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UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS DIVISION

B-113014

DECEMBER 5, 1979

The Honorable Harold Brown
The Secretary of Defense

Dear Mr. Secretary:

AGC 00005

Subject: [Followup On The Navy's Efforts To Improve Productivity at Navy Aircraft Overhaul Depots] (LCD-80-23)

In December 1975 we reported ^{a 1975 GAO report} 1/ to the Congress ^{recommended} on ways to improve productivity of Navy aircraft overhaul depots and the possibility of consolidating facilities. In responding to our report, the Acting Assistant Secretary of Defense (Installations and Logistics) said the Navy was aware of the problems identified and was taking corrective action. He agreed that substantial dollar savings could be realized by improving the management and operation of the naval air rework facilities and that excess facility capacity should be eliminated or placed in a reserve status as appropriate. →

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Limited followup effort at two rework facilities, visits to command levels within the Department of the Navy, and reviews of Naval Audit Service reports and other internal Navy audits indicate that some of the topics discussed in our 1975 report need additional attention, especially excess depot capacity and the concurrent rework of aircraft components.

EXCESS DEPOT CAPACITY

Prior report: conclusions, recommendations, and Defense comments

We concluded that depot capacity far exceeded mobilization needs and proposed several alternatives which could reduce in-house capacity needs without compromising readiness. We recommended, in part, that the Secretary of Defense (1) consolidate, eliminate, or place in reserve status, as appropriate, all excess depot capacity and (2) concentrate modernization funds in only those depots with long-term value.

1/"Navy Aircraft Overhaul Depots Could Be More Productive" (LCD-75-432, Dec. 23, 1975).



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The Acting Assistant Secretary of Defense said:

"In summary, we concur in the recommendations to routinely examine projected depot maintenance workloads under mobilization conditions and the resulting facility requirements. * * * Facilities determined to be excess as a result should be eliminated or placed in a reserve status as appropriate. As a corollary, we will plan to concentrate modernization funds in those facilities identified as having a long time DOD mission."

Depot maintenance support plan

The fiscal year 1980 mobilization plan developed by the Naval Aviation Logistics Center indicates that the labor hours which can be generated annually by the six rework facilities fall short of their workload requirements by 4.2 million direct labor hours. The Logistics Center evaluates its aeronautical mobilization potential against the objective of building to the workload requirement over a full year.

We did not evaluate the depot maintenance mobilization plan, however, Logistics Center officials told us that preliminary indications demonstrate that four rework facilities, with current personnel ceilings, would provide a greater mobilization capability than the current six facilities. D3461

The Commander, Naval Aviation Logistics Center, told us that the rework facilities' efficiency would improve through consolidation efforts. He also said that preliminary indications show that the payback on initial cost of reducing the number of facilities is between 3 and 4 years.

Fewer facilities would increase depot maintenance efficiency

The basic objectives that Logistics Center planners use for program planning are to maximize peacetime depot maintenance support and provide for mobilization contingencies, all within programed funding and personnel constraints. The depot rework facilities' labor base has been a steadily declining resource. Between fiscal years 1979 and 1981, approximately 1,900 personnel positions are scheduled to be eliminated, about 2.5 million direct labor hours of workload.

To overcome depot facilities' workload lost through personnel ceiling constraints, Logistics Center officials

have planned, in part, to increase commercial support and consolidate organic engine rework. Despite these efforts, productivity at the rework facilities will remain below established goals.

Low shop usage

Department of Defense Directive 4151.1 states that:

"The Military Departments and applicable Defense Agencies will configure all in-house and contract levels of maintenance capacity and capability as necessary to support the projected surge/wartime mission, while attaining optimum peacetime efficiency and effectiveness."

In July 1976 the Secretary of Defense issued a handbook which revised and provided more specific procedures to be used within Defense for determining a depot level maintenance capacity. To implement these procedures, the Department of the Navy issued revised procedures in February 1977 tailored toward aircraft depot level maintenance functions. These procedures also indicated that the peacetime facility utilization is to be changed from 85 to 100 percent on a 40-hour week, 1-shift basis.

An official of the Naval Aviation Logistics Center told us that the fiscal year 1981 planned utilization of the six rework facilities is about 72 percent, as shown by the following chart.

Comparison Of Percent Utilization By
Shop Category--Fiscal Year 1981

<u>Shop category</u>	<u>Alameda</u>	<u>Norfolk</u>	<u>North Island</u>	<u>Jacksonville</u>	<u>Cherry Point</u>	<u>Pensacola</u>	<u>Average</u>
Airframe	68.1	99.1	193.1	106.6	139.4	40.4	104.0
Engines	72.7	67.4	19.4	105.8	-	-	63.1
Accessories/ components	71.7	68.2	33.2	63.5	54.6	85.1	59.9
Electronics/ communication	85.5	66.3	20.7	45.0	62.8	102.6	61.2
Armament	29.4	48.9	-	45.6	-	-	41.3
Support equipment	46.5	84.3	56.1	44.5	69.4	128.4	62.6
Manufacturing	49.2	90.7	74.3	93.3	97.2	63.3	73.0
Test and calibration	155.4	68.2	50.1	55.6	31.1	38.1	63.9

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In our 1976 report, 1/ we discussed the Naval Air Systems Command's fiscal year 1976 request to deviate from the planned aircraft maintenance program. During this period, Defense Directive 4151.1 required that not more than 70 percent of mission-essential workload be planned for in-house. Regarding inconsistencies with Defense policy, the Secretary of the Navy required a written request justifying any Navy maintenance plans which deviated from Defense's workload distribution requirements. The deviation request regarding the planned distribution or mission-essential workload stated, in part, that:

"To meet the objectives of DODD [Department of Defense Directive] 4151.1 of accomplishing 70 percent of the mission-essential workload organically Naval Air Systems Command would have to reduce in-house workload by 4.5 million hours by FY 78. To accomplish this task would mean placing this workload on the commercial market. It would probably necessitate closure of a rework facility and would result in additional costs to the Navy of \$155.5 million over a 4-year period. In view of this, the Naval Air Systems Command does not plan to further adjust its workload distribution to accommodate the provisions of DODD 4151.1 as it is not cost effective."

Based on a 1981 program objective memorandum briefing paper, the six Navy rework facilities are projected to provide 19 million direct labor hours of aviation depot maintenance support. This expected workload is well below the fiscal year 1976 workload of 25.8 million direct labor hours. Far more than the 4.5 million hours mentioned above has been lost from the in-house workload without any decision to consolidate the facilities.

Backlog of unfunded military construction projects

The Navy and the Office of the Secretary of Defense have repeatedly emphasized the need to improve productivity and reduce costs. Modernizing facilities and equipment is one method of achieving these goals. For 7 fiscal years ending

1/"Should Aircraft Depot Maintenance Be In-House or Contracted? Controls and Revised Criteria Needed" (FPCD-76-49, Oct. 20, 1976).

1975, over \$100 million in military construction funds were spent to modernize the rework facilities. We were told that since 1975 only one productivity enhancement project, valued at about \$8 million, has been financed from this program.

In discussing rework facility modernization efforts, the Commander, Naval Aviation Logistics Center, in September 1977 said that: "It is recognized that major depot-level workload consolidation studies of the past may have hindered MILCON [military construction] programing for the rework facilities." In other words, because of uncertainty of consolidation efforts, adequate modernization funds have not been spent at the rework facilities.

4 A December 1977 letter from the Chief of Naval Material to the Chief of Naval Operations identified a \$270 million military construction backlog at the rework facilities for aviation maintenance/production facilities. The letter also highlighted that the Naval Material Command's discretionary funding share is insufficient to reduce the backlog in the foreseeable future. 932

COMPONENT REPAIR PROGRAM

Prior report: conclusions, recommendations, and Navy comments

Concurrent rework was routinely carried out while high priority systemwide needs were backlogged, which contributed to inadequate fleet support. We also concluded opportunities for productivity gains through batch processing were lost. We recommended that the Secretary of Defense require the Navy to (1) discontinue routine concurrent rework of components and limit this to only essential testing and/or minor repair and (2) batch process similar components.

The need to limit concurrent rework of components was recognized 2 years ago. Replaced components are only concurrently reworked when supply is limited. To the extent practical, batch processing is being used. The production requirement is issued quarterly, and the rework facilities have the option to batch process where possible.

Current status

Several Naval Audit Service reports showed that concurrent rework of components still continues at some rework facilities.

Concurrent rework is the term used to define components taken from an aircraft undergoing depot maintenance and simultaneously reworking the components while the aircraft is in the depot. As these components are removed, they are routed through the various component shops, repaired, and returned to the aircraft and engines for reassembly. The primary purpose of concurrent rework is to insure that components needed to overhaul aircraft and engines are available. Batch processing--scheduling similar items in economical lot sizes--permits an increased flow of components through the depots. This concept reduces scheduling interruptions and results in greater worker efficiency, thereby reducing the repair cost for each unit and increasing the number of units that can be repaired.

Recent Naval Audit Service reports 1/ disclosed that two rework facilities were performing concurrent rework of components when like items were available in the Navy supply system in a ready-for-issue condition. The audit also found that the cost to concurrently rework some components exceeded the cost of the replacement item from supply. The North Island report contained the following examples:

1/Audit report C17038, Aircraft Rework Program, Naval Air Rework Facility, North Island, California, Feb. 20, 1979.

Audit report C52447, Naval Air Rework Facility, Alameda, California, Mar. 9, 1979.

<u>Stock number</u>	<u>Cost to rework</u>	<u>Replacement cost</u>	<u>Onhand supply system</u>	<u>Demand (12 mos.)</u>
6680-00-880-0844	\$ 236.60	\$ 118.00	10	3
1560-00-788-6532 (note a)	471.78	26.50	13	0
4810-00-962-4394	258.37	191.00	1	0
6615-00-600-1007	260.73	242.00	6	1
2915-00-895-0689	283.92	268.00	19	0
6615-00-179-2030	1,585.69	1,197.00	18	5
1680-00-932-0561	444.72	330.00	2	0
1650-00-074-9716	393.70	184.00	1	0
1650-00-011-9925	548.91	482.00	11	3
1680-00-961-4578	1,705.41	1,100.00	20	0

a/Item is classified as consumable rather than reparable in the supply system.

The rework facility realized that it had not established guidelines to determine if an item should be reworked or replaced. In summary, the report stated that:

"Reworking components concurrently when assets are available in the supply system results in unnecessary expenditure of funds and distorts the accumulated demand data used by the supply system to determine system-wide requirements."

The Alameda report stated that concurrent rework on components removed from aircraft and engines is regularly performed without evaluating the possibility of using supply system assets. The audit team recommended, and facility officials agreed, that procedures were needed for determining whether supply system items were available prior to undertaking concurrent rework.

OTHER MATTERS

Our 1975 report identified weaknesses in the labor standards and management information systems at the rework facilities. Although we did not completely evaluate the corrective actions implemented by the Navy, our review of several subsequent audit reports revealed that improvements are still needed.

Recent internal review performance standards audits have highlighted the lack of engineered performance standards and the poor quality of existing standards. The audits have also pointed out that the quality of workload standards at the six rework facilities vary widely. In its April 1979 summary of Performance Standards Program Audits, the Logistics Center stated that:

"Until a concentrated effort is made and continued to purge the system of low quality standards, it is feared that future audit cycles will find the same results. * * * The performance standards program at the NAVAIRREWORKFACs [rework facilities] can be described as viable, but in need of drastic improvements in both quantity and quality."

Concerning information systems problems, a Naval Audit Service audit team at the Pensacola, Florida, rework facility found that due to the lack of adequate and timely management information, production problems causing work stoppages cannot be resolved. The team and rework facility officials agreed that managers can neither identify problems nor take action to prevent recurrence because neither the manual nor the mechanized systems were effective.

The Naval Audit Service team at the Alameda rework facility found that the full benefits of the facility's production control systems have not been realized because certain reports have not been complete, accurate, and current. The audit team's report 1/ stated that without accurate and timely feedback on the status of rework in process, production problems may go unattended and cause delays in response to fleet requirements. To reverse this condition, the audit team recommended that "more precise information needs to be obtained through greater interest and attention to data quality

1/Audit report C522447, Naval Air Rework Facility, Alameda, California, Mar. 9, 1979.

by all production control personnel." Alameda officials agreed that the production status reports have not been effective control tools due in part to problems in the electronic data processing system and data processing delays.

We discussed with Naval Aviation Logistics Center officials where greater efficiency could be achieved in the rework facilities. They agreed that the labor standards and management information systems could be improved.

CONCLUSIONS

Our 1975 report concluded that excess capacity existed and recommended that the Secretary of Defense consolidate, eliminate, or place in reserve status, as appropriate, all excess or redundant depot capacity.

About 4 years ago Navy officials said that if organic workload was reduced by 4.5 million direct labor hours, a rework facility would probably need to be closed. The fiscal year 1976 actual organic workload was 25.8 million direct labor hours. The expected fiscal year 1981 organic workload is 19 million direct labor hours or almost 7 million less than fiscal year 1976.

More recently, Navy management efficiency studies have shown that both peacetime economies and mobilization responsiveness (during the first 6 months) can be enhanced by operating with less than the current six rework facilities. However, no consolidation decision has been made.

The failure to restructure the existing rework facilities has created inefficiencies such as low shop usage. Furthermore, the uncertainty of consolidation efforts may have hindered facilities' modernization, thereby reducing opportunities for increased productivity.

Our 1975 report said that opportunities for productivity gains through economic-lot batch processing are lost because aircraft components are removed and reworked simultaneously with the aircraft. Although the Navy recognized the need to limit concurrent rework, several recent Navy Audit Service reports have indicated that concurrent rework of components continue at some rework facilities.

RECOMMENDATIONS

We recommend, as we did in December 1975, that the Secretary of Defense consolidate, eliminate, or place in reserve status excess depot capacity that cannot be economically justified to satisfy peacetime and mobilization needs.

We also recommend that the Secretary of Defense require the Navy to

- establish controls which would keep concurrent component rework to a minimum,
- take maximum advantage of opportunities to batch process components, and
- improve the productivity of the rework facilities through added management attention to the work standards and methods program.

We would appreciate receiving your views on our recommendations.


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.

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We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of the Navy; and interested congressional committees.

Sincerely yours,



R. W. Gutmann
Director