THE ACQUISITION OF WEAPONS SYSTEMS

HEARINGS

BEFORE THE

SUBCOMMITTEE ON ECONOMY IN GOVERNMENT

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

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CONTENTS

WITNESSES AND STATEMENTS

WEDNESDAY, MAY 20, 1970

SUBMISSIONS

WEDNESDAY, MAY 20, 1970

0

AFTERNOON SESSION

Appendix

THURSDAY, MAY 21, 1970

THE ACQUISITION OF WEAPONS SYSTEMS

WEDNESDAY, MAY 20, 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 a.m., in room 1202, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire and Jordan; and Representative Griffiths.

Also present: Richard F. Kaufman, economist; A. Ernest Fitzgerald, consultant; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The subcommittee will come to order.

Before I read a formal statement I would like to announce that as chairman of the Subcommittee on Economy in Government of the Joint Economic Committee I am very proud and happy to have with us this morning as a staff member, Mr. Ernest Fitzgerald, who has made a distinguished record in the Air Force. He is an outstanding expert in analyzing weapons systems. And he is now giving us the benefit of his great expertise which has been acquired over the years in private industry and in the Air Force and now on the Hill.

So Mr. Fitzgerald is already in my view the most competent man in this field, along with Richard Kaufman, who is already on the staff. And I think this gives our staff great strength.

Today we resume hearings on the acquisition of weapons systems. The year 1969 has been aptly termed the "year of the cost over-run." The investigations of this subcommittee, in my judgment, played a major part in disclosing to the Congress and the general public the magnitude of the cost over-run problem. Only last December, we learned that 38 major weapons programs, originally estimated to cost $42 billion, are now estimated to cost $63 billion, a cost over-run of $21 billion.

WHY DO COST OVERRUNS HAPPEN?

Our objective in 1970 is to understand the causes of the problem we helped expose last year. That is, why do cost overruns happen?

In attempting to answer this question, it would be well to look once at the program whose cost overruns have been so massive that they almost single-handedly dramatized for the American public the scope of the problem. I refer to the C–5A.

The Lockheed Ultimatum

It will be recalled that last March it was disclosed that the Lockheed Aircraft Corp., the prime contractor for the C–5A, had made an unprecedented request to the Pentagon for approximately $641 million based on claims against the Government in connection with four of its major military contracts. Five hundred million dollars of this claim is based on the C–5A and represents an additional overrun on this program on top of the multibillion dollar overrun uncovered last year.

What is extraordinary about Lockheed's claim, however, is its urgent, if not arrogant, tone. In effect, Lockheed served notice on the U.S. Government that because the available funds of the corporation were so low, Lockheed would stop production on the C–5A and three other programs unless the $641 million was provided "for interim financing."

In my judgment, the Lockheed ultimatum is in direct defiance of its contractual obligations to supply weapons which are deemed necessary for national security, and is tantamount to political blackmail. It underlines the basic defects in the military procurement system which have placed into the hands of a single giant corporation so many major weapons programs that it can endanger the foundations of national defense by threatening to stop production.

Lockheed's Cash-Flow Problem

Immediately upon learning of Lockheed's demands, I began an inquiry into the surrounding facts. I have reported some of my findings in three separate speeches in the Congressional Record. I can now report that high officials of the Defense Department have told me Lockheed indeed faces a financial crisis as a result of a shortage of cash. In corporate vernacular, this is referred to as a "cash flow" problem. Briefly, this means that Lockheed's incoming revenues from its sales are not sufficient to support the continuing operation of the corporation.

However, and this to me is the most significant point, Lockheed's cash problem for calendar year 1970 has been caused by its commercial venture, the L–1011 aircraft, and not by its Government contracts. The fact is that Lockheed is deep in the hole financially with its commercial programs, and that this problem has placed the firm on the brink of bankruptcy.

At the same time, the Department officials now admit what we pointed out last year, namely that the cost overruns on its military contracts, principally the C–5A, are so huge that it will not be able to continue production on them next year if it does not receive an immediate massive transfusion of public funds.

It is for this reason that $200 million in the current military authorization bill has been earmarked for the C–5A, as a downpayment on Lockheed's extraordinary claim.

Unfortunately I must also report that the Defense Department has been concealing from Congress and the American public the circumstances surrounding the Lockheed case. Up until now, it has not been generally known that Lockheed's cash flow problem was produced by its commercial ventures, and not as a result of Government contracts.

It has not been generally known that by the end of the current calendar year, the full amounts of the funds authorized under the contract for payments to Lockheed for the C–5A will have been expended, but that only 30 planes, at the most, out of 81 on order, will have been delivered. Moreover, the American taxpayer will have paid approximately as much for the 30 planes as the cost originally estimated for 120.

DOD Refuses To Disclose Cash-Flow Analysis

The concealment by the Defense Department of these and other facts from the public is intolerable. In March, I requested the cash flow analysis of Lockheed from the Pentagon. The details from such an analysis are needed for any responsible financial judgment to be made. I was told that such an analysis did not exist, but that one would be prepared and supplied to me. It was supposed to be supplied by April 20. But only last week, I was informed in a letter from the Comptroller General that the Defense Department now refuses to provide me with the information.

The high Pentagon officials with whom I later spoke informed me that the analysis contained "proprietary information" and could not, therefore, be made available.

In my view, it would be impossible for the Senate to act responsibly on the $200 million contingency fund for Lockheed's aircraft or on their general request until we have such data. I shall therefore continue to insist that the Department of Defense make a full disclosure to the Congress of Lockheed's cash position. The public interest requires it. This is to ask no more in return for a $641 million request than any banker or individual would ask in connection with a major loan.

Congress and the public are entitled, indeed, they have a right, to full disclosure of the costs and of the reasons for the overruns on major weapons programs. Whether the contributing factors are mismanagement on the part of the Government or inefficiency on the part of the contractors, or worse, there is no excuse for concealing these matters from public view.

Today we will hear statements from the Comptroller General, Mr. Elmer Staats, who will appear at 1:30 this afternoon, and F. Trowbridge vom Baur, who is our first witness.

Mr. vom Baur brings to the hearing wide experience in weapons procurement on both the Government side and the private side. From 1953 until 1960, he served with great distinction as General Counsel with the Department of the Navy. Since 1960 he has been in the private practice of law and has been extremely active in the field of government contract law.

Mr. vom Baur, you may proceed in any way you wish.

Before you proceed, I would like to point one other item out which is interesting.

I have here a newspaper clipping indicating that Mr. Daniel J. Haughton, chairman of the board of the Lockheed Aircraft Corp., was named winner of the 1970 Salesman of the Year Award by the Sales and Marketing Executive Association of Los Angeles. If the Pentagon agrees to its $200 million contingency fund he should not only get the Salesman of the Year Award for this coming year, but if the Pentagon agrees to a demand for $641 million he should be

given the award not only for 1970, but for 1971, and 1972 and a decade in the future.

Mr. vom Baur, you may go right ahead.

STATEMENT OF F. TROWBRIDGE VOM BAUR, ATTORNEY, AND FORMER GENERAL COUNSEL, DEPARTMENT OF THE NAVY

Mr. VOM BAUR. Mr. Chairman, I have prepared a statement which, in line with your letter, I will summarize within the 15 to 25 minutes that you suggested. I understand that my full prepared statement may perhaps go in the record.

Chairman PROXMIRE. Yes, indeed; without objection the entire prepared statement will be printed in the record. And you may summarize it in any way you wish.

Mr. VOM BAUR. Thank, you, sir.

I will pass over my background, Mr. Chairman.

$10–$12 Billion Wasted Each Year in Defense Procurement

In summary, the thrust of my testimony will be that in my opinion there are some $10 to $12 million wasted each year in the administration of defense procurement.

Chairman PROXMIRE. Will you repeat that. I would like to get that. I think it is such a dramatic statement that I do not want it to be lost. Say it again.

Mr. VOM BAUR. Yes, sir. In my opinion, Mr. Chairman, there are some $10 to $12 million wasted each year in the administration of procurement. This is what you on this committee have been calling overruns. In my judgment, however, sir, this waste is not a necessary evil. It could be tremendously cut down if the proper steps were taken.

Moreover, if this were done I venture to say that the whole coloration of the budget might change. More money would become available for domestic purposes, cities, education, and so forth. And last but not least, even the overburdened taxpayer might get a break.

Now, finally, Mr. Chairman, eliminating, or at least minimizing this waste, is something that is within the control of the executive branch of the Government, particularly if given some help by this committee. Perhaps it is too ambitious for me to say that it would be my hope that this subject might interest the President.

In any event, something should be done. The waste involved runs to such staggering figures that people at the top level in the Government ought to be concerned. I am happy to say that there are noises now emanating from the Department of Defense indicating concern over this and in the direction of providing solutions to these problems.

In any event, Mr. Chairman, in my opinion there are perfectly clear and distinct problems, and fairly clear solutions.

Now, I will pass over part one of my prepared statement lightly, the problems causing the waste. I have delineated these in headlines.

In my prepared statement there are "four main contractual provisions empowering the Government to give unilateral directions to the contractor which do increase his cost." And there I have outlined change orders, including, of course, constructive change orders; second, delays in the delivery of Government-furnished properties; third,

the delivery of defective Government-furnished property; and fourth, unreasonable delays by the Government or what we lawyers call suspensions of work.

I will pass over lightly also the shift in emphasis from procurement by negotiation to procurement by formal advertising.

I will also pass over lightly the increasing complexity of hardware for which science is responsible. Here science is the culprit, causing us perhaps a lot of trouble in this field.

And I will also pass over, Mr. Chairman, the subject of defective and impossible specifications, which is dealt with in some respects in my letter to Admiral Galantin dated November 25, 1968.

Downgrading of Procurement

Let me come to the page where I have a heading entitled "The Downgrading of Procurement and the Business Side of the Department of Defense."

And here I would like to submit that we do come to the heart of all of the Government's problems in procurement and contract administration, and the reasons for the waste of the taxpayer's money in these areas.

Now, it is a fact that procurement, and indeed the entire business side of the Department of Defense, have been severely downgraded in relation to other military activities.

First of all, I do not believe that it is commonly understood, particularly by the public, that the Department of Defense is considerably more than just a military organization. The fact is that it is also a tremendous business organization. And I submit to you that this business side of the Department of Defense can only be effectively managed by the application of business, rather than military principles.

The nub of the problem, however, has been that the Department of Defense is seriously out of balance, in my opinion, because it is influenced by an overemphasis on what might be described as purely military thinking.

I do not mean to be critical of the emphasis on military thinking, for, of course, it is a paramount consideration. But the extent to which the business side of the Navy has been downgraded, in my opinion, sir, has had serious results.

Procurement and contract administration are just supposed to rock along as second- or third-class functions. And in my opinion the people in the business side of the Department of Defense are inadequately recognized, inadequately staffed, inadequately housed, and inadequately paid, in relation to the inherent role which they do play in the administration of government, and in relation to the staggering amounts of dollars for whose disbursement they are responsible.

They are, in my opinion, the orphaned stepchildren, the poor relations of the Department of Defense.

Now, let me pass on to say that the overall result of all this is that in my opinion there are simply great quantities of mistakes and errors which are made by people in the business side of the Department of Defense which are tremendously expensive for the Government, which do delay the delivery of ships and other hardware, but which simply do not have to be made.

In my judgment these unnecessary mistakes cost the Government and the good old taxpayer something like 25 to 30 percent of the procurement budget.

Now, the procurement budget for defense is presently running, as I understand it, at about $40 billion, meaning that, in my opinion, some $10 to $12 billion a year is wasted through this downgrading of the business side of the Department of Defense.

Now, I have some specific examples which I will pass over lightly, Mr. Chairman. Again we come back to these nitty-gritty little items, perhaps, defective specs, delays in delivery of GFP, delivery of defective GFP, suspensions of work, et cetera.

Now, one of the things that concerns me about all this is that with the downgrading of procurement and contract administration in the Department of Defense, few people at high levels in the past have seemed to think that these items have had any real importance. And very frankly, the usual high-level reactions appear to me to have been something along this line. "Well, OK, but don't bother me with all this, this is just low-level stuff, these are just a bunch of dull, grubby, nit-picking items, let's change the subject and pass on to something more deserving of high-level attention."

The fact is that these undoubtedly are dull, grubby, and nit-picking items. But from the taxpayer's standpoint, Mr. Chairman, they are items of tremendous importance, if for no other reason than that unnecessary mistakes in these areas have been wasting the taxpayer's money, in my judgment, to the tune of something like $10 to $12 billion a year.

Now, I have finished essentially part 1 of my prepared statement, the problems, which I have touched on very lightly. And if I may, Mr. Chairman, I would like to pass on to part 2, to the recommendations which I would like to try to submit to you today.

An Elite Group Needed To Run Procurement

I start off with No. 1, which I have described here as the great and urgent need for an elite group to run procurement and contract administration.

Now, to borrow a phrase from Gordon Rule's earlier testimony before the Holifield or your committee, the great, urgent primary and central need is for an elite group adequately recognized, adequately staffed, adequately housed and adequately paid to run procurement and contract administration in the Department of Defense. And this need lies at the very bottom of all the problems in these fields.

If such an elite group can be made to come into existence, and be maintained, the rest is only a matter of time. And then these unnecessary mistakes, this waste of the taxpayer's money of some $10 to $12 billion a year, would largely be eliminated over the next few years.

Regardless of amount, the continuing waste of the taxpayer's money in these fields can never be minimized unless and until an elite group is set up in those fields. And the amount of money, Mr. Chairman, that would be necessary to provide an elite group in these fields would be simply peanuts compared with the staggering sums of waste which now go annually down the drain.

More specifically, if an elite group were set up in this area, not only would specifications significantly improve, but in addition the

issuance of constructive change orders would become manageable; delays in the delivery of Government-furnished property would substantially decline to a small minimum; the delivery of defective GFP would do the same; and unreasonable delays by the Government would also decline substantially.

Moreover, the need for an elite group extends down to the very bottom of the work of procurement and contract administration.

Perhaps you have heard, Mr. Chairman, that there is an old saying that the Army is run by sergeants and privates. In any event, when it comes to procurement, procurement and contract administration are really run to a very large extent by so-called sergeants and privates. Indeed, literally billions of dollars are spent not only by contracting officers but also by contract administrators, contract negotiators, inspectors, and believe it or not, by Government engineers and technical people.

With respect to inspectors, a single inspector, for instance, may reject items of hardware moving along a production line, where delays are very expensive, unless some change in the hardware is made. Yet the inspector may not realize that he is interpreting specifications and making legal decisions and perhaps issuing constructive change orders which may prove to be very expensive for the Government.

Thus the magnitude of the dollars whose expenditure is involved depends upon the intelligence and the training, Mr. Chairman, of these inspectors. And these facts simply dictate with a commanding voice that inspectors should also be made part of that elite group.

In addition, it goes without saying, I think, that any elite group would generate training programs which would far exceed in scope and in content the rudimentary courses which are now afforded.

For procurement, Mr. Chairman, is not a simple business. In my opinion it takes years to learn it, and an in-depth training is vital.

"Nobody Runs the Pentagon"

At the same time I would be less than candid if I did not state my feeling of pessimism about all this. And I do not mean to be critical of the present management of DOD in doing so, because I have a very high regard for it. Nevertheless, as has been jokingly stated, "Nobody runs the Pentagon." These problems have been around for a long time. Making any real changes for the better in any of the military departments is a tremendous task and an enormous undertaking.

Systems are entrenched. People like to go on doing things in the same old way. And frankly, very few people in the Department have ever been energetically interested in reform. The great bulk of them just like to rock along on a day-to-day basis. They prefer, as some people say, to "keep the papers moving" rather than to make the strenuous efforts necessary for change and improvement.

And thus it will take great courage and energy, Mr. Chairman, as well as keen perception, for the leadership of the Department of Defense, even if it should intellectually agree with the foregoing, to do anything tangible and concrete about it.

So much for recommendation No. 1.

A Permanent Procurement Improvement Board

And now may I pass on to No. 2.

This is that a permanent procurement improvement board should be set up to make continuing appraisals of procurement problems, and, of course, recommendations.

Now, if an elite group were set up in each of the military departments, then in my judgment, sir, it should contain a permanent procurement improvement board, or something similar. The mission of such a board should include reviewing court and board decisions; maintaining a continuing informal contact with procuring activities and contract administration and inspectors' stations; analyzing errors in the system which appear; devising changes in the system for avoiding these errors in the future; and continually searching for methods of improving the systems of procurement and contract administration. And it would have to be, Mr. Chairman, a high level, courageous and energetic board, probably reporting to the Assistant Secretary, Installations and Logistics, of the particular military department.

And, of course, it should have a capable and energetic staff.

Now, at the present time there is simply no organized machinery set up to analyze past procurement programs, to search out mistakes, and to constantly seek methods for improvement of the system. Thus the same old kinds of mistakes and wastes occur time and time again. What usually happens is that a crash program will hit the military department; people will fly in from all over the world sometimes; fur will fly; people will get temporarily excited. And then the crisis subsides and everybody relaxes, and the people move on to something else.

The crisis is forgotten; and papers go to the file room, probably to gather dust. Nobody is charged with doing anything to prevent a recurrence of mistakes which may even have been glaringly apparent. In addition, with a high military turnover in some procurement billets, the people who may be responsible for the arising of the particular crisis may not be particularly concerned about what they have done, because by the time the results arrive the people responsible know that they will be safely removed into a distant billet where the commotion will not reach them.

In addition, a permanent procurement improvement board could serve as a buffer between the requirements people and the procurement people, that is, they would examine requested procurements for practicality, and to make sure that the specs are sanitary, shall I say, and not defective.

A buffer is needed between the requirements people and the people who are actually engaged in letting the contracts.

Now, I have finished with recommendation No. 2.

Organized Feedback

May I pass on to No. 3?

And this is what I call the need for an organized feedback, if I may use that term, from the field. And this bears a definite relationship to recommendations 1 and 2. For a permanent procurement improvement board might be the best unit equipped to organize and administer a system of feedback from the field.

Specifically, it could act in the field of procurement and contract administration much as the inspector general system works with uniformed personnel. That is, the inspector general sends out people who talk informally to commanding officers and others in the military installations stretched out over the world.

And they try to find out where something is wrong, and if so, what should be done about it. And I think it is generally recognized to be a very effective organization.

So, Mr. Chairman, in my opinion, sir, something like an inspector general's organization is especially needed in the field of procurement and contract administration.

Specifically, there is a vast difference in knowledge and orientation, a vast gulf, perhaps, between the ivory towers of procurement policy in Washington and the farflung firing lines of contracting officers, supervisors of shipbuilding, contract administrators, and inspectors, battling from day to day to try to make the policies laid down in Washington work out in practice. There is a tremendous gap in communications between them. The people in the field try faithfully to follow policy, but they have to make it work within the practical limitations of what they can be made to understand, and their own day-to-day operations. And the result is that sometimes they may do things very differently from what the ivory tower policymakers intended. And I can say from my own experience that sometimes disasters result which are very gently swept under the rug.

Now, one result of all this is that when the policy fixed in Washington goes wrong in the field, today, or in the past, at least, Washington tends to find out about it only occasionally, and then only by accident. Meanwhile billions of dollars of the taxpayers' money may be wasted. On the other hand, if there were an organized system of feedback in the field, that is, if a permanent procurement improvement board were set up responsible to the Assistant Secretary, it could send out field representatives who could make regular visits to the major procurement activities and contract administration and inspection stations.

And in that event I have no doubt that great revelations would be in order. These in turn could be made the subject of study. Errors could be remedied, and the "real scoop," as they say, as to what was going on could be ferreted out. And any continuing waste of the taxpayers' moneys would be prevented, or at least intensively minimized.

And here if I may, I would like to add a word of caution. The dealings or communications between a procurement improvement board's representatives and the people in the field should be on an informal and perhaps a confidential basis. Above all, an effort should be made to try to avoid placing the blame on individuals. If people think they are going to get into trouble or be blamed for something when a representative of the procurement improvement board shows up, then they will clam up. Indeed, I know one very competent naval officer who tried in his own small way to set up a kind of organized feedback from the field, and when he talked to an official in Washington about this, the reply was "What are you trying to do, make me look bad?"

The fact is that the present systems of procurement and contract administration are complicated and difficult enough to administer as they are, Mr. Chairman, without making them more difficult by trying to assess blame.

Very often the real responsibility, sir, is so fragmented that it cannot be pinpointed on any single individual. In addition, many of the problems and the waste today result from the absence of an elite group in the field of procurement and contract administration, and from overwork and understaffing. Hence if blame is to be placed, in my judgment, sir, it should be placed on the system rather than on individuals.

Specification Writing Schools

My fourth recommendation for setting out specification writing schools I have tried to make clear in my letter to Admiral Galantin. I think the nature of the recommendation is clear, and hence I will not try to elaborate on it unless you wish me to.

And with that I conclude my statement. I should be happy to answer any questions.

(The prepared statement of Mr. vom Baur follows:)

PREPARED STATEMENT OF F. TROWBRIDGE VOM BAUR

Mr. Chairman, and Gentlemen and Lady of the Committee, my name is F. Trowbridge vom Baur. I am presently engaged in the private practice of law in Washington, D.C. A substantial amount of my practice is in the field of Government contracts, and I am the author of some publications on that subject. During the Eisenhower Administration, I was General Counsel of the Navy Department; and I am presently Chairman-Elect of the Section of Public Contract Law of the American Bar Association. I very much appreciate the opportunity to appear before this Committee and to testify on the very important subject of economy in Government and the causes of overruns for which the Government is responsible.

In summary, the thrust of my testimony will be, Mr. Chairman, that, in my opinion there are some 10–12 billion dollars wasted each year in the administration of Defense procurement. I think you would call this waste overruns. But in my judgment, this waste is not a necessary evil; and it could be tremendously cut down if the proper steps were taken. Moreover, if this were done the whole coloration of the budget would change. More money would become available for domestic purposes, for the cities, education, etc. Even the over-burdened taxpayer might get a break.

Finally, eliminating or at least minimizing this waste is something that is within the control of the Executive Branch of the Government, particularly if given some help by this Committee. Perhaps it is too ambitious for me to say that it would be my hope that this subject might interest the President. In any event, something should be done. The waste involved runs to such large, such staggering figures that people at the top level in the Government ought to be concerned. In addition, I am happy to say that there are noises now emanating from DOD indicating concern and in the direction of providing solutions to these problems. In any event, in my opinion, there are perfectly clear and distinct problems; and fairly clear solutions.

Hence, I would like to divide my testimony before you this morning into two parts. In Part One, I will endeavor to describe in working detail some of the problems causing this waste, as I have learned them over the years. In Part Two, I will endeavor to present some recommendations for minimizing it.

Part 1. The Problems Causing the Waste

Your Counsel, Mr. Kaufman, has told me that the Committee has a copy of my letter of 25 November 1968 to Admiral Galantin, and would like to hear me expand upon it. Hence, what I will have to say this morning will relate to the subject matter of that letter, although I will endeavor to avoid repeating what I said in that letter as much as possible.

In Part One—the problems causing this waste—what I am essentially going to be dealing with is the subject of acts of the Government which arise during the performance of the contract, and after the contract has been signed, which increase the costs of the Contractor, and which the Contractor can collect from the Government if he is sufficiently alert and has enough stamina. What I am going to

try to suggest to you is that many of these acts are unnecessary; that others could be handled more sensibly; and that the increased costs which result from them can be greatly reduced.

A. THE FOUR MAIN CONTRACTUAL PROVISIONS EMPOWERING THE GOVERNMENT TO GIVE UNILATERAL DIRECTIONS TO THE CONTRACTOR WHICH INCREASE HIS COSTS

In the ordinary commercial contract, both parties are bilaterally bound to administer it as written; and except in a few types of contracts, neither party is empowered to unilaterally alter the provisions of the contract after it has been signed. If he tries to, he probably becomes guilty of breach of contract. Not so, however, with Government contracts. These have essentially four main provisions which give the Government extraordinary unilateral powers. They authorize the Government to engage in a number of acts, after the contract has been signed, which may compel the contractor to perform substantial or even tremendous amounts of additional work, and which may substantially or even tremendously increase his costs. These provisions contain the following extraordinary provisions:

1. Change orders.—There is a "Changes" clause in the contract which permits the Contracting Officer—unilaterally, that is, all by himself, and regardless of the wishes of the Contractor and after the contract has been signed—to direct the Contractor to make changes in the specifications, and to perform additional work not required by the original contract. Sometimes these changes are drastic in character, and compel the Contractor to incur very substantially increased costs in order to carry out the additional work required. If the Contractor refuses to perform the work required by the change order he can be terminated for default, so long as the additional work is within the scope of the contract. Also, the Government must compensate the Contractor for his increased costs resulting from a Change Order.

2. Delays in government-furnished property.—Under the Government-Furnished Property Clause, the Government is empowered to delay in the delivery of property required to be furnished by the Government, without becoming guilty of breach of contract. But the Government is obligated to pay the Contractor any increased costs which he may incur as a result of the delay.

3. Delivery of defective government-furnished property.—Government contracts also empower the Contracting Officer to deliver to the Contractor property, required to be furnished by the Government, which is defective, but without becoming guilty of breach of contract. The Government is, however, required to pay the Contractor for the increased costs which result.

4. Suspension of work.—Where there is a suspension of work clause, the Government is also empowered to suspend the Contractor's work for more than a reasonable time without becoming guilty of breach of contract; and Constructive Suspensions of Work include such things as unreasonable delays by the Government in approving drawings, etc. Again, however, the Government is obligated to pay for any resulting costs.

These provisions are far-reaching in character. They give the Government tremendous powers to order Contractors around, regardless of the Contractor's own wishes, after the contract has been signed. In addition, they require the Contractor to finance the increased costs required by these acts of the Government in the first instance. Then the Contractor becomes saddled with the problem of later having to try to collect his increased costs, including his financing costs, from the Government. However drastic and far-reaching as these clauses are, one of today's major problems is that they are largely taken for granted. Little real attention is given to (*a*) the extraordinary character of these unilateral powers of the Government; (*b*) the upheavals and chaos in the Contractor's plant that may result from these unilateral acts of the Government; or (*c*) the fact that the Government is required to pay for the increased costs which do result.

B. THE SHIFT IN EMPHASIS FROM PROCUREMENT BY NEGOTIATION TO PROCUREMENT BY FORMAL ADVERTISING

The shift in emphasis from Procurement by Negotiation to Procurement by Formal Advertising which took place during the McNamara administration, while not directly responsible for the arising of claims, is nevertheless significant in that connection, particularly in connection with shipbuilding. For that change

made it imperative for contractors to recover their increased costs resulting from acts of the Government taking place after the contract has been entered into, or lose their shirts; and, indeed, sometimes go out of business.

In a negotiated fixed-price type of procurement the Government normally allows for a reasonable profit on the Contractor's estimates. But a formally advertised procurement forces all contractors who are dependent upon a particular type of Government business into fierce competition with each other.

In the old days, when I was in the Navy, shipbuilding contracts were usually awarded by negotiation; and the awards were frequently divided up among the on-going shipyards as a means of maintaining the mobilization base, even though the prices might be different because of geopraphy, different labor rates, etc. In those days, it was thought to be a good thing for national defense to have shipyards in being for the possible event of war. The McNamara Administration changed all this. It did not consider shipyards important for the event of war; and, as a result, all the shipyards were suddenly made to compete fiercely against each other with respect to virtually every Invitation for Bids. They did some commercial shipbuilding; but they were dependent in large part upon warship construction. As a result, this sudden shift to formal advertising compelled all these shipbuilders, dependent as they were on warship construction, to bid strenuously on every contract against each other. Thus, there was a practical guarantee that the low bidder would have only the meagerest of profit margin in his bid.

For our purposes, the main result of all this was that Procurement by Formal Advertising necessarily forced every successful bidder to carve his price down to the bare bone—in order to have a chance to become the successful bidder. And this necessarily compelled the Contractor to collect, not some, but *all* his increased costs which resulted from acts of the Government occurring after the contract has been signed. If he does not recover these costs—and shipbuilding is a very expensive business—he will lose his shirt, and eventually have to close the shipyard. There is no middle course.

C. THE INCREASING COMPLEXITY OF HARDWARE

There is a second background reason for the arising of increased costs by Contractors resulting from acts of the Government after the contract has been entered into; and this is the increasing complexity of hardware. And here, science is the culprit. For defense hardware today contains far more bugs, problems, and deficiencies than it did ten or fifteen years ago; and this new complexity in hardware, all by itself, has been responsible for the incurring of larger amounts of increased costs by contractors resulting from acts of the Government. For this more complex hardware tends to generate more acts and more expensive acts of the Government of the types previously described—(1) Change Orders; (2) Delays in Delivery of Government-Furnished Property; (3) Delivery of Defective Government-Furnished Property; and (4) Suspension of Work.

D. DEFECTIVE AND IMPOSSIBLE SPECIFICATIONS

Here we come to a major affirmative reason for the incurring of increased costs by shipbuilders and other Contractors, resulting from acts of the Government.

As hardware increases incomplexity, and particularly when it starts pushing the state-of-the-art, it becomes increasingly hard to describe in words. And that is what specifications have to do—describe hardware in words and figures.

However, the far-reaching impact on everybody of defective specifications is not generally understood. Few people without the requisite, somewhat painful personal experience, realize that when the specifications are defective, bombs explode and fireworks go off in the contractor's plant, figuratively at least. When shipbuilders are involved, defective specifications rock the shipyard, throw the process of ship construction into chaos, disruption, delay and confusion, and tremendously increase the cost of shipbuilding. And the Government has to pay for these increased costs eventually, if the shipbuilder is alert enough to get sufficiently organized and has the requisite stamina.

Hence, I submit to you that every reasonable step should be taken by the Government to avoid the issuance of defective specifications. Unfortunately, however, until recently at least, there has been no display of interest whatever in organizing to prevent, or at least minimize, the issuance of defective speci-

fications. Compared to commanding ships and armies and flying planes, and the glamour of military ranks, it is just too grubby, dull, complicated and uninteresting a subject.

E. THE DOWNGRADING OF PROCUREMENT AND THE BUSINESS SIDE OF THE DEPARTMENT OF DEFENSE

Here, I submit, we come to the heart of all the Government's problems in procurement and contract administration and the reasons for waste of the taxpayers' money in these areas. This is the fact that procurement, and indeed, the entire business side of the Department of Defense, have been severely downgraded in relation to other military activities.

First, it is not commonly understood that the Department of Defense is considerably more than just a military organization. It is also a tremendous business organization. Included in this business side, we have Defense procurement running to some 40 billion dollars a year. The Navy alone disposes of vast amounts of surplus property; and it manages a real estate establishment which was valued in 1958 on the basis of cost in excess of twelve billion dollars, and which for scope, activity and variety of problems might stir the imagination of any corporate executive.[1]

All this is primarily business—not military operations except to a very limited extent—and this business side of DOD, I submit, can only be effectively managed by the application of business principles. The nub of the problem, however, has been that the Department of Defense is seriously out of balance because it is over-influenced by an emphasis on purely military thinking. And I do not mean to be critical of an emphasis on military thinking, for it is a paramount consideration. But the extent to which the business side of the Navy has been downgraded has had serious results. Procurement and contract administration are just supposed to rock along as second or third class subjects; and the people in the business side of the Department of Defense are inadequately recognized, inadequately staffed, inadequately housed, and inadequately paid. In relation to their inherent role they play in the administration of Government, and in relation to the staggering amounts of dollars for whose disbursement they are responsible, they are the orphan stepchildren, the poor relations of the Department of Defense.

At the same time, it is not my intention to be critical of the method by which this has come about. The downgrading of procurement and contract administration has been a gradually evolving process and no individual or group is specially responsible for it. In the early days of the Republic, procurement and contract administration were relatively simple processes. Since World War II, however, their importance and their astronomical costs have been moving steeply upward. This transformation, however, in the tremendous organizations of the Military Departments with their massive inertia and high turnover of personnel, has been hard to perceive and evaluate as it went along.

However, the overall result of all this is that there are simply great quantities of mistakes and errors which are made by people in the business side of DOD today which are tremendously expensive for the Department of Defense, which delay the delivery of ships and other hardware, but which simply do not have to be made. In my judgment, these unnecessary mistakes cost the Government and the taxpayer something like twenty-five to thirty percent of the procurement budget. The procurement budget is now about forty billion dollars, meaning that, in my opinion, some ten to twelve billion dollars a year is wasted through this downgrading of the business side of the Department of Defense.

Let me give you some specific examples:

1. Defective specifications.—The issuance of defective specifications is one horrible example. But the great bulk of defective specifications which have been issued did not have to be issued.

2. Delays in delivery of Government-furnished property.—This is perhaps an even more horrifying example. For the delivery of Government-furnished property on time is a much simpler process than the preparation of good specifications. Indeed, I regard the timely delivery of GFP as a kind of overall index of the efficiency of contract administration by the Defense Department. That is, if the Defense Department cannot deliver Government-furnished property to the contractor on time as a more or less regular thing, there is no reason to believe

[1] See "How to Deal With the Navy in the Field of Business Law," an article by this witness in the "Practical Lawyer" for October, 1958.

that it can do anything very well in the field of contract administration. When a Government-furnished boiler for a warship is delivered fourteen months late—let me repeat, fourteen months late, throwing the whole process of ship construction into an upheaval—and with no good reason apparent for such an extraordinary delay, something is radically wrong. Such delays in delivery of GFP do not have to occur.

3. *Delivery of defective Government-furnished property.*—This is perhaps a more difficult problem in the sense that, with the increasing complexity of hardware, it is harder for the Government to arrange for the delivery of Government-furnished property which is not defective or changed. Nevertheless, in my practice, I have run across many instances of the delivery of defective GFP which appeared to result from boredom or indifference on the part of Government officials, and which did not have to take place.

4. Finally, we have the *Suspensions of Work* which result from unreasonable delays by the Government in such things as the approval of drawings, etc. Again, these are tremendously expensive and very greatly increase the contractor's costs. Yet there is seldom any really good reason apparent for delays of this character.

5. As for *Change Orders*, as indicated in my letter to Admiral Galantin, until recently at least, the Government has simply had no real control over the indiscriminate issuance of expensive Constructive Change Orders. Large numbers were issued which did not have to be issued, and large numbers were issued which would not have been issued had the person issuing them realized that the Government had to pay for any increased costs which resulted.

Mr. Chairman, one of the things that concerns me about these areas that I have mentioned—(1) the issuance of defective specifications, (2) delays in delivery of Government-furnished property, (3) delivery of defective Government-furnished property, (4) suspensions of work, and (5) the indiscriminate issuance of constructive change orders—is that with the downgrading of procurement and contract administration in the DOD, few people at high levels in the past in DOD have seemed to think that they have any real importance. The usual, high-level reactions appear to be—well, okay, but don't bother me with all this; this is just low-level stuff, these are just a bunch of dull, grubby, nit-picking items—let's change the subject and pass on to something more deserving of high-level attention. The fact is that these undoubtedly are dull, grubby and nit-picking items, but from the taxpayers' standpoint they are items of tremendous importance, if for no other reason than that unnecessary mistakes in those areas have been wasting the taxpayers' money, in my judgment, to the tune of 10 to 12 billion dollars a year.

PART 2. RECOMMENDATIONS

A. THE GREAT AND URGENT NEED FOR AN "ELITE GROUP" TO RUN PROCUREMENT AND CONTRACT ADMINISTRATION

To borrow a phrase from Gordon Rule's earlier testimony before the Holifield Committee, the great, urgent, primary and central need is for "an elite group," adequately recognized, adequately staffed, adequately housed and adequately paid, to run procurement and contract administration in the Department of Defense. This need lies at the very bottom of all the problems in those fields. If such an elite group can be made to come into existence, and be maintained, the rest is only a matter of time; and these unnecessary mistakes, this waste of the taxpayers' money of some 10 to 12 billion dollars a year would largely be eliminated over the next few years.

For, regardless of amount, the continuing waste of the taxpayers' money in the fields of procurement and contract administration can never be minimized unless and until an elite group is set up on those fields. And the amount of money that would be necessary to provide an elite group in these fields would be simply peanuts compared to the staggering sums of waste which now go annually down the drain. More specifically, if an elite group were set up in this area, then not only would specifications significantly improve. In addition, the issuance of Constructive Change Orders would become manageable; delays in the delivery of Government-furnished property would substantially decline to a small minimum; the delivery of defective Government-furnished property would do the same; and unreasonable delays by the Government would also decline substantially.

Moreover, the need for an elite group extends down to the very bottom of the work of procurement and contract administration. There is an old saying that the Army is run by sergeants and privates. In any event, procurement and contract administration are run, to a very large extent, by so-called sergeants and privates. Indeed, literally billions of dollars are spent, not only by Contracting Officers, but also by Contract Administrators, Contract Negotiators, Inspectors and, believe it or not, Government Engineers and technical people. For example, a single Inspector may reject items of hardware moving along a production line where delays are very expensive, unless a certain change in hardware is made. Yet the Inspector may not realize that he is interpreting specifications and making legal decisions, and perhaps issuing Constructive Change Orders which may also be very expensive. Thus, the magnitude of the dollars whose expenditure depends upon the intelligence and training of these Inspectors, simply dictates with a commanding voice that they should also be made part of that elite group.

In addition, it goes without saying that any elite group would generate training programs which would far exceed, in scope and content, the rudimentary courses now afforded. Procurement is not a simple business. It takes years to learn it, and in-depth training is vital.

At the same time, Mr. Chairman, I should be less than candid if I did not state frankly my feeling of pessimism about this. And I do not mean to be critical of the present management of the Department of Defense in doing so, for I have a high regard for it. Nevertheless, as has been jokingly stated, "Nobody runs the Pentagon." These problems have been around for a long time. Making any real changes for the better in any of the Military Departments is a tremendous task and an enormous undertaking. Systems are entrenched. People like to go on doing things in the same old way. Frankly, very few people in the Department have ever been energetically interested in reform. The great bulk of them just like to rock along on a day-to-day basis. They prefer to "keep the papers moving" rather than to make the strenuous efforts necessary for change and improvement. It will take great courage and energy, as well as keen perception, for the leadership in the Department of Defense, even if they should intellectually agree with the foregoing, to do anything tangible and concrete about it.

B. A PERMENENT PROCUREMENT IMPROVEMENT BOARD TO MAKE CONTINUING APPRAISALS OF PROCUREMENT PROBLEMS AND RECOMMENDATIONS

If an elite group were set up in each of the Military Departments, then in my judgment it should contain a permanent Procurement Improvement Board, or something similar. The mission of such a Board should include reviewing Court and Board decisions; maintaining a continuing, informal contact with all Procuring Activities and Contract Administration and Inspectors' stations; analyzing errors in the system which appear; devising changes in the system for avoiding those errors in the future; and continually searching for methods for improving the systems of procurement and contract administration. It should be a high-level, courageous and energetic Board, probably reporting to the Assistant Secretary, Installations and Logistics, of the particular Military Department; and it should have a capable and energetic staff.

At the present time, there is no organized machinery set up to analyze past procurement programs, to search out mistakes, and to constantly seek methods for improvement of the system. Thus, the same old kinds of waste occur again and again. What usually happens is that a crash program will hit a Military Department; fur will fly; people will get excited temporarily; and then the crisis subsides, everybody relaxes and the people concerned move on to something else. The crisis is forgotten and the papers go to the File Room, probably to gather dust. Nobody is charged with doing anything to prevent a recurrence of mistakes which may even have been glaringly apparent. As a result, the same old mistakes occur time and again. In addition, with the high military turnover in some procurement billets, the people who may be responsible for the arising of the particular crisis may not be particularly concerned about what they have done, because by the time the results arrive, the people responsible know they will be safely removed into a distant billet where the commotion will not reach them.

C. THE NEED FOR AN ORGANIZED FEED-BACK FROM THE FIELD

There is also a need for an organized feed-back from the field to Washington; and this bears a definite relationship to Recommendations 1 and 2. For a per-

manent Procurement Improvement Board might be the best unit equipped to organize and administer a system of feed-back from the field. Specifically, it could act in the field of procurement and contract administration much as the Inspector General system works with uniformed personnel. That is, the Inspector General sends out people who talk informally to Commanding Officers and others in the military installations stretched out over the world. They try to find out if something is wrong, and if so, what should be done to remedy it. It is a very effective organization.

Something like an Inspector General's organization is especially needed in the fields of procurement and contract administration. Specifically, there is a vast difference in knowledge and orientation between the ivory towers of procurement policy in Washington and the far-flung firing lines of Contracting Officers, Supervisors of Shipbuilding, Contract Administrators and Inspectors battling from day to day to try to make the policies laid down in Washington work in practice. There is a tremendous gap in communications between Washington and the field. The people in the field try faithfully to follow policy, but they have to make it work within the practical limitations of what they can be made to understand, and their own day-to-day operations. They may do things very differently from what the ivory-tower policy makers intended. And sometimes disasters result which are gently swept under the rug.

One result of all this is that when the policy fixed in Washington goes wrong in the field, Washington tends to find out about it only occasionally, and by accident. Meanwhile, millions of dollars of the taxpayers' monies may be wasted. On the other hand, if there were an organized system of feed-back from the field, that is, if a permanent Procurement Improvement Board were set up, responsible directly to the Assistant Secretary, Installations and Logistics, it could send out Field Representatives who could make regular visits to the major procurement activities and contract administration and inspection stations. In that event, I have no doubt that great revelations would be in order. These in turn could be made the subject of study; errors could be remedied; the "real scoop" as to what was going on could be ferreted out; and any continuing waste of taxpayers' monies would be prevented or at least intensely minimized.

Here, however, I would like to add a word of caution. The dealings or communications between a Procurement Improvement Board's representatives and people in the field should be on an informal and perhaps a confidential basis. Above all, an effort should be made to try to avoid placing blame on individuals. If people think they are going to get into trouble or be blamed for something when a representative of the Procurement Improvement Board shows up, they will clam up. Indeed, I know of one very competent Naval Officer who tried in his own small way to set up a kind of an organized feed-back from the field. When he talked to one official in Washington about this, the reply was, "What are you trying to do, make me look bad?"

The fact is that the present systems of procurement and contract administration are complicated enough, and difficult enough to administer as they are, without making them more difficult by trying to assess blame. Very often the real responsibility is so fragmented that it cannot be pinpointed on any single individual. In addition, many of the problems—and the waste—today result from the absence of an elite group in the fields of procurement and contract administration, from overwork and under-staffing. Hence, if blame is to be placed, it should be placed on the system rather than on individuals.

D. SETTING UP SPECIFICATION WRITING SCHOOLS

I should like also to recommend that a Departmentwide Specification Writing School be set up in each of the Military Departments, with branches in the various Bureaus or Commands, and an overall legal and management coordination. As I said earlier, tremendous amounts of waste can be saved by the improvement of specifications: and this will be even more true from now on as hardware gets even more complicated. Nor is this an insuperable task. Indeed, during my time as General Counsel, through the initiative of Harold Gold, Counsel for the then Bureau of Yards and Docks, a Specification Writing School was set up for Navy Construction contracts. This seemed to work out very well, and appeared to make a distinct contribution toward the prevention of waste in that area.

Chairman PROXMIRE. Thank you very much, Mr. vom Baur.

You have a very impressive background. You were General Counsel of the Navy under the Eisenhower administration, is that correct?

Mr. VOM BAUR. Yes, sir.

Chairman PROXMIRE. And your work has been primarily in the area of Government contracts and private law practice.

And you also are chairman-elect of the Section on Public Contracts Law for the ABA. So you have a distinguished background.

Your statement that some $10 to $12 billion is wasted each year in the administration of defense procurement is particularly significant coming from one who has had and continues to have as much personal experience with procurement as yourself. Two facts make the figure you give even more startling.

First, you are referring only to procurement, which represents a major portion but not all of the defense outlays by any means. If there is a $10 to $12 billion waste in procurement, how much must there be in the remainder of the defense budget? You do not discuss manpower, for example, and the many criticisms of waste of manpower on a farflung basis.

Many people feel that many of our weapon systems are unnecessary or redundant. Your testimony concerns mostly, if not exclusively, the Government side of the procurement picture too, not the contractor's side, the Government side. And you are talking about Government mismanagement and waste.

NO SUBSTANTIAL MISMANAGEMENT AND WASTE ON CONTRACTOR'S SIDE

Would you agree that there is also substantial mismanagement and waste on the contractor's side, and that that too is avoidable?

Mr. VOM BAUR. I would not say there is substantial mismanagement and waste on the contractor's side, Mr. Chairman. There is, of course, some. From what I have seen I would say it is down to a reasonable level.

Chairman PROXMIRE. We have had testimony from witnesses like Admiral Rickover and a number of others, who say that the cost for the same equipment, negotiated procurement compared with advertised competitive procurement, negotiated procurement is 30 to 40 percent higher in their judgment, because the incentives are lacking to hold the costs down on the part of the contractor.

Would you dispute that?

Mr. VOM BAUR. It seems high to me, Mr. Chairman. I have never had that experience, 30 to 40 percent. I would say that is distinctly on the high side.

Chairman PROXMIRE. Isn't it logical that when you do not have the kind of incentives and disciplines that we have in competitive bidding with a fixed cost, that your inefficiencies would be greater? Because you do not have the incentive to do as efficient a job?

Mr. VOM BAUR. I do agree with you, the prices in procurement by negotiation are a little higher. This may be a good thing and it may be a bad thing. So far as negotiation is concerned, when I was in the Navy the phrase that we always used was "competitive negotiation."

There is, of course, some sole source negotiation, when you have only a sole source to deal with. Apart from that, negotiation is not

just wide open to the sky, so to speak. It is competitive negotiation. And there is real competition in it ordinarily.

Chairman PROXMIRE. At any rate, you feel that the heart of curing and correcting the situation lies with the Government, that there is almost nothing that cannot be done in the area you are discussing, the efficiency of procurement, that cannot be done on the Government side?

THE MAJOR PROBLEM LIES WITH THE GOVERNMENT

Mr. VOM BAUR. Mr. Chairman, frankly, this is the way I feel. Contractors, of course, are not perfect. They are not perfect, but the contractors with the Government are not in my judgment any more inefficient than contractors in commercial business.

I would say it is about the same. They have to struggle hard to try to make a profit, and certainly there is no desire on their part that I know of to be sloppy. I think you have correctly summarized my testimony. I do believe that the major problem lies with the Government. And I do not believe it has ever been faced. As I endeavored to state, I think procurement and contract administration particularly have been down-graded in relation to other military activities. This has been a natural development of the past.

It has been an evolutionary process, as I did indicate. But it has never been faced. This is the great problem. Until it is faced this waste, in my judgment, sir, $10 to $12 billion, or whatever it may be, is going to continue. And the burden of my song today is, I think it ought to be faced. And perhaps this committee can give the Department of Defense some help in that regard.

CHANGE ORDERS

Chairman PROXMIRE. You cite four contractual provisions empowering the Government to modify unilaterally the original contract and to thereby increase the contractor's costs. Isn't it also possible for the contractor to trigger off or influence the use of at least some of these contractual provisions? For example, in fact aren't many contract changes actually initiated by the contractor who may formally or informally request permission to make a change, or who may warn the Government that if a change is not authorized dire consequences, including cost increases, will result?

Mr. VOM BAUR. Well, it is true that contractors do sometimes propose changes. But in my experience this is not a large area, this is a small area. In any event, when the contractor does propose changes it is up to the Government as to whether it wants to direct the changes proposed. The mere fact that the contractor proposes something does not make it a change; and many times the Government says, "no, we do not want a change," and so there is no change.

In short, the change has to be issued, directed, or requested by the Government.

Chairman PROXMIRE. The Government does not have that much discretion, does it? It has to deal with the Congress. For example, this aircraft is supposed to have a weight load, a big one, of 650,000 pounds, and they say that this is going to cost a whale of a lot. The contractor

tells us that to hold the cost down we must change, that is degrade the payload to 500,000 pounds.

Under those circumstances the Air Force might feel that, rather than come up with an excessive increase in cost we had better agree to degrading of the standards?

Mr. VOM BAUR. Well, if I understand you correctly, sir, the contract in this situation would call for an airplane weighing 600,000 pounds, and the contractor is obligated to produce that plane for so much money in such and such a period of time. And then if the Air Force decides that they want to change that, and change the performance requirements, perhaps, from 600,000 to 500,000 pounds, this would be a step that the Air Force would take——

Chairman PROXMIRE. I am talking about a situation where the contractor finds that he cannot construct the plane.

Mr. VOM BAUR. Then the contractor in my judgment is in more serious trouble. If he is contractually obligated to do this he had better do it or there are going to be very serious consequences. Liquidated damages would not apply, but he would be terminated for default, and progress payments would stop.

Chairman PROXMIRE. Again and again we have seen procurement in which the standards have been reduced, they are less desirable from the Government standpoint as a weapons system. We have seen payloads of big planes reduced sharply. We have seen the speed cut. We have seen the landing area extended, we have seen that kind of thing happen. A plane has been authorized to achieve a higher quality of performance. The degrading is one way of keeping the costs down. And the initiative comes in every case of this kind from the contractor.

The Air Force would, of course, prefer to have the plane as originally specified.

Mr. VOM BAUR. Are you speaking of waivers from the original contract requirements?

Chairman PROXMIRE. Yes, sir.

Mr. VOM BAUR. It is my guess, Mr. Chairman, if the Air Force—I am not familiar with all this—wants to do this, this is something for it to decide. From the contractor standpoint he is contractually obligated to meet the specs, and if he does not do it he may get into serious trouble. On the other hand it is always possible that the specs may be defective, and then, of course, it is the Air Force's problem.

GOVERNMENT FURNISHED PROPERTY (GFP)

Chairman PROXMIRE. Will you explain what is meant by Government-furnished property?

Mr. VOM BAUR. Yes, sir, I can. In many types of contracts the Government prefers not to have the contractor procure all the equipment needed for the end item.

There is one shipbuilding case, for instance, where a Government witness testified that the Government would load $20 million worth of Government furnished weapons and electronics equipment on a $16 million conventional warship. So the contractor would build essentially a $16 million conventional destroyer, and on this would be installed $20 million worth of Government-furnished weapons and electronics equipment.

The reason for this is so that the Government can be assured in this situation that it will get the weapons and the electronics equipment which it wants. It pays for it and obtains it directly. And the Government makes arrangement for the delivery of this GFP, as we call it, to the shipyard or the contractor's plant. This is a very common provision in many types of Government contracts.

Chairman PROXMIRE. Isn't it correct that most GFP is manufactured by a private contractor, delivered to the Government and then turned over to another contractor? For example, in a typical ship program the Government will agree to furnish the shipbuilder certain GFP, perhaps some sonar equipment, but the Government will then award a contract to another contractor for the production of the sonar. When the Government receives the sonar from the second contractor it will be turned over to the shipbuilder. Isn't that how the process operates in many cases?

Mr. VOM BAUR. Just about, except that the sonar, Mr. Chairman, is shipped directly from the private manufacturer to the shipyard. It does not go first to a Government warehouse in between. There is a direct shipment to the contractor.

LATE DELIVERY OF GFP

Chairman PROXMIRE. Now, isn't it true that sometimes the Government cannot furnish the GFP to the shipbuilder on time because the second contractor, in my example the sonar manufacturer, was late? In such a case, would you agree that any delay in the program was at least in part the responsibility of the sonar manufacturer? Do you think the Government should be able to recoup its losses, in my example, from the sonar manufacturer?

Mr. VOM BAUR. Well, this would vary from case to case. If the sonar manufacturer had dropped the ball, shall we say, and not lived up to his contractual obligations. I have no doubt that some way might be found for the Government to have some recourse against him. However, I must say from my own experience that with the overwork and the understaffing of the people in the Government engaged in this aspect of contract administration, there is a lack, shall I say, of an energetic follow through by the Government on what the private contractor is doing. In short, the Government seems to be asleep much of the time. And I will say also from my own experience that sometimes the Government appears to be bored and somewhat indifferent about the whole subject of getting GFP delivered on time. This is one reason why I say, sir, there is a great need for an elite group, because an elite group would never permit this to happen if it can be avoided.

SHIFT FROM NEGOTIATION TO FORMAL ADVERTISING

Chairman PROXMIRE. You assert that the shift from negotiation to formal advertising in the award of contracts under the McNamara administration, particularly in the shipbuilding industry, made it necessary for contractors to recover their increased costs resulting from Government actions or lose their shirts and sometimes go out of business. Did any contractors, to your knowledge, lose their shirts or go out of business? Could you provide their names for the record?

Mr. VOM BAUR. The answer to your question is "Yes." I would rather not provide their names, because the ones that I know about are clients of mine, and I would rather not talk about them.

Chairman PROXMIRE. If they lose their shirts and were out of business no damage would be done by disclosing their identity, would there?

Mr. VOM BAUR. That is a matter of opinion, Mr. Chairman.

Unfortunately as a lawyer I am afraid I am not exactly in the habit of talking about my clients, whether they have gone out of business or not.

Chairman PROXMIRE. Then give it to us in general terms. How many firms were forced out of business?

Mr. VOM BAUR. Well, I am thinking of one concern in particular, which was an electronics concern that we used to represent.

Chairman PROXMIRE. One firm?

Mr. VOM BAUR. Yes.

Bear in mind, I am speaking now of those of which I have personal knowledge.

Chairman PROXMIRE. Do you know of any major contractors that have gone out of business?

Mr. VOM BAUR. Yes, I do, I know of another one.

Chairman PROXMIRE. You know of another major contractor?

Mr. VOM BAUR. A major contractor, yes, sir.

Chairman PROXMIRE. A major contractor?

Mr. VOM BAUR. A major contractor.

Chairman PROXMIRE. Senator Jordan?

Senator JORDAN. Thank you.

Following along with the chairman's question, do I understand you to say that a shift in emphasis from procurement by negotiation to procurement by formal advertising has increased the cost to the Government? Generally this committee has been strongly in favor of formal advertising when the specifications can be written.

Mr. VOM BAUR. No, sir, I did not mean to say that in my statement, and I do not believe I did. The thrust of what I was trying to say in this connection is that when you have procurement by formal advertising, as I am sure you know, sir, you have to cut your price down to the absolute bare bone, leaving no possible contingency for claims, little ones or big ones. The result is that if you do have increased costs as a result of acts of Government occurring after the contractor is signed, you have got to find a way to recover those increased costs from the Government, or you will be losing your shirt and may have to go out of business.

There is simply no question that with procurement by negotiation prices are a little higher, and there is something in the price in the nature of a cushion for small claims, at least. And I can say also there are perhaps fewer claims to be negotiated.

Senator JORDAN. The change orders that would arise after a contract was signed would be of that nature?

Mr. VOM BAUR. Exactly, sir.

LATE DELIVERY OF GFP

Senator JORDAN. You have said that delays in the delivery of Government-furnished equipment do not have to occur. How do such de-

lays arise, and what special suggestions would you have to reduce these delays?

Mr. VOM BAUR. Well, I did not mean to say they do not have to occur at all. I think there will always be a certain number of delays. I hope, Mr. Jordan, that we could minimize them. And the main suggestion I have—again, this permeates everything I have to say, is at the bottom of the whole subject—is the need for an elite group in procurement. Because if you had an elite group, and if it were adequately staffed—by this I mean enough people, and enough good people, and enough secretaries, and offices big enough to swing a cat in, for instance—this would all make a difference because an elite group simply would not put up with delays in the delivery of Government-furnished property.

This is something that an elite group in procurement simply could not tolerate. What would happen would be that—and I know some people who would fit into such a group, in the Navy particularly—they would do everything possible within their power to prevent this sort of thing from happening.

But until you have an elite group, properly staffed, these things are going to continue to happen.

Senator JORDAN. I understand you to say that the blame is on the system and not on the individuals?

Mr. VOM BAUR. Yes, sir.

Senator JORDAN. Conceivably some people who are presently engaged in procurement under the system might qualify. If they were designated as members of an elite group, could they function better?

INADEQUATE STAFFING

Mr. VOM BAUR. I do not think the name is important. I think there are what I call the "four inadequacies"—that is, at the present time people in procurement are inadequately staffed, that is, they do not have enough assistance; they are inadequately housed, many of them are in sort of crummy cubbyholes; and they are inadequately paid. The results of this are that the best people are often being driven out of the Government. The pay is such that they get better offers from private industry, and you cannot suggest that they stay. They naturally have to go. And yet these people go at the very time that they have acquired continuity of experience and highly developed skills.

And finally, there is the factor of inadequate recognition. The labels are not important. But an elite group is just the best phrase I know. If you put in people that are highly intelligent and well trained, and there are enough of them, and you pay them adequately, and give them the staffs they need—many of these problems result from understaffing and overwork—if you do give them the resources they need, demand a great deal from them and give them enough high level attention, many of these problems would go away by themselves, sir.

Senator JORDAN. What salary grade are you talking about in this elite group? How high would you have to go for the men on the top side so that you could hire the people who are competent to do what you propose here?

Mr. VOM BAUR. Well, I would start, I think, with GS–18's and work down. It is not purely a question of grade, but also a question of sufficient numbers of people.

I was talking with a young fellow the other day in a symposium I went to in New York who had been in the Navy as a negotiator. He was responsible for some 80 contracts or projects. And he said the work was just too much; he felt he could not do justice to it all, and he decided to leave.

So, of course, there is a need for a raise in pay, but you also need enough good people to handle this work.

Could I give you another illustration?

Senator JORDAN. Please do.

Mr. VOM BAUR. I know from my own experience in the Navy Department when I was General Counsel that, not infrequently, one of our young lawyers, perhaps 3 years out of law school, would be handling a multi-million-dollar negotiation, or problems that come up under such a contract. And his opposite numbers would be, say, three or four mature lawyers from a leading law firm. And here you would have this one Government lawyer 3 years out of law school faced by three or four mature lawyers from the outside who had more time to work on the case, and who were much better prepared, because there were more of them and they had more time to devote to it.

This is something that does not make sense. There ought to be a balance between the Government and private life. The work of the Government is still more important than that of any private concern. And the laborer is still worthy of his hire in the Government as well as outside, in my judgment.

PERMANENT PROCUREMENT IMPROVEMENT BOARD

Senator JORDAN. Your second recommendation was for a permanent procurement improvement board to make continuing appraisals of procurement problems and recommendations. Would they be salaried?

Mr. VOM BAUR. Yes, indeed.

Senator JORDAN. They would be in the Government?

Mr. VOM BAUR. Yes; and my recommendation would be that they would be civilians.

Senator JORDAN. They would be civilians. And how would they relate to the elite group whose sole responsibility is procurement?

Mr. VOM BAUR. They should be part of that elite group, perhaps the top group in it.

Senator JORDAN. And how many should be on this permanent procurement improvement board?

Mr. VOM BAUR. This is a hard question for me to be categorical about. I would suppose somewhere between three and seven people plus a staff, including field representatives. It should not be so big as to be unwieldy, but it should be big enough so that it could cope with the inherent magnitude of the problems.

Senator JORDAN. How many in the elite group?

Mr. VOM BAUR. I cannot answer that, sir. I am no longer in the Government. I would have to have a more intimate knowledge of the problem. But this is something which could be ferreted out. Your committee could send people around and talk to the contracting officers in the Government and find out how many they need. This is something which could be determined.

Senator JORDAN. You have made some rather extravagant claims about the benefits to be derived here, such as a saving of 25 to 30 percent in the $40 billion budget. And I just want to continue through these recommendations to see if we can identify that type of saving with the recommendations you have made, Mr. vom Baur.

Mr. VOM BAUR. I wish you would do so.

ORGANIZED FEEDBACK

Senator JORDAN. All right. Recommendation No. 3, the need for an organized feedback from the field, something like the inspector general system operates with respect to uniformed personnel. Will you elaborate on that a little further for us, please?

Mr. VOM BAUR. Yes, sir; I shall be happy to try, Senator Jordan. I think we start off, sir, with the fact that the Department of Defense is a tremendous organization. It is not easy to run because of its sheer size. And secondly, there is a big gap between events in Washington and what happens in the field. It is essentially a communications gap. And it is in my judgment, sir, a very live one, and it is one that is very difficult to bridge.

You have a multitude of military stations, naval stations, Army stations, and Air Force stations all over the world. And there is a tremendous gap in communications between the headquarters of each department in Washington and these field stations. And you essentially have only two means of communication. One is the oral word and the other is the written word. And as you may know, the written words in the executive departments are not exactly masterpieces of style. They are often very difficult to understand.

From the standpoint of oral words, you can send people out there to talk with them. In any event, the result is that policies are decided in Washington which are implemented in the field. But I have seen this, that the things that the people really want in Washington are not adequately communicated to the field, so that the people in the field do not get the word or get it in somewhat garbled form.

On top of this, there is no system set up to bring back from the field what really happened in the course of the implementation of instructions from Washington. Some of my friends in Government regard this as a very, very serious lack, and if some system was set up to inform Washington as to what was really going on in the field it would be, in my judgment, a tremendous preventer of waste.

Senator JORDAN. And there is no system of feedback presently?

Mr. VOM BAUR. No; there is none at all. And I would not say that it would be easy to set up.

SPECIFICATIONS WRITING SCHOOLS

Senator JORDAN. In your fourth recommendation, setting up the specifications writing schools, I agree with you wholeheartedly. I think this is one area that we need to explore with a great deal of zeal, because the specifications are so foggy, so hard to understand that I wonder how bidders, or anyone, could deal intelligently with them.

How extensive would you go into the specification writing school program? Tell us what you have in mind.

Mr. VOM BAUR. Well, what I would do if I were running it, I would suggest setting up a military departmentwide specification writing school with a headquarters. The headquarters should be run more or less jointly, I would say, by a high-level management administrator, and by someone from the General Counsel's Office, because a lot of it is law. And then I would set up a subsidiary specification writing school in each of the bureaus or commands of the military department.

In this way you could have consistency and coordination. In addition, the actual training would take place not only in the procuring activities in Washington, and with the engineers in Washington. Teams could also be sent out to the field to better educate the people in the field on the niceties of specifications.

One problem is that specifications today are written largely by engineers. Yet they have essentially no training or help as a rule. And unless there is some kind of a school set up, this is going to continue.

To try to complete a more direct answer to your question, I would have a central overall school with branches throughout the military departments, and, of course, adapted to the needs and peculiarities of the military departments.

PROCUREMENT PROCESS HAS DETERIORATED

Senator JORDAN. You have been involved in Government procurement directly or indirectly for a good many years. In your opinion has the procurement process improved over the years since you were identified with it in the Eisenhower administration, or has it deteriorated, and why?

Mr. VOM BAUR. To give you a frank answer to that question Senator Jordan, I have to say to you that in my opinion it deteriorated during the McNamara administration. As for the reasons—the first reason is, in my judgment, that the McNamara administration had a policy of centralization. Whether one agrees or disagrees with that policy may not be important here. For, from our standpoint, in my judgment and experience, this policy had a byproduct, which was that there was at high levels in the Pentagon a very diminished interest in lower levels of procurement, that is, in contracting officers, contract adminstration and all these nitty-gritty items that I have been talking about.

So the absence of any real interest in contracting officers by the top-level group—there was, shall I say, a lack of interest in them which became demonstrable—that is the first reason.

There is in my judgment also a second factor. The McNamara administration put more restrictions on contracting officers than had previously been put on them. When I was in the Navy, Senator Jordan, we used to flatter ourselves; we thought we were better than the Army because somebody in the Navy could always be found to take responsibility for a problem, and to give the guy on the outside a decision. But this became less and less true during the McNamara administration. There were many people in the Department of Defense who also were required to be consulted by contracting officers before they could make a move. It is very clear, I think, that contracting officers were hamstrung during the McNamara administration as they had never been during the Eisenhower administration.

I think I also have to say to you candidly that, in my opinion, this is poor management. The contracting officer has to be the kingpin

of procurement. The responsibility, in my judgment, has to be placed squarely on him. He should be capable; and if he is not capable he should be fired, and you should get somebody who is capable. But the responsibility for procurement has to be centered somewhere, and in my judgment it should be pinpointed on the contracting officer. This means that he should be given a reasonable freedom of action and certainly the authority necessary to carry out and discharge his responsibilities.

Frankly, he was given less freedom of action in the McNamara administration than before. This caused dissatisfaction, dissension, and turmoil, and a slowing down of the whole procurement process.

Senator JORDAN. What you are telling us is that some of us were led to believe that when McNamara came to the Department of Defense he brought people trained with the latest business techniques and systems of procurement and management for the Defense Department. And now you are telling us that that is a myth?

Mr. VOM BAUR. He did many good things. I cannot say that everything he did was good.

Senator JORDAN. Thank you.

PROCUREMENT STAFF PROBLEMS

Chairman PROXMIRE. Your point, Mr. vom Baur, that the personnel who work in the procurement field are understaffed, inadequately housed, and inadequately paid strikes a sore spot with this committee. As you may know, we have been urging for years that the Government improve its own competency in procurement by creating the proper incentives and we have formally requested that more attention be given to this area. But there are two difficulties here.

First, after we make our recommendations, the Pentagon, whose spokesmen appear to testify, assure us that steps have been taken, problems have been corrected, and improvements have been made. On one occasion, former Assistant Secretary Tom Morris presented us with a package showing us how many new schools and new opportunities had been opened for procurement officials. It later becomes clear, however, that the situation has remained the same and the problems, as you have demonstrated, have grown worse. How can this committee or any committee in Congress determine for itself whether any headway is being made on these problems?

Mr. VOM BAUR. That is a very good question, Mr. Chairman. I think there is something that this committee could do. I think that this committee could perhaps take measures to find out for itself what was going on with regard to these four inadequacies, as I call them. I would think that you could send representatives to talk privately at least with contracting officers. I know some very fine, public-spirited contracting officers in the Navy, at least, who have views on this subject. I would suggest that you talk with them, look at their office space and furniture, and see how their office space compares with that of a rear admiral. And then I would like to suggest that the committee compare the responsibility that the contracting officer is discharging, the magnitude of the procurement funds that he is disbursing, and his importance to the taxpayer, and ascertain

the degree of comparability with the rear admiral and his facilities. And I would like to suggest that you do the same thing with contract negotiators, talk with them privately, see if they are understaffed, find out what their workload is, find out if this is a reasonable workload, and what they need to protect the taxpayer.

And I would like to suggest that you do this also with contractor administrators, which, of course, are scattered all over the country.

Perhaps this is a major problem.

In addition, I would like now to come to something which is perhaps even more glaring in its need for some help. And this is the subject of inspectors.

Chairman PROXMIRE. Of course, when you come to all this, Mr. vom Baur, this committee staff is understaffed, underpaid, and inadequately housed. This is a general problem for the Government, the congressional committees, too. And beyond that there is the problem that is very evident and conspicuous, personified right here on our staff this morning on the part of the high officials. The problem was dramatized by the McGee case in the Navy and the Fitzgerald case in the Air Force last year.

Both of these procurement officials tried to do their job by cracking down on waste and inefficiency, and in McGee's case corruption. Their rewards are now well known. Mr. McGee had to fight an effort to demote him and take him summarily off his job. Mr. Fitzgerald is sitting right here this morning, and not in the Pentagon, acting as a top-level effective procurement official, because he did his job, because he had the courage to state the truth.

Which confirms the problem: How can you solve the problem of an agency which does not want too much competency on the part of its employees?

Mr. VOM BAUR. I hope you will forgive me if I disagree with you in the statement that the agency does not want competency in its employees.

Chairman PROXMIRE. Certainly in the Fitzgerald case and the McGee case they did not demonstrate that they were gung-ho for competency when they fired these two men.

Mr. VOM BAUR. I think they want it, but I don't think they know how to go about it. And this is the reason for my making these recommendations here this morning. If something like what I have recommended were done, it would help the administration to find ways to provide greater competency. I have no doubt that with the Laird administration there is a great deal of impetus to try to improve these things. But it is hard for high-level people to go down to the nuts and bolts of what is really wrong.

Chairman PROXMIRE. If you disagree on it, wouldn't you agree with me that when an official is able to disclose corruption, or when an official is able to demonstrate waste and excessive cost, that should not be grounds for firing, at least the agency ought to know enough to know that such a man should not be fired, particularly when the previous year he has been cited as one of their most distinguished officials?

Mr. VOM BAUR. Certainly uncovering waste should never be a ground for firing.

Chairman PROXMIRE. This is what the Air Force did.

I find your analysis of the problem of the Government's administration of procurement to be very perceptive, and your recommendations for improvement to be very constructive. You correctly point out that the business of procurement is a distinct and separate function from the military aspect of the defense program and you urge that there be a better understanding of this distinction. Why not remove the procurement function from the Defense Department altogether?

Incidentally, this is true, I understand, in the procurement of aircraft in England, and it is working out very well. And a number of other countries have tried it, and they have taken the aircraft procurement out of military, and established a separate, independent agency for the procurement of aircraft.

Mr. VOM BAUR. Again, I hope you will forgive me, Mr. Chairman, if I do not fully agree with you. I do not believe it would prevent waste to remove procurement entirely from the military departments.

Chairman PROXMIRE. I would not remove it in the sense that certainly it should be the military people that indicate the weapons they need, there is no question about that.

Mr. VOM BAUR. Yes; that is what I call requirements.

Chairman PROXMIRE. That is right. And they ought to determine to a considerable extent the kind of performance they need in those weapons. But when it comes to the actual nitty-gritty you are talking about here, the actual working out of the contracts and the negotiations with the contractors, why shouldn't this be a civilian expertise function, the kind you have been talking about, rather than get somebody who is a very fine sea admiral or he can handle an aircraft carrier very well, or fly a plane brilliantly, but has not had a real professional continuing experience at procurement?

Mr. VOM BAUR. I go along with you a great distance, Mr. Chairman. This is one reason I suggested a permanent procurement improvement board to serve as a kind of a buffer, or at least an independent civilian group in procurement. I feel that the procurement function should remain in the military departments, because a knowledge of how they work and of the people in the departments is of of vital importance.

I would also say that if you give these people sufficient independence, which is one of my objectives in recommending a procurement improvement board to serve as a buffer between the requirements people and the people actually letting the contracts, you would go a long way toward reaching that objective.

Chairman PROXMIRE. The question is, how do they gain their independence if they are in the department? The trouble with this procurement operation in large part is that they do not have that kind of independence under military discipline.

Mr. VOM BAUR. Under military discipline this does not work—I agree with you, Mr. Chairman. Military discipline reflects the background of military experience rather than experience in procurement. But I tried to set forth in my prepared statement that if this procurement improvement board were responsible to the Assistant Sec-

retary directly, this would give you civilian control and would funnel all these problems from the very bottom up to the top where somebody can do something about them. If you do not make the board responsible to a high level civilian I would have grave doubts as to what might happen.

Chairman PROXMIRE. And then you go along with this to a considerable extent?

Mr. VOM BAUR. Indeed, I do.

Chairman PROXMIRE. I do not propose that you separate them, you cannot possibly, and you should not separate the procurement weapons from the military. After all this is their profession, and their knowledge and so forth is essential. But at the same time I agree with you that it ought to be a top-level civil official, like the Assistant Secretary of Defense, or of the Air Force, who would make the decision and who would be in command of civilians.

You talk about permanent Procurement Improvement Board and an Inspector General-type organization for procurement. However, there is already in existence a substantial network of Government agencies and organizations which were created to scrutinize and monitor military procurement. There are the Defense Auditing Agency, the General Accounting Office, and the Bureau of the Budget, to name a few.

These agencies already exist. The trouble is they do not seem to do the job that is necessary. How could we be assured that any new institution such as those you recommend would not fall short of doing the job and simply become whitewashing organizations?

Mr. VOM BAUR. This is a very good question Mr. Chairman. The organizations you mentioned, the GAO, the Bureau of the Budget, and the DCAA, all have very limited roles. There is no organization set up to do the job which in my judgment badly needs to be done. This is one of the thrusts of my testimony here this morning. If you should set up a procurement improvement board at a high level responsible to the Assistant Secretary, with responsibility not only for improving and generally monitoring the whole procurement program, but also to serve as a buffer between the requirements people and the people who actually let the contracts, you would be creating an organization and a new function which would in my judgment go far to meet the realistic needs of today.

ASSIGNMENT OF INDIVIDUAL RESPONSIBILITY

Chairman PROXMIRE. You suggest that we should try to avoid placing blame on individuals for procurement failures. It is interesting that the Navy and Air Force have placed a lot of blame on people who in my view have contributed to understanding and knowledge of wastes. But they have not placed any blame on those who have failed.

Don't you agree that a little assignment of individual responsibility, and that the distribution of awards and disciplinary measures to those who have earned them might be a healthy thing?

For example, we have this disaster in the C–5A in many respects getting worse every day, it seems. And we have the F–111. Why shouldn't the people responsible for this be singled out for discipline so that we do fix some individual responsibility? People are responsible for these mistakes.

Mr. VOM BAUR. Yes, sir; and in the long run I think this should be done. What I was trying to say—and I did mention blame only in connection, I think, with the need for an organized feed-back in the field—is that in any event one of the things that was part of my recommendation of a permanent procurement improvement board, was that errors could be analyzed and responsibility could be fixed. If, for instance, in reading a Board of Contract Appeals or a Court of Claims case it becomes apparent that some contracting officer seriously dropped the ball down the line, then somebody should hold a meeting with this fellow and say, just tell us what happened. Is there anything we ought to know. And if he has nothing much to say, then he should be given at least a reprimand.

I would, however, go slow on personal blame until the system is improved, because many of these things happen, in my judgment, from overwork and understaffing.

CONTRACT ENFORCEMENT

Chairman PROXMIRE. Given a hypothetical situation in which the Government found itself with a sound, enforceable contract, uncluttered by changes and unilateral Government actions, would the contract be enforced if it meant ruinous losses to a large contractor? Should the Government enforce a contract in such a situation?

Mr. VOM BAUR. I want to be sure I understand your question.

Chairman PROXMIRE. Suppose you have a situation where the Government has not made substantial changes, and where there is no blame on the part of the Government for a failure of the contractor to meet the contract, but if the Government enforces it it would ruin the contractor, under those circumstances should the Government enforce the contract?

Mr. VOM BAUR. This is a hard question for me to decide. I may say this, that is, there is certain relief which the contractor can seek, if he is essential to the national defense. Under section 17 of the ASPR he can ask for an amendment without consideration, if his continuance in business is essential to the national defense. If he is not essential to the national defense, then unless the Government has some clear reason as to why he should be kept going, I am afraid that it would just be his own responsibility.

Chairman PROXMIRE. Of course, his plant, his personnel, his labor force, his equipment, his know-how might be essential to the national defense but that management which has failed might be anything but essential to the national defense. Would that mean that because you would force a firm into bankruptcy that they are going to stop the production?

Mr. VOM BAUR. This would be a matter for an individual department to decide on a case by case basis, Mr. Chairman. It is very hard to generalize.

Chairman PROXMIRE. You see, it raises the question, if a contract is not enforced because to do so would impose large losses on a giant contractor, perhaps forcing him into bankruptcy, is there any point in improving defense contracting and procurement procedures?

Mr. VOM BAUR. Would you repeat that, sir?

Chairman PROXMIRE. What is the point in improving procurement procedures if when the contractor does a very poor job he gets away with it?

Mr. VOM BAUR. Frankly, I do not know of many or any contractors in my own experience who have been that lucky. And if you read the decisions of the Board of Contract Appeals, there are many contractors—I must say small and medium-sized ones usually—who are terminated for default for failing to meet the specifications or the time requirements of the contract. Also, the court of claims contains a fair number of decisions involving trustees in bankruptcy of business concerns who have gone into bankruptcy because of their having taken a Government contract.

Chairman PROXMIRE. Of course, this is the very point, it is the small- and medium-sized contractors who are made to adhere to the contracts, not the big ones, the big ones seem to get away with it. We asked Secretary Charles, of the Air Force, to name a single substantial contractor who had ever lost money, let alone been forced into bankruptcy, by the Air Force. And he could not name any. And not only could he not name any specifically, he could not name any in generalities. He could not do what you have done this morning.

But you are talking about medium- and small-sized contractors.

Mr. VOM BAUR. I do agree with you, sir, that the large contractors get along better so far as the major problems of meeting the specifications are concerned, than the little ones do. I remember a Secretary of the Navy who made a statement to the effect that a large contractor had never been default on a major contract. This is no longer true. But it is perfectly true that the small fellows have a tougher time meeting the specification than the big ones do. You are quite right.

Chairman PROXMIRE. That concerns me very much. And they are also losing their share of the business, as we know. Every year for the past several years the portion of the business gotten by the great majority of contractors who are independent and small has diminished. And this is a matter of great concern.

Mr. VOM BAUR. Yes, sir.

Chairman PROXMIRE. When they do get a contract they seem to have a much tougher time than the big ones.

Mr. VOM BAUR. Yes.

Could I make a comment on that?

Chairman PROXMIRE. Yes, sir.

SMALL CONTRACTORS NEED EDUCATION

Mr. VOM BAUR. When I was in the Navy I had something to do with this and wrote some articles on it. It was, of course, Navy policy to encourage small business as much as possible; and we tried to do so. One difficulty with it is that many small businessmen do not know the rules of the game. They feel that if they get a Government contract they are going to get rich. They feel that they can relax and forget about all their problems and rock along pretty much as they want to and everything will go along all right.

What I am getting at is, there is a major education problem for the small contractor who has never been in Government contracts before, or not had much to do with them. He is apt to make foolish mistakes.

Indeed, many of the decisions of the Armed Services Board terminating these little fellows for default often involve what might be called foolish mistakes by the little fellow. If there is anything that this committee could do to further an educational program for the small contractor so that he can learn better his rights under Government contracts, this would enable him to get along better and help him get a larger share of the business.

Competitive Versus Negotiated Procurement

Chairman Proxmire. The position you take on competitive procurement raises another question.

You mention the technique of dividing up Navy business among on-going shipyards as a means of maintaining the mobilization base even though the prices might be different, in other words, even at the expense of increasing the costs of the programs. If it is necessary to resort to this method in order to preserve the mobilization base, in effect to discard formal advertising and to minimize and perhaps eventually eliminate price competition, shouldn't it also be necessary to more closely regulate the defense industry? That is, if we discard the competitive principles which underlie the free enterprise system, are we not dealing with a public utility or monopolistic type situation?

Mr. vom Baur. Mr. Chairman, you would not eliminate competition. Again, these contracts would be awarded, if at all, through competitive negotiation. In addition, this is a matter of judgment for the individual military department and particular administration at the time, to decide whether they want to maintain the mobilization base, whether it is a desirable thing to have shipyards in being in the event of war. I cannot go along with you to the extent of comparing public utility regulation for this.

Chairman Proxmire. Doesn't it follow, however, that unless you follow your principles of the lowest possible cost you get to a situation where you have to have some degree of greater control?

Mr. vom Baur. As I tried to indicate to you, this is not a process without competition, it is what was called in my time in the Navy, competitive negotiation. And there is a very marked element of competition in it.

Chairman Proxmire. You refer to the competition which results from formal advertising as "fierce." It sounds like you are saying there is something wrong with competition. But isn't it true that in a free enterprise economy competition is healthy, the fiercer the healthier?

Mr. vom Baur. Competition is certainly a good thing.

Chairman Proxmire. Mrs. Griffiths?

Procurement Staff Problems

Representative Griffiths. I am the only person up here, Mr. vom Baur, that does not really believe that you are going to do any better by competitor bidding than you do with trained negotiators. I feel that if you had a purchasing department that was really qualified that you would save money, and this is the only way you are ever going to save money. It is not a matter of competitive bidding. The truth is that the purchasing department is so poorly trained and so poorly paid that

they would not recognize a bargain if they saw it, at least that is my judgment.

Mr. VOM BAUR. Mrs. Griffiths, I agree with you to a large extent. But I do not believe it is quite that bad.

Secondly, I strongly support the balance of what you said. Indeed, this morning I tried to recommend that an elite group—this is the best label I know—should be set up to run procurement from top to bottom in the military, because of the staggering sums of money which are involved.

Representative GRIFFITHS. Of course, I had instance after instance brought to my attention. For instance, I rode home one time with a man who told me that he was the sole source of the item that he supplied, he had the lines set up for it. And he had been the prime contractor, and he was cut out, somebody had bid lower. It just does not make sense at all. Of course, it does happen. But either those people were taking it as a lost leader item, or they did not know anything about it, or the real truth is that the prime contractor did not want a low price, he quoted a high price, because he would make more himself.

Now, obviously the negotiating department did not understand him either.

SUBCONTRACT DATA

I have had a bill in here for a long time that would require the subs and the prime, the prime particularly, to furnish to the purchasing department at the end of a contract the price that they had paid for all subcontracted items, and each subcontractor to furnish the price that he had paid. Year after year after year the Defense Department has told me that it would be impossible, they could not possibly keep track of such a large list of items. One year, 2 or 3 years ago, just after the Under Secretary had announced that they could not possibly do anything about it, the next person up was a person involved in private industry, who had been a marine purchaser. And he said: "I never heard of the bill before but, of course, you could easily keep track of it. We keep track of more than a hundred thousand items in the place where I work with two men and a computer."

Mr. VOM BAUR. Where was that, Mrs. Griffiths?

Representative GRIFFITHS. The man happened to work for a corporation.

But if the purchaser had no idea of the cost of any subcontracted item—cannot buy a battleship and pay a reasonable price, you just have to know the price of the individual components.

Mr. VOM BAUR. This is true. I should like to point out that under the requirement for the truth-in-negotiation, so to speak, the prices which subcontractors bid, or bid to the primes, are passed on to the Government.

Representative GRIFFITHS. It needs to be done component by component. You need to know exactly what they paid. How can any 30-year-old person look at a battleship and say, OK, I will pay you $10 million, or $50 million, or $100 million? They don't.

Mr. VOM BAUR. There are groups in the Department of Defense which are at least fairly good in their ability to estimate costs of construction. There are certain rules of thumb for ship construction which

are fairly reliable. If we did have this elite group, it would go a long way in the direction in which you are interested, I think.

Representative GRIFFITHS. But there is not a big industry in America today which would still be in business if they ran a purchasing department like the Defense Department. They pay their purchasers, and they train them.

Mr. VOM BAUR. They do indeed.

Representative GRIFFITHS. And they know whether they can buy the items cheaper or make them cheaper. And they can tell you to the last piece of that equipment that they are buying exactly what it would cost them to make it, or exactly what you can buy it for.

And out in Battle Creek—I went out there one day, and the only thing they do not have on those computers out there is the price of the item. They cannot tell you the price they paid for any item and from where they bought it. There seems to be a secret on pricing. Do you think that is in a way sort of true?

Mr. VOM BAUR. It is certainly true to some extent, Mrs. Griffiths. And again, if you had an elite group, and enough of it, adequate staffing of people, adequately paid, and adequately housed—I hate to keep repeating those old statements, but the fact is in my judgment that there are not enough good people in procurement now. They don't have the resources they need; they don't have the staff; and the contracting officers do not have the resources they need. If they did have them they would be able to find out a lot more about the prices which the contractors are bidding and the basis for those prices.

CHANGE ORDERS

Representative GRIFFITHS. I was particularly happy also to notice that you mentioned the change orders. For any skilled seller to the Government, anybody who has ever bid and has ever made anything, he knows he has a way out. The first change order that comes up he can unload some of the price on that change order.

Mr. VOM BAUR. Not any more, in my experience.

Representative GRIFFITHS. Well, they do it pretty well. They did it when I was purchasing, I know. But they still do it pretty well. If the change order gets pretty complicated, the purchasers do not have enough ability to figure out whether or not that change order is properly priced.

Mr. VOM BAUR. It is getting more and more difficult, Mrs. Griffiths, to collect.

Representative GRIFFITHS. I am glad to hear that they are able to do it. I was glad that you pointed out the problems of a Government contract for the contractors themselves. It is a difficult situation.

Mr. VOM BAUR. Yes, it is.

Representative GRIFFITHS. I remember one time we were investigating clothing. There was not at that time in America a reputable outfit making Government clothing, because of all the change orders. They would get the specifications, and then they would change. And you know we have been making the same clothes since Valley Forge. You think that would not have to be changed?

Mr. VOM BAUR. You are very right, Mrs. Griffiths. My experience does corroborate that. In my judgment there are far more change

orders than are needed. And if there were some restraints on them, some practical judgment exercised—when we get to the subject of restraint in the issuance of change orders much better control is needed. And again if we have that elite group, and big enough, this would all come to a stop in the course of the next few years.

Representative GRIFFITHS. I am pleased you came in and testified. I liked your testimony.

Chairman PROXMIRE. Thank you very much, Mrs. Griffiths.

I am glad you came in to question him.

And, Mr. vom Baur, I want to thank you very, very much for some responsive and helpful testimony from a fine witness.

The questions do not necessarily mean that we do not agree with much of your testimony. They are designed to bring out the facts.

Thank you very much, sir.

The subcommittee will stand in recess until 1:30 p.m., when we will convene in this room to hear the Comptroller General of the United States, Elmer Staats.

(Whereupon, at 11:30 a.m., the subcommittee recessed, to reconvene, at 1:30 p.m., on the same day.)

AFTERNOON SESSION

Chairman PROXMIRE. The subcommittee will come to order, please.

We are delighted to have the Comptroller General of the United States as our witness today. And I would like to identify, in addition to the distinguished Elmer Staats, his colleagues who are appearing at the table.

I understand they are Mr. Robert Keller, Paul Dembling, Charles Bailey, Richard Gutmann, Hassell Bell, and James Hammond.

Does that cover everybody?

Mr. STAATS. That covers everybody at the table. There may be one or two others that we may want to call on, depending on the nature of the question, Mr. Chairman.

Chairman PROXMIRE. Very good.

Mr. Staats, go right ahead.

Mr. STAATS. Thank you, Senator.

STATEMENT OF HON. ELMER B. STAATS, COMPTROLLER GENERAL OF THE UNITED STATES, ACCOMPANIED BY ROBERT F. KELLER, ASSISTANT COMPTROLLER GENERAL; PAUL G. DEMBLING, GENERAL COUNSEL; CHARLES M. BAILEY, DIRECTOR, DEFENSE DIVISION; RICHARD W. GUTMANN, DEPUTY DIRECTOR, DEFENSE DIVISION; HASSELL B. BELL, ASSOCIATE DIRECTOR, DEFENSE DIVISION; JAMES H. HAMMOND, ASSOCIATE DIRECTOR, DEFENSE DIVISION; KEITH E. MARVIN, ASSOCIATE DIRECTOR, OPSS; WERNER GROSSHANS, ASSISTANT REGIONAL MANAGER, SAN FRANCISCO; AND JOHN F. FLYNN, ASSISTANT DIRECTOR, DEFENSE DIVISION

Mr. STAATS. We are pleased to be here today, Mr. Chairman.

The number of individuals at the table here represents the number of subjects that you have indicated in your letter of the 14th that you would like to cover today.

My prepared statement, Mr. Chairman, is fairly long. And in the interest of conserving time for questions, with your agreement, I will attempt to go through the prepared statement and highlight it and brief the main points, and then we can return for any elaboration that you would like.

Chairman PROXMIRE. Very good. Without objection the full prepared statement will be printed in the record, and you may summarize it any way you would like.

DEFENSE PROFITS

Mr. STAATS. The first subject we would like to touch on is the study that we are making of defense profits.

Chairman PROXMIRE. That was my amendment?

Mr. STAATS. Your amendment, Mr. Chairman, was enacted in Public Law 91–121 as a part of the Military Procurement Authorization Act.

And we turn to the second page. We would like to call your attention in the center of that page. While this legislation only calls for a study of negotiated contracts, we will need information, we believe, from selected contractors concerning their advertised defense contracts and commercial work in order to check on costs and capital allocations for various categories of sales, that is, allocations as between commercial and Government work. Also for the negotiated contract to be meaningful we will need something to compare it with. That is, these trends may be of some interest, but to be really meaningful we think it is important to have the data with which we can compare profits on commercial work and on defense work. So we are asking for that information.

PROFIT STUDY QUESTIONNAIRE

The profit study questionnaire was distributed on March 26, 1970, to approximately 150 large and small businesses that perform negotiated prime contracts and subcontracts for one or more of the agencies included in the study. The contractors selected receive over 60 percent of the procurement funds expended by these agencies.

You will note there, Mr. Chairman, that the questionnaire did not go out until March 26. I will touch on that later as to why it took that long to get it out.

Now, so far we have had no indication of anything other than good cooperation from industry in supplying this data. However, about 20 percent of the contractors have advised us that they do not believe they can complete the questionnaire by June 15, as we have requested. And some have indicated that it would be September or October 1970 before they can furnish the statement.

Chairman PROXMIRE. Is that about the latest date that they estimate, September or October 1970?

Mr. STAATS. I believe that is correct.

Chairman PROXMIRE. So that if you do go that long you would have a virtually complete response at the end of October, is that correct?

Mr. STAATS. So far we have had no indication other than that we will have good cooperation and a good response.

A random selection of about 30 percent of the questionnaires will be made and the responses to these will be verified to the contractors' rec-

ords to enable us to form an opinion on the validity of the information being provided. We anticipate that this will probably be the most difficult part of the assignment.

In view of the importance of the data to be developed from the questionnaire, we took the time necessary to review a draft with several Government agencies experienced in obtaining information from industry. These included agencies like the Commerce Department, the Labor Department, and others.

As a further step, we reviewed the questionnaire with several defense contractors to determine whether it would be possible and practical to obtain the information we desire.

I might say, Mr. Chairman, that we made a number of revisions in the questionnaire following this consultation in order to make it easier to supply the information which we sought.

STUDIES OF INDIVIDUAL CONTRACTS

Turning to the next page, I would like to call your attention to the fact that in addition to the questionnaire data which we will receive from the 150 companies, we are going to make studies of individual contracts which will involve 144 prime contracts involving 37 contractor locations, in order to be able to obtain information.

These, incidentally, are all contracts let after January 1, 1964, which is the date of the weighted guidelines. And what we are seeking here is one of the points that we discussed with you, I believe, in the last hearing, the going in and going out rate of profits on individual contracts, because the other data will all involve gross sales to the Government for the period of time covered in the questionnaire.

What we are trying to do here, then, is to bring out and get data on individual contracts to be able to get going-in and realizing profits, negotiated versus realized profits.

Unless you have questions, Mr. Chairman, on the study on profits, I would like to turn to the next subject. I probably should indicate——

Chairman PROXMIRE. You say going-in and realized profits. The difference has been alleged by the contractor to be very substantial. They complain that the profits generally talked about are going-in profits.

Mr. STAATS. We have had the same points made with us. And we have read also considerable material to this effect. But what we are hopeful that we will be able to do here is to be able to document realized profits and be able to be more authoritative about what these rates are.

SOME QUESTIONNAIRES TO BE AUDITED

Chairman PROXMIRE. Does your plan to verify a sample of contractor questionnaires mean that you will audit them?

Mr. STAATS. We will undoubtedly do this, Mr. Chairman. We have not really gotten that far along yet. But our plan does include this. The extent to which we will need to do it is a matter on which I will have to reserve judgment until we get the questionnaire in hand.

Chairman PROXMIRE. Are you auditing the completed questionnaires sent to you by contractors?

Mr. STAATS. We have not as yet.

Chairman PROXMIRE. Then your plan is to audit a sample number, up to 30 percent?

Mr. BAILEY. We intend to look at the answers that are provided particularly with respect to allocations of capital, so that we can see with some degree of assurance what type of anwers we are getting from the contractors, that they understood what we have asked for, and that we are getting the type of data we feel is necessary to come up with reasonably firm conclusions with respect to the type of data we are getting. We are hopeful that these——

Chairman PROXMIRE. Will you make a complete audit? Will you audit only 30 percent of the questionnaires that come in, or will you audit all of them?

Mr. BAILEY. We do not intend to audit all of them; no, sir.

Chairman PROXMIRE. Then how can you be sure that they are correct? How will your study differ from that of LMI in this respect?

Mr. BAILEY. We are making some audit. This is one difference right off the bat.

Chairman PROXMIRE. Of course, your sample is much more comprehensive.

Mr. BAILEY. We are hopeful that our sample will be a representative sample. We are trying to make it a statistically supportable sample.

Mr. STAATS. We think our sample is a better sample, and we think we will be able to do more verification than LMI was able to do. We are optimistic at this point; we could be wrong, but we are optimistic that we will get good returns on this questionnaire.

REPORT TO BE DELAYED

Mr. Chairman, before we leave this point, we ought to emphasize that as of now we do not think it is going to be feasible to complete the report in its entirety and submit it to the Congress by the end of this calendar year, which is the date specified by the law.

Chairman PROXMIRE. When do you think it would be feasible to do it?

Mr. STAATS. I have been asking the same question. I do not think it is possible to give you a precise date at this point.

Chairman PROXMIRE. Six months more?

Mr. STAATS. I think that would be a reasonable expectation.

Chairman PROXMIRE. We would particularly like to have it in time for the procurement bill in 1972. So that this time next year, or close to this time next year, we would like to have it.

Mr. STAATS. We will make every effort to do that.

Chairman PROXMIRE. It would be a good target to shoot at, Mr. Staats.

Mr. STAATS. I would be hopeful that we can get it to you at that time.

"ADMINISTERED" PROFITS

Chairman PROXMIRE. We have indications of enormous increases in discretionary expenditures—particularly general and administrative expenses—on some major contracts. Will your profits study address this area?

Mr. BAILEY. No, sir; not specifically the G. & A. expense. We do not feel, Mr. Chairman, that we have time to audit the costs that are assigned to the various contracts.

Chairman PROXMIRE. Does not the existence of these huge pools of discretionary expenses—several times stated profits in the case of SRAM—offer opportunities to "administer" profits to some extent?

Mr. BAILEY. Well, if the contractors follow their usual distribution processes for indirect costs, I would hesitate to say that there is an administrative assessment of cost to any particular program. This would be dependent, of course, upon their usual procedures, which is another factor.

Chairman PROXMIRE. Could you do this in any kind of a sample, abbreviated way that would be at all useful? I realize that it would not be possible for you to do a comprehensive job here, of course you are right, if we want to get this in time to be usable.

Mr. BAILEY. We might consider this aspect and what the impact would be in terms of the review we are proposing to make at the prime contractors and subcontractors where we are looking at particular contracts at the 37 contractor locations.

DEFINITION OF PROFITS

Chairman PROXMIRE. Because of the flexibility in defining "costs," do we not need a new definition of "profits"?

Mr. BAILEY. Frankly I had not thought of that aspect of it.

Chairman PROXMIRE. As you know, I have long been interested in return on an investment as a measure of profit.

Mr. BAILEY. Yes. We are trying to develop this in terms of total capital invested and equity capital.

Chairman PROXMIRE. How are you determining contractors' operating capital requirements and the Government contract portion of their business? I know it is a difficult thing to.

Mr. BAILEY. Well, it is difficult. But we are trying to allocate it basically along the same lines as depreciation and other type capital costs allocated to contracts. I might ask Mr. Flynn, who is in charge of this work in our division, to answer your question more specifically, if you do not mind.

Chairman PROXMIRE. Mr. Flynn?

Mr. FLYNN. Yes. On the individual contracts that we are looking at we are developing the actual costs as they occur under the contract, being in effect the work in process costs that the contractor is incurring. From this we are deducting out the progress payments as they are made so that the contractor's investment will be reduced to fully reflect the Government capital as contributed to the contract. Then we are taking a proportion of the fixed assets based on the best method we can get as to how much of these assets were employed in the contract performance. In some cases our allocation is based on the depreciation charge to the contract in proportion to the total depreciation, and in other cases we can specifically identify the assets that are utilized.

Then we are taking a look at the other assets that are involved in the contractor's performance of his business, such as prepaid expenses and so forth, and we are allocating this—and these are relatively small amounts—on the basis of the previous allocated items.

This gives us a pretty good picture, I think, of the assets involved in the contract performance. With this information and the profit made on the contracts, we are computing the percentage of return.

Chairman PROXMIRE. So you do make an effort to determine how much of the capital involved is government capital and how much is private capital?

Mr. FLYNN. Right.

Chairman PROXMIRE. You compute the return based on the amount of private capital involved?

Mr. FLYNN. Exactly.

Chairman PROXMIRE. You separate the Government capital?

Mr. FLYNN. Yes.

Chairman PROXMIRE. There is so much soft capital involved I see, that otherwise you get a distorted picture.

Mr. FLYNN. This is one of the specific things we pointed out in our questionnaire. We want the contractors to consider the progress payments and the fixed assets that are provided by the Government. Otherwise if we get an allocation based on cost of sales we will get an overload of contractor capital to Government work.

Chairman PROXMIRE. You see, what raises the question in my mind is the trouble we had getting information like this from you on Lockheed. We tried to get this on Lockheed, and as I recall we were not successful.

Mr. FLYNN. We are working it up on all the contracts we are reviewing. And we are trying to get the contractor to consider it in completing the questionnaire.

VERIFICATION OF INVESTMENT

Chairman PROXMIRE. How are you verifying other investment requirements, facilities, and the like?

Mr. FLYNN. As I mentioned, generally we are basing this on the depreciation charged to the contract. Also, we are taking a look at the contractor's procedures for allocation of expenses to get some idea of whether fair allocations are made to the contracts we are looking at. So we are trying to determine as best we can that allocations for investment in facilities are in balance with actual utilization.

Chairman PROXMIRE. Thank you, Mr. Flynn.

Could we have a sample, Mr. Staats, of the questionnaire you are using?

Mr. STAATS. I believe you have one. If not, we will be sure that you get one.

I would think, Mr. Chairman, you would not only want the questionnaire, but the letter which we sent transmitting the questionnaire and the instructions that went along with it.

Chairman PROXMIRE. We would like a copy of the questionnaire itself if you have it.

(The following information was subsequently supplied for the record by the General Accounting Office:)

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159896

MAR 25 1970

Gentlemen:

In Section 408(a) of Public Law 91-121, approved November 19, 1969, the Comptroller General was directed to conduct a study and review on a selective representative basis of the profits made by contractors and subcontractors on contracts on which there was no formally advertised competitive bidding entered into by the Department of Defense, National Aeronautics and Space Administration, and the Coast Guard as well as contracts entered into by the Atomic Energy Commission to meet requirements of the Department of Defense.

Section 408(b) of the Act also provides for contractors or subcontractors referred to above, upon request, to prepare and submit to the General Accounting Office information needed in conducting the study.

Your company is one of a number we have selected for inclusion in the study. We would appreciate your completing the profit study data forms in the enclosure in accordance with the instructions provided and forwarding the information to us at your earliest convenience, but no later than June 15, 1970. We are requesting information for either fiscal years or calendar years 1966 through 1969. If there will be a delay in obtaining the appropriate 1969 data, please furnish the information for prior years no later than June 15, 1970, and forward the 1969 information as soon as possible. Also, please indicate when the 1969 data will be furnished.

While Public Law 91-121 specifically calls for a study of contracts on which there is no formally advertised competitive bidding, we will also need information with respect to advertised defense contracts and commercial sales in order to review cost and capital allocations to negotiated sales. Further, there have been repeated charges of excessive profits on defense sales and counter charges of inadequate defense profits compared with the return on commercial sales. We firmly believe that it is in the best interests of both industry and the Government to present a meaningful comparison of profits on defense and commercial work on an overall basis. We, therefore, plan to present a comparison of this nature in our study report, at least with respect to the larger contractors representing a major portion of the defense business. In this regard we want to assure you that any confidential individual company data that we obtain relating to nondefense business will not be disclosed. We plan to report cost and profit data on a consolidated overall basis only.

The questionnaire requires that data be provided on a consolidated enterprise concept, including information on the parent company and all majority-owned domestic subsidiary companies. In multicorporate enterprises this will require the development of data at the subsidiary corporate level or lower and consolidation to report on the consolidated enterprise basis. In order to simplify the task of breaking out business data relating to the Federal agencies included in the study, you may disregard annual sales, including prime contract and subcontract work, of separate corporations in an enterprise group totaling less than 5 percent of the total annual aggregate enterprise sales to either of the two defense agency categories we have established for the study. One category is called "DOD" and includes the Defense Supply Agency and the Departments of the Army, Navy and Air Force. The second category is called "Other Defense Agencies" and includes the National Aeronautics and Space Administration, The Coast Guard, and the Atomic Energy Commission.

It is important that all defense sales and related subcontract sales, except for those not broken out in accordance with the instructions in the preceding paragraph, be included in the sales reported for DOD and the other defense agencies. Sales should be reported even though they might be exempt from the normal reporting requirements of other Government agencies, such as the Renegotiation Board. We are interested in all defense agency prime contract sales and subcontract sales that it is practical to identify down to the lowest tier.

If companies were acquired during the four-year period for which we are requesting data, we would like to have data for the full four-year period relating to such companies. If operating activities were disposed of during the four-year period for which some defense sales data are being reported, please identify the activity, the date disposed of, and the acquiring organization.

It is also important that data concerning all business of your company be submitted. In this regard please forward to GAO copies of the published financial statements of your company for the years 1966 through 1969 and explain any differences in the data presented in your published statements and in similar data submitted for use in this study.

You may be familiar with the defense industry profit studies that have been conducted by the Logistics Management Institute (LMI) during the past few years. We have been advised by the Department of Defense that LMI will suspend further profit study work until our report is issued.

We want to thank you for your contribution to this important effort and if you have any question concerning the completion of the profit study forms we suggest that you call the U.S. General Accounting Office nearest your location. A listing of the offices is included on pages 35 and 36 of the enclosure.

Very truly yours,

Comptroller General
of the United States

Enclosure

UNITED STATES GENERAL ACCOUNTING OFFICE

INSTRUCTIONS AND FORMS FOR

SUBMISSION OF DEFENSE INDUSTRY PROFIT STUDY DATA

Please return completed forms to:

Director, Defense Division
U. S. General Accounting Office
441 G Street, N. W.
Washington, D. C. 20548

Data to be submitted by June 15, 1970

INTRODUCTION

The Comptroller General has been directed by the 91st Congress of the United States to conduct a study and review on a selective representative basis of the profits made by contractors and subcontractors on contracts on which there is no formally advertised competitive bidding entered into by the Department of Defense, Coast Guard, and National Aeronautics and Space Administration, and on contracts entered into by the Atomic Energy Commission to meet requirements of the Department of Defense. This direction is included in Public Law 91-121, the Act authorizing Department of Defense appropriations for fiscal year 1970.

Specific language in Section 408 of Public Law 91-121 is:

"(a) The Comptroller General of the United States (hereinafter in this section referred to as the "Comptroller General") is authorized and directed, as soon as practicable after the date of enactment of this section, to conduct a study and review on a selective representative basis of the profits made by contractors and subcontractors on contracts on which there is no formally advertised competitive bidding entered into by the Department of the Army, the Department of the Navy, the Department of the Air Force, the Coast Guard, and the National Aeronautics and Space Administration under the authority of chapter 137 of title 10, United States Code, and on contracts entered into by the Atomic Energy Commission to meet requirements of the Department of Defense. The results of such study and review shall be submitted to the Congress as soon as practicable, but in no event later than December 31, 1970.

"(b) Any contractor or subcontractor referred to in subsection (a) of this section shall, upon the request of the Comptroller General, prepare and submit to the General Accounting Office such information maintained in the normal course of business by such contractor as the Comptroller General determines necessary or appropriate in conducting any study and review authorized by subsection (a) of this section. Information required under this subsection shall be submitted by a contractor or subcontractor in response to a written request made by the Comptroller General and shall be submitted in such form and detail as the Comptroller General may prescribe and shall be submitted within a reasonable period of time.

"(c) In order to determine the costs, including all types of direct and indirect costs, of performing any contract or subcontract referred to in subsection (a) of this section, and to determine the profit, if any, realized under any such contract or subcontract, either on a percentage of the cost basis, percentage of sales basis, or a return on private capital employed basis, the Comptroller General and authorized representatives of the General Accounting Office are authorized to audit and inspect and to make copies of any books, accounts, or other records of any such contractor or subcontractor.

"(d) Upon the request of the Comptroller General, or any officer or employee designated by him, the Committee on Armed Services of the House of Representatives or the Committee on Armed Services of the Senate may sign and issue subpoenas requiring the production of such books, accounts, or other records as may be material to the study and review carried out by the Comptroller General under this section.

"(e) Any disobedience to a subpoena issued by the Committee on Armed Services of the House of Representatives or the Committee on Armed Services of the Senate to carry out the provisions of this section shall be punishable as provided in section 102 of the Revised Statutes.

"(f) No book, account, or other record, or copy of any book, account, or record, of any contractor or subcontractor obtained by or for the Comptroller General under authority of this section which is not necessary for determining the profitability of any contract, as defined in subsection (a) of this section, between such contractor or subcontractor and the Department of Defense shall be available for examination, without the consent of such contractor or subcontractor, by any individual other than a duly authorized officer or employee of the General Accounting Office; and no officer or employee of the General Accounting Office shall disclose, to any person not authorized by the Comptroller General to receive such information, any information obtained under authority of this section relating to cost, expense, or profitability on any nondefense business transaction of any contractor or subcontractor.

"(g) The Comptroller General shall not disclose in any report made by him to the Congress or to either Committee on Armed Services under authority of this section any confidential information relating to the cost, expense, or profit of any contractor or subcontractor or any nondefense business transaction of such contractor or subcontractor."

While our study and report will be directed to contracts and subcontracts where there was no formally advertised competitive bidding, we need information concerning other sales of Defense contractors and subcontractors in order to check various allocations to the contract work covered by this study. Also, we believe that it is important to have some comparison of the return on defense sales with the return on commercial sales of defense contractors. Any such comparison that we make in our study report, however, will be on a total overall basis without disclosure of individual company results.

Throughout this instruction when we refer to DOD, we mean the Department of Defense including the Defense Supply Agency and the Departments of the Army, Navy, and Air Force. When we refer to other defense agencies we mean the National Aeronautics and Space Administration (NASA), the Coast Guard and the Atomic Energy Commission (AEC). In the case of AEC, we would like to have data reported as defense agency data only if it pertains to Department of Defense requirements. If it is impractical to segregate sales and other data pertaining to defense requirements, you may include information on your total AEC business. If this is done, however, please report in the remarks section that you are reporting on a combined basis.

The questionnaire has been separated into three parts. In part I contractors are asked to submit data for a four-year period on sales, profit, total capital investment, and equity capital investment by categories of sales. DOD, other than GOCO operations, constitutes one sales category. NASA, AEC and Coast Guard, other than GOCO operations of these agencies, constitute a second sales category. Other sales categories are (1) GOCO operations for DOD, (2) GOCO operations of other defense agencies, (3) other Federal Government sales, (4) commercial sales and (5) other business. The objective of obtaining this data is to enable us to develop various profit ratios which are necessary to respond to the provisions of Section 408 of Public Law 91-121.

In part II we are requesting separate breakdowns of sales and profit data by type of contract, i.e., cost-plus-fixed fee, cost-plus-award fee, etc., for DOD and the other defense agencies. This section also covers a four-year period.

Part III is provided for any explanations requested in parts I and II, and for any further explanatory data you consider necessary for the proper understanding of the data submitted.

We are requesting that data be provided on the consolidated enterprise concept unless otherwise provided in the transmittal letter accompanying this questionnaire. That is, data for all majority-owned domestic subsidiaries should be included. The term "majority-owned subsidiary" means a subsidiary more than fifty percent of whose outstanding securities representing the right, other than as affected by events of default, to vote for the election of directors, is owned by the subsidiary's parent and/or one or more of the parent's other majority-owned subsidiaries. Data for foreign subsidiaries may be included if such data is normally reported in your published statements to stockholders. Provision is made for segregating foreign subsidiary financial data along with information relating to sales not reasonably comparable with sales to the defense agencies.

In multicorporate enterprises, reporting on the consolidated enterprise basis will require development of data at the subsidiary corporate level or lower and consolidation. In order to simplify the task of breaking out defense business, you may disregard annual sales, including prime contract and subcontract work, of separate corporations in an enterprise group totaling less than 5 percent of the total annual aggregate enterprise sales to either DOD or the other defense agencies, as applicable.

It is important that all DOD and other defense agency sales and related subcontract sales, except for those not broken out in accordance with the 5 percent rule, be included in the sales reported for these agencies. Sales should be reported even though they might be exempt from the normal reporting requirements of other Government agencies, such as the Renegotiation Board. We are interested in all DOD and other defense agency prime contract sales and subcontract sales that it is practical to identify down to the lowest tier.

If companies were acquired during the four-year period for which we are requesting data, we would like to have data for the full four-year period relating to such companies. If operating activities were disposed of during the four-year period for which some defense sales data is being reported, please identify the activity, the date disposed of, and the acquiring organization.

It is also important that data concerning all business of your company be submitted. In this regard please forward to GAO copies of the published financial statements of your company for the years 1966 through 1969. In the remarks section please explain any differences in the data presented in your published statements and in similar data presented in this questionnaire. Also, please explain any changes in accounting methods having a material effect on information submitted and which occurred during the four years covered in our questionnaire.

After the questionnaires are received we plan to select a number for review at the contractor sites involved in order to make an evaluation of the reasonableness of the data submitted. It is important that all documents, workpapers, schedules, etc., developed in preparation of the questionnaire be retained for possible use if your questionnaire is selected for review.

INSTRUCTIONS FOR PART I
Summary of Defense Industry Financial Data

The following instructions should be used to complete the schedule--Summary of Defense Industry Financial Data--starting on page 20. Please indicate in the remarks section any pertinent general assumptions underlying your response to any particular section or line of data in this schedule.

Data listed on the form should, to the extent feasible, be consistent with data used as a basis for reports submitted to stockholders.

Data should be prepared based on the fiscal years or calendar years ending in the years indicated at the top of the columns provided.

Line No.		Description
1.	Page 20	Total sales: State total sales for the annual periods ending in the years indicated on the form. The total sales amounts in this section should equal the net sales amounts reflected in the company's published financial statements, exclusive of any sales reflecting the costs of operation of DOD and other defense agencies' GOCO plants, performance of operation and maintenance contracts and service contracts. These costs are to be reported on line 2. With the possible exception of GOCO costs, this is in accordance with Regulation S-X, of the Securities and Exchange Commission, Article 5, Rule 5-03, caption 1A--Gross sales less discounts and allowances.
1.1	Page 20	Sales to DOD: State the sales totals of prime contracts and subcontracts of DOD including all advertised and negotiated sales, for the same periods involved as indicated in 1 above. This is exclusive of sales, costs, profits or fees (1) for operation of DOD GOCO plants where the contractor operates the Government-owned facility, (2) relating to operation and maintenance contracts, and (3) relating to service contracts. These fees are to be reported on line 1.3 and related costs on line 2.1. Throughout this questionnaire where we refer to operation and maintenance contracts, we are referring to contracts to operate and maintain Government-owned facilities. We are not referring to all contracts financed with Operation and Maintenance appropriations.
1.2	Page 20	Sales to other defense agencies: State the sales totals of prime contracts and subcontracts of NASA, Coast Guard, and AEC defense work including all advertised and negotiated sales, for the same periods involved as indicated in 1 above. This is exclusive of sales, costs, profits or fees (1) for operation of other defense agency GOCO plants where the contractor operates the Government-owned facility, (2) relating to operation and maintenance contracts, and (3) relating to service contracts. These fees are to be reported on line 1.4 and related costs on line 2.2.

Line No.		Description
1.3	Page 20	Profits or fees earned for operation of DOD Government-owned contractor-operated (GOCO) plants, operation and maintenance contracts, and service contracts: List fees for operation of DOD plants where the contractor operates the Government-owned facility. Also include profits or fees earned on DOD service type contracts and DOD operation and maintenance contracts. The common feature of these contracts is the lack of need for the contractor to utilize any significant amount of his own assets in performing the contract. These profits or fees are exclusive of costs incurred in the operation of DOD GOCO plants, and in the performance of service or operation and maintenance contracts for which the contractor is reimbursed. The costs should be reported on line 2.1.
1.4	Page 20	Profits or fees earned for operation of NASA, Coast Guard and AEC defense Government-owned contractor-operated (GOCO) plants, operation and maintenance contracts, and service contracts: List fees for operation of NASA, Coast Guard and AEC plants where the contractor operates the Government-owned facility. Also include profits or fees earned on service type contracts and operation and maintenance contracts of these agencies. The common feature of these contracts is the lack of need for the contractor to utilize any significant amount of his own assets in performing the contract. These profits or fees are exclusive of costs incurred in the operation of GOCO plants, and in the performance of service or operation and maintenance contracts for which the contractor is reimbursed. The costs should be reported on line 2.2.
1.5	Page 20	Sales to other Federal Government agencies: State the total sales of prime contracts and subcontracts of other Federal Government agencies. This should include the total sales of prime contracts and subcontracts of all agencies other than the defense agencies. It should include AEC nondefense sales if it is practical to break out these sales. Otherwise, all AEC sales, other than those relating to GOCO operations, may be reported on line 1.2.
1.6	Page 20	Commercial Sales: State the total sales to commercial customers, state and local governments of the U. S. and sales to foreign governments. Do not include commercial sales or income from services which are not reasonably comparable with sales to the defense agencies. Examples of types of business which should not be reported include: financial and insurance services, auto and airplane leasing, food processing, broadcasting, employment agency services, and training schools. However, these sales should be included in item 1.7 below.
1.7	Page 20	Other Sales including Sales of Foreign Subsidiaries: State the balance of net sales which is not included on lines 1.1 through 1.6 and on line 2. This would include commercial sales or income from services which are not reasonably comparable with sales to the defense agencies and which were excluded from line 1.6 above. Also, sales of foreign subsidiaries should be reported on this line if such sales are included in your published statements. The total of lines 1.1 through 1.7 should equal the net sales amount reflected on line 1.

Line No.		Description
2.	Page 20	Costs of (1) operation of DOD and other defense agency GOCO plants, (2) performance of operation and maintenance contracts, and (3) performance of service contracts: State the costs incurred in the operation of Government-owned defense plants, and other Government-owned facilities operated by contractors for DOD and other defense agencies for a fee, or in some cases without fee. Also, include costs incurred in performing operation and maintenance contracts on Government-owned facilities as well as costs incurred in performing service type contracts. These amounts should not include contractor fees or profits paid by the Government which are to be reported separately under lines 1.3 and 1.4.
2.1	Page 21	Costs of (1) operation of DOD GOCO plants, (2) performance of DOD operation and maintenance contracts, and (3) performance of DOD service contracts: State the costs incurred in the operation of DOD Government-owned plants operated by contractors for the Government for a fee, or in some cases without fee. Also, include costs incurred in performing DOD operation and maintenance contracts on Government-owned facilities as well as costs incurred in performing DOD service type contracts. These amounts should not include contractor fees or profits paid by the Government which are to be reported separately under line 1.3.
2.2	Page 21	Costs of (1) operation of AEC, NASA and Coast Guard GOCO plants, (2) performance of operation and maintenance contracts, and (3) performance of service contracts: State the costs incurred in the operation of Government-owned Atomic Energy Commission, NASA or Coast Guard plants and other Government-owned facilities operated by contractors for these agencies for a fee, or in some cases without fee. Also, include costs incurred in performing operation and maintenance contracts on Government-owned facilities as well as costs incurred in performing service type contracts for these agencies. These amounts should not include contractor fees or profits paid by the Government which are to be reported separately under line 1.4.
3.	Page 21	Total profits before Federal income taxes: State the net income or loss before provision for Federal taxes on income and before reduction of profits as a result of renegotiation under the Renegotiation Act. This amount should be after deducting all costs that were disallowed or nonrecoverable under ASPR and AEC cost principles. State in the explanation section the basis on which profits are computed, i.e., completed contracts, on some percentage of completion, or other basis. Extraordinary items of income or expense (as defined in paragraph 21* of Opinion Number 9 of the Accounting Principles Board of the American Institute of Certified Public Accountants) generally should be reported on line 3.7. If any are included on lines 3.1 through 3.6 they should be identified and explained in Part III.

* See page 37 for language of paragraph 21 of APB Opinion No. 9.

Line No.		Description
3.1	Page 21	Profits before Federal income taxes on DOD work other than GOCO plant operations, operation and maintenance contracts and service contracts: State the amount of profit on DOD sales reported on line 1.1.
3.2	Page 21	Profits before Federal income taxes on other defense agency work other than GOCO plant operations, operation and maintenance contracts and service contracts: State the amount of profit on other defense agency sales reported on line 1.2.
3.3	Page 21	Profits before Federal income taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of DOD: State the amount of profit on DOD fees reported on line 1.3.
3.4	Page 21	Profits before Federal income taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies: State the amount of profit on other defense agency fees reported on line 1.4.
3.5	Page 21	Profits before Federal income taxes on sales to other Federal Government agencies: State the amount of profit that resulted from other Federal Government sales reported on line 1.5.
3.6	Page 21	Profits before Federal income taxes on commercial sales: State the amount of profit that resulted from commercial sales reported on line 1.6.
3.7	Page 21	Other profits before Federal income taxes: State the amount of profit that resulted from sales reported on line 1.7 plus or minus any miscellaneous or extraordinary income or expense not attributable to sales reported in items 1.1 through 1.6. The total of items 3.1 through 3.7 should equal the amount shown on line 3. If there is any difference between this amount and the amount shown in your published financial statements, please explain in the remarks section.
4.	Page 22	Total profits after Federal income taxes: State the net income or loss after provision for Federal taxes on income but before reduction of profits as a result of renegotiation under the Renegotiation Act. This amount should be after deducting all costs that were disallowed or nonrecoverable under ASPR and AEC principles.
4.1	Page 22	Profits after Federal income taxes on DOD work other than GOCO operations, operation and maintenance contracts, and service contracts: State the amount of profit after Federal income taxes applicable to DOD sales reported on line 1.1.

Line No.		Description
4.2	Page 22	Profits after Federal income taxes on other defense agency work other than GOCO operations, operation and maintenance contracts, and service contracts: State the amount of profit after Federal income taxes applicable to other defense agency sales reported on line 1.2.
4.3	Page 22	Profits after Federal income taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of DOD: State the amount of profit after Federal income taxes applicable to DOD fees reported on line 1.3.
4.4	Page 22	Profits after Federal income taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies: State the amount of profit after Federal income taxes applicable to other defense agency fees reported on line 1.4.
4.5	Page 22	Profits after Federal income taxes on sales to other Federal Government agencies: State the amount of profit after Federal income taxes that resulted from other Federal Government sales reported on line 1.5.
4.6	Page 22	Profits after Federal income taxes on commercial sales: State the amount of profit after Federal income taxes that resulted from commercial sales reported on line 1.6.
4.7	Page 22	Other profits after Federal income taxes: State the amount of profit after Federal income taxes that resulted from sales reported on line 1.7, plus or minus any miscellaneous or extraordinary income or expense items not attributable to sales reported in items 1.1 through 1.6. The total of items 4.1 through 4.7 should equal the amount shown on line 4. If there is any difference between this amount and the amount shown in your published financial statements, please explain in the remarks section.
5.	Page 22	Total interest on borrowed debt: State the total amount of interest expense reported in the published financial statements for the annual periods ending in the years indicated on the form. In determining return on total capital investment, we will add back the amounts shown as interest in this section to the profit data shown in sections 3 and 4. Interest should be allocated to the various categories of sales in the same proportion as total capital investment is allocated. See instructions for item 6 on page 10 regarding allocation of total capital investment.
5.1	Page 22	Portion of total interest on borrowed debt allocated to sales to DOD: State that portion of the total interest on borrowed debt allocated to the sales reported on line 1.1.

Line No.		Description
5.2	Page 22	Portion of total interest on borrowed debt allocated to sales to other defense agencies: State that portion of the total interest on borrowed debt allocated to the sales reported on line 1.2.
5.3	Page 23	Portion of total interest on borrowed debt, if any, allocated to GOCO plant operations, operation and maintenance contracts, and service contracts of DOD: State that portion of the total interest on borrowed debt, if any, allocated to the amounts reported on line 1.3 for DOD GOCO plant operations, operation and maintenance contracts, and service contracts and the related costs reported on line 2.1.
5.4	Page 23	Portion of total interest on borrowed debt, if any, allocated to GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies: State that portion of the total interest on borrowed debt, if any, allocated to the amounts reported on line 1.4 for other defense agency GOCO plant operations, operation and maintenance contracts, and service contracts and the related costs reported on line 2.2.
5.5	Page 23	Portion of interest on borrowed debt allocated to other Federal Government business: State that portion of total interest on borrowed debt allocated to sales to other Federal Government agencies as reported on line 1.5.
5.6	Page 23	Portion of interest on borrowed debt allocated to commercial business: State that portion of total interest on borrowed debt allocated to commercial sales reported on line 1.6.
5.7	Page 23	Portion of interest on borrowed debt allocated to other business: State that portion of total interest on borrowed debt allocated to other sales reported on line 1.7.
6.	Page 23	Total capital investment (TCI) other than that representing assets of the Federal Government: State the total capital employed in the enterprise other than that representing Federal Government assets furnished to facilitate contract performance. This amount should be equal to total assets including current assets, net book value of fixed assets, other assets, etc., shown in your published statements at the end of the year. We are interested in allocating the total capital employed to the various categories of sales in order to compute the rate of return on total capital regardless of whether it was provided by stockholders or creditors. Total Capital Investment should be allocated in the same proportions that the assets of the enterprise were employed in generating the sales amounts reported for the various sales categories listed in items 1.1 through 1.7. A few factors for consideration are outlined below.

Description

(a) If securities and cash are in excess of actual working capital requirements and/or being accumulated for a special purpose, such as expansion of commercial facilities, the excess cash and securities on hand should not be allocated to Government sales. Cash and securities actually used to provide working capital should be allocated based on actual usage in generating sales in the various categories.

(b) Cost of raw material inventories should be allocated in proportion to benefits received by various categories of sales. For example, work that involves large amounts of labor and purchased components and little in the way of raw material should be allocated a lesser portion of the cost of raw material inventories.

(c) Work in process inventories may be allocable largely to commercial work when outstanding Government advances, progress payments or cost reimbursements are offset against the value of inventories on hand for which the payments were made. Where Government payments have been taken up in sales or revenue accounts and where the value of the related production items is excluded from the inventory values being allocated, very little of the value of the remaining inventory may be allocable to sales to the defense agencies.

(d) Finished goods inventories are not normally required for Government work since items completed under Government contracts are generally shipped promptly or would be offset by advances, progress payments or cost reimbursements received from the Government. The latter would require similar treatment to that discussed above under work in process. Thus, it would appear that the bulk of the capital required to finance finished goods inventories should be allocated to commercial or other sales.

(e) The book value of fixed assets, less accumulated provision for depreciation should be allocated to the various categories of sales based on how these fixed assets are used. Where special accelerated depreciation methods have been allowed in the past in charging costs under Government contracts and/or in developing Government contract price proposals, and the company's financial statements do not reflect this increased depreciation, the book value of fixed assets and related stockholders equity should be reduced to recognize this situation. Any such adjustment should be discussed in the remarks section.

Also, if Government-owned assets are used, full consideration should be given to this factor in allocating the value of company-owned fixed assets. The preferred method of allocation is by physical designation, using aggregates or groups of assets. However, if defense and commercial work are processed on the same equipment, allocation on some other basis may be required. In such case an allocation based on depreciation charged would in many cases prove more realistic than an allocation based on cost of sales.

Line No.		Description
		It is important, to the extent possible, to allocate major assets such as inventories and fixed assets by the most desirable methods before resorting to more arbitrary methods for allocation of remaining less significant items. In order to have comparable data, it is also important to have capital allocations of the various companies made by the preferred methods outlined above to the extent possible. In the remarks section of the questionnaire please include a full explanation of the methods of allocation used. Also describe consideration given to progress payments, cost reimbursements and Government-furnished assets in making allocations. (See page 14 for an example of allocating TCI to categories of sales.)
6.1	Page 23	TCI applicable to sales to DOD: State the portion of capital shown on line 6 allocable to sales to DOD reported on line 1.1.
6.2	Page 23	TCI applicable to sales to other defense agencies: State the portion of capital shown on line 6 allocable to sales to other defense agencies reported on line 1.2.
6.3	Page 23	TCI, if any, applicable to DOD GOCO plant operations, operation and maintenance contracts, and service contracts: State the portion, if any, of capital reported on line 6 that is allocable to the profits or fees reported on line 1.3 and the related costs reported on line 2.1.
6.4	Page 24	TCI, if any, applicable to other defense agency GOCO plant operations, operation and maintenance contracts, and service contracts: State the portion, if any, of capital reported on line 6 that is allocable to the profits or fees reported on line 1.4 and the related costs reported on line 2.2.
6.5	Page 24	TCI applicable to sales to other Federal Government agencies: State the portion of capital reported on line 6 that is allocable to the sales to other Federal Government agencies reported on line 1.5.
6.6	Page 24	TCI applicable to commercial sales: State the total portion of capital reported on line 6 that is allocable to the commercial sales reported on line 1.6.
6.7	Page 24	TCI applicable to other sales: State the portion of capital reported on line 6 that is allocable to other sales reported on line 1.7.
		The total of items 6.1 through 6.7 should equal the total capital investment in assets of the enterprise as shown on line 6.

Line No.		Description
7.	Page 24	Contractor Equity Capital Investment (ECI): State the total equity capital of the enterprise at the end of each year as shown in the published balance sheets of the enterprise. This includes the amounts shown for capital shares, surplus, surplus reserves, and other equity items. Equity capital, for our purposes, can also be defined as total assets less (1) current liabilities, (2) long term debt, and (3) deferred credits of a liability nature. Deferred credits of a liability nature would include such items as deferred taxes and deferred employee benefits. The equity capital may be allocated to each category of sales by determining the percentage equity capital is of total capital at the end of each year and by applying the percentage to the total assets for each category of sales as determined for lines 6.1 through 6.7. An example showing the computation of total capital and equity capital for one year is outlined below:

DEFENSE CONTRACTOR PROFIT STUDY
EXAMPLE OF ALLOCATIONS OF TOTAL CAPITAL AND EQUITY
CAPITAL BASED ON HOW THE ASSETS WERE EMPLOYED
XYZ COMPANY

Assets per Balance Sheet	Assets (TCI) applicable to							
Current Assets	Total capital Investment	DOD	Other Defense Agencies	DOD GOCO	Other Defense Agencies GOCO	Other Fed.Gov. Sales	Com'l Sales	Other sales including Foreign Subsidiaries & Misc. items
Cash (see Note 1)	$195	$ 9	$ 3	$	$	$ 4	$ 125	$ 54
Marketable securities (see Note 1)	405	8	2			3	25	367
Notes and accounts Receivable (see Note 2)	500	22	4	2			400	72
Inventories (see Note 3)								
Raw Material	200	55	10	4	1	10	100	20
Work in Process	300	100	10			20	140	30
Finished Goods	400						350	50
Prepaid items (Insurance)(see Note 4)	130	50	5			10	50	15
Total current assets	$2130							
Investments and other Assets								
Investments and advances to associated companies, unconsolidated, outside the United States (see Note 5)	60							60
Other noncurrent assets (see Note 6)	10						10	
Total investments and other assets	70							
Property, Plant and Equipment (see Note 7)								
Land, Buildings, Machinery and Equip.	2490							
Less accumulated depreciation	(1300)							
	1190	370	40			20	660	100
Unamortized Special Tooling	280	85	10			10	165	10
Total Property Plant and Equipment	1470							
Total capital distributed to sales	$3670	$699	$84	$6	$1	$77	$2025	$778
Percentage of equity capital (see Note 8)	x.66-2/3	x.66-2/3		x.66-2/3		x.66-2/3	x.66-2/3	x.66-2/3
Equity capital distributed to sales (see Note 8)	$2447	$466	$56	$4	$1	$51	$1350	$519

Explanations of the Bases for Allocations of Assets to the various sales categories of the XYZ Company

Assets were allocated as follows to each sales category on the basis of benefits accruing to the category from that asset or the extent to which the sales category caused these assets to be acquired.

Note 1. Cash and marketable securities were allocated based on total requirements for the various programs. $367 of the securities relate to intended future expansion of facilities; hence this amount was placed in the Miscellaneous column.

Note 2. Notes and accounts receivable - allocations were based upon the related programs from which the amounts originated.

Note 3. Inventories were allocated on the basis of programs benefitting from or dependent upon these specific assets. Finished goods inventories were entirely allocated to commercial sales since all finished goods under Government contracts were shipped upon completion. Also, progress payments received on Government work in process reduced the capital required to finance the inventories involved.

Note 4. Prepaid insurance allocations were based on the items or programs benefitting or relating to the insurance coverages.

Note 5. Investments and advances to associated unconsolidated companies outside the United States related to the column which includes foreign subsidiary activities.

Note 6. Other noncurrent assets were found to be patterns and drawings relating to special commercial products which are going to be sold in future years to the general public.

Note 7. Land, buildings, machinery and equipment (net value), and unamortized special tooling were allocated on the basis of utilization on the indicated project groupings. Note that $100 relating to land purchased for possible future use was put into the miscellaneous column.

Note 8. The liabilities and capital assets of the XYZ Corporation were as follows at the end of the year as shown in its published statements.

Current liabilities	$ 900
Long term debt	323
Total Liabilities	$1,223
Capital stock and earned surplus	2,447
Total liabilities and capital	$3,670

Equity capital equals 66-2/3 of total capital ($2,447 ÷ $3,670)

Line No.		Description
7.1	Page 24	ECI applicable to DOD sales: State the equity capital employed in generating the sales reported on line 1.1.
7.2	Page 24	ECI applicable to other defense agency sales: State the equity capital employed in generating the sales reported on line 1.2.
7.3	Page 24	ECI, if any, of the contractor applicable to GOCO plant operations, operation and maintenance contracts, and service contracts of DOD: State your equity capital, if any, employed in generating the fees reported on line 1.3.
7.4	Page 24	ECI, if any, of the contractor applicable to GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies: State your equity capital, if any, employed in generating the fees reported on line 1.4.
7.5	Page 24	ECI applicable to other Federal Government sales: State the equity capital employed in generating the sales reported on line 1.5.
7.6	Page 24	ECI applicable to commercial sales: State the equity capital employed in generating the sales reported on line 1.6.
7.7	Page 25	ECI applicable to other sales: State the equity capital employed in generating the sales reported on line 1.7.
8.	Page 25	Facilities: In this section data is to be provided on (1) the amount of contractor-owned facilities at cost and net book value and the amounts that were allocated to DOD sales, (2) the amount of contractor-owned facilities at cost and net book value and the amounts that were allocated to other defense agency sales, (3) the amount of Government-owned plant and equipment--at cost and estimated net book value--that was used on DOD business, (4) the amount of Government-owned plant and equipment--at cost and estimated net book value--that was used on other defense agency business, (5) the amount of leased plant and equipment--at estimated net book value that was used on DOD business, and (6) the amount of leased plant and equipment--at estimated net book value that was used on other defense agency business during the reporting periods--1966 through 1969. This information will be used in reviewing allocations of total capital and equity capital to the defense agencies. The portion of the contractor's fixed assets, at cost and net book value, should be assigned to the various categories of sales on the basis suggested in item (e) page 11. Allocations of Government-owned fixed assets should be based on the extent of use. Allocations of leased facilities should be based on how rental costs were charged to the various categories of sales.
8.1	Page 25	Cost of contractor-owned fixed assets: State the cost of contractor-owned fixed assets at the end of each year listed.

Line No.		Description
8.2	Page 25	Portion of the cost of contractor-owned fixed assets allocated to sales to DOD: State the amounts of the cost of contractor-owned fixed assets listed on line 8.1 allocated to DOD sales listed on line 1.1.
8.3	Page 25	Portion of the cost of contractor-owned fixed assets allocated to sales to other defense agencies: State the amounts of the cost of contractor-owned fixed assets listed on line 8.1 allocated to other defense agency sales listed on line 1.2.
8.4	Page 25	Net book value of contractor-owned fixed assets: State the net book value of contractor-owned fixed assets at the end of each year listed.
8.5	Page 25	Portion of the net book value of contractor-owned fixed assets allocated to sales to DOD: State the amounts of the net book value of contractor-owned assets listed on line 8.4 allocated to DOD sales listed on line 1.1.
8.6	Page 25	Portion of the net book value of contractor-owned fixed assets allocated to sales to other defense agencies: State the amounts of the net book value of contractor-owned assets listed on line 8.4 allocated to other defense agency sales listed on line 1.2.
8.7	Page 25	Government-owned plant and equipment--at cost: State the total amount of Government-owned plant and equipment, at cost, allocable to sales to all defense agencies and their GOCO operations for the annual periods ending in the years indicated on the form. Do not include Government-owned plant and equipment relating to operation and maintenance and service contracts.
8.8	Page 25	Portion of Government-owned plant and equipment, at cost, allocated to sales to DOD: State that portion of Government-owned plant and equipment, at cost, listed on line 8.7 allocated to the sales reported on line 1.1 for the annual periods ending in the years indicated on the form.
8.9	Page 25	Portion of Government-owned plant and equipment, at cost, allocated to sales to other defense agencies: State that portion of Government-owned plant and equipment, at cost, listed on line 8.7 allocated to the sales reported on line 1.2 for the annual periods ending in the years indicated on the form.
8.10	Page 25	Portion of Government-owned plant and equipment, at cost, allocated to GOCO plant operations of DOD for which profits or fees are shown separately on line 1.3: State the cost of Government-owned plant and equipment listed on line 8.7 allocated to GOCO plant operations listed on line 1.3.

Line No.		Description
8.11	Page 25	Portion of Government-owned plant and equipment, at cost, allocated to GOCO plant operations of other defense agencies for which profits or fees are shown separately on line 1.4: State the cost of Government-owned plant and equipment listed on line 8.7 allocated to GOCO plant operations listed on line 1.4.
8.12	Page 26	Government-owned plant and equipment--estimated net book value: State the total estimated net book value of Government-owned plant equipment. The net book value of Government-owned facilities should be estimated as if company depreciation policies and rates had been applied from the date of acquisition. For AEC-GOCO plants use AEC depreciation rates to determine net book value.
8.13	Page 26	Portion of Government-owned plant and equipment, estimated net book value, allocated to sales to DOD: State the estimated net book value of Government-owned plant and equipment listed on line 8.12 that is allocated to the sales listed on line 1.1 for the annual periods ending in the years indicated on the form.
8.14	Page 26	Portion of Government-owned plant and equipment, estimated net book value, allocated to sales to other defense agencies: State the estimated net book value of Government-owned plant and equipment listed on line 8.12 that is allocated to the sales listed on line 1.2 for the annual periods ending in the years indicated on the form.
8.15	Page 26	Portion of Government-owned plant and equipment, estimated net book value, allocated to GOCO plant operations of DOD: State the estimated net book value of Government-owned plant and equipment listed on line 8.12 allocated to DOD GOCO plant operations for which profits or fees are listed separately on line 1.3.
8.16	Page 26	Portion of Government-owned plant and equipment, estimated net book value, allocated to GOCO plant operations of other defense agencies: State the estimated net book value of Government-owned plant and equipment listed on line 8.12 that is allocated to GOCO plant operations for which profits or fees are listed separately on line 1.4.
8.17	Page 26	Leased plant and equipment estimated net book value: State the total amount of leased plant and equipment, at estimated book value, for the annual periods ending in the years indicated on the form. If net book value cannot be determined please list estimated cost and indicate that it is estimated cost.

Line No.		Description
8.18	Page 26	Portion of leased plant and equipment allocated to DOD sales: State the total amount of leased plant and equipment, at estimated book value, allocated to DOD sales for the annual periods ending in the years indicated on the form. If net book value cannot be determined please list estimated cost and indicate that it is estimated cost.
8.19	Page 26	Portion of leased plant and equipment allocated to other defense agency sales: State the total amount of leased plant and equipment, at estimated book value, allocated to other defense agency sales for the annual periods ending in the years indicated on the form. If net book value cannot be determined please list estimated cost and indicate that it is estimated cost.
9.	Page 26	Total unliquidated advances and progress payments of DOD exclusive of progress payments or reimbursements in connection with GOCO operations, operation and maintenance contracts, and service contracts: State the average annual unliquidated progress payments for the reporting periods indicated on the form. The unliquidated portion of the progress payments represents the cumulative progress payments received less all amounts liquidated, generally as a result of delivery of end items. The average unliquidated progress payments for the reporting periods should be computed based on the outstanding balances at the end of each month in the period. Cost reimbursement under cost type contracts should not be included.
9.1	Page 26	Total unliquidated advances and progress payments of other defense agencies exclusive of progress payments or reimbursements in connection with GOCO operations, operation and maintenance contracts, and service contracts: State the average annual unliquidated progress payments for the reporting periods indicated on the form. The unliquidated portion of the progress payments represents the cumulative progress payments received less all amounts liquidated, generally as a result of delivery of end items. The average unliquidated progress payments for the reporting periods should be computed based on the outstanding balances at the end of each month in the period. Cost reimbursement under cost type contracts should not be included.

PART I

SUMMARY OF DEFENSE INDUSTRY FINANCIAL DATA
(THOUSANDS OF DOLLARS)

(See instructions beginning on page 5)

	CALENDAR OR FISCAL YEARS ENDED _____			
	1966	1967	1968	1969
1. Total Sales	$_____	$_____	$_____	$_____
1.1 Sales to DOD	_____	_____	_____	_____
1.2 Sales to other defense agencies	_____	_____	_____	_____
1.3 Profits or fees earned for operation of DOD Government-owned contractor-operated (GOCO) plants, operation and maintenance contracts, and service contracts	_____	_____	_____	_____
1.4 Profits or fees earned for operation of NASA, Coast Guard, and AEC Government-owned contractor-operated (GOCO) plants, operation and maintenance contracts, and service contracts	_____	_____	_____	_____
1.5 Sales to other Federal Government agencies	_____	_____	_____	_____
1.6 Commercial sales	_____	_____	_____	_____
1.7 Other sales including sales of foreign subsidiaries	_____	_____	_____	_____
2. Total costs of operation of DOD and other defense agencies GOCO plants, performance of operation and maintenance contracts and service contracts	_____	_____	_____	_____

		1966	1967	1968	1969
			(Thousands of dollars)		
2.1	Costs of operation of DOD GOCO plants, performance of DOD operation and maintenance contracts and DOD service contracts exclusive of fees	$	$	$	$
2.2	Costs of operation of NASA, Coast Guard, and AEC defense GOCO plants, performance of other defense agency operation and maintenance contracts and other defense agency service contracts				
3.	Total profits before Federal Income Taxes				
3.1	Profits on DOD sales reported on line 1.1				
3.2	Profits on other defense agency sales reported on line 1.2				
3.3	Profits on DOD GOCO operations, operation and maintenance contracts, and service contracts reported on line 1.3				
3.4	Profits on other defense agency GOCO operations, operation and maintenance contracts, and service contracts reported on line 1.4				
3.5	Profits on other Federal Government sales reported on line 1.5				
3.6	Profits on commercial sales reported on line 1.6				
3.7	Profits on other sales and other income reported on line 1.7				

	1966	1967	1968	1969
		(Thousands of dollars)		
4. Total profits after Federal Income Taxes	$_____	$_____	$_____	$_____
4.1 Profits after Federal Income Taxes on DOD work other than GOCO operations, operation and maintenance contracts, and service contracts	_____	_____	_____	_____
4.2 Profits after Federal Income Taxes on other defense agency work other than GOCO operations, operation and maintenance contracts, and service contracts	_____	_____	_____	_____
4.3 Profits after Federal Income Taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of DOD	_____	_____	_____	_____
4.4 Profits after Federal Income Taxes on GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies	_____	_____	_____	_____
4.5 Profits after Federal Income Taxes on sales to other Federal Government agencies	_____	_____	_____	_____
4.6 Profits after Federal Income Taxes on commercial sales	_____	_____	_____	_____
4.7 Other profits after Federal Income Taxes	_____	_____	_____	_____
5. Total interest on borrowed debt	_____	_____	_____	_____
5.1 Portion of 5 allocated to DOD business	_____	_____	_____	_____
5.2 Portion of 5 allocated to other defense agency business	_____	_____	_____	_____

	1966	1967	1968	1969
		(Thousands of dollars)		
5.3 Portion of 5, if any, allocated to GOCO plant operations, operation and maintenance contracts, and service contracts of DOD	$	$	$	$
5.4 Portion of 5, if any, allocated to GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies				
5.5 Portion of 5 allocated to other Federal Government business				
5.6 Portion of 5 allocated to commercial business				
5.7 Portion of 5 allocated to other business				
6. Total Capital Investment (TCI)				
6.1 TCI applicable to DOD sales other than GOCO plant operations, operation and maintenance contracts, and service contracts				
6.2 TCI applicable to other defense agency sales other than GOCO plant operations, operation and maintenance contracts, and service contracts				
6.3 Contractor TCI, if any, applicable to DOD GOCO plant operations, operation and maintenance contracts, and service contracts				

	1966	1967	1968	1969
		(Thousands of dollars)		
6.4 Contractor TCI, if any, applicable to other defense agency GOCO plant operations, operation and maintenance contracts, and service contracts	$	$	$	$
6.5 TCI applicable to sales to other Federal Government agencies				
6.6 TCI applicable to commercial sales				
6.7 TCI applicable to other sales				
7. Contractor Equity Capital Investment (ECI)				
7.1 ECI applicable to DOD sales				
7.2 ECI applicable to other defense agency sales				
7.3 ECI, if any, of the contractor applicable to GOCO plant operations, operation and maintenance contracts, and service contracts of DOD				
7.4 ECI, if any, of the contractor applicable to GOCO plant operations, operation and maintenance contracts, and service contracts of other defense agencies				
7.5 ECI applicable to sales to other Federal Government agencies				
7.6 ECI applicable to commercial sales				

	1966	1967	1968	1969
		(Thousands of dollars)		
7.7 ECI applicable to other sales	$	$	$	$
8. Facilities				
8.1 Cost of contractor-owned fixed assets				
8.2 Portion of 8.1 allocated to sales to DOD				
8.3 Portion of 8.1 allocated to sales to other defense agencies				
8.4 Net book value of contractor-owned fixed assets				
8.5 Portion of 8.4 allocated to sales to DOD				
8.6 Portion of 8.4 allocated to sales to other defense agencies				
8.7 Government-owned plant and equipment--at cost				
8.8 Portion of 8.7 allocated to DOD sales reported on line 1.1				
8.9 Portion of 8.7 allocated to other defense agency sales reported on line 1.2				
8.10 Portion of 8.7 allocated to GOCO plant operations of DOD for which fees are shown separately under line 1.3				
8.11 Portion of 8.7 allocated to GOCO plant operations of other defense agencies for which fees are shown separately under line 1.4				

		1966	1967	1968	1969
			(Thousands of dollars)		
8.12	Government-owned plant and equipment--estimated net book value	$	$	$	$
8.13	Portion of 8.12 allocated to DOD sales reported on line 1.1				
8.14	Portion of 8.12 allocated to other defense agency sales reported on line 1.2				
8.15	Portion of 8.12 allocated to GOCO plant operations of DOD				
8.16	Portion of 8.12 allocated to GOCO plant operations of other defense agencies				
8.17	Leased plant and equipment--estimated net book value				
8.18	Portion of 8.17 allocated to DOD sales reported on line 1.1				
8.19	Portion of 8.17 allocated to other defense agency sales reported on line 1.2				
9.	Total unliquidated advances and progress payments exclusive of reimbursements under GOCO contracts, operation and maintenance contracts, and service contracts of DOD				
9.1	Total unliquidated advances and progress payments exclusive of reimbursements under GOCO contracts, operation and maintenance contracts, and service contracts of other defense agencies				

INSTRUCTIONS FOR PART II

SUMMARY OF DATA BY TYPE OF CONTRACT

In the schedule on page 29, we are requesting by type of contract, i.e., cost plus fixed fee, fixed price incentive, etc., the amount of DOD sales recorded and the amount of profit realized on these sales for the years 1966 through 1969 for both prime contracts and subcontracts regardless of whether or not such sales were subject to renegotiation. Exclude contracts for operation of GOCO plants, operation and maintenance contracts, and service contracts. Where we refer to profit in this schedule we are referring to profit before Federal income taxes. In the schedule on page 30 we are requesting the same data by type of contract for the other defense agencies (NASA, AEC and Coast Guard).

Subcontract awards normally do not meet the established Government standards for formally advertised competitive contracts. Therefore, probably all subcontracts should be classified as negotiated contract types. Prime contracts awarded as a result of two-step formal advertising should also be classified as negotiated contracts.

Section No.	Description
1.	Cost plus fixed fee contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
2.	Cost plus award fee contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
3.	Cost plus incentive fee contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
4.	Fixed price incentive contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
5.	Fixed price redeterminable contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
6.	Negotiated firm fixed price contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.

Section No.	Description
7.	Other negotiated contracts: State in the annual periods ending in the years indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for any other negotiated contracts not listed above.
8.	Total negotiated contracts: State the total of the sales and profit figures shown in sections 1 through 7.
9.	Formally advertised competitive contracts: State in the annual periods ending in the year indicated on the form, by prime contract and subcontract, the amount of sales generated and the amount of profit realized for this type of contract.
10.	Other contracts: State in the annual periods ending in the years indicated on the form, by prime contracts and subcontracts, the amount of sales generated and the amount of profit realized on contracts other than the types listed on this form.
11.	Totals: State the total of the sales and profit figures shown in sections 8 through 10. These amounts should agree with the amounts shown in Part I. The totals on page 29 section 11 should agree with the amounts on line 1.1 sales to DOD, page 20 and line 3.1 Profits on DOD sales, page 21. The totals on page 30, section 11, should agree with the amount on line 1.2, sales to other defense agencies, page 20 and line 3.2, Profits on other defense agency sales, page 21.

41-698 O - 70 pt. 2 -- 6

DD-19 (Rev Mar. 70)

PART II
SUMMARY OF DATA BY TYPE OF CONTRACT
DEPARTMENT OF DEFENSE (DOD)

(THOUSANDS OF DOLLARS)		1966		1967		1968		1969	
		PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS
COST PLUS FIXED FEE 1	A. SALES								
	B. PROFITS								
COST PLUS AWARD FEE 2	A. SALES								
	B. PROFITS								
COST PLUS INCENTIVE FEE 3	A. SALES								
	B. PROFITS								
FIXED PRICE INCENTIVE 4	A. SALES								
	B. PROFITS								
FIXED PRICE REDETERMINABLE 5	A. SALES								
	B. PROFITS								
NEGOTIATED FIRM FIXED PRICE 6	A. SALES								
	B. PROFITS								
OTHER NEGOTIATED 7	A. SALES								
	B. PROFITS								
TOTALS OF NEGOTIATED 8	A. SALES								
	B. PROFITS								
ADVERTISED COMPETITIVE 9	A. SALES								
	B. PROFITS								
OTHER 10	A. SALES								
	B. PROFITS								
TOTALS 11	A. SALES								
	B. PROFITS								

SEE INSTRUCTIONS BEGINNING ON PAGE 27

PART II

SUMMARY OF DATA BY TYPE OF CONTRACT

OTHER DEFENSE AGENCIES

OD-19A (New Mar. 70)

(THOUSANDS OF DOLLARS)		1966		1967		1968		1969	
		PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS	PRIME CONTRACTS	SUBCONTRACTS
COST PLUS FIXED FEE 1	A. SALES								
	B. PROFITS								
COST PLUS AWARD FEE 2	A. SALES								
	B. PROFITS								
COST PLUS INCENTIVE FEE 3	A. SALES								
	B. PROFITS								
FIXED PRICE INCENTIVE 4	A. SALES								
	B. PROFITS								
FIXED PRICE REDETERMI-NABLE 5	A. SALES								
	B. PROFITS								
NEGOTIATED FIRM FIXED PRICE 6	A. SALES								
	B. PROFITS								
OTHER NEGOTIATED 7	A. SALES								
	B. PROFITS								
TOTALS OF NEGOTIATED 8	A. SALES								
	B. PROFITS								
ADVERTISED COMPETITIVE 9	A. SALES								
	B. PROFITS								
OTHER 10	A. SALES								
	B. PROFITS								
TOTALS 11	A. SALES								
	B. PROFITS								

SEE INSTRUCTIONS BEGINNING ON PAGE 27

INSTRUCTIONS FOR PART III

REMARKS

It is requested that an analysis of the data provided in Parts I and II be made in order to assure the use of representative company data for comparison of DOD business; other defense agency business; other Federal Government business; and commercial business of the company. Provide narrative explanation with analysis to the extent needed. For example, renegotiation refunds and liabilities, and pending overhead negotiations of major significance should be noted by year.

This section should also be used to provide any explanations requested in Parts I and II. For example, a full explanation should be included of the methods used in making the allocations of total capital investment and equity capital investment requested in Part I, items 6 and 7. Space is provided on page 34 for the financial data submitted to be signed by an appropriate company official.

REMARKS

REMARKS

REMARKS

DATE _____

_____
Name Title

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Excerpt from American Institute of Certified Public Accountants
Accounting Principles Board - Opinion No. 9

"Criteria for Extraordinary Items Related to the Current Period

21. The segregation in the income statement of the effects of events and transactions which have occurred during the current period, which are of an extraordinary nature and whose effects are material requires the exercise of judgment. (In determining materiality, items of a similar nature should be considered in the aggregate. Dissimilar items should be considered individually; however, if they are few in number, they should be considered in the aggregate.) Such events and transactions are identified primarily by the nature of the underlying occurrence. They will be of a character significantly different from the typical or customary business activities of the entity. Accordingly, they will be events and transactions of material effect which would not be expected to recur frequently and which would not be considered as recurring factors in any evaluation of the ordinary operating processes of the business. Examples of extraordinary items, assuming that each case qualifies under the criteria outlined above, include material gains or losses (or provisions for losses) from (a) the sale or abandonment of a plant or a significant segment of the business, (b) the sale of an investment not acquired for resale, (c) the write-off of goodwill due to unusual events or developments within the period, (d) the condemnation or expropriation of properties and (e) a major devaluation of a foreign currency. As indicated above, such material items, less applicable income tax effect, should be segregated, but reflected in the determination of net income.

22. Certain gains or losses (or provisions for losses), regardless of size, do not constitute extraordinary items (or prior period adjustments) because they are of a character typical of the customary business activities of the entity. Examples include (a) write-downs of receivables, inventories and research and development costs, (b) adjustments of accrued contract prices and (c) gains or losses from fluctuations of foreign exchange. The effects of items of this nature should be reflected in the determination of income before extraordinary items. If such effects are material, disclosure is recommended."

Chairman PROXMIRE. Now, those are the questions I had on the profit part of it.

You may proceed.

FEASIBILITY OF USING "SHOULD COST" CONCEPTS

Mr. STAATS. We delivered to you today, Mr. Chairman, our finished report on the feasibility of using "should cost" concepts in Government procurement and auditing. We will summarize very briefly in this next section what is in that report.

The subcommittee requested that we undertake this study in a report on the economics of procurement in May 1969. We have been working on this subject since that time. An interim report was presented in testimony that Mr. Keller presented to the committee last December; and I will read the conclusions we reached in the report:

1. Our tentative opinion is that it is feasible for GAO to incorporate "should cost" concepts to a greater extent in its postaward reviews. However, in order to obtain better insight into the circumstances under which these concepts should be used, we are performing some trial applications. These trial reviews are intended to provide answers to such questions as—

(*a*) What problems may be met in making these "should cost" reviews,

(*b*) What size of program or contractor activity should be reviewed,

(*c*) What type of contract would be most susceptible for these reviews, and

(*d*) What benefits can be expected.

We are doing work in four different locations. While our conclusions are tentative, we are reasonably certain that we can develop some guidelines which can be used in our postaward reviews.

2. Our second conclusion is that the greatest opportunity for savings to the Government in the application of a "should cost" review would be prior to the award of contracts—during the prenegotiation evaluation of contractors' price proposals. At this point in time the results would be of maximum benefit to the Government negotiator in arriving at a fair and reasonable price. In addition, the contractor generally would be more willing to implement corrective procedures during this time, since he stands the greatest opportunity to realize the most benefits from any constructive recommendations developed during the review. Thus, we believe that the procuring agencies can make greater use of such reviews than at present prior to price negotiations.

3. In addition to the preaward reviews, Government agencies also should consider performing "should cost" reviews selectively on a postaward basis. These reviews could provide the Government with valuable data on contractors' performance and cost consciousness, and the adequacy of the Government's prenegotiation efforts.

4. The extent and depth of the application of "should cost" concepts should be flexible. "Should cost" reviews at one contractor location could cover his entire operation, whereas at another contractor facility, it might be feasible to review only one or two of his major functions. The degree to which the "should cost" concepts ought to be applied at any given location will depend upon the information

developed in the initial stages of the review, and the confidence that can be placed on the efficiency of the contractor's day-to-day operations.

5. It should be recognized that the benefits that can be derived from these reviews are dependent in large part on the contractor's willingness to cooperate with the review team. Reviews of this type to be effective require not only access to all books and records, but also access to middle and top management officials, who can explain how the company's operations are managed and controlled, who are willing to discuss and consider suggestions for improvements made by the review team and who stand ready to make changes that appear to be constructive and practical.

These are the five principal conclusions. They are not substantially different from those we reported in December. But we have done a great deal of work on this subject, Mr. Chairman, and I hope and believe that you will find the report which we have presented to you a useful document.

I do not believe I need to cover anything more here unless you have questions.

Chairman PROXMIRE. Let me ask you about the "should cost" approach. The "should cost" approach, it seems to me, is a tool that can be enormously helpful in reducing procurement costs, or at least giving us a much clearer picture of just what it says, what an operation should cost. In these negotiated procurements, which constitute almost 90 percent of all our procurement, the cost is the whole procurement, really, and how much the Government has to pay. Unless we get some kind of standard developed in each case with a "should cost" analysis, we are not going to be in a very strong position to determine how much we are losing and how much efficiency will contribute to reducing cost, and so forth.

Let me ask, using the "should cost" approach, will you be able to quantify inefficiencies (fat) and avoidable expenses in procurement programs?

How does this differ from approaches now commonly used?

Mr. STAATS. I would like to comment first with respect to the use of the "should cost" concept in relation to preaward negotiations. As I see it, what is involved in our conclusions is that we believe that the Government on its side should considerably expand its efforts to make reviews at the contractor's plant in advance of arriving at a price for the contract; this would include ways and means in which he can alter his operations to reduce the cost to the Government. It is a matter of degree in part, because some of this is being done today, although the heavy emphasis——

Chairman PROXMIRE. Let me just interrupt to say that is it not also true that if you do it in advance of production you are in a much stronger position to determine what the actual cost is going to be and therefore determine whether it is worth the costs?

Mr. STAATS. I think that is a correct statement.

Chairman PROXMIRE. What has happened in the past is that we know in some cases at least that the Congress has had a very inaccurate picture of what a weapons system is going to cost, the overruns testify to that, some 50 percent, 100 percent, 200 percent. And if we knew the cost would be that great it is possible we might get some other weapon, or might not get the weapon at all.

"SHOULD COST" DISTINGUISHED FROM HISTORICAL COSTS

Mr. STAATS. The heavy emphasis in the past has been to use historical costs, or known costs based upon information provided under the Truth-in-Negotiations law. What "should cost" does is to emphasize the need for trying to develop ways and means of reducing costs below those which would otherwise be accepted in the contract negotiations. And the certain byproduct of this would be to arrive at a better fix on what those costs will actually be, even if you did not realize any savings, because it would be a more detailed analysis which would be helpful to the negotiator in arriving at a fair and reasonable contract price.

The extent to which it is feasible to do this has a number of variables in it, Mr. Chairman. One of these is the urgency involved in the procurement. If you have a very short time, obviously you have a very different situation than when you have an opportunity to assemble a survey team and work with the contractor in reviewing either his entire operation or the critical operations that may pertain to that particular contract.

It will also depend in part on the extent to which there is really effective competition, because if there is really effective competition, then the contractor would be motivated on his own to either seek help from a management consulting organization, or with his own staff to identify and cut unnecessary costs.

It is in the sole source area particularly, which constitutes roughly 50 percent of the defense contracts, if I am not mistaken, that I believe that this device has its greatest potential. I believe that you will get testimony from the services to this effect.

PRIVATE INDUSTRY EXPERIENCE

I believe this is also the experience of private industry, which has used this approach—that working with the contractor in advance of the negotiations leading to a firm contract is where the real payoff from this concept can be realized.

Chairman PROXMIRE. We think it will do two things: No. 1, it will give a much clearer picture of the likely cost of procurement, and No. 2, it would help to indicate the areas of inefficiency and avoidable expense.

Mr. STAATS. Sears, Roebuck has used this approach, as you know.

Chairman PROXMIRE. The answer is yes to that question?

Mr. STAATS. Yes.

Chairman PROXMIRE. It would do these two things?

Mr. STAATS. Right.

Sears, Roebuck has used their approach in pricing out the contracts with the suppliers of Sears, Roebuck. As you know, they do not manufacture anything. They take great pride, as a matter of fact, in what they have been able to do working with their suppliers, not only on reducing costs but also in insuring quality, and performance on schedule, all these things which are troublesome to the Government in its procurement operations.

Chairman PROXMIRE. Are any of the Services now actively conducting "should cost" studies? If so, are you monitoring them?

Army Experience

Mr. Staats. I believe the Army is doing some studies in this field. Mr. Bailey, or Mr. Grosshans could answer in more detail on that.

Chairman Proxmire. Are you monitoring those Army studies?

Mr. Bailey. The studies that we have been aware of in the Department of Defense are really in their early stages. And I do not think that as yet too much has been accomplished. They are on the drawing board, they are in the works.

Chairman Proxmire. This is discouraging. They are on the drawing board. Are they confined only to the Army? What about the Air Force and the Navy? They are not using these today?

Mr. Bailey. We get differing information, Mr. Chairman. However, we understand the Army is doing a "should cost" review at Raytheon with about 25 people. At some places the claim is made that some of this work is being done. In other places we get information that it is really not a full-blown should cost review that is being performed. So I would hesitate to say whether or not they really are doing it. We do intend to keep in touch with what they claim is being done, and we will naturally see how well they implement the results.

Chairman Proxmire. Are there "should cost" studies that have been made that you have reviewed?

Mr. Bailey. Of course the classic one is the engines for the F–111. We have gone over this in substantial detail.

Chairman Proxmire. How about the improved Hawk missile?

Mr. Bailey. The which?

Chairman Proxmire. The Hawk missile, the Army.

Mr. Bailey. To my knowledge we have not looked at the "should cost" review on that. Again, may I call on one of my colleagues to answer your question specifically?

Chairman Proxmire. Yes, indeed.

Mr. Grosshans. I am Werner Grosshans, Assistant Regional Manager, San Francisco.

In regard to the question, I am not aware of the Hawk missile review, but we have talked with Mr. Fitzgerald, and he did mention three basic studies that were involved. These were the standard missile, with General Dynamics; the Sub-Roc, which was awarded to Goodyear, and the Mark 48, which was a Westinghouse torpedo program, as you are well aware. But to answer your question specifically, whether we have reviewed these efforts, the answer to that is, we have not. This portion of the review has dealt primarily with what has been done, what is the status of "should cost" and what should be included in a "should cost" review, rather than going into a detailed study as to what has been done.

Navy Experience: F–111 Engine Study

Now, we did review the effort on the F–111 to a great extent. We have reviewed the detailed reports that came out of that, as well as the reports which the team's subcommittee prepared.

Chairman Proxmire. The F–111, I take it, is the major "should cost" study which you have studied, is that correct?

Mr. Grosshans. That is correct, Mr. Chairman.

Chairman PROXMIRE. Let me ask, how much has that study, the F–111 study, how much has the cost of the study been to the Air Force?

Mr. GROSSHANS. Mr. Rule testified to that before another committee, and he indicated roughly about $300,000. Now, preceding that effort, of course, Performance Technology Corp. did perform a review similar to the study that was performed by the special task force. That was considerably less. Roughly about $70,000 to $80,000 was expended on that.

Chairman PROXMIRE. $70,000 to $80,000 was expended by Performance Technology?

Mr. GROSSHANS. Correct, this was under a contract with the Navy.

Chairman PROXMIRE. That was sole cost to the Navy? I said the Air Force, I meant the Navy.

Mr. GROSSHANS. That is correct, Mr. Chairman.

Chairman PROXMIRE. That was the total cost to the Navy?

Mr. GROSSHANS. Yes.

Following these special task force efforts that the Navy team performed there have been several contracts awarded to consulting firms to implement some of the corrective actions that were recommended during that effort. So basically the $70,000 or $80,000 would not be the total effort that has been incurred for a consulting service by this contractor.

Chairman PROXMIRE. As I understand it, what they do now is a "will cost," is that right, we are moving into hopefully as a "should cost"?

Mr. BAILEY. This is the basic concept under Public Law 87–653, the "will cost" as contrasted with the "should cost."

Chairman PROXMIRE. The "will cost" is something we have experience with, and we have done it.

Mr. BAILEY. Yes, sir.

Chairman PROXMIRE. And that is in the law?

Mr. BAILEY. Yes, sir.

Chairman PROXMIRE. The "should cost" is what we are looking forward to do. In the F–111 are we talking about a "will cost" study or a "should cost" study?

Mr. BAILEY. On the F–111, the Pratt & Whitney case, it was a "should cost" type of approach.

Chairman PROXMIRE. I understand there had been an Air Force "will cost" study on that too. As I understand it, the "will cost" study cost about as much as "should cost" study, is that right?

Mr. BAILEY. I really could not answer that question, Mr. Chairman.

Mr. STAATS. Mr. Chairman, if I might break in, I think it is important to keep this in the context of the degree in which these detailed reviews are made. I think the Defense Department will and can correctly state that they are doing a great many things over and above looking at straight historical costs. For example, I was at Wright-Patterson the day before yesterday talking to them about the F–15. And they told me they have 12 engineers who are working not only on technical problems on the F–15, but also on production methods, layout, and things of this type, in an effort to try to keep those costs down to a minimum.

Now, you could say, well, that might be expanded by a factor of 10, you might have a very large group, as Gordon Rule had, on the F–111 engine study. I believe he had as high as 45 people working on that

one study. So I think what we are talking about here is a matter of emphasis. It is a different emphasis, however, where the management and technical review is designed to determine what an item ought to cost, as against a primary emphasis, which today is oriented to what an item "will cost."

Discussions With Consulting Firms

Chairman Proxmire. In your draft report on "should cost," you mention that you discussed the subject with three consulting firms. Who are they?

Mr. Staats. Mr. Grosshans will answer that. I know, but I would like for him to tell you.

Mr. Grosshans. We talked with Touche, Ross & Co., and with Peat, Marwick & Mitchell. We have talked with Fry Consultants, and we have also talked to Harbridge House. We met with two of the men in Los Angeles in connection with that. Those are the basic ones, but we also talked to McKinsey & Co., Mr. Chairman.

Chairman Proxmire. Have any of these firms conducted "should cost" studies on major weapons projects?

If so, which projects?

Mr. Grosshans. Mr. Chairman, when we discussed this with some of these firms they felt that they had a certain capability in this area. The basic——

Chairman Proxmire. Have they done the work, have they had experience?

Mr. Grosshans. They believed that they did. I think the basic one that has done most of this work was Performance Technology. I think they have been given more credit——

Chairman Proxmire. The firms with which you discussed this have had no specific experience on particular projects, is that correct?

Mr. Grosshans. They have worked on projects. And also, we have talked with people that worked for Performance Technology at the time they worked on these projects, like Mr. Fitzgerald, Mr. John Warner, who worked with Mr. Fitzgerald at the time, and Mr. Robert Sanders, who also worked on one of the projects, the Sub-Roc, for example—on the Sub-Roc effort of Goodyear that I mentioned earlier. So I think we did get a pretty good exposure.

Chairman Proxmire. I just wanted to know if the firms themselves had been involved in any specific "should cost" work, the ones you consulted.

Mr. Grosshans. To answer this—I can answer that in the affirmative. They believed they had done "should cost" work in the past.

Chairman Proxmire. But you cannot tell us what specific work they did? Or on what specific missile or project?

Mr. Grosshans. No, sir.

Also, may I add, another problem with this whole subject matter is that everyone, or most people we have talked to, have different definitions of what "should cost" encompasses. And I think to simply state it in terms of, did these people perform these studies, they contend they performed "should cost" studies.

Now, the definition that they may have used may not necessarily coincide with the one that we have in mind. And I think it would be

somewhat dangerous to specifically say that they did or did not. The definition, I think, is very important, and has a great deal to do with what is actually done.

Trial Reviews

Chairman Proxmire. Could I ask you, Mr. Staats, do you anticipate restricting your "should cost" activities to postaward reviews?

Mr. Staats. I am sorry?

Chairman Proxmire. Do you anticipate restricting your "should cost" studies to postaward reviews?

Mr. Staats. What we are planning to do is to make these trial runs, Mr. Chairman, to see to what extent, under what conditions we can make postaward review "should cost" studies. We have in mind two objectives here. One would lead to assessing how good a job was done on preaward reviews, where "should cost" has been applied. And secondly, to see if we can develop some guidelines as to the areas where "should cost" is going to yield its highest payoff.

Chairman Proxmire. Then you are not going to restrict the "should cost" studies to postaward, you are going to work on preaward too?

Mr. Staats. We would like to see DOD and the other procurement agencies handle the reviews on "should cost" prior to the award of contracts. We would like to make our reviews to see how well they did that job. And we would also like to see, even if they do not perform those reviews, if we can develop guidelines as to areas in which "should cost" work would be most profitable.

Contractor Inefficiency

Chairman Proxmire. In your report you list a number of management weaknesses detected in the should cost study of the F-111 engines. I recall from past discussions of this study that sheer inefficiency was a major factor. That is, actual hours spent on various tasks far exceeded even the times theoretically allowed in the company's own time standards for performance of those jobs. Why did you omit this major factor in your summary?

Mr. Staats. I was not aware that we had.

Mr. Bailey. Well, as to the omission of the specifics in this particular report of what was done in this first phase of our should cost review, we felt that we were not in the area of criticizing what had been done or what had not been done in previous reviews but rather as to what the should cost concept is and its applicability to the negotiation and the action taken with respect to this particular contract. We do mention, of course, some of the areas, major areas of management weaknesses.

In summary, in item 7, poor production scheduling and control would be the type of thing I think you may have in mind, Mr. Chairman.

Chairman Proxmire. Is this factor—sheer inefficiency—regularly avoided in DOD reviews?

Mr. Bailey. No, sir. Where we feel that it should be brought out I think that our reports over the past years have indicated——

Examples of Quantified Inefficiencies

Chairman Proxmire. Then can you give examples of quantified inefficiencies in major programs?

Mr. BAILEY. You mean in connection with this particular F-111 job?

Chairman PROXMIRE. Yes, sir; or any other program.

Mr. BAILEY. We can supply it for the record, yes, sir.

Chairman PROXMIRE. I wish you would. That would be very interesting and very helpful.

(The following information was subsequently supplied for the record by the General Accounting Office:)

An indicator of the quantified inefficiencies we find in our work in the Department of Defense is the amount of savings which results from actions taken by the Department on our findings and recommendations. Tabulations of such savings involving both Defense and Defense contractor activities are included in the Annual Reports of the Comptroller General. Summaries of the tabulations for the two most recent fiscal years show the following collections and other measurable savings.

[In thousands of dollars]

	Collections	Other measurable savings	Total
Fiscal year 1968 (app. G-1, p. 339, and app. G-2, p. 340, of Annual Report of the Comptroller General, 1968):			
Department of the Army	829	99,628	100,457
Department of the Navy	376	5,453	5,829
Department of the Air Force	142	39,110	39,252
Department of Defense	97	42,968	43,065
Total	1,444	187,159	188,603
Fiscal year 1969 (app. G-1, p. 357, and app. G-2, p. 358, of Annual Report of the Comptroller General, 1969):			
Department of the Army	933	18,083	19,016
Department of the Navy	339	36,057	36,396
Department of the Air Force	166	2,454	2,620
Department of Defense	365	39,844	40,209
Total	1,803	96,438	98,241

Our audit efforts in the Department of Defense are directed toward evaluating the adequacy of the management and operating controls, provided by the Department and its component organizations, for ensuring that authorized programs are carried out effectively, efficiently, economically, and in compliance with law. We report on our findings of weaknesses in controls, together with our recommendations for strengthening them, to the Congress or to the Department as appropriate.

In some instances we are able to measure the consequnces of identified weaknesses in controls. More frequently, however, the consequences cannot be readily quantified.

The following, selected from our reports issued to the Congress in fiscal year 1970, to date, are examples of Department of Defense and Defense contractor deficiencies we were able to quantify.

REASONABLENESS OF PRICES QUESTIONED FOR BOMB AND HAND GRENADE FUZES UNDER THREE NEGOTIATED CONTRACTS, DEPARTMENT OF THE ARMY, B-163874, JULY 15, 1969

The prices negotiated for two of the three contracts included (1) estimated material 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 and (2) estimates totaling $1,587,200 for anticipated cost increases, production losses, and for scrap and rework for which the contractor had no factual support.

In accordance with our proposal that the Army seek appropriate recoveries under the defective pricing data clauses of the contracts, the Army made demand on the contractor in the amount of $4,022,570. This amount included $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 demand to the Armed Services Board of Contract Appeals.

CESSATION OF UNAUTHORIZED PAYMENTS OF PROFICIENCY PAY AND VARIABLE REENLISTMENT BONUSES TO CANDIDATES IN OFFICER TRAINING PROGRAMS, DEPARTMENT OF DEFENSE, B-160096, AUGUST 6, 1969

The Navy awarded about $500,000 in proficiency pay in fiscal year 1967 to 512 enlisted men enrolled in the Navy Enlisted Scientific Education Program (NESEP), a 4-year college, baccalaureate-degree program. The payments were inconsistent with the intent of the law and were improper because they were applied toward support of officer candidate training rather than retention of men in the enlisted ranks who possessed critical skills. Also, the Navy in fiscal years 1967 and 1968 and the Air Force in fiscal year 1967 either paid, or obligated the Government to pay, a total of $1 million in variable reenlistment bonuses to those who reenlisted for the purpose of enrolling in the Navy's NESEP or a similar program of the Air Force. These payments were also improper because the reenlistments were specifically for the purpose of meeting the obligated service requirements of the officer candidate training programs rather than for the continued service in critical skills. We found no evidence of similar improper payments by the Army.

The Department of Defense advised us that instructions had been revised to preclude such improper payments in the future.

POTENTIAL FOR SAVINGS BY REDUCTION OF AIRCRAFT ENGINE PROCUREMENT, DEPARTMENTS OF THE NAVY AND OF THE AIR FORCE, B-132989, SEPTEMBER 9, 1969

The method used by the Navy and the Air Force to compute requirements for spare aircraft engines included two factors—the depot stock factor and the safety factor—which were duplicative since they were intended to provide for similar or identical contingencies. The Army used a different method for its computations and was not included in our review.

We estimated that, by eliminating the depot stock factor, the planned engine procurements for fiscal year 1969 could have been reduced by about 200 engines at an estimated cost of about $35 million. We proposed that the Secretary of Defense direct that the need for the duplicative factors be reevaluated and planned procurement be reduced by the quantities attributable to the duplicative factors.

Our review of 72 projects, on which total design costs of $6.7 million were duplicated, but our analysis of the Department's reasons for its belief did not support the Department's position. We recommended that the Secretary of Defense reconsider its position.

UNUSED ENGINEERING AND DESIGN EFFORT IN THE MILITARY CONSTRUCTION PROGRAM, DEPARTMENT OF DEFENSE, B-133316, OCTOBER 22, 1969

Although it is normal that some engineering and design effort will be unused in actual construction, a significant portion of unproductive effort can be avoided through continuing efforts to control the causes.

Our review of 72 projects, on which total deisgn costs of $6.7 million were incurred, showed that about $2.6 million represented lost effort. About $800,000 of this amount could have been avoided. An additional amount of $650,000 represented cost of design work on projects which could not be carried out because construction funds were not appropriated.

We pointed out, among other things, the need for an improvement in the preliminary planning by the installations which require new facilities and closer coordination between such installations and the agencies which perform the design work.

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.

REVIEW OF THE BASIS FOR DETERMINING NEED FOR CONSTRUCTION OF MESS HALLS IN THE DEPARTMENT OF DEFENSE, B-167400, NOVEMBER 5, 1969

We found that the military departments, in computing their requirements for mess halls, were (1) overestimating the percentage, of the enlisted personnel to be billeted in barracks at the installation, who would eat at the mess halls and (2) underestimating the length of the meal-serving periods. These two factors resulted in overstated requirements for mess halls.

We found that, had proper consideration been given to actual experienced rates of utilization of mess halls at the five installations we visited, the construction of two mess halls at a cost of about $1.4 million would have been avoided and the construction of two other mess halls at a cost of about $2.3 million could have been substantially reduced in size.

The Department of Defense agreed in general with our suggestions that the criteria for computing requirements for new mess halls be revised, that installation officials consider consolidating the operation of mess halls where the utilization is considerably below design capacity, and that the military departments reevaluate their requirements for the approved but incomplete projects for construction of mess halls.

MANAGEMENT OF MILITARY-OWNED HOUSEHOLD FURNISHINGS OVERSEAS: OPPORTUNITIES FOR IMPROVEMENTS, DEPARTMENT OF DEFENSE, B-167490, NOVEMBER 25, 1969

We found that each military department was practically independent in managing its portion of the overseas household furnishings program. At 11 installations we visited the military departments were—

Using differing and inadequate methods for computing requirements which resulted in an accumulation of excess inventories of furnishings estimated at $1.6 million.

Providing different styles and finishes of furnishings thereby hindering consolidation of purchases and interservice transfers of excess inventories.

Using different methods and criteria for repairing, maintaining, and disposing of unserviceable furnishings.

We suggested that the Secretary of Defense take action to (1) establish uniform methods for computing requirements for furnishings, (2) provide uniform criteria for determining whether to repair or replace furnishings, (3) promote use of furnishings which are alike in style and color or appearance, (4) increase the use of consolidated purchases, (5) promote interservice transfers of excess furnishings, and (6) emphasize the need for internal reviews of household furnishings activities. The Department of Defense concurred in these suggestions.

QUESTIONABLE PRICING OF CONTRACTS NEGOTIATED FOR URGENTLY NEEDED BOMB BODIES, DEPARTMENT OF THE NAVY, B-118710, DECEMBER 11, 1969

During the calendar years 1965–1967, the Navy awarded firm fixed-price negotiated contracts, amounting to about $472 million, to six contractors for the production of 250- and 500-pound bomb bodies. The requirement for these bomb bodies arose from an urgent need for general-purposes bombs in Vietnam.

Our examination into the prices negotiated for 34 of the procurements, totaling $343 million showed 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 included cost estimates of about $4.6 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 and, where audits had been requested, time restrictions were imposed which limited the scope of the audits in several instances.

Since the time limitations and the absence of realistic cost data precluded adequate documentation of the contractors' proposals and agency audits, we believed that, under such circumstances, the Navy should not have used firm fixed-price-type contracts.

The Navy agreed with our proposal that a determination be made of the extent of the Government's legal entitlement to price adjustments with respect to these procurements and established a review team to assist the contracting officer in making the determination.

OVERPAYMENTS TO ARMY PERSONNEL RESULTING FROM WEAKNESSES IN PAYROLL PROCEDURES, DEPARTMENT OF THE ARMY, B-125037, APRIL 1, 1970

We found that the Army's controls and procedures were not effective to ensure that payments made to military personnel in advance of regular paydays—called casual or partial payments—were deducted from subsequent payrolls.

We estimated that, during the 6-month period January through June 1968, about $3.5 million was overpaid because certain of the casual and partial payments had not been deducted from the pay, in subsequent periods, of the recipients of the advance payments. Many causes contributed to the overpayments, but the principal ones stemmed from the inadequate control and protection of the documents related to the casual and partial payments and the inadequate Army regulations governing the processing of the documents.

We recommended that the Secretary of Defense direct that the Army maintain its verification program at an acceptable level until such time as an effective system of internal control over its payroll procedures has been established. We recommended that the Secretary of the Army, (1) consider requiring the paying finance officers to institute followup controls for collecting casual and partial payments and (2) direct the Army Audit Agency to make periodic tests of the procedures followed in making and controlling casual and partial payments.

RENTAL RATES FOR BARGES USED IN THE REPUBLIC OF VIETNAM INCLUDED COSTS PREVIOUSLY RECOVERED BY CONTRACTOR, DEPARTMENT OF THE ARMY, B-167714, MAY 6, 1970

The daily rental rates for barges, negotiated by the Army, included the contractor's costs for towing the barges from the Philippines to Vietnam and returning them when no longer needed. The towing costs for a number of the barges, already in service in Vietnam, had been provided for and recovered in the rental rates negotiated under prior contracts. We estimated that the Army could have saved about $664,000 had the towing costs been eliminated from the daily rates and provided for as a separate item in the contract to be paid once for each barge delivered to Vietnam.

The contractor took the position that the contracts had been fairly priced on the basis of adequate price competition and that the anticipated cost of performance had not been relied on, and was not a factor, in the negotiation of the prices. We did not agree that the price competition had been adequate and recommended that the Secretary of Defense consider the Government's entitlement to price adjustments under contracts with the contractor in question and with other contractors supplying rental barges, tugs, and other vessels in Vietnam. We recommended also that towing costs be negotiated as a separate item in future rental agreements.

The Army stated that it was reviewing existing contracts to determine the Government's entitlement to price adjustments and that future solicitations for rental contracts will require that towing costs are shown as a separate item in the price proposals.

POTENTIAL FOR SAVINGS IN AIRCRAFT MAINTENANCE, DEPARTMENTS OF THE NAVY AND THE AIR FORCE, B-152600, MAY 7, 1970

In our earlier work we had found that the Navy and the Air Force were following substantially different procedures and practice in the maintenance of aircraft. We made a review to evaluate and compare the way the two services scheduled their maintenance operations. For this review, we selected the F-4 aircraft because it is used by both the Navy and the Air Force.

We found that the Navy could realize savings and other benefits by following certain of the practices that the Air Force had found to be feasible and economical. The principal one related to organizational maintenance and inspections (that performed by the operating units in support of their own operations). Had the Air Force practices for organizational maintenance been followed by the Navy, the equivalent of 40 additional F-4 aircraft could have been available to the Navy during fiscal year 1968 and maintenance costs could have been reduced. We noted that the Navy's maintenance costs of the F-4 aircraft for fiscal years 1967 and 1968 were about $4.3 million higher than the costs incurred by the Air Force in that period for an equivalent number of the F-4 aircraft.

We found also that neither the Navy nor the Air Force had given sufficient recognition to the results of studies, and their own experience, in determining the frequency of depot-level maintenance (that which is major and beyond the capabilities of lower level maintenance facilities and is performed at industrial-type maintenance depots). Less frequent depot maintenance appeared to be warranted in some instances.

We suggested that—

The Navy test the phased maintenance concept, which the Air Force has implemented, for its applicability to aircraft of the Navy.

The Air Force review and evaluate the frequency of depot-level maintenance of individual F–4 aircraft and establish realistic criteria for the frequency of such work.

The Navy and the Air Force maintain a continuing review of the criteria for the frequency of depot-level maintenance of first-line aircraft important to strategic, tactical, defense, or logistic posture.

The Navy agreed with our suggestions. The Air Force pointed out that its present procedures for annual reviews of the frequency of depot-level maintenance served the purpose of the review and evaluation we had suggested. The Air Force stated, however, that its procedures had been changed to ensure that the summaries of the annual reviews are more fully documented. We expressed the belief that the Air Force should adopt reporting procedures to ensure that effective action is taken on the results of the annual reviews.

DOD Delay in Applying "Should Cost" Concepts

Chairman Proxmire. You mention in your report on "should cost" that the DOD plans to evaluate the Army's efforts in this area before deciding what to do about using this cost-saving tool. Why do they wait? Haven't all previous professionally conducted cost applications paid for themselves several times over?

Mr. Staats. I do not think we have been furnished anything in detail as to the reasons for their delaying. We have a memorandum from Mr. Shillito in which he indicates that they have decided to wait on the results of that review.

Trial Reviews Confined to Medium-Sized Contractors

Chairman Proxmire. Why are the trial reviews confined to medium-sized contractors? Most of the fat seems to be in the contracts awarded to large contractors.

Mr. Bailey. We felt in order to get the job done and get a report to you and the Congress in a reasonable period of time we needed to take what we felt would be a manageable amount of work to be done, particularly——

Chairman Proxmire. But to do the job adequately, Mr. Bailey, isn't it true that you need the big contractors too in view of the fact that——

Mr. Bailey. I think the big contractors would have to be brought into the program, yes, sir. But what we are doing is trying to test the application of these concepts by using our own staff plus any skills we find are necessary in order to do this type of work.

Chairman Proxmire. Isn't it true, though, that the medium and the small contractors live in a different world from the big contractors?

Mr. Bailey. Yes. But I would suggest that they are susceptible to being as inefficient in certain areas as the larger contractors are.

Chairman Proxmire. Why would it take any longer to do a "should cost" study for a large firm than for a medium or small one?

Mr. Bailey. I think because of the ramifications of work involved and the controls that are exercised by the contractor over the work that is being done. These things would have a probable effect.

Resistance to "Should Cost"

Chairman Proxmire. Why do you think individuals and groups who have advocated the "should cost" approach in the past have encoun-

tered such determined resistance? What can we do to help overcome this resistance?

Mr. BAILEY. You get a great difference of opinion as to whether we are or are not doing a substantial amount of this now in the negotiation and administration of contracts.

Chairman PROXMIRE. Mr. Staats, you just testified that this is just barely beginning to get off the ground, that "should cost" is confined very largely to a couple of weapons systems, the Army has begun to do some pioneer work, and they have just begun it, and the other Services have done very little. I wonder if a good, stiff, across-the-budget cut would help motivate the Defense Department to try to get the most out of their procurement appropriation?

Mr. STAATS. I think there are many ways to get more competition, for example, more breaking out of items to get more competition in components and subcontracts; the manner in which subcontracting is done—I think there are a lot of different approaches to cost reduction. I think "should cost" reviews are useful too, Mr. Chairman. What I am suggesting is that I do not know that the resistance per se is to "should cost"—I think there is a difference of opinion as to whether "should cost"——

Chairman PROXMIRE. For some reason they have not done it. It seems to me that this is a tool which, as you said, Sears, Roebuck has used to great effect. Sears, Roebuck is big, but not nearly as big as the Defense Department. They have not had the opportunity that the Federal Government has to use the system.

Mr. STAATS. But even Sears, Roebuck will testify that their success has not been 100 percent. The chairman of the board told me that the whole secret as far as he was concerned was their ability to obtain and retain a very high level of competence in a very highly skilled group of people who could go in a supplier's plant and learn things quickly about the operation of the company that management itself had not been able to deal with.

Chairman PROXMIRE. The only way you can do this, it seems to me, is by developing a "should cost" continuing program that would encourage outfits like Performance Technology to continue in existence and continue to offer their services and provide an opportunity for them to hire very capable people so that they could continue to do this kind of thing at a profit. It seems to me that the Defense Department appears to regard cost cutters rather than high cost as their primary management problem.

We have personal evidence of this sitting on our staff right now, Mr. Fitzgerald.

Mr. STAATS. One of the reasons that we would emphasize that prenegotiation is the place to emphasize this approach is that once a contract has already been let, it is pretty late for the Defense Department to try to exercise the kind of influence that it can bring to bear prior to the award of the contract. Our position has been pretty consistent on this point, that is the main value of a postaward "should cost" review is to provide better guidance as to how preaward "should cost" reviews should be made.

We think that that is the place the Defense Department ought to put its emphasis.

Chairman PROXMIRE. Do you want to proceed with your statement?

Major Weapons Systems Acquisition Reviews

Mr. Staats. The next section of our testimony relates to the work we have done in the area of major acquisition reviews. These are your major weapons systems. You are already familiar with our report of February 6. What we would like to talk about here today are the followup studies which we plan in this area.

Following the report we made on February 6 we undertook further review to determine the underlying causes for changes, cost growth, schedule slippage, and shortfalls in performance of defense acquisition programs.

Classified reports on 26 individual weapons are to be prepared. An unclassified report will be prepared as an overview summary of underlying causes of problems in the defense acquisition process as determined in examining the 26 weapon programs.

CAUSES OF PROBLEMS

Analysis of the frequency of occurrence and magnitudes of the categories of acquisition problems on the weapons examined disclosed that their underlying causes were as follows:

Unrealistic cost estimates and lack of stable relative priority,

Unwarranted degree of concurrency of development and production,

Lack of administrative discipline in preparing and fulfilling program authorities,

Unrealistic initial requirements for performance and schedule,

Changes in operational capability without recycling through prerequisites to development, and

Factors beyond the control of the Department of Defense.

This last point would include inflation.

As I emphasized, the summary report will be an unclassified report, although the backup studies will probably, in this case, have to be classified, just as they were on the February 6 report.

COST EFFECTS OF CHARGES IN QUANTITIES PURCHASED

On the next page we point out that the changes in quantities of weapons systems being bought materially affect the total estimates of cost of acquiring such systems. To insure that our annual report on the status of major acquisitions more accurately shows the status of changes in systems acquisition programs, we plan to change our report format to show the cost data by system in terms of unit costs and total program estimates at three principal points in time as follows:

1. At completion of an approved technical development plan—usually accomplished at conclusion of concept formulation.
2. At the conclusion of contract definition.
3. Current estimate to complete programs at end of last available calendar period preceding our report.

These changes will be included in the report that we plan to submit to the Congress next January. We were not able to break information down in this manner in the first report that we presented.

INFLATION FACTOR

In addition, we are hopeful that we can include in our next overall report some data that might be helpful in gaging the effect of economic inflation on the cost of the systems being acquired.

This factor, as you know, has been difficult to break out. It has been impossible to isolate the extent to which price inflation has been either a leading or minimal factor in the cost growth of a weapons system. We hope to be able to shed some light on this subject.

CLASSIFIED REPORTS OF LITTLE USE

Chairman PROXMIRE. Let me ask you, in connection with major acquisition reviews, I find that the classified reports are just about useless from the standpoint of a Member of Congress. What can a Member of Congress do about it? He cannot go to the floor and release anything that is in it. In fact, he is inhibited from discussing the whole issue when he gets a classified report by the fear that he might disclose classified information. I do not understand why the reports on weapons systems should be classified. Why not make full disclosure of the cost of the program to the Congress and the country? I am talking about the cost of the program. Not that the major weapons systems might not have technological features in them that we would want to conceal, for example, from the Russians. But the cost of the program, it seems to me, ought to be made public. And you cannot do an effective job up here either in committee or on the floor unless you have this made available to you in unclassified form.

Mr. STAATS. I think all the cost data presented in our first report was unclassified. It was in the area of performance and production schedules that the sensitive data was developed. I do not know that there is any data on cost that is not in the unclassified report. Certainly this data will be unclassified.

Chairman PROXMIRE. You would agree, then, that the cost information should be made available fully, and that there is no reason that you know of why it cannot be?

Mr. STAATS. None that occurs to me at all, Mr. Chairman.

Chairman PROXMIRE. One difficulty, I understand, is that you have only given summary data in your unclassified reports, you have not given detailed costs. Sometimes the reason given is that it is proprietary, so we cannot have public information.

Mr. STAATS. I would be glad to check this further, Mr. Chairman. But our unclassified report lists each system and the cost estimate for each.

Chairman PROXMIRE. Let me read from your prepared statement; you say:

Classified reports on 26 individual weapons are to be prepared. An unclassified report will be prepared as an overview summary of underlying causes of problems in the defense acquisition process.

But you say, classified reports are the basic reports we get. Now, I take it from your responses that the classification will pertain only to the performance and not to the costs?

Mr. STAATS. And the schedule, so far as I know.

FREQUENCY OF REPORTS

Chairman PROXMIRE. You say the GAO will make annual reports on the status of major acquisitions. Why not provide a quarterly review and monthly reports containing at least summary data?

Mr. STAATS. Mr. Chairman, I guess the short, simple answer to that is we just do not have that kind of manpower. Our objective here was to supply the Congress with the most recent information——

Chairman PROXMIRE. I am asking for summary data. I would not think that would take manpower.

Mr. STAATS. We could compile information out of the Defense Department report, I suppose we could do that. But I do not really feel that that would be very helpful. I would not be able to call that a GAO report without some review of it. Our objective here——

Chairman PROXMIRE. We have got nothing now. It would be better than nothing, and we would not have to wait a full year.

I would appreciate it if you would take a look at it and see what you can provide to us with reasonable use of manpower.

Mr. STAATS. We indicated in the letter that we sent to Congress last August that we would prepare this report under our own authority, and we would present it to the Congress at the beginning of the session, and then update it through the period when Congress was reviewing the authorization measures and the appropriation measures. It seems to us that is the critical time from the standpoint of Congress to have such data in order to be able to use it in connection with the authorization and appropriation bills.

Chairman PROXMIRE. When will we get the updated data of this year?

Mr. STAATS. These 26 reports are in the process.

Mr. Bell, can you answer the question?

Mr. BELL. The result of work on those 26—the work involved in these 26 reports represents our efforts to delve more deeply into the basic causes for the changes in weapons systems programs that were covered in our report that we sent to you in February 1970. This fieldwork is substantially complete. We are in the process of reviewing these reports now. And we anticipate that our report will be ready for the Congress in the fall.

Chairman PROXMIRE. What good will that do us, in the fall? Everybody expected us to be out of here, until Cambodia came along, by Labor Day. Maybe it will be longer now. Certainly by then the authorization bill and the appropriations bill will be gone. It may be helpful in 1972, but it won't be any good in handling this bill this year.

Mr. BELL. Our February report to the Congress contained the latest data that we could assemble in some usable form at that time. We have had requests from various committees for updating certain types of data on systems. This we have done. The data we are developing on systems in our current study has to do with the basic principles which are the underlying causes of problems in weapons procurement. I am very much afraid these problems will be as current next time as they are now.

Chairman PROXMIRE. I understood Mr. Staats to say that this would be updated in time for the authorization and appropriation, is that correct?

Mr. STAATS. Mr. Chairman, in our letters to certain committees of the Congress on August 1, 1969, we said we would present a report to the Congress at the beginning of the session, and then at the request of the interested committees of Congress we would update it in any particular respect in which there was interest in having it updated throughout the session of the Congress. And we will stand by that.

Chairman PROXMIRE. This is a committee that is certainly very interested. And we would like you to update it, update the whole report in terms of the summary.

Mr. STAATS. The Defense Department reports are made quarterly, the so-called selected acquisition reports. I assume that there is one as of the end of March. But there is a lag on that——

Mr. BELL. Forty-five to sixty days, yes.

Mr. STAATS. So that there should be one available shortly on that basis.

INEFFICIENCY FACTOR

Chairman PROXMIRE. I notice that your list of underlying causes of problems omits poor management, inefficiencies, avoidable expenditures, and the like. Why?

Mr. STAATS. I think this is purely a matter of how you describe it. We try to describe it in the prepared statement. I do not know that that is excluded, is it?

Chairman PROXMIRE. Where is it?

Mr. STAATS. The tenth page of the prepared statement.

Chairman PROXMIRE. You say underlying causes were unrealistic cost estimate, an unwarranted degree of concurrency, and so forth, changes in operational capability. There is nothing that can expressly be called poor management—except that they did a poor job of estimating the cost.

Mr. STAATS. I think we are talking about differences in language.

LABOR, MATERIALS, AND OVERHEAD BREAKDOWN

Chairman PROXMIRE. Have you made any attempts to break down the cost variances, that is the growth, by traditional accounting cost elements such as labor, material, overhead, and subcontracts?

Mr. STAATS. I am afraid I did not——

Chairman PROXMIRE. I will repeat that.

Have you made any attempts to break down the cost variances, that is the growth, by traditional accounting cost elements such as labor, material, overhead, and subcontracts?

OMISSIONS OF MAJOR ELEMENTS OF COSTS

Mr. BELL. Specifically, no. I have given, I and the whole staff have given a great deal of thought to where you should start in trying to determine what is the basic cause for cost overruns or underruns. We have gone carefully through the first estimates which were prepared by the Government as a part of a technical development plan at the beginning of a program. We have found in the cases we studied that approximately one-third of the original estimates omitted major elements of cost that were known at the time. These omitted elements alone would raise the estimate of cost at the beginning of the program

by about 50 percent. We have had other cases, about one-third of the cases we studied, in which the estimates prepared were based on very sketchy technical data, so that it really was a question as to whether or not there was an adequate basis for making an estimate. As a result of this, we felt that it would be more profitable to work toward getting a sounder Government estimate to start with, in its totality, before we began to concern ourselves with variances in contractor estimates which are prepared in a later time frame.

Chairman PROXMIRE. But until you get at least this kind of breakdown how can you make a really sound analysis of what is wrong unless you know that there is an increase—for instance, you hear a defense of these increases on the ground that it is inflationary, and on the ground that wages have increased very sharply. That may be true. How do we know it? We cannot know it unless we have a breakdown showing how much is paid in wages, how much is paid in materials, and how much is overhead—the reason for the cost increase.

Mr. BELL. This is undoubtedly true, but we felt and we feel now, I think, that where an estimate for a program eliminates an entire category of costs, it is more important to correct that problem. In one program which we are reporting on in our current study, the entire amount of anticipated Navy support of the testing program was omitted.

Now, the inclusion of that in the estimate would have substantially increased the amount of the estimate. And we felt, and we now feel, that the most important contribution we can make in the estimating field at the moment is to see if we cannot get these Government estimates more complete——

Chairman PROXMIRE. You say the first step is that you include all the costs?

Mr. BELL. Yes.

Chairman PROXMIRE. You have to have that, if you do not have that you have nothing. I would agree with that. But that is pretty simple, and I would think that they would certainly concur in that as a minimum. They ought to include all the costs, if you have left part of the costs out you would not have anything at all. But then if you are going to be able to analyze this in a useful and constructive way it seems to me that you ought to have at least this breakdown.

Mr. BELL. As Mr. Staats stated just a few moments ago, it is a question of the amount of manpower which you can bring to bear on this particular subject, and how you use the manpower that you have. We felt that the best use of our manpower was in this way.

LABOR, MATERIALS, OVERHEAD BREAKDOWN MAY NOT BE HELPFUL

Mr. STAATS. Mr. Chairman, I have not particularly focused, as apparently you have, on this approach to the problem. But my initial reaction would be to suggest that perhaps that is not the most useful approach, for this reason. It seems to me that in terms of identifying areas in which something can be done we might better approach it from the standpoint of isolating out how much of this cost growth has been due to factors which are beyond the control of anybody, and this is principally the price inflation area.

And then secondly, to identify how much of it has been due to change orders and modifications, improvements and additions to the system, changes in the numbers, and so on, which are to some degree within the discretion of management on the Government side.

And then thirdly, what you have described as problems of management, failure to coordinate, failure to develop all of the elements of cost in the first instance, things of this type. And it is particularly in the second and third category that we would like to begin to focus on things that can be done.

For example, in your third category is where "should cost" would come in particularly. So that breaking down total cost growth of a weapons system between materials, labor, and other components of cost would not get us very far down the road in terms of identifying problems that we can do something about. That is my reaction.

Chairman PROXMIRE. I think that would be a very simple, easy thing to do. If we got a "should cost" study, I do not see how a "should cost" study would be very helpful if you did not at least break down the cost as to labor, materials, and overhead.

Mr. STAATS. When a "should cost" study is made, this would be so. But when you are dealing with a subcontractor you are more interested in what the cost of a component is going to be. In dealing with cost growth of these systems, we are trying to get at the third area before attempting to break it down further into cost components.

Chairman PROXMIRE. How can you determine what the costs are going to be if you do not know what the labor costs and the material costs are going to be?

Mr. STAATS. You have estimates that are now updated quarterly. This includes cost to date, which can be segregated into cost elements plus an estimate to complete. Present requirements do not, to my knowledge, require a breakdown in all cases of the estimates to complete into these cost elements.

Chairman PROXMIRE. I am talking about a "should cost" study, I am not talking about advertised competitive bidding.

Mr. STAATS. I would think if you went to a detailed breakout on all cost by labor, materials, and equipment, and try to extend that through the entire system, including subcontractors, you would have a virtually impossible job. We cannot do it even on accrued expenditures on the Government side. We have been trying for two years to develop a system, we and the Treasury and the Budget Bureau.

Chairman PROXMIRE. I am not asking for anything additional. It would just seem to me that the firms would keep their costs that way anyway.

GAO REVIEW OF SAR'S

Do you audit the SAR's, or do you accept DOD submissions?

Mr. BELL. Yes, we review the data that goes into the SAR and test its accuracy and authenticity, yes.

Chairman PROXMIRE. You say you audit it. Or do you review the SAR?

Mr. BELL. Well, I do not really know how to answer that. An audit is generally made by using a series of tests. And that is what we do when we review the data that is on the SAR. We review the way the

SAR's are put together, and attempt to verify the accuracy and the authenticity of the data.

Chairman PROXMIRE. For the record, would you give us, Mr. Bell, when you correct your remarks, as complete a description of what your review consists of and the degree if any in which it varies from the regular audit for the SAR's?

Mr. BELL. We can do that.

(The following information was subsequently supplied for the record by the General Accounting Office:)

To date we have made one review of the SAR system. Another is planned commencing this fall utilizing the September 30, 1970, SAR's. The increasing use of SAR data by the Services and OSD, Congressional interest in these reports, and our initial review of the SAR system have resulted in three revisions to the SAR format and instructions involving the types of data to be reported. The latest of these revisions is planned to be effective with the June 30, 1970, SARs. For the most part, these revisions will enhance the usefulness of the SAR to top DOD management and Congress.

Our initial review of the SAR system consisted primarily of tracing the reported SAR data to their supporting documentation to ensure that data reported were meaningful and in consonance with the SAR's instructions. For example, planning estimates were traced to the initially approved Development Concept Papers, technical development plans, or a program change decision as appropriate; technical achievements reported were traced to reports; and current cost estimates to the Five Year Defense Plan (FYDP) estimates or to current services estimates where the approved service program exceeded a five year period.

We examined the source data for completeness and general reliability. For example, cost estimates were examined to determine if they included all costs prescribed by the Secretary of Defense's definition of "Standard Weapons Systems Costs."

We also considered the program estimates at completion comparing these to the achievements to date. For the most part, this was based upon our knowledge of program history and current status gained through prior reviews.

The purpose of our initial review of the SAR system was to enable us to report on the status of weapons systems and to identify reasons for cost growth, schedule slippages, and performance short falls.

ACTUAL COSTS OF COMPLETED WORK

Chairman PROXMIRE. The cost status information in the SAR's appears to be entirely subjective estimates at completion. When do you plan to furnish us objective information—facts—on overruns or underruns on currently completed work?

Mr. STAATS. I am not sure I understand your question, Mr. Chairman.

Chairman PROXMIRE. Let me repeat the question. The cost status information on the selected acquisition reports or the SAR's appears to be entirely subjective estimates made at the completion of the work. When do you plan to furnish us objective information on overruns or underruns on currently completed work?

Mr. STAATS. On work that has already been completed?

Chairman PROXMIRE. Currently completed, yes.

Mr. STAATS. We do not include anything in our report, Mr. Chairman, where the work has been completed. In fact, we do not include anything in our report where the work is substantially completed. Our report has not been directed to completed systems.

Chairman PROXMIRE. You give us a column of estimated costs on completion, but you do not give us what the completed costs were.

You have a column in the acquisition reports that you gave us showing the estimated cost of completion.

Mr. STAATS. I think in future reports it would be of interest if we would show what the system cost is.

Chairman PROXMIRE. As I understand, the Defense Department's interim reports have the cost and work completed to date, not estimated, but the actual cost, that is the kind of thing we would like to have.

Mr. STAATS. On work completed to date, yes, they have that information.

Chairman PROXMIRE. We would like to have it.

Mr. BELL. I do not really believe that information is available from SAR's. The SAR's themselves——

Chairman PROXMIRE. Why isn't it?

Mr. BELL. Because of the purpose they are intended to serve. The very first coumn on the SAR says this is what it is estimated this job will cost at this point in time.

The second column on the SAR represents the estimate of cost at the time the Government places contracts with the contractors.

The third column on the SAR's is an estimate of what the cost will be now. The SAR is not designed to address what the system has cost us to date, except in relation to completed work packages. The Department of Defense is working to obtain this kind of information.

Chairman PROXMIRE. If we requested it could you furnish it, could you give us the objective information on the completed cost?

Mr. BELL. In our February report we stated that the Department of Defense did not have data available to relate work accomplished to date with money spent to date. Unless that condition has changed we cannot furnish the data.

Chairman PROXMIRE. That is pretty shocking. Why can't they do that?

Mr. BELL. When we pointed this out in our report the Department of Defense said they would correct that situation. That was 3 months ago. I do not know the degree in which they have corrected it since then.

Chairman PROXMIRE. Are you following that, Mr. Staats? They said they would correct it as a result of your study. Are you following up to see if they are doing this?

Mr. STAATS. I think they should.

Chairman PROXMIRE. Will you let us know about it?

Mr. STAATS. Yes.

(The following information was subsequently supplied for the record by the General Accounting Office:)

DOD REFUSES TO DISCLOSE ACTUAL COSTS OF COMPLETED WORK IN SAR'S

The Selected Acquisition Report (SAR) Instruction issued in 1968 required reporting of (a) contractor's budgeted cost of work scheduled, (b) the budgeted cost of work performed, and (c) the actual cost of the work performed. This data was to be "in consonance with" DOD Instruction 7000.2, "Performance Measurement for Selected Acquisitions" "or a similar interim system". This same requirement was again set forth in the SAR instruction when it was revised December 19, 1969.

The Deputy Secretary of Defense, in a letter to the Chairman, Senate Preparedness Investigating Subcommittee of the Committee on Armed Services, dated October 17, 1969, stated that "The contractor costs section (of the SAR) will not be transmitted simply because the data is not currently available in a validated

form." The Department of Defense has since received Bureau of the Budget approval for a Cost Performance Report (DOD Instruction 7000.8, April 1, 1970) which provides the means for DOD to acquire the necessary data from applicable contractors.

However, in the interim, DOD has apparently decided in its forthcoming SAR instruction revision to delete that portion of the SAR under which this data was to be reported. DOD's rationale for this is that the data called for pertains to contract costs rather than price, are too detailed, and are not the kind of data that needs to be highlighted to its top management. Thus, DOD currently does not plan to show in the SARs the money spent to date (actual cost of the work performed) in relation to budgeted cost of work scheduled and accomplished to date. We believe such data is important to top DOD management and to Congress and we will continue to urge DOD to develop and report summary data of this nature.

Chairman PROXMIRE. Why don't you proceed, then, with preliminary procurement cost?

MILITARY PRICE INDEX

But before we get into it, let me ask, how can you measure the effect of economic inflation on the cost of weapons programs without a military price index?

Mr. STAATS. That is what we are going to talk about on the next item.

Chairman PROXMIRE. All right.

Mr. STAATS. Mr. Chairman, in May 1969, your subcommittee recommended that the "GAO should develop a military procurement cost index to show the prices of military end products paid by the Department of Defense, and the cost of labor, materials, and capital used to produce the military end products."

Shortly thereafter we had a meeting, and we brought together representatives from Government, to see to what extent any work had been done in this field, and whether or not there was anyone that could develop suggestions as to how it could be done.

We learned at that time that the Department of Defense was preparing labor and material price indexes for categories of equipment such as airframes, aircraft engines, missiles, and vehicles.

In a letter to you of September 25, 1969, I outlined why I believed that the Department of Defense should have the responsibility for constructing military price indexes, and suggested that we would review the system developed, with the assistance of a small panel of expert consultants.

DOD LACK OF PROGRESS

Now, this was based in part on indications from the Defense Department at the time that they had definite plans to proceed with this project on a priority basis.

Since the latter part of last year, we have maintained contact with the Department of Defense to keep informed of the status of their efforts. We have also inquired into the Department's practices to determine the uses made of such indexes as a basis for payments to contractors. We have learned that some types of contracts contain clauses which are included for the purposes of providing a payment to the contractor if labor and material prices in the economy increase, and that there are wide differences in these provisions.

We have also learned that some consideration is being given to the cost indexes needed for contracting, budgeting, analysis, and cost

status reporting, but these efforts do not appear to be coordinated. Furthermore, the efforts made by the Office of the Secretary of Defense to develop military price indexes have not improved upon the indexes or expanded the coverage of those made available for us in 1969 at the meeting we indicated.

Since progress by the Department of Defense has not so far developed the kind of indexes suggested by the subcommittee's recommendation, we are exploring what actions we might take directly.

We are looking into the feasibility of constructing price indexes for military end products, and the prices of labor, material, and capital. We are considering obtaining from the Department of Defense and the Bureau of Labor Statistics whatever pertinent information is available, and preparing general indicators of the price movements of the various types of labor and nonlabor inputs typically used in the production of major weapons systems.

The problems we expect to address involve such questions as how to trace the prices over time of items whose functions and physical characteristics undergo considerable change, which statistics are appropriate for describing price changes, in what proportions should they be combined, and how do differences in contractor productivity influence the way in which the price indexes should be applied.

In the course of developing these indicators, it will be necessary to assess the adequacy of price indexes developed by the Department of Defense and others for various uses, based upon criteria developed for this assessment. We plan to include in future reviews further evaluation of the provisions of the armed services procurement regulation related to price escalation due to inflation, and the application of these provisions in specific contracts.

Most importantly, we will attempt to ascertain the extent to which price indexes can shed light on the causes of increases in the cost of major weapons systems.

Uses of Military Price Index

We agree, Mr. Chairman, that indexes can be useful in three respects. First is in forecasting. And, I believe, in some ways this may be the most important use of all, so that when Congress is called upon to authorize a new system, some indicators can be developed which would make it possible to project the costs ahead for the period of time in which the weapons system is expected to be in development and production. Some of these, as you know, run several years, 6, 7, 8 years, the full cycle. We do not now have the kind of information which, I think, we should have to make it possible to make more precise estimates on cost growth resulting from price and material increases.

Secondly, I think indexes can be useful in separating out during the course of production and after production the extent to which price inflation was responsible for cost growth. We cannot do that today.

And thirdly, I think it is important to have indexes which can give us an overall assessment as to the operation of the escalation provisions written into the contracts themselves. We have prepared an analysis which, I believe, has been made available—certainly it should be available to the committee—which studies the various provisions

in the armed services procurement regulation bearing on price escalation.

GAO PLANS TO MOVE FORWARD

We believe that the index can be helpful in assessing how well these provisions are being administered. But we have also decided separate and apart from this to make a review, and we hope a report, to Congress, on needed changes in the escalation provisions in the armed services procurement regulation, so that we can get a more consistent approach by the services as these contracts are let.

Chairman PROXMIRE. Let me ask, how much has the Defense Department's lack of progress led to your suspension of the military price index project? It seems to me that we have wasted an entire year.

Mr. STAATS. There are indexes—I think this is the point we are making—but the indexes are not complete, they can be refined, and they can be made more consistent in their application.

Chairman PROXMIRE. We just do not have a military price index now, do we?

Mr. STAATS. Yes, we have them. For example, there was an index on the C–5A. This is in the report which I said——

Chairman PROXMIRE. I did not make myself clear. I meant we do not have a comprehensive military price index that we are able to apply to weapons systems generally. Do you have a specific one for the C–5A?

Mr. STAATS. Yes, in the contract.

Chairman PROXMIRE. The military has not made progress, as you say, and the result is that we have lost a year in the overall military price index.

Mr. STAATS. We think that further work needs to be done on it, and we are going to undertake to do it.

Chairman PROXMIRE. How do you plan to identify and separate basic price movements and productivity changes in your indexes?

Mr. STAATS. Mr. Chairman, Mr. Marvin will answer that.

Mr. MARVIN. Mr. Chairman, we have not, as we have indicated, actually done any work yet in the GAO to construct an index that would meet the requirements of the recommendation. We have only reviewed the progress or lack of progress made in the Department, and we are just now beginning to consider what we would have to do to produce something that would be useful to you. I do not believe we can give you a very specific answer to that question. We are discussing with the Bureau of Labor statistics, for example, work that they do which provides productivity projections.

Chairman PROXMIRE. Let me ask, in this overall concept would you plan to recognize and adjust for inefficiencies as they may be identified in the "should cost" studies as part of the military price procurement cost index?

Mr. MARVIN. I think the thing that we would want to do is to develop indexes that would be specific enough to give us a good indication of the amount of increase in a specific weapons system that has been caused by these changes over which the contractor has no control. If we can develop that kind of index we will be able to separate out from the management actions the effect of that cost and not expect the contractor, for example, to reduce his costs below those that would be

possible in view of price increases in the economy. I think this is different than the "should cost" concept, but the two can be related.

Chairman PROXMIRE. Mr. Staats, when do you anticipate completion of the development of the military procurement cost index?

Mr. STAATS. I think that my problem of giving a categorical answer to that is that I am not certain at this time that you can get one single index. I think there will be a need for indexes for major categories of systems. The problem is in forecasting what is likely to happen on a weapons system. And here the all-important consideration is——

Chairman PROXMIRE. What we want, Mr. Staats, is what has happened. If we can get a consumer price index and a wholesale price index, why can't we get a military price index?

Mr. STAATS. That is what I was trying to say here. But we could use the present indexes. And that is what some of them are doing.

Chairman PROXMIRE. What present index?

Mr. STAATS. The ones the BLS and the Commerce Department put out.

Chairman PROXMIRE. But they do not separate military hardware. The argument we have had all along from some people on these cost overruns is they say it is a matter of inflation, and they admit we have not had 50-percent inflation in 2 or 3 years, or 100-percent inflation in 4 or 5 years. And they say, well, in the military area it is different, the costs have gone up quite beyond inflation.

Mr. STAATS. What I would like to emphasize, if I may, Mr. Chairman, is that it seems to me that where indicators of this type are useful is in three respects. One is at the time we are making the decision to buy something, to authorize it. Do you just take historical indexes of labor and materials and apply them to the future and make your projection on that basis, or do you try to refine it? What we are saying is that it needs to be refined in terms of the major components that go into the weapons systems, so that we do not just take the general averages which are available from Commerce and Labor. It is easy to do that, but what kind of a weighting do you give a major weapons system in something like the F–15?

Chairman PROXMIRE. That is exactly right. And I want to know when you are going to be in a position to do this.

Mr. STAATS. That is the first one. The other one is the one you are taking, which is after the fact; or during the course of the production of the system, how much of the cost growth that has taken place up to the point of time has been due to price inflation. In our reviews of costs of major system we will try to get the Department of Defense and the contractors to advise us as to how much of the cost growth is due to inflation. And, I think, you can use the same index for both purposes. But it is very important that in one case you are looking at the problem of being sure that your records are such that you can break this piece out. One of the things we want to do as a part of this effort, for example, is to go through and audit the operation of the price escalations written into some of these major contracts. I think that would be possibly one approach to answering this question—in other words, to do an actual audit of the operation of escalation provisions. If you have a fixed price contract which has escalation provisions in it, this is an auditable thing, and it can be done.

Experts Consulted

Chairman Proxmire. Let me ask you, who are the expert consultants who will help with this project?

Mr. Staats. I could furnish you the names of the people we have talked with.

Chairman Proxmire. Will you do that for the record?

Mr. Staats. Those are mostly within the Government, and a few outside the Government.

(The following information was subsequently supplied for the record by the General Accounting Office:)

In the past year, we have talked with several individuals in the Department of Defense regarding the procurement cost index problem. We also have discussed the theoretical and practical aspects of the problem with individuals in other Government agencies, for example, Mr. Maynard Comiez of the Commerce Department, and Mr. Robert E. Johnson of the Labor Department. We are also giving consideration to the selection of a few consultants outside of government to advise us in undertaking the work we have described.

Shipbuilding Claims

Chairman Proxmire. Your next section is the shipbuilding claims.

Mr. Staats. This part of our testimony, Mr. Chairman, is in response to the letter that you sent to us on February 12, in which an inquiry was made as to the causes of claims for additional compensation submitted under Navy contracts for major ship construction projects. We found that the Navy recently made a settlement with Todd Shipyards on the DE–1052 program in the amount of $96.5 million which was over 60 percent of the original contract price.

Also, about $450 million in outstanding claims are in process of review by various Navy settlement teams. A listing of the claims in process is provided as an appendix to this statement. In addition, there are about $340 million in claims which the Navy expects to receive in the near future. Thus, the total claims received and expected total nearly $900 million.

Shift in Contracting

Now, the explanation as to what happened really starts on the next page, unless you want me to read that page. In the early days, the Navy used fixed-price contracts only for ships with relatively firm specifications and ordinarily awarded cost- or incentive-type contracts for ship procurements involving significant unknowns. The cost- or incentive-type contracts were sufficiently elastic insofar as costs were concerned so that, although unanticipated developmental problems may have existed, the price of the contract could be expanded to provide for cost increases attributable to these unanticipated developmental problems without having to resort to the use of claims.

During the 1960's, the shipboard hardware became much more complex. For instance, the Navy specifications for certain ships called for reduction in the level of noise produced by the ship and in its resistance to shock damage. These requirements were developmental in nature, and it appears that neither the Navy nor the shipbuilders knew very much about what was involved when the contracts were awarded.

Despite the increase in the complexity of ship construction in the 1960's, formally advertised, fixed-price contracts were awarded for ship construction work involving significant unknowns. The use of this type of contract did not necessarily affect the shipbuilders' costs one way or the other, but it did produce one startling difference.

Under fixed-price contracts, the price could no longer be increased to absorb the additional costs as it could under flexible cost- or incentive-type contracts and the shipbuilders have resorted to claims as a means of increasing the contract prices.

Whether these ships will, in the final analysis, cost the Government more or less than they would have cost if cost- or incentive-type contracts had been used is conjectural.

CAUSES OF SHIPBUILDING CLAIMS

The principal causes of shipbuilding claims are four:

1. Inaccurate plans prepared by the shipbuilder who builds the first of a class—lead yard,
2. Poorly written specifications,
3. Unanticipated increases in quality assurance requirements, and
4. Late delivery of Government-furnished equipment and information.

We have developed each of these points in the next four paragraphs, four side heads. And in the conclusion we say:

"PROJECT IMPROVE"

"The Navy has been forcefully made aware of these problems as a result of the size and number of claims it has received. In response, the Navy has devised a program called 'Project Improve' which it hopes will correct many of the problems that afflicted the ships being built under the contracts to which the claims apply."

CLAIMS AND BAILOUTS

Chairman PROXMIRE. Let me ask you about these shipbuilding claims.

In explanation for the huge increase in shipbuilding claims, you state that "under fixed-price contracts, the price could no longer be increased to absorb the additional costs as it could under flexible cost or incentive type contracts, and the shipbuilders have resorted to claims as a means of increasing the contract prices."

But is the claim procedure supposed to be a way to enable a contractor to increase the price of the contract? If this is a proper way to interpret the claim, isn't it merely a new get-well or bailout technique? Aren't you really saying that the shipbuilders have decided to use the claim procedure as a way to fatten their contracts?

Mr. STAATS. Mr. Keller?

Mr. KELLER. I would say this, that the shipbuilders have used this claim method due to the fact that they were locked in under a fixed-price contract. And if the specifications were inadequate, if Government-furnished material were late, it is possible that they would have

a very good claim under a fixed-price contract. I do not know how they will all turn out, but certainly under contract law that is a complaint.

Chairman PROXMIRE. Are you saying, then, that it is a method of bailing out?

Mr. KELLER. I think it is a question of awarding price adjustments. You do have constructive changes in contracts which the law does take into consideration. And many of these will fall in that category.

INEFFICIENCY FACTOR

Chairman PROXMIRE. I notice that there is no mention of poor cost management or inefficiency as a cause of cost increases. Are you satisfied that this omission is warranted?

If so, how did you satisfy yourself?

Mr. KELLER. I do not know that we are really in a position at this point to satisfy ourselves on this question, because we have not really gone that far into it. We are trying to develop the reasons for the claims being made, and what caused the claims to be brought about, what they are based on.

Chairman PROXMIRE. Who in the Navy is responsible for preparing the specifications to which you attribute so much of the problem?

LOCKHEED'S CLAIMS

Mr. HAMMOND. In the case of the first item it would be the lead yard that had the responsibility—the yard that built the first ship and prepared the detailed specifications to be followed by other yards.

Chairman PROXMIRE. Mr. Staats, I notice in the appendix to your prepared statement listing the shipbuilding claims that Lockheed has by far the largest claims pending against the Navy and, further, that the Lockheed claims represent a higher percentage of the total contracts on which its claims are based than do any other contractors' claims. Can you offer any explanation for this? Does this suggest to you that Lockheed may be the most inefficient shipbuilding contractor?

Mr. STAATS. I cannot really answer your question, Mr. Chairman.

Chairman PROXMIRE. Is Lockheed the largest shipbuilding contractor?

Mr. HAMMOND. I do not believe it is the largest one.

Chairman PROXMIRE. Can you tell us how it ranks in the order of the largest shipbuilding contractors?

Mr. HAMMOND. We can furnish that.

Chairman PROXMIRE. Will you do that?

(The following information was subsequently supplied for the record by the General Accounting Office:)

The Navy advised us it does not have information readily available as to the relative size of the various shipbuilders. However the following is a list of major shipbuilders showing the value of their contracts as of January 1, 1970, as reported in the May 16, 1970 issue of Business Week:

NEW SHIPS UNDER CONSTRUCTION OR ON ORDER IN PRIVATE YARDS

[Value in millions of dollars]

Company and site	Navy ships	Merchant ships
Alabama Drydock & Shipbuilding Co., Mobile, Ala	72	0
American Shipbuilding Co., Lorain, Ohio	0	18
Avondale Shipyards, Inc., New Orleans, La	288	268
Bethlehem Steel Corp., Sparrows Point, Md	60	28
Defoe Shipbuilding Co., Bay City, Mich	30	0
General Dynamics Corp.:		
Electric Boat Division, Groton, Conn	950	0
Quincy Division, Quincy, Mass	250	98
Litton Industries:		
Erie Marine, Inc. Division, Erie, Pa	0	18
Ingalls Shipbuilding Division, Pascagoula, Miss	1,100	219
Lockheed Aircraft Co., Shipbuilding & Construction Division, Seattle, Wash	230	0
National Steel Co., San Diego, Calif	248	0
Sun Shipbuilding & Drydock Co., Chester, Pa	0	72
Tenneco, Inc. Newport News Shipbuilding & Drydock Co., Division, Newport News, Va	920	0
Todd Shipyard Corp.:		
San Pedro, Calif	150	0
Seattle, Wash	165	0

Chairman PROXMIRE. You say you cannot tell whether this would be a fair indication of their efficiency as a contractor, the fact that their claims are so high. Why is that? Why wouldn't this be an indication? Why wouldn't it be fair to associate the size of the claim with efficiency?

Mr. KELLER. Mr. Chairman, I do not think the size of the claim is the controlling factor. I think some of these reasons why the claims arose are traceable right back to the Government, such as delay in furnishing Government equipment, just using that as an example.

Chairman PROXMIRE. You see, what I am looking at is this appendix that shows that $360 million as the amount of the contract, and the amount of the claim is $173 million, almost 50 percent of the size of the contract.

Newport News, for example, has a $650 million contract, and their claim is only $86 million, in that case only 15 percent.

Mr. KELLER. Mr. Chairman, I am not making an argument for their efficiency, I am just trying to qualify my answer by saying that I cannot reach that conclusion just on the basis of what we know and the figures themselves.

LOCKHEED'S FINANCIAL CONDITION

Chairman PROXMIRE. That appropriately leads us, Mr. Staats, to Lockheed's financial position.

Mr. STAATS. I believe that is the next item.

Mr. Chairman, on March 10 you asked us to see what information on the financial condition of the Lockheed Aircraft Corp., and its ability to continue performance of its military contracts. As you know, the work on your request has been substantially completed except for information on Lockheed's cash position and its cash requirements for the next 2 years with respect to all major Lockheed programs.

You indicated in your letter that you sent to us that you wanted information and not our opinion or our conclusions as to what courses of action might be open.

Now, Lockheed's financial problems were summarized by the chairman of the board of Lockheed in his letter of March 2, 1970, to the

Deputy Secretary of Defense, and were discussed by the Secretary in testimony before the House and Senate Armed Services Committees on March 9 and 10.

The Deputy Secretary, in his testimony, stated his intention to keep the committees fully informed as to the progress being made toward a workable solution.

In a letter dated March 27, 1970, the Deputy Assistant Secretary of Defense—Comptroller—informed us that while some preliminary information was available on Lockheed's financial position, the Department of Defense did not consider that the data were sufficiently complete on which conclusions could be based concerning the course of action which should be taken. We were advised at that time that more current and complete data were being gathered and that Defense expected to be in a position to provide data from this analysis to us by about April 20, 1970.

The Department of Defense could not meet that deadline because Lockheed's legal staff expressed reservations about release of certain financial data which the company considers to be proprietary in nature. We understand that Lockheed is attempting to develop a workable solution to its financial problems and, at the same time, enable production to continue so as to meet the Government's needs.

DOD REFUSES TO PROVIDE COST FLOW ANALYSIS

The Department of Defense is following this matter closely and we understand that any proposal for the Government to furnish financial assistance to Lockheed will be presented to the appropriate committees of the Congress before such assistance is furnished.

Chairman PROXMIRE. May I ask you, based on what you now know, Mr. Staats, can you assure us that the relief money of Lockheed will be indeed used exclusively for their military program, or is there a possibility that some of it might be used for their commercial programs?

Mr. STAATS. The difficulty we have had, and I am sure it is the basis on which this information has not been made available, is that any effort to develop cash flow information for a company has to be for the company as a whole, as you can appreciate. Lockheed does have a sizable business. This information, therefore, does not become available to the Government because of its proprietary nature.

Chairman PROXMIRE. That just makes no sense at all to me. Here they are asking us for $641 million, with $200 million as an initial payment, which is in the legislation that comes before the Senate shortly, and they would not give us cash flow data which any competent banker would insist on before he makes a loan of a million or two million dollars to a corporation.

It seems to me that we owe it to the taxpayer to insist that we get the facts. There is nothing classified about it in terms of national defense or in terms of our security. And so much of Lockheed's business, 95 percent, is with the Government.

Mr. STAATS. Well, I cannot testify as to the status of the discussions and negotiations that have taken place between Lockheed and its own financial sources.

Chairman PROXMIRE. What concerns me is that they asked for $200 million, and then $640 million, and they may ask for another $600

million. And unless we know what their cash inflow is, and what their cash outflow is in all their programs, it would seem to me that we are not in a position to either protect the taxpayer, or what is even more important, to assure the Nation of adequate defense, because they have the most crucial military programs of any contractor in the country by far. And all of them are in jeopardy.

GAMA GOAT

Mr. STAATS. We cannot state at this point, nor to the best of my knowledge is the Defense Department prepared to state, what the solution to this problem may be, that is, whether there will be requests for any financial relief from the Federal Government. But all I can testify to as of today is that the information with respect to cash flow has not been made available to us, and to the best of my knowledge, not to the Department of Defense, pending discussions which, I believe, Lockheed is having with its own financiers.

Chairman PROXMIRE. That brings us to the Gama Goat.

Mr. STAATS. The Gama Goat is a one and a quarter ton 6 by 6 wheel drive cargo truck which is currently in production. Its purpose is to give high mobility over very adverse terrain, with floating, swimming, and airdrop capabilities. It is supposed to be a multiuse vehicle. The idea is to have a vehicle which will permit operation in the same environmental terrain as the units that the vehicle is intended to support. It is supposed to be very adaptable.

The information that we have with respect to the costs in this case is principally from the Army's selected acquisition report for the period ending March 31, 1970. I do not believe we have gone behind these figures on a direct audit basis, we have not had time.

The cost of the Gama Goat program increased $370.2 million from the planning estimate of $69.1 million to the current estimate of $439.3 million. As we stated in our report to Congress in February 1970, the planning estimate of $69.1 million did not represent the Army's total program. This planning cost represented an estimate of only the first procurement.

REASONS FOR COST GROWTH

The principal reason for the cost growth of the Gama Goat program is attributed to—

(1) The increase in the quantity of vehicles to be procured, and

(2) The increase in unit cost of the vehicles.

The estimated number of vehicles to be procured during the total program increased by approximately 230 percent over the number shown as the planning estimate.

The unit cost of the vehicles increased by about 93 percent when compared to the estimated unit cost used as the planning estimate and the current estimate for the total program. The increase in unit cost is attributed by the Army to such causes as engineering change, unpredictable events (strikes), underestimates for certain components, procurement of less than an economical quantity, and cost escalation.

SCHEDULE SLIPPAGE

With respect to scheduling, our report of February 1970, showed that the Gama Goat program experienced slippage of 32 months.

The latest selected acquisition report shows that additional slippage has occurred since the June 30, 1969, report. The effect of this slippage is a later delivery date of the vehicle to the major commands. This delivery is now estimated for late 1970. The most recent delay is attributed to a revision of parts lists attendant to a change in the source for the vehicles' brakes and to a labor strike at the contractor's plant.

We also cover the performance point.

Our conclusion from our own prepared statement on the following page is as follows:

DEVELOPMENT PROGRAM INITIATED PREMATURELY

The Gama Goat development program was initiated before performance requirements expressed by the user were determined valid and feasible. Those expressed characteristics were not met, however, and possibly were not realistically achievable. For example, the Gama Goat now has a curb weight of 7,400 pounds, whereas the user desired a curb weight of 2,500 pounds.

A combat item is approved for mass production when, through engineering and service tests, it has demonstrated the capability to meet all essential characteristics. The Gama Goat was approved for mass production in June 1966, despite known vehicle defects and the incompleteness of the technical data package. In our opinion, the approval of this item for mass production was premature.

Reasons for Cost Overruns

Chairman Proxmire. Now, this strikes me as being one of the strangest cases of Government mismanagement and contractor inefficiency to be brought to our attention so far. It is obvious, Mr. Staats, from your statement that it has all the hallmarks of modern procurement: huge cost overruns, substantial schedule delays, and poor technical performance.

Let me ask you this:

1. What accounts for the cost overruns? Even on a unit basis, the costs have gone up by almost 100 percent. I must say, frankly, the explanation that you have offered, which includes engineering change, underestimates, and "cost escalation" is not very helpful to an understanding. What does cost escalation mean? Have you tried to break down the costs of the program into the traditional accounting categories of labor, materials, and overhead?

2. Why have the number of units first gone up and now been scheduled to go down? What will this do to the unit cost?

Mr. Staats. We point out that there are increases in total cost which are, in part, due to the increase in the buy, but we also point out that the unit cost of the vehicles even with this larger buy went up 93 percent.

Mr. Bell. If we can go back a moment to the interchange we had earlier on the preparation of estimates, perhaps we can throw some light on this in the Gama Goat project.

The initial estimate that is prepared is a Government estimate, and it does not as a rule involve contractors. The initial estimate prepared on weapons systems is essentially a Government estimate, and does not involve in any significant way a contractor estimate. As we say in

the prepared statement, the Government estimate on the Gama Goat was prepared before the Army really knew what it was they wanted to buy. And then put the items into production before they worked out known problems and agreed what they wanted.

For example, one of the items that accounts for a fairly substantial portion of the cost growth in the Gama Goat program on a purely mathematical basis was economic escalation. The contract that was ultimately awarded contained a 3-percent factor, which amounted to a fairly sizable amount of money, about $24 million omitted from the original estimate.

Insofar as the mechanical characteristics of the vehicle itself are concerned, an item that added to its cost is the requirement for sealed brakes, which the Army put in later. This added a unit cost of $655 per vehicle and for a program involving 30,000 vehicles raised the costs by a substantial amount of money.

The original estimate was for a vehicle to weigh 2,500 pounds. They found——

Chairman PROXMIRE. What does cost escalation mean?

Mr. BELL. The escalation here would be to provide for increases in labor and material costs over a 3-year contract.

Chairman PROXMIRE. Do you have that breakdown? That is what I asked for, do you have that by labor and materials?

Mr. BELL. In the original estimate for the Gama Goat prepared by the Army there was no provision for escalation. The contract awarded to the producer did contain an escalation clause and the escalation did, in fact, take place. This widened the cost growth from the original estimate.

Chairman PROXMIRE. You said something about a 3-percent allowance which was inadequate.

Mr. BELL. Three percent per year was built in the production contract, but nothing was included in the original estimate for escalation. There are items I could enumerate that added to the unit cost. As its weight grew, they had to put heavier shock absorbers——

Chairman PROXMIRE. Do you know how much of this increase was because of increased overhead?

Mr. BELL. No, sir.

Chairman PROXMIRE. You do not know that?

Mr. BELL. No, sir.

Chairman PROXMIRE. Why not?

Mr. BELL. We have not been out to the contractor's plant to make a review of this specific program. There was a time when this——

Chairman PROXMIRE. All you know is that there is not an allowance that is adequate as far as labor cost increases?

Mr. BELL. There was no allowance at all in the original estimate.

Chairman PROXMIRE. In the contract there was a 3-percent allowance that was not enough?

Mr. BELL. There was a 3-percent allowances; yes, sir.

Chairman PROXMIRE. And you do not know how much the materials or overhead increased?

Mr. BELL. No, I do not.

Chairman PROXMIRE. Certainly there is a presumption that most of this increase is not a labor cost. We have had a labor cost increase

especially in the last 3 years. But that wouldn't account for this huge cost escalation.

Mr. BELL. No. But there are such things as the addition of sealed brakes and so forth.

Chairman PROXMIRE. I was talking about the unit cost, I was referring to the fact there was a 3-percent increase in unit cost.

Why have the number of units gone up and are now scheduled to go down?

Mr. BELL. As we stated in the prepared estatement, the Army's initial estimate did not represent the Army's entire program, it represented their first buy. Their total program was about 30,000 units. It was an incremental thing.

Chairman PROXMIRE. In other words, they had the estimate, but they just did not disclose it. The estimate did not change. The number of units that were ordered, they simply did not disclose that they were ordering that number to begin with.

Mr. BELL. At the time they prepared this estimate in 1961, it was my understanding that it was their practice to put in incremental requirements, and that is what they did here, Mr. Chairman.

REASONS FOR SCHEDULE DELAY

Chairman PROXMIRE. You said the program has slipped 32 months and that there will be additional slippage. How many more months of delay will there be? What accounts for the delay?

Mr. BELL. I think that the current estimate for slippage is to add about another 3 months. The Army will start equipping the first units about November of 1970, rather than the late summer or midsummer.

Chairman PROXMIRE. What is the reason for the delay?

Mr. BELL. One of the problems that added to this somewhat is the Army's inability to get the vehicle——

Chairman PROXMIRE. Overall it is now a 3-year delay, and another 3 months on top of the 32 months, so that would be about 36 months, or 3 years.

Mr. BELL. About 36 months. And the principal reason for the delay, in addition to the strikes that have been mentioned here, is the Army's attempt to get a serviceable vehicle that is sturdy enough to perform the functions that they planned to buy.

Chairman PROXMIRE. You did not have any 3-year strike, this one and a quarter——

Mr. BELL. That is one item that contributed to the delay, sir.

SPECIFICATIONS CHANGES

Chairman PROXMIRE (continuing). You state, "With the exception of vehicle weight, maintainability and reliability, the approved Gama Goat characteristics have not changed significantly since inception." But those are three pretty big exceptions, it seems to me.

How much did the weight increase? Was it from 2,500 pounds to 7,500 pounds?

Mr. BELL. Yes, a threefold increase.

Chairman PROXMIRE. In other words, instead of a little more than 1-ton truck you have got nearly a 4-ton truck.

At any rate, isn't a 300-percent weight increase in a vehicle a rather unusual variance?

And you say the Army wanted the lighter vehicle.

Mr. BELL. As we stated in the prepared statement the Army had not really decided what its requirements were at the time they started to buy the vehicle. They stated they would like a vehicle that would weigh about 2,500 pounds, and they did not know whether they could get it.

Chairman PROXMIRE. Isn't this a pretty good lesson that they ought to know what they want before they start producing these things?

Mr. BELL. Yes, sir; there is not the slightest question of that. This is a prime example of starting to buy something before you really know what it is you want.

Chairman PROXMIRE. Are they satisfied with the vehicle that weighs three times as much as they originally asked?

Mr. BELL. Well, it has not really completed its field testing yet. Only four units have been produced, so they do not really know, I am sure, whether or not it will actually do what they want it to do.

Chairman PROXMIRE. How many are in production?

Mr. BELL. Eight hundred thirty-three.

Chairman PROXMIRE. And it has not undergone a field testing?

Mr. BELL. No, it has not. Field testing has not been completed. The principal item that I recall that has shown up in field testing is that it has not been able to go 20,000 miles without a breakdown as specified in the original requirement.

Chairman PROXMIRE. Who designed the Gama Goat?

Mr. BELL. Ling-Temco-Vought in Dallas, Tex.

Chairman PROXMIRE. And who has the production contract?

Mr. BELL. Consolidated Diesel Electric Co. in Charlotte, N.C.

Chairman PROXMIRE. What kind of a contract is it?

While you are looking that up, do you know if LTV ever designed a truck before this?

Mr. BELL. No; I do not know.

Chairman PROXMIRE. You do not know whether they did or not?

Mr. BELL. No.

Chairman PROXMIRE. Will you explain that for the record?

Mr. BELL. Whether or not the LTV ever designed a truck?

Chairman PROXMIRE. Yes.

And also the kind of a contract involved.

Mr. BELL. Yes, we will do that.

(The following information was subsequently supplied for the record by the General Accounting Office:)

The production contract with Consolidated Diesel Electric Company was a fixed price contract with a provision for escalation. LTV had not previously designed a truck.

Chairman PROXMIRE. Does that complete your statement, Mr. Staats?

Mr. STAATS. It does, Mr. Chairman.

(The prepared statement of Mr. Staats follows:)

PREPARED STATEMENT OF HON. ELMER B. STAATS

Mr. Chairman and Members of the Subcommittee: I am pleased to appear before your Subcommittee today. I will address myself to certain matters discussed in the May 1969 report of your Subcommittee, and to other significant areas in which you have indicated an interest.

DEFENSE PROFITS STUDY

As you know, Public Law 91–121 directed GAO to conduct a study and review on a selective representative basis of the profits made by contractors and subcontractors on contracts on which there is no formally advertised competitive bidding entered into by the Department of Defense, Coast Guard, and National Aeronautics and Space Administration. Similar contracts entered into by AEC to meet requirements of the Department of Defense were also included.

We are taking two basic approaches in accomplishing the study and these are (1) the use of a questionnaire to determine annual overall profit rates for selected defense contractors for the years 1966 through 1969, and (2) a review to develop profit data on individual randomly selected contracts.

DETERMINATION OF OVERALL CONTRACTOR PROFIT RATES

The questionnaire we have developed provides for selected contractors to furnish information on sales, profits, total capital investment, and contractor equity capital investment for defense business and various other categories of sales. We are also requesting a breakdown of sales and profits by type of contract for DOD sales and for sales to the other Federal agencies included in the study. While the legislation only calls for a study of negotiated contracts, we will need information from the selected contractors concerning their advertised defense contracts and commercial work in order to check on cost and capital allocations for the various categories of sales. Also, for the negotiated contract profit data to be meaningful, we will need something to compare it with. We are, therefore, requesting contractors to furnish data to enable us to present a comparison of the profits on commercial and defense work in our study report.

The Profit Study questionnaire was distributed on March 26, 1970, to approximately 150 large and small businesses that perform negotiated prime contracts and subcontracts for one or more of the agencies included in the study. The contractors selected receive over 60 percent of the procurement funds expended by these agencies.

Subsequent to distribution, we called each contractor to offer assistance and consultation on completing the questionnaire. On the whole the contractors have been very cooperative and to date none has refused us access to his records. However, about 20 percent of the contractors have advised us that they do not believe they can complete the questionnaire by June 15, as we requested, and some have indicated that it will be September or October 1970 before they can furnish the data.

A random selection of about 30 percent of the questionnaires will be made and the responses to these will be verified to the contractors' records to enable us to form an opinion on the validity of the information being provided. We anticipate that this will probably be the most difficult part of the assignment.

In view of the importance of the data to be developed from the questionnaire, we took the time necessary to review a draft with several Government agencies experienced in obtaining information from industry. As a further step, we reviewed the questionnaire with several defense contractors to determine whether it would be possible and practical to obtain the information we desire. Because of these efforts to assure we had a questionnaire that would yield the data required, and the delays that are now indicated in contractors' completing the questionnaire, it is unlikely that we will be able to meet the December 31, 1970, deadline for furnishing a report to the Congress.

GAO REVIEW OF INDIVIDUAL CONTRACTS

In addition to the questionnaire, we are reviewing 144 prime contracts and subcontracts at 37 contractor locations. These contracts total about $3.8 billion and were awarded by the Department of Defense, National Aeronautics and Space Administration and the Atomic Energy Commission. The contracts range from in excess of a million dollars to over several hundred million dollars and include various cost reimbursement and fixed price types. Contracts selected were awarded after January 1, 1964, the date when the weighted guidlines for the negotiation of profit were implemented, and were substantially completed after June 30, 1968.

We believe that selection of contracts within the above time frame will provide a meaningful comparison of actual profits earned with estimated profit rates as negotiated under present procurement policies.

The contracts selected in our review were awarded for major weapon systems,

subsystems and components, and cover research, development, engineering, procurement, maintenance and overhaul of items in the following product categories: aircraft, missiles, space systems, ammunition, electronics, communications, and vessels. One of the things we expect from our contract reviews is to determine the effect that the use of Government facilities and progress payments have on the rate of return on contractor investment.

Feasibility of Using "Should Cost" Concepts

In the Subcommittee's report this definition of "should cost" was provided: "The should-cost approach attempts to determine the amount that weapons systems or products ought to cost given attainable efficiency and economy of operation."

Therefore, "should cost" reviews would not only utilize all the current concepts employed in evaluating price proposals but would include development and consideration of possible areas for attaining economy and efficiency in the procurement of the product or service. Under this approach less reliance is placed upon historical cost experience

In May 1969, your Subcommittee recommended that GAO study the feasibility of incorporating into its audit and review of contractor performance the "should cost" method of estimating contractor costs. An interim statement concerning our progress in this study was presented before your Subcommittee in December 1969. In our report entitled "Feasibility of Using 'Should Cost' Concepts in Government Procurement and Auditing" we concluded as follows:

1. Our tentative opinion is that it is feasible for GAO to incorporate "should cost" concepts to a greater extent in its post-award reviews. However, in order to obtain better insight into the circumstances under which these concepts should be used, we are performing some trial applications. These trial reviews are intended to provide answers to such questions as (a) what problems may be met in making these "should cost" reviews, (b) what size of program or contractor activity should be reviewed, (c) what type of contract would be most susceptible for these reviews, and (d) what benefits can be expected.

2. The greatest opportunity for savings to the Government in the application of a "should cost" review would be prior to the award of contracts—during the prenegotiation evaluations of contractors' price proposals. At this point in time the results would be of maximum benefit to the Government negotiator in arriving at a fair and reasonable price. In addition, the contractor is generally more willing to implement corrective procedures during this time, since he stands the greatest opportunity to realize the most benefits from any constructive recommendations developed during the review. Thus, we believe that the procuring agencies can make greater use of such reviews than at present prior to price negotiations.

3. In addition to the preaward reviews, Government agencies also should consider performing "should cost" reviews selectively on a post-award basis. These reviews could provide the Government with valuable data on contractors' performance and cost consciousness, and the adequacy of the Government's prenegotiation efforts.

4. The extent and depth of the application of "should cost" concepts should be flexible. "Should cost" reviews at one contractor location could cover his entire operation, whereas at another contractor facility, it might be feasible to review only one or two of his major functions. The degree to which the "should cost" concepts ought to be applied at any given location will depend upon the information developed in the initial stages of the review, and the confidence that can be placed on the efficiency of the contractor's day-to-day operations.

5. It should be recognized that the benefits that can be derived from these reviews are dependent in large part on the contractor's willingness to cooperate with the review team. Reviews of this type to be effective require not only access to all books and records, but also access to middle and top management officials, who can explain how the company's operations are managed and controlled, who are willing to discuss and consider suggestions for improvements made by the review team and who stand ready to make changes that appear to be constructive and practical.

The preceding comments pertain primarily to the work which is summarized in our report. I would now like to comment briefly on some aspects that developed in the work we are conducting at the selected contractors' plants. Although it is too early to reach definitive conclusions from our trial applications of "should cost" concepts, I will comment briefly on our basis for selection of contractors for review.

SELECTION OF CONTRACTORS FOR REVIEW

In selecting the contractors for our trial reviews, we considered several factors to give some assurance that the reviews wuold provide us with information that would be helpful in planning future efforts of this type. In order to evaluate the various aspects and perform the work in a timely manner, we selected contractors or plants of contractors that were of medium size. The types of products selected vary, and so do the production capabilities. The plants selected can be categorized as (a) mass production, (b) semi-production line, and (c) job shop or development.

In this selection process we also considered the types of programs that were involved and the types of contracts that had been awarded to these plants. It was considered desirable to include cost-type and incentive-type contracts as well as firm fixed-price contracts. We included fixed-price negotiated contracts, because such contracts if awarded without full and free price competition could benefit from "should cost" reviews if other facts and circumstances warrant their being made. Probably one of the most common would be where a contractor can be expected to participate in future programs for the same or for similar type items, and the observations and recommendations from these reviews could assist the Government contracting officer during the negotiation and pricing of the follow-on work.

MAJOR ACQUISITION REVIEWS

The General Accounting Office issued a report entitled, "Status of the Acquisition of Selected Major Weapon Systems," B–163058, on February 6, 1970. We reported that as of June 30, 1969, there were a total of 131 major programs in various phases of the acquisition process, and their total costs were estimated to aggregate about $141 billion. Of this amount, funds proximating $55 billion had been funded to the programs by the Department of Defense (DOD) through June 30, 1969. The unclassified report was supported by a separately bound classified appendix reporting on the individual status of 57 systems as of September 30, 1969. The report included our comments on the Selected Acquisition Report (SAR) system of the DOD and our comments on cost schedule and performance experience of major weapon systems.

Highlights of that report are as follows:

Considerable cost growth had occurred and was continuing to occur. Available data on 38 systems disclosed that the current estimates through program completion were about 50 percent higher than the original planning estimates.

Significant variances either existed or were anticipated between the performance originally expected and that currently estimated for a large number of systems reviewed.

Slippage in the originally established program schedules of from 6 months to more than 3 years either had been experienced or was anticipated to be experienced on many of the systems.

REVIEW OF UNDERLYING CAUSES OF COST, SCHEDULE AND PERFORMANCE VARIANCES

Following the above report we undertook a further review to determine the underlying causes for changes, cost growth, schedule slippage, and shortfalls in performance of defense acquisition programs.

Classified reports on 26 individual weapons are to be prepared. An unclassified report will be prepared as an overview summary of underlying causes of problems in the defense acquisition process as determined in examining the 26 weapon programs.

Analysis of the frequency of occurrence and magnitudes of the categories of acquisition problems on the weapons examined disclosed that their underlying causes were as follows:

Unrealistic cost estimates and lack of stable relative priority.

Unwarranted degree of concurrency of development and production.

Lack of administrative discipline in preparing and fulfilling program authorities.

Unrealistic initial requirements for performance and schedule.

Changes in operational capability without recycling through prerequisites to development.

Factors beyond the control of the Department of Defense.

The classified reports will be handled as appendixes to the overall report.

REVIEW OF THE MAJOR ACQUISITION PROCESS

Current efforts being undertaken are designed to satisfy the following three objectives:

1. Furnish data on individual weapon systems to the Congress that will be useful in its authorization and appropriation processes.
2. Provide an annual report on the status of major acquisitions.
3. Evaluate the fundamental management concepts and processes utilized by DOD in determining the need for and in acquiring major weapon systems.

Changes in quantities of weapon systems being bought materially affect the total estimates of cost of acquiring such systems. To ensure that our annual report on the status of major acquisitions more accurately shows the status of changes in systems acquisition programs, we plan to change our report format to show the cost data by system in terms of unit costs and total program estimates at three principal points in time as follows:

1. At completion of an approved technical development plan—usually accomplished at conclusion of concept formulation.
2. At the conclusion of contract definition.
3. Current estimate to complete programs at end of last available calendar period preceding our report.

In addition, we are hopeful that we can include in our report some data that might be helpful in gauging the effect of economic inflation on the cost of the systems being acquired.

MILITARY PROCUREMENT COST INDEX

The May 1969 report of your Subcommittee recommended that the "GAO should develop a military procurement cost index to show the prices of military end products paid by the Department of Defense, and the cost of labor, materials, and capital used to produce the military end products." Shortly thereafter, we convened an inter-agency meeting of experts to discuss the matter. It was learned at this time that the Department of Defense was preparing labor and material price indexes for categories of equipment such as airframes, aircraft engines, missiles and vehicles. In a letter to you of September 25, 1969, I outlined why I believed that the Department of Defense should have the responsibility for constructing military price indexes, and suggested that we should review the system developed, with the assistance of a small panel of expert consultants.

Since the latter part of last year, we have maintained contact with the Department of Defense to keep informed of the status of their efforts. We have also inquired into the Department's practices to determine the uses made of such indexes as a basis for payments to contractors. We have learned that some types of contracts contain clauses which are included for the purpose of providing a payment to the contractor if labor and material prices in the economy increase, and that there are wide differences in these provisions.

We have also learned that some consideration is being given to the cost indexes needed for contracting, budgeting, analysis, and cost status reporting, but these efforts do not appear to be coordinated. Furthermore, the efforts made by the Office of the Secretary of Defense to develop military price indexes have not improved upon the indexes or expanded the coverage of those made available to us in 1969.

Since progress by the Department of Defense has not so far developed the kind of indexes suggested by the subcommittee's recommendation, we are exploring what actions we might take directly. For example, we are considering obtaining from the Department of Defense and the Bureau of Labor Statistics whatever pertinent information is available, and preparing general indicators of the price movements of the various types of labor and non-labor inputs typically used in the production of major weapons systems. The problems we expect to address involve such questions as, which statistics are appropriate for describing price changes, in what proportions should they be combined, and how do differences in contractor productivity influence the way in which the price indexes are applied.

In the course of developing these indicators, it will be necessary to assess the adequacy of price indexes developed by the Department of Defense and others for various uses, based upon criteria developed for this assessment. We plan to include in future reviews further evaluation of the provisions of the Armed Services Procurement Regulation related to price escalation due to in-

flation, and the application of these provisions in specific contracts. Most importantly, we will attempt to ascertain the extent to which price indexes can shed light on the causes of increases in the cost of major weapons systems.

SHIPBUILDING CLAIMS

In response to the Chairman's letter of February 12, 1970, we made an injury into the causes of claims for additional compensation submitted under Navy contracts for major ship construction projects. We found that the Navy recently made a settlement with Todd Shipyards on the DE 1052 program in the amount of $96.5 million which was over 60 percent of the original contract price. Also, about $450 million in outstanding claims are in process of review by various Navy settlement teams. A listing of the claims in process is provided as an appendix to this statement. In addition, there are about $340 million in claims which the Navy expects to receive in the near future. Thus, the total claims received and expected total nearly $900 million.

In my comments today, I will identify some of the reasons for the unprecendented size of the claims being made.

USE OF FIXED-PRICE CONTRACTING FOR DEVELOPMENTAL PROCUREMENTS

A common answer to the question "What caused the current claims situation?" is the Navy's increased use of formally advertised fixed-price contracts for ship construction during the 1960's. We believe this is a simplistic view of the problem. The Navy did increase its use of formally advertised contracts for ship construction work during the 1960's but this alone did not produce significant changes since the Navy had long used fixed-price contracts for ship construction and many such contracts were awarded by competitive negotiations using contracting procedures that were not very different from the procedures under which formally advertised awards are made. The difference, as we see it, is in the application of fixed-price contracting to situations where the specifications were less firm.

In earlier days, the Navy used fixed-price contracts only for ships with relatively firm specifications and ordinarily awarded cost- or incentive-type contracts for ship procurements involving significant unknowns. The cost or incentive-type contracts were sufficiently elastic insofar as costs were concerned so that, although unanticipated developmental problems may have exisetd, the price of the contract could be expanded to provide for cost increases attributable to these unanticipated developmental problems without having to resort to the use of claims.

During the 1960's, the shipboard hardware became much more complex. For instance, the Navy specifications for certain ships called for reduction in the level of noise produced by the ship and in its resistance to shock damage. These requirements were developmental in nature, and it appears that neither the Navy nor the shipbuilders knew very much about what was involved when the contracts were awarded.

Despite the increase in the complexity of ship construction in the 1960's, formally advertised, fixed-price contracts were awarded for ship construction work involving significant unknowns. The use of this type of contract did not necessarily affect the shipbuilders' costs one way or the other, but it did produce one startling difference. Under fixed-price contracts, the price could no longer be increased to absorb the additional costs as it could under flexible cost- or incentive-type contracts and the shipbuilders have resorted to claims as a means of increasing the contract prices. Whether these ships will, in the final analysis, cost the Government more or less than they would have cost if cost or incentive-type contracts had been used in conjectural.

PRINCIPAL CAUSES OF SHIPBUILDING CLAIMS

There are numerous reasons advanced regarding what caused the claims and I will not try to discuss them all. Instead, I would like to concentrate on the four most significant problems that came to our attention. These were:

1. Inaccurate plans prepared by the shipbuilder who builds the first of a class (lead yard),
2. Poorly written specifications,
3. Unanticipated increases in quality assurance requirements, and
4. Late delivery of Government-furnished equipment and information.

Inaccurate lead yard plans

It is a standard practice for following shipbuilders to buy working plans from the lead yard. This practice is practically mandatory because the cost of preparing working plans is so great—about $20 million in the case of the DE 1052.

One of the major causes of claims, according to the information made available to us, was inaccuracies in lead yard plans which created disruptions and defective work and thereby increased the shipbuilders' costs. One shipbuilder has several such claims which range from $3 million to $8 million each. The Navy position is that it does not assume responsibility for lead yard plans, because of a clause in its contracts with the shipbuilders which disclaims responsibility for defects in lead yard plans. The shipbuilders dispute the Navy position and contend that the intent of the clause was to prevent numerous claims of a minor nature and that clearly they could not have been expected to absorb the impact of major disruptions caused by faulty lead yard plans.

Regardless of which view is correct, it appears that for future ship construction projects some action is necessary to see that inaccuracies in lead yard plans are detected before they result in significant increases in cost.

Poorly written specifications

A second problem which the shipbuilders cite as a cause of additional costs is poorly written ship specifications. According to the shipbuilders, the true meaning of the Navy's specifications has too often been left for interpretation after the contract was awarded. This not only causes shipbuilders to bid too low but also can lead to costly rework when work is done to the shipbuilders' understanding of the specification and then has to be redone to make it conform to what the Navy intended. In other cases, specifications have not been accurate and have had to be revised to produce what was really wanted. We believe that this matter merits considerable attention in future ship procurements.

Unanticipated increase in quality assurance requirements

The third cause advanced by the shipbuilders is the unanticipated increase in quality assurance requirements. Their comments here indicate that this increase in quality assurance requirements was more than a vagueness in requirements but represented a change in the whole Navy attitude toward quality in ship construction. The increased emphasis on quality seems to have originated with the loss of the submarine "Thresher" in April 1963. Following this incident, the Navy required more stringent quality control practices and applied its requirements to the construction of surface ships as well as submarines.

While both the Navy and the shipbuilders agree that the quality assurance requirements were increased, there is no agreement on whether the shipbuilders should have recognized these requirements and provided for them in their bid prices. The Navy believes the shipbuilders were too slow in recognizing the changed environment on quality assurance and that many of the bid prices involved in these claims should have contained provision for the cost of these new quality assurance requirements.

The shipbuilders disagree with the Navy's allegation that they should have made provision in their bids for increased quality assurance requirements. Aside from the question as to whether the Navy or the shipbuilders should be responsible for increased quality assurance costs, shipbuilders have expressed the thought that many of the increases should never have occurred in the first place. They believe that there has been an increasing effort by demanding quality for quality's sake and inspection for inspection's sake rather than applying added control only where it is really necessary.

We believe it important to future ship construction projects that the Navy decide what quality standards it needs and that these standards be made clear to shipbuilders.

Late delivery of Government-furnished equipment and information

Another cause of additional costs has been the late delivery of Government-furnished equipment and information. Such late deliveries prevent the shipbuilder from installing the equipment in logical sequence and cause ripout and rework. As an example, in one case involving an $81 million contract, the shipbuilder is claiming $3 million for late delivery of Government-furnished technical information and $9 million as a result of late and defective Government-furnished materials.

For the most part, it appears that these late deliveries result from planning to include on the ship equipment that has not been developed. When problems in

development arise, the shipbuilder does not get his equipment, or the information needed to install and test it, on time.

Action needs to be taken to devise more effective ways of dealing with situations where the development of equipment falls behind schedule and, in turn, affects ship construction.

NAVY ACTION

The Navy has been forcefully made awaye of these problems as a result of the size and number of claims it has received. In response, the Navy has devised a program called "Project Improve" which it hopes will correct many of the problems that afflicted the ships being built under the contracts to which the claims apply.

LOCKHEED'S FINANCIAL POSITION

In your letter of March 10, 1970, you asked us for information on the financial condition of the Lockheed Aircraft Corporation and its ability to continue performance of its military contracts. As you know, the work on your request has been substantially completed except for information on Lockheed's cash position and its cash requirements for the next 2 years with respect to all major Lockheed programs.

Lockheed's financial problems were summarized by the Chairman of the Board of Lockheed in his letter of March 2, 1970, to the Deputy Secretary of Defense, and were discussed by the Secretary in testimony before the House and Senate Armed Services Committees on March 9 and 10. The Deputy Secretary, in his testimony, stated his intention to keep the committees fully informed as to the progress being made toward a workable solution.

In a letter dated March 27, 1970, the Deputy Assistant Secretary of Defense (Comptroller) informed us that while some preliminary information was available on Lockheed's financial position, the Department of Defense did not consider that the data were sufficiently complete on which conclusions could be based concerning the course of action which should be taken. We were advised at that time that more current and complete data were being gathered and that Defense expected to be in a position to provide data from this analysis to us by about April 20, 1970.

The Department of Defense could not meet that deadline because Lockheed's legal staff expressed reservations about release of certain financial data which the company considers to be proprietary in nature. We understand that Lockheed is attempting to develop a workable solution to its financial problems and, at the same time, enable production to continue so as to meet the Government's needs. The Department of Defense is following this matter closely and we understand that any proposal for the Government to furnish financial assistance to Lockheed will be presented to the appropriate committees of the Congress before such assistance is furnished.

GAMA GOAT SYSTEM (M-561)

This Subcommittee informally requested that information on the Gama Goat be included in our testimony today. The Gama Goat is a 1¼ ton, 6x6 wheel drive, cargo truck. It is designed to have high mobility over adverse terrain with floating, swimming, and air-drop capabilities. This will permit its operation in the same environmental terrain as the units that the vehicle is intended to support. The Gama Goat is currently in production.

The following discussion on the status of the Gama Goat is based on the Army's Selected Acquisition Report (SAR) for the period ending March 31, 1970.

COST

The cost of the Gama Goat program increased $370.2 million from the planning estimate of $69.1 million to the current estimate of $439.3 million. As we stated in our report to Congress in February 1970, the planning estimate of $69.1 million did not represent the Army's total program. This planning cost represented an estimate of only the first procurement.

The principal reason for the cost growth of the Gama Goat program is attributed to (1) the increase in the quantity of vehicles to be procured, and (2) the increase in unit cost of the vehicles.

The estimated number of vehicles to be procured during the total program increased by approximately 230 percent over the number shown as the planning estimate.

The unit cost of the vehicles increased by about 93 percent when compared to the estimated unit cost used as the planning estimate and the current estimate for the total program. The increase in unit cost is attributed by the Army to such causes as engineering change, unpredictable events (strikes), underestimates of certain components, procurement of less than an economical quantity, and cost escalation.

Due to fiscal funding constraints the Department of the Army is currently considering a plan to equip only the active force with the Gama Goat. This action would reduce the total quantity about half of that now considered as the total program. A decrease in total program cost should also be realized if such action is taken.

SCHEDULE EXPERIENCE

Our report of February 1970, showed that the Gama Goat program experienced slippage of 32 months. The latest Selected Acquisition Report shows that additional slippage has occurred since the June 30, 1969, report. The effect of this slippage is a later delivery date of the vehicle to the major commands. This delivery is now estimated for late 1970. The most recent delay is attributed to a revision of parts lists attendant to a change in the source for the vehicles' brakes and to a labor strike at the contractor's plant.

PERFORMANCE EXPERIENCE

With exception of vehicle weight, maintainability and reliability, the approved Gama Goat characteristics have not changed significantly since inception. The requirements established for weight and maintainability may have been unrealistic at the time approved. It also appears that the reliability requirements should have been recognized as inappropriate at the time of establishment.

In addition to the Army's Selected Acquisition Reports and our report to Congress in February 1970, further information on the Gama Goat is included in our January 1970 draft report titled "Need to Improve Management of the Tactical Vehicle Program." This report discusses several Army vehicle programs to demonstrate areas in need of management improvement by the Army. A copy of this draft report was provided to this Subcommittee on March 16, 1970. A summary of this report as it relates to the Gama Goat is as follows:

"The Gama Goat development program was initiated before performance requirements expressed by the user were determined valid and feasible. Those expressed characteristics were not met, however, and possibly were not realistically achievable. For example, the Gama Goat now has a curb weight of 7,400 pounds, whereas, the user desired a curb weight of 2,500 pounds.

"A combat item is approved for mass production when, through engineering and service tests, it has demonstrated the capability to meet all essential characteristics. The Gama Goat was approved for mass production in June 1966, despite known vehicle defects and the incompleteness of the technical data package. In our opinion, the approval of this item for mass production was premature."

This completes my formal presentation.

APPENDIX

PRINCIPAL CLAIMS FILED WITH THE NAVY UNDER SHIP CONSTRUCTION CONTRACTS

[Dollars in millions]

Contractor and program	Contract amount (including approved modifications)	Amount of claim
Avondale Shipbuilding, Inc. (Ogden Corp):		
Destroyer escort:		
DE 1052 class, 7 ships	$92.9	$45.0
DE 1078 class, 20 ships	228.0	98.2
Subtotals	321.1	143.2
EDO Corp.: Variable depth sonar	42.6	10.9
Electric Boat Division of General Dynamics Corp.:		
Nuclear powered submarine SSN-671	44.4	8.0
Nuclear powered submarines with ballistic missiles SSBNS, 7 ships	365.3	[1] 29.7
Subtotals	409.7	37.7
Lockheed Shipbuilding and Construction Co.:		
Destroyer escort with guided missile, DEG 1, 2 and 3	33.8	10.4
Oiler, AO 106 and 109	20.1	6.2
Destroyer escort:		
DE 1048 and 1050	21.1	10.2
DE 1052	68.9	50.7
Landing craft:		
LPD 9 and 10	54.3	30.7
LPD 11, 12, and 13	75.6	27.1
LPD 14 and 15	53.8	24.1
Hydrofoil research ship, AGEH-1	14.6	6.8
Ammunition ship, AE 22 and 24	17.8	7.2
Subtotals	360.0	173.4
Newport News Shipbuilding and Drydock Co. (Tenneco, Inc.):		
Aircraft carrier, CVA-67	214.9	45.5
Nuclear powered submarines: SSN and SSBN (latter is equipped with ballistic missiles)	435.4	41.0
Subtotals	650.3	86.5
Totals	1,783.7	451.7

[1] This claim is for increases in labor and material costs and is claimed pursuant to price escalation provisions of the contracts.

Chairman PROXMIRE. Mr. Staats, I want to thank you very, very much. I know that some of this questioning may seem to be a little testy, and so forth. But I think you would agree with me that we have to get into as much detail as we can on these things. I have the greatest admiration for you and your fine staff. You do a wonderful job. And as you all know, we have a terrific job which we are not doing in military procurement, which the Government is not doing overall. And I want to thank you for helping us greatly in getting a better understanding of what we have to do to accomplish this. You have been extremely useful.

Mr. STAATS. Thank you, Mr. Chairman. We would be very happy to elaborate on any of these points that you are not able to cover definitively today, as we would have liked to be in a position to do. And we will look over the record and elaborate on any of these points to make it more useful to you, Mr. Chairman.

Chairman PROXMIRE. Thank you very much.

The subcommittee is now recessed until 10 a.m. tomorrow.

(Whereupon, at 3:35 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Thursday, May 21, 1970.)

APPENDIX

REPORT TO THE CONGRESS

Feasibility Of Using "Should Cost" Concepts In Government Procurement And Auditing B-159896

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

MAY 20, 1970

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159896

To the President of the Senate and the
Speaker of the House of Representatives

In response to a request made in May 1969 by the Joint Economic Committee's Subcommittee on Economy in Government, the accompanying report presents the results of our survey pertaining to the feasibility of our including "should cost" concepts in our reviews of Government contractor performance. The survey was made pursuant to the Budget and Accounting Act, 1921 (37 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Although formal comments on the contents of this report have not been obtained from the Department of Defense or any of the civil agencies mentioned in the report, we did give them an opportunity to present their comments on an informal basis and, where appropriate, have included their comments in the report.

Copies of the report are also being sent to the Director, Bureau of the Budget, and to the Secretary of Defense.

Elmer B. Staats

Comptroller General
of the United States

Contents

ABBREVIATIONS

AEC	Atomic Energy Commission
DOD	Department of Defense
GAO	General Accounting Office
GSA	General Services Administration
NASA	National Aeronautics and Space Administration

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

FEASIBILITY OF APPLYING THE "SHOULD COST" CONCEPT TO GOVERNMENT PROCUREMENT AND AUDITING B-159896

D I G E S T

WHY THE REVIEW WAS MADE

The Joint Economic Committee, through its Subcommittee on Economy in Government, asked the General Accounting Office (GAO) to study the feasibility of applying "should cost" analyses in its audits and reviews of Government procurement. (See p. 4.)

The Committee's report defines the "should cost" approach as an attempt "to determine the amount that a weapons systems or products *ought* to cost given attainable efficiency and economy of operation." Therefore, "should cost" reviews not only would utilize all the current concepts employed in evaluating price proposals but also would include development and consideration of possible areas for attaining additional economy and efficiency in the procurement of the product or service.

FINDINGS AND CONCLUSIONS

Background

GAO included several aspects of "should cost" concepts and applications in this survey for the Subcommittee, such as:

--The extent that "should cost" concepts have been used by GAO in its postaward reviews of performance by Government contractors. (See pp. 8 and 9.)

--The extent that the Department of Defense (DOD) and civil agencies have applied "should cost" analyses to price negotiation. (See p. 10.)

--The more common use made of "should cost" today in private industry procurements. (See p. 21.)

What is being done

GAO reviews in the past have often used postaward "should cost" techniques. GAO's coverage of a contractor's operations has been directed to areas having known or suspected inefficiencies, and such postaward reviews have not normally been performed on a companywide basis.

Comprehensive "should cost" studies by the Government as an aid to price negotiations have been limited. "Should cost" concepts are recognized

in DOD policies, and these concepts are used to a limited extent. However "should cost" studies as defined in this report have been used by DOD in only a few instances. For the most part, cost analyses of contractor proposals and subsequent price negotiations are based upon historical costs rather than upon costs that could reasonably be incurred. (See p. 15.)

In the DOD at the present time, the Army is making a "should cost" review on a trial basis. DOD plans to evaluate the outcome of the Army's effort before deciding on the nature and extent of future studies.

"Should cost" concepts have been applied effectively in certain private industrial operations as a joint effort by buyers and their suppliers. Industry spokesmen told GAO that the use of "should cost" in their procurement processes have helped them attain fair and reasonable prices for equipment and increased their profits.

What can be done

1. It is feasible for GAO, in auditing and reviewing contractor performance, to utilize "should cost" analyses. (See p. 26.)

2. The greatest opportunity for the Government to benefit from the application of "should cost" appears to be through its use on a selective basis in *preaward* evaluations of contractors' price proposals. At this point, the results would be of maximum benefit to the Government negotiator in arriving at a fair and reasonable price. In addition, the contractor generally is more willing to implement corrective procedures during this time since he stands to realize the most benefits from any constructive recommendations developed during the review.

3. In addition to preaward reviews, Government agencies should consider performing "should cost" reviews selectively during the performance of the contract--on a *postaward* basis. These reviews would provide the Government with valuable data on the contractors' performance and cost consciousness and on the adequacy of the Government's prenegotiation efforts. They might also be effective in reducing costs on current and future procurements.

4. The extent and depth of the application of "should cost" concepts should be flexible and be based upon information developed in the initial stages of the review. The subsequent detailed review efforts, however, should be of sufficient depth to provide full documentation of inefficiencies and their impact on contract costs.

5. The success of any "should cost" work would depend to a large extent

--on the skill of a Government team in pinpointing areas for cost improvement by a contractor and

--on genuine cooperation between the Government and the contractor in providing adequate exchange of information between "should cost" review teams and contractor personnel and on a willingness by contractors to make changes based on the team's efforts when they appear to be constructive and practical.

GAO action

GAO currently is conducting trial applications of "should cost" at four contractors' plants. These detailed studies should provide information on such issues as:

--What problems may be met in making "should cost" reviews.

--What size of program or contractor activity should be reviewed.

--What type of contracts should be selected.

--What benefits may be expected.

CHAPTER 1

INTRODUCTION

In accordance with the request by the Subcommittee on Economy in Government, Joint Economic Committee, the General Accounting Office has made a survey of the feasibility of incorporating "should cost" concepts into its audit and review of contractor performance. Specifically, in its May 1969 report on the Economics of Military Procurement, the Subcommittee recommended that:

> "GAO should study the feasibility of incorporating into its audit and review of contractor performance the should-cost method of estimating contractor costs on the basis of industrial engineering and financial management principles ***."

Although the Subcommittee limited its recommendation solely to GAO's including "should cost" concepts in its audit and review of contractor performance, our survey also included consideration of the feasibility of incorporating such concepts into the Government procurement cycle which includes the pricing, negotiation, and postaward evaluation phases. We considered such broadening in scope an essential part of this study since, in our opinion, any application of "should cost" would have to be made principally within the procurement environment in which it operates.

"Should cost" was mentioned to the Subcommittee by several witnesses in connection with hearings on Government procurement practices. During this same period, extensive hearings were also conducted before the Military Operations Subcommittee, House Committee on Government Operations. At these hearings, Department of Defense personnel testified in detail on the "should cost" review made in connection with the definitization of a letter contract for aircraft engines for the F-111 program.

DEFINITION OF "SHOULD COST" CONCEPTS

In the Subcommittee's report this definition of "should cost" was provided:

> "The should-cost approach attempts to determine the amount that weapons systems or products ought to cost given attainable efficiency and economy of operation."

Emphasis, in the "should cost" approach, is placed on a study and evaluation of the contractor's system of managing and controlling activities and costs and on procedures instituted to provide surveillance of these activities and costs in order to achieve economy and efficiency. "Should cost" reviews not only utilize all the current concepts that are employed in price proposal evaluation, but also include evaluations of such matters as (1) plant layout and machine capacity, (2) production scheduling and control, (3) labor standards, and (4) make-or-buy programs. Current price proposal evaluations emphasize consideration of historical costs, whereas "should cost" reviews emphasize means of improving upon prior experience.

It should be recognized that the extent and depth of the application of "should cost" concepts should be flexible and be based on information developed in the initial stage of the review but that this application would include those aspects necessary to attainment of the basic goal of determining what the product ought to cost. "Should cost" reviews at one contractor location could cover the contractor's entire operation, whereas at another contractor facility, it might be feasible to review only one or two of the major functions.

METHOD OF STUDY

Our evaluation of the proposed incorporation of "should cost" concepts into GAO reviews of contractor operations has included research into the contracting practices employed by the Government and industry and has covered (1) procedures employed in arriving at the Government's independent estimates of the reasonableness of prices for desired items, (2) proposal reviews, (3) differences between Government and industry practices in arriving at a prenegotiation position, (4) differences between Government and industry in providing postaward surveillance, and (5) governmental agencies' positions with respect to performing "should cost" evaluations.

We discussed these matters with officials of the Department of Defense and the individual military services, Defense Contract Audit Agency, Defense Supply Agency (Defense Contract Administrative Services), Atomic Energy Commission (AEC), Bureau of Reclamation, Corps of Engineers, the General Services Administration (GSA), and the National Aeronautics and Space Administration (NASA). In addition, we have had informal discussions with the Council of Defense and Space Industry Associations.

Our discussions with industry officials were conducted both at the prime and the subcontractor levels. We also interviewed suppliers of commercial concerns in order to get a better understanding of the relationships that exist between buyer and supplier in the commercial marketplace. In addition, we discussed this subject with representatives of three consulting firms, to ascertain the procedures they follow in reviews of this type and to obtain information on the type of skills that might be required to make "should cost" reviews. Further, we were interested in the type of special services they could offer the Government in conducting such reviews at defense contractor plants.

Our study was directed toward ascertaining (1) what "should cost" concepts encompass, (2) to what extent "should cost" practices are currently used by the Government and its contractors, (3) whether the inclusion of "should cost" concepts in GAO audits is feasible, and (4) to what extent

these practices can be incorporated into the regular procurement process, as well as identifying any areas that can adversely affect negotiation and postaward surveillance of Government contracts.

41-698 O - 70 pt. 2 -- 10

CHAPTER 2

USE OF "SHOULD COST" CONCEPTS BY GAO

Some "should cost" concepts, as defined in this report, have been used by GAO in examining into whether Government funds have been utilized in an efficient and economical manner. However, our reviews at any particular contractor location have not been all encompassing. Rather, they have been directed primarily toward specific areas which appeared in need of improvement in management and control, and we have issued separate reports on these areas. Such reviews have encompassed a specific contract, a particular segment of a contractor's overall operation, or some aspect of the Government's administration and control of a contractor's operations.

Following are illustrations of these types of reviews:

--We have reported that, at 20 locations of 17 major contractors, the additional costs to the Government as a result of leasing rather than purchasing land and buildings could amount to about $99.3 million.

--We have found at several contractor locations that contractors were incurring more costs than necessary through leasing rather than purchasing automatic data processing equipment.

--We have reported that sufficient consideration was not given to the potential economies to be achieved by improving the contractor's procedures for establishing prices with its subcontractors.

--At one contractor location, we have suggested (1) reducing the use of contractor-owned aircraft when commercial air transportation could have been used at a fraction of the cost, (2) better utilization of in-house computers and offset printing equipment, which would significantly reduce the need for outside vendor services, (3) more equitable allocations of

patent expenses, and (4) more timely and complete reporting of inventions developed under Government contracts.

We are currently making trial "should cost" reviews at four selected Government contractor plants. Our initial efforts will be experimental in nature and will provide information for making a determination as to the extent of GAO's future application of "should cost" concepts.

CHAPTER 3

USE OF "SHOULD COST" CONCEPTS BY PROCURING AGENCIES

DEPARTMENT OF DEFENSE

Our discussions with various officials in DOD and in each of the military services, as well as in the selected civilian agencies contacted, have shown that they believe that many of these "should cost" concepts are used in their day-to-day transactions. The major difference between the use of these concepts in the day-to-day review process and the "should cost" review performed by the Department of Defense is one of scope. A discussion of one comprehensive "should cost" review, contrasted with the traditional pricing effort follows.

"Should cost" review performed by DOD on engines for the F-111 aircraft

In May 1969 hearings were conducted before the Military Operations Subcommittee, House Committee on Government Operations, at which time a Department of the Navy official testified in detail on the "should cost" review he had conducted on the engines for the F-111 aircraft. This was the most detailed review conducted by DOD under this particular label and was, by far, the most publicized efficiency review ever conducted by DOD. Some details of the review follow.

The sole-source supplier of the aircraft engine for the F-111 program was selected in 1961. Initial estimates for these engines amounted to about $270,000 each. The cost estimates for these engines began to rise, and by 1967 the contractor was quoting unit prices in excess of $700,000.

DOD was quite concerned over both the sharp increases in cost and the Navy's contracting methods employed at this particular contractor's location. DOD directed the Department of the Navy to study this matter, and a consulting firm was retained. Following a 2-1/2-month study, this firm

issued a rather critical report commenting on the contractor's operation. The consulting firm also arrived at a price for the engines which it felt to be reasonable. The Navy concluded, however, that the data developed could not be used since, in its opinion, the position recommended by the consultants could not be sustained during negotiations.

When DOD learned about the Navy's position, it insisted that the Navy perform its own analysis of the situation. A chief negotiator was then appointed for definitizing this large letter contract involving some 2,053 engines at about $1.5 billion estimated costs, with engine deliveries scheduled from 1967 through 1970. The chief negotiator assembled a special team of about 40 people from various DOD components and conducted a comprehensive management review at the contractor's plants during the latter part of 1967 and the first part of 1968. The cost of this review was about $300,000.

Following the review, which was conducted during an 11-month period, a contract for the 2,053 engines was negotiated in June 1968. Testimony indicated that savings in excess of $100 million would be realized by the Government as a result of this review, which later was referred to as a "should cost" study. Some of the major areas of management weakness reported were:

1. Lack of adequate labor standards.

2. High employee turnover.

3. Inefficient plant layout.

4. Idle machine capacity and lack of usage data on machines.

5. Noncompetitive procurement.

6. Excessive spoiled work.

7. Poor production scheduling and control.

8. Improper costs incurred in many of the overhead and general administrative accounts (including lease-versus-purchase analyses).

9. Inappropriate cost allocation between the Government and commercial work.

A considerable amount of review work was performed in arriving at the Government's "should cost" estimate, nevertheless, the amount subsequently negotiated was significantly higher than the estimate. Several reasons were cited for this. One reason was that the contractor's position was firm and it was most difficult to get agreement on price; but, more importantly, engine deliveries for 1967 and a good portion of 1968 had already been completed. The subcontracts for long leadtime items for future years had already been awarded; therefore, it would have been most difficult to retroactively impose reductions on the contractor. Also, it was felt that, from a long-range standpoint, it was to the Government's advantage to obtain agreement from the contractor that certain of the procedural weaknesses which were identified during the review would be corrected. The contractor is currently in the second phase of its corrective actions program and has retained several consultants to assist it in improving its management controls.

Following the negotiation of this sizeable contract, the F-111 program was drastically reduced; consequently, procurement of about half of the contracted engine quantities has now been terminated. Many of the savings are now adversely affected by these terminations. The procurement practices followed by the chief negotiator, and the unique position in which he was placed, contributed significantly to the achievements claimed.

With respect to future reviews of this type, the chief negotiator for the contract testified that he was not in favor of doing another one; he felt that this type of action should be used only as a last resort. He felt that such reviews adversely reflect on both the contractor and the Government-contracting agency.

Similar opinions were expressed by other officials in DOD. They believed that the contracting situation in this engine procurement was unique and therefore required special attention. They also stated that, if similar situations should come to their attention, they would again form a special team, as was done in this case, to review the situation. This they believed would be preferable over establishing a continuing capability for reviews of this type.

Our preliminary observations at selected contractor locations where we are performing trial applications of "should cost" concepts, indicate that the situation in this case is not as unique as DOD believes. It appears that, over a period of time, most of the major contractors' operations should receive a critical review. These reviews can not be as effectively performed by pulling personnel from their regularly assigned duties, as they could be by a centralized staff.

DOD contractor management reviews

Both the Department of the Air Force and the Department of the Navy have established teams to provide analyses of a contractor's organization and management. We were told that the Air Force Program Management Evaluations--formerly called Industrial Management Assistance Surveys--and the Navy Industrial Management Reviews have been conducted in past years at selected contractor plants.

A number of individuals interviewed advised us that the first Air Force Industrial Management Survey effort, which was started in November 1960, was probably the only one that was comparable to the "should cost" review on the F-111 aircraft engines. This survey took about 4-1/2 months. The later surveys have been more limited in scope and have generally been performed in about 3 weeks with a staff of about 10 to 15 individuals of various skills. During the period November 1960 through August 1968, the Air Force team performed 28 of these surveys at contractors' plants.

The Department of the Navy initiated Navy Industrial Management Reviews of major Navy contractors in 1964 as a means of improving the effectiveness and efficiency of contractor and Navy management techniques in the administration of Government contracts. These Navy teams, which are generally composed of about 20 individuals, have reviewed the operations of 13 selected contractor plants; and these reviews were completed in a period of 2 to 3 weeks.

The procedures for these reviews provide for analyses of contractors' organization and management. The reviews are designed to determine the effectiveness of the contractor's management; and recommendations and suggestions are made to improve the contractors' operations.

These Air Force and Navy guidelines and reports are considered internal management documents and are treated as Inspector General reports, which are not generally made available to us. As a result we were unable to evaluate their extensiveness and usefulness.

Discussions with various officials and review of the limited data made available lead us to believe that the scope and effort expended on these reviews have been limited when compared with the major "should cost" effort mentioned previously. It appears that an effective use of these reviews would include the use of the results during negotiations with the contractor; instead, these reviews are performed with the understanding that results would be treated confidentially and the data are not intended for use in future negotiations. The reviews are intended as an evaluation of the contractor's management of a program or contract, and the contractor's top management is advised and encouraged to correct areas believed to be in need of improvement.

In addition to the contractor management reviews, Government contract administration activities and the Defense Contract Audit Agency perform functional reviews of larger contractors' operations. The more significant of these reviews include evaluations into the adequacy of a contractors (1) procurement system, (2) estimating system, and (3) controls over Government-furnished property.

Our experience with these reviews has been that, while they are helpful in the identification of specific problem areas, they do not have the same objectives of the "should cost" reviews as defined in this report.

Traditional Government preaward review

The traditional approach followed by the Government in arriving at a preaward position for noncompetitive procurement is to perform a cost analysis of the contractor's proposal. Such analysis is a technique used, in the absence of price competition, to evaluate the reasonableness of a contractor's proposed price in light of both historical costs and engineering estimates. The Armed Services Procurement Regulation 3-807.2C does mention "should cost," and cost analysis is defined as follows:

> "Cost analysis is the review and evaluation of a contractor's cost or pricing data *** and of the judgmental factors applied in projecting from the data to the estimated costs, in order to form an opinion on the degree to which the contractor's proposed costs represent what performance of the contract should cost, assuming reasonable economy and efficiency. It includes the appropriate verification of cost data, the evaluation of specific elements of costs ***, and the projection of these data to determine the effect on prices of such factors as:
>
> (i) the necessity for certain costs,
>
> (ii) the reasonableness of amounts estimated for the necessary costs,
>
> (iii) allowances for contingencies,
>
> (iv) the basis used for allocation of overhead costs; and

(v) the appropriateness of allocations of particular overhead costs to the proposed contract."

* * * * *

"(3) Among the evaluations that should be made where the necessary data are available, are

comparisons of a contractor's or offeror's current estimated costs with:

(i) actual costs previously incurred by the contractor or offeror;

(ii) his last prior cost estimate for the same or similar item or a series of prior estimates;

(iii) current cost estimates from other possible sources; and

(iv) prior estimates or historical costs of other contractors manufacturing the same or similar items.

"(4) Forecasting future trends in costs from historical cost experience is of primary importance. ***"

Under the traditional approach followed by the Government in arriving at a prenegotiation position, a cost analysis is usually performed by a pricing team, consisting of the following field team members:

1. The administrative contracting officer, upon delegation, is considered the field "team captain" and has primary responsibility for consolidating and evaluating the findings of the pricing team members in the field.

2. The price analyst consolidates all field pricing data and develops a field pricing objective for the administrative contracting officer.

3. Other technical specialists (production, quality assurance, and engineering specialists) provide technical assistance in the review of contractor's proposals.

4. The Defense Contract Audit Agency submits advice based on the analysis of the contractor's books or other data as to the acceptability of incurred or estimated costs.

The Armed Services Procurement Regulation states that close cooperation and communication between the administrative contracting officer's specialists and the contract auditors are essential in providing the contracting officer with maximum support.

While it is a DOD written policy to utilize an integrated team approach for pricing purposes, we have found that this approach, although it may be conceptually sound, has not been fully effective for the following reasons:

1. Time allowed for the pricing review may not always be sufficient.

2. The scope of a pricing reviews is often limited, and the conclusions reached are not always supported.

3. Coordination between the procuring contracting officer, administrative contracting officer and his staff, and the contract auditor is not always effective.

Plans for "should cost" reviews by DOD

In discussions with DOD officials, we were told that they do utilize selected "should cost" concepts in their cost analyses and functional reviews. They agreed that these concepts are not used in their traditional reviews to the same depth and scope as was the case in the F-111 "should cost" review.

DOD officials also agreed that the approach used in the F-111 review was superior to the traditional pricing review. They were of the opinion that the circumstances surrounding the F-111 aircraft were unique; and, should similar circumstances arise again, another "should cost" review team could be formed.

Although the DOD is not performing "should cost" reviews on a continuing basis, the Department of the Army is currently making a "should cost" review; and DOD intends to evaluate the results of this trial application before taking further action.

We believe that the circumstances which existed in the procurement of the F-111 engines are not so unique as DOD believes and that a selective use of "should cost" reviews on major programs, especially those performed prior to negotiations, can be used by the Government negotiator as an effective tool in negotiating fair and reasonable contract prices. Although definite criteria as to when and under what circumstances a "should cost" review should be performed have not yet been established, criteria should become available as experience in its application and effectiveness is obtained.

DOD, as well as the various civil agencies directly engaged in the procurement function, has certain advantages in performing "should cost" reviews, which are not currently available to GAO. Such advantages include (1) availability of in-house technical specialists, (2) a greater chance of success in obtaining improvements identified during the review, and (3) the ability to more effectively use data which may not be completely free from controversy--although very useful when used during the negotiation process.

The success of any "should cost" review depends to a large extent on the skill of the team members to pinpoint areas of inefficient operation. We have been told that individuals possessing these skills are currently employed within the DOD establishment. However, we have also been told that these individuals may not be in one location and that they are not necessarily available for these special reviews, since they have regular assigned duties.

DISCUSSION OF "SHOULD COST" CONCEPTS WITH SELECTED NON-DOD ACTIVITIES

To ascertain to what extent non-DOD activities may be utilizing "should cost" concepts, we talked with officials of the Atomic Energy Commission, Bureau of Reclamation, Corps of Engineers, General Services Administration, and National Aeronautics and Space Administration. These agencies do not have an established capability for performing this type of review on a continuing basis.

NASA officials believed that, as part of their regular pricing reviews, many of the concepts involved in a "should cost" review would be covered. However, they readily agreed that no reviews of the scope involved in the DOD F-111 aircraft engine effort had ever been conducted by them and that their in-house capability was not sufficient to conduct these reviews. They also expressed the opinion that there might well be situations where a review of this sort would be quite beneficial--especially on some of its programs that extend over a considerable period of time and where the contractor is not subject to a continued competitive environment. They stated, however, that their contracted effort was primarily one of research and development and that they believed that "should cost" reviews would be most beneficial in a manufacturing-type operation. They stated that it would be most difficult to consider a given program, such as the Apollo program, for this type of review.

AEC officials stated that the "should cost" concept appeared to have little application to most of their work, which is research, development, and engineering in nature or which involves the production of nuclear materials and is carried out by cost-type management contractors in Government-owned plants and laboratories. Although AEC does not perform should cost reviews, they believe that AEC's operating contractors do perform aspects of "should cost" in cases where substantial quantities of manufactured components must be procured.

GSA indicated that it did not have an in-house capability to perform reviews of this sort and stated that most of the items procured are common-use items which are generally purchased on a competitive basis. A good portion of GSA's

contracts are awarded on a formal advertised basis, and it is generally assumed that the competitive aspects common in these procurements provide assurance of getting a reasonable price. GSA officials did believe that savings could be accomplished on their procurements if they could follow some of the practices followed by commercial companies, such as multiyear procurements and selection of sources. They cited lack of funds as a major limiting factor in obtaining better prices.

During our discussions with officials of a Corps of Engineers District Office, we were told that, in evaluating proposals for construction work, they rely extensively on their own in-house estimate of what the work should cost. They believed that the Corps in its contracting had an advantage over the normal DOD procurement, since they generally (1) have a good definition of the work scope, (2) can specify precisely what they want, and (3) have good standards that they can use for arriving at an in-house estimate.

The Bureau of Reclamation indicated that it used procedures similar to those used by the Corps of Engineers.

CHAPTER 4

USE OF "SHOULD COST" CONCEPTS BY INDUSTRY

"Should cost" concepts were being employed in varying degrees by the companies that we contacted. Some industry representatives we interviewed stressed that, to have an effective negotiation process, both parties need to make a thorough proposal review prior to negotiations. Two of the techniques that were specifically mentioned as being essential are (1) a clearly defined scope of work with good specifications and drawings and (2) an estimate of what the required item should cost, made independently of the manufacturer's proposed price.

These representatives characterized their relationship with their suppliers[1] as one of complete cooperation. As a result, we were told that postaward surveillance and periodic reporting are commonplace.

INDUSTRY PROCUREMENT PRACTICES

These "should cost" concepts are applied during both the preaward and the postaward surveillance phase of their procurements. Various industry officials told us that the use of "should cost" concepts during the procurement process helps to ensure the attainment of a fair and reasonable price for the item being purchased.

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[1]The term "supplier," as used in this report, refers to the manufacturer of a component or end item. "Buyer," on the other hand, refers to the organization purchasing the component or end item for resale to the consumer.

The relationship that exists between the Government and its contractors is usually referred to as Government/prime contractor. Prime contractors can award additional contracts creating a prime/subcontractor relationship.

The individuals we interviewed stated that, prior to negotiations, it is essential that there be a clearly defined scope of work and a realistic independent estimate by the buyer of what the required item should cost. Successful negotiations are partially dependent upon the care that is taken in identifying the scope of the work desired and being certain that the specifications and drawings are up to date; otherwise, it is extremely difficult to communicate meaningfully with potential suppliers. Furthermore, unless all prospective suppliers clearly understand what is involved in an effort, it is most difficult to evalute their proposals.

Another "should cost" tool emphasized by industry is the careful preparation, prior to the start of negotiations, of an estimate of what the required item should cost. This estimate is made independently of the supplier's proposed price. Generally, if a buyer has an in-house capability to make the item, as many of the companies that we visited did, a make-or-buy analysis could approach a "should cost" estimate. Once this detailed estimate has been prepared, it, of course, provides the negotiator with a tool that he can use effectively during negotiations. Since he knows precisely what is required to make the item, any major deviation between the in-house estimate and the supplier's proposal can be discussed in greater detail.

Industry officials also pointed out that the capability to make an item in-house is a distinct advantage, not only in arriving at a prenegotiation position, but also during the negotiation process. This capability provides a considerable amount of leverage in arriving at a reasonable price. The buyer can use his potential capability of doing the work in-house as an alternative to contracting for the effort, should there be an impasse during negotiations.

Postaward surveillance on the part of many companies we visited encompassed complete involvement in the operations of their suppliers. Such involvement included (1) furnishing the supplier with technical personnel to assist in planning and to help in solving problem areas, (2) requiring regular and extensive reporting, and (3) meeting frequently to discuss past performance and plans for future performance.

It is not uncommon for industry to send engineers and other technical personnel into a supplier's plant to assist in planning for a more efficient operation and in solving various problems. In fact we were told that at times the supplier will request assistance in various technical areas; for example, one individual told us that his company had been requested on some occasions to furnish technical assistance to a supplier to help in planning for more efficient manufacturing operation. This assistance involved areas, such as selection of necessary manufacturing equipment and plant arrangement.

Reporting requirements imposed by industry upon its suppliers in many instances are quite extensive. In most instances, both technical and financial data are reported on monthly or quarterly basis and cover historical as well as budgetary data. In keeping with the cooperative atmosphere in the commercial marketplace, we also found that in some instances a supplier would furnish cost type data on a completely voluntary basis. Although the data may not be required under terms of the contract, it was believed that the better informed the buyer, the better the so-called partnership arrangement.

We were told of one instance where the supplier furnished the same budget report to the buyer that was prepared for his own management's use. This supplier believed that the customer should have the same data that he used; with this information, both parties could sit down and negotiate fair and reasonable prices.

41-698 O - 70 pt. 2 -- 11

CONTRAST IN OVERALL OBJECTIVES IN INDUSTRY AND GOVERNMENT PROCUREMENTS

During our talks with industry officials, we expressed interest in some of the practices followed in awarding commercial contracts. It became apparent to us that significant differences in overall procurement objectives exist between Government and industry in their buyer/supplier relationships. Recognition must be given to the fact that (1) the basic ground rules and objectives in commercial buyer/supplier relationships are not the same, (2) the factors which motivate these parties are not similar in all respects, and (3) the relationships and cooperation between the parties are not identical. It should be recognized that many of the Government's programs and hardware are more sophisticated than those purchased in the commercial marketplace, and this of course makes pricing of products more difficult. One illustration is presented below.

Commercial buyer/supplier objectives

In the commercial atmosphere both parties to a contract generally work toward a common objective of marketing the product at the most advantageous price so as to produce a consumer demand that will yield the best return on the investment. In the commercial market the buyer or retailer will generally survey the market and conduct a market analysis of the consumer demand that can be generated for a new item at a given price. Once a decision is reached that a project is feasible, the buyer works with the supplier to reduce production costs. Priority is given to those items that have a rather elastic demand curve (i.e., where a slight shift in price has a marked effect on sales volume).

To the extent that costs can be reduced, the market price may be decreased, thus generating an even greater consumer demand. The increased demand will directly benefit the supplier, since he can expect more work. Thus, from a long-range objective, it behooves both parties to work cooperatively toward this common objective.

This motivating factor, which makes a close cooperative bond in many commercial procurement actions, may not be present in Government procurements. Essentially, the

Government (1) predetermines the quantities needed and (2) decides how much money can be budgeted for a particular end item. If funds can be saved through cost reduction programs, it is very likely that such funds will be reprogrammed to buy other needed materials or services. If, on the other hand, the price is higher than originally anticipated, the Government must (1) budget additional funds, (2) try to stay within the budgeted limitation and get by with lower technical performance characteristics, or (3) buy a smaller quantity. Therefore, the Government contractor, through a cost reduction, does not stand to benefit in added sales volume as might be the case for the commercial counterpart.

CHAPTER 5

CONCLUSIONS

We believe that we have applied a number of "should cost" concepts in many of our previous reviews; however, we have not performed these reviews on a plantwide basis. Accordingly, we plan to complete several trial reviews which will be experimental in nature and will provide us with data to answer such questions as (1) what problems we can expect to encounter, (2) what size program should be reviewed, (3) what types of contracts should be selected, and (4) what benefits can be expected from such reviews. GAO's decision concerning development of a capability in the future and its extent will depend, in part, on the outcome of these trials, the benefits obtainable, and any actions taken by DOD relative to uses of a "should cost" program.

The degree of effectiveness that one can expect from these "should cost" reviews is largely dependent on the contractor's willingness to cooperate fully with the review team. Such cooperation should include a full and free disclosure of all pertinent data by the contractor's managers. It will also depend upon his reactions to the findings under these reviews.

The objectives of negotiating a fair and reasonable price, establishing specific definitions of the scope of work, and conducting thorough, well coordinated negotiations are, and should remain, a major goal of the Government procuring agency. To achieve these objectives, the Government agencies should, to the extent feasible, employ a capability to perform selective "should cost" reviews in its procurement programs, particularly on its major procurements and problem cases.

Although "should cost" concepts can be applied to the Government's procurement process during the prenegotiation phase and/or the postnegotiation surveillance phase, we believe that the most effective use of "should cost" review results would be obtained before the award of a contract. At that point in time, the results of a "should cost"

review not only would be of maximum effectiveness in assisting the Government negotiator in awarding a fair and reasonable contract but, more important, a potential Government contractor would be more likely to accept "should cost" findings and to agree to implement corrective procedures.

Because of familiarity with requirements, alternate courses of action, in-house technical knowledge of procured items, and the existing supporting agency personnel who are knowledgeable of contractors' operations, DOD should also provide a continuing capability to perform on a selective basis "should cost" types of reviews after the contract has been awarded--postaward. Such reviews could provide Government officials with data on (1) the contractor's performance and efficiency and (2) the adequacy of the Government prenegotiation review efforts.

APPENDIX

APPENDIX I

PRINCIPAL OFFICIALS OF THE

DEPARTMENT OF DEFENSE, THE MILITARY SERVICES

AND

CIVIL AGENCIES

CURRENTLY RESPONSIBLE FOR ADMINISTRATION

OF ACTIVITIES DISCUSSED IN THIS REPORT

DEPARTMENT OF DEFENSE

SECRETARY OF DEFENSE	Melvin R. Laird
ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS)	Barry J. Shillito
DEPUTY ASSISTANT SECRETARY OF DEFENSE (PROCUREMENT)	John M. Malloy
DIRECTOR, DEFENSE CONTRACT AUDIT AGENCY	William B. Petty
DIRECTOR, DEFENSE SUPPLY AGENCY	Lt. Gen. E. C. Hedlund, USAF

DEPARTMENT OF THE ARMY

SECRETARY OF THE ARMY	Stanley R. Resor
ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS AND LOGISTICS)	J. Ronald Fox
CHIEF OF ENGINEERS	Lt. Gen. Frederick J. Clark

APPENDIX I

PRINCIPAL OFFICIALS OF THE

DEPARTMENT OF DEFENSE, THE MILITARY SERVICES

AND

CIVIL AGENCIES

CURRENTLY RESPONSIBLE FOR ADMINISTRATION

OF ACTIVITIES DISCUSSED IN THIS REPORT (continued)

DEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY	John H. Chafee
ASSISTANT SECRETARY OF THE NAVY (INSTALLATIONS AND LOGISTICS)	Frank Sanders

DEPARTMENT OF THE AIR FORCE

SECRETARY OF THE AIR FORCE	Robert C. Seamans, Jr.
ASSISTANT SECRETARY OF THE AIR FORCE (INSTALLATIONS AND LOGISTICS)	Phillip N. Whittaker

DEPARTMENT OF THE INTERIOR

SECRETARY OF THE INTERIOR	Walter J. Hickel
COMMISSIONER, BUREAU OF RECLAMATION	Ellis Armstrong

GENERAL SERVICES ADMINISTRATION

ADMINISTRATOR	Robert L. Kunzig
COMMISSIONER, FEDERAL SUPPLY SERVICE	H. A. Abersfeller

APPENDIX I

PRINCIPAL OFFICIALS OF THE

DEPARTMENT OF DEFENSE, THE MILITARY SERVICES

AND

CIVIL AGENCIES

CURRENTLY RESPONSIBLE FOR ADMINISTRATION

OF ACTIVITIES DISCUSSED IN THIS REPORT (continued)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ADMINISTRATOR	Thomas O. Payne
ASSOCIATE ADMINISTRATOR FOR ORGANIZATION AND MANAGEMENT	Bernard Moritz (acting)

ATOMIC ENERGY COMMISSION

CHAIRMAN	Glenn T. Seaborg
GENERAL MANAGER	R. E. Hollingsworth

THE ACQUISITION OF WEAPONS SYSTEMS

THURSDAY, MAY 21, 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 10:05 a.m., in room 1202, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire; and Representatives Moorhead and Conable.

Also present: Richard F. Kaufman, economist; A. Ernest Fitzgerald, consultant; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The subcommittee will come to order.

INFLATION AS A CAUSE OF COST OVERRUNS

Today we continue our hearings on the acquisition of weapons systems. Our objective, as explained yesterday, is to explore the causes of cost overruns in military procurement. We are frankly not satisfied with the explanation offered by the Department of Defense for cost and related problems. For example, there simply has not been the kind of inflation that would justify the enormous overruns that we have witnessed in the past couple of years. Yet, the inflation argument is one of the principal ones used to explain cost overruns. Although inflation obviously has some impact on the costs of weapons, an impact which this subcommittee is attempting to measure through the establishment of a military price index, simple logic compels us to look elsewhere for the root causes.

This morning we are fortunate to have before us two individuals who, through their backgrounds, scholarship, and service in the Department of Defense are among the foremost experts in the fields of cost accounting, business management, and military procurement.

If there are available any experts who can help this committee and the Congress to understand why the costs of weapons overrun and exceed planning estimates and contract prices, and ways to correct this problem, they are our present witnesses.

Our first witness is Dr. Robert N. Anthony who has been on the faculty of the Harvard Business School, a classmate of mine, since 1940 and who is presently the Ross Graham Walker Professor of Management Control of the Harvard Business School. From 1963 to 1968 he served as Assistant Secretary of Defense, Comptroller. He is the author of numerous articles and works, including his book, Management Accounting Principles, published this year.

Following Dr. Anthony's testimony, we will hear from J. Ronald Fox, Assistant Secretary of the Army, Installations and Logistics, whom I will introduce at that time.

Representative CONABLE. Mr. Chairman, may I ask a question?

Chairman PROXMIRE. Yes, indeed.

Representative CONABLE. I regret that I have not been present at all of these hearings. Has the current Defense Department taken the position that the cost overruns are solely the result of inflation?

Chairman PROXMIRE. No, I did not say that. I think, if you will reread what I said, that the inflation argument is one of the principal arguments they have used to explain cost overruns.

Representative CONABLE. Then you acknowledge that there are other reasons also?

Chairman PROXMIRE. There certainly are.

Representative CONABLE. They certainly are not defending it solely on the ground of inflation?

Chairman PROXMIRE. No. But they emphasize inflation as one of the principal reasons. And they won't give us a military cost index so that we can measure it. And we think it would be fairly simple to construct it.

Representative CONABLE. I wanted to ask that question. I was not sure of the import of your opening statement. Thank you.

Chairman PROXMIRE. Dr. Anthony, the floor is yours.

STATEMENT OF ROBERT N. ANTHONY, ROSS GRAHAM WALKER PROFESSOR OF MANAGEMENT CONTROL, HARVARD UNIVERSITY, AND FORMER ASSISTANT SECRETARY OF DEFENSE, COMPTROLLER

Mr. ANTHONY. Mr. Chairman and members of the subcommittee, you have asked me to discuss the question: Why does the Government pay more than it should—or more than was originally estimated—for major weapons systems, and what can be done about it? The subcommittee is thoroughly familiar with the background of this question, so I shall proceed at once to some of the causes and possible remedies.

CAUSES AND REMEDIES OF COST OVERRUNS

All of the remedies listed below are being, or have been, considered by someone in the Pentagon. With one exception, I do not believe that legislation is needed to implement them. Congress could, however, stimulate action by those who are working to achieve the desired improvements by asking in each case:

Do you plan to implement this change?

If so, when?

If not, why not?

1. INITIAL COST ESTIMATES TOO LOW

CAUSE

The initial cost estimate was low.

REMEDIES

(*a*) Continue the development of better estimating techniques.

(*b*) Tighten the procedures governing change orders.

(*c*) Study the feasibility of allowing no fee or profit on change orders, except those made to increase quantity or to obtain performance that is significantly better than that originally specified.

The cost of a complicated new weapons system can never be estimated accurately before it has been built. Nevertheless, methods of making estimates can be improved, and the Department of Defense is actively seeking such improvements.

If a contractor cannot expect to earn a profit on change orders, his incentive to make a deliberate low estimate will be greatly reduced. Under present practice, the principal way he "gets well" on a low estimate is via change orders that increase the allowable cost.

It is unrealistic to expect that change orders can be eliminated, but it seems reasonable to require that no fee be earned on those change orders that only modify the costs and do not change the quantity and quality of items that were specified in the initial contract.

The feasibility of instituting such a rule should be carefully studied. (Of all the suggestions made in this statement, this is the only one that has not been studied sufficiently so that a firm recommendation can be made on it.)

2. Concurrency: Premature Production

CAUSE

Production is started before development has been completed.

Tooling and parts must be scrapped because of changes that are uncovered during the development process.

REMEDY

Unless the need is urgent, do away with the doctrine of concurrency.

This has recently become the policy of the Department of Defense. If the policy is implemented, no further action is necessary.

3. Overhead Costs Too High

CAUSE

Overhead costs are too high. In part, this results from poor management of overhead components. In part, it is encouraged by the practice of calculating overhead rates after the costs have been incurred, which guarantees that the contractor will be reimbursed for whatever he spent on overhead costs (unless he specifically violates the provisions of ASPR) and thus reduces his motivation to keep overhead costs under control.

REMEDIES

(*a*) For a contractor who does primarily Government work, or who has one or more plants devoted primarily to Government work, negotiate in advance a separate overhead contract covering all Government work. This can specify either a fixed dollar amount or a fixed amount plus a variable rate, depending on the circumstances.

(*b*) For other contractors, negotiate overhead agreements prior to the beginning of each year in which the contract is being performed.

Ordinarily such agreements should provide for a fixed dollar amount and a variable rate per unit of activity (such as direct labor).

(*c*) Collect data on the costs of performing common overhead functions (for example, accounting, personnel, drafting), and check each contractor's costs to insure they are in line with industry averages.

(*d*) Increase the use of "should cost" studies.

In most contracts, overhead is reimbursed as a percentage of direct labor or total direct costs, that is, by means of an overhead rate. When this rate is not set until after the work has been done. It is a mere bookkeeping device that guarantees reimbursement of whatever the contractor feels like spending on overhead (unless the contractor violates one of the specific prohibitions of ASPR).

The contractor can, for example, stockpile engineering and other personnel, even though they are not actually needed; their salaries will be included in overhead.

It is perfectly feasible to negotiate overhead allowances prior to the time work begins. When all or most overhead is incurred on Government work, even though for several contracts, there is no need to get the trouble of arriving at overhead rates and allocating overhead to each contract. It is preferable to negotiate a single overhead contract. When this is done, the contractor is motivated to keep his actual costs in line with the contract amount. He can do so with the use of ordinary budgetary control procedures. Each contract for goods or services would then cover only the direct costs and the fee for the articles or services it covers.

Another reason for not using the conventional overhead rate is that this encourages a contractor to increase his direct costs. For example, if direct costs are estimated at $1 million and overhead costs at $2 million, the usual practice is to set an overhead rate at 200 percent of direct costs. If direct costs are actually $1,500,000, the reimbursement for overhead costs would be $3 million regardless of what overhead costs actually were.

But overhead rarely increases proportionally with direct costs. If actual overhead only went up to $2,500,000, the contractor would make an extra profit of $500,000. Alternatively, in order to avoid showing an extra profit, the contractor might decide to spend the extra amount for discretionary items which, although nice to have, are not really necessary.

As a basis for negotiating overhead contracts, the Government should have good data on the typical cost of performing various overhead functions in defense companies. It does not now have such data. The job of collecting reliable, comparable data is difficult, but trade associations and other organizations have been able to develop ways of doing this for their members, and so can the Defense Department.

In a "should cost" study, a team of experts makes an onsite study of the contractor's operation with the objective of estimating what the costs should be under efficient methods of production. These studies require skilled manpower, which is in short supply, and hence can be made only in a limited number of situations.

The few that have been made thus far have resulted in substantial cost reductions, and the idea should be pushed to the limit of available manpower.

4. Inadequate Cost Accounting Standards

CAUSE

Cost accounting standards are inadequate. This leads to confusion and misunderstanding, and in some cases permits contractors to shift costs from commercial work to Government work or from fixed-price contracts to cost-type contracts.

REMEDY

Enact legislation that will provide for the development and use of cost-accounting standards.

Such legislation has been introduced in both the Senate and the House. I understand that the current version of the Senate bill exempts contractors who do less than $25 million business with the Government. The public interest is not served by such an exemption. Indeed, small contractors should welcome a good set of cost standards because it will lessen the uncertainty of the negotiating process.

The author of the exemption perhaps has the impression that the use of good cost standards imposes a paperwork burden on small contractors. Such is not the case. Every contractor must have a cost accounting system, and it is as easy to operate a system that is based on good standards as one that is based on poor standards.

5. Profits as a Percentage of Costs

CAUSE

Fees typically are calculated as a percentage of cost.

REMEDY

Fees should be calculated, at least in part, as a percentage of capital employed.

In most companies, an important management objective is to earn a return on capital employed. When a company uses a smaller than average amount of capital on a contract, it automatically makes a higher than average return on capital, other things equal. Many defense contractors have a capital turnover that significantly exceeds two times a year, which is the approximate average turnover of industrial companies.

For example, suppose Mr. X organizes the Able Co. and invests $500,000 in it. Able Co. then gets a Government contract for a job whose estimated cost is $15 million. Included in this estimated cost is an adequate salary for Mr. X. The negotiated fee on such a job is, say 7 percent of cost; this is $1,050,000. Able Co. uses some Government-owned plant and equipment on this job, and leases the remainder of its fixed assets. It gets progress payments for 90 percent of costs incurred. Its $500,000 of capital is sufficient to finance the remainder of its working capital needs.

Suppose the contract is completed at the planned cost. The profit is then the full amount of the fee, or $1,050,000. This, although only 7 percent of cost, is 200 percent of capital employed. So, Mr. X has re-

ceived a salary for his services, his $500,000 of capital is intact, and he has become an instant millionaire besides.

Pretax return on capital employed in nongovernmental work in industrial companies is in the neighborhood of 20 percent—30 percent. I submit that a formula that produces a return of 200 percent, as in the above example, or 1,000 percent, or even 50 percent, is not an acceptable formula.

Fees are based on capital employed in public utilities and in public rate negotiations generally. Defense procurement is one of the few important areas where cost-based pricing still prevails. In Great Britain, defense contract pricing recently was shifted to a return-on-capital basis. The possibility has been discussed in the Department of Defense at least since 1962. It is time to act.

6. Performance Measurement

CAUSE

Information on cost performance inadequate.

REMEDY

Continue to push the implementation of DOD Instruction 7000.2, performance measurement of selected acquisitions, and reports growing out of it, especially the selected acquisitions report.

DOD Instruction 7000.2 sets up criteria for contractors' management control systems. When a contractor's system meets these criteria, reliable information on his performance on the contract can be obtained directly from his system. Although the instruction has been in effect for more than 3 years, only a relatively few systems have so far been validated as conforming to the criteria.

All major contractors should complete the necessary systems improvements forthwith, and the services should move promptly to validate them.

The capstone of the reporting process is the selected acquisition report, a 2-page report on the current status of a major weapons system. These reports go to top management in the Defense Department, and they also go to the Congress, largely as a result of your initiative, Mr. Chairman.

The selected acquisition reports show the differences between actual and planned performance, and the causes of these differences. This is valuable information, but the mere existence of the information is not enough. It must also be used as a basis for action. I understand that Mr. Packard is emphasizing this point, and this is all to the good. His hand would be strengthened if someone in the Congress studied the reports carefully, observed situations that seemed to require action, and asked the appropriate questions.

It has been suggested that the submission of selected acquisition reports to Congress be formalized by legislative action. In my judgment, this is neither necessary nor desirable. It is not necessary because the Defense Department will unquestionably continue to submit the reports so long as a congressional committee expresses an interest in receiving them.

Legislation is not desirable, because it would have the result of freezing the format and content of the report, whereas these should be left flexible. My judgment on this matter would change, however, if the appropriate committees lost interest in the report.

7. Lack of Interest in Cost Control

CAUSE

Many Defense personnel are not sufficiently interested in cost control.

REMEDY

Reward those who do an outstanding job in managing the acquisition process and take disciplinary action in cases where control is demonstrably poor.

There are three dimensions to the control of weapons systems acquisitions:

(1) Quality; that is, obtaining articles that meet performance specifications;

(2) Schedule; that is, assuring on-time delivery of these articles; and

(3) Cost; that is, assuring that the Government pays only a reasonable price. Many persons, including some senior officials, take the position that the first two of these are of overriding importance and that cost is relatively unimportant. This attitude is wrong. The proper attitude is that management should be responsible for accomplishing all three of the objectives.

It is extremely difficult to change the current attitude. Actions of this committee in calling public attention to cost growth are helpful, but the problem will not be solved until there is a basic change within the Department.

The way to bring about such a change is to make it clear that managers who do a good job in exercising surveillance over costs are rewarded by high ratings on fitness reports, by promotions, by attractive assignments, even by a pat on the back; and that managers who do a poor job are penalized by corresponding types of actions.

Concluding Comments

Nothing in the preceding should be taken as implying that all contractors are inefficient or that they all make undue profits. Indeed, the weight of such evidence that I have seen indicates that profits on the average in defense companies are not as high as they should be to insure that an adequate supply of capital is attracted to the industry. My suggestions relate to individual situations, not to the industry as a whole.

A high-level commission to study the procurement process recently has been created, but it is not scheduled to make its report for 2 years. I submit that there is no reason to delay 2 years in carrying out the remedies described above.

The proposal to base profit on capital employed, for example, has been studied for years. Specific techniques have been developed, and their practicability has been thoroughly tested. An implementing in-

struction could be published within 2 months if the go-ahead signal were given. The techniques for "should-cost" studies are well worked out, and require only an order to extend them to additional contracts. Some of the remedies related to overhead cost control can be instituted with relatively little work. The job of improving performance measurement is one of implementation, not of systems design.

For some of the other remedies, much work remains to be done, but this work is detailed staff work, not the broad type of guidance that a commission provides.

It would be most unfortunate if the existence of the Procurement Commission were used as an excuse for not making progress in the directions indicated above.

Thank you, Mr. Chairman.

Chairman PROXMIRE. Thank you, Dr. Anthony. In the years I have been on this committee this is as fine a statement on procurement as I have ever heard. You have done a splendid job. It is concise, to the point, and constructive. And it is most helpful.

CONCURRENCY

Now, I refer you to the statement: "Production is started before development has been completed." And your comment is that the Defense Department is remedying this by doing away with the doctrine of concurrency.

And yesterday we have had so many examples—yesterday we had a conspicuous example in the Gama Goat, which, as you know, is a truck which is supposed to weigh 2,500 pounds and is now going to weigh 7,500 pounds. They had all kinds of troubles and problems with it, and it still has not been field-tested.

And yet they are scheduled to deliver 800 of them this year, and it is in production now. And we have had the shipbuilding program, and it is the same thing. We have had a number of ships that have not been tested, and their performance is in considerable question.

The same thing on the F–15 Navy fighter.

So that I just wonder how you conclude that the Defense Department has now established a policy of doing away with the doctrine of concurrency?

Mr. ANTHONY. I think the policy exists, but I did not bring the actual documents with me; I think they have been published in the press. And, I think, from what I observed that Mr. Packard is genuinely interested in pushing this policy as hard as he possibly can.

This does not mean to imply that he is successful in pushing the policy on all occasions, and the examples which you cite may be instances where he was unsuccessful in getting the split between development and production which is quite important in getting a reasonable production cost.

Chairman PROXMIRE. I think the one place where he would not be successful is where there is an urgency. And I cannot see any urgency on the Gama Goat. They already have a truck that will do most of the things the Gama Goat is supposed to do. And I think that your point that it would strengthen Secretary Packard's hand if we had a criticism of failure on the part of the Defense Department is well taken.

Inadequate Cost Accounting Standards

Then you say: "Cost accounting standards are inadequate."

Here is an area where you are especially well qualified, because you are a real expert in the accounting field. We have testimony by Admiral Rickover and others that if we had uniform cost accounting standards that alone would save $2 billion a year in procurement. People have contested that, but I think Admiral Rickover makes a pretty strong argument for it. I have introduced legislation to do this. And that legislation has passed the Senate Banking Committee. It is scheduled to be taken up on the floor of the Senate within a few days. So your comment is very appropriate. It is especially appropriate because Senator Cranston has got an amendment in, as you say, to except those firms doing less than $25 million a year business with the Government.

This would result in the loss of $500 million in revenue to the Government. And there does not seem to be any justification for it. So I am delighted that you have given us this very strong argument for not accepting that amendment. We intend to fight it on the floor. We have a closely divided committee.

And what you say was certainly confirmed completely by the Comptroller General, who argued that this would not work a hardship on small business if we apply cost accounting standards.

Profit Rates

And then there is one other area I would like to comment on before I ask you a couple of brief questions. Then you say: "Fees are based on capital employed in public utilities and in public rate negotiations generally."

And you point out that defense procurement is one of the few important areas where cost-based pricing prevails, and I think you make a very powerful case that we should not follow that policy.

I would like to ask you in this connection. I am in favor of this, but again we have great difficulty in getting facts on this subject.

For example, we attempted in vain to get information on Lockheed's operating capital requirements that Congress is being asked to supplement. I would like to have your opinion as to why this seemingly routine bit of business information is so mysterious, the military contract base. Why can't we get it?

Mr. Anthony. The specific case of Lockheed, I believe, is a situation where you have asked for forecasts of cash requirements. I think Lockheed takes the position that these are rather confidential for their commercial business. It is a somewhat separate question from what I had in mind. There should be no reason why it is difficult to obtain historical information on the capital employed by a defense contractor. The particular proposal that I am advocating is one that has been tested on dozens of defense contractors to see if it is feasible, and it turns out to be perfectly feasible.

Chairman Proxmire. The contractors have resisted this right along. And the case you make is such a good case, because it does happen. We have $15 billion worth of Government-owned equipment in the hands of private contractors. Of course, where they have a Government plant and get progress payments, 90 percent progress payments,

they can get along with very little of their own capital. And while they may make a fairly modest profit on the sales, they can make a colossal profit on their capital. This "instant" millionaire example you gave is not far out in left field. I think it could happen rather easily.

Mr. ANTHONY. Not all contractors are like that.

The difficulty is this. If we assume that profits on the average would not be changed by this proposal, contractors fall into three groups. Some will be hurt, and they will oppose the move. Some will benefit, and they will favor the move. And some do not know, and being uncertain, they tend to oppose it because of uncertainty. And they make a majority.

The answer is, disregard what the contractors feel and do what is right.

Chairman PROXMIRE. Just insist on it?

Mr. ANTHONY. Just insist on it.

OVERHEAD COSTS

Chairman PROXMIRE. I have one other question.

I was extremely interested in your comments on contractor overhead costs. I agree with you that they are too high. Our staff agrees, based on both past experience and continuing shocking examples. Yet we are having extreme difficulty in getting the Pentagon to recognize this as a problem area. As a matter of fact, we are told by the Pentagon that overhead costs are not even separately identifiable on many contracts we ask about. I find this difficult to believe, but that is the story nevertheless.

What could we do to get more information in this area, hopefully enough to enable us to convince either the DOD or our colleagues in the Congress to stimulate some improvement?

Mr. ANTHONY. The job that should be done is quite a large job. It would involve this: Define carefully the various components of overhead. Collect from individual contractors de novo, that is, not from existing records, what they spend on these individual components. Compare one with another.

I think you will find some very interesting results from such a comparison. But it is a sizable undertaking, and one which the Defense Department should do on its own initiative, but which has not been done.

Chairman PROXMIRE. Could it be done on a sample basis by the staff of this committee?

Mr. ANTHONY. No, it is a much bigger job than the staff of this committee could do.

Chairman PROXMIRE. Could it be done by the GAO?

Mr. ANTHONY. It could be done by them.

Chairman PROXMIRE. Mr. Conable?

Representative CONABLE. Thank you, Mr. Chairman.

Mr. Anthony, I too would like to say that I think you have a fine statement. I have found it stimulating to see your suggestions laid out in as understandable a form as they are, and I congratulate you on them. This is one of the best statements we have had.

Mr. ANTHONY. Thank you, Congressman.

Concurrency and the Gama Goat

Representative Conable. The chairman has implied that the Gama Goat testimony is evidence that the Defense Department has not left the practice of starting production before development has been completed. The testimony yesterday was that the Gama Goat contract, research contract, the integrated contract, was let by Secretary McNamara in 1963, that the development contract was let in 1965, and that the mass production contract was let in June of 1966. Under these circumstances, Mr. Anthony, would you feel that we could hold Mr. Packard responsible for the cost overruns?

Mr. Anthony. No; if those are the facts, certainly not. Please understand that I am not familiar with the details of this situation. But from what you say it would appear that the problem arose in 1966, and the production contract was let prematurely.

Chairman Proxmire. I certainly do not want to be in the position of being partisan in this at all. I think we have nonpartisan incompetence. We have the F–15, which is the responsibility of the Nixon administration. And the Gama Goat was primarily the responsibility of the previous administration.

Representative Conable. But would it be your conclusion, Mr. Anthony, that generally speaking Mr. Packard is trying to end this practice of premature letting of development and production contracts?

Mr. Anthony. Yes. As I indicated, all evidence that I read indicates that this is so. It is a terribly difficult job to get people to change in this direction.

Representative Conable. Of course, inevitably it is going to be impossible to separate all these contracts because of the time factors involved, isn't it?

Mr. Anthony. This is correct.

Representative Conable. It would also be your conclusion that the premature letting of production contracts has been a very substantial part of our cost overrun problem in the past, has it not?

Mr. Anthony. I believe so; yes.

Cost Control Versus Quality

Representative Conable. I would like to congratulate you also on the section of your statement on the "should-cost" type of study. I know we ran into this same problem in other committees of the Congress, particularly we have been studying this problem in relation to public medical costs, where in many cases we have had a kind of a cost-plus reimbursement of hospitals. There we have been somewhat reluctant to move away from the cost-plus type of contract for fear of putting hospitals in the kind of competition that would reduce the quality of medical care.

Now, I do not think we have the same problem here in defense. But I wonder if you would explore with me the possibility that too tight a rein on defense contractors will make it difficult for us to let our contracts because of discouragement of some of the better contractors from participating. I do not want to phrase this question in such a way that it appears that I am justifying waste. But because of our concern in the hospital field with downgrading the quality of medical

care, is there any chance—and where there are the greatest risks involved, in riding herd on defense contractors—is there any chance that we can wind up with the high cost, high risk people doing the work instead of some of the more responsible people who simply won't put up with the harassment involved in constant inspection and back seat driving?

Mr. ANTHONY. The basic problem you point out exists, namely, that one must always strike a balance between cost control on the one hand and quality on the other hand. I do not believe that the situation in the hospitals that you cite is at all a necessary situation. I believe that one can go much further than we have so far gone in controlling hospital costs.

And I say this on the basis of some study of hospital costs.

Representative CONABLE. But you would acknowledge that there is more of a problem there, for instance, where we have a limited number of hospital facilities, than there might be in the defense contracting area?

Mr. ANTHONY. Yes; I would. But I am just saying that even in the hospital, which is a prime example of a situation in which one has to be very careful not to inhibit good medical care, I believe it is possible to do much more than has been done in assuring efficient costs.

Representative CONABLE. I would agree with you on that too, sir.

Mr. ANTHONY. In the defense contracting business one must be careful not to impose unwarranted restrictions—too much paperwork, too much inflexibility—on the contractors. And one must also be careful to offer an adequate profit to the contractor who does an adequate job. You do not have to guarantee a profit. The contractor does not expect a guarantee, but he expects the opportunity to make a reasonable profit if he does a reasonable job.

Now, if one is careful to do those two things, it is perfectly possible to institute much better cost controls than now exist and still feel confident that the business community will produce the weapons that need to be produced.

"SHOULD COST"

Representative CONABLE. Why haven't we extended the "should cost" procedure more than we have? It certainly seems so eminently sensible that it is difficult for me to understand why it has not been pushed more than it has.

Mr. ANTHONY. One speculates, but I think myself that the primary reason is the seventh cause that I gave, that many senior officials are more interested in meeting a schedule than they are in cost, and therefore they do not, unless there is a real strong case for doing so, push this "should cost" study idea as far as it should be pushed.

PROFIT RATES

Representative CONABLE. I would like on the record also to favor your proposal to base profit on capital employed.

I think it is an excellent statement, and I congratulate you on it.

Chairman PROXMIRE. Mr. Moorhead?

Representative MOORHEAD. Thank you, Mr. Chairman.

Mr. Anthony, I also share my colleagues' high regard for your statement.

Cost Accounting Standards

In response to the chairman's question I understand your testimony to be that we could have standardized forms of accounting for defense contractors, is that correct, sir?

Mr. Anthony. One has to be very careful in the way this is put. I do not favor standardized forms in the sense that the Government literally prepares forms and has the contractor fill them out. Rather, I favor standards in the sense of general principles and definitions to which contractors are expected to adhere. The defense community is quite properly upset when one talks about standard forms, because each contractor is different, and at that level of detail it would be very bad to try to fit the details into any kind of a standard pattern.

But there is no reason why they should not all go by standard principles.

Representative Moorhead. Is your testimony in favor of the bill that the Senate committee has reported?

Mr. Anthony. I am in favor of the basic bill, very strongly in favor of the basic bill, because that is what it does, is to set up cost standards, these general principles. As I have testified, I was very sorry to see the addition of the $25 million floor.

Representative Moorhead. And should these standards also apply to subcontractors?

Mr. Anthony. Yes, indeed.

Representative Moorhead. Some of the subcontractors that come to me say, "This is such a small percentage of our business we do not like to change our practices in general to fit a small segment of our business." You do not think that is valid?

Mr. Anthony. I do not. A lot of people assume in advance that these standards will be bad standards. If they assume that, they will be good standards, then they will be standards that they will want to use in other parts of the business also. In fact, they probably already do use many of them in other parts of their business, Mr. Moorhead.

Lockheed's Cash Problem

Representative Moorhead. Mr. Anthony, I read the chairman's opening statement of yesterday that Lockheed's current cash crisis is primarily due to difficulties in their commercial project, the L–1011, not their military projects, as we have been led to believe. Now, Congress is being asked to bail out Lockheed to the total of $640 million, with the first installment being $200 million. Is there any way that we can assure ourselves that this money is truly allocated to the military costs and not to the commercial program? How can we build defense around this money that we apparently are going to authorize?

Mr. Anthony. I am not current on this problem, and you raise a very complicated question. To the extent that—and I am not saying that this is so—Lockheed's cash problem arose because of deficits on its government work, that work caused by defense actions, then I suppose there is no need to raise a fence around this money, it is

just money that they were counting on for their general corporate needs. And that money has not come in. To the extent that that is not so, I think it would be feasible to build this fence; yes.

I think the procedures could be worked out by the Comptroller to see that the proper restrictions were put on the contract.

Representative MOORHEAD. So that we should tell the Comptroller General to monitor this to be sure that it is properly applied?

Mr. ANTHONY. Yes, indeed.

C–5A OVERHEAD COSTS

Representative MOORHEAD. In your testimony you talk about how the contractor can shift costs from commercial work to government work, and from fixed price contracts to cost type contracts. We on the committee got a summary on original cost estimates and present cost estimates on the C–5A. And I noticed one item which is called "Other" where the original price, on April 1965, was $72 million, and the current estimate, of February 1970, is $550 million.

The word "Other" is footnoted and it says "Other is interdivisional charges for feeder plants," et cetera. I am not saying that happened here. Is that the kind of item which could be abused as you describe in your testimony?

Mr. ANTHONY. I am not familiar with what the word "Other" means specifically in that situation. If these feeder plants were connected with the whole C–5A operation, then it is different than what I had in mind in my testimony. If they were also involved in non-C–5A work, then, indeed, it might be a good example of what I have in mind. I just do not know the facts well enough to say which this is.

Representative MOORHEAD. In a reading of this same statement comparing the estimate of 1965 with the current estimate, I notice that overhead went from $550 million, in 1965, to $682 million, in February 1970, and general and administrative went from $76 million to $143 million. Are these the kind of items—I am not saying they did this, but are these the kind of items to which, under the present accounting system, it is possible to allocate more to commercial than should have been allocated to military, or vice versa?

Mr. ANTHONY. Yes.

SELECTED ACQUISITION REPORTS (SAR's) PROVIDED ON CLASSIFIED BASIS

Representative MOORHEAD. Mr. Anthony, in your testimony you point out that the selective acquisition reports show the difference between actual and planned performance on major systems and the causes of those differences. You emphasize that this is important information. And I might say that I would agree. But I would add that I fail to see how the decisionmakers in the Pentagon or Members of Congress can make informed decisions on these systems if we do not know where we stand in debate on the acquisitions. Some of us in Congress have requested this data on certain systems and have been refused.

You mentioned that it is in the SAR's, but it is not in the ones made available to me. The only copy of SAR's made available to us are through the GAO, and they are classified. In addition to the C–5, all

cost estimates are estimated at completion and not actual and planned performance to date.

In other words, I think at a given date we want to know whether on that date we are overrunning or underrunning. I would think that the Pentagon would also want to know that. And so the question arises, are there two sets of the SAR's, one for the inside management and one that is sent to Capitol Hill? Do you happen to know?

Mr. ANTHONY. I do not know what is sent to Capitol Hill. If the selected acquisition report literally is the one sent to Capitol Hill, it has the data on it to show the estimated cost of completion. We decided that in a two-page report, which we would try to make for the purpose of being useful to top management and to people like yourself that wanted to get in the picture quickly, it is really better to look at the original estimate of cost on the whole job compared with the current estimate of the cost of the whole job, taking into account what has been done up to date. This is more informative, I think, if you want one piece of information than to report what has been spent to date.

Representative MOORHEAD. I would agree to that if you could only get one piece of information. But it would seem to me that if a system, as of a given date, is overrunning or underrunning, people can be optimistic in the future, assume oh, we will catch up on this, so that we can put in an estimate that will finish on target.

But there ought to be, it seems to me, a warning flag that says, this one at the present time is overrunning.

ACTUAL COSTS INCLUDED IN SAR'S

Mr. ANTHONY. The proper procedure, if employed on the Selected Acquisition Reports, would not permit the practice of hiding prior overruns by optimistic future estimates. The proper procedures would require that whatever the overruns have been to date be included in the current estimate as overruns, and they cannot be made up by arbitrarily reducing the estimates from here on out. That is part of the regular procedure of preparing these reports.

Repesentative MOORHEAD. Don't you think it would be helpful to us to see that, as of a given moment if there was a real overrun—in other words, if you have done 10 percent of the job and in that small amount there was a serious overrun, the existence of that at the end of the completed contract might look relatively small, but it would be a warning flag. I am told that if we had that information on the C–5 we would have begun to see in 1966 that the program was in financial trouble.

Mr. ANTHONY. Either kind of information would have given that signal. It is a matter of personal preference, I think. I prefer always to keep in mind: What did we originally think we are going to do? What do we now think we are going to do? The "Why" is more important than either of these figures, and by "Why" I mean the main causes of the differences. This you must know about if you are going to ask good questions of the contract management people.

Representative MOORHEAD. Thank you, Mr. Chairman.

Chairman PROXMIRE. Thank you, Mr. Moorhead.

And thank you very much, Dr. Anthony, for a very fine job.

(In reply to Chairman Proxmire's letter of July 17, 1970, the following information was subsequently supplied for the record by the Department of Defense:)

ASSISTANT SECRETARY OF DEFENSE,
Washington, D.C., September 5, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, U.S. Senate, Washington, D.C.

DEAR SENATOR PROXMIRE: This is in reply to your letter of July 17, 1970, requesting comments concerning Dr. Robert N. Anthony's suggestions in regard to excessive costs or cost growth.

Department of Defense comments are furnished by the enclosure in response to each of Dr. Anthony's suggestions for improvement of major DOD Weapons Systems Acquisition.

We appreciate this opportunity to furnish our views on these matters.

Sincerely,

BARRY J. SHILLITO,
Assistant Secretary of Defense,
(Installations and Logistics).

The following Department of Defense comments are submitted in response to Dr. Robert N. Anthony's suggestions of May 21, 1970, to remedy causes of excessive costs or cost growth:

Item No. 1: "Continue the development of better estimating techniques."

DOD comments

"(*a*) *Do you plant to implement it?*" Yes. This is an item of continuing action.

"(*b*) *If so, when?*"

Development of better estimating techniques is of continuing interest to DOD We have instituted several policies and projects which will eventually result in improvement in the area. For example, a reporting system is now developing a usable data base for parametric estimating purposes which is generally the only statistical technique available for estimating early in the program and in the beginning stages of development. We are analyzing contractor's actual overhead costs to develop improved methods for predicting future overhead costs. A comprehensive cost estimating textbook is being prepared which should significantly aid in training personnel engaged in cost estimating functions. We have recently completed a DOD review in depth of present cost estimating practices on several programs and are analyzing the studies to determine what can be done to improve the disciplines involved in cost estimating. In addition each of the Services conducts, on a continuous basis, special studies on the improvement of estimates on specific systems. An annual DOD Cost Research Symposium is held to discuss the more significant accomplishments to date. As improved estimating techniques are developed, tested and approved they will be included in the DOD approved cost estimating methodology.

Item No. 2: "Tighten the procedures governing change orders."

DOD comments

"(*a*) *Do you plan to implement it?*" Yes. This item receives continuing attention.

"(*b*) *If so, when?*"

It must be recognized from the outset that all systems are changed frequently during their lifetime due to the fact that the requirements and environments and technologies affecting them change frequently in ways that make it unrealistic to leave the systems unchanged. The concern, therefore, is not whether there will be changes or not, but whether the change process will be under conscious control. In this regard DOD has issued the following standards and instructions which place explicit and stringent controls on engineering changes through our program called "Configuration Management":

DOD Directive 5010.19, Configuration Management, July 17, 1968.

DOD Instruction 5010.21, Configuration Management Implementation Guidance, August 6, 1968.

MIL–STD–480, Configuration Control—Engineering Changes, Deviations and Waivers, October 30, 1968.

MIL–STD–481, Configuration Control-Engineering Changes, Deviations and Waivers (Short Form), October 30, 1968.

DOD also has an Ad Hoc Committee currently reviewing the Military Department's Procedures on Engineering Change Proposals to insure adequate controls have been imposed to provide for timely processing of these changes. With

full implementation of these Directives, Instructions and MIL–STD's the administrative control of Engineering Changes will be tightened so that only those which are needed and necessary are approved.

Item No. 3: "Study the feasibility of allowing no fee or profit on change orders, except those made to increase quantity or to obtain performance that is significantly better than that originally specified."

DOD comments

"(*a*) *Do you plan to implement it?*" No.

"(*c*) *If not, why not?*"

The concept of paying fee or profit on change orders is based on the rule of reasonableness. Each change order must be evaluated on its respective merits and a fee or profit paid or reduced, commensurate with the effect of the government-ordered change involved on the contractor's cost of performance under the contract. This is in keeping with the provisions of the "changes" clause used for many years which provides for an equitable adjustment in the contract price when the Government orders action under that clause. The Weighted Guidelines profit philosophy is sufficiently flexible to provide a range of fees that can be adjusted according to the equities of the change involved.

Changes may result in either increased or reduced costs. Generally changes to contracts under Configuration Management fall into the following categories:

Engineering changes.

Waivers.

Deviations.

The purpose of the Configuration Management system in this context is to insure a disciplined progression in development.

In certain large programs involving significant risk, we have on a selective basis prescribed limitations on profits for certain types of changes to make the smaller changes individually and collectively unattractive. However, we view any significant change in the scope of work as requiring a profit rate consistent with the basic contract profit rate.

Item No. 4: "Unless the need is urgent, do away with the doctrine of concurrently."

DOD comments

"(*a*) *Do you plan to implement it?*" *This has been done.*

"(*b*) *If so, when?*"

The recently announced DOD policy is to minimize concurrency between development and production, except in programs to provide urgent military requirements through (1) structuring of the program with enough time for resolution of those problems which inevitably arise in any development program, and (2) the establishment of milestones which will provide for demonstrated achievement of objectives at appropriate points in the development program. It is expected that the start of production will be scheduled to minimize financial commitments until it has been demonstrated that all major development problems have been resolved.

Item No. 5: "For a contractor who does primarily government work, or who has one or more plants devoted primarily to government work, negotiate in advance a separate overhead contract covering all government work. This can specify either a fixed-dollar amount or a fixed amount plus a variable rate, depending on the circumstances.

DOD comments

Combined with Item No. 6.

Item No. 6: "For other contractors, negotiate overhead agreements prior to the beginning of each year in which the contract is being performed. Ordinarily such agreements should provide for a fixed-dollar amount and a variable rate per unit of activity (such as direct labor)."

"(*a*) *Do you plan to implement it?*" No, however, see comments provided in paragraph (c) below for the problems concerning implementation of this technique.

"(*c*) *If not, why not?*"

DOD comments

Items 5 and 6 are being combined due to their similarity. The suggestions recommend negotiating an agreement in advance using either a fixed-dollar amount, a variable rate overhead agreement or a combination of the two instead

of the present procedure of determining overhead after the fact as now provided in Section 3, Part 7, of the Armed Services Procurement Regulation entitled "Negotiated Overhead Rates". In considering these suggestions it is important to recognize that there are already in existence strong economic forces that create incentives for the contractor to exercise strong management controls over overhead costs. One of these is the competition from other defense contractors. Each individual contractor must keep his overhead costs under control or find himself priced out of the market. Another factor is that in all initial contract pricing, contractors must forecast overhead rates for the life of the contract. Any increases in overhead above that considered in the negotiation will have a significant impact on profit. Finally, it should also be recognized that ASPR Section 3, Part 7 does provide for advance negotiations, when appropriate, for Universities since their rates are very stable from one year to the next. Our specific comments on negotiating fixed-dollar amounts and variable rates are as follows:

(1) *Fixed-dollar amount.*—This approach would, in effect, contract to pay a dollar figure for all overhead costs incurred by the contractor in a specific accounting period or fiscal year. Overhead costs vary with the amount of business done and we would therefore be required to forecast the business volume as well as the amount that would relate to Government contracts. These variables cannot be predicted with enough accuracy to permit establishing a realistic dollar amount of overhead cost in advance.

(2) *Variable rates.*—Until about 10 years ago the DOD negotiated overhead rates in advance with a few selected contractors. This practice was stopped, however, when a GAO report criticized the practice and stated that it was a form of cost-plus-a-percentage-of-cost (CPPC) contracting. In 1968 the DOD attempted to test an alternative approach that appeared to overcome the CPPC problem. Negotiations were begun with a test contractor but were discontinued because of difficulties in attempting to accurately forecast and structure complicated variable rates to fit the possible work volume variations, and possible major changes in certain overhead costs caused by changes in the types of contract effort that might be performed. Our experience with this test indicated that the essentials required for effective overhead advance agreements are:

1. A highly reliable procedure for forecasting overhead costs under different conditions of volume and types of operations.

2. A type of agreement capable of being adjusted to cope with the effect of changes in types of effort or production methods that substantially increase or decrease direct cost and overhead.

We have been working on the development of better forecasting procedures and believe we are making real progress although this is still to be fully proven under actual conditions. If the methodology does succeed it would pave the way for further consideration of the use of advance overhead negotiations in the future.

Although we are not yet ready to adopt a policy of negotiating advance agreements for overhead, we do negotiate advance agreements for certain parts of overhead. Provision is made in ASPR 15–107 to negotiate advance agreements for selected items of cost when appropriate and we have been negotiating such agreements to limit the cost of Independent Research and Development effort for a number of years with many major contractors. Bid and proposal and other costs have also been the subject of advance agreements.

Item No. 7: "Collect data on the cost of performing common overhead functions (e.g., accounting, personnel, drafting), and check each contractor's costs to insure they are in line with industry averages."

DOD comments

"(*a*) *Do you plan to implement it?*" Yes; to the extent such comparisons can be made.

"(*b*) *If so, when?*"

To make comparisons of overhead costs among contractors necessitates finding ways of adjusting data from each contractor to some type of standard format. An effort is now underway to develop such a format for the reporting system mentioned in reply to Item 1. Because of the dissimilarities between contractors caused by such factors as differences in organization, products manufactured or services offered, degree of plant automation, and accounting systems and procedures, we know that it will not be a simple matter to develop a successful approach. Our future analysis to the data being collected will provide a basis for determining the extent to which comparisons between contractors are feasible.

Item No. 8: "Increase the use of 'should cost' studies."

DOD comments

"(*a*) *Do you plan to implement it?*" Yes; to the extent they are appropriate.
"(*b*) *If so, when?*"

The size and complexity of Defense procurement requires a continuing alertness to supplemental techniques and approaches that may be beneficial in managing the expenditures of Defense dollars. In this regard, we believe that there is further opportunity to use the "should cost" approach in certain circumstances. Our experience, however, has demonstrated that the approach commonly referred to as "should cost", requires a substantial number of talented personnel for an extended period. In our opinion, "should cost" efforts of this nature offer the most benefit when applied on a company or plant-wide basis, rather than on a contract-by-contract basis as is our usual analysis practice. On the other hand, when used it is an expensive undertaking that can only be warranted where past performance indicates inefficiency or where special problems are identified. Each of the Services has indicated an intention to employ the "should cost" approach in varying degrees. Those Services with more complete field organizations (AFPRO and NAVPRO particularly) will rely more heavily upon those personnel in residence to assess contractor operations on a day to day basis. The Army, on the other hand, is testing a technique of utilizing a small term of specialists working in-plant for a short period of time examining the contractor's management controls and production practices. When the results of the Army test are quantified and evaluated, action will be taken to create an ASPR case to consider adoption of appropriate aspects of the technique.

Item No. 9: "Enact legislation that will provide for the development and use of cost accounting standards."

DOD comments

The Senate and the House in considering the extension of the Defense Production Act, passed legislation providing for a board as an agent of the Congress to promulgate Uniform Cost Accounting Standards. This legislation was signed by the President. The Department of Defense supported the study which resulted in this legislation.

Item No. 10: "Fees should be calculated, at least in part, as a percentage of capital employed."

DOD comments

"(*a*) *Do you plan to implement it?*" We are testing it.
"(*b*) *If so, when?*"

The concept of relating a portion of the profit or fee on negotiated contracts to a capital base has been explored by the OSD staff for some time and several proposed methodologies have evolved. Early this year DOD decided to directly involve the services in this project. Each service will provide information from actual contract negotiations concerning incorporating "capital employed" into fee or profit calculations. This information will serve to create a data bank of "capital employed" statistics which will provide a basis for final policy direction on this matter.

Item No. 11: "Continue to push the implementation of DOD Instruction 7000.2, Performance Measurement of Selected Acquisitions, and reports growing out of it, especially the Selected Acquisitions Report."

DOD comments

"(*a*) *Do you plan to implement it?*" DOD action has been taken to implement DOD I 7000.2.
"(*b*) *If so, when?*"

DOD Instruction 7000.2 is currently being implemented throughout DOD. The requirements of this Instruction have been incorporated in 51 major weapons systems contracts to date. Of these, 35 have been evaluated by DOD demonstration review teams with 11 contractors receiving DOD validation of their management systems. Contract clauses requiring compliance with DOD I 7000.2 are currently included in all Army and Air Force major procurement actions. The Navy is including essential elements of the criteria in major procurement actions.

Other developments in this area during recent months are as follows:

1. Issuance of DOD I 7000.8 containing the BOB approved "Cost Performance Report" on April 1, 1970. This report enables project managers to obtain needed performance measurement information from contractors and was designed as a feeder report for the Selected Acquisitions Report.

2. The Selected Acquisitions Report (DOD I 7000.3) was revised and reissued June 12, 1970. The revision incorporated changes and improvements recommended by GAO. Congress currently receives SAR reports on a quarterly basis on 36 major programs.

3. OASD (C) has developed a DOD Handbook which contains a detailed interpretation of the requirements of DOD I 7000.2 for use by DOD and industry managers to facilitate understanding of the performance measurement criteria. This Handbook is currently in coordination.

4. A joint working group under the auspices of the Joint Logistics Commanders has produced a joint Service implementation procedures manual for performance measurement applications. This document is also in coordination.

5. Training programs in the performance measurement area are in being or under development. One of these is currently being presented by the Air Force Institute of Technology at Dayton, Ohio. Approximately 400 students have completed this course. The Army will start a program manager course devoted to the analysis and use of performance measurement data on September 14, 1970, at Rock Island Arsenal, Illinois. A third course dealing with surveillance of contractors' systems after validation is under development and will begin in early 1971.

Item No. 12: "Reward those who do an outstanding job in managing the acquisition process and take disciplinary action in cases where control is demonstrably poor."

DOD comments

"(*a*) *Do you plan to implement it?*" This is current practice.

"(*b*) *If so, when?*"

There is a clear recognition by DOD that management will be improved to the extent that capable people with the right experience are assigned and given authority to accomplish the job. The Deputy Secretary of Defense has established a DOD management review of the management quality of our major systems. Specifically, the qualifications and tenure of the program management staffs is being examined, since the success of the acquisition of weapon systems is critically dependent on the proper selection of a management team and its performance. Recently, the importance of the overall structure of the program management function was again stressed.

DOD is considering making business management competence, such as evidence of cost consciousness, reduction in expenditures, efficient utilization of resources and effective management of logistic functions, a separate part of the military officer's rating procedure. This will give a Military Project Manager's management disciplines equal recognition with his command performance during selection for promotion.

DOD emphasis is being placed on recognition of outstanding performance, since adequate means exist for action in cases of demonstrably poor performance.

Chairman PROXMIRE. Before our next witness begins I would like to announce that tomorrow's hearings have been rescheduled for Saturday, May 23d, the day after tomorrow, in this room at 10 a.m. The witness then will be Philip N. Whittaker, Assistant Secretary of the Air Force, and Frank Sanders, Assistant Secretary of the Navy.

I might say that Mr. Whittaker will be a specially appropriate witness to answer questions on the C–5A because he has made a very careful and thorough study for the Air Force on the C–5A, and is extremely well informed on it. And he has briefed, privately, Members of Congress on it. And I am looking forward enthusiastically to Mr. Whittaker's testimony.

Our next witness is Mr. J. Ronald Fox.

Dr. Fox served from 1963 through 1965 as Deputy to the Assistant Secretary of the Air Force, Financial Management, and in 1965, was awarded the Air Force Exceptional Civilian Service Award for his contributions to improving techniques for the management of aircraft, space, and communications systems. In 1965, he was appointed associate professor of business administration at the graduate school of

business administration, Harvard University, and has been Assistant Secretary of the Army since June 1969.

Dr. Fox, would you come forward.

Dr. Fox, you have a fine prepared statement here. It is somewhat detailed and generalized. We would appreciate it very much if you could summarize it in about 10 minutes. The entire prepared statement will be placed in the record because I am sure that Congressmen Conable and Moorhead and I have a number of questions we would like to ask you on specific matters.

Would you identify the distinguished officers who are with you?

STATEMENT OF J. RONALD FOX, ASSISTANT SECRETARY OF THE ARMY, INSTALLATIONS AND LOGISTICS, ACCOMPANIED BY LT. GEN. AUSTIN W. BETTS, CHIEF OF RESEARCH AND DEVELOPMENT; AND BRIG. GEN. VINCENT H. ELLIS, DEPUTY FOR PROCUREMENT

Mr. Fox. On my left is General Betts, Chief of Research and Development for the Army.

And on my right is General Ellis, who is my Deputy for Procurement.

May I take just a moment, Mr. Chairman. I had planned to read the prepared statement. It was my belief that that is what you would wish. But if I could have about 2 minutes I will outline the major elements and summarize it.

Chairman PROXMIRE. That will be very good. And as I say, the entire prepared statement will be printed in the record.

Let us go off the record for a moment.

(Discussion off the record.)

Chairman PROXMIRE. Back on the record.

Mr. Fox. Mr. Chairman, I believe I am ready to summarize the prepared statement for you now.

Chairman PROXMIRE. Thank you very much, Mr. Fox. And I want to thank you very much for accommodating us.

ARMY PLANS PROCUREMENT IMPROVEMENTS

Mr. Fox. Mr. Chairman, I would like to start out by saying that the Army is well aware of the criticisms that have been identified, the criticisms that have been offered to the Department of Defense on its management of the acquisition process. There are a large number of people now in the Army who, during the past year, have undertaken to make a comprehensive study of the entire weapons acquisition process. We have identified a number of specific improvements which, we believe, are effective in remedying these problems. We have underway now an implementation plan which, we believe, will be effective in accomplishing this purpose.

I would like to say a couple of words in summary about that plan. As we look back over the past 10 years we can all identify a number of individual improvements that have been made in the weapons acquisition process. One might say, well, in the light of all these improvements, why haven't we made more progress than we have made to date.

I think that making improvements in a process as complex as the acquisition of a weapons system can be likened to squeezing on a bal-

loon. If we simply squeeze down in one place the problem is going to pop out someplace else. What we have tried to do now is benefit from the lessons that we have learned over the past decade and put together a comprehensive plan so that, hopefully, we will be squeezing down on the entire balloon at the same time.

I would like to start out by talking about these improvements and say, first, that the performance specifications for a weapons system are fundamental to any successful development of production programing. To the extent that these performance requirements are realistic and well thought out, they provide the basis for the orderly evolution of a weapons system. If, on the other hand, they are unrealistic we find ourselves faced with considerable technical risk. Technical risk is a major source of schedule slippage and cost growth.

"Should Cost" Cadres

Now, one of the major actions we are implementing and one which I feel is vital to our control of cost is the "should cost" analysis technique for evaluating contractor cost proposals. In a true price competitive market, such as exists in many situations in the commercial world, we can usually rely on the impetus of price competition to produce efficient practices. As price competition becomes less active, as is the case in many defense contracts, there is less pressure for this efficiency. In the case of a sole source procurement the pressure practically disappears.

To deal with this situation we have undertaken now to develop cadres of six to 10 men who are in the process of undertaking the "should cost" analysis.

Performance Measurement

Contractor performance measurement is another important aspect of cost control. We feel that the defense performance measurement system, which is probably known to you as CSCSC, or cost and schedule control system criteria, is a major step in the right direction.

We believe that this system, which has been referred to by Dr. Anthony today, does involve some changes in the way defense contractors plan and control their costs. We are now in the process of implementing those changes with our major defense contractors.

The last point that I would make in summary pertains to our project management organizations. During the past year we have made a number of changes in the way we select, train, and assign individuals to project management offices. The minimum tour of assignment now is 3 years, with 4 years desirable for a project manager.

I should point out, Mr. Chairman, that managing the weapons acquisition process, as I think you know, is not a simple activity. It requires very substantial training of individuals, and then retaining them in their jobs in order to carry out this task.

I want to assure you that we are in the process of doing that right now.

This concludes my summarized statement.

(The prepared statement of Mr. Fox follows:)

PREPARED STATEMENT OF J. RONALD FOX

Mr. Chairman and Members of the Committee: I am privileged to have the opportunity to appear before this Subcommittee today and I sincerely hope my testimony will be of assistance to you in reviewing the Department of Defense procurement methods and practices. As you may know, the matters I will discuss today have been presented in my testimony before the Armed Services and Appropriations Committees of both the Senate and the House of Representatives.

Each Materiel Secretary, I believe, comes into this position with certain qualifications and specific areas of interest. In this regard, I am no exception—my experience and area of specialty lie in the field of weapons systems acquisition and the management of costs associated therewith.

I am well aware of criticisms that have been directed at the Department of Defense during the past two years concerning our ability to develop and procure weapons systems effectively and economically. I share your increased concern over escalating systems costs, schedule slippage and performance shortfalls. Indeed, this concern was one of my primary reasons for coming to work with the Department of the Army. Although we are all impatient to see immediate and positive improvements, we must understand the duration of the weapon system planning cycle as well as the dynamics and complexities of the acquisition process. I shall discuss this in more detail later in this statement.

During the past year one of the most notable criticisms concerned the high degree of cost growth associated with defense programs. In many cases the criticism was constructive. During the past year, however, I believe you will find that the Department of the Army has taken measures to counter cost growth.

In an effort to improve our stewardship of public funds entrusted to us, we in the Army made a detailed study of the weapon system acquisition process early last summer. In this study we identified weaknesses in our control of the acquisition process and then developed a practical program to strengthen our ability to achieve this control. We recognize that some cost growth in major weapon systems acquisition programs is to be expected. However, we are developing procedures to insure that we are in a position to evaluate and choose among viable alternatives prior to the incurrence of cost growth—and not simply react to problems after the fact.

Our action plan has been designed to comprehensively cover the entire acquisition cycle. By this program we mean to avoid a band-aid approach to improvement which can only result in the problem popping up in another part of the cycle. All too often in the past, improvement efforts have been fragmented and have resulted in little more than shifting the problem from one area to another. Introducing excessive numbers of contract changes, buying-in, and failing to identify risks early in a program are symptoms of more fundamental problems. The program we have developed covers the entire acquisition cycle and has many objectives which, when fully implemented, will substantially reduce the degree of program cost growth presently being experienced in many major weapon system programs.

The overall plan, which is now being actively implemented, has the broad objective of establishing a philosophy of challenging all potential sources of program cost growth by all Army personnel.

Before discussing in detail the weapon system acquisition improvement program which we have initiated within the Department of the Army, I would first like to state a few of my observations concerning the essential ingredients and benefits of a well defined management system. The management system for any complex long-range task must manifest certain essential characteristics.

First, the plan for accomplishing the task must be based on realistic assumptions and be in detail. The failure to do this inevitably leads to dangerous over optimism and undesirable outcomes. To attempt to initiate corrective action once the task has been started, likewise generates equally undesirable outcomes. As tasks become longer and more complex, managers appear to have an increasing tendency to overlook potential problems and hurdles and to be overly optimistic about the time and efforts required to achieve the desired goal. Hence, the longer and more complex the tasks, the greater the need for the burdensome job of detailed initial planning.

Secondly, the management system must provide an avenue for early consideration of alternative solutions to specific problems. In dealing with a complex problem there is no single right answer. Therefore the viable alternative must be identified and evaluated through the array and assessment of risks, and the advantages and disadvantages associated with the proposed solutions.

Thirdly, the system must provide for the analysis of problems and solutions through an approach which challenges the source and basis of data used in all forecasts. The failure to scrutinize and challenge basic data results in the inefficiencies of prior experience being perpetuated into the future.

Lastly, the system must have a formal performance appraisal procedure which recognizes and rewards a manager for early identification of problems. An effective manager devises procedures for the early identification of problems when viable alternate solutions are still available and before excessive resources are unnecessary expended. Such managers should be rewarded through appropriate recognition and considered for promotion to more responsible positions.

The program we have developed to improve the weapons acquistion process incorporates the essential characteristics for a meaningful management system which I have discussed above. The program is divided into 16 tasks which address the weapon systems acquisition management functions with an objective of improving specific practices and procedures performed during the primary phrases of life cycle for acquiring a major weapon system; i.e., Concept Formulation, Contract Definition, Engeering Development and Production. This action-oriented program is focused toward achieving a firm technical baseline, cost realism and a well planned acquistion process for all weapon system programs. The implementation of this program is being effected through the review of existing practices and procedures, the issuance of new guidance and the adoption of new techniques for accomplishing the function concerned. Personnel at each level of the Department of the Army are involved in this program from the Office of the Secretary of the Army down to our major procuring activities. The U.S. Army Materiel Command has expanded the 16 tasks prescribed by the Department of the Army program into a large number of subtasks and has designated more than 300 individuals with the responsibility of implementing those subtasks. Their program of implementation is a major effort which is being locally implemented within each of their major subordinate commands across the United States.

At this time I would like to discuss a few of the improvement tasks which I consider to be most important. While each of the 16 tasks we have established are major improvement objectives, time does not permit a detailed discussion of each.

Fundamental to the entire acquisition process are the specified performance requirements against which the system is developed and ultimately produced. To the extent that these requirements are realistic and well thought out, they provide the basis for the orderly evolution of a weapon system. If, on the other hand, they are unrealistic, we find ourselves faced with considerable technical risk. If the technical specifications are incomplete or unrealistic, we usually find it necessary to redirect the program or to introduce engineering changes late in the program cycle to overcome performance deficiencies—and this provides a major source of schedule slippage and cost growth.

In an effort to establish firm technical baselines early in the acquisition process, we have assigned tasks to (1) develop procedures for the use of competitive prototype demonstrations, when feasible, (2) to analyze technical risk, (3) to provide back-up development of high risk components by concurrent development of less sophisticated, low risk components, and (4) to conduct periodic reviews of technical risks versus achievements. The objective behind each of these efforts is to isolate the principal unknowns associated with a program, to develop a risk profile based on the unknowns, and to evaluate the alternative courses of action to offset the risk involved. Analysis of risk ties in closely with the reduction of excessive optimism in cost estimates, since realistic cost forecasts must explicitly account for the probability that the system will cost more (and in some cases less) than the best estimate because of technical uncertainties. As part of our program, cost estimating methodology is also being reviewed and upgraded so that resulting estimates will be cost realistic.

Our ultimate goal in improving system definition is to establish a stable technical baseline upon which contract awards will be based to minimize redirections of effort and contract changes in subsequent phases. We recognize, however, that some changes are inevitable. Indeed, in some cases, such as those involving technical breakthrough, changes may well be desirable. We must, therefore, establish firm control of changes to insure that they are properly analyzed prior to implementation, to validate their necessity and to determine their impact on schedules and on systems life cycle costs. This is an area of major emphasis.

With the establishment of a firm technical baseline the Army will have a meaningful basis upon which to negotiate the basic contract, establish a contractor performance measurement system and to evaluate all changes that may arise during the life of the contract.

The first step in this process is the review and negotiation of the contractor's proposal for performing the contractual scope of work. To assure that the contract price awarded is fair and reasonable, we are examining the capabilities of our contract negotiators and, where needed, we are taking steps to better train and provide these negotiators with more meaningful tools to assist them in the performance of their responsibilities.

One of the major actions we are implementing, and one which I feel is vital to our control of costs, is the "should cost" analysis technique for evaluating contractor cost proposals. In a true price competitive market as exists in many situations in the commercial world, we can usually rely on the impetus of price competition to produce efficient practices. As price competition becomes less active, as is the case in may defense contracts, there is less pressure for this efficiency, and, in the case of a sole source procurement, the pressure practically disappears. Depending upon the contractor's several motivations, he may or may not be fully efficient in a hole source situation. The Government must therefore insure that the contract price negotiated represents what the contractor should incur in performance of the contract assuming reasonable efficiency. To determine what costs are reasonable, the Government must make a detailed cost analysis of the contractor's performance plans to assure that the contract price represents what the performance should cost if the contractor were efficient.

For selected major weapons systems, we will conduct a "should cost" analysis of a contractor's proposal. Our plan is to tie together a number of presently prescribed and essential actions, so that the resultant "should cost" analysis will provide the contracting officer with a negotiation objective well supported by facts. To do this, we will assemble a team of specialists to conduct a cost analysis, an audit, a technical review, and an industrial engineering review of the contractor's management and production practices. The strength of this approach lies in the much improved coordination and integration of the previously fragmented, authorized and essential actions. We believe that this "should cost" technique will help to identify and reward the truly efficient producer. We are today testing this technique and will in the near future publish a procedure for performing such reviews. In addition, we are conducting on-the-job training in this "should cost" proposal analysis method.

I am sure that most of you are well aware of the phenomenon of contract changes. Virtually every major development project, and most large production projects experience a very significant level of contract changes in system performance characteristics. To further complicate the problem, many contract changes are implemented by contract change orders, subject to after-the-fact negotiation and definitization of a price adjustment. This situation is incompatible with maintaining control of a project. Government and industry personnel alike must be convinced that contract changes will not be used as a means to overcome problems created by contractor "buy-ins" or poor performance planning.

A number of contract changes having a significant effect on price means that regardless of the type of contract and the negotiated price of the basic contract, there are extensive cost increases which can materially affect the total system cost. The project manager can control the cost of changes only by having current and accurate cost data which will enable him to evaluate the cost of work added and the cost of work deleted by the change to the project. He must also possess the capability for the consideration of the effect a proposed change in configuration may have on overall life cycle costs.

Traditionally, the project manager has been faced with a limited amount of time in which to evaluate a proposed change and issue a contract change notice, with little capability because of the time frame, to assess the cost impact of the change on the program. As a conseqnence, the manager frequently has had to approve a change after limited technical and cost analysis which has greatly diluted his control over costs.

In recognition of this situation, the Army has initiated, as one of the weapon systems acquisition improvement tasks, the revamping of its controls on system configuration changes which occur once the development phase of the life cycle has begun. Policy and procedures are being revised to prescribe consideration of life cycle cost effects, the establishment of configuration control boards at appropriate levels of command, and thresholds for required approvals at higher

echelons of management. Additionally, more intensive management of the definitization of contract changes has been established to insure the earliest possible agreement between the Government and the contractor as to what the adjustments to the contract price and performance schedule shall be. The existence of a firm technical baseline upon which the contract specifications are based and the inclusion of the contractor performance measurement system within the contract will provide much better data upon which all proposed engineering changes may be evaluated as to their cost and merit impacts.

Contractor performance measurement is an important aspect of cost control. We feel that the Defense Performance Measurement System, probably known to you as CSCSC or Cost and Schedule Control System Criteria, will be a major step in the right direction.

I am sure that each of us here can appreciate that the weapons systems acquisition process is dynamic. There are continual iterations of estimating, programing, and budgeting, beginning with the initial cost estimate when the system is first programmed and continuing as the system is defined through concept formulation, contract definition, development, and initial production. We can easily see that the final cost will seldom be the same as the original estimate. The fact that the final costs of weapon systems usually exceed the original estimates is attributable in part to over optimism, in part to our inability to quantify the unknowns in the early phases of acquisition, and in part to past deficiencies in our control systems. In any event, it is clear to all of us involved in the systems acquisition process that in order to be effective, project managers of our major weapon systems need a management information system which will provide early identification of developing problems—early identification prior to the time that the Government is so deeply committed that the only alternative is to pour in more funds to save the project.

The way we see that Government and industry can obtain this early visibility of problem areas is to compare, on a regular basis, the actual cost of specific work being performed with the planned cost for that same work. Based on this comparison, the Government and the contractor are in a far better position to develop a realistic cost estimate to complete the program and thereby identify cost growth at its earliest stages. Unfortunately, this analysis has not often been accomplished in the past. I believe that only by conducting such an analysis can the Government logically consider alternative courses of action other than simply placing additional funds on a contract. While this kind of comparative information generally exists at various locations within a contractor's internal control system, it is rarely aggregated within the contractor's organization, and even less frequently reported on a regular basis to the Government. Indeed, in the past, there has been no formal requirement that this information be presented to the project manager on Government programs, although it is common practice on commercial programs.

Traditionally, the Government project manager has not been fully effective at managing costs, because he usually finds out about problems through a review of historical data, a month or longer after the costs have actually been incurred. As you may know, the primary method of financial control now being employed on many projects takes the form of tracking the rate of consuming funds. And while this technique is useful in making sure that funds are not spent too fast or too slowly in terms of calendar periods, it provides little assistance in determining whether specific packages of work are being accomplished at a cost higher or lower than planned. By tracking the *rate* of expenditure by time periods, the project manager is largely concerned with funds management instead of cost management. Stated another way, funds management can be interpreted as making sure that sufficient funds are available in appropriate time periods to cover the requirements stated by the contractor. While this is an important function, it is a far cry from cost management. The difficult task of cost management is one of obtaining formal agreement with a contractor on a performance requirement and then regularly reviewing progress and engaging in the difficult task of negotiating between Government and industry to insure that the desired performance is achieved for the budgeted dollars. At times in the past we have believed that the task of cost management could be lightened considerably by selecting a specific contract type, such as a fixed price contract or an incentive contract. As such, in the past, I believe we have relied far too heavily on fixed price or fixed price incentive contracts in the hopes that the contract type would handle the task of cost control. In many cases, the high incidence of changes which occur to the contract price after it is initially agreed

upon tends to reduce very substantially any significant cost management service that might be provided by the contract type.

In view of these problems, we have adopted performance measurement techniques comparable to those used in commercial industry to provide the project manager with the ability to better meet these cost control problems. It may be useful at this point to review one of the predecessors of the present Performance Measurement System, mentioned earlier.

PERT COST was an attempt to solve these problems; however, PERT COST was not effectively implemented. Misunderstanding and lack of experience led to its being established in practice as a separate reporting system, isolated from the contractor's own control system and providing carefully controlled data to the Government. In short, PERT COST often simply told the Government what it wanted to hear.

Recognizing the deficiencies of PERT COST, we developed the specification approach to cost and schedule control. This approach, which contained the essential elements of PERT COST, was called the Cost and Schedule Control System Criteria or CSCSC.

These criteria require a contractor to have or to establish a cost and schedule control system tailored to meet his specific needs, but which meets certain specified Department of Defense criteria. The criteria are based on the type of contractor control systems which are common-place in large commercial projects and which insure that the defense contractor has adequate visibility, present and projected, to achieve effective control of the project. Based on this system, highly summarized reports are then submitted by the contractor to the Government project manager on a recurring basis.

By using a system that meets the Department of Defense criteria, a contractor will be able to show, on a regular basis, the difference between the budgeted and actual cost of specific work performed. As I indicated previously, this information is essential to any attempt to relate cost to actual progress and to permit our managers and the contractor to detect impending problems in time to take corrective action. This information is also essential for our project managers and the contractor to more rapidly and reliably assess the necessity for and cost impact of proposed engineering changes. Only with such a system may a project manager truly perform the mission he is charged with.

As a product of our weapons system acquisition improvement program, arrangements have been made to improve the training of project managers and their key personnel in the management tools available to them. As a supplement to the educational and experience prerequisites required for all new project managers several tailored courses will shortly be available in the specific management skills which they are expected to be proficient in; i.e., Performance Measurement Systems, Cost Estimating Techniques, Configuration Management and Systems Engineering.

One of the most important steps we are taking is to insure that selection criteria provide individuals uniquely qualified for a project management assignment. Individuals who have demonstrated a capability for performing such tasks will receive assignments commensurate with their capabilities. We are attempting to develop a cadre of highly qualified individuals capable of assuming a project management assignment. Those who demonstrate an unusual capability will be duly recognized and considered for more responsible assignments. Similarly, poor performance will be identified and the project manager relieved, the same as the poor field commander is relived. In this way we expect to reward and penalize project managers through the appraisal of the ability to identify problems while viable alternatives are available. I personally feel that the success or failure of a program lays primarily within the management control of a project manager. In my opinion he must have a demonstrated ability to manage, be trained in the tools of management available to him and rated on his ability to identify problems in a timely manner.

This concludes my formal statement. Should you have any questions I will be pleased to answer them.

Chairman PROXMIRE. Thank you, Dr. Fox. You certainly did a competent job of abbreviating your statement.

GAMA GOAT

Before getting into the substance of your prepared statement, I would like to ask you about the Gama Goat, a program which was discussed in yesterday's session. You are no doubt aware of the horrendous performance so far. The costs of the program have increased according to the Comptroller General from $69.1 million to $439.3 million. Although more vehicles will be purchased than was originally planned, even on a unit basis the cost overrun is almost 100 percent. It is 3 years late, and its technical performance has been less than expected.

Can you confirm and comment on these facts?

Mr. Fox. Yes, sir; I would be pleased to.

Mr. Chairman, you may or may not be aware that we have a fixed-price contract for the Gama Goat, arrived at through competition in a situation where I believe there was very substantial price competition among major automotive manufacturers. I think you should point out that the planning estimate for the Gama Goat that you are talking about was an estimate that was prepared 6 years ago.

I think you should also point out that not only are we buying a few more vehicles, I believe you know we are buying 20,649 additional vehicles—and above the quantity that you referred to when you talked about the basis for the cost growth.

I should also point out that there have been technical problems in the development of this vehicle. No one in the United States had ever built a vehicle like this before. It was a development program. Development programs necessarily entail uncertainties. The figure that you refer to initially in 1964 had no contingencies for inflation. This country has incurred very substantial inflation over the past 6 years.

UNIT COST INCREASE

Chairman PROXMIRE. How much of this 100 percent, almost 100 percent increase on a unit cost basis—and you ought to have a lower unit cost with more vehicles procured—how much of this was the result of inflation?

Mr. Fox. Approximatley $1,600 out of the slightly over $5,000 total price. So I would say approximately 30 percent of that was due to inflation during that 6-year period of time.

LABOR, MATERIALS, AND OVERHEAD COSTS NOT PROVIDED

Chairman PROXMIRE. In our letter to you of March 19, we asked for certain cost information on the Gama Goat broken out by the costs of labor, material, and overhead so that we could see in detail how the costs had risen from the time of the Government's preliminary estimate to the current estimate at completion. Although you sent us a lot of documents, this cost information was not included. Is there any reason that the Army cannot provide the cost data for the Gama Goat or any other program in the format we requested, that is, labor, material, and overhead?

Mr. Fox. On most programs we can provide that information in considerable detail. Functional cost information was what we were requesting. On programs where we are buying an item contracted for

in a price competitive fixed-price environment, we do not collect functional cost information by various categories.

The second part of your question is, can we obtain that on most programs. On most programs we can provide that information, Mr. Chairman. And we would be pleased to do so.

Chairman PROXMIRE. You are satisfied that you cannot get the cost of the labor, the cost of materials, and the cost of overhead?

Mr. FOX. I believe that if we went to the contractor and were willing to pay for the effort involved in collecting that information that we could obtain that. If you would like to obtain that information, I will pursue that with the contractor.

Chairman PROXMIRE. Would you give us an estimate as to what that cost would be if obtained?

Mr. FOX. I would have to look into that, Mr. Chairman. I would be pleased to do so.

Chairman PROXMIRE. It would seem to me that it would be rather minor compared to the amounts involved here. But I would like to know it.

(The following information was subsequently supplied for the record by Mr. FOX:)

The contractor has declined to provide the contracting officer with a breakdown of his costs into labor, materials, overhead, etc. This position is based upon the Armed Services Procurement Regulation and Public Law 87-653, neither of which requires the submission of cost and pricing data when adequate competition is present. The GAMA GOAT contract is a fixed price type awarded by formal advertising in which very effective competition was obtained.

Representative CONABLE. Why is that relevant? It is a fixed-price contract, Mr. Chairman. Why is it relevant what the various elements of cost were? Was the fixed price negotiated upward because of increasing costs? If so, then it would be relevant. But if it was a fixed-price contract with just an adjustment for inflation, then I do not see why——

Chairman PROXMIRE. Obviously the price is not fixed. It has gone sky high. It was initially $69 million, and it is now $439 million. And even on a unit cost basis it has almost doubled.

Representative CONABLE. It was not a price you were talking about in 1964, it was a Defense Department estimate.

Mr. FOX. That is correct. And, Mr. Chairman, I believe you are mistaken. The contract price is not the price that has escalated. The firm fixed-price contract has had very small changes; a very small number of changes. I would estimate those changes as amounting to less than 8 percent. The changes that you are referring to are the changes from 1963 and 1964 when the program was yet underdeveloped, an estimate, comparing that with the price today. The performance of the contractor on the fixed-price contract has not resulted in any significant number of changes or cost growth. I think that this contract is an excellent example of a program where the army has maintained tight control of changes.

CHANGES IN SPECIFICATIONS

Representative CONABLE. Were their performance characteristics changed between the original estimate in 1963 and the procuration contract?

Mr. Fox. There were a number of performance changes. Some resulted in increased performance. And there were some relaxations of performance as we learned more about the program through development.

FIELD TESTS

Chairman PROXMIRE. Is it also correct that all these vehicles are already being produced and yet they have not been field tested—the field tests have not been completed?

Mr. Fox. The developmental tests have been completed; yes, sir. Now, in any program we not only test the developmental vehicles, we test the production vehicles as they come off the production line. It is the testing of the production vehicles that is now on-going. That has not been completed and will not be completed until we have produced an additional number of vehicles.

Chairman PROXMIRE. How far along the line do you go on your production before you complete your production test?

Mr. Fox. I would like to ask General Ellis to supply that information, Mr. Chairman, if I may. General Ellis has been involved in the development and production of tanks and automotive systems.

Chairman PROXMIRE. Wouldn't it have made more sense to have built several prototypes and completely tested them before making a decision to go into full production?

General ELLIS. This was done, sir.

Chairman PROXMIRE. Yesterday we had the GAO appear before us. And I asked Mr. Bell, who was their expert in this area, who had studied this personally:

Has the Gama Goat undergone a field testing?

Mr. BELL. No, it has not, it has not been completed. The principal item as I recall that has shown up in the field testing is that it has not been able to go the 20,000 miles without a breakdown as specified in the original requirement.

Now, is it your position, Mr. Fox, that that kind of testing is not necessary before you go into the production of as many as 800 vehicles?

Mr. Fox. I would like to offer my comments on that and then ask General Ellis to respond in any further detail.

Let me address specifically what you are referring to when you talk about the GAO performance requirements. When we initially planned that vehicle there was a large number of performance requirements that had to be met by the contractor. We are talking about two of those. Let me identify those specifically. The first requirement was that the vehicle would run 20,000 miles with no more than 500 hours of maintenance. That was the first requirement.

The second requirement we are talking about is the following. The statement was written in the requirement that in the first 10,000 miles not more than 25 percent of the maintenance would be unscheduled.

As we proceeded with the development of this program, we found that we could have a vehicle developed by the contractor with much tighter maintenance requirements. The vehicle could run for 20,000 miles with substantially less than 500 hours of maintenance. Indeed, we were able to have a vehicle that could run for 20,000 miles with less than 150 hours of maintenance.

That was a substantial step forward.

Now, when we tightened that performance characteristic, it was appropriate, indeed warranted at that time, to loosen the other one that I mentioned, the one that says, in the first 10,000 miles not more than 25 percent of the maintenance time would be unscheduled.

Now, if the scheduled maintenance time is down to 150 hours, then 25 percent of the maintenance time is a very small figure. Today we have exceeded these requirements. If we held to the original performance requirements, which said, 500 hours of maintenance in 20,000 miles, we would not be in as good shape as we are now.

Chairman PROXMIRE. You could not convince the GAO that it had been field-tested.

Mr. Fox. Certainly when we comment on the GAO's report, as we will, we will point this out to them. As you know, there are a number of changes made in GAO reports after comments are made by the individuals who review the reports.

REQUIREMENT FOR GAMA GOAT

Chairman PROXMIRE. On top of all the other questions about this program, there is a serious doubt in my mind as to whether there is a real requirement for the Gama Goat. The Army, after all, has many kinds of trucks in its inventory, among them, a vehicle which is strikingly similar to the characteristics of the Gama Goat. This is the XM–571 1-ton tracked utility carrier which, like the Gama Goat, has an inherent swimming capability, a phase I air transport capability, the capability of satisfying the role of an ambulance, the capability of operating in extreme environmental conditions, and of operating all season, over difficult and adverse terrain. It also has approximately the same payload capability and the same mobility.

You said, incidentally, that this was a new state of the art, something new and different that we are getting into, that was the reason for the tremendous increase in cost.

Given these facts, I wonder whether adequate consideration was given to vehicles already available or under development at the time the Gama Goat was planned and at the time the decision was made to go ahead with it.

In short, was this truck necessary?

Mr. Fox. Mr. Chairman, you are contrasting the Gama Goat with the XM–571. The Gama Goat is a wheeled vehicle. The XM–571 is a tracked vehicle. It has the same kind of tracks that a tank has on it. It is a much more expensive vehicle than the Gama Goat. The Army would be ill-advised to buy large numbers of XM–571's when it could attain close to that capability with the Gama Goat.

COST COMPARISON WITH XM–571

Chairman PROXMIRE. When you say more expensive, you are talking about more expensive than the present cost of the Gama Goat?

Mr. Fox. Yes, sir.

Chairman PROXMIRE. A comparison like what?

Mr. Fox. I do not have the figures with me on the cost of that vehicle. I did not know you were interested in talking about that. I will be able to obtain them and will present them to you. I do know that this is a higher cost vehicle.

Chairman PROXMIRE. Will you supply the comparative figures on the cost of both trucks for the record?

Mr. FOX. I would be pleased to do so.

(The following information was subsequently supplied for the record by Mr. Fox:)

The Army procured 46 XM-571's for test and evaluation at a cost of approximately $85,000 each. It was determined that this vehicle did not fully meet the Army's requirements, and it was not type classified as standard. Since no quantity production was ever awarded, a production unit cost is not available. When the vehicle was still under consideration, the Government unit cost estimate for a procurement of 500 was $35,000 to $40,000. The program unit cost of the GAMA GOAT, which is not for a comparable quantity, is $13,281 per vehicle on a program quantity of 15,274 vehicles (13,516 Army and 1,758 U.S. Marine Corps).

DEVELOPMENT OF CONTRACT WITH LTV

Chairman PROXMIRE. Then you also indicated that there was red-hot competition among the top motor vehicles, and the designer of this was Ling-Temco-Vought. What was the amount of their contract?

Mr. FOX. I have that information with me, Mr. Chairman. If you will just give me a moment I will find it.

I believe you are referring to the development contract with LTV?

Chairman PROXMIRE. The design.

Mr. FOX. Yes. I do not have the value of that contract, the development contract here.

Chairman PROXMIRE. At any rate, you can supply that for the record?

Mr. FOX. Yes, sir.

(The following information was subsequently supplied for the record by Mr. Fox:)

The total value of the development contract with LTV was $8,775,179. Of this amount, Army funding totaled $7,834,432 with the balance being United States Marine Corps funds.

Chairman PROXMIRE. What concerns me is that LTV is a well-known major aerospace contractor. I did not think trucks and motor vehicles were a specialty of the space industry. Has this company ever designed and manufactured a truck other than the Gama Goat?

Mr. FOX. General Ellis tells me that they did the design work on the vehicle that was the predecessor of the Gama Goat, but prior to this time LTV had not produced a truck.

Chairman PROXMIRE. In retrospect do you think it was wise to give an aerospace contractor a truck contract?

Mr. FOX. I would like to ask General Ellis to comment on that particular question.

General ELLIS. Yes, sir, it was extremely wise. Our efforts in the ground mobility area, with the standard automotive producers, have inevitably produced a vehicle which was narrowly aimed at a ribbon of concrete. Numerous efforts with the automotive industry to obtain a vehicle of high cross-country performance had failed in the 1950's. We were forced to go outside the automotive industry to the earth-moving and other industries in an attempt to get rid of the focus on the highway.

Chairman PROXMIRE. You say this despite the fact that the program

is 3 years late, and the weight has increased threefold, from 2,500 pounds to 7,500 pounds?

General ELLIS. Yes, I do.

Chairman PROXMIRE. And the fact that the cost has escalated as much as it has from the estimate?

General ELLIS. The cost escalation can be broken down, and has been, for you, sir, as improvements in performance characteristics, escalation, and trade-off in design characteristics.

Chairman PROXMIRE. My time is up.

Mr. FOX. Mr. Chairman, if I may add a brief comment to that. The Department of Defense has experienced a number of programs where there has been cost growth in performance. And I think it is highly appropriate for you to look into the causes of the problems in connection with that. But I think that you are not doing a service when you identify buying twice as many or 20,000 more vehicles and calling that cost growth.

Chairman PROXMIRE. I did not do that. I said there was a 93-percent increase in unit cost. There was also an overall increase in the whole program. But I stated them both very clearly. I certainly do not identify as an overrun—I won't say cost growth, I will say overrun, or a cost growth, for that matter—the fact that you are buying more vehicles. You do not deny that there was a 93-percent increase in the unit cost, do you? You do not deny that ordinarily when you buy that many more vehicles you ought to get a reduction in unit cost rather than an increase, is that correct?

Mr. FOX. I would say there should be no increase in the fixed price contract. There has been the increase that you refer to if we compare the present vehicle to the initial estimate for the vehicle developed in 1964 before anyone had ever designed a vehicle, yes, sir. If we identify it as that kind of cost growth, then you are correct.

Chairman PROXMIRE. My time is up.

Mr. Conable?

Representative CONABLE. Was there competition for the Ling-Temco-Vought research contract? Was that also put up for bids?

Mr. FOX. Yes, sir.

Representative CONABLE. Apparently it was not bid on by the automotive industry itself? Or did you decide that you liked the characteristics of the company—the characteristics you were looking for in research and developing contracts?

General ELLIS. It was bid on by major automotive producers. Ling-Temco-Vought outbid them.

Representative CONABLE. How do you let such a contract? Do you generally state the specifications you want in performance, thus having to leave substantial leeway as to the actual physical characteristics to achieve that result.

General ELLIS. The physical characteristics of the vehicle were fairly well defined by a previous in-house effort of Ling-Temco-Vought by a man named Mr. Gamot from whom the vehicle got its name. He had designed a quite smiliar vehicle. So that the concept formulation for the general design was quite precisely known and quite widely publicized in the automotive industry. It was therefore fairly easy to write the development contract around the articulated vehicle with forward and rear steer, the other essential characteristics, and put it up for bid.

Representative CONABLE. At this time—this is before I was in Congress, in 1963—was the Defense Department having a tough time selling Congress on weapons systems? Would there be substantial motivation to understate the cost of them on an estimate basis? As I recall, at that time Congress was quite accommodating to Mr. McNamara. There was some feeling that the whiz kids at the Pentagon were going to save a lot of money, while part of that apparently was low estimating. Would you care to comment on that, Mr. Fox?

I would not want to put you on the spot.

Mr. Fox. Mr. Conable, I was not in the Pentagon 7 years ago.

Representative CONABLE. I notice, however, that you were——

Mr. Fox. In the 1964 period—I am sorry, I was working with the Air Force.

Representative CONABLE. You were working with the Air Force?

Mr. Fox. Yes, sir.

C–5A

Representative CONABLE. What do you know about the C–5A, sir? I wonder if your involvement with the Air Force might not make you a relevant witness on that. We are talking about 1964–65 with respect to the C–5A, are we not? Mr. Whittaker is going to be here on Saturday, and I think all he can testify to is the crash landing. I would like to have somebody testify as to the takeoff.

Mr. Fox. In that time period I was working as a deputy to the Assistant Secretary for Financial Management. I was associated in a peripheral way with the C–5A program prior to the signing of the contract. I was not associated with the program during its development or production.

Representative CONABLE. What do you conceive in retrospect to have been the major problem we have had in the C–5A generating the tremendous cost overrruns and performance characteristics? I ask you now to cast your eyeballs backward.

Mr. Fox. I think you are doing more than that. You are asking me to comment on a period of time between 1965 and 1969 when I had no association with the Air Force.

Representative CONABLE. That would have to be characterized primarily as the period during which we discovered the cost overrun. But didn't they have their genesis in an earlier period?

Mr. Fox. I suspect they would have. Yes, sir. I think that when we talk about cost overrun or cost growth we are talking about problems that occurred during the development or production of the system, in this case the C–5A. So presumably the problems that you are talking about pertain to deviation from plan that occurred during the time that vehicle was being developed and produced. It is my understanding that that was during the period, from 1965 to 1969. I have not made a study of the causes of the cost growth on the C–5A program.

Representative CONABLE. And you would not have personal knowledge of that as a result of your former association with the Department of the Air Force?

Mr. Fox. I have knowledge only of the initial plans for contracting on the C–5A. I have no knowledge of any activities that took place after that.

CAUSES OF COST OVERRUNS

Representative CONABLE. Mr. Fox, would you generalize for me about what the real reason for these problems happens to be? Is it primarily the concurrence of the development and the production phase that has generated a substantial part of the overruns, the most substantial part? Inflation has been identified as one part of the problem. Is it also that we are pushing the state of the art so in our weapons system nowadays that it is virtually impossible to determine what costs are going to be necessary? If you could put your finger on the one primary cause for the very substantial cost overruns, what would it have to be?

Mr. FOX. Mr. Conable, I believe that your committee could do a real service if you pointed out that there is not one single cause that we can identify as the reason for cost growth. You have cited a few—among them, concurrence. Any time one has to make a decision or one does make a decision to produce an item before the development is completed, there are risks taken. Those risks have led to cost growth and schedule slippage. Inflation you cite. That certainly is a factor. Change is another factor, beginning a program and then deciding that there are items that we would like to have added to that program, performance characteristics, new types of night vision. The deficiencies in either the contractor's control system or the Department of Defense control system can also be a factor.

The comment that should be made about the acquisition of weapons systems is the following: The discussion that we had a few moments ago here pointed out that when we are developing a new system, one does not develop it in a 1-year period. We are talking about a cycle here that lasts 5 to 10 years. The initial estimates are developed before the item is even designed. There are then 10,000, 20,000, or 30,000 individuals who work on that program over a course of 5 to 10 years. There is no one in the world who claims to have solved all the problems in managing that type of activity. Each year we think we learn something more about how to tighten our control over this complex process, and thereby reduce the kinds of problems that we have experienced in the past.

REASONS FOR CONCURRENCE

Representative CONABLE. Is the major reason for the concurrence of the various phases of a contract, the integrated type of contract that Secretary McNamara let frequently during the period that we are talking about, time simply, or are there other reasons why concurrence is desirable—because, for instance, of the possibility of a vasing resulting from the same contractor both developing and producing the item?

Once again, is the answer a complicated one?

Mr. FOX. No, sir; I think that answer, as I understand it, at least, could be stated briefly. I believe there are two primary reasons for concurrence. The first one is a pressing need to attain a capability in the inventory. One is always tempted to set an early date for attaining a capability, particularly if it is a military capability needed to satisfy an anticipated threat.

No. 2, we recognize that the efficient use of manpower in a contractor plant requires some overlap of development and produc-

tion. We cannot allow a development contract to be pursued to completion, and then have all of the testing without beginning some of the advanced production engineering, advance planning for production. So one has to pay for those engineers during the time between when we have accepted the development item and when we make the decision to go ahead with a major production program.

We cannot afford to simply remove them from the payroll and to tell them to go on welfare or to find another job and then hope to get them back at a later date when we decide we want to go ahead with production.

Hence, this condition requires some overlap. I do believe that in the past we have had too much overlap. We have now examined a number of programs and rescheduled them to reduce this concurrency or this overlap.

Representative CONABLE. Thank you.

That is all, Mr. Chairman.

Chairman PROXMIRE. Mr. Moorhead?

Representative MOORHEAD. Mr. Fox, on the question of concurrency, haven't we had a high level of unfortunate experiences, such as the Mark 48 torpedo, the F–111, the Sheridan tank, and the Gama Goat that the chairman mentioned—isn't that a procedure that looks as though it was fraught with danger because of the past experience?

Mr. Fox. Yes, sir; I believe that in retrospect, as I indicated a moment ago, there has been too much concurrence in the scheduling of these programs. I would agree with that.

Now, I am not familiar with all of the programs that you have cited, but I would make the general comment that weapons systems in the past have had a very high degree of concurrency.

C–5A

Representative MOORHEAD. Dr. Fox, you have stated to Congressman Conable that you were familiar with the initial plans for contracting on the C–5. What were those initial plans, if you can recall?

Mr. Fox. Mr. Moorhead, is there any particular aspect in which you are interested? As you know, there are a number of parts of the plan. There was a plan to have a total package procurement, to have a flexible incentive share line with the contractor. There were a number of aspects. If there is any particular part of the procurement on which you would like me to comment, I will respond to your question if I am familiar with it.

Representative MOORHEAD. When you were still there they were still debating which form of a procurement contract they would adopt, is that correct?

Mr. Fox. Yes, sir; that is correct.

Representative MOORHEAD. Then ultimately as I understand it they went to this total procurement package?

Mr. Fox. Yes, sir. The decision was made prior to the time that I left the Air Force to go ahead with the total package procurement on the C–5A.

CONTRACT TYPE AND COST CONTROL

Representative MOORHEAD. In your prepared statement I note that you talk about various types of contracts, including fixed price, and then you say—

I believe we have relied far too heavily on fixed price or fixed price incentive contracts in the hopes that the contract type would handle the task of cost control.

Mr. Fox. Yes, sir.

Representative MOORHEAD. From what you know of the subsequent development of the C–5 contract, wouldn't you say that that sentence points up at least a major factor in the problems of overrun in the C–5?

Mr. Fox. I believe that in the case of the C–5 there was great hope by the individuals responsible for that program that the contract type itself would provide the incentive for cost control. It is my opinion that this is a task that cannot be delegated to a contract type. I think that the movement over the past 10 years to have the Department of Defense write a larger number of fixed price contracts has in fact, resulted in a larger number of fixed contracts. I think that has been inappropriate, in that in the past the C–5, for example, in my opinion we would have been better off, in retrospect, to have written a cost reimbursement type contract, or a CPIF, a cost plus an incentive, fee type contract, and then managed that program day to day with on-going negotiations between the contractor and the Government. The task of control is not a task that, I believe, can be delegated to a contract mechanism.

Representative MOORHEAD. It might be suitable in an advertised bid situation for a relatively simple, competitive thing, that would be all right. But I agree with you, I think this change should be encouraged.

"SHOULD COST" STUDY OF HAWK MISSILE

This brings me to the point, somebody asked me if I ever found anything good about the Pentagon procurement practices. And I would have to say that I think your work certainly in the "should cost" studies should be brought before the public, and you should be commended on it.

I understand that you have such a study on the Hawk missile being produced by Raytheon, is that correct?

Mr. Fox. That study is on the improved Hawk program at Raytheon.

Representative MOORHEAD. Can you tell us about it? And don't be too modest. The difficult thing is, one either toots his own horn, or the same shall not be tooted. What was the proposed cost reduction as a result of the study?

Mr. Fox. Let me back up a moment and tell you, as you suggest, a little bit about that study.

We have now developed a practice that when we have sole source situations, where we do not have competition, we are going to apply on a regular basis the "should cost" study as rapidly as we can develop that capability to apply it to larger numbers of programs. On the improved Hawk program we assembled a group of approximately 25 to 30 individuals, and over the course of approximately 2 months conducted a comprehensive analysis of the price proposal for the program. The purpose of doing this was to provide a rational backup for the contract negotiator to negotiate with Raytheon for the production of improved Hawk missiles.

After the study was completed we began negotations. The negotiations have not yet been completed in the sense that we do not yet have a signed contract. The reason we do not have a signed contract is that the Army, in the interest of reducing concurrency, has elected to hold up a commitment to production until we are satisfied with the testing of that missile.

We have some questions about that missile, and do not want to have ourselves committed to a production buy until we successfully complete those tests. So that is the stage in which we find ourselves today, Mr. Moorhead. The "should cost" study did result in substantial reductions in the price of the improved Hawk missile. The exact amount of those reductions, of course, will not be known until we have a signed contract in hand.

"SHOULD COST" STUDY OF HAWK MISSILE

Representative MOORHEAD. Do you have any recommendations from your "should cost" study as to how much the contract should be reduced?

Mr. FOX. Yes, sir. There are two recommendations that resulted from that study. The first recommendation was that we contract for the improved Hawk at a price between 18 percent and 34 percent lower than the originally proposed price. I say between 18 and 34 percent because we feel that with improvements that can be made in the management of that program we can come to the 34-percent reduction in the price. But a major part of this reduction will not be achieved until we are able to make the changes in the management of the program. That is likely to take a year, or possibly longer than a year. In the immediate future we believe we can achieve an 18-percent reduction, which we feel is substantial, in the cost of the improved Hawk.

Representative MOORHEAD. Can you give me a dollar figure that is related to the 18 percent and the 34 percent? I would only like to know roughly. Because the next question we are going to ask is, how much did the "should cost" study cost you?

Mr. FOX. The 18 percent can be equated to approximately $17 million. The "should cost" study—the cost of that is an estimate that we would make of the cost of the manpower involved in the study.

I would cite a figure of approximately $350,000 for the study.

Now, when I give you those figures, Mr. Moorhead, I want to identify one problem. We would very much like to take the credit for saying that we invested $350,000 and captured $17 million. And I think that that is what you might conclude from an initial look.

In the course of the negotiations with the contractor we feel that without the "should cost" study we would have been able to negotiate a price lower than the proposed price. But we do not believe we could have negotiated a price anywhere near $17 million. We might have saved, I would estimate $7 or $8 million, but not the full $17 million.

One other comment that I should add in relation to that is the following: That study would never have been successful and would never have resulted in those substantial savings without the active interest and cooperation of Raytheon. The Army would not have been able to identify areas for improvement if Raytheon had not been interested

in identifying these areas and cooperating with us in making these improvements. In my opinion the Raytheon Co. deserves credit for cooperating in this venture, and for recognizing that there was a need here to bring about improvement in the management of this program.

Representative MOORHEAD. If we are handing out bouquets, I will be glad to include Raytheon on this.

My time has expired, Mr. Chairman.

Chairman PROXMIRE. I would like to pursue this a little further on the Hawk missile.

First, I want to congratulate you on going on with this "should cost" program. I think it was testified yesterday by the GAO that the Army was almost alone in doing this kind of thing, that you were pioneering, and you deserve a lot of credit. You and I had a private conversation over here in which you suggested that I might commend something well done and criticize something not. That was a very good suggestion. And I want to take the opportunity to commend you, and as you say, commend Raytheon. And I am happy to do that.

Mr. Fox. Thank you, Mr. Chairman.

Chairman PROXMIRE. Let me make clear that I do not intend by bringing out the facts in this case to be critical of the contractor, Raytheon. In fact, isn't it true that despite the substantial inefficiency identified in this contractor's operations, that Raytheon is not a particularly inefficient contractor? Indeed, wouldn't you agree that Raytheon is one of the better, one of the more efficient contractors among the large aerospace firms?

Mr. Fox. Mr. Chairman, we have not conducted a large number of "should cost" studies, so I am unable to compare that.

Chairman PROXMIRE. That is their reputation.

Mr. Fox. I would say Raytheon was a relatively efficient contractor, in my opinion.

Chairman PROXMIRE. And here you are able to find a 34-percent reduction that you say would have been perhaps justified on the basis of the "should cost" study, and you were able to negotiate 18 percent, for a saving of $17 million, for a cost of $350,000. You are very modest in saying that you would have gotten a $7 or $8 million reduction anyway. I certainly see nothing in the experience of the Army, the Air Force, or the Navy that would encourage me to think that absent something like that you can get any reduction. Our experience is that negotiations have resulted in cost that has gone up, not down.

Mr. Fox. Mr. Chairman, that particular figure was derived from our past experience in negotiating with Raytheon. That was not idle speculation on my part. That was the actual figures that we have attained in the past in negotiating with Raytheon on major programs.

ADDITIONAL "SHOULD COST" STUDIES PLANNED

Chairman PROXMIRE. Now, Mr. Fox, this illustrates that the cost control studies of this kind do work. Am I correct in so assuming that "should cost" studies are now underway and that additional ones are being planned?

Mr. Fox. Yes, sir, that is correct.

Chairman PROXMIRE. Substantial "should cost" studies?

Why don't you make this a regular procedure?

Mr. Fox. Mr. Chairman, as I indicated in my prepared statement,

we do intend and indeed have plans well underway for incorporating the "should cost" study technique as a regular part of Army procurement activities for major weapons systems when we find ourselves in a sole source environment. I believe that that is appropriate, and we are in the process of doing that right now.

Chairman PROXMIRE. In conducting this study, did the "should cost" team look into the labor, materials, and overhead costs?

Mr. Fox. Yes, sir.

Chairman PROXMIRE. Is it not correct that each category of costs was challenged, that many individual items of costs were challenged, and that certain sole source buys, certain economic escalation factors, and the number of indirect employees and supervisors on this program were questioned?

Mr. Fox. Yes, sir. That is the nature of a "should cost" study.

Chairman PROXMIRE. Has the Army negotiated with the Hawk contractor, Raytheon, since completion of the "should cost" study?

Mr. Fox. Yes, sir; we have. As I indicated just a moment ago, we have not yet signed a contract.

FOREIGN SALES OF HAWK MISSILES

Chairman PROXMIRE. Is it true that Hawk missiles have been sold to both the State of Israel and the Arab countries?

Mr. Fox. Mr. Chairman, I am not familiar with the foreign sales of Hawk missiles. I would be pleased to look into that and let you know.

Chairman PROXMIRE. Yes, I would like to know, I would be very interested, for the record. It is my understanding that that may be the case.

(The following information was subsequently supplied for the record by Mr. Fox:)

Saudi Arabia has purchased some Hawk systems direct from Raytheon Corp. and the Israeli Government has purchased from time to time some Hawk systems from the U.S. Government.

GAMA GOAT

Chairman PROXMIRE. I have just one comment, General Ellis. I do not want to be unfair to you, but I am astonished that you were pleased with the Gamma Goat progress. You have got a program that is three years late, and you have a truck that is three times heavier than it was supposed to be, and it does not have any bigger payload, and one that is twice as expensive as the original estimate.

It seems that you are an easy man to please.

General ELLIS. On the contrary, sir, I was very difficult to please. I personally checked the technical data package on the Gamma Goat before it went into procurement, and effected numerous changes in the package. I was then the Deputy Commanding General of the Tank Automotive Command. The increases you cite are over the initial estimates based on a very nebulous design, and rather optimistic initial estimates in the early phases.

Chairman PROXMIRE. This is a very firm design. Ling designed it before they went ahead with the program.

General ELLIS. Mr. Gamot had a design that was quite a far cry from what was finally accepted as being adequately durable and main-

tainable, so that the change in the vehicle between the initiation of development and the completion of development was a sizable change which is not accommodated by the initial estimate of the $69 million.

Chairman PROXMIRE. I am much interested in that.

CHEYENNE HELICOPTER

Now, I would like to go into the Lockheed situation. As you are well aware, and as Congressman Moorhead has stated, Lockheed has made an unprecedented demand for $641 million and has threatened to stop production on four of its major military programs if it does not get the money. One of these programs is the Army's Cheyenne helicopter. Although production of the Cheyenne was halted last year, as you know, research and development have gone forward.

How much has the Army paid to Lockheed on this program since it was supposedly terminated last year?

Mr. Fox. When the Army terminated the production contract, the Army paid no additional funds on the production of that vehicle. As you know, the Army did not terminate the development of the Cheyenne——

RESEARCH AND DEVELOPMENT COSTS

Chairman PROXMIRE. That is my question, how much has been paid in research and development for the Cheyenne?

Mr. Fox. I believe a figure of approximately $94 million, which was within the ceiling of that contract.

Chairman PROXMIRE. Is that since the termination?

Mr. Fox. No; that is for the total development.

Chairman PROXMIRE. How much is the termination?

Mr. Fox. Mr. Chairman, I would like to supply that figure for you. It would be the amount that Lockheed has spent since May 1969, I believe, on the development of the Cheyenne program. We can identify those figures, and I will make them available to you.

(The following information was subsequently supplied for the record by Mr. Fox:)

Since termination of the production contract in May 1969, the Army has paid $13,540,949.74 to Lockheed on the development contract.

PROGRESS PAYMENTS RETAINED AFTER TERMINATION

Chairman PROXMIRE. Is it correct that prior to the termination of production last year, a termination based on Lockheed's default of its contract, that progress payments of $53.8 million had been made?

Mr. Fox. On the production contract; yes, sir.

Chairman PROXMIRE. Is it also true that the Army agreed to allow Lockheed to retain these funds while its appeal from the termination decision is pending, even though normally a contractor would not be entitled to retain progress payments under these circumstances? How do you explain this unusual arrangement?

Mr. Fox. Mr. Chairman, there are a number of claims outstanding by both sides on this contractual agreement.

Chairman PROXMIRE. They were allowed to retain these funds?

Mr. Fox. Yes, sir. There is an inventory resulting from that program which is considered to be an offset. Indeed, the value of that

inventory may exceed the $53 million. So I do not feel that the Army was taking any substantial risk by following the action that it did.

LOCKHEED'S CLAIM

Chairman PROXMIRE. In addition to this $53.8 million, how much is Lockheed now claiming for this terminated program?

Mr. FOX. I do not have the complete figures on the total amount of all claims associated with the production program. I would have to make that available.

(The following information was subsequently supplied for the record by Mr. Fox:)

Lockheed has not made an official claim. The litigation is for the purpose of determining whether a Termination for Default, as claimed by the Government, or Termination for Convenience, as claimed by Lockheed, occurred. If Lockheed is successful, it is estimated that the Lockheed claim would probably be in the order of $150 million.

Chairman PROXMIRE. What good is the inventory if production has been terminated?

Mr. FOX. If production is never undertaken, the value of the inventory would be minimal. If the Army does go ahead with the production of the Cheyenne, then the inventory that has been generated to date could be of substantial value.

Chairman PROXMIRE. Ordinarily wouldn't the claim that Lockheed has made in this case have to go through a claims process to be resolved? And during that process wouldn't a decision have to be made based on the merits of the claim?

Mr. FOX. That would be a normal procedure, yes, sir.

Chairman PROXMIRE. Has the Army agreed to short circuit the administrative process and to simply turn the money over to Lockheed?

Mr. FOX. No, sir; the Army has not agreed to such a process.

Chairman PROXMIRE. What has the Army agreed to do?

Mr. FOX. The Army is currently in the process of negotiating with the contractor on a settlement of the production contract and a reorientation of the development contract. The Army has not made the agreements that you referred to a moment ago and I am certain of that.

Chairman PROXMIRE. Mr. Moorhead?

Representative MOORHEAD. Thank you, Mr. Chairman.

Mr. Secretary, I have heard a rumor that the Air Force converted the C–5A procurement package to a cost-plus-fixed-fee contract in order to bail out Lockheed. My question is, Is the Army contemplating a similar move on the Cheyenne program if indeed the Cheyenne program does go into production, and what would the impact be of so ending the Cheyenne contract, what would the effect be on the taxpayer?

Mr. FOX. First of all, the Army has not yet arrived at a decision on the appropriate way of handling the development and production contracts. There are active negotiations under way at this time. We have not recommended at this point that the contract on the Cheyenne program be converted to a cost reimbursement type. I believe that you are aware that the Congress in 1958 did pass a law that allowed the Department of Defense and indeed other Government departments to take extraordinary actions when the head of that Department rules that it is in the national defense to go ahead with

the program. But I can tell you that at this point in time we have not made such a proposal to the Office of the Secretary of Defense.

Representative MOORHEAD. Has a proposal or recommendation come the other way down to you?

Mr. FOX. No; sir.

COMPARISON OF CHEYENNE WITH AX

Representative MOORHEAD. Again on the Cheyenne, is there any feeling in the Department of the Army that the Cheyenne really duplicates the Air Force close support aircraft, the AX?

Mr. FOX. I would like to ask General Betts, our Chief of Research and Development, who is familiar with that question, to answer that.

General BETTS. We have had considerable discussion with the Office of the Secretary of Defense, the Director of Research and Engineering, on just this subject. The evidence that we have convinced them that the helicopter gunship is complementary to the capability of fixed wing aircraft and is reflected in the fact that Mr. Packard has told the Congress that in writing, that he sees these two systems as complementary, and believes that we should go ahead with the development of both of them.

I might add that in a service that has both the mission of close air support with mixed wing aircraft and whatever other mission support is required—and that is the Marines—they have chosen to buy both fixed wing aircraft and helicopter gunships, for the very reasons I have indicated, that these are complementary capabilities.

UNIT COST OF CHEYENNE

Representative MOORHEAD. Do I understand correctly that the Cheyenne is expected to cost about $3 million per copy; is that correct?

Mr. FOX. The latest estimates for the cost of the Cheyenne, I believe, are higher than that, Mr. Moorhead.

I would like at the same time to go back to the immediate prior questions that you asked me——

Chairman PROXMIRE. Would you yield on that point?

Would you tell us how much higher than $3 million?

Mr. FOX. The last figure I heard was $3.6 million as the estimate of the unit cost. The point that I wanted to clear up is this. If you want to pursue that question further we can do that also. A moment ago you asked me if the Office of the Secretary of Defense had asked us for a proposal to convert the Cheyenne fixed-price contract to a cost-reimbursing contract. I indicated to you that we had not received such a request. In thinking about that question after you asked it, I should point out that we did receive a request from the Office of the Secretary of Defense to examine all of the alternatives that would be available to the Department of Defense in changing the present fixed-price incentive program. The conversion of the fixed-price incentive contract to a cost-reimbursable contract was one of those alternatives.

As far as being asked by the Office of the Secretary of Defense to go ahead and convert the fixed-price incentive contract to a cost-reimbursement-type contract, we have not been asked to do that.

Representative MOORHEAD. Mr. Secretary, how much would it cost to upgrade the Cobra, so that it could perform the mission of the Cheyenne? Or could that be done?

Mr. Fox. The estimates that we have seen do not show that we could attain all of the performance characteristics that we believe we could attain with the Cheyenne from an upgraded Cobra. We are at this point in time examining several alternatives to the Cheyenne.

One would be the present Cobra, with the night vision, with the missile firing capability and night vision.

Another alternative would be an aircraft called the Super Cobra, which would be a new development program to result in a larger payload and a larger engine. We do not have a figure that I could cite now that would identify how much that would cost. I will say that we are examining those alternatives as part of our decision on the attack helicopter at this time.

Representative MOORHEAD. What does the present Cobra cost per copy?

Mr. Fox. The present Cobra costs approximately—I believe it is in the range of three-quarters of a million dollars. It is approximately that.

Representative MOORHEAD. I cannot compute rapidly.

Chairman PROXMIRE. One-fifth of the $3.6 million that the Cheyenne is costing?

Mr. Fox. Yes, sir. I should point out that when you compare those two you are comparing air vehicles that will have substantially different capabilities. For example, one vehicle has night vision capability and the ability to operate at night and fire at night as opposed to the other one as being a daylight operating aircraft. So we are not comparing the same items when we compare those two aircraft.

Representative MOORHEAD. I was going to ask you, which gives you more protection, five Cobras or one Cheyenne, to your troops?

Mr. Fox. I think that depends on the nature of the threat. If we can attain the capability of the Cheyenne—as you know, that is an area that is under investigation right now—we believe that we can perform missions with the Cheyenne that could not be performed with five or indeed 10 Cobras. The stability and the maneuverability that can be attained from a rigid rotor helicopter, such as the Cheyenne, substantially exceeds that that can be attained from the present Cobra.

But, Mr. Moorhead, I do believe you raise an important question here, and that is, in any decision to go ahead with the Cheyenne we do believe that one must make the kind of analysis that you are talking about, and that is, comparing what those same dollars could achieve by a Cobra with this added capability, or indeed a Super Cobra if we did decide to go into a development program. This type of analysis is appropriate, in my opinion, and indeed should be undertaken.

Representative MOORHEAD. One of the things that concern me is that we are influenced to buy the Cheyenne and to bail our Lockheed, otherwise Lockheed would go into bankruptcy and we would not have any C–5A's, no Cheyennes, and no SRAM's, and so forth. Is it true that probably Lockheed would go through a reorganization in bankruptcy and they would not lock the doors and close, but you might have

different management turning out the same thing, so we would not lose that capability; wouldn't that be the most likely outcome?

Mr. Fox. I believe that if such an eventuality were to occur, we probably could retain a very substantial amount of the capability; yes, sir.

"Should Cost" Study of UH–I Helicopter

Chairman Proxmire. Mr. Fox, you have testified to the great payoff that is apparently resulting from these should cost studies. I presume that you are going to continue this technique and apply it to existing and new weapons systems. Can you tell us where you are going next with the should cost?

Mr. Fox. Yes, sir. Our current plans are to carry out a should cost study on the UH–I helicopter. That study, incidentally, is underway now. We have not completed that yet.

Following that, what we expect to do is to take time to evaluate the lessons that we have learned from the should cost study on the improved Hawk and the UH–I helicopter. We will then map out a series of should cost studies to be undertaken during the course of the next year. I would think that it would be optimistic if we were to undertake more than two additional should cost studies during the remaining part of the year.

I want to add that we are very pleased with the results of these studies, and that our objective is to develop this capability as quickly as we can.

Representative Moorhead. Do you have the cooperation of the contractor in the new UH–I cost study?

Mr. Fox. I believe we have the cooperation of the contractor. I will be able to answer that question better in a period of 2 or 3 weeks, but I believe we do have the cooperation of the contractor.

Future of "Should Cost"

Chairman Proxmire. I am appalled Mr. Fox, that, with the arithmetic showing the enormous benefits of should cost, there is such a failure by you to take advantage of it. I say this, recognizing that you have gone ahead and pioneered and done these studies well. I do not mean in any way to cast aspersions on you, because I know you have had a tough time on this. But you have told us this morning that a "should cost" study costs approximately one-fiftieth of what it was able to save, it cost over $350,000 and it saved $17 million. And then you modified that by saying, well, maybe it only saved about $10 million. So if it only cost one-thirtieth of what it saved, a 30-to-1 ratio, any investor who would get that for his money would be insane not to go after it.

Mr. Fox. I agree.

Chairman Proxmire. And, yet, we do not have, apparently, any really comprehensive effort on the part of the Defense Department to put that into effect in the Navy and the Air Force as well as the Army. And I am reminded of the fact that we have sitting up here at this time Mr. Fitzgerald, who has been fired by the Air Force because he was, in my view, too efficient and too efficiency minded. And if you make a should cost study you would drive such people out of government, because if you do a good job and find out how you can save

money it does cost the contractor profits, no doubt about it, and they fire you.

So, I just wonder what we can do to assist going ahead with the should cost operation and make it more comprehensive, and somehow get Mr. Packard and the other people in the administration to recognize that this is something that they should proceed with full tilt and apply throughout the Defense Department, rather than just creep along. And, in 3 or 4 years, you have had several more Army programs, and maybe even the Navy will try it. But here is something that can save a lot of money. We know it has been demonstrated. And yet we have this apparent timidity with regard to proceeding with it.

Mr. Fox. Mr. Chairman, I have not seen any timidity on the part of the Army to go ahead with this effort.

Chairman PROXMIRE. You are only telling us that you gave us a program that could be applied. I cannot see why you do not try to apply it virtually everywhere. I agree that you have to have trained people; you have to have skilled people; you should not drive them out as you drove out Ernie Fitzgerald. That is one part of your problem.

The other part of the problem, however, is to do the best you can with what you have. This is not so terribly esoteric and complex so that when you are dealing with the billions of dollars that the Defense Department deals with you could not hire a lot of capable people who are graduating every day from our accounting schools and auditing schools, engineers, and so forth. They tell us unemployment is rising even in that area.

Mr. Fox. Mr. Chairman, I think, since you asked what you might do to help in this regard, I would say that one of the things you could do would be not to insist or to recommend that should cost studies be undertaken on all of our systems immediately. I think that would be a mistake. It would be a mistake because——

Chairman PROXMIRE. You obviously cannot do that. I think that would be unrealistic to expect to put everything into effect tomorrow. But, I say, proceed as quickly as you possibly can, and certainly have the other branches of the Defense Department, the Air Force, and the Navy proceed vigorously. And without expecting you to put it into effect tomorrow, I would say within a few months or a year you would be able to proceed on most of your big programs.

Mr. Fox. We do not think we can take people out of accounting school or auditing school and overnight have them become experts in determining what a complex weapons system should cost. This takes planning, and it will certainly take substantially more than just 3 or 4 months before we will have a large number of individuals with this capability. You recommend that we have consulting assistants. We have already taken this action. We took this action several months ago. I agree that this is an appropriate and useful way to develop this capability. I believe you are mistaken, however, if you believe there are large numbers of individuals around the country who are already qualified to make should cost studies on weapons systems.

I would be please to know who they are——

Chairman PROXMIRE. Please give us a memorandum indicating precisely what your plans are in total for the should cost studies, the availability or unavailability of personnel to proceed further than you

have planned, and anything you can tell us about what the other services have done with regard to should cost. We would like to know just what the manpower picture is and what might be available.

Cost Effectiveness of Cheyenne

I am also appalled at the arithmetic that Mr. Moorhead so skillfully brought out on the helicopter. Have you made any kind of system analysis or cost analysis of the Cheyenne? Here is something that cost five times as much as a somewhat similar helicopter, the Cobra. It is true, it has another capability. But it would seem to me that this is an ideal situation for you to make a study to determine whether there is really a payoff, and whether it is worthwhile. I think the question that Mr. Moorhead asked is a very logical and sensible question, which the Army ought to ask itself, and you ought to be able to come up with an answer, other than to say, well, they have got night fighter capability that the Cobra does not have, Cheyenne has. Are you telling us that it would cost five times as much to provide a night fighter capability for the Cobra?

Mr. Fox. No, sir. There are a large number of performance requirements. As regards the performance aspects of the Cheyenne, I believe you are aware of a number of these. The suggestion you make about conducting such a study is a good one. We have on at least two occasions in the past on the Cheyenne program conducted such a cost effectiveness study.

Chairman Proxmire. What did it show?

Mr. Fox. It showed that we should go ahead with the Cheyenne helicopter with what we thought it was going to cost at that point in time, which was a figure less than $3 million.

Chairman Proxmire. Have you made one, since you came up with $3.6 million?

Mr. Fox. That study is under way now, and it will be conducted over the next few months. It will be conducted and completed prior to the time that we make a decision to commit ourselves to production of the Cheyenne helicopter.

Chairman Proxmire. Will you make that available to this committee when that study is completed?

Mr. Fox. Yes, sir.

Chairman Proxmire. I am somewhat discouraged about this, because I remember last year there were two studies of the cost effectiveness of the C–5A when we were having a debate on the floor of the Senate, both of which were in the Department of Defense, in the Office of the Secretary of Defense, both of which showed we could not proceed with an additional wing of the C–5A. And we got that from the Secretary of Defense and used it on the floor.

But the Secretary of Defense says that after all if you pick up this kind of study which contradicts a decision made by the President and the Secretary of Defense, you are going to destroy his office of system analysis. He suggested we ought to have one of our own.

Well, I think that when you have this kind of decision it would be reassuring to the committee if you can come to us and tell us, de novo, that you have this kind of study, and exactly what it shows, because

then we are in a much better position to evaluate what you have done and whether or not we ought to go ahead and fund these programs.

Mr. Moorhead has a couple of questions.

"Should Cost" Study Teams

Representative Moorhead. Mr. Fox, who did the "should cost" study on the improved Hawk missile?

Mr. Fox. On the improved Hawk?

Representative Moorhead. The one you described.

Mr. Fox. The improved Hawk should cost study was performed by the Army Materiel Command with the consulting assistance of Performance Technology Corporation.

Representative Moorhead. And who is doing the UH–I should cost study?

Mr. Fox. The Army Materiel Command is conducting that study as well. In that program they also have the consulting help of Performance Technology Corporation.

Representative Moorhead. So it is essentially the same team, is that your testimony?

Mr. Fox. No, sir. We established a new team. We used the same consulting firm to assist us in carrying over the capability, and we also retained several members of the original team on the new team so that we could benefit from their experiences on the should cost study on the improved Hawk, and at the same time train additional personnel in conducting this activity. So the team consists of some new men and some who were taken over from the old team.

Representative Moorhead. This is the way you hope to expand your force of experts in the should cost business?

Mr. Fox. That is one of the ways, yes. We also think that we ought to supplement this approach with additional training of these individuals in this particular technique. I think if we were to do no more than use these cadres to build the capability, it would be a very long time before we would establish that capability throughout the Army. I think we have to identify ways of supplementing that kind of training with additional case training or actual working training and courses.

Representative Moorhead. Thank you, Mr. Chairman.

Chairman Proxmire. Dr. Fox, I want to thank you so much. You are a fine witness. I am delighted that you have the job that you have with the Army. They are lucky to have an official like you. You are doing an excellent job. And I did not mean in the questioning, and I am sure my colleagues did not, any criticism of you. You are a very competent man. And you have given us some information we did not have before.

The subcommittee will stand in recess until 10 o'clock Saturday morning.

We will convene in this room to hear the Assistant Secretary of the Air Force.

(Whereupon, at 12:20 p.m., the subcommittee adjourned, to reconvene at 10 a.m., Saturday, May 23, 1970.)

(The following information was subsequently supplied for the record:)

GAMA GOAT CONTRACT DATA

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., October 6, 1970.

B-166159.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, Congress of the United States

DEAR MR. CHAIRMAN: Attached to this memorandum is the information requested by Mr. Richard Kaufman of your staff concerning the Army's vehicle XM-561 (GAMA GOAT). Some of the information was provided to us informally by the Army and was not verified by us.

We hope this information is responsive to Mr. Kaufman's request.

Sincerely yours,

R. F. KELLER,
Assistant Comptroller General.

XM-561 (GAMMA GOAT)

Research and development

The research and development contract number DA-20113-AMC-1197T was awarded to Ling-Temco-Vought, Inc. (LTV), on March 15, 1963. The contract was a cost-plus-incentive-fee contract. The original contract was for $2.5 million. The contract had 88 modifications. The contract was completed at a cost of about $8.7 million. Some of the reasons given by the Army for the cost increase were—addition of 4 vehicles, low cost estimates and labor problems.

The Army also expended $1.7 million for research and development effort in-house for the Gama Goat.

Advanced production engineering

In June 1965, the Army awarded LTV a cost-plus-fixed-fee contract number DA-20113-AMC-06273T for advanced production engineering for the Gama Goat. The contract included preparation of technical data and fabrication and delivery of six pre-production pilot vehicles. The original contract was for $3.5 million. The contract had 39 modifications. The contract was completed at a cost of about $6 million. Some of the reasons given for the cost increase were the addition of 2 vehicles, new or revised drawings and a requirement for 100 percent quality inspection.

Production

On June 11, 1968, the Army awarded a 3-year multi-year contract number DAAE07-68-C-2606 (MYP) to Consolidated Electric Company for 15,274 vehicles at a total price of about $132.1 million. This was an advertised procurement and seven bidders submitted proposals. The contract was a firm-fixed price type. The contract contained a 3 percent escalation clause for the second and third years. Under this contract the engines are to be furnished by the Government. The contract now has 110 modifications and the current cost is about $135.9 million. Some of the reasons given for the cost increase are addition of one vehicle and escalation.

On June 11, 1968, the Army awarded a 3-year multi-year contract number DAAE07-68-C-2597 (MYP) to Detroit Diesel Division of General Motors Corporation for the Gama Goat engine for about $30 million. This is a firm-fixed price contract with an escalation clause. The escalation clause provides for an increase or decrease in the unit price of the engine based on the manufacturer's established unit price for the standard commercial engine. There have been 21 modifications to this contract to date. The contract cost is currently about $33 million. The basic reason given for the cost increase is escalation.

OCTOBER 8, 1970.

Mr. RICHARD F. KAUFMAN,
New Senate Office Building,
Washington, D.C.

DEAR MR. KAUFMAN: Pursuant to instructions of the Assistant Secretary of the Army (Installations and Logistics), I am forwarding herewith a tabulation that reflects the increase in the contract unit price of the GAMA GOAT since the date of contract awards.

I trust this information will be of assistance.

Sincerely,

VINCENT H. ELLIS,
Brigadier General, U.S. Army, Deputy for Procurement.

Cost growth in unit price of Gama Goat since contract awards

Average unit contract price at time of awards	$10,611.42
Average unit contract price as of September 30, 1970	11,060.62
Increase in contract unit cost	499.20
Growth in unit price results from increases and decreases in the basic award amounts of the vehicle and engine contracts:	
Initial award amount of vehicle contract ((DAAE07-68-C-2606 MYP) for both Army and Marine Corps requirements)	132,120,076.00
Initial award amount of engine contract (DAAE07-68-C-2597 MYP) for both Army and Marine Corps requirements)	29,958,888.00
Total amount of initial awards	162,078,964.00
Increases:	
Substitution of 1,246 ambulances for cargo trucks	1,682,000.00
Increase in repair parts	820,000.00
Preproduction test support	10,000.00
Additional test vehicles and engines	17,000.00
1 complete vehicle for Italy (MAP sales)	11,000.00
Surf kits for Marine Corps vehicles	7,000.00
Additional of 390 spare engines	801,000.00
Increase of critical components for test	3,000.00
Escalation	3,514,000.00
Total increase	6,865,000.00
Decreases: Reduction in work on manuscripts	4,000.00
Net total increase	6,861,000.00
Net increase in average unit contract price	449.20

NOTE. The unit increase of $449.20 does not include amount of engineering changes (EC's) as the final amount of these have not yet been negotiated into the contract. At the present time, however, the net unit increase for EC's is estimated at $14.46. Recent test results indicate need for some additional EC's, but cost estimates are not yet available.

THE ACQUISITION OF WEAPONS SYSTEMS

SATURDAY, MAY 23, 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 a.m., in room 1202, New Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire, Sparkman, and Percy; and Representative Conable.

Also present: Richard F. Kaufman, economist; A. Ernest Fitzgerald, consultant; and Douglas C. Frechtling, economist for the minority.

Chairman PROXMIRE. The subcommittee will come to order.

This is the third and final day in our hearings on the acquisition of weapons systems, part II. I would like to first make a brief statement about the total defense budget, of which weapons acquisition is so substantial a part.

The largest single component of Federal spending is made up of national defense. The fact that it is so large, that it has risen so steeply in the last several years, while our resources available to meet our domestic and civilian needs are in such short supply, has made many of us in Congress and the general public painfully aware of the question of national priorities. Next month, beginning June 1, this subcommittee will begin its second annual hearings on national priorities. We intend to explore at that time the way our resources are allocated including the amounts spent for national defense.

Although a much fuller discussion of defense spending will take place during the hearings on national priorities, there is one point that needs to be made now. In the budget presented by the administration last January, military spending was scheduled to decline in 1970 by $1.4 billion below the amount spent in 1969. We are now in the fourth quarter of fiscal year 1970, and it does not appear that we will achieve the reduction in defense outlays forecast in January. Indeed, military spending for the first 9 months of the current year will exceed the amount spent during the comparable period of last year.

In the first 9 months of fiscal year 1969, $57.5 billion was spent by the Pentagon, while $57.8 billion have been spent in the first 9 months of fiscal year 1970, a $300 million increase. I predict that total military spending including defense related activities, will substantially exceed the amount forecast in the January budget, and that over $80 billion will be spent.

It is in the perspective of the total defense budget, of overall Federal spending and of the effects that defense spending have on the

national economy that the present inquiry should be seen. We are not satisfied with the performance of the Department of Defense in managing the more than $20 billion worth of procurement programs entrusted to it. We are not satisfied with the cost overruns that have become a chronic characteristic of large weapons purchases. And we are certainly not satisfied with the explanation that has been put forth so far for these cost overruns.

In order to probe into the underlying causes, we wrote letters to each of the military services requesting cost information on certain specific programs broken out by the costs of labor, materials, and overhead. We wanted to see in some detail how the costs had risen from the time of the Government's preliminary estimate to the current estimate at completion for each of the programs. So far, we have had only limited success. We have not yet obtained from the Army the cost information we want in the desired format. However, Assistant Secretary J. Ronald Fox did assure us that the functional cost information we requested can be obtained on most programs and we look forward to receiving it for the specified ones in the near future.

In addition, we did learn of one most encouraging step in the field of cost control taken by the Army. Under the enlightened leadership of Secretary Fox, the Army has initiated a series of should-cost studies of weapons programs. For many months, this committee has been urging the Pentagon to use this method of determining for itself the efficiency or inefficiency of defense contractor operations. We are pleased that the Army has taken the initiative and that the immediate result has been a $17 million reduction in the price of the Hawk missile program.

We intend to follow this program and others to which the cost approach is employed. We also intend to continue to stress the need for the adoption of this technique by the Department of the Navy and the Department of the Air Force.

Having said as much as we have for the should-cost approach, I would add one note of caution. No management technique can be a panacea for the cost control problem. And any method can be used and distorted. Unless the should-cost approach is taken with the intent of ferreting out inefficiency and waste and of reducing program costs, it will not succeed. Indeed, it would not be difficult to transform this excellent idea into a new method for whitewashing bad programs. The fact that so many dedicated employees have been driven out of the Defense Department because of their cost-consciousness and because they were opposed to waste and inefficiency does not give those who look for better management of weapons programs much to cheer about.

We are happy to welcome this morning a very distinguished gentleman who has given his great competence to our Government and we are delighted that he is here. The Assistant Secretary of the Air Force, Mr. Whittaker. We are happy to have you and you go right ahead in your own way.

Representative CONABLE. Mr. Chairman, I certainly subscribe to most of the sentiments you have expressed here. I was not aware that a great many dedicated employees had been driven out of the Defense Department by their cost-consciousness. At least I am aware of Mr. Fitzgerald and know him and respect him very much as a consultant to this committee but have there been many other examples of this?

Chairman PROXMIRE. Mr. Fitzgerald is the most conspicuous and, of course, it is particularly appropriate in view of our testimony this morning and the area in which we are concentrating that Mr. Fitzgerald should be here. He is certainly not alone by any manner of means and we will be delighted to provide you other names. I have none at the moment available but there are others. When others depart they do not depart with such an amount of attention and interest, et cetera, as Mr. Fitzgerald has. I can assure you that.

Representative CONABLE. I do not think one swallow necessarily makes a spring in this respect. I would be interested in knowing if there are other examples because we certainly should try to prevent this sort of thing happening if we can.

Chairman PROXMIRE. Well, I might say that we had testimony from Admiral Rickover that there are a number. We had, of course, Mr. McGee, who was driven out because he exposed corruption. We have a new case that just developed today. Of course, in all these things the cases that reach congressional and national attention are just the tip of the iceberg.

Representative CONABLE. Well, Mr. Chairman, I do not want to appear to be stating any position contrary to the position that you have taken, that cost control should be a matter of pride in the Defense Department. I do not believe we have any widespread evidence that the contrary is the case. If there are people still being driven out of the Defense Department because of their cost-consciousness, then I think we ought to know about it.

Chairman PROXMIRE. I agree, and we intend to do all we can to develop these cases as they are brought to our attention. And we also intend to do our best to see if we can have the Attorney General of the United States, who is a fine law and order man, and the Attorney General always ought to be, tell us why he has not been able to prosecute those in the Defense Department who are responsible for firing Mr. Fitzgerald simply because he appeared before a committee and told the truth.

Mr. Whittaker, go ahead.

STATEMENT OF PHILIP N. WHITTAKER, ASSISTANT SECRETARY OF THE AIR FORCE, INSTALLATIONS AND LOGISTICS, ACCOMPANIED BY LT. GEN. OTTO J. GLASSER, DEPUTY CHIEF OF STAFF, RESEARCH AND DEVELOPMENT; COL. CHARLES E. BUCKINGHAM, CHIEF, AIRCRAFT AND MISSILES PROGRAMING DIVISION, DCS/R. & D.; COL. ROBERT F. MYERS, AERONAUTICAL SYSTEMS DIVISION, DCS/R. & D.; AND LT. COL. JAMES C. SHIVELY, POLICY AND MANAGEMENT SYSTEMS DIVISION, DCS/R. & D.

Mr. WHITTAKER. Mr. Chairman, I welcome the opportunity to appear before this committee to discuss cost growth causes in military procurement and the practices and policies which encourage or retard those costs. I want to begin by assuring you that I share the concern of this committee for economy in military procurement. With me this morning, Mr. Chairman, are Lt. Gen. Otto J. Glasser, Deputy Chief of Staff, Research and Development, Col. Charles E. Buckingham, Chief of the Aircraft and Missiles Programing Division; Col.

Robert F. Myes, Aeronautical Systems Division and Lt. Col. James C. Shively, Policy and Management Systems Division.

Mr. Chairman, I feel I should further comment with respect to your opening statement, sir, that in my understanding the proposed 1971 Department of Defense budget represents the lowest percentage of the gross national product and the lowest percentage of the total Federal budget devoted to military expenditures since the early 1950's, 20 years ago.

Chairman PROXMIRE. Yes. I might say that I am encouraged by that and I commented favorably on it. I think this is partly the result as we all know, of the deescalation of the Vietnam war for which the President and the administration deserve a lot of credit and should get that credit. But my point is we have to judge on the basis of what has been done.

This is a prospective budget for 1971. The fact is that so far there is no clear-cut evidence that spending has been cut. We are spending more now that we did last year. Now, it may develop that there will be a cut. We hope it does and expect it will, but so far it has not.

MANAGEMENT OF MILITARY PROCUREMENT

Mr. WHITTAKER. Having been in office slightly over 1 year now, I have drawn some conclusions on military procurement which I want to express at the outset of my statement.

1. I believe DOD to be one of the better managed, more effective parts of the executive branch.

2. At the same time, we have admittedly great problems and much room for improvement.

3. I do believe the great bulk of the people in DOD are competent and dedicated and that they are generally trying to do a conscientious job.

4. I reject the idea that wastefulness, dishonesty, and venality are either widespread or condoned.

5. And finally, and somewhat sadly, I am sure we will be making mistakes, too, just like our predecessors did.

AIR FORCE PROCUREMENT

Now, in looking at Air Force procurement, I think it is important that we all have a better perspective as to the nature of the job. In round figures, the Air Force takes about 2 million procurement actions per year which obligate just under $12 billion. Of that total, 99.9 percent of the actions account for only 40 percent of the dollars. In fact, about 90 percent of our procurements are for less than $10,000 each and, in total, represent only 7 percent of the dollars.

Should we make a mistake just in these small purchase actions once in a thousand times, and not that we condone even this one-tenth of 1 percent rate—that would mean 1,800 errors per year—a happy hunting ground for our critics.

I think it is important for you to know, too, how we are manned to execute this mammoth job. In addition to almost 3,000 military personnel, we have on board approximately 6,000 professional civilians engaged directly in Air Force procurement functions. About

4,400 of these civilians are engaged in support type and base procurement. Their average grade level is GS–9 and their average salary is $10,800. The balance of 1,600 are engaged in systems type procurements; their average grade and salary are GS–12 and $15,500. These people perform a tough, demanding job with—in my judgment—a generally high level of competence.

But this morning we are more interested in the larger transactions. These are the major systems acquisitions, and I might comment that the Air Force has awarded just one of these during the past year—the F–15.

The Causes of Cost Growth

More specifically, I turn now to the problems of cost growth and the causes for cost growth. While we can readily agree on the need for economy in military procurements, we begin to have difficulty in communicating effectively when we start identifying the baseline for measuring cost growth and when we discuss the causes for cost growth.

Any discussion of cost growth must start with an agreed upon understanding of the appropriate baseline. I want to plunge right into this morass and try to separate proper from improper baselines. The question we must always ask is, "Cost growth, from what?"

PRELIMINARY ESTIMATES

Too often, preliminary estimates made long before the design is laid down or even conceived form the basis for comparison with actual figures or estimates at completion. There are many reasons why such comparisons are not valid for contract cost performance. In the first place, the contracts have not been awarded at the time the preliminary estimate is made. The contractor has not been selected. The design has not been started. Secondly, any new, advanced system inevitably involves risks, estimates, guesses. There is absolutely no sure-fire way yet developed by which the development and/or production cost of such a system can be forecast with full assurance of accuracy. Perhaps we need to perfect our estimating techniques as much as we need to polish our methods for minimizing actual costs.

Recognizing their imperfections, what is the best baseline to use for tracking and comparison purposes? I believe it is the earliest stable estimate which is based on a design as opposed to a concept. During the concept formulation and contract definition phases of a program, the system to be procured represents a fluid and changing picture in many ways. The threat and the technology may still be too far in the future to be defined with any assurance of accuracy. This, in turn, affects the quantities to be bought, as well as the performance characteristics of the system. The use of too early an estimate as a baseline is an injustice not only to the proponents of the system but also to those constructive critics who are seriously interested in the Government obtaining the most for the taxpayers' dollar.

I strongly recommend that the Government independent cost estimate at the time of entering into the development contract be used universally as the measurement baseline. Such usage will not eliminate cost growth but it will provide a reasonably valid basis for comparison.

Now, assuming that we could agree on a valid baseline, I want to

discuss for a few minutes the causes of cost growth which can still occur.

CONCURRENCY

First, there is the inherent problem when the urgent need for a system causes the development and production to be telescoped. In such a case the production release is given earlier than might otherwise be desirable because of the pressure to get the system into operation. We have called this concurrency. Whereas the development effort is one of changes, the production phase is most economical when there are few changes. Concurrency usually results in just the opposite, and cost growth occurs.

INEFFICIENCY

A second cause is simply inefficiency: Inefficiency in estimating and in operation. No company is perfectly efficient and some are more inefficient than others. There also are times when our decisionmaking process and program direction are inefficient. Although none of this inefficiency is desirable, I find it hard to be convinced that any of it is deliberate. Still, it does contribute to cost growth and insofar as possible should be so identified.

INFLATION

Another and major cost growth cause has been inflation. Several years ago when we were estimating the costs of some of the current systems under contract, we included escalation at 2 to 3 percent per year only to find now that in those years costs have inflated at much higher rates.

CONTRACT CHANGES

The fourth cause for cost growth is changes to the contract. I am sure we will always have changes even though we have made notable attempts to control and reduce the number. All changes are not bad, but most changes cause cost growth. As long as we have technical developments offering performance improvements, we will be making changes to take advantage of those opportunities. As often as our assessment of the threat or need changes, we will be making changes to counter or accommodate those inputs. These factors cause changes in quantity as well as changes in technical design. Once a contract is awarded, any quantity change or rate change will cause contract dollar changes. If the quantity is increased, the total contract value will increase. If the quantity decreases, the total value may decrease but the unit price will increase.

SOCIOECONOMIC INFLUENCES

Socioeconomic influences also contribute to cost growth. I am not opposed to such programs, but when these requirements are passed on to the contractor, as they must be, his overhead costs are sure to increase accordingly. We must accept such increases as part of our contribution to improving our society.

PURCHASE OF DATA

A sixth area for potential cost growth is in the purchase of data, including technical publications. These requirements cannot always be explicitly defined at the time of contract award. Yet, they are requirements which are necessary. We have made significant improvements in this area in the last several years, but it is to some extent the nature of data to be less than fully definable.

UNDERESTIMATING

The last and certainly not least important of the causes for cost growth I want to discuss this morning is the problem of underestimating. Up until the time of contract award, there is ample opportunity and some incentive for underestimating. Underestimates can occur quite honestly through attempts to pare the estimates to the "bare bones." For these very reasons, we should use the contract-related independent cost estimate as the foundation for the baseline for measuring cost growth.

Having discussed cost baselines and enumerated the major reasons for cost growth, let me now provide an outline of some of the important actions we have underway currently to control cost growth.

Chairman PROXMIRE. Could I ask at this point, Mr. Whittaker, in view of the fact that you have a 22-page prepared statement, if you could, if possible, summarize or abbreviate or highlight the rest of your presentation? This is a very good, very helpful prepared statement, but I would appreciate it if you would do that.

Mr. WHITTAKER. Certainly, Mr. Chairman. I will be glad to try to.

As I have just indicated, following in my prepared statement are a list of the actions underway to control cost growth within the Air Force. There are 14 of these that I have enumerated and let me just read them off by title.

AIR FORCE ACTIONS TO CONTROL COST GROWTH

I first point to the development concept paper, or DCP as it is known within the Department of Defense, as one control device for improving our systems acquisition.

The second is the Defense Systems Acquisition Review Council, a body established within the Department of Defense, again to provide the decision points necessary for effective program control.

The third area I talk about is the area of establishing realistic cost baselines. Here I refer to budgetary estimates, to independent cost estimates, and to "should cost."

I then refer to the process that we have recently undertaken within the Air Force as the sixth one of our improvements, the process known as gaming the contract, the process during which we play all of the provisions of the contract one against the other to assure that we have a workable and effective instrument.

I then refer as item No. 7 to the use, judiciously, of the appropriate type of contract for the transaction.

As the eighth item I talk about our program of parallel competitive prototyping as contemplated, for example, in connection with the AX close air support aircraft procurement.

The ninth item is the milestoning approach as used in the F–15 contract and contemplated for other programs.

The 10th item is the limitation of Government obligation provision contained in our procurements which provides for an orderly financial baseline for the contractor and the Government.

The 11th is the total systems performance responsibility requirement assigned to the prime contractor in our major systems procurements.

The 12th area is the area of controlling changes to which we have devoted a great deal of attention.

The 13th is the problem of dealing with abnormal escalation or inflation in the economy.

And finally, the 14th area is the use of the correction of deficiencies clause.

I then move to an outline of some of the basics as we see them in the procurements area. Let me cover these very quickly.

One is to strive for increased realism in cost estimates and to consider this as a factor in evaluation of proposals. The prepared statement then refers to the effort being made, the very real effort, to reduce the sizes and page numbers contained in our request for proposals and in the responses submitted by contractors.

This, we believe, is a very effective cost reduction measure.

I then talk about reducing concurrency between development and production, our efforts in pricing overhead costs, the use of award fees in appropriate cases. And finally, Mr. Chairman, I make the point, which I believe important, that the examples I have given are simply indicative. They do not cover the very important area of management in which we are trying to shorten the communications between the system program offices and the top management of the Air Force, where we are trying to improve the retention levels of the system program directors and the key people in the system program offices, where we are trying to upgrade their rank and all of the other great many management activities we are attempting in order to improve our performance.

I conclude by saying that the procurement techniques I have briefly described are, we believe, firm but they are fair. We intend to use them as intelligently as we can in order that we shall develop contracts which provide for a proper sharing of the risks between the parties which are clear and unambiguous, and which motivate both parties to work effectively toward highly successful systems.

(The prepared statement of Mr. Whittaker follows:)

PREPARED STATEMENT OF PHILIP N. WHITTAKER

Mr. Chairman and members of the subcommittee: I welcome the opportunity to appear before this committee to discuss cost growth causes in military procurement and the practices and policies which encourage or retard those costs. I want to begin by assuring you that I share the concern of this Committee for economy in military procurement.

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First, there is the inherent problem when the urgent need for a system causes the development and production to be telescoped. In such a case the production release is given earlier than might otherwise be desirable because of the pres-

sure to get the system into operation. We have called this "concurrency." Whereas the development effort is one of changes, the production phase is most economical when there are few changes. Concurrency usually results in just the opposite, and cost growth occurs.

A second cause is simply inefficiency: Inefficiency in estimating and in operation. No company is perfectly efficient and some are more inefficient than others. There also are times when our decision making process and program direction are inefficient. Although none of this inefficiency is desirable, I find it hard to be convinced that any of it is deliberate. Still it does contribute to cost growth and insofar as possible should be so identified.

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The fourth cause for cost growth is changes to the contract. I am sure we will always have changes even though we have made notable attempts to control and reduce the number. All changes are not bad, but most changes cause cost growth. As long as we have technical developments offering performance improvements, we will be making changes to take advantage of those opportunities. As often as our assessment of the threat or need changes, we will be making changes to counter or accommodate those inputs. These factors cause changes in quantity as well as changes in technical design. Once a contract is awarded, any quantity change or rate change will cause contract dollar changes. If the quantity is increased, the total contract value will increase. If the quantity decreases, the the total value may decrease but the unit price will increase.

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Having discussed cost baselines and enumerated the major reasons for cost growth, let me now provide an outline of some of the important actions we have underway currently to control cost growth.

One of the first control points in the life of a major program is represented by a document prepared and processed within the Department of Defense. This document is the Development Concept Paper or DCP as we know it in-house. A DCP is prepared for each major system at the time we ask the Department of Defense for authority to begin contract definition. The DCP covers all of the major issues that have been raised pertaining to the program and provides pro and con answers to each of these issues. The DCP also examines all feasible alternatives and offers rationale for the selection of each one. Before the DCP is published, each of the OSD elements and the Air Force, in our case, have agreed on one of the alternatives, or we have specifically identified the areas where disagreements lie. A DCP is prepared each time there is a major change or one of the thresholds identified in the DCP is surpassed. Specifically, a DCP is prepared at least at three major decision points within a program life. Those decision points are at the beginning of contract definition, at the beginning of systems acquisition, and at the beginning of full-scale production.

Another and more recent management control has been insituted within the Department of Defense. This management control is called the Defense Systems Acquisition Review Council, or DSARC. The DSARC meets at the time of each of those three major decision points I listed earlier. The first two DSARCs—at the beginning of Contract Definition and the beginning of Systems Acquisition—are chaired by the Director of Defense Research & Engineering. The third DSARC is chaired by the Assistant Secretary of Defense for Installations and

Logistics and concerns the release to production. As I stated previously, a Development Concept Paper is prepared for and forms a basis for discussion at each of these DSARC meetings. Frequently, these meetings result in modifications to the alternatives expressed in the DCP, and it is then revised before the DSARC decisions are presented to the Secretary or Deputy Secretary of Defense for final decision.

Following the decision to go to contract, the whole procurement process comes into play. A major part of the effort to control cost growth has focused on the procurement process. That process consists of numerous steps.

In major weapon systems acquisitions, the initial step in the procurement process can be best characterized as an intensive effort to establish cost and technical realism. It starts with a budgetary estimate. This estimate is compiled by many techniques and uses all available data: Historical costs, engineering studies, informed judgment, parametric studies, industry inputs, and a dash of optimism. It is not suitable or intended for contracting purposes; rather, it is the forerunner of the Independent Cost Estimate (ICE) and first appears in the DCP. As we proceed from Concept Formulation into Contract Definition, we prepare an ICE for every new system. This estimate is based upon an in-house design by our engineering talents which the field commanders consider responsive to the specification or requirement. It is independent of anything proposed by the competing contractors and the cost inputs we use avoid mere audits of contractor cost estimates. They are, instead, based upon all available cost estimating tools and techniques. When proposals are received at the end of the Contract Definition Effort, these ICE's are updated and revised to reflect the design peculiarities of each of the proposals. We then have an ICE for each prospective contractor which most closely resembles the technical configuration of that system which is being proposed.

Invariably, there is a difference (plus or minus) between our ICE and the competitive prices proposed by the offerors. The principal objective of the price negotiations which follow is to establish a fair and reasonable price—a price which most closely approximates what the system "should cost."

"Should cost" has already been discussed before this subcommittee. I believe some uncertainty may exist as to what precisely the term encompasses. It is our view that it reflects the approach described in the ASPR designed to achieve a fair and reasonable price. The problem, as we see it, is in the means of best implementing the policy expressed in the ASPR and in the Armed Services Pricing Manual to determine what items "should cost." In the case of genuine price competition, we rely heavily upon competitive forces. But when coping with the acquisition of major weapon systems, it becomes imperative to use all of the techniques described in the ASPR and the Pricing Manual, and the applicable functional areas relating to engineering, auditing, and cost estimating. This gives us the necessary visibility to establish as independent a cost estimate as is possible under the circumstances. The product of that effort is another yardstick we use against which to measure the contractor's proposal to determine what the weapon system "should cost."

We are of course following with close interest the activities of the other services in this area, particularly the Army. However, unlike the Army, the Air Force enjoys the advantage of a large organization in the field (AFPROs) to work closely with the auditors and pricing people.

It must be remembered that what an item "should cost" in a particular instance is a unilateral determination made by the Government. The contract price, however, is a negotiated bilateral agreement between both parties. The "should cost" is our going-in objective—it can be less than or more than the price ultimately agreed upon.

One precautionary note: Price alone is not the sole criterion by which a contract is measured. The type of contract, the terms and conditions, the clarity and preciseness of the respective commitments and obligations as set forth—all of these are of equal importance. They affect not only performance and the timeliness of the performance, but the confidence that may be placed in that contract price.

Not only must all facets of the contract be viewed as an entity, they must also be treated with respect to their interaction. Going beyond an examination of each of the contract's clauses for an in-depth understanding, we must also see how they interplay. This is "gaming" the contract, and we do it in every major weapon system acquisition. It commences with the drafting of the RFP and continues right up through final review of the negotiated contract. We are

doing this concurrently with source evaluation by means of an independent, on the scene, group of experts representing all the required disciplines.

As to the contract itself, we visualize providing relative freedom to the contractor in order to allow him to do the best possible job he can in development. This will help insure that the resulting product will be operationally satisfactory and producible at minimum cost. This translates, in many cases, into a cost-reimbursable type contract (CPIF) in development, followed by FPIF contract for initial production as is the case in the F–15 airframe, F–15 engine, and AWACS. It obviously makes sense to put a few more dollars into development if that's going to result in significant production savings.

We are also trying parallel competitive prototyping in selected instances, such as the test radar in AWACS, and the A–X close air support aircraft. The concept of developing and competing against each other two hardware systems is in some instances significantly preferable to making a final selection on the basis of paper only. Obviously, this technique has to be judiciously applied only in those cases where the cost of prototypes is likely to be offset by savings in procurement and production.

We intend to rely increasingly on the milestone approach. It seems to possess the virtue of a logical, common sense method of procurement. We are simply requiring the demonstration of a series of objective, measurable milestones as a prerequisite to moving ahead with the program. These "hurdles" are technical events (first flight, for example) that we select in development and initial production. They are calculated to verify and support our decision to commit additional substantial resources. Our commitment to production then becomes not a function of incurred cost or elapsed time, but rather a function of demonstrable technical accomplishment. This is a major step in a new direction and means, significantly, that we are willing to slip formerly sacrosanct operational capability dates, if need be, to insure an orderly, step by step progression. We have used it in both F–15 contracts and are using it in AWACS.

By incorporating milestones into a contract, the Government should have better visibility to control costs, schedules, and performance. If the milestones are not satisfactorily demonstrated, we have the right to defer production, in whole or in part, with no adjustment in contract prices or ceilings. Thus, high dollar commitments for production are avoided until there is reasonable assurance of success. Our commitments progress only as development progresses until development has reached a point where technological unknowns are uncertainties have been resolved or minimized.

Coupled with the milestone approach, we are using a new clause wherever incremental funding of development is possible: the "Limitation of Government Obligation" clause. It provides for establishment of an orderly funding plan which is tied into the contractor's development plan. While we pay all costs up to the total estimated cost of development, less the contractor's share, we do not revise the funding plan if the contractor runs into trouble and needs more money. He must continue to work toward demonstration of milestones even if it means exceeding the limits of the funding plan. For us to consider an adjustment to that plan, the contractor must furnish notice commensurate with lead-time in the budget cycle. That amounts to seventeen months. In the interim, he runs the risk, in the event of termination, of not being covered for costs incurred in excess of the amount obligated under the funding plan. We feel this approach is well calculated to surface early and realistic notice of overruns, and will induce the contractor to plan his work carefully and then work his plan during development.

Where there are major items of Government-furnished property, we find that disputes frequently arise regarding responsibility for systems performance. It is desirable to hold the system contractor responsible for over-all performance; practically, this is not feasible unless all subsystems are contractor-furnished. Our Total Systems Performance Responsibility (TSPR) clause, as was used in the F–15, I believe, resolves this problem. For illustrative purposes, take Government-furnished engines.

Before source selection, each prospective airframe contractor negotiates a collateral agreement with each prospective engine manufacturer. Basically, they provide that in the event of an engine deficiency, the deficiency will be corrected and costs allocated in accordance with the terms of the agreement. Of course, before the agreement is implemented, there must be evidence that the engines met the required specifications. The hardware contracts spell out what the performance of the engine must be and the right of the system contractor to observe acceptance testing. However, once the engine has met the specifications

and has passed its tests, acceptance imposes TSPR on the system contractor. If problems crop up, other than latent defects, the system contractor's recourse is to the collateral agreement. Work done under this agreement is not a basis for adjustment of any contract target or ceiling price.

Under this arrangement, the Air Force does not become involved in "finger pointing" arguments between the contractors. This means fewer disputes, fewer directed changes, less undefinitized work effort, and the benefit of pricing this risk element in the competitive environment preceding source selection.

Let me further discuss our approach in the contract to help control changes. Changes are the Achille's heel of pricing and can open up the contract to potentially significant cost growth. While we must watch this area closely, we also realize it is not possible to undertake a major weapon system acquisition without there being some changes. The challenge is to limit changes to those necessary and beneficial. Time, revised threats, improved technology, value engineering—all of these serve as pressure to revise the specification. The Changes Clause we are now using discourages changes by not allowing for adjustment in contract price for any change within the range of plus or minus $100,000. Also, we now require in the submission of any change proposal detailed cost information identifying not only the cost impact of the change, but the effect on the follow-on production and allocation of the costs between all phases of the contract. A rigid system of approvals also has been instituted to police this area.

We find there are risks which it would be unreasonable to pass completely on to the contractor or undesirable for him to attempt to cover by contingency pricing in the contract: for example, runaway future inflation. We, therefore, provided for an adjustment, in the F–15 contracts, to the production option prices in the event of abnormal escalation of the economy. The factors we considered were labor and material costs, with adjustment only to the not-to-exceed ceiling prices for the "out-years" as initially proposed. There is no increase in profit, and the formula is in no way related to actual incurred costs so as to give rise to a possible reverse incentive. The ceilings are adjusted upward, if appropriate, in accordance with a prescribed formula prior to the exercise of the option.

The next contractual innovation is our Correction of Deficiency Clause, as was used in the F–15 and as planned for AWACS. This clause provides that the contractor is not only responsible to correct defects in the system, but is also responsible to correct deficiencies in AGE and other support equipment which result from redesign of the system in order to correct a subsequently discovered defect. The cost for correction of defects is considered cost without adjustment in the target cost or ceiling price of the contract.

I would now like to dwell just a little on basics. In the present environment, we are continually aware that it is imperative we strive to get greater value out of every procurement dollar. We are approaching this problem, as I stated earlier, from every perspective. Within the procurement area, I would like to briefly summarize some additional advances:

One: We will not content ourselves with just the lowest price but rather the most realistic "should cost". And to insure ourselves against buy-in or unintentioned contractor over-optimism, we will evaluate bidders on the realism of their cost estimates.

Two: In our source selection process, we will literally strip the Request for Proposal of every non-essential item to simplify the cost and time required to be responsive, as is the case in the B–1. This will be achieved by insistence upon less detail across-the-board, but in-depth detail about selective significant items—items directly germane and essential to proper evaluation. More attention will be paid to actual prior performance as opposed to voluminous documentation as to promised performance, especially in the area of management and cost control.

We will ask for fewer options or bid combinations so as to reduce the cost estimating and planning effort required at the prime and subcontract level. This will also make possible an abbreviation in the time required for evaluation and negotiation, during which many bidders must keep (at Government expense) an organization and facilities "at the ready" awaiting announcement of the successful contractor.

Three: As exemplified by AWACS and the F–15, and in particular the B–1, we are reducing concurrency between development and production; and, wherever feasible and time permitting—we will fly before we buy, as in the A–X. In every instance where cost is not prohibitive, there will be parallel competitive demonstrated accomplishment; if not of the entire system, then at least with respect to high risk subsystems. This, together with protracted Contract De-

finition where essential and a willingness to defer Initial Operational Capability dates, if necessary, should reduce the risks prior to final commitment.

Four: We are changing some of our fundamental negotiating techniques, especially in the area of pricing overhead costs. We will move toward examining the cost elements of overhead, what drives these costs, and negotiating what they should be rather than arguing the issues of reasonableness and allowability after they have been incurred. The Air Force and the other services are proceeding to develop this technique, called PIECOST (an acronym for Probability of Incurred Expenditure), and believe it will prove its eventual utility.

Five: We are developing plans to use an Award Fee with a CPIF contract to reward contractor achievements, particularly in the realm of management effectiveness, for a better than average job. We have used this in the F–15 contracts and are going to use it in the B–1 and AWACS. I prefer to characterize it as a periodic report card on those areas of performance where it is desirable to incentivize performance, but where it is impossible to set forth objective criteria for incentive measurement.

In the interest of brevity, I have tried this morning to provide some examples of the new directions being taken in the Air Force procurement area. Even within this somewhat limited sector of the total systems acquisition process, my list has been indicative rather than exhaustive. Time has not permitted any mention of the equally important steps being taken to strengthen management and control of our systems acquisition processes. The Air Force is working hard to increase the tenure and stability of its program management personnel, it is shortening the reporting and communications channels between the program office and the top management of the Air Force, it is conducting top level status reviews of its major programs at frequent intervals, contractors are being uniformly required to meet acceptable levels for the Cost, Schedule and Control System Criteria—all of these actions and many others are being taken in a dedicated effort to do the best possible job in contracting for and managing our systems acquisition programs.

The procurement techniques I have briefly described this morning are, we believe, firm, but they are fair. We intend to use them as intelligently as we can in order that we shall develop contracts which provide for a proper sharing of the risks between the parties, which are clear and unambiguous and which motivate both parties to work effectively toward highly successful systems.

In closing, I want to stress we are continuously seeking improvements; toward this end, we welcome any constructive suggestions.

Chairman PROXMIRE. Thank you very much, Mr. Whittaker.

First, I would like to compliment you and the Air Force for the way you responded to our written request for functional cost information. The Air Force is the only one of the three services that supplied anything like the data we wanted.

On two programs, the C–5A and the SRAM missile, you gave us very good summary data. I want to talk about these programs in a few minutes, but before doing so, I would like to ask you about the Lockheed financial crisis.

LOCKHEED FINANCIAL CRISIS

You will recall that I wrote you the following letter, and I will just quote two paragraphs from it, on February 27, 1970. I wrote you as follows:

I am informed that in current negotiations between the Air Force and Lockheed over the C–5A cost overruns and other matters related to the C–5A contracts, the possibility of Lockheed's declaring bankruptcy has been raised. It is my understanding that Lockheed is using this possibility as a way to induce the Air Force to bail it out of the enormous potential financial difficulty as a result of their poor performance on the C–5. I would hope that the Air Force will enforce the terms of the conrtact and not waive any more rights than it has already waived during these negotiations.

As you know, there is a provision of the law which permits the Government to bail out a contractor if it is in the national interest to do so. I urge you to

follow these procedures if it is necessary to bail out the contractor and to do it openly and with full public disclosure. In my judgment the public interest would be seriously damaged if the Air Force submits to any threats by this contractor, expressed or implied, to go out of business, when it is vital that our Government avoid even an appearance of trying to lose in its dealings with Lockheed.

You wrote back to me on March 4 and you said in part:

You comment on information you have received concerning the possibility of Lockheed declaring bankruptcy as a means of inducing the Air Force to bail it out of its C–5A difficulties, I am not aware of any such action being threatened or contemplated by Lockheed.[1]

So, to summarize the exchange of letters, I wrote you expressing my concern over the possibility that Lockheed might threaten to go into bankruptcy in order to get the Air Force to bail it out of the enormous difficulties resulting from the C–5A cost overruns, and I stated the public interest would be seriously damaged if the Air Force submitted to any threats by Lockheed, expressed or implied, to go out of business. Your response was you are not aware of any such actions being threatened or contemplated by Lockheed.

Meanwhile, on March 2, 1970, 2 days before your response to me, Lockheed had written to the Deputy Secretary of Defense, David Packard, telling the Pentagon it would need about $641 million more than was owed under the terms of the existing contracts on four weapons programs. The threatened action in Lockheed's letter was not even thinly veiled. If the Pentagon did not pay its demands, work on the four programs would be halted. In the words of Lockheed it would become "financially impossible for Lockheed to complete performance of these programs." [2]

Now, of course, one of the programs being held hostage by Lockheed is the C–5A for which over $500 million is being demanded. It is also apparent that Lockheed's letter of March 2 was preceded by discussions with high Pentagon officials.

As I announced in my opening statement to these hearings, the Pentagon has now conceded that Lockheed is close to bankruptcy, that this possibility threatens the continuance of Lockheed's military programs. But it has also conceded that Lockheed's present financial crisis is the result of problems with its commercial programs, not its military contracts, as we had formerly been led to believe.

Now, getting back to your letter of March 4 to me, I find it hard to understand how the Lockheed fiasco could have developed as far as it did with as little awareness of the situations as you indicated to me. How could this happen?

Air Force Not Concerned With Continued Existence of Lockheed

Mr. Whittaker. Mr. Chairman, let me say at the outset that the continued existence of Lockheed as a corporation and/or the continued existence of the management of that corporation, the present management of that corporation, is a matter that is of no concern to the Air Force. The only concern to the Air Force is to maintain an entity in existence that will provide the goods for which we have contracted.

We emphatically have no stake in the present structure of the corporation or in its management. I hope that is an emphatic point, sir,

[1] The full text of the Proxmire and Whittaker letters appear at p. 526.
[2] The full text of the Haughton letter appears at p. 527.

because the only interest that we have in Lockheed is to get out of Lockheed the things that we have contracted for.

I would then go on to say that there are a number of possible ways by which this result can be achieved. One of them does lie through the route of bankruptcy. Bankruptcy, however, might be voluntary or it might be involuntary. And I have not yet had any threat made to me personally of bankruptcy on the part of the Lockheed management. Nonetheless that does remain a possibility.

Lockheed Claim for $641 Million

Chairman Proxmire. Well, is it not true that Lockheed wrote that it would become financially impossible for Lockheed to complete performance of these programs if they did not get bailed out to the tune of $641 million?

Mr. Whittaker. That is right, Mr. Chairman. As you know, I am sure, the convergence of four major programs in trouble at the same time has put Lockheed in a financial position where they have not got the resources to carry the financing of these programs until the disputes and litigation are adjudicated.

Chairman Proxmire. In view of the fact that Lockheed is such a tremendously important supplier, the No. 1 defense contractor in the country, I believe, in terms of the value of its contracts, and these weapons are very vital for our defense, it appalls me that the Air Force was not aware of its financial condition until Lockheed wrote it, that it had not been following it closely, that it had not demanded under these circumstances to know whether or not Lockheed had the financial capability of complying with performance on these contracts. Why was not the Air Force apprised of this?

Request for Cash Flow Analysis

Maybe I can get into it best by asking the question this way. It has been established that the primary and immediate cause of Lockheed's cash problem is the commercial side of their business. I wonder how the Pentagon can justify its refusal to furnish this committee or any Member of the Congress or public full details of Lockheed's commercial condition, especially the cash flow analysis we requested. Is not the public entitled to know these facts when it is being asked to foot the bill for $200 million downpayment right now and the bill is coming up on the floor in the next few weeks, bailout money for the C–5A's in this year's military authorization legislation, and the likelihood of an even greater bailout next year? Should we not under these circumstances get a cash flow statement, the kind that any competent bank is going to require if it is going to loan a firm a million dollars?

Mr. Whittaker. Mr. Chairman, the financial status of the Lockheed Corp. has been and continues to be in general terms a matter of public record through their published financial statement. The handwriting on the wall, their requirement for financing, is evident from the published financial statements of the corporation. The total stockholders' equity, for example, in their published statement at the end of their fiscal 1969, was down to $321 million. So, it seems to me that the general pattern of the Lockheed situation is evident from their published statements.

There is additional financial information which has been made available to the Office of the Secretary of Defense over the past several months. There is a problem, I understand, of some of that information being considered to be company proprietary.

Chairman PROXMIRE. That is exactly my concern, you see. You said it is down to $321 million. It was not a great deal above that before but the fact that they, of course, have to comply with SEC requirements and indicate their operating statement and balance sheet, et cetera, is not what I am getting at.

I am getting at a cash flow statement so we know where the money is coming from, the cash to finance these enormous contracts, and where it is going.

The Federal Government has provided enormous progress payments to this firm and it seems to me we should have much more than this. Now, you say one difficulty is the information is proprietary, and yet I am told by very responsible Defense Department authorities that the problem is the 1011, the commercial side of the Lockheed operation. Under these circumstances, it seems to me that the taxpayers and the Congress have a right to know the full financial situation of this firm, including the full cash flow picture.

Mr. WHITTAKER. Well, if I may——

Chairman PROXMIRE. If we are going to go ahead—we have to vote on it. Every Member of Congress up at this table is going to be required to vote on this Lockheed appropriation. How can we know how to vote if we do not have the information available and be responsible to our constituents?

Mr. WHITTAKER. I would further say that my understanding of the situation is that the commercial 1011 program has had a major requirement for funds over the past months since the aircraft is under development and there has been relatively little cash flowing into the corporation from that program. At the same time, on top of that there is the C–5 program, the Cheyenne program, the ship claims and the subcontract from Boeing to Lockheed on the SRAM motor, all of which are in dispute as to the amount of money that Lockheed is entitled to. The convergence of these four military programs coupled with the cash requirements for the 1011 has indeed put this severe financial strain on the corporation.

Chairman PROXMIRE. Will you provide this committee with a cash flow analysis of the Lockheed situation?

AIR FORCE DOES NOT HAVE ACCESS TO CASH FLOW ANALYSIS

Mr. WHITTAKER. Mr. Chairman, I do not have access to that. I will be glad to relay the request to the Office of the Secretary of Defense.

Chairman PROXMIRE. Will you do that, because this committee has already communicated with the Secretary of Defense and told him we want it but we would appreciate it if you would reinforce our determination.

Now, if you get the money you are requesting from Congress for Lockheed, how can we be assured that it will be used on the C–5A and not on Lockheed's commercial programs?

Mr. WHITTAKER. Mr. Chairman, the reimbursements to Lockheed are made on the basis of vouchers submitted by the Lockheed Georgia

Co. which are subject to review by the administrative contracting personnel and by the audit personnel of the Department of Defense. They represent reimbursements for expenditures already made. Thus, they are after the fact and are limited to expenditures incurred directly in connection with the performance on the C–5 contract.

This includes, for example, the reimbursement for the wages paid to the workers at Marietta and for bills paid to the subcontractors.

Chairman PROXMIRE. I will pursue this further. My time is up.

Mr. Conable?

Representative CONABLE. Mr. Whittaker, I do think that we have got to have some more information about this Lockheed thing. As I understand it, the $200 million would be segregated and applied against future Federal payments as they become due. Apparently, Lockheed has got a very serious liquidity problem here and our concern as Members of Congress inevitably would be that we would not want to see this $200 million be paid and still not get performance on these very major Government contracts that are still outstanding. It does seem to me as though we have a right to expect some additional answers on this.

INFLATION AS A CAUSE OF COST OVERRUNS

Let me ask you about the issue of inflation as an element in cost overruns. What kind of a contract do you generally have with these Government contractors? Do you attempt to pass on any degree of the risk of inflation to the contractor or is this automatically assumed by the Government, the assumption being that the Government is at least in a major part responsible for inflation? You say that you originally establish your estimates on the expectation that there would be a 2- or 3-percent-inflation rate, thus underestimating the actual inflation rate substantially. Apparently, there is some sort of an escalation clause which requires us to pay additional money because of this inflation and I quite concede this might be reasonable in the face of very long leadtimes involved, but what is the actual mechanism for protecting against the ravages of inflation in this type of contract?

Mr. WHITTAKER. Mr. Conable, we have been struggling with this problem over the years and we have tried several approaches. The general direction, which we believe is the right direction, in which we are heading in essence provides that the contractor should self-insure, if you will, over the relatively short period. That is, if you have a contract that extends for, say, less than 3 years, it seems to us administratively too difficult and also seems as a matter of equity that the contractor should probably self-insure against the possibility of inflation or deflation over that period of time.

So, there is generally no provision for any short-range correction for the effects of inflation.

But in the case, however, of a longer-term contract, as in the case of the F–15, we have an option provision in there which allows us to buy at a not-to-exceed price in a future time period some years hence the initial production quantities of F–15 aircraft. In that contract we have a provision that says that this not-to-exceed ceiling price can be increased by the amount of inflation which has occurred, if any, during this intervening period.

Representative CONABLE. Then, Mr. Whittaker, to summarize, there is no excuse for cost over-run for inflation if it is a short-term contract because apparently no provision is made. It is part of the risk of the contractor. With the longer-term contracts there is an escalator built into the options that are provided for renewal and extension of the contract and, therefore, cost over-runs could be generated by an inflation over this longer period of time if these options were exercised, is that correct?

Mr. WHITTAKER. That is right, sir.

Representative CONABLE. Fine.

Mr. Chairman, I think Mr. Whittaker does have a fine prepared statement. I would like to request that his prepared statement be printed in full in the record——

Chairman PROXMIRE. Without objection.

Representative CONABLE (continuing). Even though he did summarize it.

Chairman PROXMIRE. Yes. I intended to do that and I appreciate the suggestion.

Representative CONABLE. That is all.

Chairman PROXMIRE. Senator Sparkman?

Senator SPARKMAN. Thank you, Mr. Chairman.

Mr. Whittaker, I was late getting here but I spent the time reading your prepared statement in full and I join in what my colleagues have said. I think it is a very fine, clear, straight to the point prepared statement and one that will be most helpful.

My questions will be very few. On this, I want to go back to this thing of a minute ago about insurance against inflation. You say on a short-term contract the contractor has no way of insuring himself against inflation. Is that right?

INFLATION FACTOR IN SHORT-TERM AND LONG-TERM CONTRACTS

Mr. WHITTAKER. No. I did not mean to say that; sir. The contractor can and frequently does include in his estimated prices for labor, for material, for all the elements of cost, his estimate of what is going to be happening to the economy over the short term. This, then, becomes a matter for review by the auditors before the contract is entered into and if these amounts seem to be excessive, they will be negotiated down, but nonetheless, the contract resulting will probably end up with some factor in there for the short-term inflation.

It is not, however, handled by a separate stand-alone clause that provides for any repricing.

Senator SPARKMAN. Well, what is the difference in that arrangement and in longer-term contracts? I understood you to say there is an escalation clause written into that. Does that set just a separate amount?

Mr. WHITTAKER. The difference lies in this way; sir. When we get a proposal from a contractor, we are trying to evaluate it based upon the technical description and the technical adequacy of what he is going to be building for us and we are also trying to evaluate the cost of doing that. We are concerned that if he puts in a significant amount of money representing the impact of inflation over the long-term, that this will serve to make the comparison of one contractor's proposal with another's difficult. For example, one contractor might

put a lot more money in there for inflation than another and that would distort the comparison of prices. That is one of the problems.

We are trying to keep the longer-term and what may be the bigger dollars on a comparable basis between competing contractors. Therefore, what we have told the contractor is this. We have said that you can put a reasonable sum in there for the inflation over the short term but out in the future, you give us a proposal using, effectively, constant year dollars. and then when we come to the time to pick up the option for that production which may be 3 or 4 or 5 years out in the future, at that time we will be willing to negotiate an adjustment based upon the effect of the economy at that point in time.

NATURE OF $200 MILLION CONTINGENCY FUND FOR LOCKHEED

Senator SPARKMAN. Now, with reference to this money that is proposed to be made available to Lockheed, I think—I just want to be clear on this point. That is really an advance payment for work that is to be done, is it not? I mean, if it is made.

Mr. WHITTAKER. This represents funding to cover the anticipated expenditures of the Lockheed Corp. on the C–5A program during fiscal year 1971. Whether or not this money is paid as a loan, some sort of a special advance, as some sort of a settlement, has not as yet been determined. And the intention is that any such resolution will be brought back for review by Members of the Congress.

Senator SPARKMAN. But in the end it will be a payment for work done or to be done. In other words, it is not a grant in any way. It is not a loan, is it?

Mr. WHITTAKER. It may well turn out to be a loan; yes, sir.

Senator SPARKMAN. What is that?

Mr. WHITTAKER. It might well turn out to be a loan.

Senator SPARKMAN. But it will be collected as the work is delivered?

Mr. WHITTAKER. In order for the effort on the C–5A to continue there is going to have to be cash made available. The availability at a reasonable cost of cash from commercial banks is limited. It seems to us that in order to get our aircraft out of Marietta, we are going to have to, as I say, by means of a loan, by means of a settlement, regardless of the vehicle, we are going to have to make cash available.

Senator SPARKMAN. Well, I understand that, but I am trying to find out how that money is to be repaid. Is it to be repaid by work done or is it to be paid over a period of years?

Mr. WHITTAKER. If it is to be repaid, it would presumably be repaid over a period of years just like a loan and would be an interest-bearing loan which would be repaid by the corporation to the Government.

Let me add another sentence or two to try to clarify this, sir. The

problem lies in the disputes that exist between the Government and Lockheed with respect to the interpretation of the C–5A contract. Depending upon how those disputes come out, Lockheed will get a varying amount of money in payment for their effort in building these aircraft. Their loss will vary depending upon how much money they get. Therefore, the amount of money that will represent a settlement and the amount of money that will represent some form of temporary financing, a loan, that is, subject to repayment, are not yet determined.

Senator SPARKMAN. All right. Thank you.

Thank you, Mr. Chairman.

C–5A Cost Breakdown

Chairman PROXMIRE. Let me ask you now about the C–5A cost information you supplied. According to your data, Mr. Whittaker, the cost of Lockheed's part of the program has increased from the contractor's original price proposal for 115 aircraft at $1.8 billion to the current estimate at completion for 81 aircraft at $2½ billion. On a unit basis Lockheed's costs have doubled from $15.8 million each to $31 million each and, of course, this is just Lockheed's part of it, not General Electric's part, not the engine. But it is the cost breakout I want to draw your attention to. Increases are recorded in all categories. However, the most extreme increases are in labor and overhead. Direct labor has gone from $333 million to $661 million.

How is this explained? How much is accounted for by wage rate increases and how much by adding men to the payroll?

(The C–5A cost and contract information provided by Mr. Whittaker follows:)

APRIL 21, 1970.

HON. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
Joint Economic Committee, U.S. Senate.

DEAR MR. CHAIRMAN: This refers to your letter of March 19, 1970. Attached is the C–5 informtion you requested. This cost data pertains only to the Lockheed portion of the C–5 program. Attachment 2 is the requested contractual documentation. In addition to the basic contract, we have also included significant contract modifications.

It was not possible to provide you with a functional break out in the cost categories you requested for the Air Force's preliminary cost estimate or for the price negotiation memorandum. We have shown the material program code break out used in these estimates (and the contract for billing prices) to indicate how these estimates were developed.

Information on the C–119 GUNSHIP and SRAM programs is being forwarded under separate cover.

Sincerely,

PHILIP N. WHITTAKER,
Assistant Secretary of the Air Force (Installations and Logistics).

LOCKHEED: C-5A COST INFORMATION—FUNCTIONAL CATEGORIES BREAKOUT

[In millions of dollars]

	(1) 116 aircraft; Government's preliminary cost estimate, April 1965		(2) 115 aircraft; contractor's original price proposal, April 1965	(3) 115 aircraft; original price negotiation memorandum, August 1965	(4) 81 aircraft; Government current estimate, February 1970
	Low	High			
Direct labor:					
Engineering	[1]	[1]	130	[1]	205
Manufacturing	[1]	[1]	108	[1]	277
Other [2]	[1]	[1]	95	[1]	134
Subtotal	[1]	[1]	333	[1]	616
Material and purchased parts			470		634
Subcontracts			355		539
Other [3]			72		550
Overhead			350		682
G. & A			76		143
Total cost	2,097	2,432	1,656	1,703	3,164
Profit (or loss)	210	243	166	170	(648)
Total price	2,307	2,675	[4] 1,822	1,873	[5] 2,516

[1] The above functional breakout reflects Lockheed accounting practices and also the large amount of out-plant effort. There is no comparable breakout in the preliminary cost estimate or price negotiation memorandum. These two cost estimates were alined based on the Air Force's material program codes which is principally hardware or product oriented and are shown on the following page. The preliminary cost estimate is the Air Force's Apr. 1, 1965, independent cost estimate and was based on all work done in-plant and was also based on an aircraft count of 116 versus the 115, that went on contract for R. & D., run A and run B.

[2] Other direct labor items are tooling, logistics, and quality assurance.

[3] Other is interdivisional charges for feeder plants, etc.

[4] From April 1965 there were several changes in scope which applied to all 3 contractors. Lockheed's proposal in the 4 months increased from $1,822,000,000 to $1,886,000,000. Contract go-ahead was October 1965. In April 1966 the cost-sharing arrangement was changed from 85–15 to 70–30 (over) and 50–50 (under). This resulted in the total price of $1,945,000,000.

[5] Price is based on "best case for Government" settlement of disputed contract issues.

NOTE.—Cols. 1 to 3 are based on 85–15 cost-sharing arrangement. Col. 4 is based on 70–30 (over) and 50–50 (under) cost-sharing arrangement.

LOCKHEED: C-5A COST INFORMATION—MATERIAL PROGRAM CODE BREAK OUT

[In million dollars]

	(1) 116 aircraft, Government's preliminary cost estimate, April 1965		(3) 115 aircraft, original price negotiation memorandum, August 1965
	High	Low	
Air vehicle 1010	2,176	1,880	1,398
Training 1020	41	38	41
AGE 1040	58	50	46
Test 1050	118	102	140
System engineering 1060			52
Data 1070	39	27	26
Total cost	2,432	2,097	1,703
Profit	243	210	170
Total price	2,675	2,307	1,873

Mr. WHITTAKER. Mr. Chairman, one of the problems that we have encountered on C–5 and with which you yourself are very familiar—we have discussed it, you and I, before, sir—is the problem of disengagement, and one of the things that we have been trying to do in the year that I have been around the Pentagon is to get the C–5 contract in an effectively workable condition where we can have the control and visibility that we believe we have got to have.

The contract is a fixed-price incentive contract. It was the first of the total package procurements and it was a contract that in effect reduced the visibility and control that the Government could exercise on the program. So, when I comment further to your question, it is with this backdrop of a "disengagement" kind of relationship that has existed as far as the C–5 program is concerned. Against this backdrop there has been significant cost growth in the program.

The number of employees at the Marietta plant at the present time is on the decline and the overhead to the extent that we are able to track it, seems to be——

Chairman PROXMIRE. Let me stay with the labor cost to begin with. That is an increase of almost 100 percent, from $333 million to $616 million, and you apparently cannot tell me how much of this is a wage rate increase and how much is the number of employees increase.

Mr. WHITTAKER. I can provide that for you for the record.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

C–5 LABOR COSTS

It is estimated that of the $283 million increase in the direct labor function, ($333M to $616M, correct figure), approximately $76 million can be attributed to wage increases. The remainder is due to technical and manufacturing problems and a small amount due to the change in cost sharing arrangement.

In terms of personnel, Lockheed estimated in their proposal that about 80.9 million direct labor manhours would be required. The Air Force had estimated in February 1970, that about 133.5 million direct labor manhours would be needed.

NO AIR FORCE STUDIES OF LABOR PRODUCTIVITY

Chairman PROXMIRE. I would appreciate it. Has the Air Force done any studies to determine the productivity or efficiency of Lockheed's employees on this program? If so, what was the result?

Mr. WHITTAKER. The Air Force has not conducted studies that I am aware of, with respect to the productivity of the direct labor employees.

Chairman PROXMIRE. I am sorry. I missed that, sir.

Mr. WHITTAKER. We have not conducted studies that I am aware of, of the productivity of the direct labor employees.

Chairman PROXMIRE. It would seem that that would be a good idea. What I missed when I said 100-percent increase, actually it is more than 100 percent when you recognize they were producing fewer planes. They were to produce 115 planes and they are going to produce 81. And yet, the labor cost has gone up from $333 million to $616 million. Something obviously is wrong with productivity here as well as other elements involved in the labor situation. You may have had a very large increase in wages but that certainly would not account for anything like this, would it?

Mr. WHITTAKER. I would not be inclined to think so, although I do not have those facts, and again the problem we have been wrestling with is the problem of conversion of this contract to a contract we can really get our hands on.

Indirect Charges

Chairman Proxmire. Next, I want to ask about indirect charges. Overhead went from $350 million to $682 million. G. & A. went from $76 million to $143 million. What kind of expenses are contained in these categories? Do they include the salaries of management, wall to wall carpeting, company limousines, company airplanes, that kind of thing?

Mr. Whittaker. I do not know the specific content but the general answer, Mr. Chairman, is, of course, that executive salaries are included in one of the overhead accounts, either the plant overhead or the general and administrative account. The general and administrative expenditures apply to the contract, I am advised, as a percent of the direct labor dollars, and have gone from 30.3 percent in 1965 to 26.3 percent in 1969.

Chairman Proxmire. They should have dropped much more sharply in relation to the rapid labor increase if overhead were remaining anything like constant. At any rate, can you provide for the record, the salaries of Lockheed's top management, include bonuses, stock options and other benefits, and a list of company limousines, company airplanes for the past 5 years?

Mr. Whittaker. I am not sure those data are available to me, Mr. Chairman, but I will be glad to ask for them.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

Lockheed Management Compensation

SALARIES AND MANAGEMENT INCENTIVES

	Salary	Management incentive plan	Stock option
1965:			
Corporate officers:			
Chairman of the board, C. S. Gross	$132,500	$55,000	None.
President, D. J. Haughton	127,500	63,000	Do.
Vice president, Lockheed Georgia Co., M. C. Haddon	67,409	22,750	1,000 at $39.
Lockheed Georgia Co., officers:			
President, W. A. Pulver	65,000	25,887	See below.
Vice president, R. I. Mitchell	34,996	11,306	Do.
Vice president, C. S. Wagner	37,492	15,767	None.
Vice president (C-5A), T. R. May	37,492	15,300	See below.
Vice president, T. F. Morrow	34,008	10,252	Do.
1966:			
Corporate officers:			
Chairman of the board, C. S. Gross	140,000	65,000	None.
President, D. J. Haughton	140,000	65,000	5,000 to $60.
Vice president, Lockheed Georgia Co., M. C. Haddon	72,500	24,469	2,000 at $60.
Lockheed Georgia Co., officers:			
President, W. A. Pulver	65,000	21,103	See below.
Administrative director, M. M. Egan	29,016	9,788	Do.
Vice president, A. E. Flock	35,516	11,981	Do.
Vice president, T. F. Morrow	34,008	11,306	Do.
Vice president, R. I. Mitchell	34,996	11,813	Do.
Vice president (C-5A), T. R. May	37,492	16,875	Do.
1967:			
Corporate officers:			
Chairman of the board, D. J. Haughton	146,500	55,050	7,000 at $56.
President, A. C. Kotchian	126,250	46,750	5,000 at $56.
Vice president, Lockheed Georgia Co., W. A. Pulver	78,762	20,525	
Lockheed Georgia Co., officers:			
President, T. R. May	50,024	12,971	See below.
Vice president, A. E. Flock	35,516	9,612	Do.
Vice president, M. M. Egan	31,980	8,383	Do.
Vice president (C-5A), H. L. Poore	35,984	9,560	Do.
Vice president, F. A. Cleveland	33,488	9,070	Do.
Vice president, D. T. Crockett	30,992	8,029	Do.

SALARIES AND MANAGEMENT INCENTIVES—Continued

	Salary	Management incentive plan	Stock option
1968:			
Corporate officers:			
Chairman of the board, D. J. Haughton	$150,000	None	None.
President, A. C. Kotchian	134,863	None	Do.
Vice president, Lockheed Georgia Co., W. A. Pulver	78,000	None	See below.
Lockheed Georgia Co., officers:			
President, T. R. May	50,024	None	Do.
Vice president, A. E. Flock	36,504	None	Do.
Vice president, D. T. Crockett	30,992	None	Do.
Vice president, F. A. Cleveland	34,996	None	Do.
Vice president, M. M. Egan	38,012	None	Do.
Vice president (C-5A), H. L. Poore	38,012	None	Do.
1969:			
Corporate officers:			
Chairman of the board, D. J. Haughton	152,885	None	None.
President, A. C. Kotchian	137,596	None	Do.
Vice president, Lockheed Georgia Co., M. C. Haddon	101,538	None	Do.
Lockheed Georgia Co., officers:			
President, T. R. May	60,008	None	See below.
Vice president, H. L. Poore	42,016	None	Do.
Vice president, M. M. Egan	42,016	None	Do.
Vice president (C-5A), A. E. Flock	39,988	None	Do.
Vice president, F. A. Cleveland	37,492	None	Do.
Vice president, D. T. Crockett	34,996	None	Do.
1970:			
Corporate officers:			
Chairman of the board, D. J. Haughton	(1)	(1)	(1)
President, A. C. Kotchiah	(1)	(1)	(1)
Vice president, Lockheed Georgia Co., M. C. Haddon	(1)	(1)	(1)
Lockheed Georgia Co. officers:			
President, R. A. Fuhrman	65,000	None	None.
Vice president, H. L. Poore	50,024	None	See below.
Vice president, R. Ormsby	33,488	None	None.
Vice president (C-5A), R. D. Roche	31,980	None	See below.
Vice president, A. E. Flock	39,988	None	Do.
Vice president, D. T. Crockett	34,996	None	Do.
Vice president, L. O. Kitchen	27,508	None	None.

[1] Not available.

STOCK OPTIONS EXERCISED

(Quantity & Price per share—Officers in Alphabetical Sequence)

Cleveland—750 at $60; 1000 at $56; 1000 at $23.
Crockett—500 at $60; 750 at $56; 1000 at $23.
Egan—500 at $60; 1000 at $56; 1000 at $23.
Flock—500 at $60; 500 at $56; 1000 at $23.
Morrow—500 at $60; 1000 at $56.
Mitchell—500 at $60.
Poore—500 at $60; 1000 at $56; 1000 at $23.
Pulver—2000 at $60.
Roche—500 at $56; 750 at $23.
May—1000 at $60; 3000 at $56; 1500 at $23.

AUTOMOBILE TRANSPORTATION

Corporate.—During the above five years one Ford, Chevrolet or Plymouth was furnished each of the corporate officers above for business purposes. No cars were furnished to wives.

Lockheed Georgia Co.—The contractor owns (not leased) approximately 115 passenger-carrying vehicles. Within this quantity, approximately 20 are station wagons and 25 are carryall/vans. Of the approximately 70 sedans, 2 are assigned to corporate officers. In addition, 1 1970 Chevrolet (leased) and 1 1970 Buick (leased) are assigned to the President, Lockheed-Georgia Co. The Government accepts only one-third (8 hours work shift) of automobile costs for vehicles assigned full time to the President and one Vice President of the Lockheed Georgia Company. The remaining costs are absorbed by Lockheed.

COMPANY OWNED AND OPERATED AIRCRAFT

Corporate.—1 Jetstar assigned for use of corporate staff.
Lockheed Georgia Co.—During 1965 and 1966 the company owned and operated 1 Beechcraft H–18, 1 Cessna 150, 1 Piper-Aztec, 1 Piper-Apache, 1 Convair 240. The Pipers were dropped in 1967 and subsequent years and all other aircraft except the Convair 240 and Beechcraft H–18 had been dropped by 1970. Other aircraft, both new and used (trade-ins) were in the company inventory from time to time during the five year period as demonstrators or for sale or resale.

CLUB MEMBERSHIPS

Corporate.—No club dues were charged to government contracts.
Lockheed Georgia Co.—Club dues of Lockheed Georgia officials are not charged to Government contracts, but are paid by Lockheed.

Chairman PROXMIRE. How do you explain the increases in overhead and G. & A.?

Mr. WHITTAKER. The overhead and G. & A. are a ratio to the direct labor costs and the direct labor costs have been driving the application of the overhead pools. In other words, in actual dollars there has been an increase; as a percentage of the direct labor dollars, they have been relatively constant or gone down. The increased effort——

Chairman PROXMIRE. You mean, because labor costs have increased in a way that is so far unexplained and the Air Force cannot tell us where, they do not have any studies available apparently on productivity and we have had this enormous increase, especially in view of the fact we are producing fewer planes and then you say, well, there is some kind of relationship between administrative overhead costs and labor and that ratio has not been changing dramatically, so that is the reason that administrative costs are going up? It seems to me that the Air Force does not know what it is paying for here. I do not want to be unfair.

INTERDIVISIONAL CHARGES

Let me ask this. The most astonishing cost increase is in the category called "other," which is defined in a footnote as "interdivisional charges for feeder plants, et cetera." These charges went from $72 million to $550 million. Now, what do they consist of?

Mr. WHITTAKER. These charges generally consist of work performed by other locations and furnished to the Lockheed Marietta. For example, the corporation has some half dozen plants located in the Appalachia area that are called feeder plants that provide parts and subassemblies and utilize labor in some of the economically depressed areas to provide this material to go into the C–5A aircraft.

Chairman PROXMIRE. How much of the interdivisional charges came from Lockheed's plant at Burbank, Calif? Is that not where much of the commercial work on the 1011 commercial plane is being done.

Mr. WHITTAKER. Yes. That is the location where a lot of that work is being done and I can provide the information which you requested.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

BURBANK, INTERDIVISIONAL CHARGES

It is estimated that the amount of interdivisional charges against the C–5A airplane by the Lockheed plant at Burbank, California will be $181.1 million.

Chairman PROXMIRE. Will you also provide the information on how much of the interdivisional charges came from other Lockheed plants where commercial work is being done?

Mr. WHITTAKER. Yes.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

OTHER INTERDIVISIONAL CHARGES

In the current estimate of $2,516M (price to the Air Force) for 81 aircraft it is estimated that interdivisional charges at the completion of the program will be $250.3M. The following is a list of charges by the various Lockheed divisions:

Lockheed Division	*Interdivisional charge (in millions of dollars)*
Lockheed California Company	$181.1
Lockheed Air Service	38.6
Lockheed Electronics Company	20.9
Lockheed Propulsion Company	1.7
Lockheed Missiles and Space Company	8.0
	250.3

Chairman PROXMIRE. How much commercial work is being done at the Marietta, Ga., plant, and on what projects?

Mr. WHITTAKER. There is a relatively small amount of commercial work being done at Marietta. There is some, and some of it is related to the 1011 program.

Chairman PROXMIRE. Do you have any explanation for the huge rise in overhead other than that there has been a rise in labor costs? Is there any other reason that you know of that you could give us for this tremendous increase?

Mr. WHITTAKER. Only the general reason that I have indicated before, that as the direct costs rise, the application of the indirect has been going up at not as steep a rate but nonetheless has been going up accordingly in dollars.

Chairman PROXMIRE. Does that include interest?

Mr. WHITTAKER. To my knowledge, no. Mr. Chairman, it is not an allowable charge on Government contracts.

Chairman PROXMIRE. And, of course, in this case, as I understand it, in the C–5A they have got progress payments that have been at times close to 100 percent and their working capital has been pretty well met by the Air Force, as I understand it.

DIFFICULTY OF SEPARATING GOVERNMENT AND COMMERCIAL OVERHEAD EXPENSES

How do you know that the activities paid for by overhead and G. & A. funds do not benefit Lockheed's commercial programs? Let me give an example. How do we know that engineers on the Lockheed payroll charging their time to G. & A. accounts are not working on problems concerning commercial programs? With the lack of controls existing on independent research and development programs, this would be a relatively simple bookkeeping accomplishment. The result would be the public subsidized a commercial effort for the corporation's private profit.

Mr. WHITTAKER. This is a problem and one not peculiar to the Lockheed Corp. The general approach to the solution of a problem of this sort is to have conducted, as has been in the case of Lockheed, a review by auditors of each one of the overhead accounts to determine

what is charged into the account and how the overhead is apportioned over the various types of work being performed by the corporation. Those charges that are considered mischarged are disallowed.

Chairman PROXMIRE. Well, is it not correct that much research and engineering work intended to solve problems on or benefit commercial aircraft projects could be charged to G. & A. by a defense contractor, thereby, forcing the military to share the costs of his commercial activities?

Mr. WHITTAKER. It would seem to me unlikely that a great deal of effort would be charged into G. & A. They would perhaps more likely be charged into some plant or laboratory overhead account and——

Chairman PROXMIRE. At any rate, the GAO—General Accounting Office, Mr. Staats' agency—their report on uniform accounting standards included an appendix with numerous examples of abuses of this kind. What is the Air Force doing to control overhead costs?

Mr. WHITTAKER. We are making a real effort to gain insight into overhead costs through a new technique that has been developed by some very bright fellows out at the Air Force Academy. The technique we are experimenting with is something called PIE cost. It is the probability of incurring estimated costs, and what they do is to gather the overhead history of a corporation over a period of time. They try to determine what drives the overhead accounts. They use a methodology known as regression analysis and they use computers from which they derive an ability to rather effectively project what overhead should be over a period of time.

Chairman PROXMIRE. Have these bright young fellows been working on the C–5A?

Mr. WHITTAKER. These bright young fellows have been down at Marietta working on this problem down there.

Chairman PROXMIRE. For how long, sir?

Mr. WHITTAKER. They started—I would like to correct this date, if I may—my understanding is they started the latter part of last year.

Chairman PROXMIRE. Can we get their study?

Mr. WHITTAKER. I do not know that they have a documented study. I will check into it.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

OVERHEAD COSTS CONTROL

The development of the PIE Cost (Probability of Incurring Estimated Costs) technique began nearly three years ago by Air Force Academy personnel with the use of data from Lockheed-Georgia and ten other contractors. As the effort progressed it narrowed in on Lockheed-Georgia and another contractor. By July 1969, a technique had been developed under laboratory conditions which included the use of regression analysis and cost models. It had, however, yet to be tested on an on-going program. Therefore, a training program for government employees at the Lockheed plant on the use of the technique took place the last half of 1969. Meanwhile, it had been decided that as part of the current negotiations to request the implementation of the PIE Cost technique at the Lockheed-Georgia plant late this summer. It will be, however, several months before we can more precisely determine the effectiveness of this technique.

Chairman PROXMIRE. Without a documented study, it seems to me it would not be helpful to you or anybody else, would it?

Mr. WHITTAKER. The results, I hope, are going to be in the form of some recommended numbers representing the ranges within which

these overhead accounts should be kept, and I have not yet seen these myself.

Steps To Contain C–5A Cost Overruns

Chairman Proxmire. Is there anything else you are doing to contain further cost overruns on the C–5A?

Mr. Whittaker. We have tried to scrub down the capabilities of this aircraft, Mr. Chairman, to the extent that we possibly can, to see what costs can be taken out. This has not resulted in very significant savings. When you contrast these to the total cost of the program, we are talking in terms of savings representing approximately $5 million. Nonetheless, there has been that much of a savings.

Chairman Proxmire. That is not very encouraging considering the enormous size of this overrun. Are you doing anything to detect and quantify inefficiencies and avoidable expenses on the C–5A? Are you planning, for example, a should-cost study?

Mr. Whittaker. There only remains on this program something in the order of—I say only; this is again in relationship to the total size of the program—there remains something in the order to $600 to $700 million of what you might call discretionary expenditures, that is, money which is not either spent or committed by Lockheed. Therefore, it seems to me that at this point in time, going in on a should cost basis would not be very successful.

What we are going to try to do, Mr. Chairman, throughout the remainder of this performance period, we are going to try to provide more direct Air Force management of this program than has been the case in the past if we can get a contract revision that gives us the right to exercise some real control.

Chairman Proxmire. This committee has been trying to persuade the Air Force to do this since 1968. It is good that at least you are beginning to do it.

Conversion of C–5A Contract From Fixed Price to Cost Plus

I have been told by officials in the Pentagon that part of the package deal to bail out Lockheed from its financial difficulties that is being considered is conversion of their fixed-price incentive contracts to cost-plus contracts. Has this possibility been discussed at policymaking levels within the Air Force?

Mr. Whittaker. Yes. This is one of the possiblities among a great many others that has been discussed, Mr. Chairman.

Chairman Proxmire. Did that suggestion come from Lockheed or the Air Force?

Mr. Whittaker. I do not know that I can answer that but I believe that the idea came from the Air Force.

Chairman Proxmire. If we do that, would not such a step make a mockery of efforts to reform the procurement system? How could contractors take bidding procedures and price competition seriously in the future if Lockheed is permitted to obtain some of the largest contracts ever awarded through low bids and fixed price commitments and is then allowed to change over to cost-plus contracts when it cannot meet the fixed prices?

Mr. Whittaker. The answer to your question, sir, obviously lies in the basis on which any such changeover would be made.

Chairman PROXMIRE. What was that again?

Mr. WHITTAKER. The answer to your question obviously lies in the method by which the changeover was made.

Chairman PROXMIRE. I see.

Mr. WHITTAKER. The change to a cost-reimbursement contract does not necessarily mean or imply that the corporation would then be reimbursed for all of its costs to build 81 C–5 aircraft.

Chairman PROXMIRE. Will you tell us how you would modify a cost-plus so you would not provide this kind of an incentive to any other contractor, who will say you take care of the biggest contractor in the country, you should take care of us?

Mr. WHITTAKER. We are well aware of the rest of the contracting fraternity looking at this program and watching to see what is going to happen, and that is why we are being very careful and deliberate.

Chairman PROXMIRE. I can see that Lockheed would like to change over because it would no longer be obligated to the fixed prices agreed upon and the costs of the programs would no doubt go up further. I do not see how it would benefit the taxpayers or how it is necessary in order to assure us of getting these weapons which we need for our defense.

Mr. Conable has some more questions and I will come back briefly.

POSSIBILITY OF LOCKHEED GOING INTO BANKRUPTCY

Representative CONABLE. Thank you, Mr. Chairman. We are dealing apparently with a very serious condition here in Lockheed. I understand the arguments and precedent and I understand the problems of policy involved. We have been asked to appropriate $544 million for the C–5A in fiscal 1971. I wonder, Mr. Whittaker, if you could tell us what would happen if Congress failed to appropriate that money, first, with regard to the contractor, next with regard to the Government's expenditures, and third, with regard to our military airlift capability. What would be the probable result if we failed to appropriate this money as requested?

Mr. WHITTAKER. Mr. Conable, if this money were not appropriated my belief is that the contractor probably would be forced into bankruptcy because even were the contract to be terminated under those conditions and even were the contractor to receive some recovery as a termination settlement, the timing of this would probably be such as to make it very difficult for him to continue operations pending the resolution of the settlement.

The Air Force would be in a position depending upon when this occurred, of ending up with something in the order of 20 of these aircraft rather than 81. One of the frustrations of a program like this lies in the fact that as you go down the curve of building these aircraft, they get less and less expensive as you get out toward the 81st, and the relative incremental investment in getting the last 20 or 30 of these aircraft from Marietta is quite low. So, there would be a real problem from the standpoint of availability of equipment if we were not to receive the funds necessary to carry the program.

The more serious point is the impact on the military capability provided by the C–5. The outsize equipment capability is unique, as you know, in connection with the C–5. As the war in Southeast Asia winds down, the military capability of this country will be more and more

concentrated in the United States. Furthermore, as the Army produces mobility equipment that is outsized to the C–141, the 747, and other types of aircraft, the premium value of the C–5 as a carrier of this outsized equipment becomes enhanced.

I, for one, would think it rather a serious impact on the military capability of this country not to have the capability represented by something in the order of 81 of these aircraft.

Representative CONABLE. You say that we would be in a position to receive delivery of about 20 of these aircraft instead of the 81. Presumably, we would need the capability and, therefore would have to enter into new contracts for production. How long a delay would be involved before this fully developed plane could be produced by some other contractor?

Mr. WHITTAKER. This would be an extremely difficult and complex undertaking, to have some other contractor either undertake to build his own version of the C–5 or to have him move into Marietta and in effect, take over the operation of that plant. I cannot help but feel that that inevitably would result in a dollar cost to the Government considerably in excess of what it looks as though we may be paying now.

Representative CONABLE. What you are saying in effect is, that we are pretty well locked in and do not really have much alternative on this. With what is happening, I think it does impose on the Air Force a rather severe obligation to try to keep overhead costs under control and prevent any further escalation.

Now, with respect to the $200 million that we are being asked to advance, the problem is overhead, is it not, for the most part? It is possible to segregate the $200 million to be sure the money, if paid to Lockheed, is not spent on something else with respect to labor and material going into these planes, but there is not any way of segregating the overhead cost, is there, or is there?

C–5A TECNICAL PROBLEMS

Mr. WHITTAKER. Well, Mr. Conable, the real culprit on the cost growth of the C–5 has to go back to the technical problems, to the schedule slippages, and to the inflationary effects of the last several years. And that really has been the major problem leading to this significant cost increase in the aircraft over its lifespan.

Representative CONABLE. You have already mentioned the inflationary aspect of this. Would you care to tell me as a result of our bad experiences on this how you can give greater consideration to technical risk as such in future contract awards? How can we avoid this kind of technical risk repeating itself in severe cost overruns in the future? Is there some way other than by reducing the probability of concurrency?

CONCURRENCY AND MILESTONE CONTRACTING

Mr. WHITTAKER. Well, Mr. Conable, that latter point is a very significant one. One of the major changes that is very hard to see, but I believe will be felt over the future, has occurred in the Air Force weapon systems acquisition process. This is the matter of minimization of concurrency. The thing that we have done, that Dr. Seamans,

the Secretary of the Air Force, has done is to in effect say that although we all want the initial operational capability indeed to be held whenever we possibly can, we are not going to slavishly adhere to a date that is going to mean a significantly riskier program. We, therefore, have instituted as in the case of the F–15, a milestone kind of contract.

What milestoning does is to inject a number of stop, look, and listen points which have to be successfully passed before you can move on to the subsequent phases of the program. And this should go a long way toward insuring that at the time we actually start to cut metal and to put together the first flyable model of an aircraft, for example, we will have done our homework and we will be in a position where the likelihood of success is considerably enhanced.

Representative CONABLE. Do you think this milestoning will result, then, in the F–15 not going into the production phase before testing and evaluation has been completed? Is that the one contract the Air Force has where we can get into the same kind of trouble we have been in with the C–5A?

Mr. WHITTAKER. The F–15 is the one major systems award that has been made during this past year, Mr. Conable. The procurement approach on the F–15 is dramatically different from that on the C–5. In the first instance, we have not gone in for a total package kind of contract. We are, instead, going to develop this aircraft before we move ahead into production.

CONSEQUENCES OF CHANGING QUANTITY

Representative CONABLE. Now, one last question. With respect to a fixed price contract, do you have to renegotiate as a result of stretchouts or of reductions in the amount of the number of units purchased? In other words, is this an element which results in substantial cost overruns which could be avoided if you hewed the line on the original time schedule or the original number of units purchased? Does that result in a substantial renegotiation and the kicking in of additional cost items?

Mr. WHITTAKER. That is very definitely the case, Mr. Conable. There is an obvious cost impact of significant proportions where you have tooled up, for example, or are in midstream toward tooling up for the production rate of a quantity of x per month, and all of a sudden the decision is made to go to one-half x. You are going to have significant cost increases by virtue of that, and as you juggle your production quantities, your delivery schedules, and your dates, you have a significant cost impact.

Representative CONABLE. So, just as we are changing specifications in the contract, this does open up the whole contract to renegotiation and potential further cost overruns.

Mr. WHITTAKER. That is correct, sir.

Representative CONABLE. Thank you, Mr. Chairman.

CASH FLOW ANALYSIS

Chairman PROXMIRE. How do we know, Mr. Whittaker, until we see the cash flow statement and get a clear picture of it, how do we know that production is going to grind to a halt with only 20 planes?

The plant is there, the inventory is there, labor is there, skilled people there. As a matter of fact, the Government owns the plants. You have all the ingredients you need for protection except apparently the cash. We just do not know whether they have the ability to fund this or not. Do we not have to have this information before we can make that kind of a judgment?

Mr. WHITTAKER. Mr. Chairman, the point you make is valid, that the plant is going to be there and the people are going to be there and as I indicated earlier, whether or not it is under the same leadership and under the same management is a matter of relatively minor concern as far as we are concerned in getting the aircraft out of the plant. It does seem to me that a reading of the published statement of the corporation, would indicate that the kinds of money that are needed to keep that plant going at an expenditure level of something in the order of $50 million a month are just not available to that corporation.

Chairman PROXMIRE. Well, of course, as you said, the $200 million is one part of it. They are asking for $641 million. They are going to come in apparently for the additional $440 million promptly. So that it would seem to me, before we proceed we ought to get the information. Well, I do not want to go over that again. You said something about 20 planes. It is my understanding they will have 30 planes completed, is that right?

Mr. WHITTAKER. They will have 30 planes completed, Mr. Chairman, by the end of calendar 1970.

Chairman PROXMIRE. Calendar 1970, but even to complete those 30 planes they would need additional funds, is that right?

Mr. WHITTAKER. That is right, sir.

AIR FORCE LEGAL FUNDING OBLIGATION

Chairman PROXMIRE. How much will have been spent altogether on the total program at the time those 30 planes will have been delivered at the end of this year? Let us assume there are not any additional schedule delays in the Air Force. Let me put it this way. How much money will have been spent when the Air Force has reached its legal funding limitation as of now?

Mr. WHITTAKER. I would rather provide that for the record, Mr. Chairman. I do not have the precise figure.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

FUNDS EXPENDED

The Air Force estimates that all contractor expenditures will be about $3,665 million for the total program by the time the 30 airplanes have been delivered, near the end of Calendar Year 1970. The $3,665 million includes the RDT&E, airframe, engine and some provisioned items. The $3,665 million also includes the $344 million which has been requested in the FY 71 budget.

Within the $3,665 million, it is estimated that Lockheed will have an expenditure of $2,743 million for the airframe and provisioned items. It is also estimated that the Air Force will have paid Lockheed $2,643 million by the end of the year. It should be noted that the Lockheed contract legal funding limitation, through the end of the program, is $2,906 million. This consists of $2,516 million for the airframe portion plus $390 million which is the estimated ceiling for provisioned items, such as initial spares, base and depot aerospace ground equipment.

SRAM Cost Breakdown

Chairman Proxmire. It seems to me that information should be available, Mr. Whittaker. At any rate, you will supply that for the record. You also supplied us with a summary of cost breakout of the SRAM missile program. Boeing is the prime contractor. Here, too, we have a very substantial cost over-run from the Government's original price negotiation memorandum of $143 million to the current estimate at the completion of $409 million. That is from $143 million to $409 million. Again, the direct labor costs have skyrocketed from $29.4 million to $120.6 million. How do you explain this? To what extent was it caused by wage rate increases and by what extent adding men to the payroll in that case of the SRAM?

(The SRAM cost information provided by Mr. Whittaker follows:)

April 21, 1970.

Hon. William Proxmire,
Chairman, Subcommittee on Economy in Government,
Joint Economic Committee, U.S. Senate.

Dear Mr. Chairman: This refers to your letter of March 19, 1970.

Attachment 1 is the cost data that your requested for the SRAM. This data is based on the current SRAM contract, which is for RDT&E only. Also attached is a copy of the current portions of the SRAM contract and the negotiated supplemental agreements that have affected costs. As you may recall, the contract originally also contained production options which have lapsed and no longer apply.

Information on the C–119 and C–5 programs is being forwarded under separate cover.

Sincerely,

Philip N. Whittaker,
Assistant Secretary of the Air Force (Installations and Logistics).

COST DATA ON CURRENT R.D.T. & E. CONTRACT FOR SRAM WITH THE BOEING CO.

[In millions of dollars]

	Government preliminary estimate (A)	Contractor's original price proposal (B)	Government original price negotiation memorandum (C)	Government current estimate at completion (D)
Direct labor:				
Engineering		24.07	24.07	[3] 74.34
Manufacturing		3.20	3.20	34.64
Other		2.13	2.13	11.64
Total, direct labor		29.40	29.40	120.62
Material and purchases parts		9.42	9.42	29.97
Subcontracts		29.85	29.85	76.40
Overhead		24.18	24.18	88.75
Other costs [1]		26.03	26.03	25.12
General and administrative		11.36	11.36	56.04
Total cost		130.24	130.24	396.90
Fee or profit		13.02	13.02	12.14
Total price	[2] 161.6	143.26	143.26	409.04

[1] Other costs include test at remote bases and spares.
[2] The requested breakout by cost category of the Government's preliminary estimate is not available, since this type of breakout is not reflected in the initial Government estimate.

Note: Dates: Col. A, October 1964; Col. B, October 1966; Col. C, October 1966; Col. D, December 1969.

Mr. Whittaker. I would like to ask General Glasser to respond to that, sir.

Chairman Proxmire. General Glasser?

DIRECT LABOR COSTS

General GLASSER. Mr. Chairman, I believe there are two principal causes for the increase in the direct labor hours and they are attributable indirectly to the overall cost growth of the program. First of all, we have an increased quantity of missiles and, as you already know, we had considerable difficulties with the development of this program which caused us to stretch out and to take alternate courses of action that had not been contemplated in the original.

Chairman PROXMIRE. General, as I understand it, this is an R. & D. program. I cannot see how the quantity would enter into the increase in cost.

General GLASSER. I was referring to the overall cost of the program, the number of missiles contemplated in the production.

Chairman PROXMIRE. I was referring to the R. & D. part.

General GLASSER. In the R. & D. portion only, the increase is limited to the changes that developed in the program as a consequence of the difficulties that were encountered.

Chairman PROXMIRE. You say it is entirely the result of changes? Have you conducted any studies of labor productivity in this case?

General GLASSER. No.

Chairman PROXMIRE. Efficiency of the Boeing employees?

General GLASSER. Of course, those are included in what I have been referring to as the causative factor. Now, we have not conducted studies of the variety that you described for the same reason that Secretary Whittaker mentioned in relationship to the C–5's. This, again, is a total package procurement with disengagement being practiced by the Air Force.

CHANGE ORDERS

Chairman PROXMIRE. Can you tell us what some of the changes were that caused this great increase? So often we find the changes are initiated by the contractor and degrade the performance rather than enhance it. Are these all changes that would enhance the performance of the missile?

General GLASSER. No, unfortunately, they are not. Some of the changes that are involved are the result of the unspecified interfaces that existed at the time the program was started.

Chairman PROXMIRE. The missile is not any better but it costs more money.

General GLASSER. Unfortunately, that is the case.

INDIRECT COSTS

Chairman PROXMIRE. Let me ask, as with the C–5A, the indirect costs for SRAM have really gone through the roof. Overhead went from $24.18 million to $88.75 million. G. & A. went from $11.36 million to $45.04 million. Again, how do you explain the huge increases in overhead and G. & A. costs? Is this related to the increase in labor?

General GLASSER. There will inevitably be the increases in costs of labor and of all of the other costs that go to make it up, but predominantly it is because of more work being done. It is a longer program. There were troubles encountered, and so the number of hours

expended were increased. This is a composite, an increased number of hours being expended at higher rates than contemplated.

Chairman PROXMIRE. We just had testimony from one of the most competent comptrollers of the Defense Department, Mr. Robert Anthony, a man I think all of us respect and he told us that overhead should not go up anything like the proportion that labor goes up under these circumstances. This was his firm testimony and his judgment from years of experience in the Defense Department and, of course, as a distinguished scholar and expert concerned.

General GLASSER. I would like to agree with Mr. Anthony. That is a generally correct statement. It is not a correct statement, however, when the program stretches out and you incur the overhead at the same rate for a longer period of time.

BOEING MANAGEMENT COMPENSATION

Chairman PROXMIRE. Can you provide us in this case for the record, Mr. Whittaker, the salaries of Boeing's top management, including bonuses, stock options and other benefits, a list of company limousines, company airplanes, et cetera, for the last 5 years?

Mr. WHITTAKER. As I indicated before, Mr. Chairman, I do not believe we have access to this data. But I will be glad to see if we can.

(The following information was subsequently supplied for the record by Mr. Whittaker:)

BOEING MANAGEMENT COMPENSATION

SALARIES AND MANAGEMENT INCENTIVE

Name and title	Paid salary	Deferred salary [1]	Stock option
1965:			
W. M. Allen, president	$99,600	$62,300	4,392
L. P. Mickelwait, vice president	73,200	(2)	(2)
J. E. Prince, vice president	52,200	35,000	(2)
E. C. Wells, vice president	77,100	36,000	2,631
J. O. Yeasting, vice president	89,900	18,000	1,000
1966:			
W. M. Allen, president	99,985	74,989	(2)
H. W. Haynes, vice president	80,609	(2)	750
L. P. Mickelwait, vice president	82,985	(2)	(2)
J. E. Prince, vice president	54,993	42,998	(2)
E. C. Wells, vice president	79,989	42,000	(2)
T. W. Wilson, vice president	82,571	(2)	714
J. O. Yeasting, vice president	82,297	42,000	2,836
1967:			
W. M. Allen, president	115,540	75,000	6,336
H. W. Haynes, vice president	87,160	(2)	750
L. P. Mickelwait, vice president	76,160	(2)	2,000
J. E. Prince, vice president	56,160	30,000	4,218
E. C. Wells, vice president	82,310	33,500	3,714
J. O. Yeasting, vice president	85,000	31,000	3,442
T. W. Wilson, vice president	109,620	29,820	1,056
1968:			
W. M. Allen, president and chairman	124,080	74,430	(2)
H. W. Haynes, vice president	91,830	(2)	(2)
L. P. Mickelwait, vice president	75,720	(2)	(2)
J. E. Prince, vice president	58,220	34,920	(2)
E. C. Wells, vice president	86,670	30,000	(2)
T. W. Wilson, vice president and president	130,830	(2)	(2)
J. O. Yeasting, vice president	86,670	30,000	(2)

See footnotes at end of table.

SALARIES AND MANAGEMENT INCENTIVE—Continued

Name and title	Paid salary	Deferred salary [1]	Stock option
1969:			
W. M. Allen, chairman	$141,750	40,220	(2)
H. W. Haynes, vice president	97,310	(2)	(2)
L. P. Mickelwait, vice president	86,060	(2)	(2)
J. E. Prince, vice president	70,300	29,600	(2)
E. C. Wells, vice president	76,080	30,000	(2)
T. A. Wilson, president	180,450	(2)	750
J. O. Yeasting, vice president	72,640	30,000	(2)

[1] Deferred compensation under an agreement with the company. Additionally, company officers (but not outside directors) participate in regular benefits plans available to all salaried employees for life and health insurance, sick leave, vacations, holidays, voluntary savings, financial security and employee retirement under the same terms and conditions generally available to all employees participating. The only "special" arrangement is for Mr. Mickelwait. Because when he joined the company he was over 55 he could not participate in the retirement plan but will receive the sum of $1,500 per year for 10 years following the end of his company service for each full year of company service prior to terminating his employment.
[2] None.

AUTOMOBILE TRANSPORTATION

No limousines are provided by the company for the exclusive personal use of any officer or employee.

COMPANY OWNED AND OPERATED AIRCRAFT

All aircraft owned by the company are either held for sale or used for test, training or demonstration flights. None are available for the personal use of any company officer, nor are any available or regularly used to transport passengers or company on personal business or in competition with regularly scheduled airlines.

Difficulty of Separating Government and Commercial Overhead Expenses

Chairman Proxmire. How can we be assured that Boeing has not charged off engineering and other costs associated with its commercial programs to overhead and G. & A., therefore shifting part of the costs of its military contracts to the taxpayers that should be borne by the commercial end?

General Glasser. I think I would like to comment on that, in part, Mr. Chairman. In calculating the overhead rates that should be charged, they are arrived at by looking at the work throughout the plant that is being done on the various contracts. Any particular contract shares in that overhead pool on the basis of its participation in the use of the direct labor force. Certain unusual portions are screened out as being just clearly not applicable at all as a general pool. So that, although it is difficult to precisely allocate all of these, generally speaking, one is reasonably secure in not having the overhead accounts distributed across contracts that should not be bearing overhead.

Chairman Proxmire. Admiral Rickover testified to us very, very vigorously that the lack of uniform cost accounting standards makes it very, very difficult to enforce, that if we had uniform cost accounting standards in his judgment we would save $2 billion a year. Is it not true in this case it is hard for the Air Force or Navy or any other branch of the service to be sure that overhead is allocated squarely and fairly, lacking that kind of discipline?

General Glasser. Well, I would make two comments on it. First of all, I would agree in general with Admiral Rickover but, certainly, without having the ability to estimate the $2 billion. I do not know

what the number is but cost accounting would provide an assist. In the case of the Boeing Co., our ability to segregate costs of this sort is at least facilitated by the fact that their commercial business is done in a different division, so that to a major degree they are automatically segregated.

Chairman PROXMIRE. How about G&A?

General GLASSER. Certainly, G&A does go across a company at large.

Chairman PROXMIRE. Well, Mr. Whittaker and gentlemen, I want to thank you very, very much for your helpful testimony and again I do not mean to suggest by the tone of my questions I have any lack of respect or admiration for the hard job you are doing. It is a difficult job, I know, Mr. Whittaker, and I want to thank you very, very much.

(The following information was subsequently supplied for the record:)

FEBRUARY 27, 1970.

Hon. PHILIP N. WHITTAKER,
Assistant Secretary of the Air Force (Installations and Logistics), The Pentagon, Washington, D.C.

DEAR MR. WHITTAKER: I am informed that in the current negotiations between the Air Force and Lockheed over the C–5A cost overruns and other matters relating to the C–5A contract, the possibility of Lockheed's declaring bankruptcy has been raised. It is my understanding that Lockheed is using this possibility as a way to induce the Air Force to bail it out of the enormous potential financial difficulty as a result of their poor performance on the C–5.

I would hope that the Air Force will enforce the terms of the contract and not waive any more rights than it has already waived during these negotiations. As you know, there is a provision of the law which permits the Government to bail out a contractor if it is in the national interest to do so. I urge you to follow these procedures if it is necessary to bail out the contractor, and to do it openly and with full public disclosure. In my judgment, the public interest would be seriously damaged if the Air Force submits to any threats by this contractor, express or implied, to go out of business. I think it vital that our Government avoid even an appearance of playing to lose in its current dealings with Lockheed.

In addition, I would like to know the status of the technical difficulties in the C–5A and the latest estimates of schedule slippages and program costs.

May I please hear from you on these matters?

Sincerely,

WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government.

DEPARTMENT OF THE AIR FORCE,
Washington, D.C., March 4, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government, Joint Economic Committee, U.S. Senate.

DEAR MR. CHAIRMAN: I very much appreciate your thoughtful letter of February 27, 1970, which, incidentally, was received by me late yesterday.

You comment on information you have received concerning the possibility of Lockheed declaring bankruptcy as a eans of inducing the Air Force to bail it out of its C–5A difficulties. I am not aware of any such action being threatened or contemplated by Lockheed.

We are working diligently to reach a resolution of the contractual and financial issues and to bring the C–5A program along as successfully as possible throughout the rest of its performance period. We are, of course, aware of Public Law 85–804 and want to assure you that, should any use of this statute appear appropriate, we would employ this approach openly and with full disclosure. I would also like to emphasize that the courses of action we take will be determined solely in the light of the best interests of the Government.

As you requested, I will be providing you with the technical status, the latest schedule information and program cost estimates within the next several days.

Sincerely,

PHILIP N. WHITTAKER.

LOCKHEED AIRCRAFT CORPORATION,
Burbank, Calif., March 2, 1970.

HON. DAVID PACKARD,
Deputy Secretary of Defense,
The Pentagon, Washington, D.C.

DEAR MR. SECRETARY: We have completed a review of the current status of a number of our major Department of Defense programs in connection with which our corporation has filed claims or has been compelled into contractual disputes with the military services. It has become abundantly clear to us that the unprecedented dollar magnitude of the differences to be resolved between Lockheed and the military services make it financially impossible for Lockheed to complete performance of these programs if we must await the outcome of litigation before receiving further financing from the Department of Defense. We consider it imperative that some alternate method of resolution of these differences be immediately and seriously pursued in order to avert impairment of the continued performance of programs essential to the national defense.

We realize that the military services normally expected their contracts to continue performance, including financing, pending administrative review and resolution of any disputable matter. In the present instances, however, the cumulative impact of the disagreements on four programs creates a critical financial problem which cannot be supported out of our current and projected assets and income. We have intensified our cost reduction efforts, have eliminated dividends to our stockholders, have reduced drastically our planned expenditures for fixed assets, and intend to reduce our overhead costs and cut discretionary outlays in all other possible areas. We also intend to continue pursuit of all possibilities of financing from the private sector. Despite these efforts, we must state that we cannot maintain uninterrupted performance on these programs without receiving significant financing assistance from the Department of Defense. Also, in absolute candor, we do not consider that Lockheed, even if it were capable of so doing, should be expected alone to sustain for an indefinite period the financial burden while awaiting the outcome of litigation resulting largely drastic innovations in procurement procedures utilized by the military services.

However, if absolutely necessary the parties may be forced to have their major disagreements involved in these programs settled through litigation. Indeed our obligations to our stockholders will require us to take this course of action if the only settlement proposals which can be evolved would ruinously deplete our corporate resources. Moreover, it should be recognized that contractual disagreements of such enormous magnitude represent a breakdown in the procurement processes.

Without disregarding our own deficiencies, the common ingredient in three of the four programs which cause our present difficulty, namely, the C–5A, the SRAM, and the AH–56, is the fact that under the Total Package Procurement procedure development was required to be undertaken under a fixed price type contract with concurrent production commitments with respect to price, schedule, and performance. Although it was assumed that state-of-the-art advances were not required in these programs, it is generally admitted that these assumptions were incorrect. Although industry generally, including our company, perhaps erred in competing for contracts under this system, the system itself and its use were the responsibility of the military departments.

We believe that the hindsight of today shows us that the procurement procedure utilized for these programs was imprudent and adverse to our respective interests. We did not contemplate, nor do we believe anyone in the Department of Defense ever contemplated, that these contracts could generate differences of opinion involving such vast monetary amounts as, for example, exist on the C–5A program. Nor did either party appreciate the major hazards involved in undertaking production on the Cheyenne program before technical problems on the development program had been solved. Considering that these problems were known to the Army at the time the letter contract for production was issued in January 1968, and that the parties subsequently had been unable to reach agreement on a definitive contract, the unprecedented action of terminating this letter contract under a fixed price default clause is difficult to understand.

Despite the growing awareness that the total package method utilized in these programs is virtually unworkable, there seems to be little disposition to correct existing contracts on terms which most contractors can accept or to recognize that litigation is a seriously inadequate avenue. Even on the shipyard contracts where the total package concept was not involved, the fact the bulk of the ship-

building industry has encountered grave trouble as indicated by the more than a billion dollars in contract claims suggests that the system, rather than solely individual deficiencies, was a major contributor to the problem.

Apart from the disastrous potential for our own company and its effect on Department of Defense programs, litigation of these problems may well have grave consequences on the Department of Defense's ability to secure the industrial support which it traditionally has required, regardless of who ultimately wins. With this in mind, whatever steps may be taken to alleviate our immediate financial problems I wish to urge that the way be left open to negotiate settlements which are within the ability of the corporation to absorb.

Although I know you are generally familiar with the aforementioned programs, I would like briefly to recapitulate the critical financial problems they cause and to urge interim financing actions which should be taken immediately to avoid impairment of continued performance.

C–5A

On January 19, 1970, our appeal from the Contracting Officer's decision concerning the C–5A contract dispute was docketed by the ASBCA and our complaint has been filed. All parties are cooperating toward the earliest possible resolution of these issues by the Board, but most optimistically it would appear this cannot be accomplished before late 1971.

In addition, there is a distinct possibility that the decision of the Board may be appealed to the Court of Claims, and consequently a final decision may not be made until 1973 or 1974. The Air Force has indicated it will not provide funds for this contract which will exceed the estimated contract price as the Air Force interprets this contract. Under these conditions, the Air Force funding would at best be adequate only until near the end of this year. However, in order to complete the delivery of 81 aircraft and related items during 1971 and 1972 an additional $435 million to $500 million will be required to cover production expenditures. Lockheed cannot provide such funding and believes the Air Force should advance the necessary funds pending the outcome of the litigation. This could be accomplished by an amendment to the current contract which could contain appropriate safeguards for both parties with respect to preserving their rights in litigation.

Shipyard claims

At the present time, the Lockheed Shipbuilding and Construction Company has performed, or is performing, on 9 contracts for several classes of new ships. More than $175 million of contractual adjustment claims have been presented to the Navy to date. As of December 29, 1969, amounts expended by Lockheed on these claims exceed $100 million and are expected to continue at a rate of $3 to $4 million per month. These claims have been under consideration for many months with provisional payments of only $14 million made to date.

We believe the solution to this problem lies in an immediate increase in provisional payments to an aggregate of $85 million. We understand the Department of the Navy plans to settle the majority of these claims during the last three months of 1970 which should permit the payment of the balance of the amounts due Lockheed Shipbuilding and Construction Company by the end of this year. Should there be any delay in the Navy's present schedule an additional amount of provisional payments would be required. Immediately increasing provisional payments to $85 million would substantially ease the financial burden at the Shipbuilding Company and permit continued work toward the completion of the DE 1052 and LPD class ships now in process. In addition, arrangements can be made which will not impair the rights of either Lockheed Shipbuilding and Construction Company or the Navy with respect to negotiation and final settlement of these claims.

AH–56A, phase III

On May 19, 1969, the Army Contracting Officer issued a final decision terminating this letter contract for default. Lockheed's appeal from this decision was made to the ASBCA on May 22, 1969, and both Lockheed and the Army proceeding in accordance with the rules of the Board. It is unlikely that the Board will hear this case before midyear and that a final decision can be made before the first quarter of 1971. As of the end of 1969, total costs incurred by Lockheed (both prior and subsequent to the Contracting Officer's decision) amount to approximately $89 million. Prior to the Contracting Officer's decision the Army had made progress payments amounting to $53.8 million. We have reached an agreement with the Army under which these progress payments may be retained by us pending a decision by the ASBCA. However, during the early part of 1970, costs

incurred may reach a total of some $110 million requiring a total cost participation by Lockheed of some $60 to $65 million which may be increased by the necessity of payment by Lockheed to subcontractors of additional amounts. We suggest that the Army increase the amount of progress payments to a minimum of 90% of the costs incurred, and continue such payments until resolution of this case by the Board of Contract Appeals or the Court of Claims. The same agreement under which Lockheed is currently retaining the $53.8 million or progress payments could apply to these additional provisional payments.

SRAM

The Lockheed Propulsion Company is the propulsion system subcontractor to the Boeing Company under its prime contract with the Air Force for DDT&E of the Short Range Attack Missile (AGM-69A). On December 29, 1969, Lockheed Propulsion Company and the Boeing Company presented a Contract Adjustment Claim to the Air Force under Contract AF 33(657)-16584 in the amount of $50 million. At the present time, Lockheed Propulsion Company is continuing its performance of its subcontract and has incurred costs approximating $30 million in excess of the $16.9 million received to date. Continued performance during 1970 is expected to add more than $15 million. Negotiations of the issues involved in our claim are currently being sought jointly by Lockheed Propulsion Company and Boeing with the Air Force. It is possible that most or all of the issues will become the subject of an ASBCA case in the next few months. We believe that a provisional payment to Lockheed Propulsion Company of $25 million should be authorized under the Boeing prime contract pending final resolution of the issues. As is the case with the AH-56A and the C-5 programs, suitable arrangements protecting the rights of both parties could be arranged.

In summary, in the absence of prompt negotiated settlements there is a critical need for interim financing to avert impairment of continued performance. We urgently solicit the assistance of the Department of Defense in providing such financing.

Very truly yours,

D. J. HOUGHTON,
Chairman of the Board.

F-111 AND FB-111 COST INFORMATION PROVIDED BY THE AIR FORCE

DEPARTMENT OF THE AIR FORCE,
OFFICE OF THE SECRETARY,
Washington, June 17, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
The Joint Economic Committee,
Congress of the United States.

DEAR MR. CHAIRMAN: This refers to your letter dated April 29, 1970, and answers that portion concerning the F-111 Program. It should be noted that this cost data pertains only to the General Dynamics portion of the F-111 Program.

As in the case of the C-5, it is not possible to provide you a complete functional breakout in the categories you requested for the Air Force's periodic estimates of the total program. However, we have provided you with the production oriented breakout used in these estimates.

Program cost growth is attributed to technical capability improvements, configuration changes, added requirements, quantity reductions, schedule stretchouts, terminations/cancellations, corrections of deficiencies, abnormal economic escalation, and underestimates.

Since 1966, the F-111 System Program Office has been using a computer model for estimating costs. The mathematical cost model was developed from an independent cost sutdy which was directed in December 1965 by the Deputy Secretary of Defense. The baseline data for the study and the model was actual contractor incurred cost. The model is capable of handling eight aircraft configurations and an unlimited number of cost components. Since its inception, the cost model has been updated on a continuing basis as changes to the baseline date, i.e., actual incurred cost, configuration mix, schedules, etc., have indicated the need.

I trust this information is responsive to your request.

Sincerely,

PHILIP N. WHITTAKER,
Assistant Secretary of the Air Force (Installations and Logistics).

Attachment.

USAF F/FB-111 PROGRAM COST ESTIMATES

[Dollars in millions]

	Contract definition plan (November 1963)	Fiscal year 1967 budget formulation (November–December 1965) [1]	Fiscal year 1971 budget formulation (November–December 1969)
R.D.T. & E.:			
Quantity	18	18	18
USAF/OSD program, estimate for R.D.T. & E.	$863.0	$1,169.0	[2] $1,847.5
Production:			
Quantity	1,370	984	529
Prime contractor air vehicle estimate:		[3]	
Labor	$252.2	$311.3	$408.5
Material	410.0	473.5	456.4
Subcontractor	1,277.8	2,013.5	2,062.2
Overhead	335.1	511.5	609.2
Profit	204.8	295.0	208.7
Total	2,479.9	3,604.8	3,745.0
USAF/OSD program estimate:			
Air vehicle	2,846.1	4,129.2	3,579.9
Engines	961.5	870.3	817.2
Support	273.5	530.7	577.1
Initial spares	561.4	542.0	616.6
Total production	4,642.5	6,072.2	5,590.8
Military construction	[4]	56.7	28.4
Total program	5,505.5	7,297.9	7,466.7
program unit cost	3.97	7.28	13.65

[1] Represents the point in time when the FB-111 becomes part of the program and was included in program estimates.
[2] The $27,900,000 expended on the currently postponed RF-111 R.D.T. & E. program is not included.
[3] Contractor air vehicle estimate based on a quantity of 978.
[4] Military construction estimate not considered.

Note.—The difference between the contractor's and the Government's air vehicle production estimate in the earlier years are due to: (1) the Government's knowledge and estimates of added tasks which are not included by the contractor, (2) the added cost of Government-furnished equipment not included by the contractor, and (3) the difference in the quantity of vehicles in the 1965 estimates.

In the fiscal year 1971 budget formulation the air vehicle production estimate is higher for the contractor than for the government because the contractor's estimate contains: (1) his prenegotiation position for the follow-on contract, (2) undefinitized changes in the current contract, and (3) subcontractor increases for corrections of deficiencies which the Government believes to be beyond the subcontract ceiling price.

Chairman PROXMIRE. Our next witness is the Honorable Frank Sanders, Assistant Secretary of the Navy for Installations and Logistics. Mr. Sanders, we are very happy to have you with us this morning.

Mr. Sanders, we did not get your prepared statement until this morning. I know it was delivered late last night. Our staff was here until after 6 o'clock and, as a result, the staff has not had a chance to analyze the prepared statement that they would like to have had. But I hope that you can put it in the record, summarize the prepared statement and we can proceed as quickly as possible.

I apologize for detaining you so long. As you know, this Air Force Lockheed matter is one which has concerned the committee for some time and we thought we had to go into some detail on it.

Go right ahead, Mr. Secretary.

STATEMENT OF FRANK SANDERS, ASSISTANT SECRETARY OF THE NAVY, INSTALLATIONS AND LOGISTICS, ACCOMPANIED BY ROBERT A. FROSCH, ASSISTANT SECRETARY OF THE NAVY, RESEARCH AND DEVELOPMENT; REAR ADM. T. J. WALKER, COMMANDER, NAVAL AIR SYSTEMS COMMAND; REAR ADM. N. SONENSHEIN, COMMANDER, NAVAL SHIPS SYSTEM COMMAND; AND CAPT. R. G. FREEMAN III, DIRECTOR, PROCUREMENT AND PRODUCTION, NAVAL MATERIEL COMMAND

Mr. SANDERS. Mr. Chairman, it is a pleasure to be back in front of you again, sir. I recall our meeting last New Year's Eve, I believe it was, sir, when we attempted to outline the Navy acquisition cycle.

My prepared statement today is geared as a follow-on, in effect, to that. We will not attempt to try to duplicate anything we did before.

I would like to just state briefly the factors that we see causing cost growth and cite some of the things, as specifically as I can, that we have done to meet some of these problems.

With your permission, I will kind of blueline this prepared statement and I think I can be through in 5 minutes.

Chairman PROXMIRE. Fine, and the full prepared statement will be printed in its entirety in the record.

Mr. SANDERS. Thank you, sir.

Chairman PROXMIRE. Will you identify the distinguished gentlemen with you?

Mr. SANDERS. Sorry, sir. On my left, sir, Dr. Robert Frosch, Assistant Secretary of the Navy for Research and Development with whom I think you are familiar. On his left Admiral Sonenshein, Commander, Naval Ships System Command. On my right, Captain Freeman, Naval Materiel Command, Director of Procurement and Production, and on Captain Freeman's right, Admiral Walker, Commander of the Naval Air Systems Command, sir.

I would propose as we move into these areas, Mr. Chairman, to refer questions and utilize the talents of these gentlemen to give you as much detail as we possibly can.

In addressing what we see as major factors I would point out our action on the bottom of the first page of the prepared statement in configuration management, change controls, certain claim controls clauses we have initiated in the Navy, our risk analysis efforts and techniques, cost estimating, and our recent efforts in applying "should" costs.

CAUSES OF COST GROWTH

On the next page of the prepared statement, sir, regarding the causative factors of cost growth there is no single primary cause of such growth. We summarize the major causes by saying changes in numbers, changes in performance requirements, and characteristics, of course, the ever-present cost and price escalation and disruptive technical difficulties unforeseen in the early stages of program formulation and associated early cost estimates. At the bottom of the page, in the area of configuration and change control, two new military standards have been issued by the Department of Defense. They have been fully implemented by the Navy. In general, they require full analysis

of the impact of individual changes being proposed, including the impact of such changes to the logistic support of the systems being required. The main intent is to eliminate proposed marginal changes before they are submitted for comprehensive evaluation. The Navy is concentrating on instituting formal configuration management systems on our major acquisition programs and we have done so in the case of the F–14, S–3A and the LHA. We are proposing them on the upcoming DD–963 and DXGN ship programs.

Change Orders

Moving to the bottom of the next page of the prepared statement, our major acquisition contracts, clauses related to price thresholds on changes have been and are being incorporated. These tend to discourage the number of change orders as well as associated cost growth. In addition, the Navy has recently published seven new clauses which are intended to significantly minimize contractor claims against the Government, one of which is, where feasible, to require formal pricing of changes before they are issued. And at the bottom of the following page, the achievement of a stabilized configuration prior to entering into production as a positive means of reducing changes and minimizing the resulting cost growth.

Parallel and Prototype Development

In my previous testimony before this committee I stated the Department of Defense policy was to pursue parallel and prototype development on the systems, subsystems, and components, as one means of addressing high-risk areas We are attempting to identify in the very early stages of the acquisition process, those items which clearly lend themselves to parallel and prototype development and to include in early program cost estimates those necessary additional funds. Certainly, this kind of technique forms a very valuable tool in pursuing our technical risk analysis of complex systems.

At the bottom of the next page, sir, in our early reviews of proposed acquisition we are giving particular attention to the identification of high-risk Government-furnished equipment.

Milestone Contracting

On the next page, we are actively pursuing milestone contracting as well as increasing contract effectability and identifying fallback positions where items which are beyond the state of the art begin to threaten schedule deliveries and occasion increased costs.

The milestone technique will greatly assist us in carefully measuring and controlling potential cost growths before proceeding with contractual actions with potential for such growths.

We are, at the bottom of the page, making concerted efforts to improve our cost estimating capability.

On the following page, sir, to help insure that the necessary definition is achieved in cost estimates of ships, we have developed a system of estimate classification which provides Navy management with a "level of confidence" categorization of each program estimate. The classification is prepared by the cost estimator and forwarded

via the ship acquisition project manager for inclusion in the budget. In those cases where an estimate is less than budget quality the estimator provides to the project manager the reasons why this is so and indicates where ship definition must be improved to permit preparation of an estimate of budget quality.

In reference to GFE, we now evaluate the technical risks involved in each program and their cost implications. To implement these new procedures, the Navy has increased the ship construction cost estimating and analysis staff. In addition there are a number of other professionals who furnish estimates for GFE components and who collate entire program costs.

"Should Cost"

At the bottom of the page, a subject which I think is near to our heart, sir, the concept of "should cost." Perhaps the most obvious observation that can be made regarding this concept is that it has a different meaning to different people. We view the full scope of the "should cost" concept as that embodied in the Pratt & Whitney "should cost" study for the TF–30 engine. It involves a review of direct labor standards, indirect costs, cost allocation procedures, plant utilization and layout, "make" or "buy" programs, and purchase procedures and practices.

MK–48 Program

Skipping to the middle of the page, I am happy to report that we are now planning a two-phase "should cost" study of the MK–48 program. The first phase of our program will essentially be a review of costs associated with the initial and sustaining production contracts with the objective of identifying potential production efficiencies. Our team will be made up of Department of Defense personnel supported by outside consultants. This team will consist of industrial engineers, production management experts, and cost analysts.

The second phase will be an extension of the first with emphasis on the production and industrial engineering relating to the existing torpedo design. We currently plan to engage an industrial engineering consultant with recognized expertise to work with the two contractors, Westinghouse and Clevite, on this study.

During this phase we also plan to pursue value engineering that can be phased into future production to reduce costs.

In summary, we intend to conduct a parallel study of the MK 48 program with both Westinghouse and Clevite to achieve maximum efficiency for both contractors. The results should be a more effective competition following the parallel development.

Commercial Shipyards

As you are aware, one of our major areas of concern has been the desire for maximum efficiency in our major commercial shipyards. We are currently conducting a series of procurement, management, and cost control reviews of the operation of two of our major commercial shipbuilders. Although they cannot be clearly identified as "should cost studies" in the terms of the definition given to you, they are addressing similar areas, using similar techniques, and are producing

specific Navy recommendations which when fully implemented should result in increased efficiencies and reduced costs.

For example, we are examining shipbuilders' estimating systems, purchasing systems, storage and materiel handling systems, data processing systems, budgeting procedures, and cost accounting systems. Needless to say, with Dr. Fox, we are carefully monitoring his activities ties in the "should cost" area in the Army.

Performance Measurement

Another area which has received our attention is the type of contract we employ. Of course, the ASPR provides, as you know, all contract types needed for prudent contracting. What is required is the flexibility to use experience and good judgment in tailoring the contractual structure to the procurement situation. Once the contractor commences performance, of course, as you have stated, we need timely information. The implementation of DOD instruction 7000.2 requires the contractor to install a cost schedule and control system which will provide him with variance reporting to planned cost schedules and technical aspects of the contract. Currently this system is being applied on a test basis to three major acquisitions in the Navy, the F–14, S–3, and Aegis missile program. A modified version is included in the LHA contract. The performance measurement data generated for the purpose of assuring that the contractor has control of his program is now being used in a promising new NAVAIR Management Information System called PROMPT, an acronym for project reporting organization and management planning techniques. It is now being employed on both the F–14 and S–3 contracts.

Development Concept Paper

Skipping over seven pages, briefly, sir, we discussed earlier the development concept paper utilized by the Department of Defense and top Navy management as the document giving formal approval to commence contract definition. It identifies the various alternative involved, related risks, and alternative methods selected to meet those risks. It also establishes cost, schedule and performance thresholds. Actually, this document in practice—since I was last before you, I can speak with some authority—is acting as one of the principal documents utilized by OSD to not only monitor any significant program changes but also acts as a program review vehicle. The DSARC, or Defense System Acquisition Review Council, is a top management review group that you know reviews the progress and plans of major programs at three critical milestones during the acquisition cycle, commencement of the contract definition, commencement of engineering development, and the point of entry into production. We have already realized the fruits of such review. Very closely associated with the DSARC is a formal management review held at OSD level, the specific purpose of which is to assure that the Project Management Office is properly constituted, staffed, and has the necessary controls to implement a successful program.

We can have all the information, procedures, techniques, and controls you can think of and yet without dedicated, properly qualified people participating, our total weapons system acquisition effort

would probably not be good. We recognize this fact. We have attempted in the Navy to take major steps within our means to address this area. We have, as you are aware, implemented the DOD-wide career program for civilian and military procurement personnel. We have also supplemented this to a large extent.

Procurement Career Program

For example, a full-time Navy procurement fellowship program was established last year at George Washington University for 10 civilian procurement personnel enrolled in a master's degree program. It is hoped to expand this input to 15 in the fall of this year.

In addition to civilian career input, the officer graduate education program has been expanded with six officers enrolled at the University of Michigan and seven at George Washington. To determine causes for our high turnover rate in GS-5 through GS-9 procurement personnel, a system of exit interviews and analysis has been established. We have also designated procurement career counselors in our major procurement activities to follow up our training programs, monitor training needs, identify high potential employees for rapid advancement, and aid in recruiting high quality people.

Supplementing this effort we have applied a revised employee appraisal system to assist in this qualitative analysis. We have provided for and secured approximately 103 procurement trainees from college sources during fiscal year 1969. In fiscal year 1970 we are endeavoring to insure an input of one trainee for each 10 to 20 professionals now on board. The junior officer input into procurement billets has increased by 38. These officers are receiving basic formal training in the procurement school at Fort Lee prior to their assignment. We have just completed a detailed study of personnel management encompassing the full scope of weapons systems acquisition. This study is currently being reviewed and, I think, will make a major contribution to our efforts in this field. We are expanding our appropriate duty tours, formal education in and out of school, to help meet this requirement. We have established tours of duty for key personnel and project managers to at least a period of 3 years and stabilized such tours to suitable points in the acquisition and program cycle rather than by calendar year.

Enhancement of the function of Project Management is being effected and the assignment of increased authority and responsibility to project managers is being achieved.

Mr. Chairman, regarding the entire spectrum of this effort, I can assure you that we are sensitive to our needs for improvement. We feel that we have meaningful programs in being. We will continue to devote top management attention to this area.

I have attempted briefly to delineate for you today some of the specific things we are doing to address the many risks inherent in our program of advanced weapons systems acquisition and the management of such program.

(The prepared statement of Mr. Sanders follows:)

PREPARED STATEMENT OF FRANK SANDERS

Mr. Chairman and members of the committee: I am pleased to have the opportunity to again appear before this subcommittee. We of the Navy have been

striving to identify and address our weapons acquisition problem as quickly as possible. The nature of this matter does not lend itself to quick remedies and immediate results. However, I am sure you realize the attention of the highest officials of the Department of Defense is, and has been, focusing on this matter.

I appreciate this opportunity to discuss with you problems associated with the actions we are taking in our weapons systems acquisition programs. I do not intend to review the entire acquisition cycle. I did this in my statement before this subcommittee last December. I do intend to first, very briefly, summarize the causative factors for cost growth with which I am sure you are already quite familiar, and then cite what we have been and are doing to address these factors. In doing the latter I will specifically address the following areas: configuration management and change control, certain claims control clauses we have initiated in the Navy, our risk analysis efforts and techniques, cost estimating, and our recent efforts in applying Should Cost. Further, I will touch upon our management information and control efforts, the high level reviews we are applying to our major programs and, in conclusion I would like to explain to you some of the things we are doing in the very important area of personnel.

Regardless the causative factors of cost growth there is no single primary cause for such growth. To summarize the major causes I would have to cite: changes in numbers, performance requirements and characteristics of systems, escalation in the economy, and disruptive technical difficulties unforeseen in the early stages of program formulation and the associated early cost estimates. I believe you will find that this one sentence summarizes most of the significant elements that have contributed to our major program cost growths.

I would now like to discuss what we are doing in addressing these causative factors.

In the area of configuration and change control, two new military standards (MIL-STD-480/481) have been issued by the Department of Defense to formalize policies and direct the necessary attention on the related management procedures. In general, they require full analysis of the impact of individual changes being proposed—including impact of such changes to logistics support of the systems being acquired. The main intent is to eliminate proposed marginal changes before they are submitted for comprehensive evalution. In line with these standards the Navy is concentrating on instituting formal configuration management programs in all new major acquisition programs.

Formal configuration management programs have been contractually incorporated to require full change analysis and review in the F–14, S–3A, and LHA contracts and proposed for use in the upcoming DD–963 and D–GN ship programs. In the case of shipbuilding, the ship acquisition project managers (SHAPM) now exercise direct responsibility for approval of such changes as well as the overall funding responsibilities for their programs. We feel the combination of financial and technical responsibility should do much for effective change control. Further, the Chief of Naval Operations now requires that change orders which alter military characteristics of a ship, or increase the end cost of a ship beyond the budgeted cost presented to Congress, or delay delivery of ships be referred to him for final approval.

In some of our major acquisition contracts, clauses related to "price thresholds" on changes, have been and are being incorporated. These tend to discourage the number of change orders as well as the associated cost growth. In addition to these controls and as a result of lessons painfully learned from the sizeable shipbuilding claims we have experienced, the Navy as recently published 7 new clauses which are intended to significantly minimize contractor claims against the Government.

The thrust of these clauses is to impose greater responsibility on contractors with respect to the "defective specifications" and "constructive changes", which have been the keystone of many of the claims now being processed. We want contractors to ensure the adequacy and completeness of specifications prior to entering into contracts, and to waive any subsequent claims based on defective specifications. Likewise, we want contractors to give immediate notice of any occurrence they feel constitutes a constructive change. They will also be required to give timely notice of any actual or anticipated problems in meeting delivery dates or other contractual requirements. Better and more timely pricing of change orders is another goal. We will require, in some cases, separate accounting for direct costs of any change exceeding $100,000. Where it is feasible, we will also require formal pricing of changes before they are issued.

These new clauses are being utilized on a trial basis. They will be revised to incorporate any necessary changes and to clarify and improve any language difficulties which may come to light during their use.

The achievement of stabilized configuration prior to entry into production is a positive means for reducing changes and resultant cost growth. Here we are talking about achieving stable design and performance specifications with minimum technical risk. Much has been written about this particular area and certainly you have heard many expound on what needs to be done to achieve minimum risk and stable design in our complex acquisition efforts. As I am sure you can readily understand, technological breakthroughs often present options for acquiring the improved performance often necessary to meet new threats. The constant threat of obsolescence is an ever present factor causing us to push the state of technology. Advancing technologies lead to over-optimism that reaches for objectives far beyond existing states of technology. Technical risks become high in such situations. Early identification of such risk and the selection of optimum choices, to address not only the known risks but those unknown, is perhaps our greatest area of challenge in pursuing successful acquisition of very complex systems. The capability of cost predictions can be no better than our ability for early risk identification and analysis.

In my previous testimony before this subcommittee I recited Department of Defense policy to pursue parallel and prototype development on systems, subsystems and components as one means of addressing high risk areas. One of the difficulties I have found in the immediate pursuit of parallel and prototype development is the identification of necessary supplemental funds required for this application. Due to increased testing and fabrication expenses for additional development models and prototypes, additional funds for this effort are required. Unless identified and included in early program budget submissions I am finding that these additional monies are just not available. We are attempting to identify, in the very early stages of the acquisition process, those items which clearly lend themselves to parallel and prototype development and to include in total program costs those necessary additional funds. Certainly this kind of technique forms a very valuable tool in pursuing our technical risk analysis of complex systems.

The Landing Vehicle Tank (LVT)—Program is a good example of our recent efforts in pursuing competitive parallel and prototype development. The LVT is a water/land personnel/cargo carrier for use by the Marine Corps.

For this program it was decided to award 2 Contract Definition (CD) phase contracts to prove out design feasibility and come up with a development and production approach. In the CD effort two competing manufacturers (Chrysler and FMC) built and tested scale models to prove out water and land speed—the critical factors in this program.

Based on the results of this competition the CD phase was completed with one of the manufacturers verifying the design effort through the construction of 15 prototypes. A full scale competitive production contract is now in the early stages of negotiation and has the interest of nine manufacturers.

In our early reviews of proposed acquisitions we are giving particular attention to the identification of high risk Government Furnished Equipments obvious candidates for prototype and parallel development and established of fall back positions to avoid contract delays or back or backfitting.

In addition to the parallel and prototype development techniques cited above, we are actively pursuing milestone contracting as well as increasing contract flexibility and identifying fall back positions where items, which are beyond the state of art, begin to threaten schedule deliveries and increased costs.

The milestone contracting technique will greatly assist us in carefully measuring and controlling potential cost growths before proceeding with contractual actions with potential for such growths.

The *S–3A* contract is an excellent example of the "milestone" contracting technique that I have cited. It is designed to permit the government to stop and look before proceeding past key decision points to the next milestone, permitting analysis of risks, and early identification of potential delays or cost increases. Delays in execution of production options up to 6 months for such analysis is permitted without any increase in ceiling price.

We are making concerted efforts to improve our cost estimating capability. Much of the cost growth in a number of our major acquisition programs is the result of comparing projected program completion costs with early program estimates. This strongly suggests the need for a quantum improvement in our capabilities for arriving at accurate cost estimates very early in the acquisition

cycle, or alternatively, delaying total program cost estimates until later in the cycle when better configuration data is developed and more solid cost parameters are available. Early budgetary estimates are based on many factors such as informal judgment, parametric and comparability studies, industry inputs, and unfortunately at times, some optimism. Such early independent estimates are based on all the cost estimating tools, and techniques available at a given point in time far in advance of a contract definition cost proposal.

A recent detailed study of shipbuilding pricing and cost control concluded that the basic shipbuilding estimating techniques used are valid and a relatively high degree of accuracy is possible when the early definition of the ship is sufficiently precise.

To help insure that the necessary definition is achieved, we have developed a system of estimate classification which provides Navy management with a "level of confidence" categorization of each program estimate. The classification is prepared by the Cost Estimator and forwarded via the Ship Acquisition Project Manager for inclusion in the budget. In those cases where an estimate is less than budget quality, the estimator provides to the Project Manager the reasons why this is so and indicates where the ship definition must be improved to permit preparation of an estimate of budget quality.

In addition, the Navy has moved beyond the traditional technique of covering in the estimate only the tangible factors such as quantity of steel and cost of GFE. We now evaluate the technical risks involved in each program and their cost implications. To implement these new procedures, the Navy has increased the ship construction cost estimating and analysis staff from 15 in 1969 to 23 in 1970. In addition, there are a number of other professionals who furnish estimates for GFE components and who collate entire program costs.

Recognizing strong program control as the essential ingredient to better cost control, estimates are now documented against the proposed ship configuration at the time of estimate. Thereafter, any configuration modification must be accompanied by a revised program cost estimate. This concept has been well accepted and endorsed at all levels of Navy management.

I would like to emphasize, however, that estimating for complex program costs becomes a very sensitive art and less a science. Certainly the earlier in the acquisition cycle such estimates are made the more vulnerable they are to inaccuracies.

Closely related to our cost estimating capability and potentially a very useful tool in our pre-contractual efforts, particularly in major sole source procurements, is the concept of Should Cost. Perhaps the most obvious observations that can be made regarding this concept is that it has a different meaning to different people. We view the full scope of the Should Cost concept as that embodied in the Pratt & Whitney Should Cost Study for the TF–30 engine. It involves a review of direct labor standards, indirect costs, cost allocation procedures, plant utilization and layout, "make" or "buy" programs, and purchase procedures and practices.

It immediately becomes obvious that a well balanced and highly qualified team consisting of a wide array of expertise is necessary for such an effort—including such talent as accountants, cost analysts, industrial engineers, management experts, and perhaps individuals particularly skilled or knowledgeable in the production techniques of the particular industry being reviewed.

I am happy to report that we are now planning a two-phased Should Cost study of the MK–48 Program. The first phase of our program will essentially be a review of costs associated with the initial and sustaining production contracts with the objective of identifying potential production efficiencies. Our team will be made up of Department of Defense personnel supported by outside consultants.

This team will consist of industrial engineers, production and management experts and cost analysts. The second phase will be an extension of the first with emphasis on the production and industrial engineering that is related to the existing torpedo design. We currently plan to engage an industrial engineering consultant firm with recognized expertise to work with Westinghouse and Clevite on this study. During this phase we also plan to pursue value engineering that can be phased in the future production to reduce costs. In summary we intend to conduct a parallel study of the MK–48 Program with both Westinghouse and Clevite to achieve maximum efficiency for both contractors. The result will be more effective competition following the parallel development.

One of our major areas of concern has been the desire for maximum efficiency in our major commercial shipyards. Because these shipbuilders do a very sub-

stantial portion of their business with the Navy, such an interest in efficiency and effectiveness of the production and management of these yards is, I am quite sure, understandable to you, Mr. Chairman.

We are currently conducting a series of procurement management and cost control reviews of the operations of two of our major commercial shipbuilders. Although they cannot be clearly identified as "should cost" studies, in terms of the definition I have given to you, they are addressing similar areas and are producing specific Navy recommendations which when fully implemented should result in increased efficiencies and reduced costs. For example, we are examing the shipbuilders' estimating systems, their purchasing systems, their storage and material handling systems, their data processing systems, their budgeting procedures, and their cost accounting systems.

Another area which must receive our careful attention is the type of contracts we employ in our acquisition programs. The ASPR has provided the Services with all the contract types required for prudent contracting. There are really no bad contract forms but perhaps misapplication of such forms to particular procurements. What is required is the flexibility to use experience and good judgment in tailoring the contractural structure to the procurement situation. The proper contract form must recognize all risks involved in the timely delivery of a quality product as well as the cost/profit relationships associated with risks. Therefore, consideration must be given to what is being bought, the extent of competition, the adequacy of specifications, economic delivery schedules, the length of the acquisition cycle and the position of the systems and subsystems in the spectrum of advanced technology. An evaluation of these various factors will decide the right and optimum choice of a specific type of contract or mix of contracts.

Once the contractor commences performance we must, of course, be vitally interested in timely information related to his progress. Our efforts in this area are dual pronged. The implementation of DOD Instruction 7000.2 requires a contractor to install a Cost/Schedule and Control System Criteria (CSCSC) which will provide him with variance reporting to planned cost schedules and technical aspects of a contract. Currently this system is being applied on a test basis to three major acquisitions, the F–14, S–3, AEGIS—a modified version is included in the LHA contract.

The performance measurement data generated for the purpose of assuring that the contractor has control of his program is now being used in a promising new NAVAIR Management Information System called PROMPT, an acronym for Project Reporting Organization and Management Planning Techniques. It is now employed on the F–14 and S–3A airframe contracts. PROMPT seeks to develop one common management information system which is used by the government and the contractor. In other words, everyone will be talking the same language. It represents an improvement over existing management information systems and is designed to provide timely information to the Project Managers. PROMPT is also providing us information on the status of government furnished equipment, an area that has proven troublesome to us in the past. It also provides a source of information currently being used to back-up data reported in the Selected Acquisition Reports (SAR).

As you know the Selected Acquisition Report is relatively new, and is being designed to not only keep the Congress informed of the status of our major programs but also to serve as an information system for higher management within the Department of Defense. As can be expected in a new system such as this we are experiencing some difficulties in designing an optimum format; however, it does have a very clear potential of being a very effective management tool. I am sure that the concept will be improved upon in close coordination amongst the Congress, OSD and the General Accounting Office.

In my statement I have recited some of the philosophies, policies, and directions in which we are moving in order to improve on our weapon systems acquisition efforts. There is no question that such policies and procedures will prove to be effective when fully implemented. As in any large organization one of the management objectives is to insure that major policies are adequately disseminated downward and followed throughout the organization.

In my statement before the subcommittee last December, I briefly described the Development Concept Paper (DCP) as the initial document giving formal OSD approval to commence contract definition of a major system. It formally identifies the various alternatives involved, related risks and the alternative selected. It also establishes cost, schedule, and performance thresholds. Whenever

one of the established thresholds is violated or when a major change or significant milestone is arrived at, a new DCP is initiated for joint service and OSD review. The DCP acts as one of the principle documents utilized by OSD to not only monitor any significant program changes but also acts as a program review vehicle. The Defense System Acquisition Review Council (DSARC), recently established, is the formal top management OSD review group which reviews the progress and plans of major programs at three critical milestones during the acquisition cycle. Phase I of the cycle is the commencement of contract definition, phase II is the commencement of full scale engineering development, and phase III is the point of entry into production. This council focuses adequacy of risk analysis, availability of economic delivery schedules, acceptability of management and control procedures, selection of the proper contract type, and even the basic requirement for the procurement. We have already realized the fruits of such reviews. Weaknesses in several major weapons acquisition efforts have been disclosed and timely corrective action has been taken following the identification by the DSARC. Very closely associated with the DSARC is the formal Management Review held at the OSD level. The specific purpose of which is to assure that the project management offices are properly constituted, staffed, and have the necessary controls to implement a successful program.

Mr. Chairman, as I have stated before to you, all the information, procedures, techniques and controls are useless without dedicated people properly qualified participating in the vast spectrum of activities involved in our total weapons systems acquisition effort. We recognize this fact. We are actively pursuing courses of action to retain the fine people we have, to give them increased opportunities for training and education and to enhance their status and afford recognition of their worth. We are doing this for both civilian and military personnel in the acquisition business of the Navy.

The Navy has implemented a DOD-wide career program for civilian and military procurement personnel. The Industry Advisory Council in June of 1969 made certain recommendations concerning procurement personnel, namely; that more procurement employees be assigned to full time graduate degree programs; that causes for high turnover of GS–5–9 procurement personnel be determined; that career counseling in the procurement area be provided; that the tours of officers assigned as project managers be stabilized and rotation be tied to program bench marks, rather than calendar years. We have acted on all these recommendations. A full time Navy procurement fellowship program was established in 1969 with George Washington University with 10 civilian procurement personnel enrolled in a Masters Degree program. It is hoped to expand this to an input of 15 in the Fall of this year. In addition to civilian career input the officer graduate education program was expanded in 1968 with 6 officers enrolled at the University of Michigan and 7 in the GWU program.

To determine causes for high turnover of GS–5–9 procurement personnel a system of exit interviews and analysis of causes has been established.

Procurement career counselors have been designated in major procurement activities to assure proper follow through on trainee programs, monitor formal training needs and accomplishment, identify high potential employees for rapid advancement and career rotation, and aid in recruiting high quality employees.

Supplementing this effort we are applying a revised employee career appraisal system to aid in assessing the qualitative measure of the procurement workforce.

We provided for and secured an input of approximately 103 procurement trainees from college sources during FY 1969. In FY 1970 we are endeavoring, within present capabilities, to insure an input of one trainee for each 10 to 20 professionals now on board.

The junior officer input into the procurement function has been augmented in FY 1969 by 38 additional billets. These young officers have been assigned to major procurement offices after receiving basic formal procurement training at Ft. Lee.

We have completed a detailed study of personnel management, encompassing the full scope of weapons acquisition. This study is currently being reviewed. We are identifying and formalizing a meaningful career pattern for officers in this most important area. We will insure by appropriate duty tours, formal education, and attendance at the Air Force Weapons System Management School an availability of highly qualified managers for major weapons acquisition. Further, we have established tours of key personnel and the Project Manager to

at least a period of three years and stabilized such tours to suitable points in the acquisition and program cycle rather than by calendar year.

Enhancement of the function of project management is being effected and the assignment of increased authority and responsibility to project managers is being achieved.

Mr. Chairman, regarding the entire spectrum of our weapons acquisition effort I can assure you we are sensitive to our needs, we have meaningful programs in being, and we will continue to devote top management attention to this area. I have attempted to delineate for you today some of the specific things we are doing to address the many risks inherent in our procurement of avanced weapons systems and the management of such programs. However, I would be less than candid if I were not to state that as long as National Security requirements continue to require us to strive for advanced capabilities, the element of high technical risk will remain and unfortunately some of the associated unforeseen difficulties.

Navy Reluctance To Use "Should Cost" Analysis

Chairman Proxmire. Thank you, Secretary Sanders, for another very fine statement. I am concerned about how long it has taken the Navy to begin to push the should cost approach. In the Pratt and Whitney case back in 1967, I think it was, a very substantial saving was the result of a "should cost" study, as I recall some $100 million, and I am delighted that you are beginning to have should cost studies in other areas. But I am somewhat puzzled as to why it has taken this long and why they are not more comprehensive, and also I do not think you were here when I made my opening statement, I do not think you were, but I called attention to the great dangers, that while this is a good weapon we have to be very meticulous and very careful to see there is no conflicts of interest involved, No. 1, and No. 2, there is a real zeal on the part of those who conduct a "should cost" study to find inefficiency and show it up.

Breakout of Cost Overruns

Let me ask you this. In our December hearings we asked you about the unusually large shipbuilding claims that have been filed against the Navy in the past couple of years. As you know, about $900 million worth of claims have been filed or will be filed in the near future. We asked you specifically about the claims asserted by the Todd Shipyards Corp. on the DD–1052 destroyer program. You will recall that the Navy paid to Todd $96.5 million based on contracts whose value was only $151 million for a total of 14 ships in this class.

First, I must say I was keenly disappointed with your inability to supply us the information we asked for, the cost breakout we specified. Why could not that be done?

Mr. Sanders. Senator, I believe you discussed this with others. We have tried to break out cost overruns, cost growth, by certain cost items, accounting systems simply do not lend themselves to this. What value it will be, I do not know, but we will continue to attempt to find better cost data.

Chairman Proxmire. The Air Force gave it to us on the SRAM and the C–5A.

Mr. Sanders. I was——

Chairman Proxmire. They gave us some summaries.

Mr. Sanders. I was not aware that the Air Force had furnished any that we did not have available. I will be more than happy to take a

hard look with the committee staff to see if they are using some technique of which we are not aware.

Chairman PROXMIRE. Let me read you from an official Navy memorandum dated May 30, 1964 on the DD–1052 program:

> The estimates have been prepared on the basis of labor, hours, material costs, labor rates and overhead percentages which an average yard should be able to meet.

How do you explain the inconsistency with what was done in 1964 and your response to my request in which you stated it could not be done?

Mr. SANDERS. I have no idea of what was done in 1964. I just attempted to answer our analysis of the cost growth which you might have available. Admiral Sonenshein may be able to shed more light if you would like him.

Chairman PROXMIRE. Admiral Sonenshein?

Admiral SONENSHEIN. I am not aware of the nature of that memorandum, Mr. Chairman, but I would say this, that every element of estimation in a ship project does have those basic increments of labor, material and overhead. The question of how they are aggregated to a total depends very much on the cost accounting system of the individual company, and it also depends very much on the format in which their claim, which you are concerned with, is submitted to us.

Now, we do not control the method of submission of a claim or allegation by one of our ship contractors.

Chairman PROXMIRE. Is it not true that just about everybody keeps their books on the basis of labor, materials and overhead? This is not an exceptional kind of bookkeeping, is it?

Admiral SONENSHEIN. No, sir. As I said when I started, normally, each increment of work is so estimated. The question of how it is aggregated depends on the cost accounting procedures of the individual company, which we do not control. And also we do not control the format by which he might submit a claim.

Now, in evaluating the claims that are submitted to us, and we have been doing this very intensively over the past several months since we met with you last, we do get into the labor, material and overhead aspects of each element that may be claimed and determine the impact thereon on the initial estimates of those factors.

DE–1052 PROGRAM: LATE DELIVERY OF GOVERNMENT FURNISHED EQUIPMENT

Chairman PROXMIRE. Now, on the claims themselves, back in December I asked whether one of the major causes of Todd's claims was that late delivery of Government furnished equipment, primarily the AN/SQS–26 sonar. Admiral Sonenshein's reply was "Yes, that is correct." I then asked for the name of the manufacturer of the sonar and whether that contractor's delay was responsible for delaying the rest of the shipbuilding program. Strangely neither Secretary Sanders nor the two Admirals presently nor any of your other backup people knew the name of General Electric, the producer of the sonar. You supplied General Electric's name in writing after the hearing was over along with an explanation of the effect of the late delivery of the sonar on the Todd contract. Your explanation for General Elec-

tric's delay is even stranger than the fact that you did not know that General Electric was the contractor in December. Here is what you stated:

* * * the delay in sonar delivery was not a factor in the Todd claim. However, the availability of the Associated Government Furnished Information pertaining to design of the sonar was approximately 1 year late and became a significant part of the claim.

How do you explain the fact that you agreed late delivery of the sonar was a factor in your oral testimony but denied it later in writing?

Admiral SONENSHEIN. My recollection of the circumstance, Mr. Chairman, was that we did not know at the moment who the contractor was and we provided the information for the record. We were talking about the events that occurred some 6 years, 5 or 6 years before, and we did not want to rely on our memory for that information.

Chairman PROXMIRE. But you paid the claim in 1969, though.

Admiral SONENSHEIN. 1969; I believe that is correct.

Chairman PROXMIRE. Is it not true that Todd based its claim in part on late delivery of the sonar?

Admiral SONENSHEIN. I would have to verify——

Mr. FROSCH. Yes. In part. You should understand, of course, that SQS-26 sonars have been manufactured in the course of the program by two manufacturers. The uncertainty in December was not knowing which manufacturer of the sonar had gone precisely into which ships.

Chairman PROXMIRE. Is it not true that the Navy decided to pay Todd $96 million in part on the justification of the late delivery of the sonar?

Mr. SANDERS. I will have to check that. I do not have those details.

Chairman PROXMIRE. Let me read you from a Navy memorandum dated April 18, 1969. This memo was for the Chief of Naval Materiel on the subject of contractor claims against the DE-1052 program.

"It is determined that the contractor was delayed and normal shipbuilding sequences were disrupted because of the late delivery of data and equipment."

(The Chief of Naval Materiel, to whom the Adair memorandum was sent, was Adm. I. J. Galantin. The full text of the memorandum is being kept in the files of the Subcommittee on Economy in Government. The following is the cover sheet accompanying the memorandum:)

MEMORANDUM FOR THE CHIEF OF NAVAL MATERIAL

APRIL 18, 1969.

Subject: Contractor Claims, SCN Program.
Reference:
(a) VCNO Name OP-09/ss Ser 082P09 of 4 March 1969.
(b) NAVSHIPS Memo SHIPS PMS-380 Ser 0403 of 7 March 1969.
(c) Business Clearance SH 10,877.1 of 3 February 1969.
Enclosure:
(1) Summary of Claim Categories (10).
(11) History of Claim Growth and Funding.

1. By reference (b), the Commander, Naval Ship Systems Command provided information to aid in the preparation of a preliminary reply to reference (a). The following information is provided as additional background in reply to paragraph 3 of reference (a).

2. Apart from the foreseeable problems associated with late Government Furnished Material and associated design information, defective specifications leading to constructive change orders and unadjudicated formal change orders, the first indication of a claim was described in Todd Shipyard's letter dated 10 November 1964. The Contractor indicated potential delay in ship delivery due to lack of reliable information concerning sonar design, because of added efforts required in the dynamic analysis approach to shock design and because of added efforts for the requirement of a full scale mock-up of the machinery spaces. In a letter dated 14 December 1964, the Chief of the Bureau of Ships indicated that continued efforts would be made to provide design information concerning the sonar. The possibility of a delay due to dynamic analysis and the machinery mock-up was rejected on the basis that these factors were firm specification requirements at the time of bid. No further representations were made by the Contractor throughout 1965. Early in 1966 the Contractor initiated a series of correspondence concerning the lack of Field authorization for issuance of changes, administrative delays in issuance, the Navy's desire in lieu of unilateral unpriced changes to issue changes by means of Supplemental Agreements and an apparent policy of "no deviation." Later correspondence dealt with problems encountered in constructing the machinery mock-ups as related to ship installation, problems in complying with the requirements for dynamic analysis design methods and the effort of probable late delivery of certain items of Government Furnished Material.

JAMIE ADAIR,
Deputy Commander for Ship Acquisitions.

Chairman PROXMIRE. How do you explain this inconsistency between the written explanation Admiral Sonenshein submitted for the December hearings and the official Navy findings reflected in that memo?

Mr. SANDERS. I am not familiar with the memo, sir.

Chairman PROXMIRE. Admiral Sonenshein, would you like to comment?

Admiral SONENSHEIN. I cannot without rereading the two papers and checking on the data following.

Chairman PROXMIRE. It was dated April 18, 1969.

Admiral SONENSHEIN. I have not been in office until August of 1969, so I do not recollect that particular paper. Without checking the files I am not in a position to answer it.

THE FIRING OF OSCAR HOFFMAN

Chairman PROXMIRE. In the course of your statement, Secretary Sanders, you said that you need cost conscious people and in my opening statement I pointed out that some cost conscious people are being driven out of the Defense Department which Mr. Conable challenged and properly asked for chapter and verse. I would like to give you a little chapter and verse now pertaining to the Navy.

Prior to the delivery of the DE–1052 to the Navy in March 1969, personal differences developed between Piping Inspector Oscar Hoffman and the Navy resident inspection officer, Lt. Henry Willimon in the Navy inspection office located in the Todd Shipyards, Seattle, Wash.

Unsatisfactory work reports prepared by Mr. Hoffman and other civilian inspectors on Todd workmanship were refused by Lieutenant Willimon on several occasions. Mr. Hoffman had been directed to destroy 50 reports on the ship's piping system on one occasion. Mr. Hoffman refused to destroy the reports and stated that he would retain the reports as evidence just in case the piping suffered casualties.

The reports showed that the piping systems were not constructed in accordance with the specifications invoked by the shipbuilding con-

tract. Difficulties developed between Mr. Hoffman and Lieutenant Willimon. Navy officers directed Mr. Jack Scott, supervisory shipbuilding quality control specialist, located in the main SupShip office, to issue a letter of reprimand charging Mr. Hoffman with failure to carry out instructions. Mr. Hoffman through his attorney, Mr. Tom Foulds, appealed the letter of reprimand and filed a grievance charging the following:

(*a*) Personal abuse and humiliation;
(*b*) Wrongful rejection of work product;
(*c*) Distortion of grievance.

A hearing was held on October 28, 1969, in Seattle at which time the hearing officer recommended that the letter of reprimand be removed from Mr. Hoffman's personnel jacket and determined that SupShip instructions are not being followed but are being superceded by verbal policies of management and recommended that course in employee-employer relations might be appropriate. The hearing officer also recommended that Mr. Hoffman be returned to his normal duties as inspector.

When Navy management learned that Mr. Hoffman was considering a grievance procedure, Navy management brought charges against Mr. Hoffman. Mr. Hoffman was transferred to the inspection office in Tacoma, Wash., against his wishes. Mr. Hoffman was fired as a reduction in force effective March 20, 1970, and Lieutenant Willimon was promoted to lieutenant commander.

The point is a civilian exposed improper contract management on the part of a Navy officer and the Navy fired the civilian.

Would you comment on that, Mr. Secretary?

Mr. SANDERS. Mr. Chairman, I am not in a position to comment on that in any way, shape or form. I know nothing about the alleged facts. I will obviously get into the details of it, and supply any additional data required.

Chairman PROXMIRE. Do any of you other gentlemen here have any knowledge of this at all?

Mr. FROSCH. I have no knowledge of it, but I would point out that what the civilian did was assert improper inspection. There is nothing you said that would indicate he proved it. That is something we ought to look at also.

Chairman PROXMIRE. The hearing officer awarded in his favor.

Mr. FROSCH. The hearing officer, I gather, was dealing with the questions of personnel matters. Whether he was competent to judge whether the report was factually correct is not clear. That should be looked at, too.

Admiral SONENSHEIN. I think what you have described, Mr. Chairman, are procedures prescribed by law whereby a civil servant can seek redress, and I gather from your recital that that procedure worked effectively. Now, as far as the question of——

Chairman PROXMIRE. Except he was fired.

Admiral SONENSHEIN. I want to comment on that. Without knowing the circumstances, I can say this, however. Very recently, because we have had to reduce forces of all of our SupShips offices, or many of our SupShips offices, in this country because of reduced defense budgets and reduced numbers of active ships in the active fleet, we have been having to RIF quite a few civil servants from the SupShips offices.

Chairman PROXMIRE. It seems that these gentlemen who are responsible for exposing inefficiency are fired and we have one sitting right behind me here, Mr. Fitzgerald, who is now working for this committee, who also exposed waste and got his walking papers. A year before he had been cited as one of the ablest, most distinguished officials in the Air Force.

Admiral SONENSHEIN. I would like to review the record on this because as I said a moment ago your recital indicates that there was a proper course of redress and review carried out. I do know, as I mentioned a moment ago, that the reductions in force have been very severe. We have had to lay off 12,000 people in naval shipyards. We have had to lay off 400 people in the supervisor's offices of this kind due to a decrease in the size of the active fleet and the consequent reduction in the need for repair of those ships and the supervision of that work. I think from what I have heard the timing indicates that occurred at about that time.

(The following information was subsequently supplied for the record by the Department of the Navy:)

A SUMMARY OF MATTERS CONCERNING OSCAR HOFFMAN

Mr. Oscar Hoffman was hired by the Supervisor of Shipbuilding in Seattle in October 1966 having previously been employed by Todd, Lockheed and other yards in the Tacoma, Seattle are since 1954. He was assigned as a SUPSHIPS piping inspector at Lockheed and later at Todd. His responsibilities included submission of unsatisfactory work reports to his supervisor for determination of responsibility and transmittal to the contractor if the correction was deemed necessary and a requirement of the contract.

All civilian inspectors submit unsatisfactory work reports in the normal course of their work and all reports are evaluated by the supervisors, and, as appropriate, by technical and contractual personnel. The purpose of the review is to determine if the inspectors' findings and recommendations regarding contractual responsibility are correct. If the item is determined to be a contractual responsibility, it is formally forwarded to the contractor for correction of the unsatisfactory work. If not a contractual responsibility, and if the work is considered necessary and economical, an increased cost change order may be issued. All inspectors have some reports rejected but it is true that Mr. Hoffman had a higher than normal amount of rejections and also a higher than normal number of submissions.

The unsatisfactory work reports normally state the requirement of the specifications which are involved. It is occasionally found that the specifications are in error, that a change is in process or has been issued or that the inspector's criteria were more rigid than called for by the specification. Submission of many of the unsatisfactory reports to the contractor for correction might in fact cause increased costs through contractor claims for work in excess of the specifications. Despite efforts to avoid constructive changes, 4.4% of the Todd claim was attributed to defective specifications and constructive changes.

A reprimand was issued to Mr. Hoffman on 8 September 1969 for failure to carry out instructions and for falsification. Mr. Hoffman told his supervisor in early August that he was considering a grievance. On August 24, 1969, he inquired at the Personnel Office regarding grievance procedures but asked that his supervisors not be advised. He was advised to discuss the grievance first with his supervisors. It was after the issuance of the reprimand that he initiated the grievance.

On 17 September 1969, Mr. Hoffman filed an Appeal regarding the letter of reprimand and a Petition of Grievance concerning personal abuse and humiliation, wrongful rejection of work product and distortion of grievance procedure.

The determinations resulting from the hearing were that the letter of reprimand was in technical error as in violation of an existing SUPSHIPS Instruction and the letter of reprimand was withdrawn; that the use of profanity and loud voice by Lieutenant Willimon was inappropriate and he has been directed to refrain from use thereof; that the unsatisfactory work reports alleged to

have been wrongfully rejected were appropriately reviewed and that disapproval is determined not to be wrongful rejection; that distortion of grievance procedure did occur and the letter of reprimand was withdrawn; and that Mr. Hoffman was to be restored to his normal duties.

As a result of reduced workload resulting from reduced Naval force levels, many of the Supervisors of Shipbuilding Offices were required to institute reduction in force actions. Mr. Hoffman, a relatively junior employee, was included in such a reduction in March 1970. Mr. Hoffman was the low man on the six man retention register for his trade area. The reduction-in-force was directed by the Naval Ship Systems Command on 3 February 1970. On 18 February 1970, Mr. Hoffman received his RIF notice and he was separated on 20 March 1970. He was not included in the original RIF decision but was displaced by a Ship Surveyor who had retreat rights to inspection positions. The man above him on the register was also displaced. In the Civil Service an employee who receives a RIF notice has a right to displace or 'bump' a more junior employee in a job for which he has retreat rights.

As indicated, Mr. Hoffman's employment was terminated as a result of a reduction-in-force process and not as a dismissal action.

(After the close of testimony, the chairman of the subcommittee received the following letter from Lt. Comdr. Henry P. Willimon, Jr.:)

LETTER FROM LT. COMDR. HENRY P. WILLIMON, JR.

SEATTLE, WASH., *June 3, 1970.*

HON. WILIAM PROXMIRE,
Senate Office Building,
Washington, D.C.

MY DEAR SENATOR PROXMIRE: Recently I had occasion to read excerpts from the record of your sub-committee's hearing of Friday, 22 May, 1970. I take the strongest personal exception to several of your remarks, to wit: from line 15, page 298 through line 7, page 302. You will please find a copy of this portion of the transcript enclosed for your convenience.

In inquiring of various Navy witnesses information concerning the activities of Inspector Oscar Hoffman and me, you made numerous unqualified, direct and erroneous accusations which appeared to be statements of fact rather than requests for amplifying information. Any disinterested party would assume you were defining an actual set of circumstances; but instead, you promulgated as fact a biased and distorted view apparently conveyed to you by Mr. Hoffman or his agent. Manifestly you did not find it convenient to staff out the complete circumstances before you indiscretly read personal indictments into public record—an indiscretion which is an anathema to that expected to a member of the Congress of the United States.

Your recitals appeared to define the following situation: Mr. Oscar Hoffman, a trusted and faithful civil servant detected numerous serious non-conformances under Todd-Seattle's DE 1052 Class contract (NObs–4782). His supervisor turned a deaf ear to his valid discrepancies and would not endorse said discrepancy reports. His supervisor further ordered him to *destroy* (emphasis added) these reports in order to further deepen the subterfuge of accepting default material and/or workmanship. When Mr. Hoffman did not destroy the reports and decided to rebel, a letter of reprimand was placed in his service jacket and furthermore, when Mr. Hoffman considered submitting a grievance he was packed off to the boondocks, against his will, in reprisal. Finally, after winning his appeal, the *coup de grace* was to *fire* (emphasis added) Mr. Hoffman.

The facts are as follows: (a) Inspector Hoffman is an experienced craftsman who detected many valid non-conformances in piping systems which were subsequently corrected by the Shipbuilder or reported to the Board of Inspection and Survey. However, on numerous occasions when his personal opinions or favorite techniques differed or exceeded Contract specifications, he attempted modification by claiming default on an acceptable system thereby exercising unfair leverage on the Contractor and subjecting the Government to future constructive change liability. Delaying the acceptance of a satisfactory system affects the scheduled erection sequence which could have a delaying and disruptive effect for which the Government has been forced to make settlement on defense contracts. These disapproved reports were the subject of your comments.

(*b*) Mr. Hoffman's letter of reprimand was for intentional falsehoods to his supervisor, the Chief Inspector and his Department Head plus failure to carry

out orders, to wit: to cease trying to reverse management decisions based on technical and contractual fact concerning his invalid unsatisfactory reports by using "scare tactics" on prospective crews and other external Naval activities.

(*c*) The letter of reprimand was issued before management had any knowledge of his prospective appeal or grievance.

(*d*) Mr. Hoffman was never told to destroy his disapproved reports. He was instructed not to represent them to prospective crews as valid Contractor responsible discrepancies and asked to remove the reports from the Resident Project Office.

(*e*) The reviewing Officer did not find that Mr. Hoffman's work had been wrongfully rejected, but rather that technical procedural errors were committed in the issuance of the letter of reprimand.

(*f*) When the reduction in manpower was effected, of which Admiral Sonenshein spoke, Mr. Hoffman was released solely because he was the most junior piping inspector on the retention register. Your using the word "fire" was an injustice to established Civil Service procedures, and I should think you would be the last to taint it by innuendoes.

(*g*) Mr. Hoffman's transfer to the Tacoma office resulted because of a need to have a piping inspector on site there. His position description qualified him for the job. Nevertheless he was given a choice to go or not. He chose to go of his own volition.

A significant portion of the $96.5 million claim in connection with the Todd-Seattle, Todd-San Pedro Contracts which you continually reference addressed itself to "over and improper" Navy inspection. In order to prevent future claims, Government contract administrators on all levels must ensure that the few over zealous inspectors such as Mr. Hoffman do not put the government in a liable position. Comparing Mr. Hoffman to Mr. Fitzgerald is tantamount to marrying the extremes of a dicotomy. The citizens of this Country did not send me to the Naval Academy and then later to postgraduate school for an engineering degree and, in addition, to numerous technical and management schools to abrogate my responsibility in order to humor a difficult employee by adversely affecting the Government's posture. Had I compromised my responsibility, I would, in all probability, be before your committee rather than just being villified *in absentia*.

I realize you must have been reading from a letter written in Mr. Hoffman's behalf; but those who conscientiously pursue their missions deserve better than a one sided biased accusation as well as do the citizens of this Country who assume your inquiries are in good faith and trust, apparently mistakenly, in your thoroughness and objectivity.

Kindly allow me to submit that these comments are made as a private citizen and registered voter of the County of Greenville in the State of South Carolina. All my observations are made disjoint from my assignment as Resident Project Officer (Todd-Seattle) for the Supervisor of Shipbuilding, Conversion and Repair, USN, Thirteenth Naval District and exclusive of prior approval or disapproval from the Supervisor, Commander, Naval Ships Systems Command, or the Department of Defense.

Very truly yours,

HENRY P. WILLIMON, JR.,
Lieutenant Commander, U.S. Navy.

(Subsequently Oscar Hoffman and Tom H. Foulds, Mr. Hoffman's attorney at the hearing on his appeal from the Navy letter of reprimand and his petition of grievance concerning personal abuse and humiliation and other matters, were requested to comment on Lieutenant Commander Willimon's letter. Their comments follow:)

LETTERS FROM OSCAR HOFFMAN AND TOM H. FOULDS

VASHON, WASH., *June 20, 1970.*

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
Washington, D.C.

DEAR SIR: Lt. Willimon accused you of distorted and biased view due to conveyance with myself and my attorney. This is false. The information you received is a matter of record in the transcript.

I, also, have in my possession photostatic copies of work chits Lt. Willimon refused to review and evaluate for consideration. These unsat chits were reviewed by one Nick Peak by the direction of Jack Scott to establish their validity. Nick Peak personally conveyed to me that after reviewing them he found them to be valid and in accordance with specification requirements.

I had redress to some unsat chits Lt. Willimon did not deem correctable but I did not push the issue on this matter. I was concerned by his neglect to evaluate unsats that later were proven valid. See page 114 and 115 of transcript indicating items not complied with and by their own admission valid. These same chits are the ones in question as stated in the grievance under wrongful rejection of chits. This part of said grievance was ignored or over-looked by all concerned.

This paragraph is in error as the reprimand was invalid and falsely issued as the hearing officer recommended withdrawal of the reprimand due to circumstances as well as a technical error. See letter of December 24, 1969, paragraph C, Ser. 100-6448.

In regards to not following instructions see letter of report of hearing officer of December 17, 1969, 1st paragraph, page 3, to note I was following the procedure instructions in lieu of verbal directives of my superior. To wit verbal instructions are being made by supervisors superceding printed directives.

The prospective crew of the DE-1053 came to me for assurance in regards to piping systems installed on their ship pertaining to safety and proper installation practices. Naturally, I could not assure them proper installation of certain pipe when known discrepancies existed, such as, cracked and misaligned pipe in the 1200# steam system and improper acceptance by Jack Scott of testing regiments being disregarded as noted in the transcript and is a matter of record in the ship's log. Also, see page 53, paragraph 5; page 54, paragraphs 1-5 and page 55, paragraph 1-5 of transcript.

Management, I state, did know that I was in the process of instituting grievance procedure. They then retaliated with a reprimand. See paragraph C, page 2, letter of December 17, 1969 from hearing officer to commanding officer. Also, the Enclosure Report of statements made by Jack Scott on page 33 and 34 of the transcript. Also, testimony of transcript page 59, paragraphs 2 & 3. Also, enclosure 2, insert page 302, paragraph 4, concerning sequence of events leading to the reprimand and grievance.

Joe Prunty, weapons inspector at the Todd Shipyards Company, witnessed Lt. Willimon's instructions to me to destroy, get rid of or take home the unsats he had not read or evaluated. Mr. Prunty was one of the nine witnesses that was slated for giving testimony in my behalf. By request of the hearing officer he was dropped from the list. In fact, after giving me instructions to dispose of these unsats he informed me that I would no longer be working on the DE project if they were in the project office the following morning. See page 59, paragraph 7 of transcript.

Wrongfully rejected chits composed of work product have and are still being distorted by management.

Chits that were evaluated and decisions made on them are not in question. My grievance against Lt. Willimon concerned only these chits which were originated by me and were not allowed to be submitted or evaluated. Lt. Willimon did not wish to see these unsats and told me to do away with them. In transcript testimony these later became contract required items to be completed. See paragraph 2, page 49 and the last two lines of page 49 in the transcript.

Specifications for welding are clean and precise as to requirements for fabricating properly welded joints which the contractor did not conform with.

The R.I.F., I know, was inevitable, but the procedure followed shows a fellow employee being retained and my being submitted to removal from service. Mr. Ben Siwicki had a career conditional status, to my career status. This showed proper retention rights were not made available to me. Mr. Siwicki has a GS-9 rating. I have qualifications to fill this grade. So the proper retention rights were denied me and I am in hopes that action will be taken for reinstatement.

My transfer to the Tacoma office was not from Todd to Tacoma as this paragraph states. Upon my removal from Todd's Navy office, September, 1969, I was virtually placed in limbo until the middle of November at the supship's main office—a period of three and one-half months with practically nothing to do but twiddle my thumbs. I was isolated into oblivion.

I was not willingly placed in either supship main office or the Tacoma office as stated by Lt. Willimon in paragraph G. I was ordered there by Jack Scott in

both instances against my wishes. I was kept there even after the findings and recommendations of the hearing officer advised that I be returned to my normal duties as stated in the letter dated December 17, 1969 in the report of findings. See enclosure 1, 2 and 3. This, also, was verified by Capt. Yatch's findings in his letter to me. He informed me to request reassignment which I did. Nothing ever developed on this matter. Enclosed are verifying letters that will substantiate these statements.

So in conclusion to rebuttal of Lt. Willimon's letter to you I add the following.

The 36 joints mentioned in the transcript would show on examination by x-ray whether they were valid and fabricated in accordance with specification. I would be delighted to appear before your committee to discuss various discrepancies that now exist on the weldings of the DE–1053. I can take interested personnel to the exact location and pinpoint exactly joints of piping that were improperly installed and not in accordance with contractual requirements with specifications. An example to formulate an instance, was the order of Jack Scott and Lt. Willimon to discontinue x-ray readings of P–1 piping in July, 1969. After considerations by management, Al Dunlap and myself were ordered to continue reading of x-rays because management was having second thoughts as to the validity and soundness of x-rayed welded joint. I am sure that the records show cost recovery was instituted by Todd Shipyards Company for untimely inspection because a period of 6 months elapsed from the time inspection was stopped to the time it again started. The contractor was forced to make corrections on fabrications that did not meet spec's requirements as prescribed by welding requirement 271–A of supship's instructions.

The quality assurance representative of Todd Shipyards Company assured me that cost recovery would be demanded due to untimely inspection of their product. I do not have information whether this was pursued as only the records would reveal this aspect. But I do know that the results of denying radiographic inspection were of management decisions that resulted in additional cost to the Navy.

There are other instances involved but I am submitting only a brief summary as an example. I still have a store of like instances for your information if you wish to acquire it.

Very truly yours,

OSCAR HOFFMAN.

HODGE, DAHLGREN & HILLIS, INC.,
Seattle, Wash., June 24, 1970.

Hon. WILLIAM PROXMIRE,
Chairman, Subcommittee on Economy in Government,
Joint Economic Committee, Washington, D.C.

DEAR SENATOR PROXMIRE: Thank you for your inquiry of June 11, 1970 and only my absence from the office has prevented an earlier answer thereto.

You enclosed a copy of the formal response submitted by the Navy to some questions you had raised May 22d. The major thrust of the formal response from the Navy was to establish the Navy premise that ". . . Mr. Hoffman's employment was terminated as a result of a reduction-in-force process and not as a dismissal action."

A simple chronology of events will demonstrate what actually happened to Mr. Hoffman.

September 8, 1969

Letter of reprimand issued to Mr. Hoffman who was then transferred from inspection duties from the Todd Shipyard field office to some office space at Supship 13 headquarters where he had no duties and where he was kept on a non-active status.

September 17, 1969

The Petition of Appeal from the reprimand and the Petition of Grievances were filed. Hoffman still on non-duty status at Supship 13 headquarters.

October 28, 1969

The formal Hearing on the petitions was conducted before the Hearing Officer. Hoffman still on non-duty status.

Mid-November 1969

Hoffman transferred from Supship 13 headquarters in Seattle, to a Supship 13 field office at the Tacoma boat building company, Tacoma, Washington, which was constructing a ferry boat for which some federal funding was involved. This ferry boat construction was being inspected by the Coast Guard and the ABS. Mr. Hoffman was advised to observe this construction and the inspection supervsion exercised by the Coast Guard and ABS, *but*, Hoffman instructed not to make any comments either concerning the work or supervision. Hoffman's immediate supervisor at this field office, a Mr. Sam Thrall, can confirm that Hoffman's presence at the field office was totally unnecessary. This was really just a place to keep Hoffman in limbo pending a determination by the Navy on what they were going to do with him.

December 17, 1969

The report was issued by the Hearing Officer which included the recommendation that: ". . . that Mr. Hoffman be returned to his normal duties as Inspector..."

December 24, 1969

A decision was issued by the commanding officer in charge of Supship 13, Captain W. A. Yatch, by letter wherein he stated as follows:

"3. Reference (a) recommends that you be restored to your normal duties as inspector. . . . You are requested to advise the Supervisor as to positions within this organization commensurate with your job description to which you desire to be assigned."

In other words, the final decision made by Captain Yatch after reviewing the transcript of the hearing and the Hearing Officer, report and other records included the decision that Mr. Hoffman could return to work as an inspector and as a matter of fact, they invited him to pick the field office out of which he could work.

January 5, 1970

Mr. Hoffman wrote a letter in response to Captain Yatch's decision wherein Hoffman requested that he be assigned to the Todd field office to resume his former duties.

However, since January 5, 1970, notwithstanding the purported decision by Captain Yatch, the top commanding officer, Mr. Hoffman was kept in his limbo job of watching the ferry boat construction in Tacoma and he was *never* moved from this assignment in Tacoma until he was terminated March 20. 1970. He was originally sent to Tacoma before any decision had been made by either the Hearing Officer or the commanding officer concerning his reprimand and concerning his appeal, so obviously the Tacoma assignment and status was not within the scope of his normal duties. As stated, he was never returned to his normal duties and this is the basic weakness in any Navy argument that Mr. Hoffman was terminated as part of a "reduction-in-force". The Navy did not disclose to you that Mr. Hoffman had never been returned to his normal duties. but of course such disclosure would have then required the Navy to provide you with a different theory.

I would like to also add a few comments in response to the letter of June 3, 1970, that you received from Lt. Henry P. Willimon, Jr. on a paragraph by paragraph basis as follows:

(*a*) Willimon alleges that the work reports which were the subject of your comments were essentially unjustified. However, the transcript of the hearing shows on pages 114 and 115 the testimony of the supervising engineer over the entire project, Mr. Charles True, that the stack of unsat chits produced by Mr. Hoffman and which were the subject of his grievance on wrongful rejection of work product actually contained a number of valid findings. These were the chits that were either refused or rejected by the project officer (Willimon) and yet by managements own testimony at least one-third of these chits were valid. (See also page 102). This development in the testimony under oath caused some confusion and both the Hearing Officer and myself were mystified as to why management would want to introduce valid chits from Hoffman in an effort to prove that Hoffman was issuing invalid chits!

(*b*) The letter of reprimand originally issued against Hoffman contained two charges. (A) that Hoffman violated certain instruction, and (B) that when accused of said violations (A) Hoffman denied same and thereby was guilty of falsification. In other words, his denial of (A) is what constituted charge (B). In the appeal from the letter of reprimand we denied that Hoffman had com-

mitted the violations of instructions (A), which violations were reportedly confirmed by a Lt. Oranoto. Although we denied these violations, and although Lt. Oranoto was available to present testimony at the hearing, he was never called by management to prove these charges. At the hearing I also presented the very obvious defense that to deny charge (A) is what subjected Hoffman to charge (B). Not only is he in danger of having (A) proven, but he is also in danger because he denied it in the first place. This type of double jeopardy approach is specifically prohibited by Navy regulations and when I pointed this out to the Hearing Officer it was then made clear that he would recommend the reprimand be withdrawn. This is now termed by the Navy as a withdrawal only because "technical violations" of regulations but it should be emphasized that the issue of the truth of charges (A) was never determined.

(*c*) Willimon states that "the letter of reprimand was issued before management had any knowledge of his prospective appeal or grievance." It is very difficult for an outsider to prove an abuse of procedure, but we attempted to prove such abuse on the basis of the simple fact that Hoffman had discussed his grievances with his superiors on a previous date and it seemed that the issuance of a reprimand against Hoffman was an effort to prevent him from bringing his grievances, or at least beat him to the punch. It should be emphasized that on this question of knowledge available only to the insiders, that it was the *finding of Captain Yatch himself* that up-held our charge that the reprimand was an effort to abuse the grievance procedure, see Captain Yatch's decision letter of December 24, 1969:

"It is determined that a distortion of the grievance procedure did occur. The letter of reprimand resulting therefrom is withdrawn."

Notwithstanding Willimon's allegations to the contrary, it was the finding of his own superior officer that the reprimand was a distortion of the grievance procedures and the reprimand should therefore be withdrawn. This is exactly what we had argued.

(*d*) Willimon alleges that Mr. Hoffman was never told to destroy his disapproved reports. But the transcript on the bottom of page 121 indicates that Willimon's own testimony was that he had asked Hoffman to remove the disapproved chits from the premises and he didn't care what happened to them and Willimon acknowledged that if Hoffman had taken him literally, that the disapproved chits would not be available today. (Again, it should be recalled that this is the same stack of disapproved chits that turned up to contain, by management's own admission, a number of valid chits.)

(*e*) Willimon completely misrepresents the findings of the Hearing Officer. The Hearing Officer found evidence both that the chits had been wrongfully rejected and also that errors had been committed in the issuance of the letter of reprimand. See Hearing Officer's report of December 17, 1969, pages 2 and 3.

(The credibility of Willimon's various allegations in his letter to you suffers from the basic handicap that most of the facts involved are a matter of record, either in the transcript of the October 28 hearing which your office has or in the report of the Hearing Officer or Captain Yatch's decision).

The material that you sent me contained such a large number of mis-statements and obvious inaccuracies that my reply has become more lengthy than anticipated. In addition, Mr. Hoffman is sending you a reply prepared and written by Mr. Hoffman himself and I would refer you primarily to just the last page of this reply. You will note that Mr. Hoffman still has photostat copies of the various deficiencies that he found and he stands ready and offers to go to the existing work on board the ship and point out the area where the defects exist and to establish proof of same.

In conclusion, I should emphasize that my client is neither a highly educated man nor is he any kind of fanatic with an ax to grind. Rather, he has been a pipe fitter a good part of his adult life and was acknowledged by his co-workers and his superiors as a craftsman. Yet his efforts to prevent and to reveal defective work by a contractor has aroused the hostility of his Navy superiors and they have been willing to maneuver him out of a job to avoid the inconvenience of his efforts for good workmanship and the interference that he apparently represents to the cozy relationship between these Navy officials and the shipbuilders. Although I was able to vindicate him at the Hearing and under the terms of Captain Yatch's decision, my client still ended up being fired and I hope I can establish a remedy for him in this regard at a later date.

Yours very truly,

TOM H. FOULDS.

(The subcommittee has obtained copies of the record of hearing, finding of facts and recommendations of the hearing officer, and determinations of the supervisor of shipbuilding in the case of Oscar Hoffman. The record is being retained in the files of the subcommittee. The finding of facts and recommendations and the determinations follow:)

FINDING OF FACTS AND RECOMMENDATIONS AND DETERMINATIONS IN THE OSCAR HOFFMAN CASE

NAVAL TORPEDO STATION,
Keyport, Wash., December 17, 1969.

From: Hearing officer.
To: Commanding officer.
Subject: Finding of Facts and Recommendations in the case of Mr. Oscar Hoffman, Inspector (Ships' Piping Systems).
Reference: (*a*) Designation of Hearing Officer dated 30 Dec. 1969.
Enclosure: (1) Report of Findings.

1. In accordance with reference (*a*), the undersigned was designated to hear the case of Mr. Oscar Hoffman who appealed a letter of reprimand from Mr. Jack Scott, and also filed a grievance complaint.

2. The hearing was held 28 Oct. 1969, 0900–1720 SUPSHIP Conference Room, Seattle, Washington. Mr. Hoffman through his attorney, Mr. Tom Foulds and Management, represented by Mr. Jack Scott, were given a full opportunity to present their position during the hearing. Both Mr. Hoffman and Mr. Scott agreed that they had a fair hearing. There were 5 minor changes made to the verbatim transcript.

3. After careful review of the entire case record, my findings and recommendations are submitted in enclosure (1) for your consideration.

FLOYD E. DAVIES.
Superintendent Machinist I.

REPORT OF FINDINGS IN THE CASE OF OSCAR HOFFMAN, INSPECTOR (SHIPS' PIPING SYSTEMS)

1. PURPOSE

Mr. Hoffman exercised his rights to appeal a letter of reprimand and also filed a grievance charging (a) Personal abuse and Humiliation (b) Wrongful Rejection of Work Product (c) Distortion of Grievance Procedure.

The appeal and grievance were both based on the same issues. I, therefore, elected to cover both petitions in one hearing, but in consecutive order.

2. PARTICIPANTS

Hearing Officer—Floyd Davies.
Appellant—Oscar Hoffman, Inspector (Ships' Piping Systems).
Appellant's Representative—Tom H .Foulds.
Management's Representative—Jack W. Scott, Supervisory Shipbuilding Quality Control Specialist.
Recorder—Mrs. Jean Wallace, Personal Staffing Specialist.
Technical Advisor—Mrs. Dola Conway, Administrative Officer.

Witnesses called

Lt. Henry P. Willimon, USN, Resident Inspection Officer, Todd Shipyard, Seattle Division.
Mr. Jack Scott, Supervisory Shipbuilding Quality Control Specialist.
Mr. Oscar Hoffman, Inspector (Ships' Piping Systems).
Mr. LeRoy McKinsey, Inspector (Ship's Hull).
Mr. Jack Hensley, Inspector (Ship's Fire Control Systems.)
Mr. Al Dunlap, Inspector (Ship's Piping Systems).
Mrs. Mary Elizabeth Guay, Assistant Personnel Officer.
Mr. Charles True, Supervisory General Engineer.

3. LETTER OF REPRIMAND

The letter of reprimand as issued by Mr. Scott to Mr. Hoffman charging failure to carry out instructions and falsification, is in technical error as it violates SUPSHIP Instruction 12750.3A, subparagraph 7, which states, "the denial by the employee of charges which are later established will not be the basis for increasing the proposed penalty, or for initiating additional charges." This fact was brought out by Mr. Foulds' examination of Mr. Scott (page 36).

Recommendations

Due to the technical error and the circumstances surrounding its issuance, I recommend that the letter of reprimand be withdrawn and Mr. Hoffman's personnel jacket be cleared of any record of such letter.

4. GRIEVANCES

A. Personal abuse and humiliation

Mr. Hoffman called two witnesses to testify to the alleged Personal Abuse and Humiliation to which he was subjected by Lt. Willimon. Mr. McKinsey testified that Lt. Willimon used language unappropriate to the proximity of female clerical help; that his voice could be heard over the entire office; that this language was used on several different occasions; that chits were slammed on the desk; that he would have felt abused if he had been so treated (pages 71, 72, 74). Mr. Hensley testified that the criticism of Mr. Hoffman by Lt. Willimon became more and more frequent; was so bad on occasion that he would leave the office; that the office secretary informed him that on one occasion she had to leave her desk because of the language being used by Lt. Willimon (page 77).

B. Wrongful rejection of work product

Mr. Dunlap testified that he knew of some unsatisfactory chits written by Mr. Hoffman and himself on violation to specifications that the Project Officer would not sign (pages 81, 82) ; that both Mr. Hoffman and himself had been requested to sign off test memos that still had discrepancies in the system and that this was in violation of the instructions of the memos (pages 82, 87, 88).

C. Distortion of grievance procedure

Mr. Hoffman testified that he tried on several occasions to resolve his problem with Mr. Willimon by talking to Mr. Scott and CDR Wilkinson; that he tried to talk to Captain Yatch, but Mr. Scott took him to CDR Wilkinson's office and, as a result of this meeting, he received a letter of reprimand (page 60, 61). He also testified that he received information from Mrs. Guay on how to file a grievance (page 60-62). Mrs. Guay testified that she had informed Mr. Hoffman to try and resolve his problem with his supervisors; that Mr. Hoffman did not want his supervisors notified of his inquiries about grievance procedures; that after his receipt of a letter of reprimand he returned and was given copies of the grievance procedures (page 92). Mr. Scott testified that he had three requests from Mr. Hoffman to resolve his problem with Lt. Willimon; that this problem was discussed with CDR Wilkinson on more than one occasion, and that he had no knowledge of Mr. Hoffman's desire to initiate a grievance (pages 34, 35).

Recommendation

It is apparent that Mr. Hoffman was making a sincere attempt to resolve his difficulties with Lt. Willimon through his supervisors, Mr. Scott, CMDR Wilkinson, and the Personnel Office. I feel that the Personnel Office actions were appropriate, as Mr. Hoffman requested them not to inform his supervisors of his inquiries about grievance procedures. Mr. Scott and CMDR Wilkinson, I feel, took the problem too lightly and let the situation get out of control by not taking positive action to resolve the problem at its beginning. The entire problem stems from the fact that SUPSHIP instructions are not being followed, but are, instead, being superseded by verbal policies established at the supervisory level. I suggest that the Command read the entire transcript in order to obtain a full appreciation of the problem. I recommend that SUPSHIP instructions either be followed or changed, as deemed appropriate, and that individuals not be allowed to establish verbal policies contrary to published instructions. I also recommend that Mr. Hoffman be returned to his normal duties as Inspector, and at some future date if management feels he is not complying with SUPSHIP instructions, proper corrective action then be taken. It is possible that a course

in employee-employer relations for some of the supervisory and management officials might be appropriate.

DEPARTMENT OF THE NAVY,
SUPERVISOR OF SHIPBUILDING, CONVERSION, AND REPAIR.
Seattle, Wash., December 24, 1969.

From: Supervisor of Shipbuilding, Conversion and Repair, USN, 13th Naval District.

To: Mr. Oscar Hoffman, Inspector (Ship's Piping Systems).

Subject: Determinations in the case of Mr. Oscar Hoffman, Inspector (Ship's Piping Systems).

Reference: (*a*) Ltr of 17 Dec 1969 from Mr. F. E. Davies, Hearing Officer, to SUPSHIP 13, Subj: Finding of Facts and Recommendations in the case of Mr. Oscar Hoffman, Inspector (Ship's Piping Systems).

1. Referring to reference (*a*), the following determination is made in the subject case in reference to the Petition of Appeal:

(*a*) Reference (*a*) finds that the letter of reprimand issued to you was in technical error since it violates SUPSHIP 13 Instruction 12750.3A which states "the denial by the employee of charges which are later established will not be a basis for increasing the proposed penalty, or for initiating additional charges." The Hearing Officer in reference (*a*) recommends that due to this technical error and the circumstances surrounding its issuance, that the letter of reprimand be withdrawn.

(*b*) This reported finding of fact is considered to be an opinion but the circumstances surrounding the issuance of the letter of reprimand do sufficiently approximate the intent of SUPSHIP 13 Instruction 12750.3A that the letter of reprimand is withdrawn.

2. Referring to reference (*a*), the following determinations are made in the subject case in reference to the Petition of Grievances:

(*a*) Personal Abuse and Humiliation. Reference (*a*) described the testimony of two witnesses concerning the claimed abusive language by Lieutenant H. P. Willimon, Jr., USN, to you. The use of profanity and loud voice by Lieutenant Willimon is determined to have been inappropriate and he has been directed to refrain from the use thereof.

(*b*) Wrongful Rejection of Work Product. Reference (*a*) cited testimony in regard to rejected unsatisfactory work chits to the effect that the Resident Inspection Officer did not approve some unsatisfactory work chits prepared by you on claimed violations to specifications. These unsatisfactory work chits were reviewed by the Resident Inspection Officer and by the Engineering Department where appropriate. In addition, other approving and consulting agencies such as the Supervisor of Shipbuilding, Third Naval District, Naval Ships Engineering Command, and Naval Ship Systems Command were consulted. The disapproval of said unsatisfactory work chits is determined not be wrongful rejection of work product.

(*c*) Distortion of Grievance Procedure. It is determined that a distortion of the grievance procedure did occur. The letter of reprimand resulting therefrom is withdrawn.

3. Reference (*a*) recommends that you be restored to your normal duties as inspector. The Supervisor expects you to perform duties in accordance with your job description, but also expects you to accept decisions relative to your work by higher authority which may be contrary to your opinions. You are requested to advise the Supervisor as to positions within this organization commensurate with your job description to which you desire to be assigned.

W. A. YATCH.

Chairman PROXMIRE. Mr. Conable?

Representative CONABLE. Do you think it possible there may have been some other people fired that at one time or another have tried to save money in the exercise of their duties? It is barely possible, is it not?

Admiral SONENSHEIN. I do not know how to comment on that, sir.

Representative CONABLE. I am sure that if you are reducing the force to that degree, you are going to get a number of people that

have in the exercise of their duties tried to save the Government some money. I hope all our employees are trying to do that.

As far as the Navy is concerned, it has no policy of continued vendettas against cost cutters, does it?

Mr. SANDERS. The Navy has not, sir. As a matter of fact, we are looking for help any time we can find it.

Representative CONABLE. Fine. Well, this committee will help you find some people, obviously.

Mr. SANDERS. I have noted that, sir.

CONCURRENCY AND THE F–14

Representative CONABLE. Mr. Secretary, I want to explore a line of questioning with you about the F–14 which you referred to in your prepared statement. We had some discussion yesterday about the problem of concurrency and at that time with evenhandedness the chairman said that we have the F–14, which is the responsibility of the Nixon administration and the Gama Goat, which was the responsibility of the previous administration. I was a little puzzled about the F–14. I would like to ask you something about this to determine whether there have been some major points of incompetence that have come up, particularly relating to the question of concurrency.

First of all, when was the research contract for the F–14 let and when was the development contract let?

Mr. SANDERS. Mr. Conable, I believe that Admiral Walker has the answer to many of the detailed questions on the F–14.

Representative CONABLE. The F–14 is primarily a Navy fighter, is it not?

Mr. SANDERS. It is a Navy fighter. The development contract was awarded in January of, I believe 1969. The development contract in February of 1969. Obviously, there is planned concurrency in the program. I would like to ask Admiral Walker to elaborate.

Representative CONABLE. Thank you. I would like to know a little bit more about it, if it is going to be one of the scandals in the future, let us try to find out about it now.

F–14 DEVELOPMENT CONTRACT

Admiral WALKER. Mr. Conable, with Secretary Sanders' permission, I would say that the date of the award of the development contract was February 3, 1969.

Representative CONABLE. When was the research contract let on that?

Admiral WALKER. There is one contract for research and development, sir.

Representative CONABLE. I see.

Admiral WALKER. Engineering and development is really the term. It was let on February 3.

Representative CONABLE. What company is the main contractor on that?

Admiral WALKER. Grumman Areospace Engineering Corp.

Representative CONABLE. It was let in February of 1969?

Admiral WALKER. February 3, 1969. And relative to the first production contract, the first production option, for advance procurement

only was exercised on the 1st of April of 1970. We will exercise a production option on October 1, 1970.

Representative CONABLE. So, you have not gone into production yet at all?

Admiral WALKER. No, sir; except for the advance procurement.

Representative CONABLE. Well, how much longer do you think the development phase is going to last?

Admiral WALKER. Well, the development phase is a continuing program which will last another 3 years.

Representative CONABLE. You say there is going to be some concurrency. This is concurrency between R. & D. or concurrency between development and production?

MINIMAL AMOUNT OF CONCURRENCY—F–14 PROGRAM NOT HIGH RISK

Admiral WALKER. There is a minimal amount of concurrency between research and development and production. If we were going into an extremely complex system, that is, one which stretched the state of the art, it would be most desirable that we have a clean break between the development program and production. There is no question about that. With the F–14, the technology has in our considered opinion, reached a point that this program is not high risk.

Representative CONABLE. Do you not have two models here, the 14A and 14B?

Admiral WALKER. Yes, sir.

Representative CONABLE. What is the difference between them?

Admiral WALKER. The F–14A includes the proven TF–30 engine and an avionics system which has nearly completed development and in which we have complete confidence. The F–14B will include a new advanced technology engine for which we have begun development. The F–14B would be different from the F–14A in that it does have this more advanced engine. Otherwise, the aircraft will be essentially the same.

Representative CONABLE. Well, I guess what I am asking is, will the F–14A and F–14B both be fully tested and evaluated, including their different engines that you mentioned, before the production contract is let?

Admiral WALKER. No, sir. They would not be fully evaluated before a production contract is let, but, of course, we took into consideration the advisability of completing development before starting production. In this case it would be extremely expensive to stop the production of developmental aircraft and break the line, not only of the prime contractors but in all of the subcontractors, until we had completed all of our testing, and then start production again. We estimate that if we did this, with the F–14 airplane, the total program cost would increase by many hundreds of millions of dollars.

Representative CONABLE. Because of the stretch out in time?

Admiral WALKER. Because of the stretchout in time which necessitates that we break the production line, not only at the prime contractor but amongst upward of 1,000 subcontractors that are involved in this program. Another result of this course of action would be up to a 2-year delay in overall introduction of the aircraft into the operating fleet. We have taken a very careful look at this, and we have scheduled the test aircraft to be delivered at the rate of one per month. Then, in order to avoid a break in the production line, we produce

those aircraft which will be operational, again, at the rate of one a month until we have completed our test program without causing this break in the line or renegotiation of contracts. We are satisfied that we have a program which gives us a minimal risk in terms of concurrency and keeps the overall price of the program at a minimum.

F–14 Program on Schedule

Representative Conable. How is it going? Is it on schedule?

Admiral Walker. The program is on schedule, Mr. Conable.

A most significant milestone in this program was the occasion of mockup of the aircraft. That is, we build what is essentially a full scale model of the aircraft in the contractor's plant. A Navy mockup Board then conducts a detailed formal inspection and review of this article comparing the mockup configuration against the aircraft defined by the specification. Where possible, form, fit, and function checks of representative aircraft components and support equipment, for example, landing gear and weapon loading operations are performed at this time. All recommended aircraft changes as a result of this review are carefully weighed for cost, schedule and performance impact. Particular attention is given changes which impact the eventual weight of the aircraft.

Of course, as you know, weight is a very important matter in any airplane, particularly one which will operate from a carrier. At the mockup we determined that the changes recommended reduced weights empty of this airplane by 19 pounds from that originally specified and that the cost and schedule impact was not significant.

I am full of confidence in connection with the progress of this airplane and the competency of the prime contractor.

Representative Conable. Well, now, we have seen in these contracts we have been looking at there have been very substantial cost overruns with respect to the initial estimate and in some cases with respect to the original contract price, resulting from stretchouts, inflation, changes, et cetera. In this case how are your costs running with respect to the initial estimates? Are the program costs in line or are they substantially higher? I realize that you are still a ways from the mass production contract but you must be getting some idea of how your costs are running relative to the estimate. I would like to know what they are.

Admiral Walker. Yes; sir. We have to confine our look at this point to the engineering development contract which has a target value of $388 million. This is a value which the contractor and the Government determined as one which is a baseline. If the contract exceeds that figure, there are penalties which are imposed on the contractor. In additioon, we have a ceiling which is the maximum amount that this contract can amount to.

At that point the contractor must assume all costs and receives no profit. Between the target price and ceiling we have an agreement to share the overage with the contractor. At this point in time, that is as of today, it appears that the engineering development contract may go $20 million above target. But I would hasten to point out, sir, the target is a number which was arrived at at the time the contract was initiated and does not represent the estimate by the Government

of the cost of this program. It simply is a baseline above which expenses must be shared.

Representative CONABLE. What is that percentagewise?

Admiral WALKER. Well, $20 million—it is about 5 percent——

Representative CONABLE. A little over 5 percent.

Admiral WALKER. But I would point out that it was the Government's estimate that this program would go above target by more than it appears to be going, and we have budgeted for that difference. So, in my mind this is not a cost growth. We expected, the Government did, that the cost would be more than it is now turning out to be.

ORIGINAL AND CURRENT F–14 PROGRAM COST ESTIMATES

Representative CONABLE. What are the original and current estimates for total program costs?

Admiral WALKER. One moment, sir.

Representative CONABLE. I suppose that depends somewhat on the number of units ultimately purchased, but you must have some figure for it.

Captain FREEMAN. We have available the selected acquisition report figures for the current estimate of total programs if those will be satisfactory, sir.

Representative CONABLE. Yes. That is fine.

Captain FREEMAN. For the F–14, the current estimate, total program, is $8,279,000 as related to a December 31 figure of $8,273,000.

Representative CONABLE. So, you are pretty close on target as far as that is concerned?

Captain FREEMAN. Yes, sir. The only variation that has been in the program has been one attributable to a quantity variation over the original estimate which was for a lesser quantity of aircraft. The quantity has been changed over this period of time which accounts primarily for the increase from the original estimate.

F–14 CONTRACT

Representative CONABLE. I am impressed by the fact that you have a thousand subcontractors on this. Is this a unique program in that respect?

Captain FREEMAN. It is a very heavy CFE contract.

Representative CONABLE. What is that?

Captain FREEMAN. Contractor furnished equipment as related to Government-furnished equipment. We have tended in most of our major programs to try and place as much responsibility on our contractors, whether it be shipbuilding, missiles, or aircraft, and, therefore, we try to use as much contractor-furnished equipment so they have the responsibility for the delivery, the procurement, making the schedules, and making it work.

Representative CONABLE. And Government-furnished equipment would mean you would be using Government plants and equipment of that sort.

Captain FREEMAN. Yes, sir. The primary piece of Government-furnished equipment in this program is the engine.

Representative CONABLE. It greatly increases the contractor's risk to use a high CFE type of contract, is that not right?

Captain FREEMAN. It places more risk on the part of the contractor, yes, sir.

Representative CONABLE. Well, Mr. Secretary, it is a very interesting prepared statement you have. I must confess that the organizational devices and checks you use are quite confusing to a mere Congressman. I have the impression that you have to make something of a deus ex machina at Defense. I am not sure whether you are running the organization or the organization is running you when you have so many remarkable procedural devices.

I realize that we in Congress call on you constantly to check up on yourselves and to establish procedures of that sort, but it is a rather impressive conundrum when you present all these tremendous numbers of boards and reviews and procedures that you go through to try to avoid waste. I compliment you on your efforts, sir, even though I may not understand them fully.

Mr. SANDERS. Thank you, sir.

Chairman PROXMIRE. Senator Sparkman.

Senator SPARKMAN. Mr. Chairman, I have no questions. I do want to say that I find considerable encouragement in this prepared statement that the Secretary has given us. You have things aiming for the track, anyhow, and I hope it gets there.

Mr. SANDERS. Thank you very much. I think with the help of all concerned we will make it.

MARK 48 TORPEDO PROGRAM UNIT COSTS

Chairman PROXMIRE. As you know, Secretary Sanders, the enormous cost overruns on the Mark 48 torpedo program have concerned me for some time. That was the program that we had a spectacular, as I recall it, show on television on CBS and the distinguished gentleman sitting at your left was one of the stars of that show, as I recall.

This is one of the programs I am asking the staff to give particular attention to in their efforts to identify root causes of the huge cost overruns. We have heard that the Navy is presently planning to buy an additional quantity of the torpedo which, as I recall, was originally expected to cost between $65,000 and $75,000 per unit. What is the currently estimated unit cost?

Mr. FROSCH. That depends on how many torpedoes we are going to buy and at what number of torpedoes you are asking the question. The best estimate that we have for, say, about a thousand torpedoes is that the production cost of the torpedo itself, that is just the torpedo as it comes off the line, is probably going to be about $250,000.

Now, there are questions that have to do with things that one might call overhead and support that are part of the program which are being critically reviewed and examined in an effort to reduce costs.

Chairman PROXMIRE. At any rate, the minimum cost, the cost as it comes off the production line, would be $250,000 compared to the original expectation of $65,000 to $75,000. That is a fair comparison?

Mr. FROSCH. Two points have to be made. One, I said the best number we have now, I would not like to call that a minimum.

Chairman PROXMIRE. It may go higher than that?

Mr. FROSCH. It may go lower than that by the time we are through scrubbing it.

Chairman PROXMIRE. That will be the day. I want to see the day when the costs are lower.

Mr. FROSCH. With regard to the initial estimate, I think that that was simply not a very good estimate, and I would further say that as a research and development type, I have come to believe that it is the height of folly, and I choose my words carefully, to start out at the beginning of a program before one has started to design an object and pretend that one can make a good estimate of what the object will cost in production 5 to 7 years later.

Chairman PROXMIRE. Of course, the trouble is that here is where we get sucked in. I do not want to use the vernacular too crudely but this is where the Congress seems to buy it. We are told that that program will cost this much and perhaps the top gentlemen in the Navy Department and Secretary of Defense may be enamored of a program on the ground that it will cost about a third or a fourth or something like that of what it will cost. The commitments are pretty much made. We in Congress go along and we do not discover this huge additional cost until we come to a point where it seems irreversible. We have so much money in the pot we do not like to stop it.

Mr. FROSCH. Well, I have been suggesting a change in the way in which we time estimates in development programs and suggesting that at the very beginning of the program we do not make an estimate of production cost but we put into the development program as a formal milestone the time in the development when we believe it is sensible to make an estimate of production cost.

Chairman PROXMIRE. Well, was there not a prototype——

Mr. FROSCH. Use that as a milestone.

Chairman PROXMIRE (continuing). In this case Mr. Secretary, FX–10, that should have given you a better picture?

Mr. FROSCH. I would not call that a prototype. I would call that an experimental torpedo that preceded a formal full development of the torpedo and demonstrated it was possible to build torpedoes with the kind of capability that we wanted in the final torpedo.

NAVY STUDY OF MARK 48

Chairman PROXMIRE. Is your present study of the Mark 48 a "should cost study"?

Mr, FROSCH. There is no Webster's dictionary definition of a "should cost study." We believe it is a "should cost study" in the sense in which the term seems to be used.

Chairman PROXMIRE. Would you provide this committee with a copy of that study when it is completed?

Mr. SANDERS. This will be sometime in the future, as I mentioned in my prepared statement; this is a two-phased study. We will be happy to work with the committee in these areas.[1]

[1] At the time of printing the Navy had not submitted its Mark 48 study to the subcommittee.

POSEIDON CONTRACT LEVEL OF EFFORT PROVISIONS

Chairman PROXMIRE. Our staff has noted that some of the Lockheeds Poseidon contract tasks specify a level of effort. Would you explain how this provision, level of effort provision, works?

Mr. SANDERS. Captain Freeman?

Captain FREEMAN. Are you speaking to the cost plus incentive fee contracts, Senator?

Chairman PROXMIRE. That is correct.

Captain FREEMAN. These are cost type contracts.

Chairman PROXMIRE. These are what?

Captain FREEMAN. These are cost type contracts, Mr. Chairman.

Chairman PROXMIRE. You say cost type. You mean what?

Captain FREEMAN. Well, there are variations of cost type contracts. You can have a cost plus fixed fee, a cost plus award fee contract, or a cost plus incentive fee contract where you actually tie incentives to the type of contract format.

PROFITS

In the case of the Poseidon type contracts that we have at Lockheed, these are on a cost plus incentive fee basis. These contracts provide for a selection of performance incentives and cost incentives and tie a range of fees to the performance under those incentives. They provide a degree of risk on the part of the contractor since his rewards run from one and a half percent up to a target of 7 percent, and that his fee is totally——

Chairman PROXMIRE. Is that based on invested capital?

Captain FREEMAN. No, sir. That is based on cost as required. The fee is calculated on the basis of cost.

Chairman PROXMIRE. Can you tell us what it will be based on invested capital?

Captain FREEMAN. Well, we have not normally used the invested capital basis for an individual contract.

Chairman PROXMIRE. Of course, here is where the contractor really has quite a setup. No. 1, when you do not base this on invested capital he can have very little capital invested. Obviously, he can work in some cases in a Government plant, not always, but often. We have $15 billion of Government-owned plants and equipment in the hands of contractors.

No. 2, progress payments, 90 percent, sometimes more. So his capital commitment can be very small and with a percentage of the kind you describe, he can make a very, very handsome return. Usually in accounting and in financial analysis and management we try to measure the reward based on the amount of capital that is invested. This is one of the complaints that Mr. Anthony again gave us. He said this is one way you get your instant millionaires.

In this case, as I understand it, the level of effort for performance of the task II, items 1, 2, 6, and 9 during a period specified under Lockheed's Poseidon contract is 5,832,000 man-hours of direct labor. If they do that, then they are guaranteed that their costs will be covered. So, it seems that the contractor just cannot lose under this arrangement, is that right?

Captain FREEMAN. Well, you are developing a very highly complex technical weapons system. There is the end objective of achieving tech-

nical performance. Therefore, the incentive that you are looking for is an incentive that will provide for a good workable weapons system while at the same time not providing such a high incentive on costs that he loses sight of what it is we want in the end product.

Chairman PROXMIRE. Does the contractor have any incentive to reduce man-hour costs?

Captain FREEMAN. Yes, sir. He has a free swing on this contract which can go all the way to zero unless he does act to control his costs. This reward fee is based on missile performance.

Chairman PROXMIRE. Is he required to work a specific number of man-hours whether he needs to or not?

Captain FREEMAN. No. No contractor is required to incur costs that he should not incur.

Chairman PROXMIRE. How long do you intend to retain this arrangement? I should say after all the years that Lockheed has been working on a fleet ballistic missile program, could not their work be described well enough by now to permit writing a more definitive contract, one which might motivate the contractor to reduce costs?

Captain FREEMAN. This is the Poseidon, Mr. Chairman, and that is still a ways to go for a fully developed system. And at such time as we have confidence that we have completed that, we will obviously shift then to a more advanced form of contract.

Chairman PROXMIRE. They are already converting ships, are they not, from Polaris to Poseidon? I thought that already was developed.

Captain FREEMAN. Those are on a different type of contractual arrangement—some of them.

CONCURRENCY IN POSEIDON PROGRAM

Mr. FROSCH. In order to have a missile system that can be fielded in a rational way, at a sensible time, we have to start converting the ships even though we are not finally completed in the development and proofing of the missile system. Otherwise, we will have a missile system developed. We will then have to either produce missiles and warehouse them until the ships are ready, or we will have to have a hiatus between development and production.

Chairman PROXMIRE. Well, then, you tell us that you are proceeding with a concurrency program. And then——

Mr. FROSCH. I certainly am.

Chairman PROXMIRE (continuing). You told us you are abandoning concurrency.

Mr. FROSCH. No. I would never abandon the possibility of concurrency and if I can continue on this one I will suggest why.

If we complete the development and testing of the missile and then do not go into production but then stop and start converting the ships and 3 years later when we have converted ships, or 2 years later, a year before the ships are converted, start production, we then shut down effectively the plant and the engineers who know how the missile was developed and who have done the production planning. They go away and I cannot get them back again.

Chairman PROXMIRE. What did Secretary Packard mean when he said that you are no longer going to follow the concurrency approach?

Mr. FROSCH. Well, I think I know what he means from conversa-

tions with him. What he proposes to do is not use IOC requirements or particular urgency as an excuse for concurrency which is not required from the dynamics of the program itself. In some of these programs the transitions from development to production are so intimately tied together that the interface between the two must be blurred for technical reasons and one must start to do some production work before one finally completes all of the testing, development, and evaluation, or you lose the whole technical capability to profit by the development.

Labor, Materials, and Overhead Breakout

Chairman Proxmire. May I ask, I would like to refer to the two inconsistencies that I pointed out earlier in the destroyer program. In your response to my request for functional cost data you said: "Government estimates for these ships were never developed in the requested format," but I read to you from a Navy memorandum dated 1964 showing that the Navy made the cost estimate precisely in the format I requested, by labor, materials, and overhead.

Now you say, you were not here in 1964, yet your written response to me was that the Government estimates were never developed by labor, materials, and overhead. Please comment on that apparent inconsistency, Mr. Secretary.

Mr. Sanders. Admiral Sonenshein?

Admiral Sonenshein. Perhaps I could illuminate this a bit by talking about how Government estimates are prepared for ship acquisition, and, I think, that will perhaps shed some light here.

Chairman Proxmire. Could you answer the question, Admiral?

Admiral Sonenshein. Well, I am trying to explain why we do not normally go by LMO, as you recall.

Chairman Proxmire. You will answer the question?

Admiral Sonenshein. Yes; I think I will. When we start to design a ship and estimate its costs, in the early stages, we break the ship down into what we call various weight groups and cost groups. For example, one of the major weight groups in the ship is the hull structure. In a destroyer that accounts for about 33 percent of the total weight of the ship. As the design evolves and we determine that percentage more accurately based on the engineering analyses that are done, we then arrive at a percentage that that total ship has about, say, 37 percent of its weight in structure.

Now, from analyses of ship construction in the industry at the time, we will have a factor that we will use by which we multiply the number of tons of structure. It will be, say, $100 per ton to erect in a shipyard. We will then take and multiply the number of tons of steel by that factor and arrive at a cost for that part of the ship acquisition. Similar treatment is done for other elements of the ship, such as the machinery, auxiliary machinery, communications, et cetera.

From that is built up an estimate of the cost of the platform. On top of that we add on the acquisition costs for the principal elements that the Government furnishes, a weapons system, an ASROC, for example, or a sonar, or a radar, and we add them on. So, the cost is built up by a technique that is not directly derived from labor, material, and overhead.

Chairman PROXMIRE. I read the memo. It says the estimates have been presented on the basis of labor, hours, material cost, and overhead which the yard shall be able to make.

Admiral SONENSHEIN. Yes, but the weight/cost groups are converted into man-hours for the labor portion as necessary. We can also derive from that material costs if we wanted to break them down by extra processes, but normally we do not break the cost down that way for budget purposes. We break it down into the nine categories, hull, machinery, auxiliaries, communications, et cetera.

Chairman PROXMIRE. You did it in this program that way, however.

Admiral SONENSHEIN. No.

Mr. SANDERS. No, Senator. The 1052 program was an advertised, formally advertised competitive bid, fixed price contract. The contract itself, to the best of my knowledge, did not contain any breakdown of the cost elements that you are referring to. You are trying to compare an estimate with a fixed price type contract with a program.

Chairman PROXMIRE. But it was a unique kind of fixed price, a movable fixed price, went up almost by 100 percent.

Admiral SONENSHEIN. That is another issue. The point is that when the bids were made they were made as a total number of dollars against an invitation for bids issued by the Government.

GOVERNMENT FURNISHED EQUIPMENT IN DE–1052 PROGRAM

Chairman PROXMIRE. In the December hearings Admiral Sonenshein agreed that the Todd claim against the destroyer program was in large part based on the delay of Government-furnished equipment, mainly the sonar. Later in writing the admiral denied that it was the late delivery of the sonar that delayed the rest of the ship and formed the basis of the claim. Now, I just read the Navy's official conclusion from a memo signed on April 18, 1969, by Adm. Jamie Adair, Deputy Commander for Ship Acquisitions. The conclusion was that the delay was caused, in part by late delivery of the sonar. How do you explain that inconsistency? Are you protecting General Electric?

Admiral SONENSHEIN. Sir?

Chairman PROXMIRE. Are you protecting General Electric?

Admiral SONENSHEIN. No, sir. I do not think that was ever contemplated.

Chairman PROXMIRE. What was the reason for it?

Admiral SONENSHEIN. I think the inconsistency between the testimony that day and the later report that was made was that the situation is a very complicated one. There was a delay in the sonar deliveries of some 5 months, if I remember rightly, and those delays were known and discussed with the shipbuilders at the time. But I do believe, as the memo did state that you read, that there were delays in delivery of the Government-furnished information, installation plans, and supporting checkout procedures, that could well have, and I presume did, influence the settlement of that claim.

I would have to go back to the actual settlement of the claim and look at the documentation that was involved to see to what exent that was allowed.

Chairman PROXMIRE. Will you do that for the record and give us as much as you can?

Admiral SONENSHEIN. I will be glad to do that.

(The following information was subsequently supplied for the record by the Department of the Navy:)

LATE SONAR

Late completion of the final design of the SQS–26C Sonar impacted on the shipbuilder's schedule by reason of late availability of design information for the sonar equipment. This design data was necessary to permit orderly design of ship spaces to accommodate the equipment and thus delayed orderly ship construction. The late delivery of this essential design data was a contributory element in the TODD claim.

The shipbuilding contracts were modified to reflect the revised sonar equipment delivery dates and the equipment delays were not factors in the TODD claim.

SAR DATA ON ACTUAL COSTS

Chairman PROXMIRE. All right. One other question. The other day when Dr. Anthony appeared before this committee his statement indicated the performance measurements data is an integral part of the systems acquisition report, that is, the SAR's. I have obtained a copy of DOD instruction 7000.3 revised December 19, 1969, and it does indeed call for a current performance status of contracts including what I interpret as overruns or underruns on work done to date.

Yet, as my colleague, Congressman Moorhead, pointed out the other day, none of the SAR data given to the GAO and the Congress contains current status data. It has been stripped out.

My question is why is this information withheld from Congress? Are there two SAR's?

Mr. SANDERS. Senator, I personally know of no unclassified information that has been withheld from Congress. I will be happy to check this one in particular and see just exactly what the situation is.

As I mentioned to you last December, having spent most of my life in a position such as Mr. Kaufman is now occupying, I am well aware of the needs of Congress for data and we will, to the best of our ability, supply that which we can.

Chairman PROXMIRE. Well, this instruction is not being lived up to. The instruction is very explicit. It says current performance status of contracts and the SAR data given to GAO does not contain that data.

Mr. FROSCH. It is in every SAR that I have seen and it is in the SAR's that I have seen attached to GAO reports. Perhaps there is some confusion as to what the performance data is but it is—in fact, the first element of an SAR is a table of original characteristics followed by characteristics as one proceeds through the program.

Chairman PROXMIRE. Well——

Mr. SANDERS. We will explore this, sir.

Chairman PROXMIRE. We would appreciate that.

DD–963 PROGRAM COST INCREASES

I do have one question I am requested to ask and I am happy to ask it. One of the shipbuilding programs we requested cost-growth data on, we were not able to get a proper cost-element breakdown on. It was the DD–963. Based on the SAR data available to us, this

program cost has increased about 43 percent when adjusted for quantity changes. This increase has occurred in less than 2 years.

You could not give a cost-element breakdown on this program, that is, a breakdown by labor, material, and overhead, and I understand there have been repeated delays in the program.

Is there anything you can tell us about the cost increases on this multibillion-dollar program?

Mr. SANDERS. At the present time, sir, we are in very detailed contract negotiations on the DD–963 .I do not think it is very appropriate that we comment on it at this time. To the best of my knowledge we did include additional data in the SAR's. It may be that that is classified because it relates to different performance requirements.

Chairman PROXMIRE. That is all you can tell us at the present time?

Mr. SANDERS. Yes, sir. Unless Mr. Frosch can elaborate on this.

Chairman PROXMIRE. Can you help us on this?

SAR DATA ON ACTUAL COSTS

Mr. FROSCH. No. I can only comment that there is a table, the first crosswise table in the SAR, which is the performance characteristics. Normally, the first column is the estimated beginning and then through the contract definition plan, and so on. For an airplane it includes weight, performance, speed, and the like.

Now, in some of the cases, the SAR's have been asked for as unclassified documents. When we do that we remove the performance and characteristics that are classified, some of them.

Chairman PROXMIRE. We are not talking about technical performance. We are talking about budgeted costs for work actually performed.

Admiral SONENSHEIN. I believe you may be alluding to the fact that in this case, since we are in the final stages approaching a contract award, the unit costs have been deleted to avoid compromising the Government's position in the negotiations. I think that may be what you are concerned with.

Chairman PROXMIRE. Well——

Mr. SANDERS. Senator, let me take a look at this and see if we can provide for the record somewhere an unclassified statement that would meet your requirements.

Chairman PROXMIRE. I hate to delay you but this is the direction that tells you what the SAR is and I am reading from it. It says:

> Budgeted costs for work performed. Enter the sum of the budget for completed work packages and completed portions of open work packages plus budget for level of effort and apportioned effort activity.

Mr. SANDERS. There is no work—you are talking in general or the DD–963, sir?

Chairman PROXMIRE. We are talking about general.

Captain FREEMAN. I would have to go back and review, Senator, that instruction as related to the preparation of the SAR report itself. In performance measurement work such as we have over the F–14 or the S–3, we do define work packages and those work packages are budgeted and we get reports against that budgeted work. That is the construction of the 7000.2 CSCSC type of reporting on costs incurred on a major program. I would be—we will be glad to go back and review

that particular part of the instruction as it relates to the SAR's if we can straighten out what appears to be a problem.

Chairman PROXMIRE. All right. That is what we want. We would be very grateful to you for giving us that.

(The following information was subsequently supplied for the record by the Department of the Navy:)

DOD Instruction 7000.2 (Performance Measurement for Selected Acquisitions) is applied to contracts within selected programs also reporting under the requirements of DOD Instruction 7000.3 (Selected Acquisition Reports). The information generated or made available by the Performance Measurement System is not uniformly available across all programs and DOD Instruction 7000.3 (Para. IV.A.3) precludes using its requirement for information as authority to require additional data from contractors. Contract information which is uniformly available such as initial contract price, current contract price, and both the Government's and Contractor's estimate at completion is provided to the Congress while that which is not uniformly available across all programs is not. Recognizing the differences in the availability of information and the need for improvements, the SAR Instruction has been revised and is currently being staffed in OSD. Its implementation is expected to be effective with the 30 June submit of the SAR. The Navy will comply with its requirements and forward the completed SARs to OSD for transmittal to the appropriate Committees of Congress.

Chairman PROXMIRE. I want to thank you, Mr. Secretary, and Dr. Frosch, and you officers who have been most helpful to us. Mr. Secretary, it shows that you have had your experience on both sides of the table here.

Mr. SANDERS. Thank you for your courtesies.

Chairman PROXMIRE. Thanks a lot.

The subcommittee will stand adjourned.

(Whereupon, at 12:45 p.m., the subcommittee was adjourned, to reconvene subject to the call of the Chair.)

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