Audit Report

OFFICE OF THE INSPECTOR GENERAL

QUALITY ASSURANCE FOR ORGANIZATIONAL AND INTERMEDIATE LEVEL AIRCRAFT MAINTENANCE AT NAVY ORGANIZATIONS

Report No. 95-003 October 4, 1994

Department of Defense

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MEMORANDUM FOR ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT)

SUBJECT: Audit Report on Quality Assurance for Organizational and Intermediate Level Aircraft Maintenance at Navy Organizations (Project No. 4LB-0023)

Introduction

We are providing this report for your review and use. We performed the audit as part of our continued effort to review quality assurance for aircraft maintenance. We reviewed quality assurance policies and procedures in effect at intermediate and organizational maintenance levels at Naval Air Station Cecil Field, Jacksonville, Florida, and Naval Air Station Lemoore, Lemoore, California.

Audit Results

The intermediate and organizational maintenance units we visited had adequate policies and procedures in place for administering and managing quality assurance programs and the maintenance units generally complied with those policies and procedures. We did note instances where the units were not in full compliance with existing policies and procedures. We are providing the details of those instances in this report. We are not providing recommendations at this time. However, your attention to the noncompliance is necessary to ensure that actions are taken to correct the deficiencies.

Objectives

The objectives of the audit were to evaluate the effectiveness of the management and administration of quality assurance policies and procedures for units performing intermediate and organizational level aircraft maintenance and to evaluate applicable internal controls.

Scope and Methodology

We performed the audit work at Naval Air Station Cecil Field and Naval Air Station Lemoore in April and May 1994. We visited the Aircraft Intermediate Maintenance Department and the Strike Fighter Squadron VFA-106

(organizational level) at Naval Air Station Cecil Field. At Naval Air Station Lemoore we visited the Aircraft Intermediate Maintenance Department and the Strike Fighter Squadron VFA-146 (organizational level).

We evaluated quality assurance records and correspondence covering the period from January 1993 through May 1994. We also reviewed DoD and Navy regulations concerning policies, responsibilities, and procedures for administering and managing quality assurance programs at intermediate and organizational level maintenance activities. Additionally, we performed tests for compliance with existing procedures to determine whether:

o personnel performing maintenance tasks and quality assurance functions were adequately trained and qualified,

o required inspections and maintenance actions were performed promptly,

o quality deficiency reports were promptly initiated,

o quality assurance audits were performed promptly,

o units were complying with the requirements of the Navy Oil Analysis Program,

o equipment was calibrated when required, and

o units were maintaining up-to-date technical libraries.

We did not rely on statistical sampling or computer-processed data to accomplish the audit objectives. This economy and efficiency audit was performed from January through June 1994 in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD. Enclosure 2 lists the organizations visited or contacted during the audit.

Internal Controls

We evaluated the effectiveness of the internal controls that were applicable to ensuring quality aircraft maintenance at the intermediate and organizational levels. Those controls are principally the procedures defined in Chief of Naval Operations Instruction 4790.2E, "Naval Aviation Maintenance Program," January 1, 1989.

The Naval Aviation Maintenance Program establishes maintenance policies, procedures, and responsibilities for the conduct of naval aviation maintenance at

all levels throughout naval aviation. We reviewed programmatic controls and records, analyzed data, and interviewed personnel responsible for performing quality assurance functions. The internal controls applicable to the audit objectives were deemed to be effective in that the audit disclosed no material deficiencies. No weaknesses were noted in the DoD Internal Management Control Program as it related to the audit objective.

Prior Audits and Other Reviews

During the last 5 years, there have been no reviews that focused on the administration and management of quality assurance programs for aircraft at the intermediate or organizational levels of maintenance. However, the Inspector General, DoD, performed two related audits that focused on quality assurance programs for aircraft at depot level maintenance.

Inspector General, DoD, Report No. 93-118, "Quality Assurance for Organic Depot Maintenance of Aircraft," June 21, 1993, evaluated quality assurance actions for aircraft maintenance performed at organic depots. The report stated that the Military Departments did not have adequate quality assurance programs. The report also stated that four of the five aviation depots visited either had not developed adequate quality assurance plans or had developed and not implemented effective quality assurance plans; that the Military Departments did not record and track all internal quality deficiencies; and that depot cost accounting systems did not fully identify the cost of correcting deficiencies during the rework processes. The report recommended that the aviation depots be required to develop and implement comprehensive quality assurance plans, and to implement effective internal control procedures. The report also recommended that the Military Departments develop and maintain cost accounting systems for their depots. All recommendations have been implemented through the audit follow-up process.

Inspector General, DoD, Report No. 90-027, "Management and Administration of Quality Assurance for Aircraft Maintenance Contracts," December 26, 1989, evaluated the Government's quality assurance monitoring of contractors performing maintenance. The report stated that quality assurance programs were not adequately planned, plans were not implemented, and systematic quality data evaluations were not performed. The report recommended that the Military Departments establish a joint task force to develop a quality assurance inspection program for maintenance contracts; and with the Defense Logistics Agency, issue policy guidance requiring specific quality assurance provisions on all contracts for intermediate or organizational level aircraft maintenance. The Military Departments and Defense Logistics Agency concurred with the recommendation, and in December 1990 updated Defense Logistics Agency Manual 8200.1, "Procurement Quality Assurance."

The report also stated that the Military Departments and the Defense Logistics Agency did not have a system for reporting contractor quality history data on maintenance services. It recommended that the Deputy Assistant Secretary of Defense (Total Quality Management), clarify the requirement of DoD Directive 4155.1, "DoD Quality Program," August 10, 1978, for a quality reporting system for service contracts, and that the Military Departments and Defense Logistics Agency implement a system for reporting contractor quality history. The Military Departments and Defense Logistics Agency concurred with the recommendations. The contract profile system is scheduled to be completed in December 1994.

Background

DoD spends about $14 billion annually for aircraft maintenance. Quality assurance is an essential element of all maintenance programs. The major objective of a quality assurance program is to ensure mission and operational effectiveness and user satisfaction with a product. Quality assurance guarantees that services provided and products developed, purchased, operated, and maintained by DoD will conform with specified requirements.

Intermediate level maintenance is maintenance performed by designated maintenance activities for the direct support of a using organization. Typical intermediate maintenance includes calibration; repair of damaged parts, components, or assemblies; replacement of unserviceable parts, components, or assemblies; the emergency manufacture of nonavailable parts; and technical assistance.

Organizational level maintenance is maintenance that is performed by a using organization on its assigned equipment. Typical organizational maintenance includes inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies.

Discussion

Units at the intermediate and organizational levels of aircraft maintenance at Naval Air Station Cecil Field, and Naval Air Station Lemoore, had adequate policies and procedures in place for administering and managing quality assurance programs. The units were complying with policies and procedures relating to required inspections, prompt performance of maintenance and oil analysis programs, and maintaining up-to-date technical libraries. However, the units were not fully complying with policies and procedures relating to ensuring that collateral duty inspectors met minimum qualification requirements and were

monitored, closing out quality deficiency reports, performing work center audits, and calibrating equipment. The conditions existed because of a lack of attention to the policies and procedures. Details of the noncompliances are in Enclosure 1.

Management Comments

We provided a draft of this report to management on August 16, 1994. Because the draft report contained no systemic findings or recommendations, no comments were required and none were received.

The courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. Christian Hendricks, Audit Program Director, at (703) 604-9427 (DSN 664-9427) or Mr. Joseph Austin, Audit Project Manager, at (703) 604-9424 (DSN 664-9424). Enclosure 3 lists the distribution of the report. Audit team members are listed on the inside back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

Noncompliances Noted During the Audit

Naval Air Station Cecil Field, Aircraft Intermediate Maintenance Department

Quality Deficiency Reports (QDRs). QDRs provide maintenance activities with a method for reporting deficiencies in new or newly reworked material, which may be attributable to nonconformance with contractual or specification requirements or to substandard workmanship. Navy activities are required to submit QDRs to cognizant field activities in accordance with Chief of Naval Operations Instruction 4790.2E. Category 1 deficiencies (potential loss of life or affects safety) are to be reported within 1 working day after discovery of the deficiency. Category 2 deficiencies (all others) are to be reported within 5 working days after discovery of the deficiency. The QDR originating activities are required to initiate follow-up actions when investigative reports have not been received within 5 working days for category 1 deficiencies and within 10 working days for category 2 deficiencies.

QDR files did not contain adequate documentation to determine if the Aircraft Intermediate Maintenance Department was issuing QDRs promptly or if defective items were being shipped promptly from Naval Air Station Cecil Field to the sources of repair (depot or contractor) as directed by the cognizant field activity. The sources of repair conduct investigations to determine the root causes of the reported deficiencies and the necessary corrective actions. Additionally, because of a lack of attention, quality assurance personnel did not effectively follow up on issued QDRs. That is evidenced by the number of QDRs that remained open. In CY 1993, the Aircraft Intermediate Maintenance Department issued 71 QDRs. As of April 28, 1994, 29 of the 71 QDRs remained open. Between January 1994 and April 1994, 19 QDRs were issued; however, corrective action had been taken on only 1 of the 19 QDRs. The remaining 18 QDRs remained open and no follow-up actions had been taken. To ensure adequate quality throughout all phases of aircraft maintenance, prompt and positive corrective actions must be taken on documented QDRs to correct the root causes of any problems that may exist.

Work Center Audits. Audits are essential elements of quality assurance and provide an evaluation of performance throughout the maintenance department. They also serve as a method of identifying, investigating, and correcting deficiencies on a scheduled and unscheduled basis. Audits are also used to monitor those specific maintenance programs assigned to a quality assurance division for monitoring.

The Naval Air Station Cecil Field, Aircraft Intermediate Maintenance Department Quality Assurance Division is required to perform quarterly audits of the 49 work centers to evaluate the overall quality performance of each work

center. The audits include an evaluation of personnel and their skills; personnel's adherence to directives, procedures, and inspections; the adequacy of the availability of process, test, and inspection procedures; the availability and calibration status of equipment; and the availability of technical publications.

We reviewed the audit files for the fourth quarter of 1993 and the first quarter of 1994. The files did not contain records of all required audits. Records from the fourth quarter of 1993 showed that 11 of the 49 audits had not been performed. Similarly, another 9 of the 49 required audits for the first quarter of 1994 had not been performed. Management was not aware that the required audits had not been performed. Without the audits, the units have no assurance that the performance of duties at work centers is in accordance with established policies and procedures.

Naval Air Station Cecil Field, Strike Fighter Squadron VFA-106 (Organizational Level)

We are reporting no instances of noncompliance with existing policies and procedures at Naval Air Station Cecil Field for organizational level maintenance.

Naval Air Station Lemoore, Aircraft Intermediate Maintenance Department

Collateral Duty Inspector (CDI) Qualifications. CDIs are assigned to a production work center to inspect all maintenance work in compliance with quality assurance policies and procedures. Naval Air Station Lemoore, Aircraft Intermediate Maintenance Department Maintenance Instruction 04-94, "Qualifications and Designation of Quality Assurance Representatives, Collateral Duty Quality Assurance Representatives, and Collateral Duty Inspectors," February 14, 1994, establishes procedures and requirements for CDI qualification.

To determine whether designated personnel had met minimum qualification requirements, we judgmentally selected files for 30 of 96 CDIs for review. Only one individual had not met the requirements. That individual did not successfully pass the written test, but was inadvertently designated a CDI. The quality assurance officer advised us that the nonqualified individual's designation would be rescinded and he would be retested.

Equipment Calibration. Calibration is required for all equipment used to measure, gauge, test, inspect, diagnose, or otherwise examine materials, supplies, and equipment. Calibration determines equipment's compliance with specifications, engineering drawings, technical manuals, maintenance instructions, and serviceability standards. Naval Air Station Lemoore

Instruction 13640.1D, "Responsibilities and Procedures for Intermediate Level Precision Measurement Equipment Calibration and Repair Program," November 1, 1993, implements policies and procedures for managing the calibration program. The quality assurance division is required to monitor the calibration program to ensure that equipment requiring calibration is submitted for calibration promptly and that calibration standards are used only in the performance of calibrations and by qualified personnel.

To determine whether Aircraft Intermediate Maintenance Department work centers were calibrating equipment within required intervals, we judgmentally selected 87 of 567 items for review. Of the 87 items, 2 showed discrepancies between the calibration due dates displayed on the items' tags and the dates shown on the record used to schedule the items for calibration. Both items had been taken out of service, repaired, recalibrated and returned to the unit. However, the dates on the data base used to track the due dates for the next calibration had not been updated to reflect the calibration done at the time of repair. Care should be taken to ensure that records are updated when newly calibrated equipment is returned to the maintenance units.

Lemoore Naval Air Station, Strike Fighter Squadron VFA-146 (Organizational Level)

CDI Monitors. Quality assurance personnel are required to monitor CDIs on a quarterly basis during scheduled and unscheduled maintenance tasks. The purpose of the monitoring is to assess the performance and inspection techniques of CDIs.

To determine whether quality assurance personnel were monitoring the work of the CDIs, we judgmentally selected records for 18 of 39 CDIs for review. Of the 18 records reviewed, 9 CDIs were not being monitored on a quarterly basis as required. Quality assurance personnel did not perform the required monitoring due to a lack of attention. Quality assurance personnel should monitor the work of CDIs on a quarterly basis, as required, to ensure that CDIs are performing inspections in accordance with established procedures.

Work Center Audits. Audits are essential elements of quality assurance and provide an evaluation of performance throughout the maintenance department. Naval Air Station Lemoore Quality Assurance Division is required to perform quarterly audits of its 13 work centers to evaluate the overall quality performance of each work center. We reviewed the audit files for the first quarter of 1994. The files showed that two of the required audits (work center 020 - maintenance control, and work center 320 - trouble shooters) had not been performed. Management was not aware that the audits had not been performed.

Equipment Calibration. We judgmentally selected 21 of 107 equipment items to determine whether unit equipment was being calibrated within the required time intervals. All items had been calibrated within established intervals. However, one item, a torque wrench, had been on hand since 1992, but it was never recorded on the inventory listing. The inventory listing is required to be updated monthly. The torque wrench should be added to appropriate records so that when the calibration is due, it will be included.

Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology, Washington, DC

Department of the Army

Office of the Deputy Chief of Staff for Logistics, Washington, DC
Headquarters, Army Materiel Command, Alexandria, VA
Headquarters, U.S. Army Forces Command, Atlanta, GA
101st Airborne Division (Air Assault), Ft. Campbell, KY

Department of the Navy

Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), Washington, DC
Naval Air Systems Command, Arlington, VA
Naval Aviation Maintenance Office, Patuxent River, MD
Commander, Naval Air Atlantic, Norfolk, VA
Naval Air Station Cecil Field, Jacksonville, FL
Naval Air Station Lemoore, Lemoore, CA
Naval Air Station Oceana, Virginia Beach, VA

Department of the Air Force

Office of the Air Force Deputy Chief of Staff, Logistics and Engineering, Washington, DC
Headquarters, Air Combat Command, Langley Air Force Base, VA

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Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Operations
House Subcommittee on Legislation and National Security, Committee on Government Operations

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