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SPARE AND REPAIR PARTS AFFECTED BY DESIGN AND ENGINEERING CHANGES

Report No. 95-057

December 16, 1994

Department of Defense

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Acronyms

DLA Defense Logistics Agency
ICP Inventory Control Point
NSN National Stock Number
WSPM Weapon System Program Manager



INSPECTOR GENERAL

DEPARTMENT OF DEFENSE 400 ARMY NAVY DRIVE ARLINGTON, VIRGINIA 22202-2884



December 16, 1994

MEMORANDUM FOR DEPUTY UNDER SECRETARY OF DEFENSE FOR LOGISTICS

ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT)

ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT AND COMPTROLLER) DIRECTOR, DEFENSE LOGISTICS AGENCY

AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on Spare and Repair Parts Affected by Design and Engineering Changes (Report No. 95-057)

We are providing this report for your review and comments. It discusses the Military Departments' and the Defense Logistics Agency's use of information on weapon system and equipment modification programs in planning and forecasting requirements for spare and repair parts affected by modification programs. Comments on a draft of this report from the Assistant Deputy Under Secretary of Defense (Materiel and Distribution Management); the Assistant Secretary of the Navy (Research, Development, and Acquisition); the Air Force Deputy Chief of Staff (Logistics); and the Director, Defense Logistics Agency; were considered in preparing this final report. The Army had not responded to the draft report.

DoD Directive 7650.3 requires that all recommendations and potential monetary benefits be resolved promptly. We request that the Army and the Air Force provide comments on Recommendations 1., 3., and 4. and potential monetary benefits, and the Navy provide comments on Recommendation 1.b. All comments are requested by February 17, 1995.

The courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. Joel Chaney, Audit Project Manager, in our Columbus Office at (614) 337-8009. Copies of the final report will be distributed to the organizations in Appendix F. The audit team members are listed on the inside back cover.

David K. Steensma
Deputy Assistant Inspector General
for Auditing

David X. Steensma

Office of the Inspector General, DoD

Report No. 95-057 (Project No. 3LE-0050)

December 16, 1994

SPARE AND REPAIR PARTS AFFECTED BY DESIGN AND ENGINEERING CHANGES

EXECUTIVE SUMMARY

Introduction. The FY 1994 DoD budget included more than \$3.6 billion for the modification of weapon systems and equipment in the Aircraft, Missile, Weapons, and the Weapons and Tracked Combat Vehicle Procurement Appropriations. With the reduction in new weapon systems acquisition, a primary means of fielding new technology and modernizing forces will be through the modification of existing front line equipment.

Objectives. The objectives covered in this report include an evaluation of whether changes in parts requirements caused by redesign of fielded weapons and equipment were identified and reflected in supply support planning. We evaluated the systems and procedures that the Military Departments and the Defense Logistics Agency used to adjust wholesale requirements affected by changes to weapons and equipment. We also evaluated internal controls pertaining to the audit objectives.

Audit Results. The Military Departments' and Defense Logistics Agency's inventory control points did not use current and accurate information about weapon system and equipment modification programs in their supply support planning. As a result, the Military Departments' and Defense Logistics Agency's inventory control points forecasted excessive requirements for 129 of 497 items we reviewed that were being removed from equipment, and insufficient requirements for 7 of 72 items being installed in the equipment during the modification.

Internal Controls. The audit identified material internal control weaknesses. The implementation of the Internal Management Control Program and internal controls were not effective to ensure that current and accurate information on the modification programs were provided to and used in Military Department and Defense Logistics Agency inventory control points' requirements determination systems, or that parts obsolescence caused by weapon system modification was recognized promptly to avoid unneeded procurement or maintenance action. Part I discusses the internal controls assessed and Part II provides details of weaknesses found.

Potential Benefits of Audit. The inventory control points canceled premature or unnecessary purchases and repairs, valued at \$674,837 (see Appendix D). However, the audit results relate to only the judgmental sample we reviewed and, accordingly, do not represent all unnecessary purchases or repairs the inventory control points may have initiated. Therefore, potential monetary benefits related to the audit recommendations were not quantifiable.

Summary of Recommendations. We recommend that guidance for the weapon system program managers' development and approval of modification programs be revised to improve the identification of items affected by the modifications and the coordination between the weapon system program manager and the inventory control points, and that the requirements determination system being developed under the DoD

Corporate Information Management System include the capability to adjust requirements forecasts for the planned modification. Until the above recommendations are implemented, we recommend that the inventory control points issue supplemental guidance for supervisory oversight of item manager purchase and repair decisions.

Management Comments. The Assistant Deputy Under Secretary of Defense (Materiel and Distribution Management) concurred with the recommendations and provided information on the development of the DoD Materiel Management Standard System. The Assistant Secretary of the Navy (Research, Development, and Acquisition) agreed to improve the identification of items affected by modifications, to improve coordination between weapon system program managers and inventory control points, and to revise guidance for supervisory oversight of item manager decisions. The Air Force Deputy Chief of Staff (Logistics) concurred with the recommendations and agreed to provide specific actions with implementation dates in response to the final report. The Director, Defense Logistics Agency, agreed to issue supplemental guidance for oversight of item manager decisions when the Military Departments implement the audit recommendations for providing information on modification programs to the Defense Logistics Agency. The Army had not provided comments to the draft report. See Part II for a discussion of managements' comments and Part IV for the complete text of the comments.

Audit Response. We request that the Army provide comments on the recommendations and potential monetary benefits. Additionally, we request that the Navy provide comments on procedures to provide the Defense Logistics Agency with information on modification programs, and that the Air Force identify specific actions to be taken on the recommendations and the estimated dates for completion of planned actions. All comments are requested by February 17, 1995.

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This report was prepared by the Logistics Support Directorate, Office of the Assistant Inspector General for Auditing, Department of Defense.

Part I - Introduction

Background

The FY 1994 DoD budget included more than \$3.6 billion for the modification of weapon systems and equipment in the Aircraft, Missile, Weapons, and the Weapons and Tracked Combat Vehicle Procurement Appropriations. With the reduction in new weapon systems acquisition, the primary means of fielding new technology and modernizing forces will be through the modification of existing front line equipment.

The Military Departments follow basically the same process for the development and approval of design and engineering changes (that is, modification programs) that is performed during the acquisition and fielding of new weapon systems and equipment. The process involves integrated logistics support planning, requires participation of personnel from various disciplines, and includes coordination between the weapon system program manager (WSPM) and the maintenance and inventory management activities.

Objectives

The overall objective of the audit was to determine whether changes in parts requirements caused by redesign or replacement of fielded weapons and equipment were identified and reflected in supply support planning. We evaluated the systems and procedures that the Military Departments and the Defense Logistics Agency (DLA) use to adjust wholesale requirements affected by changes to weapons and equipment. We also evaluated internal controls pertaining to the audit objectives.

We did not evaluate the replacement of fielded weapon systems and equipment with new systems and equipment as part of this audit. At the end of the audit survey, we concluded that we could not effectively review both audit topics within the same audit project because of their complexity and because of the time required to review the separate topics.

Scope and Methodology

To evaluate whether changes in parts requirements caused by design and engineering changes to weapons and equipment were identified and reflected in supply support planning, we judgmentally sampled 569 reparable and consumable items managed by the Military Departments and DLA inventory control points (ICPs) (see Appendix A). We selected items from 15 active modification programs that were related to 9 weapon systems for which the

Military Departments requested modification funding in the FY 1994 President's Budget (see Appendix B). While the modification programs were active at the time of our review, some were initiated as early as 1987 and others were just starting. The audit sample included 497 items that were being removed during the modification programs and 72 items that were being installed during the modification programs. We limited our review of items being installed during modification programs because the audit survey indicated that provisioning for those items was generally effective. Because we did not use statistical sampling, the audit results in this report relate to only the judgmental sample.

We examined planning documents and management reports related to the 15 modification programs. The planning documents consisted of modification schedules, modification directives (known also as technical orders, modification work orders, power plant changes, and ordnance alterations), and modification budget documents. The management reports gave the status of the execution of the modification programs at the time of the audit. We used the documents and reports to identify reparable and consumable items affected by the modification programs and to determine the scope of the modification program and the potential effect of the program on future requirements for the items.

We examined requirements documents generated between March and December 1993 for the reparable assemblies and components affected by the modification programs, to determine whether the inventory manager had sufficient information about the modification program to make effective management decisions and to determine whether the information was included in supply support planning and requirements determination systems. Except to evaluate whether current and accurate information on modification programs was provided to the Military Departments and DLA's ICPs and used in their requirements forecasts, we made no independent assessment of the reliability of computer-processed data used in the ICPs' requirements determination systems.

This economy and efficiency audit was made from April 1993 through May 1994 in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly, included such tests of internal controls as were considered necessary. Organizations visited or contacted during the audit are shown in Appendix E.

Internal Controls

Controls Assessed. We evaluated implementation of the Internal Management Control Program and the procedures that WSPMs used to identify the items affected by a weapon system modification and to communicate information on the modification program to the Military Departments and DLA's ICPs. We also evaluated the systems and procedures that the ICPs used to adjust the requirements forecasts based on the planned modifications.

Internal Control Weaknesses. The audit identified material internal control weaknesses as defined by DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987. The Internal Management Control Program and internal controls were not effective to ensure that current and accurate information on modification programs were provided to and used in Military Departments and DLA's requirements determination systems or that parts obsolescence caused by a weapon system modification was recognized promptly to avoid unneeded procurement or maintenance action. The Military Departments and DLA did not identify the internal control deficiency as a material internal control weakness in their FY 1993 Internal Management Control Program Report. The responsibilities for management of modification programs and for management of items affected by those programs is fragmented between organizations within the Military Departments and between the Military Departments and DLA. The Military Departments and DLA did not consider the internal controls over information related to modification programs to be a separate assessable unit.

All recommendations in this report, if implemented, will assist in correcting the weaknesses. We could not quantify the potential monetary benefits to be realized from implementing the recommendations (see Appendix D). A copy of the final report will be provided to the senior officials responsible for internal controls within the Office of the Secretary of Defense, the Military Departments, and DLA.

Prior Audit Coverage

During the last 5 years, the Inspector General, DoD, and the Air Force Audit Agency performed three audits directly related to modification program issues discussed in this report. The three audits are summarized below.

Inspector General, DoD, Report No. 94-071, "Report on the Transfer of the Management of Consumable Items to the Defense Logistics Agency," March 31, 1994, concluded that, in general, the Consumable Item Transfer Program was working effectively. However, the report stated that the Military Departments' ICPs did not always transfer essential logistics management data promptly, and that the receiving DLA ICP did not always use the data effectively. That affected DLA's ability to support military customers. Specifically, the audit reported that DLA's wholesale stockage levels were based

primarily on demand history and that DLA's requirements determination process did not routinely accommodate program factors and nondemand based requirements that the Military Departments used to adjust forecasts. The report recommended that the Military Departments and DLA resolve the issues delaying timely transfer and support of program requirements. DLA concurred with the finding and indicated that a system change request was in process to capture program data requirements. In the interim, DLA said it would determine what manual workarounds, if any, needed to be instituted to effectively support readiness concerns.

Air Force Audit Agency report (Project No. 0106210), "Management of Exchangeable Assets Removed During Modifications," April 3, 1991, concluded that the management of exchangeable assets removed during equipment modification was adequate. The report stated that disposition instructions in the Air Force time-change technical orders were adequate, exchangeable assets were returned to the supply system, and materiel managers were notified of the pending modifications. The report made no recommendations for corrective action.

Air Force Audit Agency report (Project No. 9106210), "Implementation of Class IV and V Modification Objectives," February 14, 1990, reported that the Air Force Logistics Command (presently the Air Force Materiel Command) had not implemented procedures and controls to track and measure improvements in equipment reliability and maintainability achieved through modifications, and that those improvements were not considered in establishing spare parts demand rates. As a result, about \$800 million of excess spare parts requirements were included in the requirements determination system. The report recommended that the Air Force Logistics Command establish an effective performance feedback system to track and monitor the reliability and maintainability improvements achieved through modifications, and require the use of the data in computing spare parts requirements. Management agreed with the overall audit results and initiated appropriate actions.

Other Matters of Interest

As a result of the audit, ICPs of the Air Force and of DLA reduced or canceled unneeded purchases for 16 items, valued at \$608,677. Air Force ICPs also reduced negotiated repair actions, valued at \$66,160. Appendix C identifies the items for which purchases or repairs were reduced or canceled.

Part II - Finding and Recommendations

Adjusting Requirements Forecasts for Planned Modifications

The Military Departments and DLA's inventory control points did not use current and accurate information about weapon system and equipment modification programs in their supply support planning. The condition occurred because:

- o coordination between the weapon system program managers and the inventory control points was not adequate.
- o the automated requirements determination systems used by the Army, the Navy, DLA and, to a lesser extent, the Air Force, were not capable of using information about the modification programs to adjust requirements forecasts.
- o the inventory control point management and quality control personnel did not adequately monitor the accuracy of requirements forecasts for the items affected by modification programs.

As a result, the Military Departments and DLA's inventory control points forecasted erroneous requirements for items that were being removed from or installed in the equipment during modification. For 129 of the 497 items being removed from equipment during the modification, the inventory control points forecast excessive requirements which contributed to the premature or unnecessary purchase or repair of the items. Conversely, for 7 of the 72 items being installed during the modification, the inventory control points forecast insufficient requirements and were not repairing sufficient assets.

Background

When a modification program is approved, the WSPM issues a modification directive that establishes a plan for performing the modification. Generally, the directive establishes the planned schedule for performing the modification and defines the specific maintenance tasks involved in the modification process. The directive also identifies the discrete parts to be removed from the equipment during the modification and the disposition of those parts (whether the parts are to be returned to stock, disposed of, or modified and reinstalled as part of the modification). When the directive specifies that parts will be modified and reinstalled, the directive typically requires reidentification of the parts, and the assignment of new national stock numbers (NSN) to the modified items. The WSPM is responsible for ensuring that cataloging actions for the items entering the DoD wholesale inventory system as a result of the modification are completed.

Evaluation of Supply Support Planning and Requirements Forecasting

We judgmentally sampled 569 reparable and consumable items that were affected by the 15 modification programs we reviewed. The Military Departments and DLA's ICPs procured excessive quantities for 76 (13 percent) items and repaired or negotiated for the repair of excessive quantities for 53 (9 percent) items that were being removed for the weapon system or equipment as part of the modification. Conversely, the ICPs had not negotiated for the repair of enough stock for 7 (1 percent) items that were being installed as part of the modification. We attributed the excessive purchases and the excessive and insufficient repairs to three general causes: inadequate coordination between the WSPM and ICPs, deficiencies in the automated requirements determination systems, and inadequate management oversight.

Coordination Between Weapon System Program Managers and Inventory Control Points

Inventory managers procured or repaired unneeded inventory because the WSPMs did not identify all items that would be affected by their modification programs, notify DLA ICPs that items they managed were affected by the programs, provide current and accurate information on the status of the modification programs, and ensure that cataloging actions for the modification were completed.

Identification of Items. WSPMs did not identify all spare and repair parts affected by the modification. The modification directive is the primary means for the WSPM to identify discrete reparable and discrete consumable items affected by modification programs. However, the process that the Army, the Navy, and the Air Force WSPMs follow in developing the modification directive generally does not include a breakout analysis to identify all significant reparable and consumable items that are components of the assemblies that will be affected by the modification. Those reparable and consumable items are often used only in the end item being modified; and, if not consumed before the modification program is completed, the items will be obsolete.

For example, when the Air Force modified the C-130 aircraft to replace the APQ-122 radar system with an APQ-175 system, the modification directive did not identify the components of the reparable items in the APQ-122 system. To identify significant consumable items used in depot level maintenance of the APQ-122 radar system, we obtained information from the maintenance activity at Warner Robins Air Logistics Center. We sampled 33 consumable items managed by either the Warner Robins Air Logistics Center (13 items) or the Defense Electronics Supply Center (20 items) to determine whether inventory managers were aware of the modification and had adjusted requirements forecasts for the components to reflect the impact of the modification.

Inventory managers at the Warner Robins Air Logistics Center and Defense Electronics Supply Center had not been provided information on the modification program that they needed to adjust requirements forecasts for consumable items. As a result, requirements for the 33 items were erroneous. Inventory managers canceled on-going purchases for three items, valued at \$186,264, after we advised them that the modification program replaced the APQ-122 radar system with the APQ-175 system.

Notification of DLA Inventory Control Points. DLA inventory managers initiated premature and unnecessary purchases because they did not receive sufficient information on the items affected by modification programs to accurately forecast requirements. The Military Departments' ICPs typically received information from the WSPMs (such as modification directives identifying the discrete reparable and consumable items affected by the modification, and status reports on the accomplishment of the modification) and disseminated that information to the inventory managers. However, that same information was not provided to DLA inventory managers. We concluded that the Military Departments' WSPM and ICPs did not have effective procedures to disseminate information on the modification programs to the DLA ICPs and inventory managers.

Our sample of 569 items included 200 DLA managed items that were being removed from weapon systems or from equipment as a result of modification programs. The WSPMs generally had not provided detailed information to DLA identifying the specific items and the extent to which demands for those items would be influenced by the modifications. For 2 of the 200 items, the DLA inventory managers had received sufficient information to determine that additional purchases of the items should not be made. However, for the remaining 198 items, the technical data files of the DLA ICPs did not indicate that the items were affected by the modification programs. Further, the DLA inventory managers did not have sufficient information on the modification program and its status to accurately adjust requirements forecasts or inventory levels.

In the case of the conversion program for the Bradley Fighting Vehicle, the lack of information on the modification was exacerbated by erroneous requirements forecasts that the Army Tank-Automotive Command submitted to the DLA ICPs. The Army Tank-Automotive Command developed requirements forecasts (known as special program requirements) to support the planned conversion of the Bradley Fighting Vehicle and to support overhaul programs for other vehicles and equipment. However, the forecasts related to the Bradley Fighting Vehicle were invalid because the items were being removed as part of the conversion program. The forecasts were generated using erroneous overhaul consumption data from the maintenance depot performing the modification. For 28 of the 101 sampled items, the DLA inventory managers included invalid special program requirements in their requirements forecasts, valued at \$627,400, and initiated premature purchases, valued at \$210,000.

Because of the potential for premature acquisition of inventory, we reviewed an additional 55 Bradley Fighting Vehicle items that were managed by the Defense Construction Supply Center. The Defense Construction Supply Center was

purchasing inventory for the Bradley Fighting Vehicle items, valued at \$1.8 million. The Army Tank-Automotive Command had submitted special program requirements to the Defense Construction Supply Center for 34 of the 55 items, valued at \$2.3 million. Special program requirements for the 34 items, valued at \$853,500, were invalid. In addition to using erroneous overhaul consumption data, the Army Tank-Automotive Command did not send transactions to cancel special program requirements to the Defense Construction Supply Center that were generated by its automated system. When we advised the Defense Construction Supply Center of the condition, the item managers initiated action to cancel or reduce purchases for 9 items, valued at \$336,975 (Appendix C identifies the items for which inventory managers initiated reductions). In addition, the Army Tank-Automotive Command agreed to take action to cancel the erroneous special program requirements that were submitted to the Defense Construction Supply Center and the other DLA ICPs.

Program Data. The WSPM did not always provide current and accurate information on the status of the modification programs to the appropriate inventory managers. Modification directives establishing the initial schedule or plan for accomplishing the modification program were generally provided to the applicable Military Department ICPs. However, significant changes in modification schedules, because of fluctuations in weapon system programs, and plans for equipment phaseouts were not provided to the inventory managers of the ICPs in a prompt and accurate manner.

For example, the WSPM provided inaccurate information to the inventory managers on the status of and changes in the modification schedule for the multi-stage improvement program of the F-15 aircraft. The F-15 multi-stage improvement program applied to 304 active F-15C/D aircraft produced between FY 1978 and 1983. As of September 30, 1993, 221 of the 304 aircraft had been modified. However, the data that the WSPM provided to the Air Force inventory managers through the reparable item requirements determination system indicated that only 99 of the aircraft had been modified. The noncurrent and inaccurate information on the status of the modification program distorted the end item program data used in the requirements determination system.

For the items being removed during the modification of F-15 aircraft, the program data used to forecast requirements was overstated by approximately 50 percent. We reviewed 35 reparable items managed by the Oklahoma City and Warner Robins Air Logistics Centers that were being removed (30 items) or installed (5 items) during the modification. Equipment specialists developed unique application programs and input end item program data into the requirements system for 22 of the 35 items. However, requirements for the remaining 13 items were computed using the erroneous data provided by the WSPM. The erroneous data caused the ICPs to forecast inaccurate repair requirements for FY 1994 for 5 of the 13 items. The requirements for repair of four items being removed during the modification were overstated by about \$519,500 and requirements for repair of one item being installed were understated by about \$34,200. The WSPM initiated action to correct the program data.

Cataloging for Modification Programs. The applicable Navy WSPM did not ensure that Naval Air Systems Command personnel completed cataloging actions for items affected by two of the modification programs. Although modification directives specified that the inventory of an existing item would be modified to the configuration needed for support of the modified equipment, the Naval Air Systems Command personnel responsible for cataloging did not enter the appropriate interchangeability and substitution coding in the cataloging system. For 6 of the 21 Navy-managed items that were entered into the wholesale supply system as the result of a modification program, the inventory managers were not aware of the relationship between the existing and modified items. As a result, the inventory managers did not adjust requirements for assets of the existing items that could be modified or upgraded to satisfy the requirement for the new items.

For example, an inventory manager at the Aviation Supply Office unnecessarily purchased 232 bearing seats, NSN 3110-01-319-3025, valued at \$117,000, to support initial requirements for modified J-52 engines. The inventory manager did not consider bearing seats, NSN 3110-00-912-0759, managed by the Defense Industrial Supply Center that could be upgraded. Although the modification directive, Power Plant Change No. 290, stated that NSN 3110-00-912-0759 would be removed from the J-52 engine, modified to NSN 3110-01-319-3025, and reinstalled in the J-52 engine, that relationship was not entered into the cataloging system. The Defense Industrial Supply Center had 290 bearing seats on hand that were excess to current requirements.

Forecasting Requirements for Affected Items

The Military Departments and DLA ICPs prematurely or unnecessarily purchased stock or repaired unserviceable assets because automated requirements determination systems did not adjust requirements forecasts for items affected by modification programs. The Military Departments' automated requirements determination systems use weapon system and major equipment (end item) program data, such as end-item population, operating hours, or flying hours, in requirements forecasts for reparable items and significant consumable items. However, the Army, the Navy, and DLA automated requirements determination systems could not and did not adjust end item program data in response to all types of modification programs. As a result, the program data used to forecast requirements for items related to 10 of the 12 Army and Navy modification programs that we reviewed were inaccurate. Additionally, Air Force inventory managers directed the unnecessary repair of unserviceable assets because the reparable item requirements determination system of the Air Force was not capable of reducing prepositioned war reserve requirements that could be and sometimes were affected by the planned The Air Force system had the capability to adjust end item program data used to forecast routine or peacetime requirements in response to planned modification; however, the system was not capable of reducing prepositioned war reserve requirements. Further, Air Force inventory managers unnecessarily purchased consumable items because personnel did not enter a peacetime program ratio related to the modification program into the consumable item requirements system.

Army and Navy Requirements Determination Systems. The Army and the Navy requirements determination systems were not programmed to adjust requirements forecasts for the items affected by all types of modification programs. Program data for weapon systems and major equipment (end items) were entered into the Army and the Navy requirements determination systems. The requirements determination systems used the end item program data to adjust requirements forecasts. Accordingly, when a modification was significant enough that separate program data were developed for both the unmodified and modified end items, the requirements determination systems adjusted the requirements forecasts. For example, the Army requirements determination system adjusted the item requirements forecasts when the OH-58A helicopter was modified to the OH-58D helicopter.

Neither the Army nor the Navy requirements determination system was programmed to use the modification schedule to develop application program data for modification programs affecting equipment, such as engines, radars, and radios. Accordingly, the requirements determination systems were not capable of adjusting requirements forecasts for items related to the modified and unmodified equipment.

For example, the program data that the Army used to forecast requirements for items being replaced as part of the UH-60L improved rotor control modification was overstated by as much as 20 percent. The Army requirements system used the flying hour program for the entire UH-60L helicopter population because the requirements system could not calculate flying hour programs related to the modification; that is, the system could not allocate the UH-60L flying hour program between the modified and unmodified rotor controls based on the modification schedule. As a result, requirements forecasts for the items removed during the modification of the rotor controls were overstated and inventory managers were prematurely purchasing inventory for three items, NSNs 1560-01-296-9486, 1615-01-158-9658, and 1560-01-158-9656 valued at more than \$224,000. Although informed about the premature purchases, the ICP took no action to cancel the purchases, but did agree to adjust the requirements forecasts.

Similarly, the Navy requirements determination system forecasted erroneous repair requirements for items affected (both replaced and installed items) by the J-52 engine operation and safety improvement program. The requirements determination system used the flying hour program for the weapon systems (A-6 aircraft) because it could not calculate an application program for the modification (allocate the end item program data between the modified and unmodified engines based on the modification schedule). Additionally, requirements forecasts were overstated because the Aviation Supply Office did not adjust the program data for the planned phaseout of the J52-408 and J52-408A engines. In the case of a fuel control, NSN 2915-00-139-0219, used on the unmodified J52-408 engine, the Aviation Supply Office forecasted the unneeded repair of 21 fuel controls at a cost of \$198,000. At the same time,

the requirements determination system did not forecast a repair requirement for a modified fuel control, NSN 2915-01-316-0604, needed to support the J52-408A engine until the engine is phased out.

Defense Logistics Agency's System. The DLA requirements determination system did not use end item program data to compute stockage levels for the sampled items. The DLA requirements determination system computed stockage levels based primarily on historic demands and utilized a demand smoothing technique that placed emphasis on the older demand observations. However, when a weapon system is being modified the older demand observations are not representative of future requirements. As previously discussed, DLA managed 200 items in our sample that were being removed from the equipment being modified. At the time of our audit, 52 of the 200 items were classified as insurance or nonstocked items; therefore, the requirements forecasts would not generally be influenced by modifications to end items they supported. However, the remaining 148 items were classified as demand based items. Requirements for those items would be affected by declining end item populations.

For example, an inventory manager at the Defense Electronics Supply Center initiated a purchase for 13 transformers, NSN 5950-00-991-9251, valued at \$6,864 in March 1992. The transformer was used only in support of the C-130 aircraft radar and navigation system. The item manager was not aware that the C-130 WSPM started a modification program in 1990 that replaced the C-130 radar and navigation system with the self contained navigation system. If the DLA had received and used program data related to the system modification to develop the requirements forecast for the transformers, the purchase would not have been justified. Because the end item population of the unmodified systems was programmed to decline by about 60 percent during the procurement lead time, the historic demand rate for the item was not representative of the Air Force's future needs. When the modification is completed in FY 1995, the transformers in the DoD inventory will be obsolete.

As discussed in Inspector General, DoD, Report No. 94-071 (see prior audit coverage), DLA did not use a program factor (peacetime program ratio) to forecast requirements. That limitation in the DLA requirements determination system precluded the system from effectively forecasting declining demand trends caused by the modification programs and contributed to the acquisition of stock that will be excess or obsolete when the modification programs are completed. DLA advised us that its system has the capability to use a program factor (program change factor or peacetime program ratio) in requirements forecasting. However, the program factor was not sophisticated enough to adjust requirements for modification programs. Additionally, the Military Departments and DLA have not jointly defined the type of program data that should be provided to DLA to better manage the items.

Air Force Requirements System for Reparable Items. Unserviceable assets were unnecessarily repaired because the Air Force system did not automatically adjust prepositioned war reserve requirements for items affected by modification programs. Additionally, the inventory managers did not manually adjust requirements based on approved modification schedules.

Air Force Audit Agency report (Project No. 4010215), "Requirements Computations for Spare Parts Affected by Modification Programs," August 15, 1984, reported that requirements for prepositioned war reserve materiel were not reduced based on expected modifications. The Air Force concurred and indicated that a mechanized capability would be developed in the requirements data base by late 1987. However, at the time of our audit, the requirements determination system had not been modified to adjust the prepositioned requirements; therefore, appropriate adjustments continued to depend on the vigilance of inventory managers.

As an interim solution to mechanized adjustments, the Air Force Materiel Command issued guidance requiring inventory managers to manually adjust the prepositioned requirements for items affected by modification programs. However, inventory managers did not always comply with the policy. For example, reparable items that were being removed from C-130 aircraft models as a result of the self contained navigation system modification had significant prepositioned war reserve requirements that should have been but had not been manually adjusted. Our review of 14 reparable items managed by the Oklahoma City Air Logistics Center and the Warner Robins Air Logistics Center indicated that the inventory managers did not adjust the prepositioned requirements for 9 items. Based on the erroneous requirements forecasts, the inventory managers directed the unnecessary repair of assets. Between April 1991 and March 1993 the Air Force spent approximately \$1.4 million to repair assets for those nine items that are now excess to forecast requirements.

Air Force Requirements System for Consumable Items. Air Force inventory managers prematurely or unnecessarily purchased consumable items because program factors (known as peacetime program ratios) were not entered into the consumable item requirements system.

The Air Force consumable item requirements system can adjust recurring demand rates by using a program factor. Air Force Materiel Command Regulation 57-6, "Requirement Procedures for Economic Order Quantity Items," January 29, 1993, directed that the financial management directorate (formerly the Materiel Management Branch) at each air logistics center compute a specialized peacetime program ratio for consumable items affected by modification programs and enter that application program into the requirements system. The Financial Management Directorate at the Warner Robins Air Logistics Center did not establish a peacetime program ratio related to the modification programs we reviewed. As a result, consumable item inventory managers at the Warner Robins Air Logistics Center initiated premature or unnecessary purchases, valued at \$79,612, for five items that were being removed from the C-130 aircraft because of the APQ-122 radar replacement modification or the self contained navigation system modification, and from the F-15 aircraft because of the multi-stage improvement program.

DoD Materiel Management Standard System. The DoD Joint Logistics Service Center is developing the Materiel Management Standard System, as part of the DoD Corporate Information Management initiative. This system will replace the existing Military Department and DLA automated requirements determination systems that were discussed above.

In January 1993, DoD provided the Functional Logistics Plan to the Joint Logistics Service Center for the Materiel Management Standard System. The Joint Logistics Service Center was to develop functional requirements statements related to the Design Change Notice/Engineering Change Proposal process. In September 1994, DoD requested the Naval Supply Systems Command to take the lead in defining functional requirements for the Design Change Notice/Engineering Change Proposal process because the Joint Logistics Service Center had not demonstrated progress in developing the requirements. (See the text of the Assistant Deputy Under Secretary of Defense [Materiel and Distribution Management] memo, November 1, 1994, in Part IV.)

Management Oversight

The Military Departments and the DLA ICPs were prematurely purchasing or repairing assets because supervisory personnel did not ensure that inventory managers verified program data and adjusted war reserve requirements, as discussed earlier, and that inventory managers complied with existing guidance for verifying application data and applicable asset balances. Further, Air Force quality review teams did not perform required reviews that were devised to detect the need for greater management oversight.

Application Data. Supervisory personnel at Warner Robins Air Logistics Center did not provide the oversight necessary to ensure that inventory managers and equipment specialist assigned accurate end item application data to items affected by modifications. Air Force Materiel Command Manual 57-4, Requirements System "Recoverable Consumption Item August 1, 1991, provides guidance for establishing an application code related to the modification program and directs that the equipment specialist enter the application code for all reparable items affected by the modification. guidance also requires the equipment specialist to ensure that the program data properly reflects the planned modification program. The equipment specialist responsible for the C-130 aircraft APQ-122 radar, for example, assigned an inappropriate application percentage to items affected by the radar replacement The inaccurate application percentage was not detected by supervisory personnel. The application percentage distorted the modification program data used in the requirements determination system. As a result, the requirements system forecasted excessive repair requirements for the 26 reparable items that we sampled. The FY 1994 repair requirements for the 26 items were overstated by \$15.7 million.

Applicable Asset Data. Supervisory personnel at the Aviation and Troop Support Command did not provide the oversight necessary to ensure that inventory managers adjusted requirements for assets with useful service life that were being removed from weapon systems. Army Regulation 710-1, "Centralized Inventory Management of the Army Supply System," February 1, 1988, requires the inventory manager to offset forecast requirements by all available assets in determining procurement quantities.

The Aviation and Troop Support Command inventory managers responsible for components of the UH-60L helicopter rotor control that were being replaced by the improved rotor control modification did not adjust requirements for the items by the number of usable assets being removed and returned to the supply system. The UH-60L components that were being removed and replaced in the modification program were also applicable to the UH-60A helicopter. In some cases, the removed assets had significant remaining useful life, which should have been considered in item procurement decisions. Based on information provided by the Aviation and Troop Support Command engineering personnel, we estimated that serviceable UH-60L components, valued at approximately \$576,000, will be generated by the modification program. The inventory managers prematurely purchased components valued at about \$518,000, because the procurement requirements for those components were not offset.

Oversight by Quality Review Team. Quality review teams at the Warner Robins Air Logistics Center did not perform the reviews required by Air Force Logistics Command policy. The Air Force Materiel Command Manual 57-4 requires that a quality review team from the financial management directorate at each air logistics center monitor the overall quality of requirements data and management decisions. Because of the dynamic nature of modification programs, the quality review team was specifically required to evaluate the item program data used in forecasts and the adjustment of prepositioned war reserve requirements. The review team was also required to evaluate the accuracy of application coding and due-in assets. The Financial Management Directorate of the Warner Robins Air Logistics Center had not completed quality reviews of significant modification programs and of the items affected by the modification programs we reviewed. If the quality reviews had been performed as required, the Warner Robins Air Logistics Center would probably have identified the deficiencies we addressed in this report.

Recommendations, Management Comments, and Audit Responses

- 1. We recommend that the Army Deputy Chief of Staff for Logistics, the Assistant Secretary of the Navy (Research, Development, and Acquisition), and the Air Force Deputy Chief of Staff for Logistics:
- a. Revise guidance for the development and approval of weapon system modification programs to require the weapon system program managers to perform a breakout analysis of reparable items being removed from the weapon system to identify components of those reparable items that are affected by the modification.
- b. Develop procedures and processes for the Military Departments to notify the Military Departments and the Defense Logistics Agency's inventory control points of all items affected by weapon system

modification programs and to provide current and accurate information for the inventory control points to use in forecasting changes in requirements for those items.

c. Issue supplemental guidance expanding the oversight responsibilities of weapon system program managers to ensure that current and accurate program data are provided to the inventory control points and revise guidance to establish controls to ensure cataloging actions for modification programs are completed.

Management Comments. The Assistant Secretary of the Navy (Research, Development, and Acquisition) concurred with the recommendation. The Navy agreed to provide guidance for weapon system program managers to improve the identification of weapon system components affected by modifications and to provide current and accurate information on modification programs to the ICPs by June 30, 1995. The Navy stated it was working with DLA through the Joint Logistics Service Center to give DLA visibility to changes affecting DLA managed items in the Materiel Management Standard System. The Air Force concurred with the recommendation and stated that it will provide specific actions and implementation dates in response to the final report. The Army did not provide comments in response to the draft report. The complete texts of management comments are in Part IV.

Audit Response. Comments from the Navy were generally responsive. Although the Navy indicated that it was working with DLA to give it more visibility to changes affecting DLA managed items, the Navy did not identify any interim procedures. We view the development of the Materiel Management Standard System as a long-range solution and believe that interim procedures are needed to advise the DLA inventory control points of items affected by modification programs, and to provide information for use in forecasting changes in requirements. Accordingly, we request that the Navy provide additional comments concerning coordination with DLA in response to the final report. We request that the Air Force provide information on actions to be taken and the planned implementation dates for those actions. We also request that the Army provide comments to the final report.

2. We recommend that the Commander, Joint Logistics Service Center, provide the capability for using information on modification program schedules to adjust requirements forecasts in the automated requirements determination system that is being developed under the Corporate Information Management System.

Management Comments. The Assistant Deputy Under Secretary of Defense (Materiel and Distribution Management) generally concurred with the recommendations. The Assistant Deputy Under Secretary stated that because there had been no visible progress in developing a design change notice/engineering change proposal process for the Material Management Standard System as of September 1994, the Navy was asked to take the lead in defining the requirements for this process and provide them to the Joint Logistics Service Center. The complete text of the Assistant Deputy Under Secretary's comments is in Part IV.

Audit Response. We consider the comments of the Assistant Deputy Under Secretary to be responsive. Additional comments in response to the final report are not required.

3. We recommend that, until the above recommendations Commander, implemented. the Army Materiel Command: Commander, Naval Supply Systems Command; the Commander, Air Force Materiel Command; and the Director, Defense Logistics Agency, issue supplemental guidance expanding management oversight of item manager purchase and repair decisions for items affected by modification programs. The guidance should require supervisors to ensure that the forecast wholesale stockage levels are adjusted based on the planned modification schedule, that retail requirements and war reserve materiel requirements are adjusted based on the expected modification program, and that asset balances used in the requirement determination include assets being generated by the modification or assets that can be upgraded to configurations needed for continuing support of the weapon system.

Management Comments. The Assistant Secretary of the Navy (Research, Development, and Acquisition) concurred with the recommendation. The Navy agreed to issue supplemental guidance for supervisory oversight of item manager decisions, by November 30, 1994, to ensure that information on modification programs is used in repair and procurement decisions. The Air Force concurred with the recommendation and stated that it would provide specific actions and implementation dates in response to this final report. The Defense Logistics Agency concurred with the recommendation, and stated that it would issue supplemental guidance for oversight of item manager decisions after the Military Departments implement Recommendations 1. and 2. The complete text of DLA comments is in Part IV. The Army did not comment on the draft report.

Audit Response. We consider comments from the Navy and DLA to be responsive, and additional comments are not required. We request that the Air Force provide comments on this final report including information on actions to be taken and the planned implementation dates for those actions. We request that the Army provide comments to the final report.

4. We recommend that the Commander, Warner Robins Air Logistics Center, establish controls to ensure that the quality review team performs the requirements data verification specified in Air Force Materiel Command policy.

Management Comments. The Air Force concurred with the recommendation and stated that it would provide specific actions and implementation dates in response to the final report.

Audit Response. We request that the Air Force provide specific actions to be taken and the planned implementation dates for those actions in response to this final report.

Part III - Additional Information

Appendix A. Sampling Plan

The Military Departments do not have a single source of information that compiles data on the number and dollar value of active modification programs, and identifies the items stocked in the wholesale supply system that are affected by the modifications and the effect of the modifications on those items.

To evaluate whether changes in requirements caused by the redesign of fielded weapons and equipment are identified and reflected in supply support planning and requirements forecasts, we judgmentally sampled items being removed or installed as part of weapon system modification programs. To select items affected by modification programs, we initially chose nine weapon systems for which the Military Departments requested significant modification funding in the FY 1994 President's Budget (see Table A.1.).

Table A.1. Weapon System Budget Requirements

Military <u>Department</u>	Weapon System	Modification <u>Budget</u> (million)
Army	Bradley Fighting Vehicle OH-58D Helicopter UH-60 Helicopter AH-64 Helicopter	\$ 29.9 145.6 46.9 46.4
Navy	A-6E Aircraft E-2C Aircraft Phalanx System	19.6 124.0 28.1
Air Force	C-130 Aircraft F-15 Aircraft	141.1 282.7
Total		<u>\$ 864.3</u>

After selecting the weapon systems, we obtained information from each WSPM to identify significant ongoing modification programs and the status of those programs. We judgmentally selected 15 modification programs for review. We intentionally selected modification programs for various types of equipment, programs that were less than 80 percent complete and programs that involved the removal of significant components. Our selection criteria focused on changes to weapon systems and equipment that generally require the DoD ICPs' substantial and continuing investment in inventory to replace parts for maintenance and operation of the weapon systems.

For the selected modification programs, we judgmentally sampled 251 reparable and 318 consumable items to determine whether the Military Departments and DLA inventory managers were using current and accurate information in their supply support planning. The Military Departments' ICPs managed the reparable assemblies and most of the critical components of the weapon systems and DLA managed most of the smaller consumable or piece part components. We reviewed items being removed and items being installed in the weapon systems. Samples of reparable items and consumable items were judgmentally selected from the modification directive and from various reports maintained by the WSPM and inventory management personnel. We also selected samples of consumable items that were used or consumed during the overhaul of the reparable items that were sampled.

Table A.2. identifies the number and value of items managed by each of the Military Departments and DLA, which we reviewed for the nine weapon systems.

Table A.2. Summary of Items Reviewed

	Items Removed	<u> I</u>	tems Installed
DoD Component	Value o Number Inventor		Value of Inventory
Army Navy	74 \$193,552,90 117 149,059,11		\$ 42,253,364 29,893,402
Air Force DLA Total	106 588,672,41 200 7,066,54 497 \$938,350,98	17 20 <u>16 5</u>	155,861,926

Appendix B. Modification Programs Reviewed

Military <u>Department</u>	Title of Modification Program	Items Reviewed	Consumable <u>Items</u>	Reparable <u>Items</u>
Army	M2A1/M3A1 Bradley Fighting Vehicle System Conversion Program	146	139	7
	OH-58D Kiowa Warrior	36	9	27
	OH-58D Engine Reliability, Availability, and Maintainability Enhancement Program	8	3	5
	UH-60L Improved Rotor Control System Modification	6	3	3
	UH-60 Electromagnetic Environmen Protection Modification	t 17	15	2
	UH-60 Glass Windshield Modification	on 1	1	-
	AH-64A Hydraulic Manifold Filtration Modification	_3_	3_	
Subtotal		217	173	44
Navy	First Stage Turbine Rotor Assembly, J-52 Engine (Power Plant Change No. 285)	12	8	4
	Operation and Safety Improvement Program, J-52 Engine (Power Plant Change No. 290)	43	16	27
	RT-1017/ARC-156 Receiver- Transmitter Modification, E-2C aircraft	20	5	15

Military <u>Department</u>	Title of Modification Program	Items Reviewed	Consumable <u>Items</u>	Reparable <u>Items</u>
Navy (continu	ied)			
	C-9196/ARC-158 Mode Selector Control Modification, E-2C aircraft	4	2	2
	Various Block Upgrades to Phalanx Close-In-Weapon-System	, 	_37_	_69_
Subtotal		185	_68_	<u>117</u>
Air Force	C-130, Self-Contained Navigation System	36	17	19
	C-130E, APQ-122 Radar Replacement Program	69	33	36
	F-15C/D Multi-Stage Improvement Program	62	27	_35_
Subtotal		_167	77	90
Total		<u>569</u>	<u>318</u>	<u>251</u>

Appendix C. Purchase and Repair Summary

ICP	NSN	Excess P Quantity	urchase Value	Excess Duantity	Repair Value	Insufficie Quantity	ent Repair Value
<u>ICI</u>	TADIA	Qualitity	<u>value</u>	Qualitity	<u>value</u>	Qualitity	<u>v aluc</u>
ATCOM 1	1615011589658	192 \$	380,413	_	_	_	_
ATCOM	1560011589656	288	850,176	_	_	_	_
ATCOM	1560012969486	156	84,212	_	_	_	_
ATCOM	1560012868870	62	101,970	-	-	-	-
TACOM ²	5340012263522	3	2,048	_	_	_	_
TACOM	2510011066173	255	42,613	_	_	_	_
TACOM	9515011104012	4	1,580	_	_	_	_
TACOM	9515011104012	28	9,072	_	_	_	_
TACOM	2530011674295	419	35,808	_		_ _	_
17100111	255001107 1255	117	33,000				
ASO ³	6130012489222	2	1,326	_	-	_	_
ASO	5821002052926	_	-,	_	_	6	\$ 3,103
ASO	5821012489213	_	_	6	\$ 3,103	_	-
ASO	5821012489236	_	_	33	38,127	_	_
ASO	2840013565263	22	4,158	-	-	_	-
			-,				
ASO	3110013193025	245	117,105	-	_	_	
ASO	2840011520850	-	´ -	6	\$ 24,878	_	_
ASO	2840013192318	_	_	1	4,817	_	_
ASO	2840001032041	_	-	29	158,263	_	_
ASO	2840001507685	2	65,100	14	52,927	_	_
			,		•		
ASO	2840013489495	_	-	_	-	3	16,809
ASO	2840001653939	-	_	11	66,231	_	
ASO	1560013192317	_	_	1	2,607	_	_
ASO	2915003029365	_	_	3	6,309	_	_
ASO	2840004073174	-	-	-	· -	12	7,128
ASO	2840001507878	3	52,560	_	_	11	9,223
ASO	2840010088070	18	64,800	_	_		- ,
ASO	2995001134906	-	-	60	90,180	_	_
ASO	2995012924452	_	_	1	1,503	_	_
ASO	2995013177803	34	327,420	8	9,490	_	-

<u>ICP</u>	<u>NSN</u>	Excess Purchase Quantity Value	Excess Repair Ouantity Value	Insufficient Repair Quantity Value
ASO ASO ASO	2915001390219 2915013160604 2915010912279 1650013224345	- - - 11 \$ 25,740	21 \$ 198,651 - - 2 8,490	21 \$140,846 29 27,492
ASO ASO ASO	2840010239391 2840009120631 2840001571615	8 11,760 70 86,100	6 45,576 	
SPCC ⁴ SPCC SPCC	1285011572386 1420011497130 1420011494522	115 1,046,500 26 482,820 78 1,541,280		
OCALC 5 OCALC OCALC	3010011558249 6605008990786 6605006983082 1680011595333	22 259,600	235 422,530 43 91,246 3 175	
OCALC WRALC 6 WRALC WRALC	1680011596740 5841000977248 3020009724501 5841007631459	64 5,184	1 1,013 373 373,746	
WRALC WRALC WRALC	5841007631439 5841008921070 5985007596990 5826010857281	 	138 275,448 65 43,030 86 204,508 33 34,452	
WRALC WRALC WRALC	3020009719669 5841002475210 5841002929515	103 4,112	439 4,386,064 127 45,847 ⁷	
WRALC WRALC WRALC	5841003498885 5841004111710 5841004113460	 	94 27,166 70 33,740 112 27,664	
WRALC WRALC WRALC WRALC	5841004113473 5841004246296 5841004657517 5841010898928	 	87 64,206 74 71,1887 32 25,0247 757 3,401,201	

<u>ICP</u>	NSN	Excess Programme Quantity			ess Repair ty Value	Insufficie Quantity	ent Repair Value
WRALC	5895001391403	_	_	23	\$ 14,858	_	_
WRALC	5895004113447	_	_	46	35,098 ⁷	_	_
WRALC	5895004113464	_	_	38	19,228	_	_
WRALC	5961004103501	100	9,0458	-	-	_	_
WRALC	5985002224926	-	-	271	1,827,624	-	-
WRALC	5841002475220	-	_	6	1,7587	-	_
WRALC	5841004113467	-	-	15	$2,250^{7}$	-	-
WRALC	5841000979411	-	-	19	11,590 ⁷	-	
WRALC	5841002224931	-	-	20	10,740 ⁷	-	_
WRALC	5841004113461	-	-	6	5,3407		-
WRALC	6130004113474	-	-	7	3,4727	-	_
WRALC	5841004113482	_	-	4	8407	-	_
WRALC	5841004111682	_	_	10	3,0007	-	-
WRALC	5841004891899	_	-	4	760 ⁷	-	-
WRALC	5841001410450	-	-	48	28,3207	-	-
WRALC	5841002123145	-	_	37	36,556 ⁷	-	_
WRALC	5841002224928	-	_	480	3,108,000	-	_
WRALC	5841002224936	-	-	537	2,811,195	-	-
WRALC	1280013200787	-	-	309	443,724	-	-
WRALC	5841013093064	-	-	-	-	10	\$ 34,180
WRALC	5895011354647	-	_	55	74,580	-	_
WRALC	5995010970226	16	$25,759^{8}$	-	-	-	-
WRALC	5995010970227	21	35,512 ⁸	-	-	-	-
DCSC 9	2590011131199	49	2,6558	-	-	-	-
DCSC	2815007166597	30	713	-	-	-	-
DCSC	2815009078954	186	8,515	-	-	-	-
DCSC	2815009362232	98	4,116	-	-	~	-
DCSC	2815010662993	422	24,476	_	-	-	-
DCSC	2815010941474		291,987	-	-	-	_
DCSC	2815010970769		483,029	-	-	-	_
DCSC	2815011056459	115	7,697	-	-	-	-

		Excess P		Excess 1		Insufficier	
<u>ICP</u>	<u>NSN</u>	Quantity	<u>Value</u>	Quantity	<u>Value</u>	Quantity	Value
DCSC	2815011089344	107	\$ 64,069	_	_	_	_
DCSC	2815011091772	46	3,823	_	_	_	_
DCSC	2815011091773	12	5,461	_	_	-	-
DCSC	2815011092108	$\overline{24}$	5,990	_	_	_	_
DCSC	2815011093090	124	61,414	-	-	-	-
DCSC	2815011192947	29	25,665	_	_	_	_
DCSC	2910011267865	2,031	2,112	_	-	_	_
DCSC	2910011269053	115	1,639	-	_	-	-
DCSC	2910011424953	21	540	-	_	_	~
DCSC	2930011097911	73	7,888	-	-	-	-
DCSC	2930012255706	85	63,558	-	_	-	-
DCSC	2940011085221	7	$21,511^{8}$	_	.	_	-
DCSC	2990010851622	132	8,666	-	-	_	-
DCSC	2990011289635	9	2,551	_	_	_	-
DCSC	3020011101292	23	2,072	-	-	-	-
DCSC	3020011610233	9	3,720	_	-	_	-
DCSC	3040009161879	13	1,147	-	_	-	-
DCSC	3040011098601	20	5,875	-	-	_	-
DCSC	4710011093076	131	16,866	-	-	-	-
DCSC	4720011993042	212	2,979	-	-	-	-
DCSC	4730001421278	13,149	15,779	_	_	-	-
DCSC	4730012120940	211	1,992	-	-	-	-
DCSC	2815010511047	27	540	-	-	-	-
DCSC	4710011093081	51	14,618	-	-	-	-
DCSC	4710011094072	71	9,038	-	-	-	-
DCSC	4710011099990	34	9,697	-	-	-	_
DCSC	4710012122509	59	3,499	_	_	-	-
DCSC	1005011103419	61	$2,285^{10}$		_	-	-
DCSC	1005011918887	28	$20,090^{10}$		-	-	-
DCSC	2520011094375	317	$270,560^{10}$	-	-	-	-
DCSC	2540011073371	68	$1,831^{10}$	-	-	-	-

<u>ICP</u>	<u>NSN</u>	Excess F Quantity		Excess 1	Repair Value	Insufficion Quantity	ent Repair Value
DCSC	2815013233278	10	\$ 1,83310	_	_	_	_
DCSC	2920011360786	57	$27,544^{10}$	_	_	_	
DCSC	2920012264588	26	$8,027^{10}$	_	_	-	_
DCSC	3040011085306	6	1,09710		_	_	_
DCSC	3040011481645	55	3,70910	-	-	-	-
DESC 11	5841004111713	21	173,5618	_	_	_	_
DESC	5841004609390	7	3,6588	_	_	_	_
DESC	5905009853753	200	7,220	_	_	_	_
DESC	5985000614253	7	8,649	-	-	-	-
DESC	5950000618776	8	1,508	_	_	_	_
DESC	5950009919251	13	6,864	_	_	_	_
DESC	5945008987807	23	2,070	-	_	-	-
DESC	5998012183582	14	2,976	-	-	-	-
DESC	5998012183585	5	1,051	_	_	-	-
DESC	6625011051697	15	5,276	_	_	_	_
DESC	5999012555642	24	16,464	-	-	-	-
DISC 12	5340009120778	816	32,321	_	_	-	-
DISC	2840000827813	22	16,177		<u> </u>	-	
Total		<u>\$7</u>	<u>,474,440</u>	<u>\$18.</u>	822,311		<u>\$238,781</u>

¹ Aviation and Troop Support Command.

² Tank-Automotive Command.

³ Aviation Supply Office.

⁴ Ships Parts Control Center.

⁵ Oklahoma City Air Logistics Center.

⁶ Warner Robins Air Logistics Center.

⁷ Negotiated repair for 15 items valued at \$66,160 were reduced as a result of audit. (The amount of the reduction may be different from the excessive amount).

⁸ Purchase reduced or canceled as a result of audit (7 items valued at \$271,701).

⁹ Defense Construction Supply Center.

¹⁰ Purchase of nonsampled Bradley Fighting Vehicle item reduced or canceled as a result of audit (9 items valued at \$336,976).

¹¹ Defense Electronics Supply Center.

¹² Defense Industrial Supply Center.

Appendix D. Summary of Potential Benefits Resulting From Audit

Recommendation Reference	Description of Benefit	Type of Benefit
1.a.	Economy and Efficiency and Internal Controls. Requiring breakout analysis will improve the identification of items affected by modification programs.	Funds Put to Better Use. Monetary benefits could not be quantified. *
1.b.	Economy and Efficiency and Internal Controls. Implementing procedures for notification of the DLA ICPs will improve item management decisions.	Funds Put to Better Use. Monetary benefits could not be quantified. *
1.c.	Internal Control. Supplemental guidance will improve the accuracy of information provided to ICPs.	Nonmonetary.
2.	Economy and Efficiency and Internal Controls. Development of a requirements determination system with expanded capability will improve requirements forecasts.	Funds Put to Better Use. Monetary benefits could not be quantified. *
3.	Internal Control. Supplemental guidance for oversight will improve item manager decisions.	Nonmonetary.
4.	Internal Control. Requiring the quality review teams to perform the data verification will improve the accuracy of requirements forecasts.	Nonmonetary.

^{*} Benefits could not be quantified because the data needed to accurately measure the benefits were not available. During the audit, ICPs of the Air Force and DLA reduced or canceled unneeded purchases, valued at \$608,677. Additionally, Air Force ICPs reduced premature or unnecessary repair actions, valued at \$66,160.

Appendix E. Organizations Visited or Contacted

Office of the Secretary of Defense

Deputy Under Secretary of Defense for Logistics, Washington, DC Joint Logistics Service Center, Dayton, OH

Department of the Army

Headquarters, Deputy Chief of Staff (Logistics), Washington, DC Headquarters, Army Materiel Command, Alexandria, VA U.S. Army Aviation and Troop Command, St. Louis, MO U.S. Army Missile Command, Redstone Arsenal, AL U.S. Army Tank-Automotive Command, Warren, MI Red River Army Depot, Texarkana, TX

Department of the Navy

Deputy Chief of Naval Operations for Logistics, Washington, DC
Headquarters, Naval Air System Command, Washington, DC
Headquarters, Naval Sea Systems Command, Washington, DC
Headquarters, Naval Supply Systems Command, Washington, DC
Headquarters, Space and Naval Warfare Systems Command, Washington, DC
Aviation Supply Office, Philadelphia, PA
Ships Parts Control Center, Mechanicsburg, PA
Naval Air Station, Jacksonville, FL
Naval Audit Service, Arlington, VA
Naval Ordnance Station, Louisville, KY

Department of the Air Force

Headquarters, Deputy Chief of Staff (Logistics and Engineering), Washington, DC Headquarters, Air Force Materiel Command, Dayton, OH Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma City, OK San Antonio Air Logistics Center, Kelly Air Force Base, San Antonio, TX Warner Robins Air Logistics Center, Robins Air Force Base, Warner Robins, GA Air Force Audit Agency, Dayton, OH

Defense Organizations

Headquarters, Defense Logistics Agency, Arlington, VA Defense Construction Supply Center, Columbus, OH Defense Electronics Supply Center, Dayton, OH Defense General Supply Center, Richmond, VA Defense Industrial Supply Center, Philadelphia, PA

Appendix F. Report Distribution

Office of the Secretary of Defense

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Deputy Under Secretary of Defense for Logistics
Assistant to the Secretary of Defense (Public Affairs)

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Secretary of the Army Auditor General, Department of the Army

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National Security and International Affairs Division, Technical Information Center National Security and International Affairs Division, Defense and National Aeronautics and Space Administration Management Issues

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Senate Subcommittee on Defense, Committee on Appropriations

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

Part IV - Management Comments

Office of the Under Secretary of Defense **Comments**



OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON WASHINGTON DC 20301-3000



0 1 NOV 1994

(L/MDM)

MEMORANDUM FOR OFFICE OF THE DOD INSPECTOR GENERAL, LOGISTICS SUPPORT DIRECTORATE THROUGH: CHIEF, CAIR / 2 nov 94

SUBJECT: Draft Report 3LE-0050 on "Spare and Repair Parts Affected By Design and Engineering Changes"

This is in response to subject DODIG Draft Report, dated August 29, 1994. The DoD concurs in general with the recommendations; however, there are some clarifications we would like to make on one of the findings. The report indicated that the Military Departments and DLA had not identified the functional improvements needed to the Joint Logistics Service Center. The DoD recognized the problems with the Design Change Notification/Engineering Change Proposals (DCN/ECPs) during its review of the provisioning process. The DoD/Industry Provisioning Process Action Team, now the Provisioning Implementation Coordination Team (PICT), identified the problems and developed the Preorganic Support Concept to minimize the impacts of design changes. Upon completion of the review, improvements to the DCN/ECP process were incorporated into the DoD CIM Functional Logistics Plan, dated January 15, 1993. This was provided to the JLSC for implementation.

At the July 1993 PICT meeting, JLSC was asked to take the lead in developing a DCN/ECP process for the Materiel Management Standard System. Because there had been no visible progress in this effort, the PICT members asked Navy to take the lead at the September 1994 meeting. A Component Workgroup will define the requirement for this process and provide it to JLSC.

If you have any question, please feel free to contact the DoD staff officer for provisioning: Mary Horvath, (703) 695-2207.

> Joh manufor Jeffrey A. Jones

Assistant Deputy Under Secretary (Materiel & Distribution Management)

Department of the Navy Comments

44150708



THE ASSISTANT SECRETARY OF THE NAVY Research Development and Acquisition 1000 Navy Pentagon Washington DC 20350-1000

NOV 07 1994

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE ASSISTANT INSPECTOR GENERAL FOR AUDITING

Subj: DODIG DRAFT AUDIT REPORT ON SPARE AND REPAIR PARTS AFFECTED BY DESIGN AND ENGINEERING CHANGES (PROJECT NO. 3LE-0050)

Ref: (a) DODIG memo of 29 Aug 94

Encl: (1) DON Comments

We have reviewed the finding and recommendations in the subject draft report forwarded by reference (a). We concur with recommendations to improve identification of items affected by modifications, and the coordination between weapons systems program managers and inventory control points. Detailed comments are included in enclosure (1).

Nora Slatkin

Copy to: NAVCOMPT (NCB-53) NAVINSGEN

DEPARTMENT OF THE NAVY RESPONSE

DODIG DRAFT REPORT

ON

SPARE AND REPAIR PARTS AFFECTED BY DESIGN AND ENGINEERING CHANGES (PROJECT NO. 3LE-0050)

Finding: Adjusting Requirements Forecasts for Planned Modifications

The Military Departments' and the Defense Logistics Agency's (DLA) inventory control points (ICPs) did not have current and accurate information about weapon system and equipment modification programs in their supply support planning. The condition occurred because:

- Coordination between the weapon system program managers and the ICPs was not adequate.
- The automated requirements determination systems used by the Army, the Navy, DLA and, to a lesser extent, the Air Force, were not capable of using information about the modification programs to adjust requirement forecasts.
- The ICP management and quality control personnel did not adequately monitor the accuracy of requirement forecasts for the items affected by modification programs.

As a result, the Military Departments' and DLA's ICPs forecasted erroneous requirements for items that were being removed from or installed in the equipment during modification. For 129 of the 497 items being removed from equipment during the modification, the ICPs forecasted excessive requirements, which contributed to the premature or unnecessary purchase or repair of the items. Conversely, for the 7 of 72 items being installed during the modification, the ICPs forecasted insufficient requirements and were not repairing sufficient assets.

DON Comment

Concur that current and accurate information is not always used in supply support planning. However, Navy currently has systems in place to monitor engineering changes, design changes, schedule changes and alterations. These legacy systems are dependent on planning information being accurate at time of submission. Emergent changes which occur during the lead-time after submission are somewhat difficult to control due to lack of automation and integration in our legacy systems. We believe many of the audit issues raised in this report are under consideration at the Joint Logistics Service Center (JISC). Navy specifically has addressed the Design Change Notice (DCN)/ Engineering Change Proposal (ECP) issue with JISC and submitted a

Process Change Request to update our legacy systems to accurately process change and modification data. Although not favorably received, we were advised that functionality requested would be provided when the Material Management Standard System (MMSS) is implemented by JLSC in all components. We believe the combination of the Provisioning and Cataloging Support System (PCTSS) and the Configuration Management Information System (CMIS), which are part of the MMSS, will contain the necessary data for changes in schedules, population, reliability, etc. to accurately forecast future material and repair requirements. Our concern is that there currently is no published schedule for when Navy will receive these enhanced systems.

Recommendations

- 1. We recommend that the Army Deputy Chief of Staff for Logistics, the Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN (RD&A)), and the Air Force Deputy Chief of Staff for Logistics:
- a. Revise guidance for the development and approval of weapon system modification programs to require the weapons system program managers to perform a breakout analysis of repairable items being removed from the weapons systems to identify components of those repairable items that are affected by the modification.

DON Comment

Concur. Guidance will be provided by 30 June 1995.

b. Develop procedures and processes for the Military Departments to notify the Military Departments and the DLA's ICPs of all items affected by the weapons system modification programs and to provide current and accurate information for the ICPs to use in forecasting changes in requirements for those items.

DON Comment

Concur. Navy is working with DLA through JLSC to include in MMSS a mechanism that will allow DLA visibility to all changes that affect DLA-managed material.

c. Issue supplemental guidance expanding the oversight responsibilities of weapons system program managers to ensure that current and accurate program data are provided to the ICPs and revise guidance to establish controls to ensure cataloging actions for modification programs are completed.

DON Comment

Concur. Guidance will be provided by 30 June 1995.

2. We recommend that the Commander, JLSC, provide the capability for using information on modification program schedules to adjust requirements forecasts in the automated requirements determination system that is being developed under the Corporate Information Management System.

DON Comment

Concur with recommendation if JLSC can accomplish this task in a timely manner. If not, JLSC should fund the enhancements to Navy legacy systems.

3. We recommend that, until the above recommendations are implemented, the Commander, Army Materiel Command; the Commander, Naval Supply Systems Command (NAVSUP); and the Commander, Air Force Materiel Command issue supplemental guidance expanding management oversight of item manager purchase and repair decisions for items affected by modification programs. The guidance should require supervisors to ensure that the forecast wholesale stockage levels are adjusted based on the planned modification schedule, that retail requirements and war reserve materiel requirements are adjusted based on the expected modification program, and that asset balances used in the requirements determination include assets being generated by the modification or assets that can be upgraded to configurations needed for continuing support of the weapon system.

DON Comment

Concur. By 30 November 1994, NAVSUP will issue supplemental guidance to our ICPs to ensure management oversight in all repair and procurement decisions. This guidance will include all retail and wholesale stockage levels and war reserve material requirements.

4. We recommend that the Commander, Warner Robbins Air Logistics Center, establish controls to ensure that the quality review team performs the requirements data verification specified in Air Force Materiel Command policy.

DON Comment

Defer comment to the Commander, Warner Robins Air Logistics Center.

Department of the Air Force Comments



DEPARTMENT OF THE AIR FORCE HEADQUARTERS UNITED STATES AIR FORCE WASHINGTON, D.C. 20330

27 OCT 1994

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING OFFICE OF THE INSPECTOR GENERAL DEPARTMENT OF DEFENSE

FROM: HQ USAF/LGS

cc: SAF/FMPF

1030 Air Force Pentagon Washington DC 20330-1030

SUBJECT: DoDIG Draft Audit Report, "Spare and Repair Parts Affected by Design and Engineering

Changes." (Project No. 3LE-0050)

This is in reply to your memorandum requesting the Assistant Secretary of the Air Force (Financial Management and Comptroller) to provide Air Force comments on subject report.

The AF concurs in general with both the findings and recommendations. Specific actions including dates of implementation will be provided in response to the final report.

Point of contact in AF/LGSP is Ms. Karen DeGrange, DSN 225-4895

Defense Logistics Agency Comments



DEFENSE LOGISTICS AGENCY
HEADQUARTERS
CAMERON STATION
ALEXANDRIA, VIRGINIA 22304-6100



REFER TO DDAT

1 NOV 1994

MEMORANDUM FOR THE ASSISTANT INSPECTOR GENERAL FOR AUDITING,
DEPARTMENT OF DEFENSE
(ATTN: Mr. Joel Chaney)

SUBJECT: DoD IG Draft Report on Spare and Repair Parts Affected by Design and Engineering Changes (Project No. 3LE-0050)

This is in response to your 29 August 1994 request.

Mighture [] [] JACOUELINE G. BRYANT
Chief, Internal Review Office

CC:

TYPE OF REPORT: AUDIT

DATE OF POSITION:

PURPOSE OF INPUT: INITIAL POSITION

AUDIT TITLE AND NO: Draft Report on Spare and Repair Parts

Affected by Design and Engineering Changes
(Project No. 3LE-0050)

FINDING: Adjusting Requirements Forecasts for Planned Modifications. The Military Departments and DLA's inventory control points did not use current and accurate information about weapon system and equipment modification programs in their supply support planning. The condition occurred because:

- o coordination between the weapon system program managers and the inventory control points was not adequate.
- o the automated requirements determination systems used by the Army, the Navy, DLA and, to a lesser extent, the Air Force, were not capable of using information about the modification programs to adjust requirements forecasts.
- o the inventory control point management and quality control personnel did not adequately monitor the accuracy of requirements forecasts for the items affected by modification programs.

As a result, the Military Departments and DLA's inventory control points forecasted erroneous requirements for items that were being removed from or installed in the equipment during modification. For 129 of the 497 items being removed from equipment during the modification, the inventory control points forecast excessive requirements which contributed to the premature or unnecessary purchase or repair of the items. Conversely, for 7 of the 72 items being installed during the modification, the inventory control points forecast insufficient requirements and were not repairing sufficient assets.

DLA COMMENTS: Concur. DLA's ability to adjust requirements forecasts is contingent upon information provided by the Weapon System Program Manager on the modification programs. DLA item managers have not had sufficient information on modification programs and their status to accurately adjust requirements forecasts or inventory levels.

INTERNAL MANAGEMENT CONTROL WEAKNESSES:

- () Nonconcur.
- (x) Concur; however, weakness is not considered material.
- () Concur; weakness is material and will be reported in the DLA

Annual Statement of Assurance.

ACTION OFFICER: Dianna Wilson/MMSLR/46388, 10/6/94

REVIEW/APPROVAL: JAMES J. GRADY, JR., Dpeuty Executive Director,

Supply Management, MMSD, X70510, 10/28/94

COORDINATION: A. Broadnax, DDAI, x49607, 10/31/94

DLA APPROVAL: Jacqueline II. B

. 1 NGV 1994

LAWRENCE P. FARRELL, JR. Major General, USAF Principal Deputy Director

TYPE OF REPORT: AUDIT DATE OF POSITION:

PURPOSE OF INPUT: INITIAL POSITION

AUDIT TITLE AND NO: Draft Report on Spare and Repair Parts
Affected by Design and Engineering Changes
(Project No. 3LE-0050)

RECOMMENDATION 3: We recommend that, until the above recommendations are implemented, the Director, Defense Logistics Agency, issue supplemental guidance expanding management oversight of item manager purchase and repair decisions for items affected by modification programs. The guidance should require supervisors to ensure that the forecast wholesale stockage levels are adjusted based on the planned modification schedule, that retail requirements and war reserve material requirements are adjusted based on the expected modification program, and that asset balances used in the requirement determination include assets being generated by the modification or assets that can be upgraded to configurations needed for continuing support of the weapon system.

DLA COMMENTS: Concur. The finding states that DLA supply centers are not informed or provided information on MILSVC modification programs. We concur with the finding and recommendations. However, we cannot issue supplemental guidance until Recommendations 1 and 2 are implemented.

We recognize the need for better visibility over customer requirements. In the absence of required system improvements, DLA has put into operation the Industrial Forecasting Support Group (IFSG) Concept. The IFSG establishes a partnership with MILSVC industrial customers on their major or sensitive time oriented, non-recurring maintenance programs. The DoD Special Program Requirements (SPR) Program is used to communicate depot maintenance requirements to the Inventory Manager. DLA is also developing a SPR Tracking System. The IFSG goals are to help set up new sourcing techniques; and establish lines of communication among maintenance depots through a designated lead ICP, (the ICP will name a Maintenance Program Executive Agent to be the single focal point with the customer). This will help to:

- foster more accurate forecasts,
- allow DLA time to provide top notch support, and
- not waste resources.

The IFSG has the potential to become the best, single foot forward for DLA, in locking in our major source of sales, and insuring uniform, high levels of support. Two programs currently under support of IFSG are:

- the Army UH-60 Blackhawk Refurbishment Program and
- the Marine Corps Assault Amphipious Vehicle Improved Reliable and Maintainable Transmission Enhancement.

The POC for IFSG is Saul Goldberg, MMSM, DSN 667-7125.

DISPOSITION:

- (x) Action is ongoing. Estimated Completion Date: TBD-based on completion of Recommendation 1 and 2.
- () Action is considered complete.

INTERNAL MANAGEMENT CONTROL WEAKNESSES:

- (x) Nonconcur.
- () Concur; however, weakness is not considered material.
- () Concur; weakness is material and will be reported in the DLA Annual Statement of Assurance.

RECOMMENDATION MONETARY BENEFITS:

ESTIMATED REALIZATION DATE:

AMOUNT REALIZED: DATE REALIZED:

ACTION OFFICER: Dianna Wilson/MMSLR/46388, 10/6/94

REVIEW/APPROVAL: JAMES J. GRADY, JR., Deputy Executive Director,

Supply Management, MMSD, X70510, 10/28/94

COORDINATION: A. Broadnax, DDAI, x49607, 10/31/94

DLA APPROVAL: Jarqueline J. St

INCV 1994

LAWRENCE P. FARRELL, JR. Major General, JSAF Principal Deputy Director

Audit Team Members

Shelton R. Young Joel K. Chaney David L. Luce Ted R. Paulson Anthony C. Hans Michael D. Davis Scott K. Miller Melanie S. Steel