PRESIDENT
OBLIGATIONS BY OBJECTS 04/30
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(370)	(*)	(370)	(364)	(*)	(364)	(366)	(*)	(366)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	228	*	228	230	*	230	231	*	231
MILITARY PERSONNEL	*		*						
POSITIONS OTHER THAN PERMANENT	10	*	10	11	*	12	11	*	11
OTHER PERSONNEL COMPENSATION	21		21	21		21	21		21
SPECIAL PERSONAL SERVICE PAYMENTS	78	*	78	68	*	68	72	*	72
12 PERSONNEL BENEFITS	30		30	30		30	30		30
PERSONNEL BENEFITS, MILITARY	2		2	2		2	2		2
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES	(1222)	(281)	(1503)	(1364)	(315)	(1679)	(1330)	(339)	(1669)
21 TRAVEL AND TRANSPORTATION, PERSONS	59	*	59	55	*	55	57	*	57
22 TRANSPORTATION OF THINGS	57	8	65	56	8	65	55	8	64
23 RENT, COMMUNICATIONS AND UTILITIES	24	*	24	24	*	24	25	*	25
24 PRINTING AND REPRODUCTION	5		5	4		4	4		4
25 OTHER SERVICES	683	105	788	780	116	896	787	126	913
26 SUPPLIES AND MATERIALS	394	167	561	446	190	636	400	205	605
30 ACQUISITION OF CAPITAL ASSETS	(1824)	(558)	(2382)	(1811)	(628)	(2438)	(1778)	(683)	(2461)
31 EQUIPMENT	182	558	740	187	628	815	196	683	879
32 LANDS AND STRUCTURES	3		3	3		3	4		4
33 INVESTMENTS AND LOANS	1639		1639	1620		1620	1579		1579
40 GRANTS AND FIXED CHARGES	(2106)	(18)	(2125)	(2338)	(10)	(2348)	(2350)	(10)	(2360)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	2000		2000	2202		2202	2211		2211
42 INSURANCE CLAIMS AND INDEMNITIES	11		11	10		10	11		11
43 INTEREST AND DIVIDENDS	95		95	127		127	128		128
44 REFUNDS		18	18		10	10		10	10
90 OTHER	(-66)	( )	(-66)	(-72)	( )	(-72)	(-193)	( )	(-193)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE				1		1	1		1
93 ADMIN AND MANAGMN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	-66		-66	-97		-97	-24		-24
95 QUARTERS AND SUBSISTENCE CHARGES	*		*	*		*	*		*
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				25		25	-170		-170
TOTAL OBLIGATIONS INCURRED	5456	857	6313	5306	952	6258	5631	1032	6663
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-780)	(-960)	(-1740)	(-705)	(-1022)	(-1727)	(-1061)	(-982)	(-2043)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-53		-53	-20		-20	-47		-47
FROM TRUST FUNDS									
FROM THE PUBLIC	-332		-332	-436		-436	-490		-490
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-247		-247	-178		-178	-407		-407
PROPRIETARY RECEIPTS (NETTED)	-149	-960	-1109	-71	-1022	-1093	-117	-982	-1099
INTERFUND TRANSACTIONS									
SUBTOTAL	4676	-103	4573	5101	-69	5031	4570	50	4620
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			4573			5031			4620

INTERNATIONAL FINANCIAL INSTITUTIONS
OBLIGATIONS BY OBJECTS 04/06
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	( )	( )	( )	( )	( )	( )	( )	( )	( )
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....									
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....									
OTHER PERSONNEL COMPENSATION.....									
SPECIAL PERSONAL SERVICE PAYMENTS.									
12 PERSONNEL BENEFITS.....									
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....									
20 CONTRACTUAL SERVICES AND SUPPLIES....	( )	( )	( )	( )	( )	( )	( )	( )	( )
21 TRAVEL AND TRANSPORTATION, PERSONS									
22 TRANSPORTATION OF THINGS.....									
23 RENT, COMMUNICATIONS AND UTILITIES									
24 PRINTING AND REPRODUCTION.....									
25 OTHER SERVICES.....									
26 SUPPLIES AND MATERIALS.....									
30 ACQUISITION OF CAPITAL ASSETS.....	(480)	( )	(480)	(480)	( )	(480)	(180)	( )	(180)
31 EQUIPMENT.....									
32 LANDS AND STRUCTURES.....									
33 INVESTMENTS AND LOANS.....	480		480	480		480	180		180
40 GRANTS AND FIXED CHARGES.....	( )	( )	( )	( )	( )	( )	( )	( )	( )
41 GRANTS, SUBSIDIES AND CONTRIBUTNS,									
42 INSURANCE CLAIMS AND INDEMNITIES..									
43 INTEREST AND DIVIDENDS.....									
44 REFUNDS.....									
90 OTHER.....	( )	( )	( )	25)	( )	25)	575)	( )	575)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....									
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....									
95 QUARTERS,AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.				25		25	575		575
TOTAL OBLIGATIONS INCURRED.....	480		480	505		505	755		755
.ESS REIMBURSEMENTS AND OTHER OFFSETS...	( )	( )	( )	( )	( )	( )	( )	( )	( )
REIMBURSEMENTS CREDITED TO APPROPS.									
FROM FEDERAL FUNDS.....									
FROM TRUST FUNDS.....									
FROM THE PUBLIC.....									
RECOVERIES OF PRIOR YEAR OBLIGATIONS,									
PROPRIETARY RECEIPTS (NETTED).....									
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	480		480	505		505	755		755
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			480			505			755

MILITARY ASSISTANCE
OBLIGATIONS BY OBJECTS 04/39
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(16)	( )	(16)	(14)	( )	(14)	(13)	( )	(13)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	12		12	10		10	10		10
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	*		*	*		*	*		*
OTHER PERSONNEL COMPENSATION.....	*		*	*		*	*		*
SPECIAL PERSONAL SERVICE PAYMENTS.									
12 PERSONNEL BENEFITS.....	1		1	1		1	1		1
PERSONNEL BENEFITS,MILITARY.....	2		2	2		2	2		2
13 BENEFITS FOR FORMER PERSONNEL....									
20 CONTRACTUAL SERVICES AND SUPPLIES...	(236)	(280)	(516)	(233)	(313)	(546)	(220)	(338)	(558)
21 TRAVEL AND TRANSPORTATION, PERSNS	14		14	12		12	11		11
22 TRANSPORTATION OF THINGS.....	31	8	39	30	8	38	27	8	35
23 RENT, COMMUNICATIONS AND UTILITIES	3		3	3		3	3		3
24 PRINTING AND REPRODUCTION.....	*		*	*		*	*		*
25 OTHER SERVICES.....	54	105	159	71	115	186	65	125	190
26 SUPPLIES AND MATERIALS.....	134	167	301	116	190	306	115	205	320
30 ACQUISITION OF CAPITAL ASSETS.....	(349)	(558)	(907)	(390)	(627)	(1017)	(395)	(682)	(1077)
31 EQUIPMENT.....	109	558	667	115	627	742	123	682	805
32 LANDS AND STRUCTURES.....									
33 INVESTMENTS AND LOANS.....	240		240	275		275	272		272
40 GRANTS AND FIXED CHARGES.....	(20)	(18)	(38)	( )	(10)	(10)	( )	(10)	(10)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS,	20		20						
42 INSURANCE CLAIMS AND INDEMNITIES..									
43 INTEREST AND DIVIDENDS.....									
44 REFUNDS.....		18	18		10	10		10	10
90 OTHER.....	( )	( )	( )	( )	( )	( )	( )	( )	( )
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....									
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....									
95 QUARTERS AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.									
TOTAL OBLIGATIONS INCURRED.....	521	955	1476	436	950	1386	628	1030	1658
LESS REIMBURSEMENTS AND OTHER OFFSETS..	(-7)	(-959)	(-965)	(-44)	(-1020)	(-1064)	(-70)	(-980)	(-1050)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	26		26	25		25			
FROM TRUST FUNDS.....									
FROM THE PUBLIC.....	-32		-32	-58		-58	-31		-31
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	*		*						
PROPRIETARY RECEIPTS (NETTED).....	*	-959	-959	-11	-1020	-1031	-39	-980	-1019
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	614	-103	511	592	-70	522	588	50	608
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			511			522			608

ECONOMIC ASSISTANCE
OBLIGATIONS BY OBJECTS 04/10
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(170)	( )	(170)	(176)	( )	(176)	(170)	( )	(170)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	127		127	132		132	127		127
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	2		2	2		2	1		1
OTHER PERSONNEL COMPENSATION	17		17	18		18	17		17
SPECIAL PERSONAL SERVICE PAYMENTS	7		7	7		7	7		7
12 PERSONNEL BENEFITS	18		18	18		18	18		18
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES	(577)	(1)	(578)	(579)	(1)	(580)	(613)	(1)	(614)
21 TRAVEL AND TRANSPORTATION, PERSONS	15	*	16	15	*	16	16	*	16
22 TRANSPORTATION OF THINGS	21	*	21	21	*	21	23	*	24
23 RENT, COMMUNICATIONS AND UTILITIES	9		9	9		9	9		9
24 PRINTING AND REPRODUCTION	1		1	1		1	1		1
25 OTHER SERVICES	359	1	360	361	1	362	392	1	392
26 SUPPLIES AND MATERIALS	171	*	171	171	*	171	171	*	172
30 ACQUISITION OF CAPITAL ASSETS	(915)	(1)	(916)	(887)	(1)	(888)	(1179)	(1)	(1179)
31 EQUIPMENT	68	1	68	67	1	68	68	1	69
32 LANDS AND STRUCTURES	*		*						
33 INVESTMENTS AND LOANS	848		848	820		820	1111		1111
40 GRANTS AND FIXED CHARGES	(231)	(*)	(231)	(244)	( )	(244)	(262)	( )	(262)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	220		220	234		234	259		259
42 INSURANCE CLAIMS AND INDEMNITIES	10		10	10		10	3		3
43 INTEREST AND DIVIDENDS	*		*						
44 REFUNDS		*	*						
90 OTHER	(*)	( )	(*)	(*)	( )	(*)	(*)	( )	(*)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	*		*	*		*	*		*
95 QUARTERS,AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED	1893	2	1895	1887	2	1889	2224	2	2226
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-693)	(-2)	(-695)	(-570)	(-2)	(-571)	(-574)	(-2)	(-576)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-78		-78	-45		-45	-46		-46
FROM TRUST FUNDS									
FROM THE PUBLIC	-234		-234	-291		-291	-292		-292
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-232		-232	-173		-173	-158		-158
PROPRIETARY RECEIPTS (NETTED)	-148	-2	-150	-60	-2	-61	-78	-2	-80
INTERFUND TRANSACTIONS									
SUBTOTAL	1200	*	1200	1317	*	1317	1650		1650
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			1200			1317			1650

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OFFICE OF ECONOMIC OPPORTUNITY
OBLIGATIONS BY OBJECTS 04/37
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(131)	( )	(131)	(124)	( )	(124)	(132)	( )	(132)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	72		72	70		70	73		73
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	6		6	7		7	7		7
OTHER PERSONNEL COMPENSATION.....	3		3	3		3	3		3
SPECIAL PERSONAL SERVICE PAYMENTS.	43		43	34		36	41		41
12 PERSONNEL BENEFITS.....	8		8	7		7	8		8
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....									
20 CONTRACTUAL SERVICES AND SUPPLIES....	(284)	(*)	(284)	(281)	(*)	(281)	(324)	(*)	(324)
21 TRAVEL AND TRANSPORTATION, PERSONS	15	*	15	15	*	15	16	*	16
22 TRANSPORTATION OF THINGS.....	2		2	2		2	2		2
23 RENT, COMMUNICATIONS AND UTILITIES	8		8	7		7	9		9
24 PRINTING AND REPRODUCTION.....	2		2	2		2	2		2
25 OTHER SERVICES.....	237		237	234		234	273		273
26 SUPPLIES AND MATERIALS.....	19		19	21		21	22		22
30 ACQUISITION OF CAPITAL ASSETS.....	(20)	( )	(20)	(26)	( )	(26)	(22)	( )	(22)
31 EQUIPMENT.....	4		4	3		3	4		4
32 LANDS AND STRUCTURES.....	3		3	3		3	4		4
33 INVESTMENTS AND LOANS.....	13		13	19		19	14		14
40 GRANTS AND FIXED CHARGES.....	(1523)	( )	(1523)	(1534)	( )	(1534)	(1620)	( )	(1620)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	1520		1520	1530		1530	1615		1615
42 INSURANCE CLAIMS AND INDEMNITIES..	*		*	*		*	*		*
43 INTEREST AND DIVIDENDS.....	4		4	4		4	4		4
44 REFUNDS.....									
90 OTHER.....	(*)	( )	(*)	(*)	( )	(*)	(-622)	( )	(-622)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....									
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....									
95 QUARTERS,AND SUBSISTENCE CHARGES..	*		*	*		*	*		*
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.							-622		-622
TOTAL OBLIGATIONS INCURRED.....	1958	*	1959	1964	*	1964	1475	*	1475
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-16)	( )	(-16)	(-17)	( )	(-17)	(-18)	( )	(-18)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	*		*						
FROM TRUST FUNDS.....									
FROM THE PUBLIC.....	-15		-15	-16		-16	-18		-18
RECOVERIES OF PRIOR YEAR OBLIGATIONS,									
PROPRIETARY RECEIPTS (NETTED).....	*		*	*		*	*		*
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	1943	*	1943	1948	*	1948	1457	*	1457
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			1943			1948			1457

REMAINDER OF FUNDS APPROPRIATED TO THE PRESIDENT
OBLIGATIONS BY OBJECTS 04/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(52)	(*)	(52)	(50)	(*)	(50)	(51)	(*)	(51)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	18	*	18	19	*	19	20	*	20
MILITARY PERSONNEL	*		*						
POSITIONS OTHER THAN PERMANENT	3	*	3	3	*	3	3	*	3
OTHER PERSONNEL COMPENSATION	*		*	*		*	*		*
SPECIAL PERSONAL SERVICE PAYMENTS	29	*	29	26	*	26	24	*	24
12 PERSONNEL BENEFITS	3		3	3		3	3		3
PERSONNEL BENEFITS,MILITARY	*		*						
13 BENEFITS FOR FORMER PERSONNEL									
20 CONTRACTUAL SERVICES AND SUPPLIES	(125)	(*)	(125)	(272)	(*)	(272)	(172)	(*)	(172)
21 TRAVEL AND TRANSPORTATION, PERSONS	14	*	14	13	*	13	14	*	14
22 TRANSPORTATION OF THINGS	3	*	3	3	*	3	3	*	3
23 RENT, COMMUNICATIONS AND UTILITIES	4	*	4	4	*	4	5	*	5
24 PRINTING AND REPRODUCTION	1		1	1		1	1		1
25 OTHER SERVICES	33	*	33	113	*	113	58	*	58
26 SUPPLIES AND MATERIALS	70	*	70	138	*	139	92	*	92
30 ACQUISITION OF CAPITAL ASSETS	(60)	(*)	(60)	(28)	(*)	(28)	(3)	(*)	(3)
31 EQUIPMENT	1	*	1	1	*	1	1	*	1
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS	58		58	26		26	1		1
40 GRANTS AND FIXED CHARGES	(333)	( )	(333)	(560)	( )	(560)	(468)	( )	(468)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	241		241	437		437	337		337
42 INSURANCE CLAIMS AND INDEMNITIES	*		*	*		*	8		8
43 INTEREST AND DIVIDENDS	92		92	123		123	123		123
44 REFUNDS									
90 OTHER	(-66)	( )	(-66)	(-96)	( )	(-96)	(-146)	( )	(-146)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE				1		1	1		1
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	-66		-66	-97		-97	-24		-24
95 QUARTERS,AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL							-123		-123
TOTAL OBLIGATIONS INCURRED	503	*	504	814	1	814	548	1	548
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-65)	(*)	(-65)	(-75)	(*)	(-75)	(-399)	(*)	(-399)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS							*		*
FROM TRUST FUNDS									
FROM THE PUBLIC	-51		-51	-70		-70	-149		-149
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-14		-14	-5		-5	-249		-249
PROPRIETARY RECEIPTS (NETTED)	*	*	*	*	*	*	*	*	*
INTERFUND TRANSACTIONS									
SUBTOTAL	439	*	439	739	*	739	149	*	150
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			439			739			150

DEPARTMENT OF AGRICULTURE
OBLIGATIONS BY OBJECTS 05/70
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(918)	(58)	(976)	(1015)	(65)	(1080)	(1033)	(70)	(1103)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	720	44	764	804	49	853	832	53	885
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	86	8	94	91	9	99	93	10	102
OTHER PERSONNEL COMPENSATION	31	2	33	33	2	35	33	3	35
SPECIAL PERSONAL SERVICE PAYMENTS	2		2	1		1	1		1
12 PERSONNEL BENEFITS	79	4	83	87	5	92	94	5	99
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*	*	*	*	*	*	*	*	*
20 CONTRACTUAL SERVICES AND SUPPLIES	(3754)	(18)	(3772)	(4439)	(20)	(4459)	(4113)	(26)	(4139)
21 TRAVEL AND TRANSPORTATION, PERSONS	42	3	45	46	4	50	50	4	55
22 TRANSPORTATION OF THINGS	224	1	226	241	1	242	196	2	198
23 RENT, COMMUNICATIONS AND UTILITIES	46	2	48	48	2	51	53	2	55
24 PRINTING AND REPRODUCTION	15	*	15	18	*	18	25	*	25
25 OTHER SERVICES	1261	7	1268	1470	7	1477	1496	11	1507
26 SUPPLIES AND MATERIALS	2166	4	2170	2617	5	2622	2292	6	2298
30 ACQUISITION OF CAPITAL ASSETS	(4799)	(6)	(4806)	(5352)	(5)	(5857)	(5385)	(9)	(5394)
31 EQUIPMENT	30	1	30	37	1	38	33	1	33
32 LANDS AND STRUCTURES	52	2	54	75	4	78	80	7	87
33 INVESTMENTS AND LOANS	4717	3	4721	5741	1	5742	5472	1	5473
40 GRANTS AND FIXED CHARGES	(4701)	(*)	(4702)	(6172)	(1)	(6174)	(6667)	(*)	(6668)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	4149	*	4149	5459	*	5459	5906	*	5907
42 INSURANCE CLAIMS AND INDEMNITIES	55	*	55	51	*	51	49	*	49
43 INTEREST AND DIVIDENDS	496		496	663		663	712		712
44 REFUNDS	*	*	1	*	1	1	*	*	*
90 OTHER	(1876)	(*)	(1876)	(-1056)	(*)	(-1056)	(137)	(*)	(137)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE	*		*	*		*	*		*
93 ADMIN AND MANAGMNT EXPENSES									
94 CHANGE IN SELECTED RESOURCES	1878		1878	-1075		-1075	143		143
95 QUARTERS,AND SUBSISTENCE CHARGES	-2	*	-2	-2	*	-2	-2	*	-2
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				21		21	-5		-5
TOTAL OBLIGATIONS INCURRED	16049	83	16132	16423	91	16514	17555	105	17660
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-6405)	-95)	(-6500)	(-8981)	(-102)	(-9083)	(-9638)	(-104)	(-9742)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-1547		-1547	-1610		-1610	-1614		-1614
FROM TRUST FUNDS	*		*	*		*	*		*
FROM THE PUBLIC	-4235	-19	-4254	-6732	-18	-6750	-7339	-17	-7356
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-10	-1	-11	-2		-2			
PROPRIETARY RECEIPTS (NETTED)	-613	-75	-688	-638	-83	-721	-685	-87	-772
INTERFUND TRANSACTIONS									
SUBTOTAL	9644	-12	9632	7441	-10	7431	7916	2	7918
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			9632			7431			7918

DEPARTMENT OF COMMERCE
OBLIGATIONS BY OBJECTS 06/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(432)	(4)	(436)	(535)	(5)	(540)	(455)	(5)	(460)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	273	2	275	301	3	304	317	3	319
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	63	*	63	145	*	145	69	*	69
OTHER PERSONNEL COMPENSATION	46	*	46	39	*	39	27	*	27
SPECIAL PERSONAL SERVICE PAYMENTS	1	1	2	1	2	2	1	2	3
12 PERSONNEL BENEFITS	49	*	49	49	*	49	41	*	41
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	1		1	1		1	1		1
20 CONTRACTUAL SERVICES AND SUPPLIES	(246)	(10)	(256)	(283)	(13)	(296)	(290)	(15)	(306)
21 TRAVEL AND TRANSPORTATION, PERSONS	10	*	11	20	*	20	16	*	16
22 TRANSPORTATION OF THINGS	3	*	3	4	*	4	4	*	4
23 RENT, COMMUNICATIONS AND UTILITIES	29	1	29	43	1	43	36	1	36
24 PRINTING AND REPRODUCTION	17	*	17	19	*	19	19	*	19
25 OTHER SERVICES	165	9	174	173	11	184	190	14	204
26 SUPPLIES AND MATERIALS	22	*	22	24	*	25	26	*	26
30 ACQUISITION OF CAPITAL ASSETS	(102)	(*)	(102)	(99)	(*)	(99)	(128)	(*)	(128)
31 EQUIPMENT	23	*	23	23	*	24	30	*	30
32 LANDS AND STRUCTURES	2		2	4		4	4		4
33 INVESTMENTS AND LOANS	77		77	71		71	94		94
40 GRANTS AND FIXED CHARGES	(550)	(*)	(550)	(523)	(*)	(523)	(577)	(*)	(578)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	544	*	544	514		514	565		565
42 INSURANCE CLAIMS AND INDEMNITIES	*	*	*	1		1	1		1
43 INTEREST AND DIVIDENDS	6		6	8		8	12		12
44 REFUNDS		*	*		*	*		*	*
90 OTHER	(1)	( )	(1)	(12)	( )	(12)	(1)	( )	(1)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	1		1	1		1	1		1
95 QUARTERS AND SUBSISTENCE CHARGES	*		*	*		*	*		*
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				11		11			
TOTAL OBLIGATIONS INCURRED	1330	14	1345	1452	18	1470	1452	21	1473
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-368)	(-8)	(-376)	(-336)	(-9)	(-345)	(-303)	(-10)	(-313)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-308	*	-308	-270		-270	-240		-240
FROM TRUST FUNDS	-3		-3	-3		-3	-3		-3
FROM THE PUBLIC	-32	*	-32	-39		-39	-45		-45
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-4	*	-4	-7		-7			
PROPRIETARY RECEIPTS (NETTED)	-22	-8	-30	-18	-9	-27	-15	-10	-25
INTERFUND TRANSACTIONS									
SUBTOTAL	963	6	969	1116	8	1125	1149	11	1160
INTRAGOVERNMENTAL TRANSACTIONS			-8			-7			-11
NET OBLIGATIONS INCURRED			962			1118			1150

DEPARTMENT OF DEFENSE---MILITARY
OBLIGATIONS BY OBJECTS 07/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(32077)	(6)	(32083)	(34067)	(6)	(34073)	(32923)	(6)	(32929)
11 PERSONNEL COMPENSATION,									
PERMANENT POSITIONS.....	9454		9454	9895		9895	9590		9590
MILITARY PERSONNEL.....	14347		14347	15484		15484	14520		14520
POSITIONS OTHER THAN PERMANENT....	239		239	256		256	182		182
OTHER PERSONNEL COMPENSATION.....	511		511	462		462	452		452
SPECIAL PERSONAL SERVICE PAYMENTS.	19	6	25	14	6	20	14	6	20
12 PERSONNEL BENEFITS.....	777		777	940		840	835		835
PERSONNEL BENEFITS,MILITARY.....	4284		4284	4351		4351	4130		4130
13 BENEFITS FOR FORMER PERSONNEL.....	2446		2446	2766		2766	3200		3200
20 CONTRACTUAL SERVICES AND SUPPLIES....	(58960)	(46)	(58905)	(54653)	(49)	(54502)	(50429)	(59)	(50487)
21 TRAVEL AND TRANSPORTATION, PERSONS	1594	*	1594	1559	*	1555	1514	*	1519
22 TRANSPORTATION OF THINGS.....	4446	*	4446	4240	*	4240	3701	*	3701
23 RENT, COMMUNICATIONS AND UTILITIES	1642	*	1643	1760	1	1761	1786	1	1786
24 PRINTING AND REPRODUCTION.....	154	*	154	153	*	153	148	*	148
25 OTHER SERVICES.....	19931	23	19954	19507	25	19532	18187	35	18221
26 SUPPLIES AND MATERIALS.....	31193	22	31115	27238	23	27261	25093	23	25116
30 ACQUISITION OF CAPITAL ASSETS.....	(15183)	(5)	(15189)	(16731)	(6)	(16738)	(15517)	(6)	(15524)
31 EQUIPMENT.....	13465	5	13470	15253	5	15258	13320	5	13325
32 LANDS AND STRUCTURES.....	1712	1	1712	1469	1	1469	2187	1	2188
33 INVESTMENTS AND LOANS.....	6	*	6	11		11	11		11
40 GRANTS AND FIXED CHARGES.....	(720)	(*)	(720)	(722)	( )	(722)	(214)	( )	(214)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	30		30	31		31	32		32
42 INSURANCE CLAIMS AND INDEMNITIES..	87		87	90		90	86		86
43 INTEREST AND DIVIDENDS.....	103		103	102		102	96		96
44 REFUNDS.....		*	*						
90 OTHER.....	(-597)	( )	(-597)	(-520)	( )	(-520)	(-303)	( )	(-303)
91 UNVOUCHERED.....	16		16	8		8	13		13
92 NOT DISTRIBUTED OTHERWISE.....				75		75	350		350
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	260		260	-135		-135	-98		-98
95 QUARTERS AND SUBSISTENCE CHARGES..	*		*	*		*	*		*
96 CHANGES IN OBJECT CLASSIFICATION..	-872		-872	-567		-567	-567		-567
PROPOSED FOR SEPARATE TRANSMITTAL,				99		99			
TOTAL OBLIGATIONS INCURRED.....	105744	57	105801	104953	61	105014	98779	71	98850
LESS REIMBURSEMENTS AND OTHER OFFSETS,..	(-29988)	(-52)	(-29040)	(-27531)	(-53)	(-27584)	(-27071)	(-55)	(-27126)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	-25898		-25898	-24127		-24027	-23663		-23663
FROM TRUST FUNDS.....	-576		-576	-890		-890	-737		-737
FROM THE PUBLIC.....	-2386	-52	-2437	-2480	-53	-2533	-2513	-55	-2568
RECOVERIES OF PRIOR YEAR OBLIGATIONS,									
PROPRIETARY RECEIPTS (NETTED).....	-128		-128	-135		-135	-158		-158
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	76756	6	76761	77422	8	77430	71708	16	71724
INTRAGOVERNMENTAL TRANSACTIONS.....			-8			-7			-7
NET OBLIGATIONS INCURRED.....			76753			77423			71717

DEPARTMENT OF DEFENSE---CIVIL
OBLIGATIONS BY OBJECTS OR/OO
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(439)	(7)	(446)	(481)	(8)	(490)	(505)	(9)	(514)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	362	6	368	400	7	406	417	7	424
MILITARY PERSONNEL.....	3		3	5		5	5		5
POSITIONS OTHER THAN PERMANENT.....	15	*	15	17	*	17	19	*	19
OTHER PERSONNEL COMPENSATION.....	24	*	24	23	*	23	23	*	24
SPECIAL PERSONAL SERVICE PAYMENTS.	1	*	2	1	1	2	1	1	2
12 PERSONNEL BENEFITS.....	31	1	31	34	1	34	37	1	38
PERSONNEL BENEFITS, MILITARY.....	1		1	1		1	1		1
13 BENEFITS FOR FORMER PERSONNEL.....	1		1	1		1	1		1
20 CONTRACTUAL SERVICES AND SUPPLIES...	(787)	(5)	(792)	(848)	(5)	(853)	(874)	(5)	(879)
21 TRAVEL AND TRANSPORTATION, PERSONS	25	*	25	28	*	28	31	*	31
22 TRANSPORTATION OF THINGS.....	4	*	4	5	*	5	5	*	5
23 RENT, COMMUNICATIONS AND UTILITIES	15	*	15	17	*	17	18	*	19
24 PRINTING AND REPRODUCTION.....	1	*	1	2	*	2	2	*	2
25 OTHER SERVICES.....	668	3	671	716	3	719	732	3	735
26 SUPPLIES AND MATERIALS.....	74	1	76	80	2	82	86	2	87
30 ACQUISITION OF CAPITAL ASSETS.....	(634)	(17)	(651)	(634)	(21)	(655)	(901)	(25)	(926)
31 EQUIPMENT.....	28	1	28	42	*	43	48	1	49
32 LANDS AND STRUCTURES.....	607	16	623	592	21	612	852	25	877
33 INVESTMENTS AND LOANS.....									
40 GRANTS AND FIXED CHARGES.....	(113)	(1)	(114)	(67)	(*)	(67)	(45)	(1)	(46)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	99		99	54		54	32		32
42 INSURANCE CLAIMS AND INDEMNITIES..	1		1	2		2	1		1
43 INTEREST AND DIVIDENDS.....	12		12	12		12	12		12
44 REFUNDS.....	*	1	1		*	*		1	1
90 OTHER.....	(6)	(*)	(6)	(-1)	(*)	(-1)	(-1)	(*)	(-1)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....									
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	7	*	7	-1		-1	-1		-1
95 QUARTERS AND SUBSISTENCE CHARGES..	-1	*	-1	-1	*	-1	-1	*	-1
96 CHANGES IN OBJECT CLASSIFICATION.. PROPOSED FOR SEPARATE TRANSMITTAL.									
TOTAL OBLIGATIONS INCURRED.....	1979	30	2009	2030	34	2064	2324	40	2364
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-763)	(-19)	(-782)	(-805)	(-16)	(-821)	(-801)	(-28)	(-829)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS.....	-560		-560	-588		-588	-568		-568
FROM TRUST FUNDS.....		*	*		*	*		*	*
FROM THE PUBLIC.....	-162		-162	-172		-172	-182		-182
RECOVERIES OF PRIOR YEAR OBLIGATIONS.	*		*						
PROPRIETARY RECEIPTS (NETTED).....	-26	-19	-45	-27	-16	-43	-28	-28	-56
INTERFUND TRANSACTIONS.....	-15		-15	-18		-18	-22		-22
SUBTOTAL.....	1216	11	1228	1225	18	1243	1523	12	1535
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			1228			1243			1535

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OBLIGATIONS BY OBJECTS 09/30
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(628)	(456)	(1084)	(711)	(522)	(1233)	(751)	(534)	(1285)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	518	394	911	585	436	1021	616	459	1076
MILITARY PERSONNEL	1		1	2		2	2		2
POSITIONS OTHER THAN PERMANENT	29	5	34	32	5	37	33	6	39
OTHER PERSONNEL COMPENSATION	14	25	39	15	44	59	15	30	45
SPECIAL PERSONAL SERVICE PAYMENTS	4	*	4	5	*	5	6	*	7
12 PERSONNEL BENEFITS	55	32	87	63	36	99	66	39	105
PERSONNEL BENEFITS, MILITARY	*		*	*		*	*		*
13 BENEFITS FOR FORMER PERSONNEL	7		7	10		10	11		11
20 CONTRACTUAL SERVICES AND SUPPLIES	(690)	(353)	(1042)	(731)	(405)	(1136)	(887)	(435)	(1322)
21 TRAVEL AND TRANSPORTATION, PERSONS	28	6	34	31	9	40	37	10	47
22 TRANSPORTATION OF THINGS	7	2	8	7	2	8	7	2	9
23 RENT, COMMUNICATIONS AND UTILITIES	34	52	86	43	57	100	50	63	113
24 PRINTING AND REPRODUCTION	11	5	16	11	6	16	12	7	19
25 OTHER SERVICES	543	282	825	561	326	888	704	347	1051
26 SUPPLIES AND MATERIALS	67	5	72	78	6	84	78	6	84
30 ACQUISITION OF CAPITAL ASSETS	(372)	(16)	(389)	(373)	(19)	(392)	(404)	(26)	(430)
31 EQUIPMENT	31	9	39	30	10	41	30	20	49
32 LANDS AND STRUCTURES	24	8	32	48	9	57	60	6	67
33 INVESTMENTS AND LOANS	317	*	317	294		294	314		314
40 GRANTS AND FIXED CHARGES	(14585)	(32121)	(46706)	(15659)	(36797)	(52456)	(17509)	(41427)	(58936)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	13776	*	13776	14525	*	14525	16117	*	16117
42 INSURANCE CLAIMS AND INDEMNITIES	796	32121	32917	1099	36797	37896	1361	41427	42788
43 INTEREST AND DIVIDENDS	13		13	35		35	31		31
44 REFUNDS									
90 OTHER	(-72)	(581)	(509)	(112)	(633)	(745)	(870)	(686)	(1556)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE		582	582		636	636		680	680
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	-71	-1	-72	-61	-3	-64	-91	5	-85
95 QUARTERS AND SUBSISTENCE CHARGES	-1		-1	-1		-1	-1		-1
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				174		174	962		962
TOTAL OBLIGATIONS INCURRED	16203	33526	49729	17586	38376	55962	20421	43108	63529
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-327)	(-522)	(-849)	(-322)	(-547)	(-869)	(-326)	(-580)	(-907)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-208	*	-208	-203		-203	-206		-206
FROM TRUST FUNDS	-13		-13	-14		-14	-13		-13
FROM THE PUBLIC	-71		-71	-84		-84	-91		-91
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-28	-1	-29	-15		-15	-10		-10
PROPRIETARY RECEIPTS (NETTED)	-7	-8	-15	-5	-6	-11	-6	-1	-7
INTERFUND TRANSACTIONS		-513	-513		-541	-541		-579	-579
SUBTOTAL	15876	33004	48880	17264	37829	55093	20095	42527	62622
INTRAGOVERNMENTAL TRANSACTIONS			-2169			-2015			-2600
NET OBLIGATIONS INCURRED			46711			53079			60022

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
OBLIGATIONS BY OBJECTS 25/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(164)	( )	(164)	(195)	( )	(195)	(218)	( )	(218)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	148		148	172		172	190		190
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	2		2	4		4	6		6
OTHER PERSONNEL COMPENSATION.....	1		1	4		4	5		5
SPECIAL PERSONAL SERVICE PAYMENTS.									
12 PERSONNEL BENEFITS.....	12		12	15		15	17		17
PERSONNEL BENEFITS, MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL....	*		*						
20 CONTRACTUAL SERVICES AND SUPPLIES...	(163)	(10)	(173)	(232)	( )	(232)	(314)	( )	(314)
21 TRAVEL AND TRANSPORTATION, PERSONS	8		8	10		10	12		12
22 TRANSPORTATION OF THINGS.....	*		*	1		1	2		2
23 RENT, COMMUNICATIONS AND UTILITIES	12		12	16		16	21		21
24 PRINTING AND REPRODUCTION.....	4		4	5		5	6		6
25 OTHER SERVICES.....	138	10	147	198		198	273		273
26 SUPPLIES AND MATERIALS.....	1		1	1		1	2		2
30 ACQUISITION OF CAPITAL ASSETS.....	(3999)	(282)	(4281)	(2630)	( )	(2630)	(2438)	( )	(2438)
31 EQUIPMENT.....	3	*	3	7		7	2		2
32 LANDS AND STRUCTURES.....	452		452	392		392	438		438
33 INVESTMENTS AND LOANS.....	3544	282	3826	2232		2232	1997		1997
40 GRANTS AND FIXED CHARGES.....	(2357)	(144)	(2501)	(3036)	( )	(3036)	(3881)	( )	(3881)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS,	1926		1926	2553		2553	3331		3331
42 INSURANCE CLAIMS AND INDEMNITIES..	1		1	2		2	10		10
43 INTEREST AND DIVIDENDS.....	425	144	570	476		476	535		535
44 REFUNDS.....	4		4	4		4	4		4
90 OTHER.....	(396)	(488)	(884)	(1325)	( )	(1325)	(706)	( )	(706)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....	70	7	77	51		51	53		53
93 ADMIN AND UNADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	325	481	807	1268		1268	653		653
95 QUARTERS AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.				6		6			
TOTAL OBLIGATIONS INCURRED.....	7079	924	8003	7417		7417	7556		7556
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-5270)	(-1627)	(-6897)	(-3112)	( )	(-3112)	(-3657)	( )	(-3657)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	-520	-18	-538	-363		-363	-398		-398
FROM TRUST FUNDS.....	-12		-12						
FROM THE PUBLIC.....	-3690	-381	-4071	-2459		-2459	-2414		-2414
RECOVERIES OF PRIOR YEAR OBLIGATIONS.	-1048	-1228	-2276	-290		-290	-846		-846
PROPRIETARY RECEIPTS (NETTED).....	*		*	*		*	*		*
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	1809	-703	1106	4305		4305	3899		3899
INTRAGOVERNMENTAL TRANSACTIONS.....			-13						
NET OBLIGATIONS INCURRED.....			1093			4305			3899

DEPARTMENT OF THE INTERIOR
OBLIGATIONS BY OBJECTS 10/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(702)	(14)	(716)	(787)	(16)	(802)	(824)	(9)	(832)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	575	11	586	648	13	661	684	8	691
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	54	1	56	64	1	65	61	1	62
OTHER PERSONNEL COMPENSATION.....	14	1	15	13	1	14	15	1	15
SPECIAL PERSONAL SERVICE PAYMENTS.	5		5	2		2	*		*
12 PERSONNEL BENEFITS.....	53	1	54	59	1	60	63	*	63
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES,...	(422)	(17)	(439)	(411)	(19)	(430)	(424)	(14)	(439)
21 TRAVEL AND TRANSPORTATION, PERSONS	34	*	35	40	*	40	43	*	43
22 TRANSPORTATION OF THINGS.....	16	*	16	15	*	16	16	*	17
23 RENT, COMMUNICATIONS AND UTILITIES	35	1	35	36	1	37	41	1	41
24 PRINTING AND REPRODUCTION.....	7	*	7	7	*	7	8	*	8
25 OTHER SERVICES.....	176	13	189	193	15	208	213	12	225
26 SUPPLIES AND MATERIALS.....	154	3	157	119	2	121	103	1	105
30 ACQUISITION OF CAPITAL ASSETS.....	(456)	(9)	(465)	(494)	(25)	(520)	(403)	(2)	(406)
31 EQUIPMENT.....	46	1	47	55	1	56	61	*	61
32 LANDS AND STRUCTURES.....	394	4	399	423	8	431	327	2	329
33 INVESTMENTS AND LOANS.....	15	4	19	16	16	32	15		15
40 GRANTS AND FIXED CHARGES.....	(582)	(98)	(680)	(957)	(53)	(1010)	(808)	(54)	(862)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS,	562	1	562	937		937	789		789
42 INSURANCE CLAIMS AND INDEMNITIES..	2	*	2	2		2	2		2
43 INTEREST AND DIVIDENDS.....	18	*	18	17		17	16		16
44 REFUNDS.....	1	97	97	*	53	53	*	54	54
90 OTHER.....	(-7)	(*)	(-7)	(66)	(*)	(66)	(822)	(*)	(822)
91 UNVOUCHERED.....	*		*	*		*	*		*
92 NOT DISTRIBUTED OTHERWISE.....				1		1	1		1
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	2	*	2	18		18	-2		-2
95 QUARTERS,AND SUBSISTENCE CHARGES..	-5	*	-5	-5	*	-5	-5	*	-5
96 CHANGES IN OBJECT CLASSIFICATION..	-4		-4	-4		-4	-4		-4
PROPOSED FOR SEPARATE TRANSMITTAL.				55		55	833		833
TOTAL OBLIGATIONS INCURRED.....	2155	138	2293	2715	113	2827	3281	79	3360
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-1144)	(-87)	(-1231)	(-1053)	(-91)	(-1144)	(-1748)	(-70)	(-1818)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS.....	-92		-92	-88		-88	-78		-78
FROM TRUST FUNDS.....	*	*	*	*		*	*		*
FROM THE PUBLIC.....	-92	*	-92	-92		-92	-99		-99
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	-2	*	-2	*		*	*		*
PROPRIETARY RECEIPTS (NETTED).....	-958	-87	-1045	-873	-91	-964	-1570	-70	-1640
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	1011	51	1062	1661	22	1683	1533	9	1542
INTRAGOVERNMENTAL TRANSACTIONS.....			-40			-31			
NET OBLIGATIONS INCURRED.....			1021			1652			1542

DEPARTMENT OF JUSTICE
OBLIGATIONS BY OBJECTS 11/60
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(423)	(*)	(424)	(501)	(*)	(501)	(526)	(*)	(527)
11 PERSONNEL COMPENSATION:									
PERMANENT POSITIONS	347	*	347	412	*	412	432	*	432
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	3		3	4		4	4		4
OTHER PERSONNEL COMPENSATION	35	*	35	40	*	40	41	*	41
SPECIAL PERSONAL SERVICE PAYMENTS	9		9	9		9	10		10
12 PERSONNEL BENEFITS	30	*	30	36	*	36	39	*	39
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*						
20 CONTRACTUAL SERVICES AND SUPPLIES	(107)	(3)	(110)	(118)	(3)	(121)	(143)	(3)	(146)
21 TRAVEL AND TRANSPORTATION, PERSONS	20	*	20	24	*	24	29	*	29
22 TRANSPORTATION OF THINGS	3	*	3	3	*	3	3	*	3
23 RENT, COMMUNICATIONS AND UTILITIES	16	*	16	17	*	17	23	*	23
24 PRINTING AND REPRODUCTION	3		3	3		3	3		3
25 OTHER SERVICES	20	*	20	23	*	23	28	*	28
26 SUPPLIES AND MATERIALS	46	3	49	48	3	51	56	3	59
30 ACQUISITION OF CAPITAL ASSETS	(20)	(*)	(20)	(28)	(*)	(28)	(40)	(*)	(40)
31 EQUIPMENT	14	*	14	16	*	16	20	*	20
32 LANDS AND STRUCTURES	5		5	6		6	12		12
33 INVESTMENTS AND LOANS	1	*	1	6	*	6	8	*	8
40 GRANTS AND FIXED CHARGES	(27)	( )	(27)	(142)	( )	(142)	(347)	( )	(347)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	27		27	141		141	346		346
42 INSURANCE CLAIMS AND INDEMNITIES	*		*	*		*	*		*
43 INTEREST AND DIVIDENDS									
44 REFUNDS	*		*	*		*	*		*
90 OTHER	(31)	(*)	(31)	(116)	( )	(116)	(136)	( )	(136)
91 UNVOUCHERED	*		*	*		*	*		*
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	32	*	32	115		115	135		135
95 QUARTERS AND SUBSISTENCE CHARGES	-1		-1	-1		-1	-1		-1
96 CHANGES IN OBJECT CLASSIFICATION									
PROPOSED FOR SEPARATE TRANSMITTAL				1		1	1		1
TOTAL OBLIGATIONS INCURRED	609	3	612	905	4	908	1192	4	1196
LESS:REIMBURSEMENTS AND OTHER OFFSETS	(-76)	(-3)	(-80)	(-66)	(-4)	(-70)	(-67)	(-4)	(-71)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS	-70		-70	-59		-59	-60		-60
FROM TRUST FUNDS									
FROM THE PUBLIC	-5	-3	-8	-5	-4	-9	-5	-4	-9
RECOVERIES OF PRIOR YEAR OBLIGATIONS									
PROPRIETARY RECEIPTS (NETTED)	-2		-2	-2		-2	-2		-2
INTERFUND TRANSACTIONS									
SUBTOTAL	533	*	533	838		838	1124		1124
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			533			838			1124

DEPARTMENT OF LABOR
OBLIGATIONS BY OBJECTS 12/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(233)	(8)	(240)	(242)	(26)	(267)	(331)	(13)	(344)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	97	7	104	97	23	120	119	11	131
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	1	*	1	1	*	1	1	*	1
OTHER PERSONNEL COMPENSATION	1	*	1	1	1	1	1	*	1
SPECIAL PERSONAL SERVICE PAYMENTS	*		*	*		*	*		*
12 PERSONNEL BENEFITS	8	1	8	8	2	10	10	1	11
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	125		125	135		135	200		200
20 CONTRACTUAL SERVICES AND SUPPLIES	(54)	(24)	(78)	(52)	(7)	(59)	(61)	(21)	(81)
21 TRAVEL AND TRANSPORTATION, PERSONS	6	*	6	6	1	7	7	*	8
22 TRANSPORTATION OF THINGS	*	*	*	1	*	1	1	*	1
23 RENT, COMMUNICATIONS AND UTILITIES	5	1	5	4	1	6	5	1	7
24 PRINTING AND REPRODUCTION	2	*	2	2	*	2	2	*	2
25 OTHER SERVICES	40	23	63	39	4	43	44	19	63
26 SUPPLIES AND MATERIALS	1	*	1	1	*	1	1	*	1
30 ACQUISITION OF CAPITAL ASSETS	(281)	(*)	(281)	(342)	(*)	(342)	(348)	(1)	(349)
31 EQUIPMENT	1	*	1	1	*	1	3	1	4
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS	280		280	341		341	345		345
40 GRANTS AND FIXED CHARGES	(521)	(2761)	(3282)	(804)	(3375)	(4178)	(902)	(3767)	(4669)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	410	690	1100	673	745	1418	749	808	1557
42 INSURANCE CLAIMS AND INDEMNITIES	111	2061	2172	131	2620	2751	153	2952	3105
43 INTEREST AND DIVIDENDS		10	10		9	9		7	7
44 REFUNDS									
90 OTHER	(1)	(8)	(9)	(50)	(19)	(69)	(667)	(18)	(685)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE		8	8		9	9		10	10
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	1	*	1						
95 QUARTERS,AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				50	10	60	667	8	675
TOTAL OBLIGATIONS INCURRED	1289	2801	3890	1489	3426	4916	2308	3819	6127
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-377)	(-9)	(-385)	(-415)	(-6)	(-421)	(-486)	(-5)	(-491)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-69	*	-69	-67	*	-67	-86	*	-86
FROM TRUST FUNDS	-307		-307	-347		-347	-367		-367
FROM THE PUBLIC	*		*	*		*	*		*
RECOVERIES OF PRIOR YEAR OBLIGATIONS		-2	-2						
PROPRIETARY RECEIPTS (NETTED)	*	-7	-7	*	-6	-6	-4	-5	-8
INTERFUND TRANSACTIONS									
SUBTOTAL	713	2792	3505	1075	3421	4495	1852	3814	5666
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			3505			4495			5666

POST OFFICE DEPARTMENT
OBLIGATIONS BY OBJECTS 13/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(5867)	( )	(5867)	(6346)	( )	(6346)	(6460)	( )	(6460)
11 PERSONNEL COMPENSATION:									
PERMANENT POSITIONS	4096		4096	4433		4433	4512		4512
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	880		880	941		941	952		952
OTHER PERSONNEL COMPENSATION	446		446	485		485	487		487
SPECIAL PERSONAL SERVICE PAYMENTS									
12 PERSONNEL BENEFITS	444		444	487		487	509		509
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES	(1248)	( )	(1248)	(1366)	( )	(1366)	(1447)	( )	(1447)
21 TRAVEL AND TRANSPORTATION, PERSONS	27		27	29		29	30		30
22 TRANSPORTATION OF THINGS	823		823	857		857	885		885
23 RENT, COMMUNICATIONS AND UTILITIES	202		202	230		230	259		259
24 PRINTING AND REPRODUCTION	8		8	12		12	13		13
25 OTHER SERVICES	78		79	125		125	136		136
26 SUPPLIES AND MATERIALS	111		111	114		114	124		124
30 ACQUISITION OF CAPITAL ASSETS	(227)	( )	(227)	(337)	( )	(337)	(587)	( )	(587)
31 EQUIPMENT	156		156	163		163	190		190
32 LANDS AND STRUCTURES	71		71	174		174	397		397
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	(28)	( )	(28)	(30)	( )	(30)	(32)	( )	(32)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.									
42 INSURANCE CLAIMS AND INDEMNITIES	28		28	30		30	32		32
43 INTEREST AND DIVIDENDS									
44 REFUNDS									
90 OTHER	( )	( )	( )	(11)	( )	(11)	( )	( )	( )
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES									
95 QUARTERS,AND SUBSISTENCE CHANGES									
96 CHANGES IN OBJECT CLASSIFICATION, PROPOSED FOR SEPARATE TRANSMITTAL				11		11			
TOTAL OBLIGATIONS INCURRED	7369		7369	8090		8090	8525		8525
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-6255)	( )	(-6255)	(-6686)	( )	(-6686)	(-7858)	( )	(-7858)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS	-292		-292	-312		-312	-331		-331
FROM TRUST FUNDS									
FROM THE PUBLIC	-5974		-5974	-6373		-6373	-7527		-7527
RECOVERIES OF PRIOR YEAR OBLIGATIONS	10		10						
PROPRIETARY RECEIPTS (NETTED)									
INTERFUND TRANSACTIONS									
SUBTOTAL	1114		1114	1405		1405	667		667
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			1114			1405			667

TREASURY DEPARTMENT
OBLIGATIONS BY OBJECTS 15/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(895)	(21)	(916)	(1031)	(26)	(1057)	(1089)	(27)	(1115)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	753	19	772	871	24	895	920	25	945
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	36		36	39		39	39		39
OTHER PERSONNEL COMPENSATION	40		40	42		42	44		44
SPECIAL PERSONAL SERVICE PAYMENTS	1		1	1		1	1		1
12 PERSONNEL BENEFITS	66	1	67	78	2	80	85	2	86
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*						
20 CONTRACTUAL SERVICES AND SUPPLIES	(187)	(6)	(193)	(212)	(7)	(218)	(236)	(7)	(244)
21 TRAVEL AND TRANSPORTATION, PERSONS	23	4	27	30	5	35	38	5	43
22 TRANSPORTATION OF THINGS	7	*	7	11	*	11	12	*	12
23 RENT, COMMUNICATIONS AND UTILITIES	64	1	64	75	1	76	82	1	83
24 PRINTING AND REPRODUCTION	20	*	20	21	*	22	23	*	23
25 OTHER SERVICES	51	1	52	52	1	53	57	1	58
26 SUPPLIES AND MATERIALS	22	*	22	22	*	22	25	*	25
30 ACQUISITION OF CAPITAL ASSETS	(17)	(*)	(17)	(25)	(*)	(25)	(27)	(*)	(27)
31 EQUIPMENT	16	*	16	23	*	23	21	*	21
32 LANDS AND STRUCTURES	1		1	1		1	5		5
33 INVESTMENTS AND LOANS	*		*	1		1	1		1
40 GRANTS AND FIXED CHARGES	(16903)	(1)	(16903)	(19113)	(1)	(19114)	(19293)	(1)	(19293)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	92	*	92	101	*	101	99	*	99
42 INSURANCE CLAIMS AND INDEMNITIES	95	*	95	71	*	71	54	*	54
43 INTEREST AND DIVIDENDS	16716		16716	18940		18940	19142		19142
44 REFUNDS	*	1	1	*	1	1	*	1	1
90 OTHER	(3)	(*)	(3)	(137)	( )	(137)	(56)	( )	(56)
91 UNVOUCHERED	*		*	*		*	*		*
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	3	*	3	10		10	-4		-4
95 QUARTERS, AND SUBSISTENCE CHANGES	*		*	*		*	*		*
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				127		127	60		60
TOTAL OBLIGATIONS INCURRED	18405	28	18032	20517	33	20550	20703	35	20738
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-977)	(-28)	(-1005)	(-1302)	(-36)	(-1338)	(-1546)	(-37)	(-1583)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-35		-35	-42		-42	-40		-40
FROM TRUST FUNDS	-1		-1	-1		-1	*		*
FROM THE PUBLIC	-44	-28	-72	-51	-36	-87	-52	-37	-89
RECOVERIES OF PRIOR YEAR OBLIGATIONS	*		*	*		*	*		*
PROPRIETARY RECEIPTS (NETTED)	-268		-269	-400		-400	-411		-411
INTERFUND TRANSACTIONS	-628		-628	-808		-808	-1041		-1041
SUBTOTAL	17429	-1	17027	19215	-2	19213	19157	-2	19155
INTRAGOVERNMENTAL TRANSACTIONS			-89			-84			-86
NET OBLIGATIONS INCURRED			16939			19129			19069

ATOMIC ENERGY COMMISSION
OBLIGATIONS BY OBJECTS 19/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(104)	(*)	(104)	(118)	(*)	(118)	(120)	(*)	(120)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	93	*	93	105	*	105	107	*	107
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	2		2	2		2	2		2
OTHER PERSONNEL COMPENSATION	2		2	2		2	2		2
SPECIAL PERSONAL SERVICE PAYMENTS	*		*	*		*	*		*
12 PERSONNEL BENEFITS	8	*	8	9	*	9	9	*	9
PERSONNEL BENEFITS,MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES	(2512)	(1)	(2512)	(2551)	(*)	(2551)	(2612)	(*)	(2612)
21 TRAVEL AND TRANSPORTATION, PERSONS	4	*	4	5		5	5		5
22 TRANSPORTATION OF THINGS	2		2	3		3	4		4
23 RENT, COMMUNICATIONS AND UTILITIES	92		92	86		86	103		103
24 PRINTING AND REPRODUCTION	1		1	1		1	1		1
25 OTHER SERVICES	2308	1	2308	2396	*	2397	2466	*	2466
26 SUPPLIES AND MATERIALS	105		105	60		60	33		33
30 ACQUISITION OF CAPITAL ASSETS	(415)	( )	(415)	(474)	( )	(474)	(464)	( )	(464)
31 EQUIPMENT	168		168	180		180	188		188
32 LANDS AND STRUCTURES	247		247	294		294	276		276
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	(6)	( )	(6)	(10)	( )	(10)	(9)	( )	(9)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	6		6	10		10	9		9
42 INSURANCE CLAIMS AND INDEMNITIES				*		*	*		*
43 INTEREST AND DIVIDENDS									
44 REFUNDS									
90 OTHER	(183)	(*)	(183)	(105)	(*)	(105)	(-74)	( )	(-74)
91 UNVOUCHERED				*		*	*		*
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	183	*	183	104	*	104	-74		-74
95 QUARTERS,AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION, PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED	3220	1	3220	3257	*	3257	3131	*	3131
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-617)	(-1)	(-617)	(-636)	(*)	(-636)	(-768)	(*)	(-768)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-332		-332	-297		-297	-330		-330
FROM TRUST FUNDS	-1		-1	-2		-2			
FROM THE PUBLIC	-282		-282	-336		-336	-438		-438
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-2		-2	*		*			
PROPRIETARY RECEIPTS (NETTED)		-1	-1		*	*		*	*
INTERFUND TRANSACTIONS									
SUBTOTAL	2603	*	2603	2621	*	2621	2363		2363
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			2603			2621			2363

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GENERAL SERVICES ADMINISTRATION
OBLIGATIONS BY OBJECTS 23/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(822)	(1)	(323)	(352)	(1)	(352)	(357)	(1)	(358)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	281	1	282	307	1	308	311	1	312
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	9	*	9	9	*	9	9	*	9
OTHER PERSONNEL COMPENSATION.....	8	*	8	10	*	10	10	*	10
SPECIAL PERSONAL SERVICE PAYMENTS,									
12 PERSONNEL BENEFITS.....	24	*	24	26	*	26	26	*	26
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES,...	(1701)	(1)	(1702)	(1947)	(1)	(1948)	(2007)	(1)	(2008)
21 TRAVEL AND TRANSPORTATION, PERSONS	3	*	3	4	*	4	5	*	5
22 TRANSPORTATION OF THINGS.....	42	*	42	50	*	50	50	*	50
23 RENT, COMMUNICATIONS AND UTILITIES	216	*	216	230	*	230	237	*	237
24 PRINTING AND REPRODUCTION.....	3	*	3	3	*	4	4	*	4
25 OTHER SERVICES.....	612	*	612	702	*	703	745	*	746
26 SUPPLIES AND MATERIALS.....	824	*	824	957	1	958	965	1	966
30 ACQUISITION OF CAPITAL ASSETS.....	(125)	(*)	(126)	(99)	(*)	(99)	(312)	(*)	(312)
31 EQUIPMENT.....	39	*	39	39	*	39	42	*	42
32 LANDS AND STRUCTURES.....	87		87	60		60	271		271
33 INVESTMENTS AND LOANS.....									
40 GRANTS AND FIXED CHARGES.....	(2)	(*)	(3)	(2)	(*)	(2)	(2)	(*)	(2)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS,	1	*	2	1	*	1	1	*	1
42 INSURANCE CLAIMS AND INDEMNITIES..	*		*	*		*	*		*
43 INTEREST AND DIVIDENDS.....	1		1	1		1	1		1
44 REFUNDS.....									
90 OTHER.....	(96)	(*)	(96)	(-16)	(*)	(-16)	(-9)	(*)	(-9)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....	1		1	*		*			
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	95	*	95	-17	*	-17	-9	*	-9
95 QUARTERS,AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.									
TOTAL OBLIGATIONS INCURRED.....	2247	2	2249	2383	2	2385	2668	2	2671
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-1900)	(-1)	(-1902)	(-1991)	(-2)	(-1993)	(-2474)	(-2)	(-2476)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	-1658	*	-1658	-1718	*	-1718	-1756	*	-1756
FROM TRUST FUNDS.....	-50		-50	-52		-52	-53		-53
FROM THE PUBLIC.....	-7	-1	-9	-6	-2	-8	-8	-2	-10
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	-1		-1	-1		-1			
PROPRIETARY RECEIPTS (NETTED).....	-184		-184	-215		-215	-657		-657
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	347	*	347	392	*	392	194	*	194
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			347			392			194

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
OBLIGATIONS BY OBJECTS 27/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(461)	( )	(461)	(514)	( )	(514)	(513)	( )	(513)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	412		412	460		460	456		456
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	5		5	6		6	5		5
OTHER PERSONNEL COMPENSATION	8		8	7		7	7		7
SPECIAL PERSONAL SERVICE PAYMENTS	4		4	4		4	4		4
12 PERSONNEL BENEFITS	33		33	37		37	39		39
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	1		1
20 CONTRACTUAL SERVICES AND SUPPLIES	(3503)	(2)	(3505)	(3452)	(3)	(3455)	(2771)	(12)	(2783)
21 TRAVEL AND TRANSPORTATION, PERSONS	16		16	19		19	20		20
22 TRANSPORTATION OF THINGS	17		17	17		17	15		15
23 RENT, COMMUNICATIONS AND UTILITIES	105		105	104		104	98		98
24 PRINTING AND REPRODUCTION	8		8	7		7	7		7
25 OTHER SERVICES	3218	2	3220	3172	3	3175	2517	12	2528
26 SUPPLIES AND MATERIALS	139		139	134		134	114		114
30 ACQUISITION OF CAPITAL ASSETS	(153)	( )	(153)	(173)	( )	(173)	(142)	( )	(142)
31 EQUIPMENT	95		95	95		95	88		88
32 LANDS AND STRUCTURES	58		58	77		77	55		55
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	(1)	( )	(1)	(1)	( )	(1)	(1)	( )	(1)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	1		1	1		1	1		1
42 INSURANCE CLAIMS AND INDEMNITIES	*		*	*		*	*		*
43 INTEREST AND DIVIDENDS									
44 REFUNDS									
90 OTHER	( )	( )	( )	( )	( )	( )	( )	( )	( )
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND ADMADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES									
95 QUARTERS AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED	4118	2	4120	4140	3	4143	3427	12	3439
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-78)	(-2)	(-80)	(-94)	(-3)	(-97)	(-76)	(-12)	(-88)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-50		-50	-60		-60	-67		-67
FROM TRUST FUNDS									
FROM THE PUBLIC	-23		-23	-31		-31	-6		-6
RECOVERIES OF PRIOR YEAR OBLIGATIONS	-1		-1						
PROPRIETARY RECEIPTS (NETTED)	-4	-2	-6	-3	-3	-6	-3	-12	-15
INTERFUND TRANSACTIONS									
SUBTOTAL	4040	*	4040	4045		4045	3351		3351
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			4040			4045			3351

VETERANS ADMINISTRATION
OBLIGATIONS BY OBJECTS 29/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(1394)	( )	(1394)	(1541)	( )	(1541)	(1587)	( )	(1587)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	1194		1194	1316		1316	1354		1354
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	69		69	77		77	79		79
OTHER PERSONNEL COMPENSATION	28		28	31		31	30		30
SPECIAL PERSONAL SERVICE PAYMENTS	*		*	*		*	*		*
12 PERSONNEL BENEFITS	102		102	117		117	124		124
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES	(716)	(2)	(717)	(734)	(2)	(735)	(763)	(2)	(765)
21 TRAVEL AND TRANSPORTATION, PERSONS	20		20	23		23	26		26
22 TRANSPORTATION OF THINGS	6		6	6		6	7		7
23 RENT, COMMUNICATIONS AND UTILITIES	41	*	41	44	*	45	48	*	48
24 PRINTING AND REPRODUCTION	6		6	7		7	7		7
25 OTHER SERVICES	322	*	323	312	*	313	320	*	321
26 SUPPLIES AND MATERIALS	320	1	321	341	1	342	356	1	357
30 ACQUISITION OF CAPITAL ASSETS	(454)	(141)	(595)	(563)	(146)	(709)	(544)	(139)	(683)
31 EQUIPMENT	36	*	37	47	*	48	43	*	43
32 LANDS AND STRUCTURES	58	*	58	95	*	95	79	*	79
33 INVESTMENTS AND LOANS	359	140	500	421	146	566	422	138	560
40 GRANTS AND FIXED CHARGES	(5810)	(781)	(6591)	(6009)	(786)	(6794)	(6738)	(825)	(7563)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS	699		699	791		791	1104		1104
42 INSURANCE CLAIMS AND INDEMNITIES	4991	781	5772	5100	786	5886	5521	825	6346
43 INTEREST AND DIVIDENDS	120		120	117		117	113		113
44 REFUNDS		*	*		*	*		*	*
90 OTHER	(57)	( )	(57)	(449)	( )	(449)	(53)	( )	(53)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	63		63	-40		-40	75		75
95 QUARTERS AND SUBSISTENCE CHANGES	-6		-6	-7		-7	-7		-7
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL				496		496	-16		-16
TOTAL OBLIGATIONS INCURRED	8430	924	9354	9296	933	10229	9685	966	10650
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-855)	(-683)	(-1539)	(-888)	(-667)	(-1555)	(-1408)	(-685)	(-2093)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS	-466		-466	-434		-434	-447		-447
FROM TRUST FUNDS									
FROM THE PUBLIC	-388	-194	-582	-452	-187	-639	-959	-193	-1152
RECOVERIES OF PRIOR YEAR OBLIGATIONS, PROPRIETARY RECEIPTS (NETTED)	-2	-489	-491	-2	-479	-481	-2	-492	-494
INTERFUND TRANSACTIONS									
SUBTOTAL	7574	240	7815	8408	267	8674	8277	281	8557
INTRAGOVERNMENTAL TRANSACTIONS			-6			-5			-5
NET OBLIGATIONS INCURRED			7809			8669			8552

SUMMARY - OTHER INDEPENDENT AGENCIES
OBLIGATIONS BY OBJECTS 30/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(798)	(47)	(845)	(888)	(49)	(938)	(1095)	(52)	(1147)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	522	36	558	582	38	620	601	41	642
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	71	*	72	89	*	90	104	*	104
OTHER PERSONNEL COMPENSATION.....	23	1	24	22	1	23	23	1	24
SPECIAL PERSONAL SERVICE PAYMENTS.	8	1	9	9	2	11	8	2	10
12 PERSONNEL BENEFITS.....	60	3	62	68	3	70	73	3	76
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....	115	6	120	119	6	124	285	5	291
20 CONTRACTUAL SERVICES AND SUPPLIES....	(509)	(1072)	(1581)	(570)	(1259)	(1829)	(627)	(1413)	(2040)
21 TRAVEL AND TRANSPORTATION, PERSONS	29	6	35	33	7	40	37	8	45
22 TRANSPORTATION OF THINGS.....	36	*	36	42	*	42	42	*	42
23 RENT, COMMUNICATIONS AND UTILITIES	44	3	47	47	4	51	49	4	53
24 PRINTING AND REPRODUCTION.....	9	1	9	11	1	11	10	1	11
25 OTHER SERVICES.....	205	1061	1266	222	1247	1469	243	1399	1643
26 SUPPLIES AND MATERIALS.....	187	1	188	215	1	216	246	*	246
30 ACQUISITION OF CAPITAL ASSETS.....	(2719)	(4036)	(6755)	(4741)	(1)	(4742)	(4548)	(1)	(4549)
31 EQUIPMENT.....	110	1	111	146	1	147	227	1	229
32 LANDS AND STRUCTURES.....	56	1	58	113		113	210		210
33 INVESTMENTS AND LOANS.....	2552	4034	6586	4482		4482	4110		4110
40 GRANTS AND FIXED CHARGES.....	(899)	(4310)	(5210)	(1012)	(4626)	(5638)	(1122)	(5089)	(6211)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	572	1	573	631	5	636	671	5	676
42 INSURANCE CLAIMS AND INDEMNITIES..	*	3936	3937	*	4375	4376	*	4817	4818
43 INTEREST AND DIVIDENDS.....	327	154	481	381		381	451		451
44 REFUNDS.....		219	219		245	245		266	266
90 OTHER.....	(49)	(133)	(183)	(340)	(28)	(368)	(394)	(104)	(498)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....		130	130	22	*	22	5	*	6
93 ADMIN AND NONADMIN EXPENSES.....		*	*						
94 CHANGE IN SELECTED RESOURCES.....	49	3	52	216	-24	192	285	*	285
95 QUARTERS,AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.				102	52	154	103	104	207
TOTAL OBLIGATIONS INCURRED.....	4975	9598	14573	7552	5963	13515	7786	6660	14446
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-3691)	(-6820)	(-10511)	(-4190)	(-1762)	(-5951)	(-3609)	(-1944)	(-5552)
REIMBURSEMENTS CREDITED TO APPROPS,									
FROM FEDERAL FUNDS.....	-272	-562	-834	-287	-607	-894	-318	-631	-949
FROM TRUST FUNDS.....	-73		-73	-13		-13	-14		-14
FROM THE PUBLIC.....	-2568	-6208	-8776	-3225	-1144	-4369	-2861	-1309	-4171
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	-687	2	-685	-615		-615	-368		-368
PROPRIETARY RECEIPTS (NETTED).....	-91	-42	-133	-49	-10	-59	-47	-2	-50
INTERFUND TRANSACTIONS.....		-10	-10		-1	-1		-1	-1
SUBTOTAL.....	1284	2778	4062	3362	4202	7564	4177	4716	8893
INTRAGOVERNMENTAL TRANSACTIONS.....			-98			-96			-257
NET OBLIGATIONS INCURRED.....			3964			7468			8636

CIVIL SERVICE COMMISSION
OBLIGATIONS BY OBJECTS 30/28
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(167)	(6)	(173)	(179)	(6)	(185)	(350)	(5)	(356)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	46		46	50		50	55		55
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	1		1	3		3	2		2
OTHER PERSONNEL COMPENSATION	2		2	3		3	3		3
SPECIAL PERSONAL SERVICE PAYMENTS	*		*						
12 PERSONNEL BENEFITS	4		4	4		4	5		5
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL	114	6	120	118	6	124	285	5	291
20 CONTRACTUAL SERVICES AND SUPPLIES	(12)	(1056)	(1069)	(14)	(1243)	(1258)	(16)	(1396)	(1412)
21 TRAVEL AND TRANSPORTATION, PERSONS	2		2	3		3	3		3
22 TRANSPORTATION OF THINGS	*		*	*		*	*		*
23 RENT, COMMUNICATIONS AND UTILITIES	3		3	3		3	4		4
24 PRINTING AND REPRODUCTION	2		2	2		2	3		3
25 OTHER SERVICES	4	1056	1060	5	1243	1248	5	1396	1401
26 SUPPLIES AND MATERIALS	1		1	1		1	1		1
30 ACQUISITION OF CAPITAL ASSETS	(*)	( )	(*)	(1)	( )	(1)	(1)	( )	(1)
31 EQUIPMENT	*		*	1		1	1		1
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	(*)	(2595)	(2595)	(*)	(2981)	(2981)	(*)	(3386)	(3386)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS									
42 INSURANCE CLAIMS AND INDEMNITIES	*	2376	2376	*	2735	2735	*	3119	3119
43 INTEREST AND DIVIDENDS									
44 REFUNDS		219	219		245	245		266	266
90 OTHER	(*)	(31)	(4)	(-4)	(-24)	(-28)	(3)	( )	(3)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AID NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	*	3	4	-4	-24	-28	-1		-1
95 QUARTERS AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION									
PROPOSED FOR SEPARATE TRANSMITTAL							4		4
TOTAL OBLIGATIONS INCURRED	180	3661	3840	190	4205	4396	370	4787	5157
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-28)	(-1871)	(-1899)	(-31)	(-1394)	(-1425)	(-32)	(-1556)	(-1588)
REIMBURSEMENTS CREDITED TO APPROPS.									
FROM FEDERAL FUNDS	-20	-385	-406	-22	-403	-425	-23	-417	-440
FROM TRUST FUNDS	-7		-7	-9		-9	-8		-8
FROM THE PUBLIC	*	-1445	-1445	*	-987	-987	-1	-1137	-1138
RECOVERIES OF PRIOR YEAR OBLIGATIONS									
PROPRIETARY RECEIPTS (NETTED)	*	-31	-31	*	-3	-3	*	-1	-1
INTERFUND TRANSACTIONS		-10	-10		-1	-1		-1	-1
SUBTOTAL	152	1789	1941	159	2812	2971	338	3231	3569
INTRAGOVERNMENTAL TRANSACTIONS			-72			-73			-236
NET OBLIGATIONS INCURRED			1869			2898			3333

EXPORT-IMPORT BANK OF THE UNITED STATES
OBLIGATIONS BY OBJECTS 30/48
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(4)	( )	(4)	(5)	( )	(5)	(6)	( )	(6)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	4		4	5		5	5		5
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	*		*	*		*	*		*
OTHER PERSONNEL COMPENSATION.....	*		*	*		*	*		*
SPECIAL PERSONAL SERVICE PAYMENTS.	*		*	*		*	*		*
12 PERSONNEL BENEFITS.....	*		*	*		*	*		*
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL....									
20 CONTRACTUAL SERVICES AND SUPPLIES....	(1)	( )	(1)	(1)	( )	(1)	(1)	( )	(1)
21 TRAVEL AND TRANSPORTATION, PERSONS	*		*	*		*	*		*
22 TRANSPORTATION OF THINGS.....	*		*	*		*	*		*
23 RENT, COMMUNICATIONS AND UTILITIES	1		1	1		1	1		1
24 PRINTING AND REPRODUCTION.....	*		*	*		*	*		*
25 OTHER SERVICES.....	*		*	*		*	*		*
26 SUPPLIES AND MATERIALS.....	*		*	*		*	*		*
30 ACQUISITION OF CAPITAL ASSETS.....	(2109)	( )	(2109)	(3221)	( )	(3221)	(3486)	( )	(3486)
31 EQUIPMENT.....	*		*	*		*	*		*
32 LANDS AND STRUCTURES.....									
33 INVESTMENTS AND LOANS.....	2109		2109	3221		3221	3486		3486
40 GRANTS AND FIXED CHARGES.....	(173)	( )	(173)	(202)	( )	(202)	(241)	( )	(241)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.									
42 INSURANCE CLAIMS AND INDEMNITIES..									
43 INTEREST AND DIVIDENDS.....	173		173	202		202	241		241
44 REFUNDS.....									
90 OTHER.....	(3)	( )	(3)	(219)	( )	(219)	(233)	( )	(233)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....									
93 ADMIN AND NONADMIN EXPENSES,.....									
94 CHANGE IN SELECTED RESOURCES.....	3		3	219		219	233		233
95 QUARTERS,AND SUBSISTENCE CHARGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED.....	2290		2290	3648		3648	3967		3967
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-2222)	( )	(-2222)	(-2304)	( )	(-2304)	(-2282)	( )	(-2282)
REIMBURSEMENTS CREDITED TO APPROPS.									
FROM FEDERAL FUNDS.....	*		*	*		*	*		*
FROM TRUST FUNDS.....									
FROM THE PUBLIC.....	-1584		-1584	-1749		-1749	-1960		-1960
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	-638		-638	-554		-554	-322		-322
PROPRIETARY RECEIPTS (NETTED).....									
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	68		68	1345		1345	1685		1685
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			68			1345			1685

FEDERAL DEPOSIT INSURANCE CORPORATION
OBLIGATIONS BY OBJECTS 30/64
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	( )	21	21	( )	26	26	( )	31	31
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS		20	20		24	24		30	30
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT									
OTHER PERSONNEL COMPENSATION									
SPECIAL PERSONAL SERVICE PAYMENTS									
12 PERSONNEL BENEFITS		1	1		2	2		2	2
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL									
20 CONTRACTUAL SERVICES AND SUPPLIES	( )	9	9	( )	11	11	( )	13	13
21 TRAVEL AND TRANSPORTATION, PERSONS		5	5		6	6		8	8
22 TRANSPORTATION OF THINGS									
23 RENT, COMMUNICATIONS AND UTILITIES		2	2		2	2		2	2
24 PRINTING AND REPRODUCTION		*	*		*	*		1	1
25 OTHER SERVICES		1	1		2	2		2	2
26 SUPPLIES AND MATERIALS		*	*		*	*		*	*
30 ACQUISITION OF CAPITAL ASSETS	( )	1	1	( )	1	1	( )	1	1
31 EQUIPMENT		1	1		1	1		1	1
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	( )	25	25	( )	12	12	( )	( )	( )
41 GRANTS, SUBSIDIES AND CONTRIBUTNS									
42 INSURANCE CLAIMS AND INDEMNITIES		25	25		12	12			
43 INTEREST AND DIVIDENDS									
44 REFUNDS									
90 OTHER	( )	*	*	( )	( )	( )	( )	( )	( )
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES		*	*						
95 QUARTERS, AND SUBSISTENCE CHANGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED		54	54		50	50		46	46
LESS REIMBURSEMENTS AND OTHER OFFSETS	( )	-334	-334	( )	-361	-361	( )	-386	-386
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS		-177	-177		-204	-204		-214	-214
FROM TRUST FUNDS									
FROM THE PUBLIC		-157	-157		-157	-157		-172	-172
RECOVERIES OF PRIOR YEAR OBLIGATIONS									
PROPRIETARY RECEIPTS (NETTED)									
INTERFUND TRANSACTIONS									
SUBTOTAL		-280	-280		-311	-311		-341	-341
INTRAGOVERNMENTAL TRANSACTIONS			-6			-3			
NET OBLIGATIONS INCURRED			-296			-314			-341

FEDERAL HOME LOAN BANK BOARD
OBLIGATIONS BY OBJECTS 30/68
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(6)	( )	(6)	(7)	( )	(7)	(8)	( )	(8)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	4		4	5		5	6		6
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT	1		1	1		1	1		1
OTHER PERSONNEL COMPENSATION	*		*	*		*	*		*
SPECIAL PERSONAL SERVICE PAYMENTS	*		*	1		1	*		*
12 PERSONNEL BENEFITS	*		*	*		*	1		1
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL									
20 CONTRACTUAL SERVICES AND SUPPLIES	(12)	( )	(12)	(16)	( )	(16)	(18)	( )	(18)
21 TRAVEL AND TRANSPORTATION, PERSONS	*		*	*		*	*		*
22 TRANSPORTATION OF THINGS	*		*	*		*	*		*
23 RENT, COMMUNICATIONS AND UTILITIES	1		1	1		1	1		1
24 PRINTING AND REPRODUCTION	*		*	*		*	*		*
25 OTHER SERVICES	11		11	15		15	17		17
26 SUPPLIES AND MATERIALS	*		*	*		*	*		*
30 ACQUISITION OF CAPITAL ASSETS	(42)	( )	(42)	(521)	( )	(521)	(26)	( )	(26)
31 EQUIPMENT	*		*	*		*	*		*
32 LANDS AND STRUCTURES	*		*	*		*	5		5
33 INVESTMENTS AND LOANS	41		41	520		520	20		20
40 GRANTS AND FIXED CHARGES	(18)	( )	(18)	(19)	( )	(19)	(20)	( )	(20)
41 GRANTS, SUBSIDIES AND CONTRIBUTIONS	4		4	5		5	5		5
42 INSURANCE CLAIMS AND INDEMNITIES									
43 INTEREST AND DIVIDENDS	13		13	14		14	15		15
44 REFUNDS									
90 OTHER	(*)	( )	(*)	(20)	( )	(20)	( )	( )	( )
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE				20		20			
93 ADMIN AND NONADMIN EXPENSES									
94 CHANGE IN SELECTED RESOURCES	*		*	*		*			
95 QUARTERS AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL									
TOTAL OBLIGATIONS INCURRED	77		77	583		583	72		72
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-375)	( )	(-375)	(-808)	( )	(-808)	(-199)	( )	(-199)
REIMBURSEMENTS CREDITED TO APPROPS. FROM FEDERAL FUNDS	-106		-106	-127		-127	-137		-137
FROM TRUST FUNDS									
FROM THE PUBLIC	-269		-269	-681		-681	-62		-62
RECOVERIES OF PRIOR YEAR OBLIGATIONS	*		*	*		*	*		*
PROPRIETARY RECEIPTS (NETTED)									
INTERFUND TRANSACTIONS									
SUBTOTAL	-297		-297	-225		-225	-127		-127
INTRAGOVERNMENTAL TRANSACTIONS									
NET OBLIGATIONS INCURRED			-297			-225			-127

RAILROAD RETIREMENT BOARD
OBLIGATIONS BY OBJECTS 32/20
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS	(*)	(12)	(13)	(*)	(13)	(14)	(*)	(13)	(14)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS	*	11	11	*	12	12	*	12	12
MILITARY PERSONNEL									
POSITIONS OTHER THAN PERMANENT		*	*		*	*		*	*
OTHER PERSONNEL COMPENSATION	*	1	1	*	1	1	*	1	1
SPECIAL PERSONAL SERVICE PAYMENTS									
12 PERSONNEL BENEFITS	*	1	1	*	1	1	*	1	1
PERSONNEL BENEFITS, MILITARY									
13 BENEFITS FOR FORMER PERSONNEL									
20 CONTRACTUAL SERVICES AND SUPPLIES	(*)	(3)	(3)	(*)	(3)	(3)	(*)	(3)	(3)
21 TRAVEL AND TRANSPORTATION, PERSONS	*	*	*	*	*	*	*	*	*
22 TRANSPORTATION OF THINGS	*	*	*	*	*	*	*	*	*
23 RENT, COMMUNICATIONS AND UTILITIES	*	1	1	*	1	1	*	1	1
24 PRINTING AND REPRODUCTION	*	*	*	*	*	*	*	*	*
25 OTHER SERVICES		1	1		1	1		1	1
26 SUPPLIES AND MATERIALS	*	*	*	*	*	*	*	*	*
30 ACQUISITION OF CAPITAL ASSETS	( )	(*)	(*)	( )	(*)	(*)	( )	(1)	(1)
31 EQUIPMENT		*	*		*	*		1	1
32 LANDS AND STRUCTURES									
33 INVESTMENTS AND LOANS									
40 GRANTS AND FIXED CHARGES	(18)	(1536)	(1554)	(19)	(1628)	(1647)	(20)	(1698)	(1718)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	18		18	19		19	20		20
42 INSURANCE CLAIMS AND INDEMNITIES		1536	1536		1628	1628		1698	1698
43 INTEREST AND DIVIDENDS		*	*						
44 REFUNDS									
90 OTHER	( )	(*)	(*)	( )	(52)	(52)	( )	(104)	(104)
91 UNVOUCHERED									
92 NOT DISTRIBUTED OTHERWISE									
93 ADMIN AND MANAGMN EXPENSES		*	*						
94 CHANGE IN SELECTED RESOURCES		*	*						
95 QUARTERS, AND SUBSISTENCE CHARGES									
96 CHANGES IN OBJECT CLASSIFICATION PROPOSED FOR SEPARATE TRANSMITTAL					52	52		104	104
TOTAL OBLIGATIONS INCURRED	19	1551	1570	20	1696	1716	21	1819	1839
LESS REIMBURSEMENTS AND OTHER OFFSETS	(-1)	(-57)	(-57)	(-1)	(-2)	(-3)	(-1)	(*)	(-1)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS									
FROM TRUST FUNDS	-1		-1	-1		-1	-1		-1
FROM THE PUBLIC		-50	-50						
RECOVERIES OF PRIOR YEAR OBLIGATIONS		*	*						
PROPRIETARY RECEIPTS (NETTED)	*	-7	-7		-2	-2		*	*
INTERFUND TRANSACTIONS									
SUBTOTAL	18	1494	1512	19	1693	1713	20	1819	1839
INTRAGOVERNMENTAL TRANSACTIONS			-20			-20			-21
NET OBLIGATIONS INCURRED			1493			1692			1818

REMAINDER OF OTHER INDEPENDENT AGENCIES
OBLIGATIONS BY OBJECTS 30/00
FOR THE FISCAL YEARS 1969, 1970 AND 1971
(IN MILLIONS OF DOLLARS)

DESCRIPTION	1969 ACTUAL FEDERAL FUNDS	1969 ACTUAL TRUST FUNDS	1969 ACTUAL TOTAL	1970 ESTIMATED FEDERAL FUNDS	1970 ESTIMATED TRUST FUNDS	1970 ESTIMATED TOTAL	1971 ESTIMATED FEDERAL FUNDS	1971 ESTIMATED TRUST FUNDS	1971 ESTIMATED TOTAL
10 PERSONAL SERVICES AND BENEFITS.....	(621)	(8)	(629)	(697)	(5)	(702)	(731)	(2)	(733)
11 PERSONNEL COMPENSATION, PERMANENT POSITIONS.....	468	6	473	521	2	524	535	*	535
MILITARY PERSONNEL.....									
POSITIONS OTHER THAN PERMANENT....	70	*	70	86	*	86	101	*	101
OTHER PERSONNEL COMPENSATION.....	21	*	21	19	*	19	21		21
SPECIAL PERSONAL SERVICE PAYMENTS.	7	1	9	8	2	10	8	2	10
12 PERSONNEL BENEFITS.....	55	1	56	62	*	63	67	*	67
PERSONNEL BENEFITS,MILITARY.....									
13 BENEFITS FOR FORMER PERSONNEL.....	*		*	*		*	*		*
20 CONTRACTUAL SERVICES AND SUPPLIES....	(485)	(4)	(489)	(538)	(2)	(540)	(592)	(1)	(593)
21 TRAVEL AND TRANSPORTATION, PERSONS	26	*	27	30	*	30	33	*	33
22 TRANSPORTATION OF THINGS.....	36	*	36	41	*	41	41	*	41
23 RENT, COMMUNICATIONS AND UTILITIES	40	1	41	43	*	43	44	*	45
24 PRINTING AND REPRODUCTION.....	6	*	7	8	*	8	8	*	8
25 OTHER SERVICES.....	190	2	192	202	*	203	221	*	221
26 SUPPLIES AND MATERIALS.....	187	*	187	214	*	215	245	*	245
30 ACQUISITION OF CAPITAL ASSETS.....	(567)	(4035)	(4603)	(1000)	(*)	(1000)	(1035)	(*)	(1035)
31 EQUIPMENT.....	110	*	110	146	*	146	226	*	226
32 LANDS AND STRUCTURES.....	56	1	57	113		113	205		205
33 INVESTMENTS AND LOANS.....	402	4034	4436	741		741	604		604
40 GRANTS AND FIXED CHARGES.....	(691)	(153)	(845)	(771)	(6)	(777)	(841)	(5)	(846)
41 GRANTS, SUBSIDIES AND CONTRIBUTNS.	549	1	550	607	5	612	646	5	651
42 INSURANCE CLAIMS AND INDEMNITIES..	*	*	*	*	*	*	*	*	*
43 INTEREST AND DIVIDENDS.....	142	154	295	164		164	195		195
44 REFUNDS.....					*	*			
90 OTHER.....	(46)	(130)	(176)	(104)	(*)	(104)	(158)	(*)	(158)
91 UNVOUCHERED.....									
92 NOT DISTRIBUTED OTHERWISE.....		130	130	2	*	2	5	*	6
93 ADMIN AND NONADMIN EXPENSES.....									
94 CHANGE IN SELECTED RESOURCES.....	46	*	46	1		1	54	*	53
95 QUARTERS,AND SUBSISTENCE CHANGES..									
96 CHANGES IN OBJECT CLASSIFICATION..									
PROPOSED FOR SEPARATE TRANSMITTAL.				102		102	99		99
TOTAL OBLIGATIONS INCURRED.....	2410	4332	6742	3110	12	3122	3356	9	3365
LESS REIMBURSEMENTS AND OTHER OFFSETS...	(-1067)	(-4557)	(-5625)	(-1046)	(-5)	(-1051)	(-1095)	(-2)	(-1097)
REIMBURSEMENTS CREDITED TO APPROPS, FROM FEDERAL FUNDS.....	-146		-146	-138		-138	-158		-158
FROM TRUST FUNDS.....	-66		-66	-4		-4	-5		-5
FROM THE PUBLIC.....	-715	-4556	-5272	-795		-795	-839		-839
RECOVERIES OF PRIOR YEAR OBLIGATIONS,	-49	2	-47	-60		-60	-46		-46
PROPRIETARY RECEIPTS (NETTED).....	-91	-4	-95	-49	-5	-54	-47	-2	-49
INTERFUND TRANSACTIONS.....									
SUBTOTAL.....	1342	-225	1117	2064	7	2071	2261	7	2268
INTRAGOVERNMENTAL TRANSACTIONS.....									
NET OBLIGATIONS INCURRED.....			1117			2071			2268

FEDERAL GOVERNMENT REAL PROPERTY HOLDINGS WORLDWIDE

HIGHLIGHT SUMMARY

Statistics in brief

	Inside United States	Outlying areas of United States	Foreign countries	Total
Number of installations [1]	20,202	182	361	20,745
Total acres	762,514,479	522,580	4,578	763,041,637
Number of buildings [2]	412,824	4,058	2,849	419,731
Building floor area [2] (thousands of sq. ft.)	2,496,024	15,235	19,313	2,530,572
Total cost (thousands of dollars)	68,869,133	2,323,534	4,748,546	75,941,213

[1] Excludes Department of Defense (military functions) in Alaska, Hawaii, outlying areas of the United States and foreign countries.

[2] Excludes Department of Defense (military functions) in outlying areas of United States and foreign countries.

Source: GSA

The acquisition cost of real property owned by the Government throughout the world as of June 30, 1969, is $75.9 billion, an increase of $2.9 billion over last year. Department of Defense accounts for $1.5 billion or 53.6 percent of the total increase. The previous year, Department of Defense accounted for 11.7 percent of the $1.6 billion increase. Section 6 of this report summarizes and explains the more significant changes in Federal real property during the past year.

The following table summarizes data in this report on Federal real property throughout the world: (See ~~app. 1, table 1~~ page ——, for further detail.)

Description	Number of installations	Land (acres in millions)	Buildings (square feet in millions)	Total cost (in billions)	Percent of total cost
United States:					
Civil agencies	14,600	731.9	640.1	26.2	34.5
Defense (military functions)	4,471	23.5	1,845.5	33.1	43.6
Defense (civil functions)	1,131	7.1	10.4	9.6	12.7
Total, United States	20,202	762.5	2,496.0	68.9	90.8
Outlying areas of the United States:					
Civil agencies	181	.4	15.2	.8	1.1
Defense (military functions)	(1)	.1	(1)	1.5	1.9
Defense (civil functions)	1	(2)	(2)	(2)	(2)
Total, outlying areas of the United States	xxx	.5	xxx	2.3	3.0
Foreign countries:					
Civil agencies	361	(2)	19.3	.4	.5
Defense (military functions)	(1)	(2)	(1)	4.3	5.7
Total, foreign countries	xxx	(2)	xxx	4.7	6.2
Worldwide:					
Civil agencies	15,142	732.3	674.6	27.4	36.1
Defense (military functions)	(1)	23.6	(1)	38.9	51.2
Defense (civil functions)	1,132	7.1	10.4	9.6	12.7
Total, worldwide	xxx	763.0	xxx	75.9	100.0

[1] These data are not furnished by Department of Defense.
[2] Negligible.

The Department of Defense furnished only summary data on total acres and total costs for its military functions located outside the United States. Therefore, the above table and other tables and charts in this report do not show detailed information (e.g., number of installations, number and floor area of buildings, and geographical location) for military functions outside the United States.

Source: GSA

REAL PROPERTY OWNED BY THE UNITED STATES—SUMMARY TABLE

Summary of real property owned by the United States throughout the world

Description	Number of installations	Land (acres)	Buildings		Cost (in thousands of dollars)			
			Number	Floor area (square feet)	Land	Buildings	Structures and facilities	Total
United States:								
Civil agencies	14,600	731,844,941.8	93,207	640,092,317	2,132,516	10 145,045	13,938,326	26,215,887
Defense, military functions	4,471	23,523,720.3	313,100	1,845,548,145	676,262	17,545,413	14,857,404	33,079,079
Defense, civil functions	1,131	7,145,817.0	6,517	10,383,677	2,392,633	105,722	7,075,812	9,574,167
Total, United States	20,202	762,514,479.1	412,824	2,496,024,139	5,201,411	27,796,180	35,871,542	68,869,133
Outlying areas of the United States:								
Civil agencies	181	427,668.3	4,050	15,205,442	30,430	162,220	626,297	818,947
Defense, military functions	(1)	94,906.0	(1)	(1)	(1)	(1)	(1)	1,504,100
Defense, civil functions	1	5.5	8	29,464	100	288	99	487
Total, outlying areas of the United States	xxx	522,579.8	xxx	xxx	xxx	xxx	xxx	2,323,534
Foreign countries:								
Civil agencies	361	4,561.9	2,849	19,312,735	57,254	263,909	97,892	419,055
Defense, military functions	(1)	16.0	(1)	(1)	(1)	(1)	(1)	4,329,491
Total, foreign countries	xxx	4,577.9	xxx	xxx	xxx	xxx	xxx	4,748,546
Worldwide:								
Civil agencies	15,142	732,277,172.0	100,106	674,610,494	2,220,200	10,571,174	14,662,515	27,453,889
Defense, military functions	(1)	23,618,642.3	(1)	(1)	(1)	(1)	(1)	38,912,670
Defense, civil functions	1,132	7,145,822.5	6,525	10,413,141	2,392,733	106,010	7,075,911	9,574,654
Total, worldwide	xxx	763,041,636.8	xxx	xxx	xxx	xxx	xxx	75,941,213

[1] These data were not furnished by Department of Defense for its military functions outside the United States.

Source: GSA

Comparison of federally owned land with total acreage of States

State	Acreage owned by the Federal Government			Acreage not owned by Federal Government	Acreage of State [1]	Percent owned by Government [2]
	Public domain	Acquired by other methods	Total			
Alabama	26,522.4	1,074,414.7	1,100,937.1	31,577,462.9	32,678,400	3.369
Alaska	354,699,603.9	17,132.3	354,716,736.2	10,764,863.8	365,481,600	97.055
Arizona	32,343,293.5	302,496.0	32,645,789.5	40,042,210.5	72,688,000	44.912
Arkansas	1,067,828.0	2,094,982.5	3,162,810.5	30,436,549.5	33,599,360	9.413
California	42,561,042.5	2,327,805.5	44,888,848.0	55,317,872.0	100,206,720	44.796
Colorado	23,152,923.5	1,042,843.3	24,195,766.8	42,289,993.2	66,485,760	36.392
Connecticut	0	9,408.8	9,408.8	3,125,951.2	3,135,360	.300
Delaware	0	39,241.9	39,241.9	1,226,678.1	1,265,920	3.100
District of Columbia	0	11,013.6	11,013.6	28,026.4	39,040	28.212
Florida	370,871.2	3,039,089.8	3,409,961.0	31,311,319.0	34,721,280	9.821
Georgia	0	2,086,421.0	2,086,421.0	35,208,939.0	37,295,360	5.594
Hawaii	0	397,011.8	397,011.8	3,708,588.2	4,105,600	9.670
Idaho	33,049,219.2	777,400.5	33,826,619.7	19,106,500.3	52,933,120	63.904
Illinois	448.2	541,156.9	541,605.1	35,253,594.9	35,795,200	1.513
Indiana	432.0	430,930.2	431,362.2	22,727,037.8	23,158,400	1.863
Iowa	340.8	216,948.0	217,288.8	35,643,191.2	35,860,480	.606
Kansas	26,734.8	647,382.7	674,117.5	51,836,602.5	52,510,720	1.284
Kentucky	0	1,177,283.7	1,177,283.7	24,335,036.3	25,512,320	4.614
Louisiana	20,003.4	1,020,954.6	1,040,958.0	27,826,882.0	28,867,840	3.606
Maine	0	130,172.1	130,172.1	19,717,507.9	19,847,680	.656
Maryland	0	194,322.6	194,322.6	6,125,037.4	6,319,360	3.075
Massachusetts	0	76,260.2	76,260.2	4,958,619.8	5,034,880	1.515
Michigan	291,842.5	3,055,253.3	3,347,095.8	33,145,064.2	36,492,160	9.172
Minnesota	1,287,190.5	2,018,108.9	3,305,299.4	47,900,460.6	51,205,760	6.455
Mississippi	6,119.7	1,566,610.7	1,572,730.4	28,649,989.6	30,222,720	5.204
Missouri	2,638.3	1,924,764.5	1,927,402.8	42,320,917.2	44,248,320	4.356
Montana	25,157,672.4	2,466,962.1	27,624,634.5	65,646,405.5	93,271,040	29.618
Nebraska	260,722.4	457,528.0	718,250.4	48,313,429.6	49,031,680	1.465
Nevada	60,727,966.7	156,817.5	60,884,784.2	9,379,535.8	70,264,320	86.651
New Hampshire	0	706,133.2	706,133.2	5,062,826.8	5,768,960	12.240
New Jersey	0	115,867.0	115,867.0	4,697,573.0	4,813,440	2.407
New Mexico	24,777,084.0	1,570,190.1	26,347,274.1	51,419,125.9	77,766,400	33.880
New York	0	234,661.3	234,661.3	30,446,298.7	30,680,960	.764
North Carolina	0	1,942,388.5	1,942,388.5	29,460,491.5	31,402,880	6.185
North Dakota	212,723.0	1,924,452.5	2,137,175.5	42,315,304.5	44,452,480	4.808
Ohio	85.0	272,980.6	273,065.6	25,949,014.4	26,222,080	1.041
Oklahoma	149,762.1	1,286,215.3	1,435,977.4	42,651,702.6	44,087,680	3.257
Oregon	30,976,621.5	1,207,168.8	32,183,790.3	29,414,929.7	61,598,720	52.247
Pennsylvania	0	608,503.6	608,503.6	28,195,976.4	28,804,480	2.113
Rhode Island	0	7,771.2	7,771.2	669,348.8	677,120	1.148
South Carolina	0	1,131,121.3	1,131,121.3	18,242,958.7	19,374,080	5.838
South Dakota	1,592,865.7	1,819,366.8	3,412,232.5	45,469,687.5	48,881,920	6.981
Tennessee	0	1,720,869.3	1,720,869.3	25,006,810.7	26,727,680	6.439
Texas	0	3,040,515.4	3,040,515.4	165,177,084.6	168,217,600	1.807
Utah	34,322,703.3	515,428.6	34,838,131.9	17,858,828.1	52,696,960	66.110
Vermont	0	262,436.5	262,436.5	5,674,203.5	5,936,640	4.421
Virginia	0	2,210,063.9	2,210,063.9	23,286,256.1	25,496,320	8.668
Washington	11,092,509.9	1,478,110.5	12,570,620.4	30,123,139.6	42,693,760	29.444
West Virginia	0	1,013,934.4	1,013,934.4	14,396,625.6	15,410,560	6.579
Wisconsin	9,613.3	1,783,637.7	1,793,251.0	33,217,949.0	35,011,200	5.122
Wyoming	29,533,819.5	640,741.7	30,174,561.2	32,168,478.8	62,343,040	48.401
Total	707,721,203.2	54,793,275.9	762,514,479.1	1,508,828,880.9	2,271,343,360	33.571

1. Source: U.S. Census of Population: 1960 Final Report PC (1)-1A, table 12.
2. Excludes trust properties.

Source: GSA

Federally owned property in the United States, by State

State	Number of installations	Land (acres)			Number of buildings	Cost (in thousands of dollars)			
		Urban	Rural	Total		Land	Buildings	Structures and facilities	Total
Alabama	311	2,474.3	1,098,462.8	1,100,937.1	8,054	64,711	547,839	1,045,118	1,657,668
Alaska	709	658,706.3	354,058,029.9	354,716,736.2	8,245	3,448	1,031,863	1,146,787	2,182,098
Arizona	330	5,534.0	32,640,255.5	32,645,789.5	10,577	19,035	381,731	1,136,240	1,537,006
Arkansas	249	1,751.4	3,161,059.1	3,162,810.5	4,289	122,800	161,734	805,672	1,090,206
California	1,311	264,882.9	44,623,965.1	44,888,848.0	59,991	491,955	3,299,573	3,552,942	7,344,470
Colorado	372	20,305.0	24,175,461.8	24,195,766.8	7,147	76,488	548,070	813,537	1,438,095
Connecticut	178	8,289.7	1,119.1	9,408.8	2,057	38,343	163,848	69,724	271,915
Delaware	93	695.0	38,546.9	39,241.9	895	7,125	79,576	65,865	152,566
District of Columbia	186	10,409.6	604.0	11,013.6	1,890	154,032	833,123	161,601	1,148,756
Florida	603	60,916.1	3,349,044.9	3,409,961.0	13,877	127,881	1,079,789	1,213,283	2,420,953
Georgia	390	23,490.0	2,062,931.0	2,086,421.0	13,731	119,791	668,616	521,012	1,309,419
Hawaii	152	55,236.8	341,775.0	397,011.8	11,424	26,592	529,721	513,520	1,069,833
Idaho	296	1,219.1	33,825,400.6	33,826,619.7	4,440	39,990	209,168	521,813	770,971
Illinois	563	7,164.4	534,440.7	541,605.1	7,272	113,807	814,344	470,162	1,398,313
Indiana	317	2,386.2	428,976.0	431,362.2	6,020	91,183	331,019	415,496	837,698
Iowa	239	585.9	216,702.9	217,288.8	1,928	44,144	137,480	123,131	304,755
Kansas	270	2,707.3	671,410.2	674,117.5	7,217	212,286	382,574	664,322	1,259,182
Kentucky	283	1,244.0	1,176,039.7	1,177,283.7	7,128	273,074	499,575	1,002,675	1,775,324
Louisiana	318	11,356.6	1,029,601.4	1,040,958.0	5,198	57,450	337,668	369,076	764,194
Maine	285	4,680.8	125,491.3	130,172.1	3,560	8,267	229,815	247,257	485,339
Maryland	304	17,439.5	176,883.1	194,322.6	12,038	65,591	1,227,543	548,310	1,841,444
Massachusetts	438	11,422.6	64,837.6	76,260.2	6,227	93,820	602,283	337,677	1,033,780
Michigan	578	2,147.3	3,344,948.5	3,347,095.8	6,905	36,885	410,991	293,366	741,242
Minnesota	333	3,723.3	3,301,576.1	3,305,299.4	2,367	28,866	188,241	156,029	373,136
Mississippi	246	3,562.7	1,569,167.7	1,572,730.4	5,109	76,686	282,318	446,795	805,799

Source: GSA

Missouri	513	2,123.9	1,925,278.9	1,927,402.8	6,492	116,117	562,190	407,817	1,086,124
Montana	551	1,176.0	27,623,458.5	27,624,634.5	6,206	44,878	209,070	913,803	1,167,751
Nebraska	294	756.7	717,493.7	718,250.4	3,322	60,869	191,716	377,111	629,696
Nevada	190	104.6	60,884,679.6	60,884,784.2	5,148	7,321	192,595	337,957	537,873
New Hampshire	89	2,855.0	703,278.2	706,133.2	858	24,442	71,997	81,841	178,280
New Jersey	340	58,788.9	57,078.1	115,867.0	8,034	51,134	614,625	395,734	1,061,493
New Mexico	312	53,172.3	26,294,101.8	26,347,274.1	11,155	30,148	581,091	556,355	1,167,594
New York	917	26,713.4	207,947.9	234,661.3	10,613	159,668	1,202,803	713,594	2,076,065
North Carolina	406	869.0	1,941,519.5	1,942,388.5	16,164	74,457	542,480	536,195	1,153,132
North Dakota	600	127.2	2,137,048.3	2,137,175.5	4,261	105,138	231,375	705,369	1,041,882
Ohio	581	11,204.4	261,861.2	273,065.6	5,107	133,221	1,048,013	759,606	1,940,840
Oklahoma	284	18,221.2	1,417,756.2	1,435,977.4	7,036	303,375	350,059	613,549	1,266,983
Oregon	673	2,950.5	32,180,839.8	32,183,790.3	5,690	249,472	145,983	2,076,174	2,471,629
Pennsylvania	627	4,376.2	604,127.4	608,503.6	6,230	208,421	670,868	640,904	1,520,193
Rhode Island	97	1,075.3	6,695.9	7,771.2	2,627	7,223	165,231	131,913	304,367
South Carolina	227	59,947.2	1,071,174.1	1,131,121.3	9,169	75,592	672,478	588,839	1,336,909
South Dakota	383	1,401.3	3,410,831.2	3,412,232.5	3,286	137,784	172,502	892,849	1,203,135
Tennessee	361	39,341.8	1,681,527.5	1,720,869.3	6,049	281,568	838,973	2,110,798	3,231,339
Texas	1,003	17,329.0	3,023,186.4	3,040,515.4	27,392	256,960	1,551,855	1,289,619	3,098,434
Utah	250	10,061.3	34,828,070.6	34,838,131.9	4,615	25,869	273,627	448,784	748,280
Vermont	101	1,716.1	260,720.4	262,436.5	352	11,015	20,791	43,443	75,249
Virginia	481	58,938.3	2,151,125.6	2,210,063.9	19,542	129,077	1,330,228	1,217,063	2,676,368
Washington	768	6,515.6	12,564,104.8	12,570,620.4	17,326	169,470	831,710	2,614,953	3,616,133
West Virginia	199	433.7	1,013,500.7	1,013,934.4	1,276	76,168	86,350	273,983	436,501
Wisconsin	328	1,114.5	1,792,136.5	1,793,251.0	4,059	18,894	184,739	134,783	338,416
Wyoming	273	7,138.7	30,167,422.5	30,174,561.2	3,229	48,880	74,329	367,096	490,305
Total	20,202	1,570,782.9	760,943,696.2	762,514,479.1	412,824	5,201,411	27,796,180	35,871,542	68,869,133

Source: GSA

MAGNITUDE OF DOD PROPERTY MANAGEMENT ACTIVITIES

Property Holdings

The total of DOD's real and personal property holdings has risen every year annually from $129 billion in fiscal year 1955 to $210 billion at the end of fiscal year 1969.

Real property holdings increased from $21 to $40 billion and personal property holdings, including construction in progress, from $107 to $171 billion during the 15-year period.

Supply system inventories, which were reduced from a high of $54 billion in 1957 to $37 billion in 1965, have been built up again in the ensuing four years to $47 billion. During that period, there has been a shift in funding of secondary supplies to the stock-fund type, the value of which now stands at $11 billion.

TABLE 1.--DOD PROPERTY HOLDINGS AS OF JUNE 30, FISCAL YEARS 1955-69

[In millions of dollars]

Total and type of property	1955	1956	1957	1958	1959	1960
Total	128,694	134,082	146,021	149,465	150,660	154,617
Real	21,343	22,918	24,892	26,891	29,689	31,997
Personal	107,351	111,164	121,129	112,574	120,971	122,620
Supply systems	50,780	50,974	53,799	47,652	44,467	42,002
Stock funds	8,153	9,772	10,970	8,913	8,162	7,312
Appropriated funds	42,627	41,202	42,829	38,739	36,305	34,690

	1961	1962	1963	1964	1965	1966	1967	1968	1969
Total	158,508	164,835	171,364	173,455	176,221	183,570	195,552	202,547	210,121
Real	34,038	35,378	36,565	36,734	37,557	38,390	38,495	38,651	39,577
Personal	124,470	129,457	134,799	136,721	138,664	145,180	157,057	163,896	170,544
Supply systems	40,837	40,652	40,096	38,795	36,986	37,661	41,301	43,786	47,327
Stock funds	6,413	6,154	6,527	5,749	5,327	5,850	7,503	7,913	11,094
Appropriated funds	34,424	34,498	33,569	33,046	31,659	31,811	33,798	35,873	36,233

[1] Source: "Real and Personal Property of the Department of Defense," an annual report.

Expenditures for DOD military functions decreased from 9.3 percent of the gross national product in fiscal 1968 to 8.6 percent in fiscal 1969, and are estimated to decrease to 7.0 percent in fiscal year 1971.

TABLE 2.—FEDERAL GOVERNMENT EXPENDITURES AND GROSS NATIONAL PRODUCT—COMPARISON WITH NATIONAL DEFENSE PROGRAMS AND MILITARY FUNCTIONS EXPENDITURES, FISCAL YEARS 1939-71

Fiscal year	Gross national product (billions)	Total Federal Government		National Defense 1/ programs			DoD military functions 2/ (excluding military assistance)		
		Expenditures/ outlays (millions)	Percent of GNP	Expenditures/ outlays (millions)	Percent of GNP	Percent of total Government	Expenditures/ outlays (millions)	Percent of GNP	Percent of total Government
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Administrative budget basis: 3/									
1939	$ 88.2	$ 8,841	10.0	$ 1,075	1.2	12.2	$ 1,075	1.2	12.2
1940	95.0	9,055	9.5	1,498	1.6	16.5	1,492	1.6	16.5
1941	109.4	13,255	12.1	6,054	5.5	45.7	5,998	5.5	45.2
1942	139.2	34,027	24.5	23,970	17.2	70.4	23,570	16.9	69.2
1943	177.5	79,368	44.7	63,216	35.6	79.6	62,664	35.3	79.0
1944	201.9	94,986	47.0	76,757	38.0	80.8	75,797	37.5	79.8
1945	216.8	98,303	45.3	81,277	37.5	82.7	80,048	36.9	81.4
1946	201.6	60,326	29.9	43,226	21.4	71.7	42,044	20.9	69.7
1947	219.8	38,923	17.7	14,398	6.6	37.0	13,838	6.3	35.6
1948	243.5	32,955	13.5	11,779	4.8	35.7	10,937	4.5	33.2
1949	260.0	39,474	15.2	12,926	5.0	32.7	11,573	4.5	29.3
1950	263.3	39,544	15.0	13,018	4.9	32.9	11,891	4.5	30.1
1951	310.5	43,970	14.2	22,471	7.2	51.1	19,764	6.4	44.9
1952	337.2	65,303	19.4	44,037	13.1	67.4	38,897	11.5	59.6
1953	358.9	74,120	20.7	50,442	14.1	68.1	43,604	12.1	58.8
1954	362.1	67,537	18.7	46,986	13.0	69.6	40,326	11.1	59.7
1955	378.6	64,389	17.0	40,695	10.7	63.2	35,531	9.4	55.2
1956	409.4	66,224	16.2	40,723	9.9	61.5	35,792	8.7	54.0
1957	431.3	68,966	16.0	43,368	10.1	62.9	38,436	8.9	55.7
1958	440.3	71,369	16.2	44,234	10.0	62.0	39,071	8.9	54.7
Unified budget basis: 3/									
1959	469.1	92,104	19.6	46,617	9.9	50.6	41,467	8.8	45.0
1960	495.2	92,223	18.6	45,908	9.3	49.8	41,479	8.4	45.0
1961	506.5	97,795	19.3	47,381	9.4	48.4	43,292	8.5	44.3
1962	542.1	106,813	19.7	51,097	9.4	47.8	46,916	8.7	43.9
1963	573.4	111,311	19.4	52,257	9.1	46.9	48,143	8.4	43.3
1964	612.2	118,584	19.4	53,591	8.8	45.2	49,577	8.1	41.8
1965	654.2	118,430	18.1	49,578	7.6	41.9	45,973	7.0	38.8
1966	721.2	134,652	18.7	56,785	7.9	42.2	54,178	7.5	40.2
1967	768.8	158,254	20.6	70,081	9.1	44.3	67,457	8.8	42.6
1968	826.0	178,833	21.6	80,517	9.7	45.0	77,373	9.3	43.3
1969	900.6	184,556	20.5	81,240	9.0	44.0	77,877	8.6	42.2
1970 estimate	960.0	197,885	20.6	79,432	8.3	40.0	76,505	8.0	38.7
1971 estimate	1,020.0	200,771	19.7	73,583	7.2	36.7	71,191	7.0	35.5

1/ Bureau of the Budget "National Defense Programs" include Department of Defense military functions, military assistance, atomic energy activities, stockpiling of strategic and critical materials, defense production expansion, Selective Service System, and emergency preparedness activities.

2/ Amounts are adjusted for comparability with current coverage of military functions.

3/ For explanation of conceptual differences between "Administrative Budget" and "Unified Budget", see Special Analysis A, page 464 of the Budget of the United States Government, 1969.

Source: OASD(Comptroller)

Table 3, when compared to Table 4, reflects a decrease of 74,999 military personnel and an increase of 15,888 civilian employees between June 30, 1968, and June 30, 1969. The increase in civilian employment is due to a change in reporting approximately 40,000 National Guard technicians who were classified as Federal employees on January 1, 1969.

Table 5, when compared to Table 6, reflects an increase of $735 million in military pay costs and $1,143 million in civilian employee pay costs between fiscal years 1968 and 1969. These increases are attributable almost entirely to increased rates of pay approved by the Congress.

TABLE 3 - DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1969

(Cf pages 5-11

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
UNITED STATES (INCL. ALASKA & HAWAII)	Military				1,943,114	100.0	826,220	100.0	520,869	100.0	596,025	100.0
	Civilian				1,162,413	100.0	409,368	100.0	387,771	100.0	298,047	100.0
	Total	199,846,000	100.0	1.6	3,105,527	100.0	1,235,588	100.0	908,640	100.0	888,072	100.0
ALABAMA	Military				32,328	1.7	25,446	3.1	448	0.1	6,434	1.1
	Civilian				26,864	2.3	22,893	5.6	42	*	3,453	1.2
	Total	3,522,000	1.8	1.7	59,192	1.9	48,339	3.9	490	0.1	9,887	1.1
ALASKA	Military				30,511	1.6	12,240	1.5	3,228	0.6	15,043	2.5
	Civilian				6,869	0.6	2,886	0.7	476	0.1	3,471	1.2
	Total	276,000	0.1	13.5	37,380	1.2	15,126	1.2	3,704	0.4	18,514	2.1
ARIZONA	Military				25,950	1.3	7,365	0.9	2,122	0.4	16,463	2.8
	Civilian				9,496	0.8	4,947	1.2	292	0.1	4,031	1.4
	Total	1,667,000	0.8	2.1	35,446	1.1	12,312	1.0	2,414	0.2	20,494	2.3
ARKANSAS	Military				8,092	0.4	339	*	109	*	7,644	1.3
	Civilian				5,309	0.5	4,037	1.0	3	*	1,224	0.4
	Total	1,983,000	1.0	0.7	13,401	0.4	4,376	0.4	112	*	8,868	1.0
CALIFORNIA	Military				279,075	14.4	60,510	7.3	147,359	28.3	71,206	12.1
	Civilian				180,118	15.5	25,677	6.3	106,982	27.7	39,436	13.4
	Total	19,179,000	9.6	2.4	459,193	14.8	86,187	7.0	254,341	28.0	110,642	12.4
COLORADO	Military				51,656	2.7	27,433	3.3	622	0.1	23,601	4.0
	Civilian				18,791	1.6	8,980	2.2	5	*	9,634	3.3
	Total	2,067,000	1.0	3.4	70,447	2.3	36,413	2.9	627	0.1	33,235	3.7
CONNECTICUT	Military				4,571	0.2	161	*	4,314	0.8	96	*
	Civilian				4,983	0.4	679	0.2	3,804	0.8	306	0.1
	Total	2,961,000	1.5	0.3	9,554	0.3	840	0.1	7,518	0.8	402	*
DELAWARE	Military				6,395	0.3	78	*	149	*	6,168	1.0
	Civilian				1,861	0.2	222	0.1	3	*	1,623	0.6
	Total	533,000	0.2	1.5	8,256	0.3	300	*	152	*	7,791	0.9
FLORIDA	Military				77,680	4.0	3,838	0.5	36,005	6.9	37,837	6.4
	Civilian				33,452	2.9	2,232	0.6	20,900	5.4	9,734	3.3
	Total	6,210,000	3.1	1.8	111,132	3.6	6,090	0.5	56,905	6.3	47,571	5.4

TABLE 3 - DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

(Cf pages 5-11

As of 30 June 1969

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S	Number	Percent of U.S.	Number	Percent of U.S	Number	Percent of U.S.
GEORGIA	Military				106,050	5.6	90,444	10.9	6,838	1.3	8,768	1.5
	Civilian				44,544	3.8	20,289	5.0	3,351	0.9	20,156	6.9
	Total	4,579,000	2.3	3.3	150,594	4.8	110,733	9.0	10,189	1.1	28,924	3.3
HAWAII	Military				33,739	1.7	9,792	1.2	12,924	2.5	11,023	1.9
	Civilian				24,296	2.1	6,526	1.6	13,555	3.6	4,146	1.4
	Total	775,000	0.4	7.5	58,035	1.9	16,318	1.3	26,479	2.9	15,169	1.7
IDAHO	Military				4,843	0.2	66	*	1,183	0.2	3,594	0.6
	Civilian				1,050	0.1	415	0.1	3	*	632	0.2
	Total	709,000	0.3	0.8	5,893	0.2	481	*	1,186	0.1	4,226	0.5
ILLINOIS	Military				61,438	3.2	7,745	0.9	33,939	6.5	19,754	3.3
	Civilian				33,585	2.9	18,175	4.4	6,594	1.7	6,890	2.4
	Total	10,958,000	5.5	0.9	95,023	3.1	25,920	2.1	40,533	4.5	26,644	3.0
INDIANA	Military				8,541	0.4	3,968	0.5	584	0.1	3,989	0.7
	Civilian				19,780	1.7	7,619	1.9	10,479	2.7	1,141	0.4
	Total	5,065,000	2.5	0.6	28,321	0.9	11,587	0.9	11,063	1.2	5,130	0.6
IOWA	Military				607	*	197	*	190	*	220	*
	Civilian				1,416	0.1	832	0.2	3	*	397	0.1
	Total	2,775,000	1.4	0.1	2,023	0.1	1,029	0.1	193	*	617	0.1
KANSAS	Military				38,480	2.0	26,786	3.2	773	0.1	10,921	1.8
	Civilian				7,164	0.6	5,435	1.3	177	*	1,393	0.5
	Total	2,291,000	1.2	2.0	45,644	1.5	32,221	2.6	950	0.1	12,314	1.4
KENTUCKY	Military				53,997	2.8	53,119	6.4	213	*	665	0.1
	Civilian				17,625	1.5	14,436	3.5	2,996	0.8	176	0.1
	Total	3,224,000	1.6	2.2	71,622	2.3	67,555	5.5	3,209	0.4	841	0.1
LOUISIANA	Military				40,542	2.1	28,970	3.5	1,170	0.2	10,402	1.8
	Civilian				8,563	0.7	5,264	1.3	1,250	0.3	1,770	0.6
	Total	3,710,000	1.9	1.3	49,105	1.6	34,234	2.8	2,420	0.2	12,172	1.4

TABLE 3 -

DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1969

(Cf pages 5-11)

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
MAINE	Military				6,330	0.3	99	*	1,253	0.2	4,978	0.8
	Civilian				2,126	0.2	231	0.1	894	0.2	979	0.3
	Total	978,000	0.5	0.9	8,456	0.3	330	*	2,147	0.2	5,957	0.7
MARYLAND **	Military				46,245	2.4	28,434	3.4	15,745	3.0	2,066	0.3
	Civilian				31,541	2.7	20,296	5.0	10,377	2.7	392	0.1
	Total	2,635,000	1.3	3.0	77,786	2.5	48,730	3.9	26,122	2.9	2,458	0.3
MASSACHUSETTS	Military				26,838	1.4	11,298	1.4	3,133	0.6	12,407	2.1
	Civilian				22,899	2.0	6,142	1.5	9,315	2.4	5,632	1.9
	Total	5,438,000	2.7	0.9	49,737	1.6	17,440	1.4	12,448	1.4	18,039	2.0
MICHIGAN	Military				15,083	0.8	1,454	0.2	1,063	0.2	12,566	2.1
	Civilian				13,970	1.2	8,719	2.1	185	*	2,492	0.9
	Total	8,673,000	4.4	0.3	29,053	0.9	10,173	0.8	1,248	0.1	15,058	1.7
MINNESOTA	Military				4,421	0.2	902	0.1	867	0.2	2,652	0.4
	Civilian				3,234	0.3	1,382	0.3	173	*	1,213	0.4
	Total	3,663,000	1.8	0.2	7,655	0.2	2,284	0.2	1,040	0.1	3,865	0.4
MISSISSIPPI	Military				26,080	1.3	744	0.1	3,329	0.6	22,007	3.7
	Civilian				8,627	0.7	3,364	0.8	1,175	0.3	4,057	1.4
	Total	2,349,000	1.2	1.5	34,707	1.1	4,108	0.3	4,504	0.5	26,064	2.9
MISSOURI	Military				40,197	2.1	33,373	4.0	1,338	0.3	5,486	0.9
	Civilian				24,724	2.1	17,475	4.3	536	0.1	5,765	2.0
	Total	4,610,000	2.3	1.4	64,921	2.1	50,848	4.1	1,874	0.2	11,251	1.3
MONTANA	Military				6,007	0.3	88	*	34	*	5,885	1.0
	Civilian				1,569	0.1	581	0.1	0	0	986	0.3
	Total	696,000	0.3	1.1	7,576	0.2	669	0.1	34	*	6,871	0.8
NEBRASKA	Military				11,351	0.6	140	*	382	0.1	10,829	1.8
	Civilian				4,482	0.4	1,662	0.4	99	*	2,695	0.9
	Total	1,453,000	0.7	1.1	15,833	0.5	1,802	0.1	481	0.1	13,524	1.5
NEVADA	Military				9,967	0.5	27	*	1,199	0.2	8,741	1.5
	Civilian				3,499	0.3	129	*	2,007	0.5	1,278	0.4
	Total	449,000	0.2	3.0	13,466	0.4	156	*	3,206	0.4	10,019	1.1

TABLE 3 -

DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1969

(cf pages 5-11)

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
NEW HAMPSHIRE	Military				5,506	0.3	180	*	2,064	0.4	3,262	0.5
	Civilian				9,515	0.8	409	0.1	8,307	2.1	714	0.2
	Total	703,000	0.3	2.1	15,021	0.5	589	*	10,371	1.1	3,976	0.4
NEW JERSEY	Military				57,890	3.0	48,578	5.9	2,509	0.5	6,803	1.1
	Civilian				31,876	2.7	24,625	6.0	3,485	0.9	2,390	0.8
	Total	7,070,000	3.6	1.3	89,766	2.9	73,203	5.9	5,994	0.7	9,193	1.0
NEW MEXICO	Military				16,316	0.8	3,331	0.4	922	0.2	12,063	2.0
	Civilian				11,693	1.0	6,160	1.5	181	*	3,828	1.3
	Total	994,000	0.5	2.8	28,009	0.9	9,491	0.8	1,103	0.1	15,891	1.8
NEW YORK	Military				29,144	1.5	10,852	1.3	5,444	1.1	12,848	2.2
	Civilian				33,476	2.9	15,040	3.7	7,477	1.9	7,568	2.6
	Total	18,186,000	9.1	0.3	62,620	2.0	25,892	2.1	12,921	1.4	20,416	2.3
NORTH CAROLINA	Military				107,181	5.5	51,958	6.3	44,464	8.6	10,759	1.8
	Civilian				15,100	1.3	6,086	1.5	7,538	1.9	1,295	0.4
	Total	5,131,000	2.6	2.4	122,281	3.9	58,044	4.7	52,002	5.7	12,054	1.4
NORTH DAKOTA	Military				11,050	0.6	74	*	14	*	10,962	1.8
	Civilian				1,611	0.1	337	0.1	0	0	1,273	0.4
	Total	624,000	0.3	2.0	12,661	0.4	411	*	14	*	12,235	1.4
OHIO	Military				20,710	1.1	1,999	0.2	788	0.2	17,923	3.0
	Civilian				44,216	3.8	2,986	0.7	1,387	0.4	28,273	9.7
	Total	10,610,000	5.4	0.6	64,926	2.1	4,985	0.4	2,175	0.2	46,196	5.2
OKLAHOMA	Military				39,672	2.0	28,046	3.4	364	0.1	11,262	1.9
	Civilian				35,797	3.1	5,852	1.4	3,796	1.0	25,960	8.9
	Total	2,542,000	1.3	3.0	75,469	2.4	33,898	2.7	4,160	0.5	37,222	4.2
OREGON	Military				2,994	0.2	167	*	376	0.1	2,451	0.4
	Civilian				4,085	0.4	3,023	0.7	6	*	944	0.3
	Total	2,004,000	1.0	0.4	7,079	0.2	3,190	0.3	382	*	3,395	0.4

TABLE 3 — DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1969

(cf pages 5-11)

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
PENNSYLVANIA	Military				15,095	0.8	6,675	0.8	7,738	1.5	682	0.1
	Civilian				72,970	6.3	29,523	7.2	30,884	8.0	1,384	0.5
	Total	11,750,000	6.0	0.7	88,065	2.8	36,198	2.9	38,622	4.3	2,066	0.2
RHODE ISLAND	Military				7,854	0.4	315	*	7,498	1.4	41	*
	Civilian				11,133	1.0	615	0.2	10,274	2.6	155	0.1
	Total	908,000	0.4	2.1	18,987	0.6	930	0.1	17,772	2.0	196	*
SOUTH CAROLINA	Military				60,394	3.1	22,799	2.8	22,302	4.3	15,293	2.6
	Civilian				20,427	1.8	3,918	1.0	13,874	3.6	2,589	0.9
	Total	2,669,000	1.3	3.0	80,821	2.6	26,727	2.2	36,176	4.0	17,882	2.0
SOUTH DAKOTA	Military				5,146	0.3	88	*	17	*	5,041	0.8
	Civilian				1,421	0.1	585	0.1	0	0	834	0.3
	Total	665,000	0.3	1.0	6,567	0.2	673	0.1	17	*	5,875	0.7
TENNESSEE	Military				19,512	1.0	664	0.1	14,741	2.8	4,107	0.7
	Civilian				8,417	0.7	2,743	0.7	1,486	0.4	1,140	0.4
	Total	3,952,000	2.0	0.7	27,929	0.9	3,407	0.3	16,227	1.8	5,247	0.6
TEXAS	Military				193,258	9.9	89,068	10.8	11,306	2.2	92,884	15.6
	Civilian				78,567	6.8	30,806	7.5	2,990	0.8	43,466	14.9
	Total	11,013,000	5.6	2.5	271,825	8.8	119,874	9.7	14,296	1.6	136,350	15.4
UTAH	Military				3,742	0.2	725	0.1	148	*	2,869	0.5
	Civilian				29,084	2.5	7,013	1.7	210	0.1	17,733	6.1
	Total	1,031,000	0.5	3.2	32,826	1.1	7,738	0.6	358	*	20,602	2.3
VERMONT	Military				194	*	45	*	11	*	138	*
	Civilian				459	*	193	*	0	0	222	0.1
	Total	429,000	0.2	0.2	653	*	238	*	11	*	360	*

a/ Includes 73,227 civilians employed by other defense activities such as Defense Supply Agency and Office of the Secretary of Defense. Therefore, total Department of Defense column will not add across in all cases. Military Personnel data limited to shore-based only.

b/ Includes Marine Corps.

* Less than 0.05%.

** Excludes personnel in the Washington, D. C. Metropolitan Area.

*** Consists of the District of Columbia; Montgomery and Prince Georges counties in Maryland; Alexandria, Fairfax and Falls Church cities, and Arlington, Fairfax, Loudoun and Prince William counties in Virginia.

TABLE 3 — DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1969

(cf pages 5-11)

		Population July 1, 1968 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
VIRGINIA **	Military				64,240	3.3	32,646	4.0	21,802	4.2	9,792	1.6
	Civilian				56,826	4.9	11,577	2.8	39,282	10.1	2,546	0.9
	Total	3,737,000	1.9	3.2	121,066	3.9	44,223	3.6	61,084	6.7	12,338	1.4
WASHINGTON	Military				65,580	3.4	48,007	5.8	6,267	1.2	11,306	1.9
	Civilian				27,460	2.4	6,906	1.7	17,150	4.4	3,131	1.1
	Total	3,296,000	1.6	2.8	93,040	3.0	54,913	4.4	23,417	2.6	14,437	1.6
WASHINGTON, D. C. Metropolitan Area ***	Military				89,282	4.6	38,023	4.6	31,559	6.1	19,700	3.3
	Civilian				99,655	8.6	35,795	8.7	44,363	11.5	9,584	3.3
	Total	2,751,000	1.4	6.9	188,937	6.1	73,818	6.0	75,922	8.4	29,284	3.3
WEST VIRGINIA	Military				391	*	250	*	67	*	74	*
	Civilian				1,650	0.1	1,320	0.3	0	0	272	0.1
	Total	1,819,000	0.9	0.1	2,041	0.1	1,570	0.1	67	*	346	*
WISCONSIN	Military				1,742	0.1	709	0.1	277	0.1	756	0.1
	Civilian				3,644	0.3	2,174	0.5	4	*	889	0.3
	Total	4,211,000	2.1	0.1	5,386	0.2	2,883	0.2	281	*	1,645	0.2
WYOMING	Military				3,298	0.2	23	*	11	*	3,264	0.5
	Civilian				894	0.1	137	*	1	*	755	0.3
	Total	322,000	0.1	1.3	4,192	0.1	160	*	12	*	4,019	0.5
UNDISTRIBUTED	Military				65,909	3.4	5,942	0.7	59,667	11.5	300	0.1
	Civilian				0	0	0	0	0	0	0	0
	Total				65,909	2.1	5,942	0.5	59,667	6.6	300	*

a/ Includes 73,227 civilians employed by other defense activities such as Defense Supply Agency and Office of the Secretary of Defense. Therefore, total Department of Defense column will not add across in all cases. Military Personnel data limited to shore-based only.

b/ Includes Marine Corps.

* Less than 0.05%.

** Excludes personnel in the Washington, D. C. Metropolitan Area.

*** Consists of the District of Columbia; Montgomery and Prince Georges counties in Maryland; Alexandria, Fairfax and Falls Church cities, and Arlington, Fairfax, Loudoun and Prince William counties in Virginia.

Department of Defense
OASD(Comptroller)
Directorate for Information Operations
October 14, 1969

TABLE 4 - DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-19)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S	Number	Percent of U.S.	Number	Percent of U.S	Number	Percent of U.S.
UNITED STATES (INCL. ALASKA & HAWAII)	Military				2,018,113	100.0	877,962	100.0	505,361	100.0	634,790	100.0
	Civilian				1,146,525	100.0	401,819	100.0	387,322	100.0	280,969	100.0
	Total	197,863,000	100.0	1.6	3,164,638	100.0	1,279,781	100.0	892,683	100.0	915,759	100.0
ALABAMA	Military				32,546	1.6	24,399	2.8	543	0.1	7,604	1.2
	Civilian				28,214	2.5	22,438	5.6	41	*	5,253	1.9
	Total	3,541,000	1.8	1.7	60,760	1.9	46,837	3.7	584	0.1	12,857	1.4
ALASKA	Military				30,813	1.5	12,475	1.4	3,237	0.6	15,101	2.4
	Civilian				6,976	0.6	3,065	0.8	493	0.1	3,384	1.2
	Total	272,000	0.1	13.9	37,789	1.2	15,540	1.2	3,730	0.4	18,485	2.0
ARIZONA	Military				29,707	1.5	9,867	1.1	2,419	0.5	17,421	2.7
	Civilian				9,202	0.8	4,697	1.2	277	0.1	4,005	1.4
	Total	1,644,000	0.8	2.4	38,909	1.2	14,564	1.1	2,696	0.3	21,426	2.3
ARKANSAS	Military				9,442	0.5	310	*	100	*	9,032	1.4
	Civilian				4,704	0.4	3,746	0.9	4	*	900	0.3
	Total	1,995,000	1.0	0.7	14,146	0.4	4,045	0.3	104	*	9,932	1.1
CALIFORNIA	Military				275,879	13.7	54,422	6.2	143,766	28.5	77,691	12.2
	Civilian				182,423	15.9	25,501	6.3	108,017	27.9	40,399	14.4
	Total	18,899,000	9.6	2.4	458,302	14.5	79,923	6.2	251,783	28.2	118,090	12.9
COLORADO	Military				53,664	2.7	29,066	3.3	512	0.1	24,086	3.8
	Civilian				18,495	1.6	9,595	2.4	5	*	8,724	3.1
	Total	2,018,000	1.0	3.6	72,159	2.3	38,661	3.0	517	0.1	32,810	3.6
CONNECTICUT	Military				4,887	0.2	293	*	4,502	0.9	92	*
	Civilian				4,276	0.4	225	0.1	3,168	0.8	82	*
	Total	2,916,000	1.5	0.3	9,163	0.3	518	*	7,670	0.9	174	*
DELAWARE	Military				9,325	0.5	90	*	142	*	9,093	1.4
	Civilian				1,648	0.1	69	*	3	*	1,565	0.6
	Total	524,000	0.2	2.1	10,973	0.3	159	*	145	*	10,658	1.2
FLORIDA	Military				77,683	3.8	3,449	0.4	31,731	6.3	42,503	6.7
	Civilian				33,327	2.9	1,818	0.5	20,866	5.4	10,062	3.6
	Total	6,046,000	3.1	1.8	111,010	3.5	5,267	0.4	52,597	5.9	52,565	5.7

TABLE 4. DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-19)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S	Number	Percent of U.S.	Number	Percent of U.S	Number	Percent of U.S.
GEORGIA	Military				106,403	5.3	90,128	10.3	5,926	1.2	10,349	1.6
	Civilian				45,422	4.0	21,045	5.2	3,455	0.9	20,083	7.1
	Total	4,509,000	2.3	3.4	151,825	4.8	111,173	8.7	9,381	1.1	30,432	3.3
HAWAII	Military				33,987	1.7	10,476	1.2	12,173	2.4	11,388	1.8
	Civilian				23,682	2.1	6,315	1.6	13,562	3.5	3,741	1.3
	Total	761,000	0.4	7.6	57,669	1.8	16,791	1.3	25,735	2.9	15,079	1.6
IDAHO	Military				4,386	0.2	145	•	1,068	0.2	3,173	0.5
	Civilian				606	0.1	166	•	3	•	437	0.2
	Total	703,000	0.3	0.7	4,992	0.2	311	•	1,071	0.1	3,610	0.4
ILLINOIS	Military				57,311	2.8	6,656	0.8	33,508	6.6	17,147	2.7
	Civilian				33,707	2.9	18,868	4.7	6,726	1.7	5,995	2.1
	Total	10,874,000	5.5	0.8	91,018	2.9	25,524	2.0	40,234	4.5	23,142	2.5
INDIANA	Military				7,974	0.4	3,183	0.4	599	0.1	4,187	0.7
	Civilian				17,802	1.6	7,678	1.9	8,753	2.3	844	0.3
	Total	5,021,000	2.5	0.5	25,776	0.8	10,866	0.8	9,352	1.0	5,031	0.6
IOWA	Military				1,860	0.1	159	•	155	•	1,505	0.2
	Civilian				911	0.1	527	0.1	4	•	185	0.1
	Total	2,751,000	1.4	0.1	2,771	0.1	686	0.1	200	•	1,690	0.2
KANSAS	Military				30,658	1.5	16,585	1.9	796	0.2	13,277	2.1
	Civilian				6,625	0.6	5,151	1.3	176	•	1,134	0.4
	Total	2,281,000	1.2	1.6	37,283	1.2	21,736	1.7	972	0.1	14,411	1.6
KENTUCKY	Military				63,296	3.1	61,936	7.1	222	•	1,138	0.2
	Civilian				17,993	1.6	14,985	3.7	2,962	0.8	23	•
	Total	3,208,000	1.6	2.5	81,289	2.6	76,921	6.0	3,184	0.4	1,161	0.1
LOUISIANA	Military				41,532	2.1	29,607	3.4	1,200	0.2	10,725	1.7
	Civilian				8,317	0.7	5,159	1.3	1,207	0.3	1,688	0.6
	Total	3,670,000	1.9	1.4	49,849	1.6	34,766	2.7	2,407	0.3	12,413	1.4

TABLE 4 —

DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-14)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
MAINE	Military				7,935	0.4	255	*	1,252	0.2	6,428	1.0
	Civilian				1,847	0.2	50	*	825	0.2	951	0.3
	Total	986,000	0.5	0.1	9,782	0.3	305	*	2,077	0.2	7,379	0.8
MARYLAND **	Military				47,210	2.3	29,165	3.3	15,913	3.2	2,132	0.3
	Civilian				31,332	2.7	20,365	5.1	10,397	2.7	112	*
	Total	2,628,000	1.3	3.0	78,542	2.5	49,530	3.9	26,310	3.0	2,244	0.2
MASSACHUSETTS	Military				27,097	1.3	10,883	1.2	3,088	0.6	13,126	2.1
	Civilian				23,011	2.0	5,758	1.4	9,685	2.5	3,594	2.0
	Total	5,416,000	2.7	0.9	50,108	1.6	16,641	1.3	12,773	1.4	18,720	2.0
MICHIGAN	Military				17,151	0.8	1,241	0.1	1,023	0.2	14,887	2.3
	Civilian				13,667	1.2	8,498	2.1	192	*	2,372	0.8
	Total	8,615,000	4.4	0.4	30,818	1.0	9,739	0.8	1,215	0.1	17,259	1.9
MINNESOTA	Military				4,609	0.2	871	0.1	836	0.2	2,902	0.5
	Civilian				2,479	0.2	914	0.2	163	*	896	0.3
	Total	3,626,000	1.8	0.2	7,088	0.2	1,785	0.1	999	0.1	3,798	0.4
MISSISSIPPI	Military				22,584	1.1	1,193	0.1	3,097	0.6	18,294	2.9
	Civilian				7,838	0.7	2,899	0.7	1,164	0.3	3,743	1.3
	Total	2,343,000	1.2	1.3	30,422	1.0	4,092	0.3	4,261	0.5	22,037	2.4
MISSOURI	Military				38,137	1.9	30,569	3.5	1,174	0.2	6,394	1.0
	Civilian				24,211	2.1	16,942	4.2	555	0.1	5,688	2.0
	Total	4,589,000	2.3	1.4	62,348	2.0	47,511	3.7	1,729	0.2	12,082	1.3
MONTANA	Military				7,195	0.4	137	*	38	*	7,020	1.1
	Civilian				1,373	0.1	328	0.1	0	0	1,043	0.4
	Total	698,000	0.3	1.2	8,568	0.3	465	*	38	*	8,063	0.9
NEBRASKA	Military				14,827	0.7	202	*	363	0.1	14,262	2.2
	Civilian				3,379	0.3	1,506	0.4	92	*	1,761	0.6
	Total	1,442,000	0.7	1.3	18,206	0.6	1,708	0.1	455	0.1	16,023	0.2
NEVADA	Military				9,696	0.5	24	*	1,142	0.2	8,530	1.3
	Civilian				3,088	0.3	19	*	1,810	0.5	1,138	0.4
	Total	440,000	0.2	2.9	12,784	0.4	43	*	2,952	0.3	9,668	1.1

TABLE 4 — DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-19)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
NEW HAMPSHIRE	Military				4,892	0.2	250	*	1,901	0.4	2,741	0.4
	Civilian				9,555	0.8	284	0.1	8,625	2.2	568	0.2
	Total	690,000	0.3	2.1	14,447	0.5	534	*	10,526	1.2	3,309	0.4
NEW JERSEY	Military				61,788	3.1	49,992	5.7	2,516	0.5	9,280	1.5
	Civilian				31,560	2.8	24,786	6.2	3,483	0.9	1,853	0.7
	Total	6,971,000	3.5	1.3	93,348	2.9	74,778	5.8	5,999	0.7	11,133	1.2
NEW MEXICO	Military				14,821	0.7	3,057	0.3	959	0.2	10,805	1.7
	Civilian				11,812	1.0	5,973	1.5	170	*	4,089	1.5
	Total	1,011,000	0.5	2.6	26,633	0.8	9,030	0.7	1,129	0.1	14,894	1.6
NEW YORK	Military				31,737	1.6	10,844	1.2	5,260	1.0	15,633	2.5
	Civilian				32,236	2.8	13,899	3.5	7,609	2.0	7,016	2.5
	Total	18,007,000	9.1	0.4	63,973	2.0	24,743	1.9	12,869	1.4	22,649	2.5
NORTH CAROLINA	Military				105,713	5.2	51,633	5.9	43,322	8.6	10,758	1.7
	Civilian				14,523	1.3	5,702	1.4	7,427	2.0	1,224	0.4
	Total	5,072,000	2.6	2.4	120,236	3.8	57,335	4.5	50,749	5.7	11,982	1.3
NORTH DAKOTA	Military				11,903	0.6	31	*	14	*	11,858	1.9
	Civilian				1,340	0.1	172	*	0	0	1,167	0.4
	Total	631,000	0.3	2.1	13,243	0.4	203	*	14	*	13,025	1.4
OHIO	Military				22,016	1.1	2,747	0.3	786	0.2	18,483	2.9
	Civilian				39,258	3.4	2,145	0.5	1,352	0.3	24,080	8.6
	Total	10,497,000	5.3	0.6	61,274	1.9	4,892	0.4	2,138	0.2	42,563	4.6
OKLAHOMA	Military				41,240	2.0	29,974	3.4	458	0.1	10,808	1.7
	Civilian				35,587	3.1	5,928	1.5	3,499	0.9	25,960	9.2
	Total	2,514,000	1.3	3.1	76,827	2.4	35,902	2.8	3,957	0.4	36,768	4.0
OREGON	Military				3,597	0.2	351	*	360	0.1	2,886	0.5
	Civilian				3,986	0.3	2,979	0.7	5	*	896	0.3
	Total	1,979,000	1.0	0.4	7,583	0.2	3,330	0.3	365	*	3,782	0.4

TABLE 4 — DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-19)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
PENNSYLVANIA	Military				16,553	0.8	7,037	0.8	8,057	1.6	1,459	0.2
	Civilian				72,514	6.3	29,010	7.2	30,937	8.0	944	0.3
	Total	11,670,000	5.9	0.8	89,067	2.8	36,047	2.8	38,994	4.4	2,403	0.3
RHODE ISLAND	Military				8,095	0.4	338	*	7,712	1.5	45	*
	Civilian				10,753	0.9	344	0.1	10,329	2.7	2	*
	Total	899,000	0.4	2.1	18,848	0.6	682	0.1	18,041	2.0	47	*
SOUTH CAROLINA	Military				67,305	3.3	27,087	3.1	22,278	4.4	17,940	2.8
	Civilian				20,166	1.8	3,509	0.9	14,082	3.6	2,536	0.9
	Total	2,664,000	1.3	3.3	87,471	2.8	30,596	2.4	36,360	4.1	20,476	2.2
SOUTH DAKOTA	Military				4,987	0.2	39	*	14	*	4,934	0.8
	Civilian				1,080	0.1	389	0.1	0	0	689	0.2
	Total	668,000	0.3	0.9	6,067	0.2	428	*	14	*	5,623	0.6
TENNESSEE	Military				20,407	1.0	960	0.1	15,095	3.0	4,352	0.7
	Civilian				7,732	0.7	2,387	0.6	1,476	0.4	684	0.2
	Total	3,939,000	2.0	0.7	28,139	0.9	3,347	0.3	16,571	1.9	5,036	0.5
TEXAS	Military				183,278	9.1	82,740	9.4	10,869	2.2	89,669	14.1
	Civilian				79,466	6.9	31,377	7.8	2,964	0.8	43,774	15.6
	Total	10,847,000	5.5	2.4	262,744	8.3	114,117	8.9	13,833	1.5	133,443	14.6
UTAH	Military				4,804	0.2	828	0.1	138	*	3,838	0.6
	Civilian				29,761	2.6	7,120	1.8	188	*	17,913	6.4
	Total	1,022,000	0.5	3.4	34,565	1.1	7,948	0.6	326	*	21,751	2.4
VERMONT	Military				218	*	50	*	12	*	156	*
	Civilian				91	*	33	*	0	0	24	*
	Total	417,000	0 2	0.1	309	*	83	*	12	*	180	*

a/ Includes 76,415 civilians employ- by other defense activities such as Defense Supply Agency and Office of the Secretary of Defense. Therefore, total Department of Defense column will not add across in al ses.

b/ Includes Marine Corps.

* Less than 0.05%.

TABLE 4 — DEFENSE PERSONNEL AND TOTAL POPULATION IN THE UNITED STATES BY STATE

As of 30 June 1968

(Cf pages 12-19)

		Population July 1, 1967 Census		Department of Defense As % of State Population	Total Department of Defense a/		Army		Navy b/		Air Force	
		Number	Percent of U.S.		Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.	Number	Percent of U.S.
VIRGINIA **	Military				63,595	3.2	32,456	3.7	20,685	4.1	10,454	1.6
	Civilian				56,989	5.0	12,012	3.0	39,323	10.2	2,019	0.7
	Total	3,703,000	1.9	3.3	120,584	3.8	44,468	3.5	60,008	6.7	12,473	1.4
WASHINGTON	Military				60,879	3.0	42,195	4.8	6,051	1.2	12,633	2.0
	Civilian				27,805	2.4	6,856	1.7	17,589	4.5	3,074	1.1
	Total	3,215,000	1.6	2.8	88,684	2.8	49,051	3.8	23,640	2.6	15,707	1.7
WASHINGTON, D. C. Metropolitan Area ***	Military				83,388	4.1	33,706	3.8	29,653	5.9	20,029	3.2
	Civilian				99,448	8.7	35,823	8.9	43,654	11.3	9,798	3.5
	Total	2,704,000	1.4	6.8	182,836	5.8	69,529	5.2	73,307	8.2	29,827	3.3
WEST VIRGINIA	Military				490	*	332	*	71	*	87	*
	Civilian				1,177	0.1	1,106	0.3	0	0	6	*
	Total	1,811,000	0.9	0.1	1,667	0.1	1,438	0.1	71	*	93	*
WISCONSIN	Military				1,843	0.1	625	0.1	272	0.1	945	0.1
	Civilian				2,716	0.2	1,655	0.4	4	*	454	1.2
	Total	4,192,000	2.1	0.1	4,559	0.1	2,281	0.2	276	*	1,399	0.2
WYOMING	Military				3,616	0.2	14	*	17	*	3,585	0.6
	Civilian				415	*	13	*	1	*	397	0.1
	Total	320,000	0.1	1.3	4,031	0.1	27	*	18	*	3,982	0.4
UNDISTRIBUTED	Military				133,154	6.6	72,884	8.3	58,295	11.5	1,975	0.3
	Civilian				0	0	0	0	0	0	0	0
	Total				133,154	4.2	72,884	5.7	58,295	6.5	1,975	0.2

a/ Includes 76,415 civilians employed by other defense activities such as Defense Supply Agency and Office of the Secretary of Defense. Therefore, total Department of Defense column will not add across in all cases.

b/ Includes Marine Corps.

* Less than 0.05%.

** Excludes personnel in the Washington, D. C. Metropolitan Area.

*** Consists of the District of Columbia; Montgomery and Prince Georges counties in Maryland; Alexandria, Fairfax and Falls Church cities, and Arlington, Fairfax, Loudoun and Prince William counties in Virginia.

TABLE 5 - DEPARTMENT OF DEFENSE—ESTIMATED PAYROLLS FOR MILITARY AND CIVILIAN PERSONNEL, FISCAL YEAR 1969

(In thousands of dollars)

(cf pages 20-21)

	Active duty military personnel				Civilian employees				
	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Other Defense activities
United States (including Alaska and Hawaii)	10,125,238	4,411,661	1,911,928	3,801,649	9,712,242	3,485,436	3,295,744	2,324,122	606,940
Alabama	190,233	137,240	2,349	50,644	237,472	198,081	329	35,045	4,017
Alaska	165,257	66,719	15,045	83,493	57,714	24,240	4,926	28,170	378
Arizona	156,207	40,261	7,787	108,159	75,870	41,359	2,035	31,875	601
Arkansas	52,830	2,150	495	50,185	39,710	31,500	-	7,716	494
California	1 315,511	291,089	549,654	474,768	1,561,156	218,476	973,440	329,501	39,739
Colorado	285,455	156,786	2,772	125,897	149,959	75,947	2	72,351	1,659
Connecticut	24,913	607	23,643	663	43,209	5,826	28,714	735	7,934
Delaware	44,879	461	728	43,690	15,287	1,928	24	13,294	41
District of Columbia	242,266	130,864	80,121	31,281	287,045	102,423	163,752	16,419	4,451
Florida	419,774	18,782	165,237	235,755	276,499	17,110	170,359	83,429	5,101
Georgia	582,477	485,271	33,391	63,815	366,979	167,899	24,330	167,748	7,002
Hawaii	184,226	61,644	53,133	69,449	213,338	56,242	124,912	31,395	789
Idaho	27,358	404	6,029	20,925	7,214	3,448	103	3,657	6
Illinois	321,613	47,702	156,568	117,343	271,546	155,667	51,776	50,017	14,086
Indiana	52,995	24,870	3,260	24,865	160,610	66,422	83,686	6,496	4,006
Iowa	4,430	952	939	2,539	9,294	7,209	23	669	1,393
Kansas	229,009	159,064	3,759	66,186	53,716	41,625	1,297	9,552	1,242
Kentucky	312,225	307,171	1,001	4,053	146,299	119,227	26,818	123	131
Louisiana	198,689	130,040	6,317	62,332	69,512	44,020	9,975	13,371	2,146
Maine	38,790	412	6,090	32,288	15,335	2,072	5,568	7,545	150
Maryland	309,647	154,120	90,450	65,077	461,930	209,989	211,415	32,698	7,828
Massachusetts	152,372	57,633	17,285	77,454	195,314	52,971	79,804	45,872	16,667
Michigan	91,763	7,951	5,329	78,483	123,477	80,456	1,547	19,085	22,389
Minnesota	24,923	4,952	3,845	16,126	23,336	11,514	1,091	6,866	3,865
Mississippi	138,529	4,035	14,597	119,897	66,870	28,985	7,351	30,301	233
Missouri	205,425	160,970	4,744	39,711	211,952	154,720	3,576	46,575	6,981
Montana	38,676	473	163	38,040	12,327	4,281	-	8,035	11
Nebraska	80,719	1,108	2,395	77,216	32,470	14,434	582	17,153	201

TABLE 5 - DEPARTMENT OF DEFENSE—ESTIMATED PAYROLLS FOR MILITARY AND CIVILIAN PERSONNEL, FISCAL YEAR 1969

(In thousands of dollars)

(of pages 20-21)

	Active duty military personnel				Civilian employees				
	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Other Defense activities
Nevada	53,205	208	5,523	47,474	26,150	1,073	14,445	9,651	981
New Hampshire	27,337	946	6,237	20,154	81,484	3,557	72,345	4,744	838
New Jersey	313,126	251,765	15,006	46,355	274,454	212,534	28,678	15,985	17,257
New Mexico	98,941	19,396	5,953	73,592	100,311	53,210	1,572	32,960	12,569
New York	155,817	43,606	25,588	86,623	280,171	124,116	67,927	58,630	29,498
North Carolina	510,045	304,588	140,473	64 984	119,082	49,377	58,456	9,727	1,522
North Dakota	71,138	411	69	70,658	12,325	2,675	-	9,641	9
Ohio	155,562	10,498	4,449	140,615	340,028	24,543	9,301	207,928	98,256
Oklahoma	212,955	136,900	2,307	73,748	292,115	49,297	23,039	217,952	1,827
Oregon	18,817	1,035	1,822	15,960	32,189	25,189	6	6,330	664
Pennsylvania	86,621	40,614	39,170	6,837	612,496	245,819	279,140	6,072	81,465
Rhode Island	38,927	1,790	36,660	477	85,289	5,452	78,802	16	1,019
South Carolina	288,965	116,872	72,661	99,432	163,896	32,377	110,316	20,824	379
South Dakota	31,583	597	73	30,913	9,785	4,061	-	5,717	7
Tennessee	93,471	2,657	65,821	24,993	58,596	22,262	9,598	5,376	21,360
Texas	1,094,422	489,697	54,438	550,287	644,266	253,374	18,321	360,499	12,072
Utah	27,833	4,399	879	22,555	234,231	56,812	1,251	149,676	26,492
Vermont	1,239	397	51	791	2,283	1,644	-	221	418
Virginia	584,502	284,137	154,087	146,278	875,262	293,730	389,730	51,506	140,296
Washington	335,822	241,972	21,786	72,064	240,476	59,009	154,651	24,849	1,967
West Virginia	1,675	927	276	472	11,343	10,929	-	33	381
Wisconsin	10,367	4,371	1,407	4,589	25,444	15,126	25	6,178	4,115
Wyoming	21,677	147	66	21,464	5,126	1,199	6	3,914	7

Department of Defense
OASD (Comptroller)
Directorate for Information Operations
July 1, 1970

TABLE 6 - DEPARTMENT OF DEFENSE—ESTIMATED PAYROLLS FOR MILITARY AND CIVILIAN PERSONNEL, FISCAL YEAR 1968

(In thousands of dollars)

(Cf pages xx-x3)

	Active duty military personnel				Civilian employees				
	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Other Defense activities
United States (including Alaska and Hawaii)	9,389,897	3,705,519	1,843,610	3,840,768	8,569,738	2,805,676	2,902,713	2,244,990	616,359
Alabama	181,566	119,652	1,634	60,280	211,811	159,493	424	47,234	4,660
Alaska	155,453	58,140	13,835	83,478	49,987	18,545	3,499	27,543	400
Arizona	155,367	38,065	9,167	108,135	66,765	32,782	2,737	29,510	1,736
Arkansas	51,631	2,220	413	48,998	31,517	24,678	-	6,335	504
California	1,256,060	242,419	516,241	497,400	1,436,840	172,421	864,978	329,036	70,405
Colorado	256,124	124,220	2,561	129,343	131,496	68,472	37	60,488	2,499
Connecticut	23,395	1,100	21,500	795	35,945	1,510	26,168	934	7,333
Delaware	48,483	582	533	47,368	12,255	527	-	11,385	343
District of Columbia	205,037	114,411	52,489	38,137	202,091	63,457	86,899	50,118	1,617
Florida	387,907	16,292	121,803	249,812	255,647	12,783	161,313	76,694	4,857
Georgia	528,565	430,781	30,128	67,656	337,316	149,094	20,239	159,213	8,770
Hawaii	194,872	58,072	61,969	74,831	179,170	48,197	106,248	24,188	537
Idaho	20,928	481	3,683	16,764	4,653	1,056	112	3,485	-
Illinois	283,160	38,227	131,952	112,981	234,652	124,835	47,634	45,053	17,130
Indiana	45,106	18,944	2,436	23,726	135,796	55,269	68,034	7,469	5,024
Iowa	9,362	1,245	936	7,181	5,862	3,435	24	873	1,530
Kansas	152,066	77,597	3,558	70,911	43,632	32,113	1,091	9,119	1,309
Kentucky	298,858	294,076	1,196	3,586	127,377	103,048	23,819	255	255
Louisiana	194,982	122,839	6,239	65,904	63,378	37,203	11,788	12,359	2,028
Maine	51,048	817	5,513	44,718	15,029	481	5,395	8,927	226
Maryland	297,694	148,847	86,629	62,218	393,417	181,365	169,563	35,408	7,081
Massachusetts	145,271	44,453	14,818	86,000	179,651	46,170	70,244	45,991	17,246
Michigan	90,560	7,969	4,256	78,335	105,336	64,150	1,369	17,486	22,331
Minnesota	23,498	4,911	3,266	15,321	16,197	6,754	745	4,827	3,871
Mississippi	111,379	3,007	10,024	98,348	53,848	20,947	7,377	25,201	323
Missouri	182,816	132,541	5,302	44,973	175,971	118,956	2,288	46,280	8,447
Montana	48,669	584	195	47,890	10,552	1,889	-	8,663	-
Nebraska	76,830	1,229	1,690	73,911	25,838	11,085	465	14,133	155

TABLE 6 - DEPARTMENT OF DEFENSE—ESTIMATED PAYROLLS FOR MILITARY AND CIVILIAN PERSONNEL, FISCAL YEAR 1968

(In thousands of dollars)

(Cf pages xx-x3)

	Active duty military personnel				Civilian employees				
	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Total Department of Defense	Army	Navy and Marine Corps	Air Force	Other Defense activities
Nevada	41,017	164	4,348	36,505	21,549	65	11,593	8,878	1,013
New Hampshire	25,244	707	5,680	18,857	76,205	2,058	70,032	3,582	533
New Jersey	299,654	226,539	11,087	62,028	234,012	172,233	26,677	14,743	20,359
New Mexico	93,050	17,214	5,955	69,881	87,140	50,803	1,481	21,959	12,897
New York	156,195	40,767	25,772	89,656	255,124	84,701	57,658	82,915	29,850
North Carolina	480,760	213,938	201,919	64,903	103,066	39,165	54,213	8,039	1,649
North Dakota	67,143	403	67	66,673	10,669	1,227	-	9,431	11
Ohio	145,897	11,672	4,231	129,994	318,123	15,270	7,317	211,552	83,984
Oklahoma	229,913	147,144	1,839	80,930	278,808	45,167	28,996	202,693	1,952
Oregon	19,042	1,314	1,333	16,395	28,655	20,996	8	6,763	888
Pennsylvania	78,790	34,668	38,134	5,988	526,776	200,175	244,424	10,536	71,641
Rhode Island	33,789	1,487	32,032	270	75,378	2,563	72,061	-	754
South Carolina	292,420	93,867	98,253	100,300	150,795	25,334	108,271	16,738	452
South Dakota	30,155	573	60	29,522	7,564	3,048	-	4,493	23
Tennessee	94,918	2,847	58,280	33,791	49,914	16,571	7,288	4,991	21,164
Texas	942,514	391,143	47,126	504,245	583,624	214,190	18,676	338,502	12,256
Utah	26,071	5,188	600	20,283	218,004	47,961	1,090	141,703	27,250
Vermont	1,212	344	47	821	669	249	-	144	276
Virginia	529,645	233,044	168,427	128,174	756,737	237,615	370,044	18,162	130,916
Washington	290,534	174,030	22,952	93,552	216,752	48,986	140,455	24,060	3,251
West Virginia	2,853	1,190	365	1,298	8,785	8,082	-	141	562
Wisconsin	11,319	3,407	1,053	6,859	16,046	8,456	32	3,514	4,044
Wyoming	21,075	148	84	20,843	3,314	46	7	3,244	17

Department of Defense
OASD (Comptroller)
Directorate for Information Operations
June 25, 1970

ECONOMY IN GOVERNMENT— 1969

steadily

SUPPLY SYSTEMS INVENTORIES

As stated in table 1 above, the total of "supply systems" inventories was reduced from the 1957 high of $54 billion to $37 billion in 1965; since then they have been increased to $47 billion, reflecting the build-up in support of Southeast Asia. The stratification, or breakdown of such stocks into purposes for which held reflects a distinct change during fiscal years 1964, 1965, and 1966. In prior years, the strata were peacetime operating stocks, mobilization reserve stock, economic and contingency retention stocks, and excess stock. These are shown in table 7 and are explained in footnotes 2 through 7.

Stratification of supply systems inventories as of June 30, 1964, and June 30, 1965, was in accordance with improved logistics guidance which called for application of assets first against requirements to support (1) approved forces; that is, Active and high-priority Reserve Forces of the 5-year force structure and financial program; and (2) general forces.

The guidance was again changed in 1966 so that assets are applied to approved forces, either as authorized for acquisition or for retention, and some minor adjustments in guidance were made in 1969.

As a result, the data for these strata are not comparable with those in prior years, except in a very general way, and, therefore, have not been shown separately in the table (see footnotes) but are included in subtotal and total.

The criteria for the establishment of economic retention and contingency retention strata have not been drastically revised, although the exigencies of world situations may result in somewhat different levels being established under them. The excess strata now represents those stocks that are beyond limits of a particular service and for which screening for utilization by other elements of the Department of Defense is underway but for which final DOD disposal action has not been initiated. They are significantly less in value than those reported in prior years, even though they have risen somewhat in the last two.

TABLE 7.—DOD SUPPLY SYSTEMS INVENTORIES BY INVENTORY STRATAS AS OF JUNE 30,[1] fiscal years 1958-69

[In millions of dollars]

Total and inventory strata	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Total	46,585	44,203	41,727	40,537	40,299	39,684	38,383	36,506	37,167	40,341	42,827	46,290
Unstratified	2,440	3,056	2,083	1,819	1,837	1,425	2,582	2,704	3,221	3,070	3,262	2,235
Total stratified	44,145	41,147	39,644	38,717	38,462	38,259	35,801	33,802	33,946	37,271	39,565	44,055
Peacetime operating[2]	14,538	15,306	15,657	14,722	15,601	15,379	(3)	(3)	(3)	(3)	(3)	(3)
Mobilization reserve[4]	12,134	11,530	10,893	11,030	10,725	10,921	(3)	(3)	(3)	(3)	(3)	(3)
Economic retention[5]	5,593	4,703	6,618	6,343	5,454	5,912	3,596	3,629	4,180	3,760	3,854	4,530
Contingency retention[6]	1,050	1,611	1,361	1,246	1,040	636	1,248	1,814	1,865	2,310	1,977	2,479
Excess stocks[7]	10,418	7,146	5,115	5,377	5,643	5,411	5,528	3,466	3,250	3,158	4,127	4,769

[1] Total inventories in this table do not include value of Navy shipboard supplies included in table 1.

[2] Peacetime operating stock is that portion of the total quantity of an item on hand which is required to equip and train the planned peacetime forces and support the scheduled establishment through the normal appropriation and leadtime periods.

[3] These strata are not available since 1963 because of changes in logistics guidance. In 1965 their sum was $24,693,000,000, divided into approved force stocks ($23,465,000,000) and general force stocks ($1,228,000,000). The guidance was again revised in 1966 and in 1969. In 1969 the sum was $32,277,000,000 allocated to approved force stocks as levels of acquisition ($31,280,000,000) and retention ($997,000,000).

[4] Mobilization reserve materiel requirement: the quantity of an item required to be in the military supply system on M-day, in addition to quantities for peacetime needs, to support planned mobilization to expand the materiel pipeline and to sustain in training, combat, or noncombat operations prescribed forces until production by industry equals consumption.

[5] Economic retention stock is that portion of the quantity in long supply which it has been determined will be retained for future peacetime issue of consumption as being more economical than future replenishment by procurement.

[6] Contingency retention stock is that portion of the quantity in long supply of an obsolete or nonstandard item for which no programed requirements exist and which normally would be considered as excess stock, but which has been determined will be retained for possible military or defense contingencies for U.S. or allied forces.

[7] Excess stock as reported herein is stock which is indicated to be above the sum of footnotes 2, 3, 4, and 5 above and for which specific determination as being within the needs of the Department of Defense has not been made or disposal action initiated.

Scope of Procurement Activities

The net value of military procurement actions amounted to $39.3 billion in fiscal year 1969--a decrease of $1.9 billion from fiscal year 1968.

TABLE 8.—*Net value of military procurement actions in the United States and possessions, fiscal years 1951-69*

Fiscal year:	*Billions*	Fiscal year—Continued	*Billions*
1951	$31.9	1960	$22.5
1952	42.2	1961	24.3
1953	28.4	1962	27.8
1954	11.9	1963	28.1
1955	15.5	1964	27.5
1956	18.2	1965	26.6
1957	19.9	1966	35.7
1958	22.8	1967	41.8
1959	23.9	1968	41.2
		1969	39.3

Source: "Military Prime Contract Awards and Subcontract Payments or Commitments, July 1968-June 1969," Office of the Secretary of Defense.

NET VALUE OF PROCUREMENT ACTIONS BY STATES, FISCAL YEARS 1967 - 69

(See tables 9 and 9-A)

The percentage breakdown of military procurement actions by States and the District of Columbia shows for fiscal year 1969:

Percent of total:	Number of States
15 to 20	1
10 to 15	1
5 to 10	1
4 to 5	4
3 to 4	3
2 to 3	6
1 to 2	9
0 to 1	26

Table 9.--NET VALUE OF MILITARY PROCUREMENT ACTIONS BY STATES,[1] FISCAL YEARS 1967, 1968, and 1969

[Dollar amounts in thousands]

State	Fiscal Year 1967		Fiscal Year 1968		Fiscal Year 1969	
	Amount	Percent	Amount	Percent	Amount	Percent
TOTAL, U. S. (2)	$41,817,093		$41,241,125		$39,310,186	
NOT DISTRIBUTED BY STATE (3)	4,435,384		3,992,991		4,061,395	
STATE TOTALS (4)	37,381,709	100.0%	37,248,134	100.0%	35,248,791	100.0%
Alabama	297,065	0.8	409,189	1.1	407,726	1.2
Alaska	85,648	0.2	106,513	0.3	90,793	0.3
Arizona	249,559	0.7	287,065	0.8	343,730	1.0
Arkansas	127,180	0.3	121,254	0.3	117,179	0.3
California	6,688,812	17.9	6,471,875	17.4	6,824,493	19.4
Colorado	210,409	0.6	262,753	0.7	243,237	0.7
Connecticut	1,935,895	5.2	2,355,135	6.3	1,715,115	4.9
Delaware	51,672	0.1	42,614	0.1	46,762	0.1
District of Columbia	357,666	1.0	349,771	0.9	321,014	0.9
Florida	799,005	2.1	975,824	2.6	964,541	2.7
Georgia	1,148,355	3.1	964,152	2.6	932,881	2.6
Hawaii	65,445	0.2	95,623	0.3	114,608	0.3
Idaho	14,772	(5)	17,051	(5)	16,054	0.1
Illinois	1,063,776	2.8	932,111	2.5	932,495	2.6
Indiana	898,247	2.4	1,107,453	3.0	1,058,557	3.0
Iowa	279,328	0.8	260,980	0.7	202,119	0.6
Kansas	398,918	1.1	292,293	0.8	349,667	1.0
Kentucky	124,294	0.3	60,366	0.2	59,478	0.2
Louisiana	656,031	1.8	460,463	1.2	389,857	1.1
Maine	56,558	0.2	75,209	0.2	53,408	0.2
Maryland	868,396	2.3	703,514	1.9	731,301	2.1
Massachusetts	1,422,272	3.8	1,618,741	4.3	1,549,834	4.4
Michigan	1,033,706	2.8	796,296	2.1	683,215	1.9
Minnesota	650,584	1.7	620,297	1.7	741,169	2.1
Mississippi	114,800	0.3	369,249	1.0	218,337	0.6
Missouri	2,277,597	6.1	1,356,871	3.6	1,095,418	3.1
Montana	78,452	0.2	20,453	0.1	21,959	0.1
Nebraska	103,522	0.3	120,401	0.3	101,724	0.3
Nevada	29,315	(5)	17,897	(5)	27,113	0.1
New Hampshire	162,551	0.4	155,995	0.4	102,407	0.3
New Jersey	1,234,768	3.3	1,108,440	3.0	1,270,460	3.6
New Mexico	80,472	0.2	87,214	0.2	96,105	0.3
New York	3,261,750	8.7	3,483,730	9.4	3,074,340	8.7
North Carolina	447,608	1.2	487,259	1.3	514,739	1.5
North Dakota	16,729	(5)	68,072	0.2	35,807	0.1
Ohio	1,602,593	4.3	1,640,525	4.4	1,533,016	4.4
Oklahoma	157,350	0.4	164,944	0.4	173,438	0.5
Oregon	99,319	0.3	119,719	0.3	85,921	0.2
Pennsylvania	1,649,091	4.4	1,727,314	4.6	1,700,396	4.8
Rhode Island	198,030	0.5	126,362	0.3	119,268	0.3
South Carolina	180,777	0.5	133,027	0.4	172,520	0.5
South Dakota	9,486	(5)	33,585	0.1	3,478	(5)
Tennessee	538,225	1.5	541,631	1.5	485,629	1.4
Texas	3,546,978	9.5	4,087,182	11.0	3,525,155	10.0
Utah	178,850	0.5	131,172	0.4	157,174	0.4

See footnotes at end of table, p. 27.

Table 9.--NET VALUE OF MILITARY PROCUREMENT ACTIONS BY STATES,[1] FISCAL YEARS--1967, 1968, 1969--Continued

[Dollar amounts in thousands]

State	Fiscal Year 1967		Fiscal Year 1968		Fiscal Year 1969	
	Amount	Percent	Amount	Percent	Amount	Percent
Vermont	100,157	0.3	104,957	0.3	85,445	0.2
Virginia	665,376	1.8	692,748	1.9	711,232	2.0
Washington	606,114	1.6	529,583	1.4	574,761	1.6
West Virginia	141,736	0.4	132,002	0.4	66,863	0.2
Wisconsin	383,602	1.0	406,409	1.1	393,646	1.1
Wyoming	32,868	0.1	14,851	(5)	13,207	(5)

[1] Notes on coverage: It is emphasized that data on prime contracts by State do not provide any direct indication as to the State in which the actual production work is done. For the majority of contracts with manufacturers, the data reflect the location of the plant where the product will be finally processed and assembled. If processing or assembly is to be performed in more than 1 plant of a prime contractor, the location shown is the plant where the largest dollar amount of work will take place. Construction contracts are shown for the State where the construction is to be performed. For purchases from wholesale or other distribution firms, the location is the address of the contractor's place of business. For service contracts, the location is generally the place where the service is performed, but for transportation and communications services the home office address is frequently used.

More important is the fact that the reports refer to prime contracts only, and cannot in any way reflect the distribution of the very substantial amount of material and component fabrication and other subcontract work that may be done outside the State where final assembly or delivery takes place.

The report includes definitive contracts, and funded portions of letter contracts and letters of intent, job orders, task orders, and purchase orders on industrial firms, and also includes interdepartmental purchases, made from or through other governmental agencies, such as those made through the General Services Administration. The State data include upward or downward revisions and adjustments of $10,000 or more, such as cancellations, price changes, supplemental agreements, amendments, etc.

The estimated amounts of indefinite delivery, open end, or call-type contracts for petroleum are included in the report. Except for petroleum contracts, the report does not include indefinite delivery, open end, or call-type contracts as such but does include specific purchase or delivery orders of $10,000 or more which are placed against these contracts. Also excluded from the report are project orders; that is, production orders; issued to Government owned and operated facilities such as Navy shipyards. However, the report includes the contracts placed with industry by the Government operated facility to complete the production order.

[2] Includes all contracts awarded for work performance in the United States. The United States includes the 50 States, the District of Columbia, U.S. possessions, the Canal Zone, the Commonwealth of Puerto Rico, and other areas subject to the complete sovereignty of the United States, but does not include occupied Japanese islands and trust territories.

[3] Includes contracts of less than $10,000, all contracts awarded for work performance in the Commonwealth of Puerto Rico, U.S. possessions, and other areas subject to the complete sovereignty of the United States, contracts which are in a classified location, and any intragovernmental contracts entered into overseas.

[4] Net value of contracts of $10,000 or more for work in each State and the District of Columbia.

[5] Less than 0.05 percent.

TABLE 9-A.—NET VALUE OF MILITARY PROCUREMENT BY STATES, BY PERCENT OF TOTAL, FISCAL YEAR 1969

This table shows the concentration of military procurement in the favored states. California received 19.4% of the total or about the amount of the 35 lowest. California, Texas and New York received 38.1% or more than the lowest 42 states and the highest 6 received 52.2% or more than the lowest 45.

Inverse rank	State	Percent	Total
1	South Dakota	(1)	
2	Wyoming	(1)	
3	Idaho	.1	.1
4	Montana	.1	.2
5	Nevada	.1	.3
6	North Dakota	.1	.4
7	Delaware	.1	.5
8	Maine	.2	.7
9	Kentucky	.2	.9
10	West Virginia	.2	1.1
11	Vermont	.2	1.3
12	Oregon	.2	1.5
13	Alaska	.3	1.8
14	New Mexico	.3	2.1
15	Nebraska	.3	2.4
16	New Hampshire	.3	2.7
17	Hawaii	.3	3.0
18	Arkansas	.3	3.3
19	Rhode Island	.3	3.6
20	Utah	.4	4.0
21	South Carolina	.5	4.5
22	Oklahoma	.5	5.0
23	Iowa	.6	5.6
24	Mississippi	.6	6.2
25	Colorado	.7	6.9
26	District of Columbia	.9	7.8
27	Arizona	1.0	8.8
28	Kansas	1.0	9.8
29	Louisiana	1.1	10.9
30	Wisconsin	1.1	12.0
31	Alabama	1.2	13.2
32	Tennessee	1.4	14.6
33	North Carolina	1.5	16.1
34	Washington	1.6	17.7
35	Michigan	1.9	19.6
36	Virginia	2.0	21.6
37	Maryland	2.1	23.7
38	Minnesota	2.1	25.8
39	Illinois	2.6	28.4
40	Georgia	2.6	31.0
41	Florida	2.7	33.7
42	Indiana	3.0	36.7
43	Missouri	3.1	39.8
44	New Jersey	3.6	43.4
45	Ohio	4.4	47.8
46	Massachusetts	4.4	52.2
47	Pennsylvania	4.8	57.0
48	Connecticut	4.9	61.9
49	New York	8.7	70.6
50	Texas	10.0	80.6
51	California	19.4	100.0

[1] Less than 0.05 percent.

Awards to 100 Largest Military Contractors, Fiscal Year 1969--(July 1968--June 1969)

The 100 companies which together with their subsidiaries received the largest dollar volume of military prime contracts of $10,000 or more in fiscal year 1969 accounted for 68.2 percent of the U.S. total. This was slightly higher than the 67.4 percent obtained by the top 100 companies in fiscal year 1968. The table below shows that the first five companies received 1.7 percent less than in fiscal year 1968; however, the percentage for the next 20 companies totaled 25.9 percent or almost one percent more than in fiscal year 1968.

[In percent of U.S. total]

Companies	Fiscal year 1960	Fiscal year 1961	Fiscal year 1962	Fiscal year 1963	Fiscal year 1964	Fiscal year 1965	Fiscal year 1966	Fiscal Year 1967	Fiscal Year 1968	Fiscal Year 1969
1st	6.0	6.5	5.6	5.9	5.8	7.1	4.6	5.4	5.8	5.5
2d	5.1	5.2	4.7	5.2	5.4	4.9	3.5	4.7	4.8	4.4
3d	4.8	5.2	4.4	4.1	4.6	3.5	3.4	4.6	3.8	3.4
4th	4.6	4.1	4.0	4.0	4.1	3.4	3.4	3.3	3.4	2.9
5th	4.3	3.8	3.8	4.0	3.9	3.1	2.7	2.8	2.8	2.7
1 to 5	24.8	24.8	22.5	23.2	23.8	22.0	17.6	20.8	20.6	18.9
6 to 10	11.3	11.8	11.1	10.9	12.0	10.2	9.0	8.8	9.3	10.1
11 to 25	17.4	18.2	17.2	17.8	17.1	16.0	16.4	14.9	15.7	15.8
1 to 25	53.5	54.8	50.8	51.9	52.9	48.2	43.0	44.5	45.6	44.8
26 to 50	11.3	11.0	12.6	13.7	12.9	13.0	12.1	11.6	11.5	12.1
51 to 75	5.4	5.5	6.0	5.5	5.1	5.2	5.4	6.1	6.6	7.3
76 to 100	3.2	2.9	2.9	2.8	2.5	2.5	3.3	3.3	3.7	4.0
1 to 100	73.4	74.2	72.3	73.9	73.4	68.9	63.8	65.5	67.4	68.2

Negotiated and Advertised Procurement Actions

Negotiated procurements for fiscal year 1969 were 88 percent of total awards to business firms in the United States; this was about the same as for the previous year.

TABLE 10.—NET VALUE OF MILITARY PROCUREMENT ACTIONS, WITH BUSINESS FIRMS FOR WORK IN THE UNITED STATES, CLASSIFIED BY METHOD OF PROCUREMENT, FISCAL YEARS 1951-69

[Dollar amounts in millions]

Fiscal year	Total net value	Formally advertised procurement		Negotiated procurement	
		Amount	Percent	Amount	Percent
1951	$30,823	$3,720	12.1	$27,103	87.9
1952	41,482	4,479	10.8	37,003	89.2
1953	27,822	3,089	11.1	24,733	88.9
1954	11,448	1,789	15.6	9,659	84.4
1955	14,930	2,386	16.0	12,544	84.0
1956	17,750	2,815	15.9	14,935	84.1
1957	19,133	3,321	17.4	15,812	82.6
1958	21,827	3,115	14.3	18,712	85.7
1959	22,744	3,089	13.6	19,655	86.4
1960	21,302	2,978	14.0	18,324	86.0
1961	22,992	2,770	12.0	20,222	88.0
1962	26,147	3,412	13.1	22,735	86.9
1963	27,143	3,538	13.0	23,605	87.0
1964	26,221	3,289	14.8	22,332	85.2
1965	25,281	4,660	18.4	20,621	81.6
1966	34,026	5,147	15.1	28,879	84.9
1967	39,809	5,621	14.1	34,188	85.9
1968	39,487	4,784	12.1	34,703	87.9
1969	37,331	4,391	11.8	32,940	88.2
TOTAL, 1951-69	507,698	68,992	13.6	438,705	86.4

Source: "Military Prime Contract Awards and Subcontract Payments or Commitments, July 1968-June 1969," Office of the Secretary of Defense.

Four types of negotiation authority account for 57 percent of all procurement in fiscal 1969.

The two smallest of these exceptions each approximates the 11.8% of formally advertised procurement which Congress intended to be the general rule of procedure.

The results for fiscal years 1967, 1968, and 1969 follow:

CONTRACT AWARDS BY STATUTORY AUTHORITY

[Excerpt from table 11]

	Percent		
	1967	1968	1969
Impracticable to secure competition by formal advertising	17.3	17.9	19.0
Experimental, developmental, test, or research	11.2	11.5	11.7
Technical or specialized supplies requiring substantial initial investment or extended period of preparation for manufacture	15.0	15.5	15.0
Purchases to keep facilities available in the interest of National Defense or Industrial Mobilization	7.6	10.9	11.7
Total	51.1	55.8	57.4

TABLE II AWARDS BY STATUTORY AUTHORITY

(Amounts In Thousands)

Statutory Authority (10 U.S.C. 2304(a))	July 1966 - June 1967					
	Total		Army	Navy	Air Force	Defense Supply Agency
	Amount	Percent	Amount	Amount	Amount	Amount
TOTAL	$44,632,600		$12,390,578	$13,998,335	$12,065,423	$6,178,264
INTRAGOVERNMENTAL	1,251,540		227,387	667,771	315,786	40,596
TOTAL, EXCEPT INTRAGOVERNMENTAL	43,381,060	100.0%	12,163,191	13,330,564	11,749,637	6,137,668
FORMALLY ADVERTISED	5,791,979	13.4	1,588,342	2,112,261	409,701	1,681,675
OTHER AUTHORITY (SUB-TOTAL)	37,589,081	86.6	10,574,849	11,218,303	11,339,936	4,455,993
(1) National Emergency (Sub-Total)	2,113,651	4.9	514,494	375,061	251,232	972,864
(a) Labor Surplus Area & Industry Set-Asides	108,025	0.3	4,835	17,109	8,409	77,672
(b) Small Business Set-Asides (Sub-Total)	1,827,987	4.2	506,969	357,565	239,875	723,578
1. Unilateral	1,800,371	4.1	496,784	355,860	224,084	723,643
2. Joint	27,616	0.1	10,185	1,705	15,791	-65
(c) Balance of Payments Program	177,639	0.4	2,690	387	2,948	171,614
(2) Public Exigency	6,028,574	13.9	2,319,437	1,640,269	1,052,505	1,016,363
(3) Purchases Not More Than $2,500	1,841,300	4.2	493,488	597,523	381,909	368,380
(4) Personal or Professional Services	90,549	0.2	51,159	27,846	11,544	0
(5) Services of Educational Institutions	453,955	1.1	102,660	188,452	162,842	1
(6) Purchases Outside U. S.	2,263,460	5.2	798,833	805,862	253,345	405,420
(7) Medicines or Medical Supplies	144,514	0.3	3,476	1,250	1,384	138,404
(8) Supplies Purchased for Authorized Resale	218,741	0.5	68,599	19,190	109,882	21,110
(9) Perishable or Non-Perishable Subsistence	1,178,015	2.7	80,241	59,806	160,754	877,214
(10) Impractical to Secure Competition by Formal Advertising	7,521,549	17.3	1,564,265	2,147,709	3,253,154	556,421
(11) Experimental, Developmental, Test or Research	4,848,162	11.2	1,080,291	1,292,607	2,475,246	18
(12) Classified Purchases	129,148	0.3	106,378	19,931	2,839	0
(13) Technical Equipment Requiring Standardisation and Interchangeability of Parts	132,084	0.3	22,997	31,789	65,062	12,236
(14) Technical or Specialized Supplies Requiring Substantial Initial Investment or Extended Period of Preparation for Mfg.	6,500,576	15.0	976,180	3,189,760	2,334,636	0
(15) Negotiation After Advertising	2,280	*	1,090	789	401	0
(16) Purchases to Keep Facilities Available in the Interest of National Defense or Industrial Mobilization	3,292,966	7.6	2,184,424	455,979	650,227	2,336
(17) Otherwise Authorized by Law	829,557	1.9	206,877	364,480	172,974	85,226

* Less than 0.05 Percent.

(Amounts in Thousands) TABLE II - AWARDS BY STATUTORY AUTHORITY

Statutory Authority (10 U.S.C. 2304(a))	July 1967 - June 1968					
	Total		Army	Navy	Air Force	Defense Supply Agency
	Amount	Percent	Amount	Amount	Amount	Amount
TOTAL	$43,755,504		$13,396,361	$13,154,059	$11,847,057	$5,358,027
INTRAGOVERNMENTAL	982,136		249,117	417,128	239,109	76,782
TOTAL, EXCEPT INTRAGOVERNMENTAL	48,773,368	100.0%	13,147,244	12,736,931	11,607,948	5,281,245
FORMALLY ADVERTISED	4,901,571	11.5	1,449,762	1,466,721	370,312	1,616,776
OTHER AUTHORITY (SUB-TOTAL)	37,871,797	88.5	11,699,482	11,270,210	11,237,636	3,664,469
(1) National Emergency (Sub-Total)	2,152,371	5.0	470,613	324,855	218,826	1,138,077
(a) Labor Surplus Area & Industry Set-Asides	149,792	0.4	22,545	9,786	9,571	107,890
(b) Small Business Set-Asides	1,703,660	4.0	443,500	314,853	209,256	736,051
(c) Balance of Payments Program	298,919	0.6	4,968	216	-1	294,136
(2) Public Exigency	5,443,052	12.7	2,698,787	1,078,761	1,239,436	426,068
(3) Purchases Not More Than $2,500	1,618,864	3.8	470,512	332,798	326,179	289,375
(4) Personal or Professional Services	94,058	0.2	58,894	34,127	7,055	22
(5) Services of Educational Institutions	466,012	1.1	79,782	200,665	185,540	25
(6) Purchases Outside U. S.	1,987,560	4.6	917,712	359,649	226,604	487,595
(7) Medicines or Medical Supplies	138,373	0.3	2,391	4,008	1,009	130,965
(8) Supplies Purchased for Authorized Resale	252,495	0.6	80,333	27,277	119,923	24,962
(9) Perishable or Non-Perishable Subsistence	1,132,848	2.7	94,938	87,342	190,234	760,334
(10) Impractical to Secure Competition by Formal Advertising	7,657,034	17.9	1,312,605	2,551,949	3,412,881	379,599
(11) Experimental, Developmental, Test or Research	4,933,616	11.5	979,399	1,347,304	2,606,902	11
(12) Classified Purchases	156,855	0.4	94,949	59,854	2,052	0
(13) Technical Equipment Requiring Standardization and Interchangeability of Parts	83,555	0.2	25,328	20,721	24,745	12,761
(14) Technical or Specialized Supplies Requiring Substantial Initial Investment or Extended Period of Preparation for Mfg.	6,646,959	15.5	1,178,658	3,484,757	1,983,544	0
(15) Negotiation After Advertising	280	*	0	90	190	0
(16) Purchases to Keep Facilities Available in the Interest of National Defense or Industrial Mobilization	4,648,161	10.9	3,176,258	869,942	599,290	2,671
(17) Otherwise Authorized by Law	459,704	1.1	64,363	290,111	93,226	12,004

* Less than 0.05 Percent.

TABLE II- AWARDS BY STATUTORY AUTHORITY

Statutory Authority (10 U.S.C. 2304(a))	July 1968 - June 1969					
	Total		Army	Navy	Air Force	Defense Supply Agency
	Amount	Percent	Amount	Amount	Amount	Amount
TOTAL	$41,986,266		$12,924,171	$12,049,309	$11,779,609	$5,233,177
INTRAGOVERNMENTAL	1,219,235		409,649	432,567	253,723	123,296
TOTAL, EXCEPT INTRAGOVERNMENTAL	40,767,031	100.0%	12,514,522	11,616,742	11,525,886	5,109,881
FORMALLY ADVERTISED	4,493,997	11.0	1,254,745	1,095,032	354,984	1,789,236
OTHER AUTHORITY (SUB-TOTAL)	36,273,034	89.0	11,259,777	10,521,710	11,170,902	3,320,645
(1) National Emergency (Sub-Total)	2,068,181	5.1	507,107	388,196	268,831	904,047
(a) Labor Surplus Area & Industry Set-Asides	227,536	0.5	45,139	34,883	47,398	100,116
(b) Small Business Set-Asides	1,697,391	4.2	456,739	351,308	240,235	649,029
(c) Balance of Payments Program	163,254	0.4	5,229	1,925	1,198	154,902
(2) Public Exigency	4,450,434	10.9	1,920,016	870,762	1,407,731	251,925
(3) Purchases Not More Than $2,500	1,583,923	3.9	468,077	508,863	310,622	296,361
(4) Personal or Professional Services	64,580	0.2	44,340	12,537	7,677	26
(5) Services of Educational Institutions	435,725	1.1	95,237	180,890	159,529	69
(6) Purchases Outside U. S.	2,175,524	5.3	941,308	453,550	219,330	561,336
(7) Medicines or Medical Supplies	143,749	0.4	1,973	1,574	553	139,649
(8) Supplies Purchased for Authorized Resale	248,711	0.6	82,788	23,845	118,180	23,898
(9) Perishable or Non-Perishable Subsistence	1,147,409	2.8	117,920	85,541	229,165	714,783
(10) Impractical to Secure Competition by Formal Advertising	7,755,906	19.0	1,230,705	2,571,166	3,550,818	403,217
(11) Experimental, Developmental, Test or Research	4,750,396	11.7	981,877	1,255,186	2,513,333	0
(12) Classified Purchases	126,199	0.3	99,061	26,936	202	0
(13) Technical Equipment Requiring Standardization and Interchangeability of Parts	94,766	0.2	8,557	47,595	22,941	15,673
(14) Technical or Specialized Supplies Requiring Substantial Initial Investment or Extended Period of Preparation for Mfg.	6,110,687	15.0	1,314,879	3,055,070	1,740,738	0
(15) Negotiation After Advertising	6,860	*	6,447	134	268	11
(16) Purchases to Keep Facilities Available in the Interest of National Defense or Industrial Mobilization	4,776,618	11.7	3,416,565	758,633	595,348	6,072
(17) Otherwise Authorized by Law	313,366	0.8	22,920	281,232	5,636	3,578

* Less than 0.05 Percent.

Fixed Price Versus Cost Reimbursement Contracts

Fixed-price type contracts decreased slightly to 75.8% of total procurement in fiscal year 1969 from 77.6% in fiscal year 1968. However, the relative use of this type of contract has increased by 32% since fiscal year 1960.

TABLE 12.—NET VALUE OF MILITARY PROCUREMENT ACTIONS, BY TYPE OF CONTRACT PRICING PROVISIONS,[1] FISCAL YEARS 1952-69

[Dollar amounts in millions]

Fiscal year	Total net value of actions	Type of contract			
		Fixed price		Cost reimbursement	
		Dollars	Percent of total	Dollars	Percent of total
1952	$34,028	$27,954	81.1	$6,074	17.9
1953	29,285	23,358	79.8	5,927	20.2
1954	10,942	7,708	70.4	3,234	29.6
1955	13,661	10,366	75.9	3,295	24.1
1956	16,101	11,221	69.7	4,881	30.3
1957	17,997	11,995	66.6	6,002	33.4
1958	22,162	13,389	60.4	8,773	39.6
1959	22,873	13,520	59.1	9,353	40.9
1960	21,182	12,160	57.4	9,022	42.6
1961	22,857	13,243	57.9	9,614	42.1
1962	25,780	15,667	60.8	10,113	39.2
1963	26,225	17,013	64.9	9,212	35.1
1964	25,328	18,029	71.2	7,299	28.8
1965	24,331	18,619	76.5	5,711	23.5
1966	33,515	26,551	79.2	6,964	20.8
1967	39,249	30,974	78.9	8,275	21.1
1968	39,071	30,312	77.6	8,759	22.4
1969	37,185	28,173	75.8	9,012	24.2

[1] Includes Army, Navy, Air Force and the Defense Supply Agency (DSA). DSA was established on Jan. 1, 1962. Excludes data for the Armed Services Petroleum Procurement Agency through December 1956, but includes data for the Military Petroleum Supply Agency, the successor to ASPPA, beginning 1 January 1957. Excludes Army procurement overseas prior to FY 1958 and also excludes some Navy letters of intent in FY 1952 for which type of pricing provision was not determined. Excludes intragovernmental procurement. Excludes procurement actions less than $10,000 in value.

Source: "Military Prime Contract Awards and Subcontract Payments or Commitments, July 1968-June 1969," Office of the Secretary of Defense.

UTILIZATION OF MILITARY STOCKS

From fiscal year 1958 through fiscal year 1966, the amount of intraservice and interservice utilization rose steadily from $213 to $1,859 million. During the next two years, total utilization decreased more than $750 million primarily due to an overall decrease of approximately $1,600 million of property disposed during 1968. In fiscal year 1969 it rose $146 million, as the result of an increase in the reclamation of Air Force and Navy aircraft.

TABLE 13.—UTILIZATION OF DOD ASSETS, FISCAL YEARS 1958-69

[In millions]

Utilization of DOD assets	Fiscal year											
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
DOD interservice supply support program (wholesale)	$32	$119	$141	$228	$353	$420	$396	$357	$231	$348	$188	$202
Intraservice utilization of DOD materiel	117	232	408	616	637	626	769	[1] 799	[1] 1,240	[1] 812	[1] 595	[1] 778
Interservice utilization of military service declared excess property	64	134	117	131	122	111	160	304	388	380	319	268
Total	213	485	666	975	1,112	1,157	1,325	1,460	1,859	1,540	1,102	1,248

[1] Includes reutilization of supply system inventories.

Source: Office of the Secretary of Defense.

Disposition of DOD Surplus Stocks

The volume of disposal of surplus DOD personal property, with some fluctuations, declined steadily from fiscal years 1959 to 1968. In fiscal year 1969, however, dispositions took an upward turn, primarily due to the large volume of military-type aircraft sold as scrap. The rate of return on usable property has also increased, but the percentage of total gross proceeds to total acquisition cost has declined, due to large sales of high-cost items with little commercial adaptability. The percent of sales costs to gross proceeds declined approximately 24% between fiscal years 1968 and 1969. This can be attributed to the achievement of the lowest costs of disposal since fiscal year 1959, coupled with an increase in gross proceeds.

TABLE 14.—TOTAL DISPOSITIONS[1] (AT ACQUISITION COST) OF DOD SURPLUS PERSONAL PROPERTY, FISCAL YEARS 1958-69

[In millions of dollars]

	Fiscal year											
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Utilized by other Government agencies and MAP	168.0	361.0	141.0	349.0	271.0	188.0	194	395	604	628	480	450
Abandoned or destroyed	62.0	99.0	118.0	44.0	50.0	74.0	117	129	114	64	53	55
Authorized donations	221.0	314.0	347.0	275.0	258.0	233.0	273	282	285	231	191	232
Sales (other than scrap and salvage)	2,465.8	2,789.2	2,356.4	1,771.3	1,236.2	891.6	980	975	[2]804	[3]917	[4]847	791
Expended to scrap	2,993.7	4,576.8	3,626.7	4,331.8	2,233.1	2,537.3	3,818	2,983	2,614	2,146	2,093	2,998
Total dispositions	5,911.0	8,141.0	6,589.0	6,791.0	4,061.0	3,941.0	5,399	4,769	4,421	3,986	3,664	4,526

[1] Exclusive of DOD interservice transfers.
[2] Includes sale of $86,000,000 of missile phaseout property.
[3] Includes sale of $290,000,000 of missile phaseout property.
[4] Includes sale of $225,000,000 of missile phaseout property.

TABLE 15.—PROCEEDS FROM DISPOSAL SALES OF SURPLUS PERSONAL PROPERTY BY THE MILITARY DEPARTMENTS, FISCAL YEARS 1958-69

[In millions]

Proceeds from disposal	Fiscal year											
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
From sale (other than scrap and salvage)	$128	$140	$124	$106	$87	$59	$61	$55	$48	$36	$29	$40
From sale of other property	55	72	70	61	48	40	42	53	51	52	51	62
Total	183	212	194	167	135	99	103	108	99	88	80	102
Acquisition cost (total)	5,460	7,366	5,983	6,123	3,482	3,446	4,815	3,958	3,418	3,063	2,940	3,789
Percent of total gross proceeds to total acquisition cost	3.38	2.88	3.24	2.71	3.87	2.87	2.14	2.72	2.90	2.91	2.72	2.69
Percent of proceeds to acquisition cost (other than scrap and salvage)	5.18	5.2	5.25	5.98	7.02	6.66	6.22	5.64	5.97	3.93	3.42	5.06

TABLE 16.—COSTS OF DISPOSAL SALES OF SURPLUS PROPERTY BY THE MILITARY DEPARTMENTS, FISCAL YEARS 1958-69

[In millions]

Costs of disposal sales of surplus property	Fiscal year											
	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Cost for demilitarization	$24.0	$20.5	$26.6	$19.1	$9.1	$9.5	$12.7	$13.2	$13.5	$8.9	$6.1	$9.1
Costs for preparation and selling	18.5	37.8	51.8	65.5	69.0	62.6	64.6	65.1	62.9	60.7	62.2	56.9
Total	42.5	58.3	78.4	84.6	78.1	72.1	77.3	78.3	76.4	69.6	68.3	66.0
Gross proceeds	183.0	212.0	194.0	167.0	135.0	99.0	103.0	108.0	99.0	88.0	80.0	102.1
Percent of sales costs to gross proceeds	23.0	27.5	40.4	50.6	58.0	72.8	75.0	72.5	77.2	79.0	85.4	64.6

100 COMPANIES AND THEIR SUBSIDIARY CORPORATIONS

LISTED ACCORDING TO NET VALUE OF MILITARY

PRIME CONTRACT AWARDS

Fiscal Year 1969

Corporate acquisitions and mergers in FY 1969 continued to affect the makeup of the DOD list of 100 companies which together with their subsidiaries were awarded the largest dollar volume of military prime contracts of $10,000 or more. These 100 companies accounted for $25.2 billion, or 3.8% less than in FY 1968, while total awards to all United States companies were down by 5% to $36.9 billion. The top 100 companies received 68.2% of the FY 1969 total compared with 67.4% in the previous year. Contributing to the higher percentage awarded the top 100 companies was not only corporate restructuring, but also increases in the procurement of ammunition and of missile and space systems, highly concentrated industries, while concurrent decreases were being experienced in the procurement of clothing/textiles and other commercial type items.

The following table shows that the first five companies received 18.9% of the total received by all U. S. companies in FY 1969. This was lower by 1.7 percentage points than was recorded in FY 1968; however, the percentage for the next 20 companies totaled 25.9% or almost 1% more than in FY 1968. The largest company in FY 1969 received awards aggregating $2,040 million compared with $2,239 million for the largest in FY 1968. To get on the list in FY 1969 required $48 million in awards, against $50 million in FY 1968.

	Percent of U. S. Total			
Companies	FY 1966	FY 1967	FY 1968	FY 1969
1st	4.6%	5.4%	5.8%	5.5%
2nd	3.5	4.7	4.8	4.4
3rd	3.4	4.6	3.8	3.4
4th	3.4	3.3	3.4	2.9
5th	2.7	2.8	2.8	2.7
1 - 5	17.6%	20.8%	20.6%	18.9%
6 - 10	9.0	8.8	9.3	10.1
11 - 25	16.4	14.9	15.7	15.8
1 - 25	43.0%	44.5%	45.6%	44.8%
26 - 50	12.1	11.6	11.5	12.1
51 - 75	5.4	6.1	6.6	7.3
76 - 100	3.3	3.3	3.7	4.0
1 - 100	63.8%	65.5%	67.4%	68.2%

The FY 1969 list of the top 100 companies shows 12 companies which did not appear on the list for FY 1968. Of these, 2 appear between positions 51 and 75 and the remaining 10 between positions 76 and 100.

Companies Listed in FY 1969 But Not in FY 1968	Companies Listed in FY 1968 But Not in FY 1969
Aluminum Company of America	Aerodex Inc.
Atlantic Richfield Co.	Atlas Chemical Industries, Inc.
Dynalectron Corp.	Automatic Sprinkler Corp. of America
Firestone Tire & Rubber Co.	Condec Corp.
Flying Tiger Line, Inc.	Emerson Electric Co.
Kidde (Walter) & Co. Inc.	Intl. Harvester Co.
Le Tourneau, R. G., Inc.	Johns Hopkins University (N)
National Gypsum Co.	Lykes Corp.
Southern Airways, Inc.	Mason & Hanger Silas Mason Co.
Talley Industries, Inc.	Susquehanna Corp.
Tumpane Co.	Vinnell Corp.
Whittaker Corp.	

Of the 88 companies appearing in both the FY 1968 and FY 1969 lists, 49 bettered their position, 33 were in a lower position and 6 showed no change. Companies are considered as appearing on the list in both years despite mergers and name changes if a major component of a newly constituted company made the list in both years.

The greatest positive change occurred for Teledyne, Inc. which went from 67th place last year to 22nd place this year, the result of the acquisition by Teledyne of the Ryan Aeronautical Company. Other companies with major position changes were: Federal Cartridge Corp. from 82nd to 49th; Harris-Intertype Corp. from 96th to 80th; Kaiser Industries Corp. from 18th to 45th and The Signal Companies, Inc. from 36th to 71st place.

In addition to the turnover indicated above, the following changes affecting companies on the FY 1969 list were noted: Newport News Shipbuilding & Dry Dock Co., a shipbuilder and producer of heavy machines and equipment was merged into Tenneco, Inc., a gas transmission, investment, chemical and paper company. General Precision Equipment Corp., an instrument manufacturer was merged into Singer Co., a sewing and business machine producer. Ryan Aeronautical Co., a producer of aircraft and electronic navigation and missile components was acquired by Teledyne, Inc., a supplier of scientific research products, electronics and a specialty metals producer. McLean Industries, Inc., a ship line and freight transportation holding company and Reynolds Tobacco Co., a maker of tobacco products merged into Reynolds Industries, Inc. Crucible Steel, a maker of stainless and specialty steel was merged into Colt Industries, Inc., a producer of gas-turbine fuel pumps, machinery, small arms and aircraft and missile components. Vitro Corp. of America, a provider of electronic equipment and missile systems engineering was acquired by Automation Industries, Inc., a maker of instruments and aerospace parts.

Other changes of note were: the merger of General Time into Talley Industries Inc.; the merger of Sinclair Oil Corp. into Atlantic Richfield Co.; the acquisition of U. S. Lines by Walter Kidde & Co. Inc. and the relinquishment by the Martin Marietta Corp. of its holdings in the Bunker Ramo Corp.

Although the work of many companies on the list involves more than one procurement category, each company has been assigned in the table below to the procurement category that accounts for its largest dollar volume of Defense awards. For example, Ling Temco Vought, Inc. is a multi-industry company producing steel, food, aerospace systems, electronics, etc. For this table it is assigned to "Missiles", the procurement category accounting for its largest dollar volume of awards.

	Number of Companies		
Procurement Category	FY 1968	FY 1969	Change
Aircraft	22	21	-1
Missiles	12	11	-1
Ships	2	2	-
Tank-Automotive	7	5	-2
Weapons	2	1	-1
Ammunition	22	24	+2
Electronics	14	14	-
Services	12	14	+2
Construction	1	1	-
Petroleum	6	7	+1

Four of the five companies receiving awards of more than $1 billion in FY 1968 reached that level again in FY 1969; however, the total volume of awards to these four companies was $726 million below the FY 1968 volume. The five leading companies and a brief description of their more important Defense work are as follows:

Lockheed Aircraft Corp. moved into first place on the list with $2,040 million, or 5.5% of the total.. Last year, in second place, this company received $1,870 million, for a percentage of 4.8%. This company's major aircraft contracts included the C-5A Galaxy Jet Transport, the Cheyenne Combat Helicopter (in May 1969 the Army cancelled the production contract awarded in 1968) and the P-3 Orion Patrol Bomber. Missile activities included the Poseidon.

General Electric Co. whose contracts totaled $1,621 million, or 4.4% of the total, moved into second place on the list. This compares with $1,489 million, or 3.8% of total for FY 1968. Aircraft engines, principally for the C-5A Galaxy, were an important part of this company's effort. Ordnance contracts were for various types of guns and guidance control systems for missiles. There also were substantial contracts for nuclear propulsion systems for ships.

General Dynamics Corp., the leader last year, slipped to third place with $1,243 million, or 3.4% of total. The FY 1968 volume for this company was $2,239 million, and its percentage was 5.8% of total. The company received contracts for aircraft, missiles and ships. Aircraft contracts were principally for the F-111 fighter aircraft. Awards for ships were for new construction of submarines. Missile contracts were for components and systems.

McDonnell Douglas Corp., in fifth place last year, ranked fourth this year. For FY 1969, contract awards to this company totaled $1,070 million, or 2.9% of total. Last year total awards amounted to $1,101 million, or 2.8% of total. The aircraft contracts of this company include the F-4 Phantom series of fighter and reconnaissance aircraft. Additionally, substantial awards were obtained for the development of the Manned Orbiting Laboratory.

United Aircraft Corp., in fifth place received contracts for $997 million, or 2.7% of total. Last year this company obtained $1,321 million, or 3.4% of total. The prime contracts work of this company is in the production of aircraft, engines and spare parts. The major aircraft contracts were for helicopters, principally the Flying Crane, Sea King and Sea Stallion.

INDEX OF 100 PARENT COMPANIES WHICH WITH THEIR SUBSIDIARIES RECEIVED THE LARGEST DOLLAR VOLUME OF MILITARY PRIME CONTRACT AWARDS IN FISCAL YEAR 1969

RANK	PARENT COMPANY	RANK	PARENT COMPANY
76.	AEROSPACE CORP (N)	98.	LETOURNEAU R G INC
83.	ALUMINUM COMPANY OF AMERICA	7.	LING TEMCO VOUGHT INC
61.	AMERICAN MACHINE + FOUNDRY CO	21.	LITTON INDUSTRIES, INC
66.	AMERICAN MFG CO OF TEXAS	1.	LOCKHEED AIRCRAFT CORP
6.	AMERICAN TELEPHONE + TELEGRAPH CO	50.	MAGNAVOX CO
40.	ASIATIC PETROLEUM CORP	25.	MARTIN MARIETTA CORP
92.	ATLANTIC RICHFIELD CO	67.	MASSACHUSETTS INSTITUTECHNOLOGY (N)
78.	AUTOMATION INDUSTRIES, INC	4.	MCDONNELL DOUGLAS CORP
13.	AVCO CORP	41.	MOBIL OIL CORP
34.	BENDIX CORP	77.	MOTOROLA INC
9.	BOEING CO	85.	NATIONAL GYPSUM CO
94.	CESSNA AIRCRAFT CO	69.	NATIONAL PRESTO INDUSTRIES INC
59.	CHAMBERLAIN MFG CORP	33.	NORRIS INDUSTRIES
53.	CHRYSLER CORP	8.	NORTH AMERICAN ROCKWELL CORP
64.	CITY INVESTING CO	36.	NORTHROP CORP
44.	COLLINS RADIO CO	20.	OLIN MATHIESON CHEMICAL CORP
62.	COLT INDUSTRIES, INC	54.	PACIFIC ARCHITECTS + ENGINEERS INC
90.	CONTINENTAL AIR LINES INC	39.	PAN AMERICAN WORLD AIRWAYS INC
88.	CONTROL DATA CORP	23.	R C A CORP
72.	CURTISS WRIGHT CORP	28.	RAYMOND MORRISON KNUDSEN (JV)*
47.	DAY + ZIMMERMAN INC	11.	RAYTHEON CO
31.	DUPONT E I DE NEMOURS + CO	75.	REYNOLDS (RJ) INDUSTRIES, INC
97.	DYNALECTRON CORP	55.	SANDERS ASSOCIATES INC
63.	EASTMAN KODAK CO	82.	SEATRAIN LINES INC
32.	F M C CORP	71.	SIGNAL COMPANIES INC (THE)
43.	FAIRCHILD HILLER CORP	58.	SINGER CO
49.	FEDERAL CARTRIDGE CORP	95.	SMITH INVESTMENT CO
81.	FIRESTONE TIRE + RUBBER CO	100.	SOUTHERN AIRWAYS INC
99.	FLYING TIGER LINE INC	12.	SPERRY RAND CORP
19.	FORD MOTOR CO	42.	STANDARD OIL CO OF CALIF
3.	GENERAL DYNAMICS CORP	24.	STANDARD OIL CO (NEW JERSEY)
2.	GENERAL ELECTRIC CO	74.	STATES MARINE LINES INC
10.	GENERAL MOTORS CORP	96.	SVERDRUP + PARCEL + ASSOCS INC
46.	GENERAL TELEPHONE + ELECTN CORP	38.	T R W INC
26.	GENERAL TIRE + RUBBER CO	79.	TALLEY INDUSTRIES, INC
57.	GOODYEAR TIRE + RUBBER CO	22.	TELEDYNE INC
17.	GRUMMAN AIRCRAFT ENGINEERING CORP	30.	TENNECO INC
68.	GULF OIL CORP	52.	TEXACO INC
80.	HARRIS-INTERTYPE CORP	48.	TEXAS INSTRUMENTS INC
73.	HARVEY ALUMINUM INC	16.	TEXTRON INC
86.	HAZELTINE CORPORATION	51.	THIOKOL CHEMICAL CORP
35.	HERCULES INC	93.	TUMPANE CO INC
18.	HONEYWELL INC	37.	UNIROYAL INC
14.	HUGHES AIRCRAFT CO	5.	UNITED AIRCRAFT CORP
84.	HUGHES TOOL CO	56.	UNITED STATES STEEL CORP
27.	INTL BUSINESS MACHINES CORP	87.	WESTERN UNION TELEGRAPH CO
29.	INTERNATIONAL TELEPHONE + TEL CORP	15.	WESTINGHOUSE ELECTRIC CORP
45.	KAISER INDUSTRIES CORP	89.	WHITE MOTOR CORP
70.	KIDDE WALTER + CO INC	65.	WHITTAKER CORP
60.	LEAR SIEGLER INC	91.	WORLD AIRWAYS INC

* Raymond International, Inc; Morrison-Knudsen Co., Inc; Brown & Root, Inc; & J. A. Jones Construction Co.

(N) Non-Profit
(JV) Joint Venture

100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO NET VALUE OF MILITARY PRIME CONTRACT AWARDS

FISCAL YEAR 1969
(1 JULY 1968 - 30 JUNE 1969)

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
	U. S. T O T A L a/	$36,888,601	100.00	100.00
	TOTAL, 100 COMPANIES + THEIR SUBSIDIARIES b/	25,175,240	68.25	68.25
1.	LOCKHEED AIRCRAFT CORP	2,004,423		
	LOCKHEED SHIPBUILDING CONSTRUCTION	35,752		
	VENTURA MFG CO	61		
	TOTAL	2,040,236	5.53	5.53
2.	GENERAL ELECTRIC CO	1,619,095		
	GENERAL ELECTRIC SUPPLY CO	1,680		
	TOTAL	1,620,775	4.39	9.92
3.	GENERAL DYNAMICS CORP	1,228,903		
	DYNATRONICS INC	448		
	STROMBERG CARLSON CORP	10,680		
	STROMBERG DATAGRAPHICS, INC	2,879		
	UNITED ELECTRIC COAL CO	145		
	TOTAL	1,243,055	3.37	13.29
4.	MCDONNELL DOUGLAS CORP	1,031,752		
	ADVANCED COMMUNICATIONS, INC	524		
	CONDUCTRON CORP	32,021		
	HYCON MFG CO	4,862		
	TRIDEA ELECTRONICS INC	584		
	TOTAL	1,069,743	2.90	16.19
5.	UNITED AIRCRAFT CORP	997,380	2.70	18.89
6.	AMERICAN TELEPHONE + TELEGRAPH CO	152,349		
	CHESAPEAKE + POTOMAC TELEPHONE CO	13,939		
	ILLINOIS BELL TEL CO	217		
	MOUNTAIN STATES TEL + TEL CO	1,688		
	NEW ENGLAND TEL + TEL CO	564		
	NEW JERSEY BELL TELEPHONE CO	578		
	NEW YORK TELEPHONE CO	52		
	NORTHWESTERN BELL TELEPHONE CO	236		
	OHIO BELL TELEPHONE CO	270		
	PACIFIC NORTHWEST BELL TELEPHONE	145		
	PACIFIC TELEPHONE + TELEGRAPH CO	172		
	SOUTHERN BELL TELEPHONE + TELEGRPH	2,325		
	SOUTHWESTERN BELL TELEPHONE	1,729		
	TELETYPE CORP	16,926		
	WESTERN ELECTRIC CO INC	723,389		
	TOTAL	914,579	2.48	21.37
7.	LING TEMCO VOUGHT INC	26,554		
	ALTEC SERVICE CO	32		
	BRANIFF AIRWAYS INC	43,327		

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
7.	LING TEMCO VOUGHT INC			
	COMPUTER TECHNOLOGY, INC	54		
	CONTINENTAL ELECTRONICS MFG CO	3,895		
	JEFFERSON WIRE + CABLE CORP	138		
	JONES + LAUGHLIN STEEL CORP	2,803		
	KENTRON HAWAII LTD	15,448		
	L T V ELECTROSYSTEMS	182,160		
	L T V AEROSPACE CORP	617,706		
	L T V LING ALTEC INC	770		
	OKONITE CO THE	997		
	SERVICE TECHNOLOGY CORP	10,645		
	STACO, INC	11		
	TAMAR ELECTRONICS INDUSTRIES, INC	125		
	WILSON + CO INC	9,154		
	WILSON SPORTING GOODS CO	295		
	TOTAL	914,114	2.48	23.85
8.	NORTH AMERICAN ROCKWELL CORP	673,840		
	MORSE CONTROLS, INC	201		
	REMMERT-WERNER, INC	134		
	TOTAL	674,175	1.83	25.68
9.	BOEING CO	653,638	1.77	27.45
10.	GENERAL MOTORS CORP	584,407		
	FRIGIDAIRE SALES CORP	32		
	TOTAL	584,439	1.58	29.03
11.	RAYTHEON CO	542,817		
	EDEX CORP	15		
	HEATH D C + CO	25		
	MACHLETT LABORATORIES INC	3,470		
	MICRO STATE ELECTRONICS CORP	102		
	RAYTHEON EDUCATION CO	73		
	SEISMOGRAPH SERVICE CORP	270		
	TOTAL	546,772	1.48	30.51
12.	SPERRY RAND CORP	467,861	1.27	31.78
13.	AVCO CORP	456,054	1.24	33.02
14.	HUGHES AIRCRAFT CO	438,756		
	MEVA CORP	260		
	TOTAL	439,016	1.19	34.21
15.	WESTINGHOUSE ELECTRIC CORP	424,175		
	ELECTRO INSULATION, INC	15		
	K-W BATTERY CO	197		
	SANFORD MARINE SERVICES, INC	67		
	THERMO KING CORP	294		
	THERMO KING SALES + SERVICE	12		
	URBAN SYSTEMS DEV CORP	2,911		
	WESTINGHOUSE ELECTRIC INTL, SA	278		
	WESTINGHOUSE ELECTRIC SUPPLY CO	886		

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
15.	WESTINGHOUSE ELECTRIC CORP			
	WESTINGHOUSE LEARNING CORP	723		
	TOTAL	429,558	1.16	35.37
16.	TEXTRON INC	13,776		
	ACCESSORY PRODUCTS CO	29		
	AETNA BEARING CO, INC	34		
	BELL AEROSPACE CORP	412,700		
	CAMCAR SCREW + MFG CO	140		
	FAFNIR BEARING CO	542		
	TEXTRON ELECTRONICS INC	606		
	TOWNSEND CO	435		
	WALKER-PARKERSBURG	17		
	WATERBURY FARREL	11		
	TOTAL	428,290	1.16	36.53
17.	GRUMMAN AIRCRAFT ENGINEERING CORP	417,052	1.13	37.66
18.	HONEYWELL INC	405,575	1.10	38.76
19.	FORD MOTOR CO	67,202		
	PHILCO FORD CORP	329,131		
	TOTAL	396,333	1.07	39.83
20.	OLIN MATHIESON CHEMICAL CORP	354,359	0.96	40.79
21.	LITTON INDUSTRIES, INC	14,586		
	AERO SERVICE CORP	200		
	ALLIS (LOUIS) CO	220		
	AMERICAN BOOK CO	24		
	BIONETICS RESEARCH LABORATORIES	213		
	CLIFTON PRECISION PRODUCTS CO	11		
	INGALLS SHIPBUILDING CORP	1,052		
	KIMBALL SYSTEMS, INC	27		
	LITTON PRECISION PRODS INC	8,524		
	LITTON SYSTEMS INC	291,890		
	MONROE INTERNATIONAL INC	127		
	NEW BRITAIN MACHINE CO	208		
	STREATER INDUSTRIES, INC	20		
	TOTAL	317,102	0.86	41.65
22.	TELEDYNE INC	62,559		
	ADCON INC	277		
	AMELCO, INC	3,816		
	BROWN ENGINEERING CO, INC	3,256		
	COLUMBIA STEEL + SHAFTING CO	39		
	COLUMBIA-SUMMERILL CORP	27		
	CONTINENTAL AVIATION + ENGR CORP	38,116		
	CONTINENTAL DEVICE CORP	56		
	CONTINENTAL MOTORS CORP	64,897		
	ELECTRO DEVELOPMENT CO	33		
	GEOTECHNICAL CORP	93		
	GETZ WILLIAM CORP	105		
	GILL ELECTRIC MFG CORP	755		
	GURLEY (W+LE)	308		

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
22.	TELEDYNE INC			
	H+H ENGINEERING CO	20		
	HYDRA POWER CORP	289		
	ISOTOPES INC	1,103		
	KINETICS CORP	122		
	KING METAL PRODUCTS, LTD	24		
	MCKAY CO	63		
	MICRONETICS INC	70		
	MILLIKEN D R CO INC	217		
	MONARCH RUBBER CO	74		
	ORDNANCE SPECIALTIES INC	135		
	PACKARD BELL ELECTRONICS CORP	5,906		
	PINES ENGINEERING CO, INC	14		
	REPUBLIC MFG CO	119		
	RYAN AERONAUTICAL CORP	121,233		
	TECHDATA, LTD	37		
	THERMATICS INC	13		
	WAH CHANG CORP	55		
	WISCONSIN MOTOR CORP	4,698		
	TOTAL	308,455	0.84	42.49
23.	R C A CORP	298,868		
	NATIONAL BROADCASTING CO, INC	13		
	RCA DEFENSE ELECTRONICS CORP	91		
	RCA INSTITUTES INC	20		
	TOTAL	298,992	0.81	43.30
24.	STANDARD OIL CO (NEW JERSEY)			
	AMERICAN CRYOGENICS INC	85		
	ENJAY CHEMICAL CO	216		
	ESSO A G	1,302		
	ESSO INTERNATIONAL CORP	151,098		
	ESSO PETROL CO LTD	66		
	ESSO RESEARCH + ENGINEERING CO	885		
	ESSO STANDARD EASTERN INC	224		
	ESSO STANDARD ITALIANA	2,463		
	ESSO STANDARD OIL CO S A	5,001		
	ESSO STANDARD THAILAND LTD	78		
	HUMBLE OIL + REFINING CO	129,635		
	TOTAL	291,053	0.79	44.09
25.	MARTIN MARIETTA CORP	264,279	0.72	44.81
26.	GENERAL TIRE + RUBBER CO	8,307		
	AEROJET DELFT CORP	272		
	AEROJET GENERAL CORP	212,924		
	BATESVILLE MFG CO	41,154		
	FRONTIER AIRLINES INC	45		
	GENERAL TIRE INTERNATIONAL CO	799		
	TOTAL	263,501	0.71	45.52
27.	INTL BUSINESS MACHINES CORP	256,304		
	SCIENCE RESEARCH ASSOCIATES INC	177		
	SERVICE BUREAU CORP	142		
	TOTAL	256,623	0.70	46.22

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
28.	RAYMOND MORRISON KNUDSEN (JV)	254,000	0.69	46.91
29.	INTERNATIONAL TELEPHONE + TEL CORP	120,206		
	BARTON INSTRUMENT CORP	27		
	BOBBS-MERRILL CO, INC	11		
	ITT CONTINENTAL BAKING CO	1,746		
	E T C, INC	79		
	FEDERAL ELECTRIC CORP	66,088		
	ITT ELECTRO PHYSICS LABORATORIES	3,044		
	ITT GILFILLAN INC	38,643		
	ITT HAMMEL DAHL	11		
	ITT TECHNICAL SERVICES INC	8,392		
	JENNINGS RADIO MFG CORP	20		
	TOTAL	238,267	0.65	47.56
30.	TENNECO INC			
	DAVIS MFG, INC	203		
	GAS EQUIPMENT ENGRS, INC	15		
	NEWPORT NEWS SHIPBLD + DRY DOCK CO	236,024		
	TENNECO CHEMICALS, INC	467		
	TOTAL	236,679	0.64	48.20
31.	DUPONT E I DE NEMOURS + CO	41,582		
	REMINGTON ARMS CO	170,383		
	TOTAL	211,965	0.57	48.77
32.	F M C CORP	189,639		
	GUNDERSON BROS ENGINEERING CORP	3,807		
	KILBY STEEL CO INC	2,179		
	TOTAL	195,625	0.53	49.30
33.	NORRIS INDUSTRIES	187,553	0.51	49.81
34.	BENDIX CORP	177,806		
	BENDIX FIELD ENGINEERING CORP	5,923		
	BENDIX WESTINGHOUSE AUTOMOTIVE	129		
	FRAM CORP	433		
	MARINE ADVISERS, INC	31		
	P + D MFG CO INC	78		
	SCOTT TESTERS, INC	37		
	TOTAL	184,437	0.50	50.31
35.	HERCULES INC	179,364		
	HAVES INDUSTRIES INC	258		
	TOTAL	179,622	0.49	50.80
36.	NORTHROP CORP	106,992		
	HALLICRAFTERS CO	32,468		
	NORTHROP CAROLINA INC	4,874		
	PAGE COMMUNICATIONS ENGINEERS INC	34,311		
	WARNECKE ELECTRON TUBES, INC	262		
	TOTAL	178,907	0.48	51.28

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
37.	UNIROYAL INC	174,061		
	UNIROYAL INTERNATIONAL CORP	27		
	TOTAL	174,088	0.47	51.75
38.	T R W INC	169,487		
	CRESCENT INSUL WIRE + CABLE CO, INC	73		
	GLOBE INDUSTRIES INC	316		
	GREGORY INDUSTRIES, INC	12		
	INTERNATIONAL CONTROLS CORP	380		
	RAMSEY CORP	33		
	T R W SEMICONDUCTORS, INC	29		
	UNITED-CARR, INC	49		
	TOTAL	170,379	0.46	52.21
39.	PAN AMERICAN WORLD AIRWAYS INC	167,437	0.45	52.66
40.	ASIATIC PETROLEUM CORP	155,583	0.42	53.08
41.	MOBIL OIL CORP	151,479		
	MOBIL CHEMICAL CO	12		
	MOBIL OIL NEW ZEALAND, LTD	24		
	TOTAL	151,515	0.41	53.49
42.	STANDARD OIL CO OF CALIF	73,406		
	CALTEX ASIA LTD c/	2,866		
	CALTEX AUSTRALIA c/	13		
	CALTEX OIL PRODUCTS CO c/	61,280		
	CALTEX OIL THAILAND LTD c/	2,058		
	CALTEX OVERSEAS LTD c/	311		
	CALTEX PHILIPPINES INC c/	70		
	CHEVRON ASPHALT CO	33		
	CHEVRON CHEMICAL CO	552		
	CHEVRON OIL CO	3,323		
	CHEVRON OIL TRADING CO	273		
	CHEVRON SHIPPING CO	192		
	STANDARD OIL CO KENTUCKY	4,396		
	TOTAL	148,773	0.40	53.89
43.	FAIRCHILD HILLER CORP	148,549		
	BURNS AERO SEAT CO INC	37		
	TOTAL	148,586	0.40	54.29
44.	COLLINS RADIO CO	145,751	0.40	54.69
45.	KAISER INDUSTRIES CORP	495		
	HYDROMAR CORP	173		
	KAISER AEROSPACE + ELECTRONICS CO	2,936		
	KAISER JEEP CORP	118,517		
	KAISER STEEL CORP	11,095		
	NATIONAL STEEL + SHIPBUILDING CO	9,182		
	TOTAL	142,398	0.39	55.08

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
46.	GENERAL TELEPHONE + ELECTN CORP	25		
	AUTOMATIC ELECTRIC CO	9,029		
	AUTOMATIC ELECTRIC SALES CORP	200		
	FLEETWOOD CORP	15		
	GENERAL TELEPHONE + ELECTRONIC LAB	268		
	GENERAL TELEPHONE CO SOUTHEAST	52		
	GENERAL TELEPHONE DIRECTORY CO	58		
	HAWAIIAN TELEPHONE CO	8,026		
	LENKURT ELECTRIC CO INC	9,556		
	SYLVANIA ELECTRIC PRODUCTS INC	113,247		
	TOTAL	140,476	0.38	55.46
47.	DAY + ZIMMERMAN INC	137,793	0.37	55.83
48.	TEXAS INSTRUMENTS INC	132,483	0.36	56.19
49.	FEDERAL CARTRIDGE CORP	131,901	0.36	56.55
50.	MAGNAVOX CO	126,245		
	GENERAL ATRONICS CORP	4,003		
	SELMER (H+A), INC	12		
	SENTINEL, INC	22		
	TOTAL	130,282	0.35	56.90
51.	THIOKOL CHEMICAL CORP	127,901		
	DELTA CORP	65		
	UNIPLEX, INC	104		
	TOTAL	128,070	0.35	57.25
52.	TEXACO INC	22,966		
	CALTEX ASIA LTD c/	2,866		
	CALTEX AUSTRALIA c/	12		
	CALTEX OIL PRODUCTS CO c/	61,279		
	CALTEX OIL THAILAND LTD c/	2,057		
	CALTEX OVERSEAS LTD c/	310		
	CALTEX PHILIPPINES INC c/	70		
	JEFFERSON CHEMICAL CO INC	695		
	TEXACO EXPORT INC	30,305		
	TEXACO PUERTO RICO INC	2,855		
	TEXACO TRINIDAD INC	17		
	WHITE FUEL CO INC	541		
	TOTAL	123,973	0.34	57.59
53.	CHRYSLER CORP	117,688		
	CHRYSLER OUTBOARD CORP	4,128		
	TOTAL	121,816	0.33	57.92
54.	PACIFIC ARCHITECTS + ENGINEERS INC	120,959	0.33	58.25
55.	SANDERS ASSOCIATES INC	117,707		
	MITHRAS INC	775		
	TOTAL	118,482	0.32	58.57

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
56.	UNITED STATES STEEL CORP	109,720		
	REACTIVE METALS INC	291		
	U S STEEL INTERNATIONAL, INC	7,787		
	TOTAL	117,798	0.32	58.89
57.	GOODYEAR TIRE + RUBBER CO	57,878		
	GOODYEAR AEROSPACE CORP	56,484		
	MOTOR WHEEL CORP	2,098		
	TOTAL	116,460	0.32	59.21
58.	SINGER CO	1,301		
	CONTROLS CO OF AMERICA	439		
	EMC INSTRUMENTATION, INC	73		
	FRIDEN, INC	1,906		
	GENERAL PRECISION EQUIPMENT CORP	40		
	GRAFLEX INC	1,060		
	HRB-SINGER, INC	7,749		
	NATIONAL THEATRE SUPPLY CO	29		
	SINGER GENERAL PRECISION INC	91,822		
	SINGER SEWING MACHINE CO	112		
	STRONG ELECTRIC CORP	644		
	TELE-SIGNAL CORP	9,099		
	VAPOR CORP	1,968		
	TOTAL	116,242	0.32	59.53
59.	CHAMBERLAIN MFG CORP	115,925	0.31	59.84
60.	LEAR SIEGLER INC	83,650		
	AMERICAN AVITRON	443		
	ASTEK INSTRUMENT CORP	11		
	L S I SERVICE CORP	31,247		
	LIGHTING PRODUCTS, INC	33		
	NATIONAL BROACH + MACHINE CO	11		
	TRANSPORT DYNAMICS INC	358		
	TOTAL	115,753	0.31	60.15
61.	AMERICAN MACHINE + FOUNDRY CO	115,025		
	AMF BEAIRD, INC	27		
	AMF TUBOSCOPE, INC	82		
	CUNO ENGINEERING CORP	91		
	HARLEY-DAVIDSON MOTOR CO	41		
	TOTAL	115,266	0.31	60.46
62.	COLT INDUSTRIES, INC	7,866		
	CHANDLER EVANS, INC	9,273		
	COLTS INC	84,792		
	CRUCIBLE STEEL CORP	158		
	ELOX CORP	89		
	FAIRBANKS MORSE, INC	5,596		
	HOLLEY CARBURETOR CO	4,244		
	PRATT + WHITNEY INC	2,407		
	TOTAL	114,425	0.31	60.77
63.	EASTMAN KODAK CO	108,998		
	EASTMAN CHEMICAL PRODUCTS CORP	48		
	EASTMAN KODAK STORES INC	764		
	KODAK EXPORT, LTD	38		
	TOTAL	109,848	0.30	61.07

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
64.	CITY INVESTING CO			
	AMERICAN ELECTRIC CO	43,818		
	HAYES HOLDING CO	50,431		
	MOE (A E) + CO, INC	15		
	RHEEM MFG CO	247		
	WELLS MARINE, INC	14,613		
	WILSON SHIPYARD, INC	75		
	TOTAL	109,199	0.30	61.37
65.	WHITTAKER CORP	60,195		
	AIRCRAFT HYDRO-FORMING, INC	345		
	AMERICAN FINISHING CO	159		
	BERWICK FORGE + FABRICATING CORP	174		
	COLUMBUS MILPAR + MFG CO	27,224		
	DETROIT BOLT + NUT CO	35		
	GENERAL AEROSPACE MATERIALS CORP	412		
	HOL-GAR MFG CORP	3,438		
	JENKS METALS CO	880		
	MAY ALUMINUM, INC	402		
	NAUTEC CORP	66		
	PRECISION FORGE CO	980		
	SPACE SCIENCES, INC	266		
	STRAIGHTLINE MFG CO	13,112		
	TOTAL	107,688	0.29	61.66
66.	AMERICAN MFG CO OF TEXAS	106,745	0.29	61.95
67.	MASSACHUSETTS INSTITUTECHNOLOGY	100,519	0.27	62.22
68.	GULF OIL CORP	86,443		
	GULF GENERAL ATOMIC, INC	5,883		
	GULF OIL TRADING CO	2,988		
	INDUSTRIAL ASPHALT INC	298		
	PITTSBURG MIDWAY COAL MINING CO	330		
	TOTAL	95,942	0.26	62.48
69.	NATIONAL PRESTO INDUSTRIES INC	94,908	0.26	62.74
70.	KIDDE WALTER + CO INC	10,632		
	AMERICAN DESK MFG CO	72		
	ASSOCIATED TESTING LABS INC	51		
	AUDIO EQUIPMENT CO INC	565		
	CARPENTER MFG CO	56		
	CHATOS GLASS CO	55		
	COLUMBIAN BRONZE CORP	246		
	CRAIG SYSTEMS CORP	2,111		
	CRANE HOIST ENGR CORP	185		
	DURA CORP	116		
	FENWAL INC	840		
	GROVE MFG CO	845		
	HARRINGTON + RICHARDSON INC	25,767		
	UNITED STATES LINES CO	50,380		
	TOTAL	91,921	0.25	62.99

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
71.	SIGNAL COMPANIES INC (THE)	29		
	ALLISON STEEL MFG CO	85		
	DUNHAM BUSH INC	501		
	GARRETT CORP	72,698		
	MACK TRUCKS INC	11,404		
	SIGNAL OIL + GAS CO	5,606		
	SOUTHLAND OIL CORP	942		
	TOTAL	91,265	0.25	63.24
72.	CURTISS WRIGHT CORP	90,680		
	DORR-OLIVER CORP	28		
	MARQUETTE METAL PRODUCTS CO	213		
	METAL IMPROVEMENT CO	90		
	ZARKIN MACHINE CO	160		
	TOTAL	91,171	0.25	63.49
73.	HARVEY ALUMINUM INC	21,606		
	HARVEY ALUMINUM SALES	68,852		
	TOTAL	90,458	0.25	63.74
74.	STATES MARINE LINES INC	87,059	0.24	63.98
75.	REYNOLDS (RJ) INDUSTRIES, INC	18,474		
	EQUIPMENT INC	3,346		
	GULF PUERTO RICO LINES, INC	384		
	REYNOLDS (RJ) FOODS, INC	456		
	SEA-LAND SERVICE, INC	62,269		
	TOTAL	84,929	0.23	64.21
76.	AEROSPACE CORP	76,245	0.21	64.42
77.	MOTOROLA INC	73,061		
	MOTOROLA OVERSEAS CORP	103		
	TOTAL	73,164	0.20	64.62
78.	AUTOMATION INDUSTRIES, INC	1,617		
	CONSOLIDATED AMERICAN SERVICES INC	550		
	FACILITIES MGMT CORP	4,986		
	SPARTAN AVIATION, INC	3,157		
	VITRO CORP OF AMERICA	62,802		
	TOTAL	73,112	0.20	64.82
79.	TALLEY INDUSTRIES, INC	21,273		
	BRAINCON CORP	32		
	GENERAL TIME CORP	50,665		
	LAKEVILLE PRECISION MOLDING, INC	38		
	WATERBURY BUTTON CO	77		
	WATERBURY COMPANIES, INC	385		
	TOTAL	72,470	0.20	65.02
80.	HARRIS-INTERTYPE CORP	1,159		
	GATES RADIO CO	371		
	PRD ELECTRONICS, INC	39,393		
	R F COMMUNICATIONS, INC	3,516		
	RADIATION, INC	27,167		

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
80.	HARRIS-INTERTYPE CORP			
	TOTAL	71,606	0.19	65.21
81.	FIRESTONE TIRE + RUBBER CO	66,640		
	HAMILL MFG CO	16		
	TOTAL	66,656	0.18	65.39
82.	SEATRAIN LINES INC	41,906		
	COMMODITY CHARTERING CORP	3,169		
	HUDSON WATERWAYS CORP	15,822		
	TRANSEASTERN SHIPPING CORP	3,675		
	TOTAL	64,572	0.18	65.57
83.	ALUMINUM COMPANY OF AMERICA	64,331		
	REA MAGNET WIRE CO, INC	109		
	WEAR EVER ALUMINUM INC	18		
	TOTAL	64,458	0.17	65.74
84.	HUGHES TOOL CO	63,693	0.17	65.91
85.	NATIONAL GYPSUM CO	63,214	0.17	66.08
86.	HAZELTINE CORPORATION	60,472		
	WHEELER LABORATORIES, INC	81		
	TOTAL	60,553	0.16	66.24
87.	WESTERN UNION TELEGRAPH CO	57,686	0.16	66.40
88.	CONTROL DATA CORP	50,757		
	ASSOCIATED AERO SCIENCE LABS INC	1,352		
	C E I R INC	541		
	ELECTRONIC ACCOUNTING CARD CORP	894		
	PACIFIC TECHNICAL ANALYSTS, INC	3,293		
	T R G INC	76		
	TOTAL	56,913	0.15	66.55
89.	WHITE MOTOR CORP	25,056		
	HERCULES ENGINES INC	30,751		
	MINNEAPOLIS MOLINE INC	465		
	OLIVER CORP	12		
	TOTAL	56,284	0.15	66.70
90.	CONTINENTAL AIR LINES INC	55,242	0.15	66.85
91.	WORLD AIRWAYS INC	54,930	0.15	67.00

RANK	COMPANIES	THOUSANDS OF DOLLARS	PERCENT OF U.S. TOTAL	CUMULATIVE PERCENT OF U.S. TOTAL
92.	ATLANTIC RICHFIELD CO	31,347		
	SINCLAIR KOPPERS CO	13		
	SINCLAIR OIL CORP	8,387		
	SINCLAIR REFINING CO	14,590		
	TOTAL	54,311	0.15	67.15
93.	TUMPANE CO INC	53,963	0.15	67.30
94.	CESSNA AIRCRAFT CO	52,685		
	AIRCRAFT RADIO CORP	732		
	TOTAL	53,417	0.14	67.44
95.	SMITH INVESTMENT CO			
	SMITH A O CORP	51,567		
	SMITH A O OF TEXAS	134		
	TOTAL	51,701	0.14	67.58
96.	SVERDRUP + PARCEL + ASSOCS INC	430		
	ARO INC	49,817		
	TOTAL	50,247	0.14	67.72
97.	DYNALECTRON CORP	50,049	0.14	67.86
98.	LETOURNEAU R G INC	49,903	0.14	68.00
99.	FLYING TIGER LINE INC	48,261	0.13	68.13
100.	SOUTHERN AIRWAYS INC	48,260	0.13	68.26 d/

FOOTNOTES:

a/ Net value of new procurement actions minus cancellations, terminations and other credit transactions. The data include debit and credit procurement actions of $10,000 or more, under military supply, service and construction contracts for work in the U. S. plus awards to listed companies and other U. S. companies for work overseas.

Procurement actions include definitive contracts, the obligated portions of letter contracts, purchase orders, job orders, task orders, delivery orders, and any other orders against existing contracts. The data do not include that part of indefinite quantity contracts that have not been translated into specific orders on business firms, nor do they include purchase commitments or pending cancellations that have not yet become mutually binding agreements between the government and the company.

b/ The assignment of subsidiaries to parent companies is based on stock ownership of 50% or more by the parent company, as indicated by data published in standard industrial reference sources. The company totals do not include contracts made by other U. S. Government agencies and financed with Department of Defense funds, or contracts awarded in foreign nations through their respective governments. The company names and corporate structures are those in effect as of 30 June 1969 and for purposes of this report company names have been retained unless specific knowledge was available that a company had been merged into the parent or absorbed as a division with loss of company identity. Only those subsidiaries are shown for which procurement actions have been reported.

c/ Stock ownership is equally divided between Standard Oil Co. of California and Texaco, Inc.; half of the total of military awards is shown under each of the parent companies.

d/ Does not agree with percentage shown on page 7 due to rounding.

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