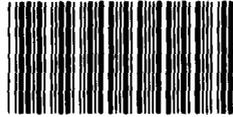


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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

PROCUREMENT, LOGISTICS,
AND READINESS DIVISION



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OCTOBER 7, 1981

B-204553

The Honorable Caspar W. Weinberger
The Secretary of Defense

Dear Mr. Secretary:

Subject: Retention of Unneeded Government-Owned Special Tooling by Contractors Causes Unnecessary Costs (PLRD-82-6)

We reviewed the management of Government-owned special tooling in the possession of selected Air Force and Navy aircraft production contractors and found that the Department of Defense (DOD) is incurring unnecessary costs because contractors are being allowed to retain unneeded tooling. This problem has existed for many years and, therefore, should be corrected. We discussed a draft of this report with DOD and have incorporated its comments on page 10.

Aircraft production contractors are storing and controlling hundreds of millions of dollars of Government-owned special tooling. For contracts relating to five out-of-production aircraft that we reviewed, we estimate that contractors are incurring costs of \$764,000 a year for the storage and control of unneeded tooling. A substantial portion of these costs is being paid by DOD. The Air Force and Navy have more than 280 contracts or agreements under which contractors are holding special tooling. If the conditions found during our limited review are widespread, DOD is incurring millions of dollars in unnecessary costs.

To avoid unnecessary retention costs, DOD needs to enforce an effective system of periodic screening, both during and after completion of aircraft and other types of production contracts, to determine whether contractor-held special tooling should be retained or disposed of. We are making recommendations to you on page 10.

BACKGROUND

Special tooling includes such things as jigs, dies, fixtures, molds, patterns, taps, gauges, and other equipment, which are of such specialized nature that their use is limited to the production of a particular item. DOD contractors can acquire this tooling under either cost-reimbursement contracts, such as those for research and development, or fixed-price contracts, such as those for

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production of aircraft or other items of equipment. The Government automatically owns tooling acquired under cost-reimbursement contracts and has the right to acquire title to tooling obtained by contractors for use on fixed-price contracts.

The Defense Acquisition Regulations prescribe procedures to be followed by DOD contracting officials to ensure that contractor-held special tooling is screened at various stages of the contractors' performances to determine which items should be retained and which should be disposed of. Effective compliance with these procedures should protect the Government's interests by ensuring that (1) tooling which may be needed for subsequent production, modification, spares, or other requirements is retained and (2) unneeded tooling is promptly disposed of to avoid unnecessary retention costs.

OBJECTIVES, SCOPE, AND METHODOLOGY

We assessed the reasonableness and efficiency of efforts by DOD contracting officials to dispose of unneeded contractor-held, Government-owned special tooling. We performed our work primarily at the plants of the following aircraft production contractors:

- General Dynamics Corporation, Fort Worth, Texas.
- Vought Corporation, Dallas, Texas.
- McDonnell Aircraft Company, St. Louis, Missouri.
- Boeing Military Aircraft Company, Wichita, Kansas.

These contractors manufactured the B-52, F-8, KC-135, F-4, and F-111 aircraft.

We obtained data on the quantity and nature of contractor-held, Government-owned tooling and evaluated the procedures and rationale DOD contracting officers and higher level officials used to decide what tooling should be retained. On the basis of this evaluation, we attempted to determine the costs the Government was incurring to retain unneeded tooling. As discussed later, actual cost data was not reasonably available; therefore, we based our estimates of unnecessary costs on the best data available.

TOOLING IS NOT SCREENED PROMPTLY AND EFFECTIVELY TO DECIDE ON DISPOSAL OR RETENTION

The military services do not have effective systems to promptly review the need for Government-owned special tooling which aircraft production contractors are holding and to dispose of tooling that is not needed. As a result, many years can pass

after production contracts are completed before final decisions are made on which tools should be retained and which tools should be disposed of.

The Defense Acquisition Regulations provide overall DOD policies and procedures for the management of special tooling. The Air Force and Navy have implemented specific procedures to guide activities in managing special tooling acquired under their respective aircraft procurement programs. In general, during the lengthy production process, the Air Force or Navy procuring activity, acting through contracting officers, has management responsibility for special tooling. At, or near, the end of production, this responsibility shifts to the activity providing aircraft logistics support.

Special tooling is not usually screened during the production process as required. The Defense Acquisition Regulations require contractors, upon request by contracting officers, to submit special tooling lists, which trigger the review/screening process. However, the regulations allow the contracting officer to "waive this requirement or extend it until completion of this contract and other contracts" under which the contracting officer has approved use of the tooling. We found that contracting officers seldom request special tooling lists upon contract completion. Generally, contractors propose that use of the tooling be transferred to followup production contracts, and contracting officers approve the proposals without determining the need for the tooling on those contracts. Eventually, the tooling is transferred to final production contracts without ever being screened comprehensively.

The Air Force and Navy follow different screening approaches to accomplish post-production tooling disposal. Neither approach effectively ensures that only needed tooling is retained and that unneeded tooling is promptly disposed of.

Within the Air Force, air logistics centers are responsible for post-production screening of special tooling. Center screening procedures rely on the center's identifying special tooling to the part or parts that such tools produced or helped produce. The objective is to develop a data base to facilitate reutilization of tooling, for example, on in-house maintenance programs and/or competitive procurements. The Defense Acquisition Regulations have never required a contractor to report the type of tool identification data the centers believe is essential to the screening process, and such data is seldom reported. Air Force procuring activities have generally been unwilling to pay the contractors' proposed costs for providing the data. Further, the automated system the Air Force developed to make use of the data, when such data was acquired, has not functioned properly and is no longer used.

At present, the lack of data relating special tools to the parts they produce, when combined with the voluminous number of tools reported at production completion, makes it virtually impossible for the centers to screen tooling promptly against requirements and to make post-production retention and disposal decisions. These conditions cause the centers to take one of two courses of action. The first possible action involves the center's attempting to identify potential tooling usage through time-consuming, manual reviews of engineering drawings, as the Sacramento Air Logistics Center is doing for F-111 tooling. The second possible action involves the center's allowing the contractors to screen the special tooling and recommend disposal action, as the Ogden Air Logistics Center is doing for F-4 tooling. In either case, disposal of post-production tooling is delayed. Meanwhile, contractors hold the tooling under open production contracts and/or no-cost storage agreements for prolonged periods of time.

The Navy essentially follows the special tooling disposal procedures prescribed by the Defense Acquisition Regulations. Under the Navy's procedures, the contractor is generally responsible for identifying tooling for post-production retention and disposal. Before production completion, Navy activities should determine post-production requirements, such as spare parts to be procured, for which tooling will be needed and should instruct contractors to retain the needed tooling to meet Navy requirements and to dispose of the rest. Retained tooling is to be stored and requirements are to be reviewed annually to determine whether continued storage is warranted. We reviewed available correspondence dealing with F-8 tooling disposal and concluded that Navy procedures and practices are no more effective than those of the Air Force in ensuring that post-production tooling is promptly disposed of.

The Navy depends on contract administration offices to make sure contractors retain or dispose of tooling as directed. However, the Navy does not always provide timely and accurate requirements data to contractors so that screening for retention and disposal can be done. Without such data, contract administration and contractor officials cannot act to ensure that retained special tooling is screened and disposed of promptly and efficiently.

Our discussions with officials in the Office of the Secretary of Defense and at Navy, Air Force, and Defense Contract Administration Service headquarters disclosed that the special tooling disposal problem is not new and occurs departmentwide. Although we were not able to find any recent studies that addressed the problem from a departmentwide standpoint, we did find three recent Air Force studies that show the Air Force has been struggling--albeit unsuccessfully--with special tooling management problems for more than 10 years. As pointed out in the studies and by most of the officials we talked to, the practice of transferring tooling from

contract to contract without comprehensive screening delays and compounds the screening effort and, therefore, prolongs post-production retention/disposal decisions. Unless it addresses and resolves the special tooling screening problem departmentwide, DOD will continue to retain unneeded special tooling.

CONTRACTORS ARE RETAINING MANY
UNNEEDED SPECIAL TOOLS

For five out-of-production aircraft included in our review, we found that substantial portions, ranging from 18.2 to 77.7 percent and totaling 37.4 percent, of the Government-owned special tooling being retained by production contractors may not be needed for future requirements. These situations are summarized in the following table and are discussed in more detail in the following sections.

Special tooling being retained
by production contractor

<u>Type of aircraft</u>	<u>Total quantity</u>	<u>Percent unneeded</u>	<u>Quantity unneeded</u>
B-52	7,195	77.7	5,592
F-8	28,519	46.0	13,118
KC-135	29,137	18.2	5,316
F-111	115,143	39.5	45,481
F-4	<u>95,000</u>	35.0	<u>33,250</u>
Total	<u>274,994</u>	37.4	<u>102,757</u>

B-52 tooling

The last B-52 was produced in November 1962. To facilitate the disposition of about 78,000 tools not needed on B-52 spares or modification programs, the Air Force, in 1968, awarded a tooling storage and disposition contract to the production contractor. This contract was extended over the years to December 1979, and many of the tools were disposed of. In December 1979, when the contractor was still holding 7,195 special tools valued at \$5.9 million, the Oklahoma City Air Logistics Center instructed the contractor to retain 1,603 of the tools and to dispose of the rest. However, the contractor has not taken any disposal action because it (1) has no contract under which the work could be accomplished and (2) is awaiting Air Force approval of its offer to buy the tooling. At the time of our review, Air Force headquarters had not finalized action to sell the tooling to the contractor.

F-8 tooling

Production of the F-8 aircraft ended in 1963. In 1972 the contractor offered to review the potential need of the 104,500 F-8 special tools still on hand and to dispose of those found to be unneeded. The contractor estimated that such a review would show that 46 percent of the tools could be disposed of. The Navy, because of the contractor's proposed price for making the review, decided that all of the tools would be retained until the Navy stopped buying spare parts for the aircraft. Between February 1978 and August 1979, the contractor disposed of 65,367 special tools because they either had not been used for 8 years or had deteriorated beyond usability. Therefore, these tools, 63 percent of the 104,500 on hand at the time, could have been disposed of in 1972 when the contractor had offered to review their potential need. At the time of our review, the contractor was still holding 28,519 tools. Based on the contractor's conservative 1972 estimate, about 13,100 of these tools may not be needed.

KC-135 tooling

Production of the KC-135 aircraft ended in February 1965. From 1956 to 1964, the contractor produced both military and commercial versions of the aircraft. Disposition of the KC-135 special tooling has been a problem for the last 17 years. Decisions regarding the tooling have been complicated by Air Force and contractor disagreements over ownership, degree of compliance with data reporting requirements, and the number of special tools classified as common 1/ and peculiar 2/.

At the time of our review, the contractor still held 29,137 special tools, of which 5,316, or 18.2 percent, were classified as peculiar. The contractor believes that the peculiar tooling could be disposed of because most of it has not been used for 10 or 15 years. The Air Force plans to retain all common tooling and some of the peculiar tooling. All retained tooling will be held under various cost and no-cost type storage agreements, thereby allowing the Air Force to finally close the last KC-135 production contract.

F-111 tooling

F-111 production ended in late 1976. As of April 1980, the F-111 contractor and subcontractors held 138,652 special tools

1/Tooling related to both commercial and military aircraft production.

2/Tooling related only to military aircraft production.

valued at about \$128 million. This tooling is being held and accounted for under the F-111 production contract, a direct cost storage agreement with the contractor, and various no-cost storage agreements with 20 subcontractors. The Air Force has screened about 103,179 special tools; however, the remaining 35,473 had not been screened at the time of our review. Of those tools that have been screened, the Air Force has determined that about 39.5 percent could be disposed of. If these results are representative of total tooling requirements, then about 45,500 F-111 tools controlled by the contractor could be unneeded.

F-4 tooling

F-4 production ended in March 1979. As of July 1980, the F-4 contractor and subcontractor held 141,106 special tools valued at about \$82 million. Discussions on F-4 post-production tooling support requirements have been going on since April 1977. In November 1978, Air Force, Navy, and contractor officials agreed to negotiate a no-cost storage agreement to assure retention of needed special tooling to support future F-4 spares requirements. After Air Force screening, needed tooling would be transferred to the storage agreement to provide accountability, and excess tooling would be disposed of. As of November 1980, the storage agreement had not yet been finalized.

Current plans call for the contractor to screen the special tooling and periodically recommend retention or scrapping actions to the Air Force for approval. The contractor estimates the screening and disposition actions will be completed during 1982. One contractor representative estimated that up to 35 percent of the F-4 special tooling would be scrapped eventually. This estimate appears reasonable in light of the fact that, as of January 1980, 36.5 percent of the 95,000 contractor-held tools had not been used for 2 years or longer.

COSTS OF RETAINING UNNEEDED TOOLING

We estimate DOD could be paying as much as \$764,000 a year to store unneeded special tooling for the five out-of-production aircraft examined. If the conditions we found are as widespread as we have been informed, DOD is incurring millions of dollars in unnecessary costs to retain unneeded special tooling.

We found that idle special tooling is stored and accounted for under open production contracts and cost and no-cost type storage contracts. If there is an open production contract or a funded storage contract, contractor storage and control costs associated with idle special tooling are recovered under that contract. However, in most cases, idle special tooling is stored and accounted

for under no-cost storage agreements. It is generally agreed that this type of storage agreement should be called a no-direct-cost agreement. Under such an agreement, total storage and control costs are considered indirect or overhead expenses and, depending on the agreement's provisions, are charged to other Government procurement contracts or are allocated proportionately between the contractor's Government and commercial work. DOD officials agree that the Government, either directly or indirectly, pays the full cost of continued retention of idle special tooling.

We attempted to determine storage costs associated with the retention of unneeded tooling for the five types of aircraft discussed earlier. However, we could not determine these costs because neither the services that owned the tooling nor the contractors that held the tooling maintained specific data showing the costs to store, preserve, maintain, and control this tooling. In most cases, contractors charged these costs to indirect or overhead accounts. Contractor officials said that it would require extensive research to extract and compile these costs; therefore, we did not ask the contractors to provide such data.

To arrive at the best possible estimate of the costs to retain unneeded tooling, we had to rely on a special Air Force study made in 1977. In this study, the Air Force developed costs to store and control about 690,000 special tools located at seven contractor plants. Since two of these were Government-owned but contractor-operated plants, the Air Force excluded storage costs from its cost computations. It based control costs on personnel involved with maintaining the stored tooling. Total cost to store and control these tools was about \$6 million. In addition, it sampled tooling at each location to determine contractual need and found that 48 percent of the tools sampled were not needed to meet contract requirements.

Using the Air Force study cost data, we computed average annual storage and control costs of \$5.86 and \$4.95, respectively, for an item of special tooling. Applying these costs to the situations found during our review, we estimate that Government contractors are incurring \$764,000 a year to store and control unneeded tooling. This is shown in the following table.

<u>Aircraft program</u>	<u>Number of special tools (note a)</u>	<u>Total annual cost</u>	<u>Percent of tools unneeded (note b)</u>	<u>Estimated unnecessary annual costs (note b)</u>
F-111	115,143	<u>c/\$569,958</u>	39	\$222,300
F-8	28,519	<u>c/141,169</u>	46	64,900
F-4	95,000	1,026,950	35	359,400
B-52	7,195	77,778	78	60,700
KC-135	<u>29,137</u>	<u>314,971</u>	18	<u>56,700</u>
Total	<u>274,994</u>	<u>\$2,130,826</u>		<u>\$764,000</u>

a/Does not include tooling at subcontractor plants.

b/These estimates have been rounded.

c/Government-owned but contractor-operated plant; therefore, cost for storage is not included.

CONCLUSIONS

DOD could realize significant savings if special tooling were more effectively screened for disposition. The Air Force and Navy retain significant amounts of special tooling for aircraft that are out of production, or where production is at a low rate, for prolonged periods. Much of the tooling needs to be retained to provide capability for aircraft and spare parts production and/or modification and maintenance programs; however, significant quantities of the tooling DOD retains are unneeded. Existing management procedures and practices do not ensure that special tooling is effectively screened to identify the unneeded tooling. If the conditions we found are widespread, DOD is incurring millions of dollars a year in unnecessary costs to store and control unneeded special tooling.

In implementing the guidance provided in the Defense Acquisition Regulations, the Air Force and Navy have established different systems for screening and disposing of special tooling. Neither system ensures that tooling is screened effectively nor that tooling is disposed of promptly and efficiently. The Air Force's procedures have proven costly and mostly ineffective because information relating special tools to the parts they produce is not available. The Navy, on the other hand, relies on the contractor to screen special tooling and to make retention and disposal decisions. However, this approach has also not been effective because the Navy does not always provide timely requirements data to the contractor to

perform the screening promptly and efficiently. Although we did not review Army screening and disposal practices, the Army's procedures are also based on the Defense Acquisition Regulations instructions. Therefore, similar screening and disposal problems may exist on Army production contracts.

Although DOD is aware that there is a departmentwide problem in determining what special tooling to retain and to dispose of, DOD has not taken action to correct this problem. Without effective systems to screen special tooling, the services will never be able to make prompt and efficient decisions on what tooling is needed and, therefore, should be retained, and what tooling is unneeded and, therefore, should be disposed of.

RECOMMENDATIONS TO THE
SECRETARY OF DEFENSE

We recommend that you direct the Air Force and the Navy to implement improved procedures and controls to ensure that

--special tooling is screened before or soon after completion of original production contracts and follow-on contracts to promptly identify and dispose of tooling not needed for future production and

--needs are periodically reassessed for post-production special tooling which contractors have been previously instructed to retain.

In addition, we recommend that you direct the Army to review the adequacy of its screening procedures and controls, and if similar weaknesses are identified, take appropriate corrective action.

AGENCY COMMENTS

We discussed a draft of this report with cognizant DOD representatives to obtain official comments. They concurred in our findings, conclusions, and recommendations, except for a minor suggested word change relating to our recommendations, which we adopted. In addition, these officials informed us of actions taken or to be taken to correct the problems cited in our report.

The Deputy Under Secretary of Defense (Acquisition Management) has requested the services and the Defense Logistics Agency to provide data on how much of the total \$2.9 billion of Government-owned special tooling currently held by contractors is in idle or storage status. The data should specifically identify the amount of special tooling being stored, costs to store the tooling,

reasons for storage, and types of agreements under which the tooling is being stored. In addition, the services and the Defense Logistics Agency were asked to provide suggestions or plans for eliminating retention of unneeded special tooling.

We were also informed that DOD plans to issue a memorandum to the military services and the Defense Logistics Agency which specifically addresses the problems and recommendations in our report. As it is now proposed, the memorandum will direct the services to:

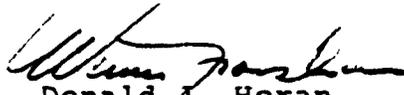
- Fully implement the recommendations in our report.
- Establish management controls to ensure reporting and screening of special tooling so that timely retention and disposal decisions are made.
- Determine the costs to the Government to retain special tooling and whether the costs are warranted.
- Ensure that retained post-production special tooling is periodically screened against current requirements.

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As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Director, Office of Management and Budget; the Chairmen, Senate Committee on Governmental Affairs, House Committee on Government Operations, and the Senate and House Committees on Appropriations and on Armed Services; and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,


Donald J. Horan
Director

