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STATEMENT OF  
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BEFORE THE  
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS  
COMMITTEE ON ENERGY AND COMMERCE  
HOUSE OF REPRESENTATIVES

ON  
AIR FORCE PROCUREMENT OF CERTAIN F-16 SUPPORT  
EQUIPMENT FROM GENERAL DYNAMICS



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Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to appear before you this morning to discuss the results of our review of the Air Force procurement of certain F-16 support equipment from General Dynamics which you requested on January 18, 1985.<sup>1</sup>

In brief, Mr. Chairman, we believe that the Air Force's use of an unpriced contract modification without timely price negotiation to obtain certain items of support equipment for the F-16 aircraft resulted in excessive prices for many of the items. The excessive prices occurred primarily because (1) the issuance of an unpriced contract modification put the government in an unfavorable negotiating position when prices were finalized, (2) General Dynamics did not follow required procedures and recommended items for new development that were already in existence, and (3) the Air Force did not follow its regulations and reviewed and approved the recommendations in a mechanical manner instead of ensuring thoughtful consideration of need, value, and price. Also, we found errors in General Dynamics' cost recording procedures and we found anomalies on some of the individual equipment items.

Our review was limited to one contract modification for support equipment items for one weapon system and, therefore, cannot be the basis for recommendations for reform of a system involving hundreds of thousands of items for hundreds of weapons systems. However, it does raise questions about aspects of the

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<sup>1</sup>Observations on the Air Force Acquisition of Certain F-16 Support Equipment from General Dynamics (GAO/NSIAD-85-155, September 18, 1985).

acquisition system. We have initiated a review of the Department of Defense's use of unpriced contract agreements to address these and other questions.

#### HISTORY OF THE ACQUISITION

General Dynamics, under its F-16 contract, is specifically obligated to recommend support equipment to maintain the aircraft. General Dynamics recommended that the Air Force procure 24 items ranging from tools such as alignment pins and a simple modified hexagon wrench to boresight fixtures and a vacuum/heat maintenance stand. Recommendations for most of the items were submitted in January 1982. Fifteen of these items were for use in repair of the AN/APG-66 Fire Control Radar Antenna. The other nine items were test assemblies, fixtures, and adapters mostly for other types of maintenance. Repair work associated with the antenna was being performed by Westinghouse Electric Corporation, Baltimore, Maryland, the manufacturer of the radar. The Air Force planned to begin its own repair of the radar antenna in late 1984. According to F-16 System Program Office (SPO) officials, this action was to reduce reliance on contractors during times of emergency.

The recommendations were reviewed and approved by the F-16 SPO, Wright-Patterson Air Force Base, Ohio, and for the radar antenna related items by the Ogden Air Logistics Center, Utah, where the repair work was scheduled to take place. On the basis that this equipment was urgently needed, the SPO approved an unpriced modification to the F-16 contract in September 1982 to buy the items. That modification authorized General Dynamics

and its subcontractors, including Westinghouse, to incur costs for the design, fabrication, and/or procurement of the items, up to a not-to-exceed price of \$1,685,558. The approval of this unpriced contract modification was the critical action in the chain of events in the acquisition because it committed the government to payment for incurred costs before the matter was reviewed by officials whose primary responsibility was to evaluate prices.

Although regulations require prices to be definitized within 180 days, price negotiations with General Dynamics for these items took about 13 to 20 months to complete. By the time the prices were negotiated, most of the Westinghouse items had been manufactured and delivered. The final prices agreed to were substantially determined by the level of costs claimed by General Dynamics and its subcontractors, plus overhead and profit. Final definitized prices for 16 items and drawings for 4 items that were purchased from General Dynamics totaled \$835,835. Two of each of the four items were ultimately made by the Air Force for \$995.

Of the 24 items included in the contract modification, nine were manufactured by General Dynamics and subcontractors other than Westinghouse. For the nine items, hardware and data packages were purchased for eight of the items and one item was cancelled before the original price proposal was submitted to the Air Force. Fifteen of the 24 items were manufactured by Westinghouse--8 of the items resulted in the purchase of hardware and data packages, drawings only were purchased for 4

items, and 3 items were cancelled after the original price proposal was submitted.

REQUIREMENTS DETERMINATION  
PROCESS INADEQUATE

Our review of the requirements determination process disclosed that the process did not assure that only needed items were authorized and that the authorized items were obtained in the most cost-effective manner. At several steps in the requirements process, neither General Dynamics nor the Air Force followed proper procedures nor did they comply with regulations intended to assure cost-effective acquisition of support equipment. These deviations set in motion the recommendation, approval, and purchase of equipment items at excessive prices. Also, some items were not needed.

General Dynamics recommended these items for procurement as contractor-furnished equipment, which is often the least desirable and usually the most expensive method for obtaining equipment when compared to obtaining the items by other means, such as directly from the manufacturer or through local manufacture. Under its contract, General Dynamics was responsible for recommending the most appropriate source for obtaining needed equipment. While General Dynamics officials believe they complied with contract requirements, they were unable to document that the assessments required were conducted prior to recommending that the items be acquired as contractor-furnished equipment.

Air Force officials approved the recommended items without ensuring that General Dynamics had recommended the most cost-effective source, as required by regulations. Although the

General Dynamics recommendations clearly showed that equivalent tools were already in use at Westinghouse, the recommendations do not explain why the tools recommended to the Air Force were being assigned different numbers from those already in use at Westinghouse or why General Dynamics was recommending development of existing tools. The existing tools had been developed and several sets of the tools had been manufactured by Westinghouse under its radar manufacturing contract with General Dynamics. Westinghouse had used most of these tools to repair radar antennas for several years prior to the General Dynamics recommendations to develop new tools.

We were told by Westinghouse that General Dynamics did not ask them to supply the tools they used. Westinghouse, we were told, did not offer to do so because the tools were not made to Air Force specifications. Instead, General Dynamics recommended and negotiated with the Air Force prices for development (design engineering hours, manufacture, compatibility tests, etc.) for items that already existed at Westinghouse and were already being used for the purposes recommended by General Dynamics.

In approving the recommendations submitted by General Dynamics, the SPO relied on the Ogden Air Logistics Center to review the recommendations which included the questions of whether (1) the items were needed for the purposes recommended and (2) the recommended source for the items was appropriate. At the time Ogden personnel reviewed the General Dynamics recommendations, we believe the officials involved had insufficient knowledge to make informed decisions about whether the items

were needed to repair the antenna. They had not received any of the technical manuals describing repair procedures, did not have contractor cost estimates for the items, nor assurance that General Dynamics had made the assessments required before recommending the development of items to be furnished by General Dynamics.

We were told by one of the reviewing officials that the Ogden support equipment recommendation review committee relied heavily on the contractor's recommendations that the items were needed. This process resulted in some items being authorized which were not needed. For example, one item which was subsequently cancelled, the antenna clamp alignment tool, was recommended by General Dynamics, approved by the Air Force and later discovered to duplicate the function of one of the other items recommended and approved in the same package--the antenna tape block tool. Two additional items were recommended by General Dynamics and approved as needed by the F-16 SPO and Ogden, but were later cancelled because they were not needed. The Air Force paid \$838 in termination costs for the three cancelled items. In addition, we found that three of the approved items were not used at the Westinghouse Electronic Repair Center to repair the radar antennas. These were the vacuum/heat maintenance stand, brush assembly tool, and the alignment pins.

We were told by Ogden officials that their concurrence in the General Dynamics recommendations for support equipment extended only to the need for the item and not to procurement source or cost. The F-16 SPO engineering official who approved

contractor recommendations for Westinghouse support equipment said he relied on Ogden officials to review the contractor recommendations and did not participate in the depot review process because of the small number of items and the relatively low-dollar amount involved.

#### PRICE CONTROL OPPORTUNITIES WERE LOST

The procurement process has several features which are intended to insure the reasonableness of prices. These features did not work in this procurement.

Air Force Systems Command regulations specifically prohibit use of unpriced modifications, except in urgent situations. While the decision to issue the unpriced modification in this case implied urgency of the requirement, the extent of that urgency is questionable since 15 of the items were ordered in September 1982 to support the Air Force's repair of the antennas which was not scheduled to begin until late in 1984. As of July 1985, Ogden had not started repairing antennas.

Contracting officers are required by these regulations to negotiate a firm price within 180 days of approval of an unpriced modification. The regulations provide that after-the-fact pricing will always be avoided. The use of unpriced modifications puts the government in the unfavorable position of having to accept costs incurred by the contractor to perform under the unpriced modifications unless the government can demonstrate the unreasonableness of the price. In the absence of competition, negotiating a price in advance is the preferred method of contracting since it places the government in a



stronger position to ascertain whether the prices are fair and reasonable. In the context of this procurement, negotiating a price before authorizing work to be performed would have allowed the contracting officer to consider, through negotiation, whether \$8,832 was a fair and reasonable price for a pulley puller.

In this case, and contrary to regulatory requirements, the prices were not negotiated for about 13 to 20 months after the date of the unpriced modification. Negotiations with General Dynamics for the items manufactured by General Dynamics and subcontractors other than Westinghouse were completed in October 1983 and negotiations for the Westinghouse manufactured items were completed in May 1984. The Westinghouse items took the longest to negotiate and all but one item had been manufactured and delivered by the time final prices were negotiated. Thus, the final prices agreed to were substantially determined by the costs claimed by the prime contractor and subcontractors, plus overhead and profit.

In authorizing General Dynamics to proceed with support equipment development without pricing the items, the Air Force compromised its right to challenge the reasonableness of item prices. Instead of being in a position to negotiate fair and reasonable prices, the Air Force was virtually faced with accepting actual costs the contractors incurred. Decisions of the Armed Services Board of Contract Appeals and federal courts have consistently held that contractor-incurred costs are presumed to be reasonable, and, if the government desires to

challenge such costs, it has the burden of proving that the costs are unreasonable. As a general rule, as long as a contractor can present a reasonable rationale justifying the incurred costs, it is extremely difficult for the government to successfully challenge the costs. For this reason, the instruction to contracting officers to avoid the use of unpriced modifications, absent some urgency, is well founded.

The procurement process included a review of price proposals by the Defense Contract Audit Agency and the Air Force Plant Representative Office. In this case, both organizations raised concerns about the prices for the items. Defense Contract Audit Agency conclusions dealt with the tentative nature of vendor quotes from Westinghouse and a general observation that 11 percent price reductions should be achieved from the subcontractor. However, the Defense Contract Audit Agency concluded that the General Dynamics proposal was acceptable as a basis for negotiation.

The Air Force Plant Representative Office raised questions about the reasonableness of the prices of the Westinghouse items and recommended that the items be bought directly from Westinghouse or through local manufacture. In April 1983 the Air Force Plant Representative Office sent a letter to General Dynamics stating that the prices to the Air Force for single piece items were in the \$9,000 to \$11,000 category which, from all appearances, should have been priced between \$2 and \$150. The letter also stated that the assemblies were priced between \$13,000 and

\$28,000 which, on the surface, should have been in the \$200 to \$500 range.

After the Plant Representative Office's letter, General Dynamics wrote Westinghouse in June 1983 and strongly recommended that Westinghouse reevaluate the prices proposed for the items. Later that month Westinghouse advised General Dynamics that simplicity of the item does not dictate costs, but that requirements do. Westinghouse told General Dynamics to reexamine its requirements on any of the items and eliminate some and Westinghouse would delete commensurate costs, as appropriate. In November 1983, before the price negotiation period, significant questions were raised about the reasonableness of the proposed prices for the Westinghouse items in a congressional hearing.<sup>2</sup> In response to the hearing, the Air Force stated that the prices for the Westinghouse items would be vigorously reviewed and negotiated.

Subsequently, the F-16 SPO designated four items for local manufacture and bought engineering drawings only for \$176. The four items were locally manufactured by the Air Force and the SPO was billed \$995 for the items. In contrast, General Dynamics had proposed a total price of \$41,514 for the four items, or a difference of \$40,519. However, we found no evidence that local manufacture was considered for the remaining eight noncomplex items. Furthermore, negotiations for these items

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<sup>2</sup>Senate Hearing before the Committee on Governmental Affairs on purchasing of spare parts and support equipment, 98th Cong., 1st Sess., pt. 6 (1983).

resulted in the General Dynamics proposed price being reduced from \$254,707 to \$249,462, a reduction of \$5,245, or 2.1 percent.

Although public pressure and controversy had an impact on prices finally paid for some items, the final negotiated prices for many of the noncomplex items do not reflect their intrinsic value. The Air Force Plant Representative Office at General Dynamics recognized this situation early in the procurement process and so advised General Dynamics and Air Force procurement officials at the F-16 SPO. Why the F-16 procurement officials did not follow the Plant Representative Office's recommendations is not clear, but the fact that substantial costs had been incurred by the contractor apparently was an overriding reason to continue with the procurement.

#### PROBLEMS IN CONTRACTOR COST RECORDING

We reviewed cost records related to this procurement at General Dynamics and Westinghouse. At General Dynamics, three of the equipment items manufactured by General Dynamics met the monetary threshold to be assigned unique work orders so that costs were recorded and traceable at the individual item level. For the remaining equipment items, composite work orders were assigned which commingled the costs of the items. We tested labor and material charges recorded for two of the three unique work orders and found errors in both direct labor charges and direct material charges. Similar cost charging errors were also

identified on a broader basis in two previous reports on General Dynamics' cost accounting practices.<sup>3</sup>

Our review revealed that two items manufactured by General Dynamics (both radar boresight fixtures) were defectively priced. The defective price occurred because General Dynamics proposed and negotiated material prices based on noncurrent purchase orders. General Dynamics has proposed a reduction in the price for these items of \$30,858 in response to our finding.

We also identified 359 engineering hours recorded by General Dynamics for work related to the Westinghouse items, but General Dynamics purposely excluded the costs for these hours from the final price proposal and negotiated price. However, General Dynamics routinely records such engineering hours in cost records which are used as a basis for progress payments by the Air Force on the F-16 contract, and these 359 engineering hours had been so recorded. Therefore, the Air Force could end up paying the costs for these hours even though they were excluded from the proposed and negotiated price. After we brought this matter to General Dynamics' attention, \$11,700, the amount involved, was transferred from the cost accounts for

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<sup>3</sup>Audit Report on Comprehensive Review of Labor Charging Practices at General Dynamics, Fort Worth Division, Defense Contract Audit Agency (May 6, 1985, Report No. 1361-5E-130-104).

Joint Cost Monitoring Review of Support Equipment Manufacturing Activities, General Dynamics, Fort Worth Division, Defense Contract Audit Agency and Air Force Plant Representative's Office (January 30, 1984, Report No. 27/1361-AU-83-02).

progress payments to an unallowable account so as to preclude future payments.

At Westinghouse, we tested summary records by tracing over 50 percent of labor and material costs to subsidiary records, purchase orders, and invoices. While our review of records disclosed that the charges were accurately recorded and they supported Westinghouse cost records, the fact that most of the items already existed and were in use in the repair and manufacture of radar antennas at Westinghouse raises significant questions. One question concerns the government incurring these costs when it had already paid for the earlier development and manufacture of like items. We asked Westinghouse about the number, source, and financing of these earlier items. We were informed that they had been developed under a "tooling" line in a previous purchase order which did not require part-by-part break-out or data retention. Therefore, Westinghouse could not identify how many items were in existence or what their original cost to the government might have been. Under the purchase order, Westinghouse retained title to the tooling.

In addition, examination of the complexity (or non-complexity) of some of the Westinghouse items raises further questions about whether the kind of costs recorded are consistent with a realistic assessment of design requirements. For example, prior to the decision to buy drawings for the alignment pins, Westinghouse recorded 63 hours of engineering effort on the pin. It is difficult to understand how this level of effort was required when an Ogden technician was able to make a

suitable alternative alignment pin in minutes from stock materials.

OBSERVATIONS ABOUT SPECIFIC  
EQUIPMENT ITEMS

Our review revealed a number of anomalies concerning specific items in this procurement which raise significant questions about the thoroughness of the Air Force's or General Dynamics' consideration and evaluation of need, value, source and utilization.

General Dynamics recommended the purchase of an antenna motor brush assembly tool at a price of \$10,624, for use in repair of the antenna. However, Westinghouse does not use such a tool in conducting the repair function. Instead, Westinghouse uses a 3 by 8 inch sheet of flexible plastic.

General Dynamics also recommended the purchase of two metal antenna motor assembly alignment pins for \$9,376. Although the Air Force subsequently bought only the drawings for the item for \$44, and manufactured two pins for \$91, we were told that Westinghouse uses wooden sticks to perform the function the alignment pins were designed to perform. A technician at Ogden told us that, before the alignment pins were received, he cut two pieces of wire from stock material which he used as alignment pins. In a similar instance, a hexagon antenna wrench was proposed by General Dynamics for procurement at \$9,609. The Air Force subsequently bought the drawings for \$44 and made two wrenches for \$211. Before a wrench was received at Ogden, a technician made a similar tool from a commercial wrench for his use. We were told that in both instances the locally made items

worked satisfactorily. The technician used these two tools on an antenna at the depot as part of his validation of the technical order for antenna repair.

General Dynamics procured the vacuum/heat maintenance stand from Westinghouse for which the Air Force paid \$163,843. However, the Westinghouse Electronic Repair Center repairs antennas without a stand. The maintenance stand was manufactured and delivered to Ogden in August of 1984. As of July 1985, it was still stored unused at Ogden, because they had not yet received a technical order showing how to use it.

In September 1984, the Secretary of the Air Force sent a letter to numerous major defense suppliers in which he cited the pulley puller as an example of a tool that cost too much. He stated that the Air Force paid \$8,832 for the pulley puller which should cost only a few dollars and that Air Force applied for and received a refund (General Dynamics lowered the price to \$370 and gave the Air Force a refund of \$8,462). The Secretary also stated that the Air Force should have noted the exorbitant price before ordering, but that responsibility for the price is shared equally with those who set the price in the first place.

The pulley puller delivered to Ogden has a bolt head requiring a screwdriver rather than a wrench. The technician demonstrated to us that he cannot get enough torque with a screwdriver to use the tool as intended. This error occurred despite the fact that General Dynamics is contractually required to test and ensure performance of support equipment provided under its contract.



We noted that General Dynamics recommended two items, the antenna tape block tool and the antenna clamp alignment tool, that were similar to each other and designed to perform the same function. The latter tool was cancelled, but not until after both had been approved as needed by Ogden and the SPO.

Finally, the inflight refueling adapter, procured from General Dynamics for \$3,626, was shipped to the San Antonio Air Logistics Center in January 1984. Although San Antonio records show that the item was received, it is now lost. We also found that this item appeared on a San Antonio list of excess property in June 1985 so, if it is found, the possibility exists that it would be disposed of.

#### RESPONSIBILITY FOR THE ACQUISITION

We were asked, in undertaking this work, to determine responsibility for the acquisition of these support equipment items and their resulting cost to the Air Force. As in the case of any acquisition action, responsibility lies at several levels.

Our review raises serious questions about the performance in this case of the General Dynamics Corporation under its F-16 aircraft contract obligation to identify and recommend procurement only of needed support equipment items through the most cost-effective method. It also raises questions about the decision to design and manufacture simple tools as newly designed, one-of-a-kind items when some of the tools were not being used by Westinghouse and others were in routine use in its ongoing manufacture and repair operations.

Our review calls into question the performance of the F-16 SPO in its responsibilities to review and approve support equipment recommendations with careful consideration to matters of need, value, and price. We also identified a serious lack of communication between the SPO and Ogden concerning Ogden's responsibilities for concurrence in the procurement of the items.

In a broader sense, our review calls into question many aspects of the system of acquisition which relies on thoughtful consideration of need, value, and price, but which, at least in this instance, operated as a mechanical process of approving contractor recommendations.

#### RECENT AIR FORCE INITIATIVES

SPO officials advised us that they established a Support Equipment Review Board in January 1984 to more effectively evaluate need, prices, and sources for support equipment. The Board makes two reviews of each new proposed support equipment item; the first review concerns need and acquisition method and the second review concerns prices. According to these officials, the new procedures from January 1984 to May 1985 have contributed to savings of \$3.4 million on work completed and another \$1.7 million savings is estimated on work still in process.

In addition, the Air Force Plant Representative Office at General Dynamics and Westinghouse have established contract proposal screening processes for support equipment. Responsibility for negotiating prices for support equipment for the F-16 has been transferred from the SPO to the Plant Representative Office

at General Dynamics, to obtain more effective face-to-face negotiations of prices.

We asked SPO officials whether their new procedures would have avoided the problems we identified had they been in place at the time. Using the eight Westinghouse items as an illustration they said that it is not certain that the new procedures would have produced a better result. A procurement which started with the issuance of an unpriced contract modification, as this one did, would face many, if not all, of the risks and problems which occurred here despite the opportunities for Support Equipment Review Board analysis.

In discussing the facts we developed with Air Force officials they emphasized that this review involved an old procurement action, and that new procedures have been implemented to address the problems cited. They also cautioned that urgent military requirements sometimes mandate unpriced acquisition procedures, despite the risks of these procedures, to insure that defense objectives can be met. We will examine implementation of any new procedures in connection with our recently initiated review of the Department of Defense's use of unpriced contract agreements.

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This concludes my statement, Mr. Chairman. We would be pleased to respond to any questions the Subcommittee might have.

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