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**REPORT TO
THE CONGRESS OF THE UNITED STATES**

**NEED FOR IMPROVEMENTS
IN
SUPPLY AND MAINTENANCE SUPPORT
FOR F-4 AIRCRAFT**

7/24/67

DEPARTMENT OF THE NAVY



**BY
THE COMPTROLLER GENERAL
OF THE UNITED STATES**

JUNE 1967

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

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B-152600

To the President of the Senate and the
Speaker of the House of Representatives

The General Accounting Office estimated, on the basis of review work performed in 1965, that the Department of the Navy could have maintained the equivalent of **23** additional **F-4** aircraft in serviceable condition during the fiscal year ended June 30, 1964, if certain improvements had been effected in supply and maintenance support. We so advised the **Navy**.

During 1966, we made a limited follow-up review of these matters and found that many of the same management problems affecting the readiness position of **F-4** aircraft continued to exist, although aircraft availability had increased.

We identified the following problems in the management of supplies by the Navy's Aviation Supply Office, which led to shortages of spare parts and components for **F-4** aircraft,

1. **Loss** of control over inventory of certain parts.
2. Failure to promptly purchase needed parts.
3. Lack of prompt repositioning of stocks to areas where needed,
4. Lack of timely repair of unserviceable components.

We identified **also** some administrative problems in scheduling **F-4** aircraft for repair and rework.

We brought these matters to the attention of the Department of Defense by letter dated July 13, 1966, proposing that the Navy establish a weapons system management team for each type of first-line aircraft for as long as the aircraft is so classified,

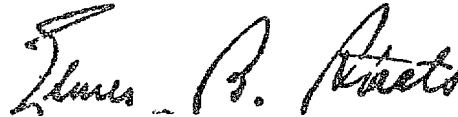
The Assistant Secretary of the Navy (Financial Management), in his reply dated December 7, 1966, stated that the Navy agreed there should be a weapons system management team as long as **would** be necessary to cope with major difficulties in research, design, development, production, and logistics support peculiar to the system,

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It was stated, however, that such a team for every first-line aircraft would require a substantial organization of technical, maintenance, and supply personnel. The Navy stated also that the establishment of a weapons system management team would not, in itself, ensure improvement of the conditions which our review noted. The Navy advised that, to ensure improvement, the aircraft supply support structure had been reorganized and several new management disciplines had been instituted.

We believe that these actions will contribute to improved maintenance and supply support for all weapons systems and, therefore, should improve the readiness posture of the F-4 aircraft. We plan to evaluate the implementation and adequacy of the Navy's actions in our continuing reviews of its supply and maintenance activities,

Copies of this report are being sent to the Director, Bureau of the Budget; the Secretary of Defense; and the Secretary of the Navy.,



Comptroller General
of the United States

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and usage to the Chief of Naval Operations. These reports provide information on the number of aircraft in inventory, the number ready for flight, and the number not ready for flight with the reasons set forth by categories, such as rework, special upkeep, standard upkeep, and supply.

Within the Department of the Navy, supply management responsibilities include (1) determining the types and quantities of items needed to meet current and future operating needs, (2) considering the quantities of items on hand and on order which will be available to meet these needs and (3) taking the necessary action to satisfy estimated future needs by purchasing the quantities needed to cover stock deficiencies and also by disposing of stock surpluses. Corollary responsibilities include repairing used parts and assemblies and distributing stocks so that items will be available at or near the points where they will be needed.

Primary responsibility for the supply management of aeronautical replacement parts is assigned to the Aviation Supply Office (ASO). At the time of our review, the Bureau of Naval Weapons (BuWeps), now known as Naval Air Systems Command, and the Bureau of Supplies and Accounts (BuSandA), now known as Naval Supply Systems Command, shared responsibility for overseeing ASO's activities. BuWeps had technical control of the items managed by ASO, while BuSandA oversaw the management aspects of supply activities within the Navy and, in this capacity, had management control over ASO.

To provide operating units with **F-4** replacement parts, the Navy stocks about 39,000 different parts used on the aircraft. About 29,000 of these parts are managed by ASO, while the remaining items are handled by other supply demand control points. A majority of the F-4 parts managed by ASO are consumable items. About

800 parts are repairable items which may be removed from aircraft, reconditioned, and returned to stock for reuse. The Navy directs greater management attention to repairable parts because they are normally more costly and complex than are consumable items.

The scheduling of aircraft for rework (a form of preventive maintenance) and for major repairs at Navy Overhaul and Repair Departments (O&Rs) and the operating of the O&Rs are the responsibility of BuWeps, while arrangements for the delivery and pickup of aircraft at the O&Rs are the responsibility of the Atlantic and Pacific Fleet commanders. During our review, the F-4 aircraft usually underwent rework every 15 months. However, periods between rework could be extended up to 18 months or shortened to a minimum of 12 months with BuWeps approval. The objective of rework is to maintain operational aircraft at a level of readiness and material condition that will preclude the need for complete overhaul.

Any time that aircraft are in repair or rework reduces the number of days aircraft are available to perform their mission (aircraft available days). Therefore, any reduction in time used for repair or rework would result in an increase in the number of mission-ready aircraft,

Although the Navy has continuously performed various types of internal reviews, these reviews have not been of the nature and scope that we have undertaken. Navy internal auditors were not making reviews of the operations at ASO until after completion of our work when an internal audit staff was established at that facility.

A list of the principal officials of the Department of Defense and the Department of the Navy responsible for the administration of activities discussed in this report is included as appendix I.

FINDINGS AND CONCLUSIONS

SUPPLY AND MAINTENANCE

SUPPORT OF THE F-4 AIRCRAFT

Improved management attention to prevention of shortages of spare parts and components and to administrative problems in the repair and rework program for F-4 aircraft can result in a reduction in the number of aircraft out of service. Based on review work performed in 1965, we estimated that the equivalent of 23 additional F-4 aircraft could have been available to perform missions during the fiscal year ended June 30, 1964, had certain improvements been effected in supply and maintenance support (see app. II). We made a limited follow-up review of these matters in April and May of 1966 and found that, although aircraft availability had increased, many of the management problems previously identified, with respect to supply and maintenance support, continued to exist.

Shortages of spare parts and components

We identified the following supply management problems at ASO, which led to shortages of spare parts: (1) the loss of control over the inventory of certain parts, (2) the failure to promptly purchase needed parts, (3) the lack of a prompt repositioning of stocks to areas where needed, and (4) the lack of timely repair of unserviceable components.

The shortages of needed parts resulted in such uneconomical practices as removing (backrobbing) parts from other aircraft when serviceable parts were not available from the supply system.

These supply management problems were identified on the basis of an examination into the reasons for shortages of 50 parts. We were able to identify the reasons for the shortages on 39 of the 50 items. We were unable to determine either from the records or from

discussions with responsible personnel at ASO and at stock points the reasons for the shortages of the remaining 11 parts.

In April 1966, we performed a limited follow-up review of selected items from ASO records, which indicated that in many cases the above-cited management deficiencies still existed.

Loss of control over inventory

Parts were not available to using activities when needed because inventory records did not accurately disclose their location or condition. We found that management weaknesses such as errors in the stock records of activities stocking the material and inaccurate reporting of stock balances and stock condition to ASO contributed to this problem.

We found that the loss of control over 11 replacement parts was responsible for F-4 aircraft being out of service in 323 instances during fiscal year 1964. These instances amounted to a total aircraft-waiting time of 3,200 days or the equivalent of nine aircraft being unavailable for service during an entire fiscal year.

The following example is indicative of a loss of inventory control over needed parts and the resultant out of service time for aircraft.

In February 1963, various activities reported that they had on hand a total of 49 indicators, prime Federal Stock Number 6610-954-5068. By January 1964, an additional 109 units had been delivered into the supply system. ASO records disclosed that only 2 units were disposed of during the period February 1963 through January 1964, leaving 156 units in the system. At the end of the period, however, ASO could account for only 66 indicators. The physical location of the remaining 90 units was unknown because the system did not readily provide for reconciliation of stock balances that should be on hand at various activities with the balances actually being reported.

In fiscal year 1964, 54 instances were identified in which F-4 aircraft were out of service because these indicators were not available when needed. These F-4 aircraft were out of service a total of 733 days while awaiting receipt of this part. Because 90 units could not be accounted for, ASO could not effectively position the indicators at locations where needed.

Although this Office has not made a comprehensive review of the inventory management of spare parts for F-4 aircraft, we have made a review of the management controls over the entire inventory of aeronautical material. This review was conducted at ASO and was completed in March 1966. On the basis of this review, we believe that, through fiscal year 1965, ASO continued to lose management control over inventory, as indicated by gross adjustments of \$237 million which were made to its inventory records during fiscal year 1965. These adjustments were made as a result of inventory increases or decreases discovered by field activities after they had conducted a physical inventory and compared the results with inventory balances shown on stock record cards.

Inasmuch as this review related to the entire inventory of aeronautical material, spare parts in support of F-4 aircraft are also affected by this management weakness.

Parts not promptly purchased

We found that, in fiscal year 1964, 11 parts had not been promptly purchased due to the failure of commodity managers at ASO to initiate buy action at the time that requirements for parts became known. In other instances, contracts for materials were not awarded on a timely basis after buy action was initiated. It appeared that controls at ASO were not adequate to ensure prompt buy action when the need for parts arose. Shortages of these parts caused F-4 aircraft to be out of service for about 1,800 days or

the equivalent of five F-4 aircraft being out of service for a year, primarily because of delays in initiating procurements.

The following example is illustrative of a delay in initiating a purchase action and its effect on aircraft availability.

During February 1963, the ASO commodity manager received stock information showing that additional quantities of harness webbings were needed but buy action was not initiated until October 1963. When a contract was finally awarded in November 1963, there were greater demands for the part than could be met by stocks on hand. From July 1963 until January 1964, 30 F-4 aircraft were out-of-service because harness webbings were not available at four supply activities. These activities waited about 196 days before the material was received. The commodity manager for the harness webbings agreed that the buy action should have been initiated during February 1963, however, he was unable to offer any explanation for the delay since he could not locate pertinent records.

In April 1966, we found that delays in processing procurement actions were still causing shortages of spare parts, which in turn were keeping aircraft out of service. We found that, although ASO had established an internal administrative procurement processing time of 1 to 5 months, this criteria was being significantly exceeded in some instances.

Need to reposition stocks to activities where needed

We believe that, although ASO has a program for repositioning stocks to correct imbalances in the supply system, the failure to fully utilize automatic data processing (ADP) equipment for this purpose and the limited conditions under which repositioning can take place has lessened its effectiveness. We also found that, where repositioning action was indicated under ADP program criteria, commodity managers did not always act promptly to reposition stock. Because needed parts were not promptly repositioned, they

were not available for user activities. As a result, requiring activities had to wait over 300 days for needed material. This is equivalent to about one *F-4* aircraft being out of service for nearly a year.

We found that the use of ADP equipment at ASO for repositioning purposes was limited to nonrepairable items. In our opinion, the extension of the use of such equipment to repairable items would facilitate the timely repositioning of stock.

We found also that, to preclude numerous redistributions of minor quantities, the ADP program at ASO provided for redistribution only if the amount of the supply that was excess to current needs could satisfy at least 80 percent of a requiring activity's needs. Because of this limitation, existing stocks are not fully utilized to fulfill supply needs. This procedure was modified in April 1964 to permit redistribution if two activities could provide 80 percent of a requiring activity's needs. We feel, however, that this modified procedure may still be too restrictive and may result in aircraft being out of service for lack of parts.

We believe that, although shipments of lesser quantities from more locations might entail additional handling and transportation costs, these additional costs would be minimal compared with the value of the increased readiness position achieved.

In addition, we found that the ADP program provided that redistribution would be limited to stock with a total value of \$2,200 or less. This criterion was instituted to guard against erroneously repositioning large quantities of high-value items, however, the value of a part may not be the best criterion for establishing such controls. Under the \$2,200 criterion, the higher the unit price of a part, the smaller would be the quantity of material that

would be repositioned. This limitation could result in a situation whereby high-dollar-value items would not be repositioned when needed.

For example, during our review, we noted that there was a need at one location for seven door assemblies, costing \$324 each, or a total of \$2,268. At that time, five other activities had 66 door assemblies in long supply. However, because of the \$2,200 limitation, none of these long supply door assemblies were redistributed to the requiring activity.

Our review of ASO's redistribution procedures in May 1966 has disclosed that improvements have been made in the ADP program which we believe will result in more effective redistribution of stocks to locations where they are needed. Principal among these changes was the expansion, in November 1965, of the central automated replenishment technique (CART). This system now includes a provision for the automated redistribution of repairable items with the exception of high-value items and certain items of capital equipment. In addition, the ceiling on the value of items which can be automatically redistributed has been increased from \$2,200 to \$5,000. However, the programs for automatic redistribution still provide for redistribution only if two activities can fill 80 percent of a requiring activity's needs. We plan to consider this matter further in our continuing reviews of inventory management at ASO.

Failure to repair parts in a timely manner

Me found that sufficient quantities of repairable parts were not being repaired in time to meet current needs. Reusable items remained in unserviceable condition for longer periods of time than we considered reasonable, primarily because the parts and components needed to restore these items to a serviceable condition were

not available at repair facilities. It appeared that management weaknesses such as delays in initiating buy actions for repair parts and components were primarily responsible for these shortages. During fiscal year 1964, F-4 aircraft were out of service for about 2,000 days because replacements for nine repairable parts were not available when needed. This is equivalent to five F-4 aircraft being unavailable for service for a year.

Our 1966 examination into records showing ASO's requirements for repair of unserviceable stocks and reports from O&R Departments of items repaired has shown that these requirements are still not being met in many instances. We found shortages of serviceable stocks and found also that repair of unserviceable stocks was not being promptly accomplished. We, therefore, believe that the timely repair of unserviceable stocks continues to be a factor contributing to F-4 aircraft being out of service.

Backrobbing

When parts are not available when needed, O&R's have frequently resorted to the practice of backrobbing, or removing a needed part from one aircraft and installing the part on another aircraft so as to minimize delays in rework time for the aircraft. During a 10-month period, we found over 1,200 instances of backrobbing at North Island. For example, we found that an aircraft undergoing rework at North Island during the period January 29, through April 28, 1964, had 13 parts removed for installation on other aircraft, and 34 parts installed which had been removed from other aircraft. This aircraft was in rework 41 days longer than originally scheduled. In our opinion, a portion of this delay in rework was due to the cannibalization of parts.

We believe that the practice of backrobbing, although sometimes expedient and necessary, is frequently uneconomical since additional and unnecessary expenditure of skilled labor is involved in the removal and subsequent replacement of the parts. We believe that the supply system should provide adequate support of repair parts and spare components to minimize the need for backrobbing.

We recently made inquiry at the North Island O&R as to whether the practice of backrobbing still existed. We were advised that backrobbing was practiced in those cases where indicated in order not to delay the rework schedule. We did not examine available records to ascertain whether the degree of backrobbing was as prevalent as during our initial review.

Administrative problems in the repair and rework program for F-4 aircraft

We found that administrative delays in the repair and rework program led to extended out-of-service time for F-4 aircraft. The primary reasons for the out-of-service time were (1) premature delivery of aircraft to O&R's for rework and late pickup after rework had been completed and (2) delays in repairing damaged aircraft. These administrative delays resulted in the equivalent of about three F-4 aircraft being out-of-service for a year.

In May 1966, we made further inquiry into the administration of the repair and rework program to ascertain whether aircraft were currently out of service because of administrative problems. We examined O&R production reports and made inquiries at the North Island O&R and at BuWeps. We found that the average out-of-service time of F-4 aircraft undergoing progressive aircraft rework (PAR) had been reduced by about half.

Untimely delivery to and pickup from overhaul and repair units

During the 2-year period ending June 30, 1964, premature delivery of aircraft to O&R's for rework and late pickup after completion of rework resulted in about 1,400 aircraft available days being lost. The time lost represents the equivalent of about two F-4 aircraft being continuously out-of-service for the period.

In our opinion, the primary reasons for these lost aircraft-available days were that (1) aircraft were being delivered to the O&Rs prematurely because adjustments in delivery and rework schedules were not being made by the O&Rs and BuWeps, (2) aircraft log-books were not posted concurrently with accomplishment of the rework, and (3) aircraft pickup was delayed due to lack of coordination between those responsible for release and pickup of aircraft.

Premature deliveries of F-4 aircraft

We found that aircraft scheduled for rework at the North Island O&R were delivered an average of 3.7 days prior to the scheduled date for the beginning of rework and aircraft scheduled for rework at Cherry Point were delivered an average of 7.2 days prior to the date scheduled for the start of rework. Some aircraft were at the O&Rs as much as 3 weeks before rework began.

Generally, we found that early deliveries were caused by training or other commitments of the operating squadrons, which would prevent delivery of the aircraft on the schedule date. When such is the case, we believe minor adjustments in the rework schedule would provide for exchanging induction dates of aircraft and in turn would reduce aircraft out-of-service time.

Although the Navy revised rework schedules in some situations, we found a number of instances where rework schedules were not changed to adjust the delivery dates of aircraft or to redesignate aircraft for rework even though changes or revisions to the schedules should, in our opinion, have been made. We believe that, as a result, aircraft were delivered to the O&Rs when they should have remained in the physical custody of the user squadron.

For example, an aircraft scheduled for rework on August 21, 1963, at North Island was delivered on August 7, 1963. Another aircraft was scheduled for induction on August 8. By deferring the delivery of the other aircraft until August 21, rework on the aircraft which was delivered on August 7 could have started on August 8. Instead, the schedule remained unchanged, and the first aircraft was out of service for 14 additional days before rework was started.

In April 1966, we found that, during the period July 1964 through March 1966, F-4 aircraft were being delivered to North

Island O&R for rework an average of 3.4 days prior to the scheduled induction date. Although this average was essentially the same as during our initial review, we found that about half of the aircraft were delivered on the scheduled induction date or 1 day prior thereto. The average was high because several aircraft substantially exceeded this 1-day period; three were delivered from 20 to 25 days early. Although a greater percentage of aircraft are being delivered to the O&R nearer to the scheduled induction dates than during our previous review, our follow-up examination reveals that greater attention to timely changes in rework schedules is still needed.

Delays in delivery of completed aircraft

We found that aircraft were not reported ready for return to operating squadrons until about 4 days after the completion of rework. Rework and repairs performed on aircraft must be recorded in the aircraft logbook and made a matter of record. At the North Island O&R, we found that logbook entries were postponed until all rework was completed. Since Navy instructions require that the **logbooks** must accompany the aircraft on transfer, the delivery of the aircraft will be delayed if the logbooks are not posted as the work is performed.

For example, rework was completed on one aircraft at North Island on May 28, 1964, but the aircraft was not delivered to the squadron until June 10, 1964, because logbook entries were not completed until that date. This resulted in an additional 13 days of out-of-service time.

Subsequent to our initial review, the Navy informed us that the problem in posting logbook entries at North Island had been resolved so that deliveries to users were no longer being delayed. While we did not examine into this area in detail during our

follow-on review, the records which we examined pertaining to delivery and pickup of aircraft indicated that the problems in the posting of logbooks had been corrected.

Delays in pickup of completed aircraft

We found that delays have occurred in returning aircraft to operating squadrons, after they have been reported completed and ready for delivery, because the pilots did not pick up the aircraft promptly. Upon completion of rework, aircraft are returned to the operating squadrons either by a pilot from a ferry squadron or by a pilot from the operating squadron. We were advised by the ferry squadrons serving Cherry Point and North Island that they had a limited number of qualified *F-4* pilots and that, if a request for an *F-4* delivery was received while these pilots were on another mission, the delivery would be delayed.

The records at the O&Rs did not show reasons why operating squadron pilots were delayed in picking up aircraft after rework was completed. In any case, we feel that the scheduling of aircraft deliveries and pick-ups is an administrative matter and, as such, should be accomplished in a manner to ensure that a minimal number of aircraft are out-of-service at any one time.

In only a few instances could we determine the specific reasons for out-of-service time of aircraft before and after rework because O&R records do not normally show such information. We recognize that there may be an occasional instance when out-of-service time before and after rework cannot be avoided; but we can see no justification for the extensive out-of-service time noted during our review. In our calculation of out-of-service time, 1 day before induction for rework and 1 day after completion have been allowed for pickup and delivery. We believe this period is

reasonable in view of the close proximity of the operating squadrons to the O&R Departments, particularly on the west coast where practically all of the F-4 aircraft are located within 11 air miles of the O&R Department and qualified pilots are available. We recognize that fleet commitments, training requirements, and other factors will result in occasional out-of-service time before and after rework; but we believe that these instances are the exception rather than the rule and that a 1-day delivery and pickup time is reasonable and practicable.

In April 1966, our brief review disclosed that only about one third of the aircraft reworked at the North Island O&R during the period July 1964 through March 1966 were picked up within 1 day. This still seems to be a problem area requiring more responsive management action to reduce aircraft out-of-service time.

Delays in repairing damaged aircraft

During the 2-year period covered by our review, 25 F-4 aircraft underwent accident-damage repair at the O&Rs. We found that delays in beginning repairs on these aircraft resulted in the loss of service of about 600-days per year, or the equivalent of more than one F-4 aircraft. Examples of this condition follow.

At Cherry Point one aircraft received in November 1963 was not inducted for repairs until February 1965. Another aircraft remained at Cherry Point 276 days before accident repairs were begun.

One of the principal reasons for these delays appeared to have been the fact that the rework program takes precedence over accident-damage repairs, thus, work on damaged aircraft begins only when space and manpower are available. However, we recognize that procurement of long lead time parts also contributes to delays in scheduling damaged aircraft for repair. Since the F-4 rework

program provides that periods between rework can, with BuWeps approval, range from 12 to 18 months, it seems to us that minor scheduling adjustments would permit damaged aircraft to be substituted for aircraft initially scheduled for rework, thus keeping one aircraft in a ready status while another is undergoing repairs.

During our follow-up review, we did not inquire into delays in repairing damaged aircraft because our initial review work in this area was performed primarily at Cherry Point rather than North Island and because of the very limited number of aircraft undergoing crash-damage repair at North Island during fiscal year 1965, according to O&R production reports.

Extended time in rework

We found that during the 2-year period ending June **30**, 1964, the North Island O&R reworked 115 aircraft at an average in-process time of 72 days. This in-process time exceeded by 20 days for each aircraft the average time experienced by the Cherry Point O&R, where 89 aircraft were reworked during the same period.

A comparison of the in-process time at both O&Rs at various levels of experience shows that Cherry Point was consistently ahead of North Island. For example, at the experience level of the 25th aircraft inducted into rework, North Island's in-process time was about 15 days longer than Cherry Point's and, at the experience level of the 50th aircraft, the difference was about 20 days with about this same level of difference continuing through the entire learning period at both O&Rs.

It did not seem reasonable that the time required by the two O&Rs to perform rework on the same type aircraft should vary to such an extent. We attempted to ascertain the reasons for this variance through an inquiry into the procedures followed in

examining, evaluating, and inspecting to determine the rework required for each aircraft, and the extent of rework performed. We were unable to ascertain the reasons for the variance in rework time. We, therefore, discussed that matter with responsible officials at BuWeps who informed us that, although they were aware of the disparity in time used to perform rework, no studies had been made to determine the reasons or to evaluate the operations of the two O&Rs. They conjectured that differences between facilities at the two O&Rs would account for a small part of this variance, but stated that the major difference was probably attributable to other factors. They further advised us that they were not aware of any difference in the quality of work performed by the two O&Rs.

We recognize that variances in rework time will occur between O&R activities and that some relatively minor differences can be attributed to various factors such as lack of experience or different work standards. We were unable, however, to reconcile or rationalize, on any sound basis, the significantly longer rework period needed at North Island. It appeared that a lack of aggressive action on the part of Navy officials at various management levels in comparing, evaluating, and initiating measures to improve in-process time for F-4 rework at North Island may have contributed materially to this problem area.

During our May 1966 examination, we found that both O&Rs had reduced the in-process time. Aircraft undergoing PAR during fiscal year 1965 were completed in an average of about **30** days at Cherry Point and about **38** days at North Island. This represents a substantial improvement over the averages which were disclosed by our initial review and indicates that a greater degree of management attention has been devoted to the F-4 rework program. For the

first half of fiscal year 1966, however, we found that the average in-process time had increased to about **38** days at Cherry Point and 41 days at North Island. We noted that the estimated man-hours required for rework had increased substantially over the estimates for past periods. We were informed by BuWeps personnel that this was due to a greater depth of rework being performed on F-4 aircraft undergoing PAR.

Agency comments

We brought the supply management problems discussed above to the attention of the Secretary of Defense and proposed that the Department of the Navy establish a weapons system management team for each type of first-line aircraft for as long as the aircraft is so categorized. The team would have overall authority and responsibility for maintenance and supply support of the aircraft to ensure that an optimum readiness position was being realized.

By letter dated December 7, 1966, the Assistant Secretary of the Navy (Financial Management) replied for the Secretary of Defense and informed us of the Navy's position regarding our findings and proposal. (See app. III.)

The Navy agreed that there should be a weapons system management team for each type of first-line aircraft as long as such services are necessary to cope with major difficulties in research, design, development, production, and logistics support peculiar to the system. The Navy stated, however, that the establishment of such a management structure for as long as an aircraft is categorized as a first-line weapon would require separate technical, maintenance, and supply structures for every first-line aircraft and would be an inefficient use of manpower and equipment.

We believe that the vast reorganization of the supply support system along weapon system lines, which the Navy implied would be required, is not needed and was not part of our proposal. The management team which we proposed would function within the framework of the existing supply system but would have broad responsibility for monitoring the system to ensure that adequate maintenance and supply support is provided for an aircraft for as long as it is categorized as a first-line weapon.

Although the Navy did not agree with our computation regarding the number of **F-4** aircraft which were unnecessarily out of service during the period covered by our review, the Navy did state that it had long been aware of the continuing problems mentioned in our draft report. They indicated that the establishment of a weapons system management team would not, in itself, ensure improvement of the conditions noted in our report. They stated also that there had been a reorganization of various command structures to aid in the improvement of the aircraft support system and that several programs designed to make major contributions to the improvement of aircraft logistics support had been initiated.

The Navy expressed the belief that the examples cited in our report did not substantiate an overall evaluation that ASO had lost control over inventory. The basis cited for this statement was the fact that "during the past fiscal year" gross inventory adjustments were 11 percent of the total inventory value of aviation material and net adjustments were less than 0.1 percent of inventory value. In our opinion, gross inventory adjustments of 11 percent, or \$253 million, are significant and reflect a need for improvements in control over the aeronautical inventory. Moreover, the net inventory adjustment could be zero yet millions of dollars in gross adjustments, increases and decreases, could be involved.

Conclusions

We believe that the recent Navy command reorganization and effective implementation of all the new programs cited in the Navy's reply will contribute to improved maintenance and supply support of all weapon systems and should therefore improve the readiness posture of the *F-4* aircraft. We plan to evaluate the implementation and adequacy of the Navy's actions in our continuing reviews of its supply and maintenance activities.

SCOPE OF REVIEW

Our review was directed primarily toward (1) identifying problems in supply and maintenance which were causing a decrease in aircraft readiness or availability and (2) determining ways by which this availability could be increased.

In supply, our primary effort was directed to spare parts needed by operating squadrons and the impact, as reflected in aircraft availability reports, caused by parts shortages. We examined the records and inquired into the reasons for shortages of 50 parts which, during a 1-year period, had been repeatedly causing F-4 aircraft to be unavailable for periods of at least 5 days. We did not include parts for which there were only routine type shortages, that is, those which on occasion kept aircraft out-of-service for 1 or 2 days.

In maintenance, our efforts were confined to the progressive aircraft rework (PAR) and crash-damage repairs performed at the O&R level.

The review of supply matters covered the 1-year period ended June 30, 1964, while the review of rework and crash-damage repair was for the 2-year period ended June 30, 1964. Our review, therefore, considered those problems in supply and maintenance which existed prior to June 30, 1964, and which we believe contributed to decreased aircraft availability. Early in calendar year 1966, we performed a limited amount of additional review work to ascertain whether the deficiencies in supply and maintenance support, which we noted in our initial review, were still prevalent.

The review included visits to the Naval and Marine Corps Air Stations, Key West, Florida; Cherry Point, North Carolina; Oceana, Virginia; and Miramar, California.

In addition, we performed work at the Bureau of Weapons, Washington, D.C.; Fleet Readiness Representatives, Norfolk, Virginia, and San Diego, California; ASO, Philadelphia, Pennsylvania; and the O&Rs, Cherry Point, North Carolina, and North Island, San Diego, California.

'APPENDIXES

PRINCIPAL OFFICIALS OF
THE DEPARTMENT OF DEFENSE AND THE DEPARTMENT OF THE NAVY
RESPONSIBLE FOR THE ADMINISTRATION OF ACTIVITIES
DISCUSSED IN THIS REPORT

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE:		
Robert S. McNamara	Jan. 1961	Present
DEPUTY SECRETARY OF DEFENSE:		
Cyrus R. Vance	Jan. 1964	Present
Roswell L. Gilpatric	Jan. 1961	Jan. 1964
ASSISTANT SECRETARY OF DEFENSE (INSTALLA- TIONS AND LOGISTICS):		
Paul R. Ignatius	Dec. 1964	Present
Thomas D. Morris	Jan. 1961	Dec. 1964
<u>DEPARTMENT OF THE NAVY</u>		
SECRETARY OF THE NAVY:		
Paul H. Nitze	Nov. 1963	Present
Fred Korth	Jan. 1962	Nov. 1963
John B. Connally	Jan. 1961	Dec. 1961
UNDER SECRETARY OF THE NAVY:		
Robert H. B. Baldwin	July 1965	Present
Kenneth E. BeLieu	Feb. 1965	July 1965
Paul B. Fay, Jr.	Feb. 1961	Jan. 1965
ASSISTANT SECRETARY OF THE NAVY (INSTALLA- TIONS AND LOGISTICS):		
Graeme C. Bannerman	Feb. 1965	Present
Kenneth E. BeLieu	Feb. 1961	Feb. 1965

PRINCIPAL OFFICIALS OF
THE DEPARTMENT OF DEFENSE AND THE DEPARTMENT OF THE NAVY
RESPONSIBLE FOR THE ADMINISTRATION OF ACTIVITIES
DISCUSSED IN THIS REPORT (continued)

Tenure of office	
From	To

DEPARTMENT OF THE NAVY (continued)

CHIEF, BUREAU OF NAVAL WEAPONS:

Rear Admiral Allen M. Shinn	May 1964	May 1966
Rear Admiral W. T. Hines (acting)	Mar. 1964	May 1964
Rear Admiral Kleber S. Masterson	Nov. 1962	Mar. 1964
Rear Admiral Paul D. Stroop	Sept. 1959	Oct. 1962

~~COMMANDER~~, AIR SYSTEMS COMMAND:

Rear Admiral Allen M. Shinn	May 1966	Present
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CHIEF, BUREAU OF SUPPLIES AND ACCOUNTS:

Rear Admiral Herschel J. Goldberg	May 1965	May 1966
Rear Admiral John Crumpacker	May 1961	Apr. 1965

COMMANDER, SUPPLY SYSTEMS COMMAND:

Rear Admiral Herschel J. Goldberg	May 1966	Present
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COMPUTATION OF F-4 AIRCRAFT OUT OF SERVICE IN FISCAL YEAR 1964

Our estimate of the number of additional F-4 aircraft which could have been available for use was computed by totaling the number of days that F-4 aircraft were identified as being out of service because of problems which were susceptible to improvement.

The total number of days was converted to years, and the number of years was used to express the number of equivalent aircraft which could have been available for use if the problems had not existed. A recapitulation of the problem areas, the number of days that F-4 aircraft were out of service as a result of the problems and the total number of equivalent F-4 aircraft, is presented below.

<u>Reasons aircraft were out of service</u>	Number of days out of service in 1 year
Loss of control over inventory	3,200
Parts not promptly purchased	1,800
Need to reposition stocks to activities where needed	300
Failure to repair parts in a timely manner	2,000
Untimely delivery and pickup	700
Delays in repairing damaged aircraft	<u>600</u>
Total	<u>8,600</u>
Total number of equivalent aircraft out of service	<u><u>23</u></u>



DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

7 DEC 1966

Dear Mr. Gutmann:

The Secretary of Defense has asked me to reply to your letter of 13 July 1966 which forwarded the draft report on the need for improvements in supply and maintenance support for F-4 aircraft by the Department of the Navy.

I am enclosing the Navy reply to the report.

Sincerely yours,

A handwritten signature in cursive script that reads "Charles F. Baird".

CHARLES F. BAIRD
ASSISTANT SECRETARY OF THE NAVY
(MANAGEMENT)

Mr. Richard W. Gutmann
Associate Director
Defense Accounting and
Auditing Division
U. S. General Accounting Office
Washington, D. C. 20548

Enclosure

(1) Navy Reply to GAO Draft Report of 13 Jul 1966 on the Need
for Improvements in Supply and Maintenance Support for
F-4 Aircraft (OSD Case #2491)

Navy Reply

on

GAO Draft Report of July 1966

on

Need for Improvement in Supply and
Maintenance Support for F-4 Aircraft

Department of the Navy

(OSD Case #2491)

I. SUMMARY

A. GAO STATEMENT AND RECOMMENDATIONS

The GAO report states that an average of 27 F-4 aircraft, valued at \$3 million each, was continuously out of service during the two-year period ending 30 June 1964, because of problems in supply and maintenance support. While GAO recognizes that aircraft must, of necessity, be kept out of service for maintenance, they believe that 27 F-4 were out of service unnecessarily because of support problems. GAO finds that during Fiscal Year 1964: (1) loss of control of over 11 replacement parts resulted in 323 instances, when F-4 aircraft were out of service a total of 3,200 aircraft days, equivalent to nine aircraft; (2) eleven parts not promptly purchased caused F-4 aircraft to be out of service 1,773 days or the equivalent of five F-4 out of service for a year; (3) failure to reposition stock resulted in activities waiting 326 days equating to one F-4 out of service for nearly one year; (4) because of needed parts and components, reusable items remained in unserviceable condition for longer periods of time than was considered reasonable and resulted in the equivalent of five aircraft being unavailable for service; and (5) administrative delays during the two-year period such as premature deliveries of aircraft, late pickup of aircraft, and delays in repairing aircraft resulted in the equivalent of seven F-4 aircraft being out of service for one year.

The GAO report recommends that the Department of the Navy establish a weapons system management team for each type of first-line aircraft. The function of this management team should be expanded beyond that of the present weapons system managers in that it should have overall authority and responsibility for maintenance and supply support of the aircraft as long as it is categorized as a first-line aircraft. This

Enclosure (1)

team should direct and coordinate the efforts of supply management personnel, overhaul and repair personnel and fleet readiness representatives to realize an optimum readiness position.

B. NAVY POSITION

The Navy agrees that there should be a weapons system management team for each type of first-line aircraft as long as such services are necessary to cope with major difficulties in research, design and development, production, and logistic support peculiar to the weapons system. This concept is included in the new Project Management Guidelines ROW utilized with respect to first-line aircraft and other weapons systems.

The Navy does not agree that the equivalent of 27 F-4 aircraft were continuously out of service unnecessarily during the two year period ending 30 June 1964. In the initial support of first-line aircraft, actual experience rarely equates to previously made predictions regardless of the support pattern or management technique employed. Adjustments to meet unplanned requirements involve time which results in aircraft being temporarily out of service.

II. DISCUSSION

Project Managers and Project Management Offices are established when models of first-line aircraft are introduced. This concept is based on the guidance in DOD Instruction 5010.4 and SECNAV Instruction 5000.21A, and amplified by NAVMAT Instruction 5000.5A. Generally, the Project life is continued until no major support difficulties exist which are peculiar to the weapons system. Under the Navy Support Organization, it would be an inefficient use of manpower and equipment to organize separate supply, maintenance and technical structures for every first-line aircraft. The available qualified personnel are too limited to do so.

The establishment of a weapons system management team would not in itself assure improvement of the conditions noted in the GAO report. To assure improvement, the Navy's aircraft support structure has reorganized and several new management disciplines have been instituted.

The recent restructure within the Naval Material Command and the Naval Air Systems Command has consolidated the aircraft support functions under the Logistics/Fleet Support Group. The group establishes policy, direction for and coordinates with the NAVAIRSYS COMREPS, O&R Departments, inventory control and material distribution points. This group also develops the organic/commercial rework and repair programs to satisfy the total rework and support requirements of all Naval aircraft and implements CNO rework priorities for all programs. Aircraft, aircraft engines and air launched missiles are inventory managed by this group during their life cycle. Logistics direction is furnished to the Aviation Supply Office and other supporting inventory control points for: determination of spares and repair parts, budget development, maintenance site support,

outfitting schedules, levels of endurance for combat and peacetime operations, and planning factors for procurement and supply system replenishment stocks.

There are several important management disciplines which have been adopted by OSD, SECNAV, CNO and CNM which are expected to make major contributions to improvements in aircraft Logistics support. Advanced Procurement Planning (NAVMAT Instruction 4200.31), Configuration Management (NAVMAT Instruction 5000.6) and Integrated Logistics Support Plan (recently issued) are examples of important advances in this area. The objective of these disciplines is to force advance support planning and methods of execution to be developed during the concept formulation phase. The implementation of the Standard Navy Maintenance and Material Management System will provide a major improvement in the availability of parts for all levels of maintenance including overhaul and repair rework. This System, when fully implemented, will greatly reduce the parts support conditions outlined in the GAO report.

DOD recognizes that it appears practical and desirable to increase integrated support for the F/RF-4 weapons system. A DOD integrated support task group is being established to develop the most effective and expeditious ways to increase support for this weapons system.

In connection with the GAO findings and conclusions, the following comments apply:

A. BACKROBBING

The GAO believes that the practice of backrobbing is frequently uneconomical although sometimes expedient and necessary. The Navy agrees that if an item, in good functioning condition, is removed from one aircraft and placed on another aircraft, it requires manhours and cost to remove the item. The Navy does not concur that in-process time (days out of service) need be increased by backrobbing. Management controls over backrobbing have been established to keep this practice within acceptable limits at O&R Departments.

[See GAO note.]

GAO note: The information deleted relates to matters which were discussed in the draft report but omitted from this final report.

C. ADMINISTRATIVE PROBLEMS IN THE REPAIR AND REWORK PROGRAM FOR F-4 AIRCRAFT

The report states that administrative delays led to extended out of service time for the F-4 aircraft. The primary reasons for the out of service time were (1) premature delivery of aircraft to O&Rs for rework and late pickup after rework had been completed and (2) delays in repairing damaged aircraft.

The administrative delays over the two-year period resulted in the equivalent of seven aircraft being out of service. Therefore, in equating these seven aircraft to a two-year period, an average of only three and one-half aircraft were out of service during the two-year period ending 30 June 1964.

Many factors contribute to creating a seemingly unbalanced picture in this management area, Carriers off-load aircraft in batches for induction into rework. Squadrons deploy and transfer aircraft earlier than planned. Weather conditions, mechanical problems, operational and training commitments and availability of qualified F-4 ferry pilots are additional factors which cause adjustments. O&R rework schedules are changed as required to cope with revisions to plans by CNO or Fleet Commanders and appropriate parties are given timely notification of such changes. Damaged aircraft must await receipt of sufficient major long lead time items (wings, spares, etc.) before induction into rework. In many instances such material cannot be placed on order until the aircraft has been examined by the rework activity.

The Navy recognizes the requirement to reduce out of service time to a minimum consistent with safe operations. Fleet Commanders and the Naval Air Systems Command are endeavoring to further reduce the out of service time through increased coordination between using Commands, ferry squadrons and O&R Departments. During Fiscal Year 1966, a total of 65 schedule changes were made on the F-4 induction schedules to accommodate early and late aircraft receipts and crash damaged aircraft.

Any scheduled deferral of crash damaged aircraft is, in every case, the result of a management decision based on an effort to achieve optimum utilization of the available industrial capacity to maintain the required number of mission-ready F-4 aircraft in the operating inventory. The Navy does not concur in the GAO proposal to defer the rework of Fleet aircraft to permit scheduling of crash damages. The expedient of placing Fleet F-4 aircraft on extension must be exercised with discretion since aircraft on extension are not ready for deployment.

D. SUPPLY SYSTEM DATA

The Navy has long been aware of the continuing problems mentioned in the report and has exerted efforts to improve the various facets of the supply system. On 19 June 1964, just prior to the close of the GAO review, ASO inaugurated the High Value Asset Control program which is designed to improve inventory control of these items. It is a Navy-wide

program applying to items which have a unit price of \$1,000 or more and anticipated sales of \$40,000 or minimal procurements of \$100,000.

The Navy does not believe that the examples cited in the report substantiate an overall evaluation that ASO lost control over inventory during the GAO review period. The Aviation Supply Office manages an inventory of 400,000 spare parts valued at \$2.3 billion to support 8,000 Navy aircraft on a world-wide basis. During the past fiscal year, gross physical inventory adjustments were 11% of the total inventory value of aviation material. Net adjustments, gains offset against losses, were less than .1% of the inventory value.

The Navy has instituted several programs to improve the supply support of Naval aircraft including the F-4. Since January 1965, 118 intermediate maintenance activities (IMAS) have been established. These IMAS are now returning to squadrons about 66% of all repairables presented thus precluding shipment and induction by O&R departments. The Navy goal is a 75 percent return. The expansion of the central automated replenishment technique (CART) in November 1965, as noted in the GAO report, provides for improvement in the redistribution of stocks to locations where needed. The abolishment in November 1965 of the AOC/P/ANFE reporting systems and the complete reliance on the OSD NORM/NORS system for material readiness indices has provided top management with more accurate material status reports of Naval aircraft. The initiation of the NORS Aviation Item Report (NORSAIR) System in March 1966 provides top support management with supply areas requiring increased management attention. The recent adoption of "split buys", as suggested by GAO during the review of the four services' S.E. Asia supply support, for items involving both NORS and system requirements should reduce delays in the procurement. These measures are effective devices to provide material at requirement points in anticipation of need and to satisfy temporary deficiencies with a minimum delay.