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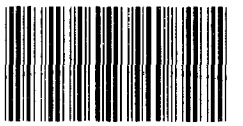
BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Supply Support Costs Of Combat Ships Can Be Reduced By Millions And Readiness Enhanced

The Navy can save an estimated $101 million over a 5-year period on procurement and repair of shipboard supplies and parts. This can be accomplished, together with an increase in fleet supply readiness, by improving policies and practices for establishing and maintaining optimum stock levels on combat surface force ships (destroyers, cruisers, and frigates).



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LCD-81-9
JANUARY 15, 1981

014465/114167

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

B-199707

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

This report shows that supply support costs of combat ships can be reduced by millions of dollars and readiness enhanced by improving policies and practices for establishing and maintaining optimum shipboard stock levels.

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

Milton J. Socolar

Acting Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

SUPPLY SUPPORT COSTS OF COMBAT SHIPS CAN BE REDUCED BY MILLIONS AND READINESS ENHANCED

D I G E S T

The Navy can save as much as $101 million over a 5-year period on procurement and repair of supplies and parts for combat surface force ships (destroyers, cruisers, and frigates). This can be accomplished by improving:

--Shipboard supply management policies and controls to ensure that (1) excessive inventories are not arbitrarily retained on ships following supply overhauls and (2) shipboard stock excesses generated after supply overhauls are periodically identified and redistributed during intervals between ship supply overhauls. (See ch. 2.)

--Methods for updating shipboard inventory allowances and equipment part replacement rates to ensure that unneeded repair parts are not carried aboard ships for prolonged periods. (See ch. 3.)

--Shipboard supply management practices to ensure that (1) stocks are not ordered in excess of allowances and inoperable parts are turned into shore-based repair points when replacements are ordered, (2) aged, outstanding orders for materiel are periodically validated and invalid orders promptly canceled, (3) realistic order and shipping time data is used in computing stock requirements, and (4) acceptable levels of inventory record accuracy are achieved and maintained. (See ch. 4.)

Fleet supply readiness would also benefit from needed improvements in ship supply management. GAO found that unneeded items

stocked for prolonged periods by some ships were urgently needed by other ships. (See ch. 2.)

Accordingly, GAO recommends that the Secretary of the Navy require:

--The discontinuance of Navy policy allowing combat surface force ships completing supply overhauls to arbitrarily retain reparable-type items, which are applicable to installed equipment, but not included in their updated inventory allowance due to lack of prior usage. Also, require ships undergoing overhauls to promptly offload and return to the nearest wholesale stock point all excess reparable-type items valued at $50 or more for which foreseeable supply system requirements exist. Savings? $37 million. (See ch. 2.)

--Surface force fleet commands to establish uniform policies providing for periodic identification and prompt return to the wholesale supply system of shipboard item stock excesses valued at $50 or more during intervals between supply overhauls. Savings? $34 million. (See ch. 2.)

--The Ships Parts Control Center to identify and eliminate from updated inventory allowances for ships undergoing supply overhauls those parts that have a unit price of $100 or more and have not been used by the overhauled ships or by other ships of the same type for the past 4 years. Savings? $30 million. (See ch. 3.)

--Fleet commanders to ensure that realistic order and shipping time data is used in computing stockage levels. Savings? Undeterminable. (See ch. 4.)

--Fleet commanders to make certain that acceptable levels of inventory record accuracy are maintained. Savings? Undeterminable. (See ch. 4.)

--The Pacific Fleet Surface Force Command to adopt the Atlantic Fleet policy of monthly validation of outstanding shipboard orders for materiel and prompt cancellation, where appropriate. Savings? Undeterminable. (See ch. 4.)

The Navy agreed with all of GAO's recommendations for which no specific projections of dollar savings were associated, but disagreed with the recommendations for which specific projections of dollar savings were made. It is the Navy's opinion that no potential for dollar savings exists. (See app. I.) GAO does not feel that the Navy's reasons for disagreement with GAO's recommendations and projected dollar savings are valid. (See ch. 5.)

Contents

CHAPTER 1

INTRODUCTION

In September 1979 the Navy's 189 combat surface force ships (destroyers, cruisers, and frigates) were authorized stock inventories valued at about $207 million to sustain continuous operations during intervals between resupplies.

Surface force ships operate on a 5-year cycle between supply and maintenance overhauls. This 5-year cycle includes three periods of about 6 to 7 months when the ships are actually deployed to combat stations. During other periods, the ships are either in training or undergoing maintenance in preparation for the next onstation period.

OBJECTIVES, SCOPE, AND METHODOLOGY

Prior reviews of the Navy's supply support of its submarine and aircraft carrier fleets disclosed that there were large inventory excesses on some ships which were not available when needed to fill critical shortages of other ships, thus impairing operational readiness. Also, we found that substantial investments were made in unneeded inventories at the expense of critically needed items in short supply.

We reported that future investments in submarine and aircraft carrier support stocks could be reduced by over $200 million, together with an increase in operational readiness. Our survey work indicated that similar opportunities for significant reductions in inventory excesses and increased readiness exist for the Navy's fleet of combat surface force ships.

The objectives of this follow-on review were to

--quantify the magnitude of the Navy's current excess investments in inventories for support of combat surface force ships,

--demonstrate the extent to which excess inventories arbitrarily retained on these ships for prolonged periods were needed elsewhere in the fleet, and

--pinpoint the primary causes of inventory excesses and shortages and to demonstrate how these causes could have been avoided through improved management techniques.

In order to determine the extent, causes, and impact of unused and excess items retained for prolonged periods

by combat surface force ships in the Atlantic and Pacific Fleets, we analyzed the supply overhaul reports for 144 combat surface force ships. Also, we reviewed the results of recent supply management inspections of 62 of these ships made by Navy teams. Additionally, we tested the adequacy of supply management on board 11 ships (7 in the Atlantic fleet and 4 in the Pacific fleet).

We statistically sampled the reasonableness of updated repair parts allowances received by four combat surface force ships upon completion of supply overhauls. Our statistical sample involved 400 parts which had been in the supply system 4 years or more with unit prices of $100 or more. Also, the four ships sampled in the Surface Force Fleet represented each type of combat ship (destroyer, cruiser, frigate, and guided-missile destroyer). Our statistical sampling criteria was based on a 90-percent confidence factor and an error tolerance of plus or minus 7 percent.

We obtained the stock record cards of six ships undergoing supply overhauls and had the information on the cards computerized. Using the computerized information, we compared authorized quantities with quantities actually on hand to determine the amount of excesses generated during normal operations.

Our fieldwork, which was completed in April 1980, was conducted at the following locations.

Naval operating commands:
- Commander, Surface Force, Atlantic, Norfolk, Virginia
- Commander, Surface Force, Pacific, San Diego, California

Supply activities:
- Naval Supply Center, Norfolk, Virginia
- Naval Supply Center, Pearl Harbor, Hawaii

Inventory control activities:
- Ships Parts Control Center, Mechanicsburg, Pennsylvania
- Navy Fleet Material Support Office, Mechanicsburg, Pennsylvania
- Defense Electronics Supply Center, Dayton, Ohio
- Defense General Supply Center, Richmond, Virginia

Logistics activity:
- Commander, Naval Logistics, Pearl Harbor, Hawaii

Ships:

U.S.S. O'Callaghan (FF-1051), San Diego, California
U.S.S. Holt (CG-1077), Pearl Harbor, Hawaii
U.S.S. Morton (DD-948), Pearl Harbor, Hawaii
U.S.S. Reeves (CG-24), Pearl Harbor, Hawaii
U.S.S. Biddle (CG-34), Norfolk, Virginia
U.S.S. Coontz (DDG-40), Norfolk, Virginia
U.S.S. Lawrence (DDG-4), Norfolk, Virginia
U.S.S. Moinester (FF-1097), Norfolk, Virginia
U.S.S. Mullinnix (DD-944), Charleston, South Carolina
U.S.S. Richmond K. Turner (CG-20), Charleston, South Carolina
U.S.S. Vreeland (FF-1068), Mayport, Florida

NATURE AND SOURCE OF SURFACE FORCE SHIP INVENTORIES

Coordinated shipboard allowance lists are the basic authority and blueprint for the range and quantity of items to be stocked on board each ship. Each list is tailored to the needs of a particular ship according to estimated maintenance requirements, supply usage, maintenance action histories, and firsthand experience by ship and type command supply personnel. New and/or unidentified requirements are added to inventories through new or increased allowances and through the demand-based supply system.

INITIAL SUPPLY SUPPORT

The Navy provides newly constructed or overhauled surface force ships with sufficient supplies and repair parts to initially sustain uninterrupted operations for 90 days. Subsequently, to sustain continuous operations during the 5-year operational cycle, the initial inventory allowances are systematically replenished and additional range and depth of items are added and resupplied as necessary based on quantity and frequency of usage. The initial 90-day inventory allowances, called coordinated shipboard allowance list inventories, are prepared by the Navy's Ship Parts Control Center, Mechanicsburg, Pennsylvania. To determine initial 90-day stockage quantities, the Navy uses a replacement factor, which is based on a fleetwide usage rate. It represents the expected annual failure rate for each item and is supposed to be updated annually. A technician's estimate is the basis for initial stockage of items without usage data. Items which are not expected to be used within 90 days are not stocked unless vital to the ships.

SUPPLY OVERHAUL

A surface force ship undergoes a supply overhaul after about 4 or 5 years of operation. At the same time, it receives a shipyard overhaul. Supply overhauls improve supply readiness by bringing repair parts and reparable inventories up to the levels prescribed by updated allowance lists.

SURFACE SHIP INVENTORY FUNDING

Supplies and repair parts are classified as either Navy stock account or appropriated purchase account items. Navy stock account items are purchased from the wholesale stock with fleet funds. Appropriated purchase account items, which are mostly reparables, are managed on a fixed-allowance basis. These are issued to customers free of charge by wholesale inventory managers. When requisitioning a reparable item from the wholesale system, the ship is required to turn the unserviceable item into the supply system.

SUPPLY MANAGEMENT

The basic Navy policies for supply requirements determination, supply distribution, and control of shipboard stock levels are prescribed by the Chief of Naval Operations in OPNAVINST 4441.12A, August 9, 1973, and OPNAVINST 4400.9, August 24, 1973. These instructions are supplemented by the Naval Supply Systems Command publication P485, which is the basic instruction for ships. Also, commanders of the Atlantic and Pacific Surface Forces issued supplemental and implementing instructions (SURFLANTINST 4440.1A and SURFPACINST 4400.1B, respectively).

These instructions provide for the management of shipboard inventories. If management does not effectively control shipboard supply, excesses and deficiencies within authorized allowances will result. Excess materials occur for various reasons, such as overordering and revisions to allowances.

CHAPTER 2

IMPROVEMENTS NEEDED IN SHIPBOARD SUPPLY MANAGEMENT POLICIES AND CONTROLS

The Navy can save an estimated $71 million over a 5-year period on procurement and repair of supplies and equipment parts for combat surface force ships. This can be accomplished, together with an increase in supply readiness, by improving shipboard supply management policies and controls.

IMPROVEMENTS NEEDED TO PREVENT STOCKING IN EXCESS OF ALLOWANCE

Procurement and repair cost savings of $37 million can be achieved by discontinuing policies which allow ships completing supply overhauls to arbitrarily retain equipment parts not previously used during their 5-year interval between supply overhauls.

Combat surface force ships receive a maintenance and supply overhaul approximately every 5 years. As a part of this process, the ships receive an updated inventory allowance of equipment repair parts, which reflects changes in installed equipment and predicted parts usage.

Generally, Navy policy requires ships, upon completion of overhaul, to turn into wholesale supply centers previously stocked parts that are not included in their updated repair parts allowance due to lack of usage during the past 5 years. However, policies of Atlantic and Pacific Fleet commanders allow ships to arbitrarily retain minimum replacement quantities of parts not included in updated allowances if the parts are applicable to installed equipment. As a result, repair parts retained are identified on shipboard supply records as AT-5 (allowance type code 5) items.

To determine the reasonableness of this policy and its impact on supply economy, we analyzed the records of the last supply and maintenance overhauls for 144 combat surface force ships. Our analysis showed that these ships arbitrarily retained parts totaling $44.1 million, or about $306,000 per ship.

To determine the extent to which these parts are needed to satisfy wholesale level requirements, we analyzed, on a random sampling basis, wholesale level needs for $2.4 million of these parts stocked by eight of the ships included in our review. The eight ships sampled represented each type of combat ship in the Surface Force Fleet (i.e., destroyers,

cruisers, frigates, and guided missile destroyers). Our sampling tests showed that current procurement and/or repair requirements at the wholesale level were equal to 64 percent of the inventory value of these parts on board the sampled ships. Examples of the sample conditions noted follow:

--One of the sample ships, a Pacific frigate (FF-1051), arbitrarily retained one unit of a pump rotor (FSN 4320-00-055-5053) valued at $2,350 after its last overhaul more than 2 years ago. This frigate had not used this part during the 5 years preceding its last overhaul. Additionally, no subsequent usage had been experienced during our review. As of October 1979, seven units of this item were being procured at the wholesale level. Similarly, this ship retained one unit of a clutch disk (FSN 2010-00-363-8327) valued at $232 for which no prior or subsequent usage was experienced. At the wholesale level, 621 units of this part were being procured.

--Another sample ship, an Atlantic Fleet cruiser (CG-20), at its last overhaul 16 months ago arbitrarily retained one unit of a circuit card assembly (FSN 7025-00-007-5480) valued at $498. At the time of our review, the cruiser had experienced no subsequent usage of this assembly. At the wholesale level, eight units of this part were being procured, one of which was needed urgently by another Atlantic Fleet ship (DDG-4) to repair equipment adversely affecting its operational capability.

On the basis of the above results, we estimated that during a 5-year interval between supply overhauls, the Navy could save $37 million in procurement and repair costs on shipboard repair parts ($306,000 average value of allowance type code 5 parts on surface force ships x 0.64 sample test estimate of value of current procurement and repair requirements for these parts x 189 ships). This can be accomplished by discontinuing policies of Surface Force Fleet commanders which allow ships completing supply overhauls to arbitrarily retain parts not included in updated shipboard repair part allowances.

IMPROVEMENTS NEEDED IN IDENTIFYING AND REDISTRIBUTING STOCK EXCESSES

Procurement and repair cost savings of $34 million can be achieved by identifying and redistributing shipboard stock excesses, which are needed elsewhere to satisfy requirements, in a more timely manner.

Generally, Atlantic Fleet combat surface force ships are not required by their fleet commanders to identify and offload stock excesses during the 5-year interval between supply overhauls. Conversely, Pacific Fleet ships are required to identify stock excesses during deployment and to offload these excesses upon returning to their home port. Both fleet commands have daily screening programs which redistribute, on a limited basis, stock excesses urgently needed by other ships to repair inoperable equipment from nondeployed ships.

Our analysis of the latest completed supply overhaul data for 144 combat surface force ships showed that these ships, upon completion of overhaul, returned to the wholesale supply system or redistributed to other ships $58.1 million of supplies and parts which were excess to their updated inventory allowances. Further, our computerized study of five ships (three from the Atlantic Fleet and two Pacific Fleet) in the process of completing supply overhauls showed that 48 percent of the inventories on these ships were excess to updated allowances because of supply overhauls (parts no longer needed because of changes in installed equipment).

Accordingly, we estimated that $30.2 million (an average of $209,700 per ship), or 52 percent of the $58.1 million stock excesses offloaded by the 144 ships, were generated by the ships during the 5-year interval between supply overhauls and retained on board for prolonged periods due to inadequacies in or lack of policies for timely redistribution of stock excesses. Some of the primary causes of the large stock excesses generated by ships during intervals between supply overahuls are discussed in detail in chapter 4.

Larger stock excesses retained by Pacific Fleet despite excess offload policy

Despite the fact that Pacific Fleet ships, unlike Atlantic Fleet ships, were required to periodically identify and offload excesses during intervals between overhauls, our analysis of supply overhaul data for 144 ships showed that for 75 Pacific Fleet ships, an average of $226,616 of excesses generated during a 5-year operating cycle were turned into the wholesale system following supply overhauls, as compared with an average of $191,468 for 69 Atlantic Fleet ships. One reason Pacific Fleet ships were generating greater stock excesses was the lack of a program for periodically validating outstanding orders for materiel and taking prompt cancellation action, where appropriate. (See pp. 19 and 20.)

Although Pacific Fleet ships were periodically offloading excesses between overhauls as required by policy, they were frequently not turning them into the wholesale supply system.

Instead, the offloaded excesses were being held in storage in fleet-operated warehouses. We found that there was little incentive for ships to turn in stock excesses to the wholesale supply system. In this respect, ships do not receive fund credits for turning in appropriated funded items inasmuch as these items are issued free to the ships. Moreover, fund credits for stock funded excesses turned in by ships are given to the fleet commanders rather than the applicable ships.

At a fleet-operated warehouse in Pearl Harbor, we found that significant quantities of materiel had been offloaded and held in storage for over a year. Some of this materiel was urgently needed by other ships.

For example, included in the 50 pallets of excess materiel that had been offloaded and held in storage for a Pacific Fleet cruiser (CG-24) for over a year were five units of a tower assembly (FSN 4440-01-017-6343) with a unit price of $669.76. At various times during the past year, four units of this part were urgently needed, but were not available, to repair inoperable equipment on a Pacific Fleet frigate (FF-1051). After the Pacific Fleet Command was made aware of this situation, inventories valued at $137,645 were turned into the wholesale supply system and inventories of an undetermined amount were redistributed to other ships to satisfy outstanding requirements.

Economies obtainable by promptly identifying and redistributing shipboard excesses

To determine the extent to which stock excesses generated by combat surface force ships during intervals between overhauls are needed to satisfy wholesale level requirements, we analyzed, on a random sampling basis, needs for $2.4 million of such excesses offloaded by nine of the ships reviewed. Our sampling tests showed that current procurement and/or repair requirements at the wholesale level were equal to 86 percent of the value of these excesses. Examples of the sample conditions follow.

--An Atlantic Fleet frigate (FF-1097) had on hand for more than a year one excess unit of a frequency calibrator (FSN 6625-00-078-4718) valued at $689. As of September 1979, 37 units of this part were being procured at a replacement cost of $675 each, and 66 units were being repaired at a cost of $75 each to satisfy wholesale level requirements.

--A Pacific Fleet cruiser (CG-24) had on hand for more than 2 years one excess unit of a radar electron tube

(FSN 5960-00-001-1632). As of October 1979, 65 units of this item were being procured at a replacement cost of $22,420 each to satisfy wholesale level requirements.

On the basis of the above sampling results, we estimated that during a 5-year period, the Navy could save $34 million in procurement and repair costs on shipboard supplies and parts ($209,700 average stock excesses retained on combat surface force ships x 0.86 sample test estimate of value of current procurement and repair requirements for shipboard excesses x 189 ships). This could be accomplished by establishing uniform Navy policy to require Atlantic and Pacific Fleet ships to periodically identify and to return to the wholesale supply system stock excesses during intervals between supply overhauls.

SUPPLY READINESS WOULD BENEFIT FROM NEEDED IMPROVEMENTS

Both the Atlantic and Pacific Fleet Surface Force Commands have established minimum supply readiness standards for their ships to ensure continuous operations during intervals between resupplies. Pacific Fleet ships are supposed to be able to fill 85 to 90 percent of requests for repair parts authorized for stockage on the basis of either repetitive usage or insurance needs. The standards for Atlantic Fleet ships are 90 to 95 percent. Additionally, ships of both fleets are supposed to be able to fill 65 percent of all requests for repair parts regardless of whether authorized for stockage.

According to supply readiness statistics compiled by the Atlantic and Pacific Commands for a 1-year period ended June 30, 1979, only 5 of 189 combat surface force ships were able to meet supply fill standards. Moreover, the 11 ships we reviewed could, on the average, fill only about 50 percent of the requests for repair parts during a 1-year period.

Also, our review of 1,031 ship equipment casualty reports (reports citing identification and causes of prolonged inoperable status of vital equipment affecting ship's mission) received by the Atlantic and Pacific Fleet commands for a 1-year period showed that 26 percent of these equipment casualties were caused by repair part shortages. Other causes of repair part shortages were equipment unreliability and lack of personnel trained to operate and maintain equipment.

As demonstrated in the preceding sections of this report, unneeded and excess items held by some ships for prolonged periods are frequently needed to fill urgent requirements of other ships. Accordingly, we believe that the previously cited improvements needed to ensure prompt and maximum return

of ship stock excesses to the supply system will increase the supply fill rates of and reduce the equipment casualties for combat surface force ships.

CHAPTER 3

IMPROVEMENTS NEEDED IN METHODS FOR UPDATING SHIPBOARD INVENTORY ALLOWANCES

The Navy can save an estimated $30 million over a 5-year period on procurement and repair of equipment parts for combat ships. This can be accomplished, while at the same time enhancing supply readiness, by improving methods for updating shipboard inventory allowances to ensure that unneeded repair parts are not stocked and carried aboard ships for prolonged periods.

INITIAL DETERMINATION AND UPDATING OF INVENTORY ALLOWANCES

Newly constructed or overhauled ships are provided an initial inventory allowance of repair parts for installed equipment deemed sufficient to sustain continuous operations for a 90-day period. This allowance of repair parts must be maintained on board the ships throughout the 5-year operating cycle between major supply and maintenance overhauls. When the ships are overhauled, their 90-day allowance of repair parts is updated to provide for changes in installed equipment and predicted equipment part failures.

Contractor or Navy technical estimates of expected annual failures are initially used to determine shipboard allowances for new repair parts. Subsequently, a method known as the best replacement factor technique is uniformly used to determine equipment repair parts allowances for all ships. Under this method, exponential smoothing weights 1/ are assigned to recent and older usage data and initial technical estimates to obtain a desired weighted average annual usage. This average is then used to determine shipboard requirements.

For a repair part to be included in a ship's 90-day inventory allowance, it must either (1) have an expected failure of one or more in a 90-day period or (2) be vital to the ship's mission or personnel safety and have a predictable failure rate of one or more in 4 years. The latter category of repair parts are known as insurance items and account for approximately 95 percent of the items included in a ship's inventory allowance.

1/Exponential smoothing is a special kind of weighted moving average. The new estimate of the average is updated periodically as the weighted sum of the demand in the period since the last review and the old average.

Improved updating of allowances would save millions

Navy policy (OPNAVINST 4441.12A) stipulates that a repair part must have a predictable usage rate of at least one in 4 years to be included in a ship's 90-day inventory allowance. To determine whether the Navy's method of computing equipment part best replacement rates and updating 90-day repair parts allowances provided reasonable assurance that repair parts allowances assigned to surface ships would be used in a 4-year period, we statistically sampled the reasonableness of updated repair parts allowances totaling $5.1 million received by four combat surface ships.

Our statistical sample involved 400 parts which had been in the supply system 4 years or more with unit prices of $100 or more. Also, the four ships sampled represented each type of combat ship in the Surface Force Fleet (i.e., destroyer, cruiser, frigate, and guided-missile destroyer).

Our statistical sample showed that a significant number of the parts sampled had not been used during the past 4 years by either the four sample ships or by ships of the same type (i.e., not used by all destroyers or not used by destroyers, cruisers, or frigates). Specifically, the sample disclosed that

--260 parts, or 65 percent, were not used by the individual sample ships during the previous 4 years and

--78 parts, or 20 percent, were not used by the sample ships or ships of the same type during the previous 4 years.

One of the sample ships, a guided-missile cruiser (CG-17), received an updated repair parts allowance in February 1979. The updated allowance included an insurance quantity of one reactor part (FSN 5950-00-310-1480) valued at $1,900. This part had been in the supply system since 1973. In addition to the sample ship, the repair parts allowances of 13 other cruisers included one unit each of this part. No usage was experienced by any of these cruisers for the past 4 years. At the time of our review, 10 of these parts were being procured at a total cost of $19,000 at the wholesale level to satisfy supply system needs.

Another sample ship, a guided-missile destroyer (DDG-13), received an updated repair parts allowance in April 1979. The updated allowance included an insurance quantity of one unit of a pump (FSN 4320-00-455-0050) valued at $11,700. This part entered the supply system in 1971. Also, 151 other surface

force ships were authorized one unit of this pump for insurance purposes. None of these ships had used this part during the past 4 years. At the time of our review, the wholesale supply system had a requirement for 15 of these items, and 4 items in a not-ready-for-issue condition were being repaired at a total cost of $31,052 to fill requirements.

On the basis of the statistical sampling tests, we estimate that $894,000, or 17.5 percent, of the $5.1 million repair parts inventories on board the four sample ships were not used by the sample ships or ships of the same type during the 4 years preceding the repair parts allowance updates for these ships. Additionally, our tests showed that for 83 percent of the $894,000 of unused parts, current procurement or repair requirements were at the wholesale supply level.

On the basis of the above tests and the Navy's authorized repair parts allowances of $207 million for 189 combat surface force ships, we estimated that over the 5-year operating cycle between supply overhauls for these ships the Navy could save $30 million in procurement and repair costs on shipboard repair parts ($207 million authorized allowance x 0.175 sample test estimate of unused parts x 0.83 sample test estimate of value of unused parts needed to satisfy wholesale level procurement and repair requirements). This can be accomplished by eliminating from updated inventory allowances of ships those parts that have been in the supply system 4 years or more and which were not used by the individual ships and by other ships of the same type for the past 4 years.

CHAPTER 4

IMPROVEMENTS NEEDED IN SHIPBOARD SUPPLY MANAGEMENT PRACTICES

The Navy can save an undeterminable amount over a 5-year period on procurement and repair of supplies and parts for combat surface force ships. This can be accomplished, together with an increase in supply readiness, by improving shipboard supply management practices.

NEED FOR MORE STRINGENT REQUISITIONING CONTROLS

One of the primary causes of shipboard excesses is a lack of adequate management controls and supply discipline. Such controls and disciplines are needed to ensure that (1) the ships discontinue ordering in excess of allowances, (2) inoperable repair parts are promptly turned in and accounted for, and (3) the material order validation process is strengthened. A need for more stringent requisitioning controls continues to be a problem even though it has been reported by the General Accounting Office, the Navy Audit Service, and the Navy's supply management inspection teams.

Ordering in excess of allowances

Each of the combat surface force ships is provided a coordinated shipboard allowance list which provides a list of items required to achieve maximum self-supporting capability for an extended period of time. The ships are given initial allowances in accordance with allowance lists.

Under a fixed allowance concept, replenishment is in accordance with the allowance, and any requisitioning above the allowance puts the ship in an excess condition. Ordering in excess of allowances seems to be a continuing problem in that supply management inspection teams have been reporting problems related to overordering. We reviewed 62 supply management inspection reports and found that 28, or 45 percent, reported problems that were attributable to overordering.

In our report entitled "Millions of Dollars Can Be Saved By Improved Management of Aircraft Carrier Inventories," we pointed out that fleet-wide, on-order excesses aboard aircraft carriers averaged $46 million over a 2-year period. The majority of these excesses related to fixed allowance items. We could not readily determine the total dollar amount of on-order excesses aboard combat surface force ships because, unlike aircraft carriers, they do not have an automated supply management system which readily provides this data.

We did, however, review 1,167 outstanding orders on the 11 ships we visited and found that 178, or 15.25 percent, were for quantities in excess of allowances. For example, in our review on board a Pacific Fleet frigate FF-1074), we sampled 29 requisitions and found that 5 of the line items were being ordered in excess of allowances. One of the 5 line items, with a unit cost of $1,180, having an allowance of 6, had 12 on hand and 3 more on order. This equates to excess totaling $10,620 ($1,180 x 9) for this one item. Another example shows that an Atlantic Fleet cruiser (CG-20) had an allowance of one for a line item with a unit price of $7,320. None of the items were on hand, so a requisition for three was placed in the system. This put the ship in an excess condition in the amount of $14,640 ($7,320 x 2).

Many of the items being overordered are in the Fleet Intensified Repairables Management Program. The Navy established this program to closely manage items that are in short supply or items that are high cost. Under this program, the manager keeps track of all items in the system and requires that an unserviceable unit be turned in for each serviceable unit requisitioned. Our review showed that the items under this program were being overordered just like other reparables. For example, an Atlantic Fleet cruiser (CG-20) had at least 38 items under this program that were in an excess condition from 1 to 3 units. These 38 items had unit prices ranging from $50 to $7,370, with a total excess value of $73,211.

One reason that the ships do not turn in excess reparables, as required, is that the user does not receive credit for items turned in. If the turn-ins are stock funded items, the credit goes to the type commander, not the user. If the turn-ins are appropriated funded items, they are issued free by the inventory control point and no credit is given. Consequently, users do not have a real incentive to turn in excess or inoperble reparables.

In an effort to improve this situation, we suggested in September 1977 that the Navy consider establishing financial responsibility over appropriated funded account items at the type commander level. The Chief of Naval Operations advised that a study was being made of the funding and management of the procurement and repair of inventory control point managed depot level reparables (appropriated funded account items). The study was completed in August 1979 and concluded that stock funding is feasible and that it offers significant potential advantages over the current method of financing. The Chief of Naval Operations directed that a prototype program be initiated. The prototype program is planned to commence April 1, 1981, for shipboard repair parts. If it is successful, it will be extended to aviation repair parts also.

Inoperable parts not promptly turned in or accounted for

Reparables that become inoperable are not promptly turned into the supply system for repair or they are not adequately accounted for. These are mandatory turn-in reparables that are either a major component or a part designated by the cognizant inventory manager as an item which, because of cost, cost to repair, annual demand, difficulty of repair, or other economic considerations, requires special inventory control. Mandatory turn-in items are issued to users on a one-for-one basis. When possible, the inoperable item will be turned into the supply system at the same time the replacement is issued. However, if the inoperable item cannot be removed from a piece of equipment or system until the replacement is available for installation, it will be turned into the supply department within 1 working day after the replacement item is issued. The supply department should then send the inoperable item to the designated overhaul point within 3 days of the turn in.

This is a continuing problem within the Navy, which has been reported by both the General Accounting Office and the Navy's Supply Management Inspection Teams. We reported on this in our report entitled "Millions of Dollars Can Be Saved by Improved Management of Aircraft Carrier Inventories." Also, in our review of 62 supply management inspection reports, the untimely turn in of inoperable reparables was stated as a finding in 37, or 59.6 percent, of the inspections.

The Ships Parts Control Center, Mechanicsburg, Pennsylvania, controls mandatory turn-ins by sending a monthly report to each ship showing the unserviceable items which have not been turned into the system. The center does not, however, have any authority over the ships and cannot require them to respond to the monthly report. Therefore, if the ships so desire, there is nothing that requires them to promptly turn in inoperable reparables. Because of the lack of authority and the uncertainty of whether the items have been turned in, the Ships Parts Control Center has started dropping the items from the record after they have been outstanding for 180 days. During the 12-month period, April 1, 1978, through March 31, 1979, the Ships Parts Control Center dropped from the system inoperable reparables valued at $15,938,000.

Seven of the ships that we visited had inoperable reparables being reported as outstanding (i.e., had not been returned to the supply centers). We reviewed 135 items and found that 47, or 34.8 percent, were not turned in within the required time of 1 to 3 days. For example, an Atlantic Fleet cruiser (CG-20) received a report showing that 18 inoperable items had not been turned in in exchange for replacement

issues. Our review showed that three of the items were issued to fill initial allowances, and therefore, no inoperable parts were required or available for turn in. Also, eight of the items had been timely turned in, but had not been properly identified. However, seven of the items had been outstanding from 134 to 509 days and could not be accounted for.

The pilot program, mentioned in the preceding section, will assist in solving this problem if the ships are required to pay for the items they requisition. As we understand, the ships will be required to pay for both stock funded and appropriated funded items. This, we believe, will provide more incentive for excess and inoperable units to be timely turned in.

Weaknesses in validating outstanding supply orders

All ships may have large quantities of outstanding supply orders, some may be outstanding for several months. These orders are submitted to the inventory control point. Obligations of funds for stock funded items are established by the ship, and for appropriated funded items, by the inventory manager. While the funds are committed, they are not available for possibly more urgent requirements.

After supply orders are submitted, it may be realized that the materials ordered are no longer needed. This can happen for various reasons: equipment may be repaired without the ordered part, the entire piece of equipment may change, or the ship may get the part from another ship. Therefore, the Atlantic Fleet type commander has directed Atlantic ships to establish a material obligation validation program. Such validations are to be made monthly for orders over 45 days old with an extended value of $100 or more, plus one-third of all other outstanding obligations.

Validations are made by having the appropriate work center screen the pertinent information. Work center supervisors review and determine continuing requirement for the material, validate the priority assigned, and provide written justification to retain the order. Cancellation action will be initiated for all materials that are no longer needed. The goal of the Atlantic Fleet is 0 percent invalid obligations, while the maximum acceptable invalid rate is 3 percent for any fiscal year. The Pacific Fleet type commander has not established a requirement for monthly validation of outstanding orders, however, material obligation validation is required during supply management inspections by both fleet type commanders. For example, we reviewed 62 supply management inspection reports and found that 29, or 46.7 percent, reported unacceptable validity rates for outstanding supply orders.

The Pacific Fleet rate was as high as 30 percent of outstanding orders that were invalid.

On the 11 ships visited, we found that an average of 25 percent of their outstanding orders were invalid. Even though required, we were informed that monthly validations are not made on Atlantic Fleet ships. For example, on an Atlantic Fleet cruiser (CG-20), we validated 50 outstanding orders valued at $29,699.60. We found that 28, or 56 percent, of the orders were invalid for a value of $14,660.87, or 49.4 percent, of the total validated. The invalid orders ranged in unit price from $100 to $4,920. These orders were invalid because (1) the material had been received from another source, (2) the need no longer existed, or (3) there was no record of the order. Personnel on this ship informed us that the last material obligation validation on the ship was made in April 1979 or at least 7 months before our review.

MORE ACCURATE DATA NEEDED IN DETERMINING STOCK NEEDS

The Navy needs to use more accurate and more current data in its determination of shipboard stock needs. Our review disclosed that the Navy ships were frequently making decisions on when to buy materials and the amount to buy on inadequate and inaccurate data. The inadequate and inaccurate data relates to order and shipping time used in computing the amount to buy and inaccurate inventory data used in determining the number and amount to buy. We believe having accurate shipboard records is necessary in determining shipboard requirements.

Use of unrealistic order and shipping time data

When computing the number of items to stock, the interval between the submitting a requisition and the receiving material should be considered. This interval is known as order and shipping time. The number of days order and shipping time to be used under various conditions are stated in afloat supply procedures, Naval Supply Systems Command publication P485, as follows:

0 - For deployed or nondeployed ships when items can be obtained from a SERVMART or a tending ship.

30 - For nondeployed ships in the United States, excluding Alaska and Hawaii, and for deployed ships when items can be obtained from stockpoints in Alaska,

Hawaii, and outside the United States or from mobile logistics support force ships.

75 - For deployed ships in areas other than Western Pacific when items can be obtained only from the United States, excluding Alaska and Hawaii.

90 - For deployed ships in Western Pacific when items can be obtained only from the United States, excluding Alaska and Hawaii.

The greater the order and shipping time used the greater the inventory investment will be. Therefore, it is financially advantageous to keep the order and shipping time as low as possible. Order and shipping time, however, is only applicable to that group of items aboard ship which comes under selected item management, or is better known as demand-based items. These are the items which have the greatest use, therefore, it is necessary to manage them more closely to assure that adequate stock is on hand.

Procedures require that quarterly computations of demand be made, and based upon that demand, the high level, low level, and safety level quantities be adjusted to reflect quantities authorized by the new demand computations. In making these computations, two basic things must be considered: (1) the average ship endurance level (i.e., length of time ship can remain at sea) and (2) the order and shipping time. For the ships included in this review, the average endurance level for repair parts and equipment related consumables is 75 days. Order and shipping time can vary from 0 to 90 days.

Our review on board the Pacific cruiser (CG-24) and the Pacific frigate (FF-1074) disclosed that the FF-1074 was using a 30-day order and shipping time when not deployed. The CG-24 was using a 90-day order and shipping time when not deployed, instead of the 30 days prescribed by the afloat procedures. This can cause a sizable difference in the number of items to be stocked. For example, using 90 days the CG-24 was stocking at a high level of 30 for a circuit valued at $185. Using 30 days for the same item, the CG-24's high level would be 20 for a difference of 10, or $1,850 less than was being stocked.

Additionally, the Atlantic Fleet frigate (FF-1097) was using a 75-day order and shipping time for periods of deployment and nondeployment, while the Atlantic Fleet cruiser (CG-34) was using a 30-day order and shipping time during periods of deployment and nondeployment. Using the

aforementioned circuit valued at $185, a 75-day average endurance level, and 75-day order and shipping time, the FF-1097 would stock 19 while the CG-34 would stock only 14 using 30-day order and shipping time.

Use of inaccurate inventory data

One of the major functions used in inventory control for the identification of excesses, as well as deficiencies, is the physical inventory. Physical inventories show management the validity of its records and preclude buying material needed which is available but not shown. The Navy Afloat Supply Procedures 485 states, in part, that an inventory accuracy rate of 90 percent is acceptable. Further, the procedures state that those items classified for Selected Item Management should be inventoried semiannually and all others when an issue is made.

During our review, we inventoried 1,065 line items and found 181 with inaccurate records for an inventory accuracy rate of 83 percent. Of the 11 ships visited, 8 had inventory accuracy rates ranging from 55 to 89 percent.

Our review on a Pacific Fleet frigate (FF-1051) disclosed that four safety valves valued at $20,000, or $5,000 unit price, were not on the inventory records of the ship. These items were critically needed by the supply system, in that there were procurement actions in process for nine by the inventory control point.

In our review aboard the ships, we found major differences in the way physical inventories were made. Regulations require that demand-based items be inventoried semiannually and all others when an issue is made. Some of the ships follow that procedure, at least one (which experienced a 97-percent inventory accuracy rate) made inventories of demand-based items each month and nondemand-based items with each issue. One ship, with an inventory accuracy rate of 58 percent, had not made physical inventories as required.

CHAPTER 5

CONCLUSIONS, RECOMMENDATIONS, AND AGENCY COMMENTS AND OUR EVALUATION

CONCLUSIONS AND RECOMMENDATIONS

The Navy can save as much as $101 million over a 5-year period on procurement and repair of supplies and parts for combat surface force ships. This can be accomplished, together with an increase in fleet supply readiness, by improving:

--Navy shipboard stockage policies and procedures to insure that excessive inventories of reparable-type items are not arbitrarily retained on ships following supply overhauls; and shipboard stock excesses generated subsequent to supply overhauls are periodically identified and redistributed during intervals between overhauls.

--Navy policy and methods for updating shipboard inventory allowances and equipment part replacement rates to ensure that unneeded repair parts are not carried on board ships for prolonged periods.

--Shipboard supply management practices to ensure that stocks are not ordered in excess of allowances and inoperable parts are turned into shore-based repair points when replacements are ordered; aged, outstanding orders for materiel are periodically validated and invalid orders promptly canceled; realistic order and shipping time data is used in computing stock requirements; and acceptable levels of inventory record accuracy are achieved and maintained.

Accordingly, we recommend that the Secretary of the Navy require:

--The discontinuance of Navy policy allowing combat surface force ships completing supply overhauls to arbitrarily retain reparable-type items, which are applicable to installed equipment, but which were not included in their updated inventory allowance due to lack of prior usage. Also, require ships undergoing overhauls to promptly offload and return to the nearest

wholesale stock point all excess reparable-type items valued at $50 or more for which foreseeable supply system requirements exist.

--Fleet commands to establish uniform policies providing for periodic identification and prompt return to the wholesale supply system of shipboard item stock excesses valued at $50 or more during intervals between supply overhauls.

--The Ships Parts Control Center to identify and eliminate from updated inventory allowances for ships undergoing supply overhauls those parts that have a unit price of $100 or more, and have not been used by the overhauled ships or by other ships of the same type for the past 4 years.

--Fleet commanders to take the necessary action to ensure that realistic order and shipping time data is used in computing stockage levels.

--Fleet commanders to make certain that acceptable levels of inventory record accuracy are maintained.

--The Pacific Fleet Surface Force Command to adopt the Atlantic Fleet policy of monthly validation of outstanding shipboard orders for materiel and prompt cancellation, where appropriate.

AGENCY COMMENTS AND OUR EVALUATION

By letter dated August 15, 1980 (see app. I), the Principal Deputy Assistant Secretary of the Navy (Logistics) forwarded the Navy's views on our findings and recommendations. The Navy agreed with the following recommendations and advised us of a number of corrective actions.

--Require fleet commanders to ensure that realistic order and shipping time data is used in computing stockage levels.

--Require fleet commanders to make certain that acceptable levels of inventory record accuracy are achieved and maintained.

--Require the Pacific Fleet Surface Force Command to adopt the Atlantic Fleet policy of monthly

validation of outstanding shipboard orders for materiel and prompt cancellation, where appropriate.

The Navy does not agree that $101 million can be saved over a 5-year period in procurement and repair costs and that fleet supply readiness can be enhanced by reducing unused and excess inventories on board combat surface force ships.

The Navy believes that we erred significantly in our projected savings and that we did not consider the potential adverse effects of reductions in shipboard stocks on fleet supply readiness. The Navy contends that as a result of its last action to significantly reduce shipboard inventories--changing the criterion for allowing ships to carry insurance stocks of seldom needed but vital items from one predictable demand in 6.6 years to one predictable demand in 4 years--the ability of combat surface force ships to fill all requirements from onboard stocks has decreased from 55 to 50 percent from 1975 to the present.

We do not agree that we erred in projecting $101 million savings. (See p. 30.) Contrary to the Navy, we did consider the potential effect of proposed reductions in shipboard stocks on fleet readiness. We examined a number of factors affecting the cost/readiness relationship of ships indefinitely retaining stocks which had been not used during their last 4 or 5 year operating cycle. The factors reviewed included whether the unused and excess stocks carried for prolonged periods by some ships were

--needed immediately to satisfy supply system requirements, including critical needs of other ships and

--vital to their supply and operational readiness, and if so, whether they met the criteria for insurance stockage.

The ability of combat surface force ships to meet supply effectiveness standards, and the extent, causes, and effect of equipment casualties was another factor affecting ships cost/readiness relationships reviewed by us.

In addition, we do not agree that the 5-percent decline in supply effectiveness of combat surface force ships was attributable to an earlier reduction in shipboard stocks (the adoption of a more stringent shipboard insurance

stockage criterion). The Navy does not consider that some combat surface force ships were able to meet the 65 percent standard for filling all requirements from stocks on board in 1979 and 1980, despite the fact that more stringent insurance stockage criteria was uniformly adopted for all ships.

In our opinion, the overall decline in shipboard supply effectiveness during the past 5 years was avoidable and was due primarily to (1) ships not promptly identifying and stocking items on the basis of usage frequency and (2) Atlantic Fleet combat surface force ships adopting a more stringent criterion for stocking items on the basis of demand frequency.

The Atlantic and Pacific Fleet ships we reviewed often did not take prompt action to stock frequently used items. For example, the U.S.S. Lawrence (DDG-4), which was experiencing a 46-percent supply effectiveness rate, was not stocking 217 items that qualified for stockage on the basis of usage frequency (four demands in 12 months). Similarly, the U.S.S. Vreeland (FF-1068), which was experiencing a 51-percent supply fill rate, was not stocking 240 items that qualified for demand-based stockage. At the time of our review, several months had past since these two ships had reviewed their item demand histories and updated their listing of items qualifying for stockage based on demand frequency.

Before 1975 both Atlantic and Pacific Fleet surface force ships were authorized additional range and depth of stocks of items which experienced two demands in a 6-month period. Thereafter, one demand had to be experienced for these items every 6 months to warrant continued stockage. Subsequently, Atlantic Fleet surface force ships adopted more stringent criteria whereby four demands had to be experienced in a 12-month period to warrant additional stockage of items and four demands had to be experienced yearly thereafter to justify continued stockage. A 1974 Navy study of alternative shipboard stocking criteria showed that this change in stockage criteria would reduce excessive inventory investments and decrease supply effectiveness by 4 percent.

The Navy disagreed with our proposal that the Ships Parts Control Center be required to identify and eliminate from updated inventory allowances for ships undergoing supply overhauls those parts that (1) have been in the supply system 4 years or more and (2) were not used by the overhauled ships or by other ships of the same type for the past 4 years.

The Navy contends that our draft report shows a serious lack of understanding of the purpose of shipboard allowances and that the impression given is that these inventory allowances are primarily demand oriented. Conversely, the investment in shipboard spare parts inventories serves as an insurance policy to ensure that a ship is able to carry out its mission. Insurance items comprise 95 percent of all shipboard allowance items.

Further, the Navy contends that a possible flaw in our analysis of the likelihood of shipboard use of insurance items was that we used data recorded only in the Navy's maintenance data system. According to the Navy, it uses supply system demand data to supplement, but not duplicate, maintenance data when determining usage.

Additionally, the Navy took exception to one of GAO's examples of an insurance item (reactor part NSN 5950-00-310-1480) which no longer qualified for insurance stockage on cruisers because of a lack of use for the past 4 years. The Navy stated that although this item was cataloged in the supply system in 1973, the Navy was not responsible for supply support until October 1977, and therefore, the maintenance data we reviewed covered less than a 2-year period. Moreover, the Navy stated that a review of its supply system demand files indicated that this part had been used by two cruisers--CG-20 and 23--during the past year.

Contrary to the Navy's contention, our draft report clearly states the makeup and purpose of shipboard inventory allowances. For example, on page 9 of our draft report, we stated that for a repair part to be included in a ship's 90-day initial inventory allowance, it must (1) have an expected failure rate of one or more in a 90-day period or (2) be vital to the ship's mission or personnel safety and have a predictable failure rate of one or more in 4 years. The latter category of repair parts are known as insurance items and account for approximately 95 percent of the items included in a ship's inventory allowance.

Moreover, the Navy is incorrect in assuming that we did not consider all appropriate sources of usage data in determining the likelihood of shipboard use of insurance items over a 4-year period. We considered the same sources of usage data used by the Navy's Ship Parts Control Center in updating equipment part replacement rates and shipboard inventory allowances. To the extent deemed appropriate, we analyzed both maintenance system data and supply system data.

The Navy is also incorrect in its claim that we considered less than 2 years of usage data for one of the examples of an insurance item (reactor part, NSN 5950-00-310-1480) that should have been eliminated from the updated inventory allowance of a ship undergoing supply overhaul because the overhauled ship and other ships of the same type had not used the part for the past 4 years. We reviewed all available sources of usage data from 1975 to 1979, including data maintained by the contractor responsible for supply support before October 1977.

Further, the Navy's assumption, based on its review of supply system demand files, that this part was used by two cruisers during the past year is not supportable. Supply system demands are recorded when ships order parts purportedly to replenish parts used to repair inoperable equipment and maintenance system demands are recorded when ships report parts replacement usage. If this part had been used by the two cruisers, it should have been reported by them and recorded as maintenance usage, as well as supply system demands. As previously mentioned no maintenance usage was reported by any cruisers during 1975-79. Moreover, our follow-up review showed that these ships had reported no usage of this part through June 30, 1980.

Additionally, our audit on board one of the cruisers (CG-20) for which the cited supply system demand was recorded in 1979 showed that the related order was invalid and in excess of the ship's authorized allowance. This cruiser ordered one unit of this part to replenish its authorized allowance quantity of one unit, purportedly used to replace an inoperable equipment part. This was not the case. At the time the cruiser ordered this unit it had an operable one in stock and no replacement requirement. As mentioned in chapter 4, Navy ships frequently place invalid orders for parts exceeding their authorized allowances. Such orders were inadvertently and incorrectly recorded as valid supply system demands, but not as maintenance system demands since no actual usage occurred.

The Navy also disagreed with our proposal that it discontinue policies of surface force fleet commands which allow ships completing supply overhauls to arbitrarily retain repair parts applicable to installed equipment but which were not included in their updated repair part allowances due to lack of usage. The Navy commented that the retention policy is not arbitrary, but based on a rational approach to implementing a significant change in Navy shipboard inventory allowance policy.

The Navy elaborated that the Department of Defense imposed severe fiscal pressure on them in 1973, resulting in a change in shipboard inventory allowance policy. Until then, insurance quantities were allowed for items having an average replacement rate of one in 6.67 years. This was changed to one in 4 years, resulting in large numbers of items in excess of the new allowance criteria physically on board ships.

The Navy commented further that in implementing this shipboard allowance change, it proposed, and Defense approved, a shipboard stock retention policy which provided that during supply overhauls ships could retain minimum quantities of items, except depot-level reparable items, applicable to their installed equipments which were not included in their updated inventory allowances due to a lack of usage during the last 4 or 5 year interval between supply overhauls. Depot-level reparable items, because of their higher cost and potential supply system criticality, having wholesale system requirements would be returned to the supply system. Also, Navy inventory managers and fleet commanders were to be provided visibility of all items thus retained by ships.

According to the Navy, this policy is still rational and cost effective since all of the expensive depot-level reparables are returned to the supply system, if required. Also, the Navy commented that retained items satisfy 3 to 5 percent of all the maintenance requirements of ships holding the retained materiel. Moreover, the Navy commented that GAO representatives were not aware of the Navy's procedures to satisfy repair part requirements needed to correct fleet shipboard equipment casualties. In this respect, stock lists (including identification of unused retained items) for all Navy ships are routinely utilized by fleet command and inventory control point expediting teams to locate and direct shipment of materiel to correct shipboard equipment casualties.

Contrary to the Navy's position, we found that the policies of the surface force fleet commands and the practices of their ships completing supply and maintenance overhauls provide for retention of all reparable-type items, including depot-level reparables having forseeable supply system needs, applicable to installed equipment but not included in updated inventory allowances of the overhauled ships due to lack of prior usage. The policies and practices make no provisions for determination of supply system status of reparable-type items, including depot-level reparables, pursuant to the decision to retain these items on ships completing overhauls.

As mentioned in our draft report, an estimated 64 percent of the dollar value of reparable-type items retained by the ships sampled by us were needed to satisfy

supply system needs. Depot-level reparables accounted for 44 percent of the dollar value of retained items needed to satisfy supply system requirements. Examples of depot-level reparables retained by these ships for which supply system requirements existed follow.

Ship	Item description	Dollar value of supply system requirements for retained stocks
U.S.S. Lawrence (DDG-4)	Rotary coupler (NSN 5985-00-943-4644)	$ 5,780
U.S.S. Reeves (CG-24)	Piston and sleeve (NSN 1440-00-609-3225)	1,700
	Receiver (NSN 1420-00-716-8946)	12,240
	Circuit card assembly (NSN 5840-00-790-9415)	1,300
U.S.S. R.K. Turner (CG-20)	Receiver subassembly (NSN 5825-00-166-6214)	2,500

It should be evident to the Navy from a careful reading of our draft report that we are aware of the Navy's procedures to satisfy repair part requirements needed to correct fleet shipboard equipment casualties. For example, as mentioned on page 20 of the draft report, both fleet commands have programs, known as daily screening programs, which provide for limited redistribution from nondeployed ships of repair parts urgently needed by deployed ships to repair inoperable equipment.

Although inventory managers and fleet commands have stock lists of all items (including unused retained reparable-type items) on board ships, we found no evidence that these stock lists were routinely used to locate and redistribute unused reparable items retained by ships which are needed to satisfy supply system requirements. Moreover, it is doubtful that the routine use of these lists would serve as an effective mechanism for maximum identification and prompt redistribution of unused or excess ship parts because of the difficulty in having deployed ships offload and return parts.

We question the Navy's claim that previously unused, reparable-type items retained by ships satisfy 3 to 5 percent

of all shipboard maintenance requirements. The basis for this claim is a limited Navy study made in 1975 of maintenance usage and supply effectiveness experienced by two destroyers during a 4-month period subsequent to a supply overhaul and receipt of updated inventory allowances.

Not mentioned in the Navy reply was a more recent Navy study which presented an argument for removal from shipboard inventories of unused, retained reparable-type items because of their excessive investment in relation to their marginal benefit. This study conducted in 1979 by the Office of the Commander-in-Chief, U.S. Atlantic Fleet, involved the use and contribution of reparable items retained by five surface force ships. This study showed that during a 1-year period, usage was experienced for less than 2 percent of the total number of reparable-type items retained by the five ships.

The Navy agreed in principle with our proposal that surface force fleet commands be required to establish uniform policies providing for periodic identification and prompt return to the wholesale supply system of shipboard stock excesses during intervals between supply overhauls. However, the Navy did not agree that the problem is as significant as we had concluded.

The Navy stated that we assumed that all stock excesses offloaded during supply overhaul (except parts no longer needed because of changes in installed equipment) were due to a lack of timely identification and redistribution of stock excesses. According to the Navy, a significant amount of material offloaded is due to return of depot level reparables in accordance with the previously mentioned policy governing shipboard retention of reparable-type items.

The Navy elaborated further that the intent of our proposal is only achievable through automation of the nonautomated surface force combat ships, because the labor intensity of continually screening items aboard nonautomated ships is cost prohibitive. The Navy stated that it has an ongoing program to automate these ships, which will provide capability to periodically identify and report their stock excesses to wholesale inventory managers.

We do not agree with the Navy's opinion that the build-up and prolonged retention of stock excesses on board combat surface force ships is not as significant as presented in our draft report. We did not assume, as claimed by the Navy, that all stock excesses offloaded by ships during supply overhauls were due to a lack of timely identification and redistribution of stock excesses. As clearly pointed out in our draft report and on page 7 of this report,

the $30.2 million of avoidable excesses, which includes depot-level reparable excesses, generated by surface force ships during intervals between overhauls was primarily due to over-ordering, inaccurate inventory records, and failure to identify and cancel invalid orders. The prolonged shipboard retention of these stock excesses was, as stated in our report, due to inadequacies in or lack of policies for timely redistribution of stock excesses.

We could find no evidence that the Navy has a firm ongoing program with established target dates to automate its fleet of combat surface force ships, thus providing them with the automated capability to periodically identify, report, and redistribute stock excesses during intervals between supply overhauls. Moreover, we do not agree that without automation such action is cost prohibitive due to the labor intensity of continually screening items aboard nonautomated ships.

As the Navy should be aware and as mentioned in our report, it is the policy and practice of Pacific Fleet combat surface force ships to periodically identify and offload stock excesses during intervals between supply overhauls. This is accomplished by these ships without continuous, large-scale item screening. Item excesses are selectively identified and earmarked for offload coincident with the accomplishment of required item physical inventories. Both the Atlantic and Pacific Fleet commands require their ships to physically inventory all demand-based item stocks every 6 months and all other items whenever an issue occurs.

According to the Navy, our projected savings of $101 million is overstated by $82.5 million because we (1) considered only procurement costs and not repair costs, which is 25 percent of procurement costs, and (2) did not consider the value of the material if retained on board ships for future use and redistribution. Further, the Navy claims that the remainder of our projected savings is nonexistent because we (1) did not recognize that materiel offloaded by ships, if valued at under $20, would be disposed of in accordance with Defense's economic materiel return policy and (2) did not consider offsetting costs for offloading, packaging, and returning excess shipboard materiel.

The Navy's position on our projected savings is incorrect and unsupportable. As clearly pointed out several times in our report, we considered the extent to which unused and excess stocks retained for prolonged periods by ships could be used to offset both procurement and repair costs at the wholesale level. For example, on page 18 of our draft report, we

stated that our sampling tests showed that there were current procurement and/or repair requirements at the wholesale level equal to 64 percent of the inventory value of unused, retained parts on board the sampled ships.

The Navy's claim that our projected savings should have been discounted by the value of excess shipboard material needed to satisfy current supply system requirements, if retained on board ships for future use or redistribution, is illogical. As clearly demonstrated in our report, this stock only has a value if it is removed from the ship and used to fill requirements. It has little or no value being retained on ships which have no need for it. It is not defensible from an economic or readiness standpoint for ships to retain unused and excess stocks for periods of up to 5 years when these stocks are needed elsewhere to satisfy supply system requirements.

It should also be apparent to the Navy that we did consider Defense's economical materiel return dollar threshold of $20 per item in our projected savings. As pointed out, our projected dollar savings associated with the elimination from updated shipboard inventory allowances of items not qualifying for insurance stockage was based on a statistical sampling of items with unit prices of $100 or more. Also, our projected savings associated with a reduction of unused, reparable-type items retained by ships was based on a sampling of items with an average value of $437 per item. Also, as noted in the Navy's reply, the average value of unused, reparable-type items retained by ships exceeds the minimum dollar threshold for economic return.

Finally, we do not agree that our projected savings should have been offset by the costs that would be incurred for offloading, packaging, and returning excess shipboard materiel. Most of our projected savings are based on the prompt return to the supply system, as opposed to continued prolonged shipboard retention, of materiel offloaded from ships undergoing supply overhauls. It is common during ship supply overhauls to offload, package, and return to the supply system large volumes of items. Accordingly, the costs associated with our projected savings would have been absorbed as a part of normal supply overhaul costs.

APPENDIX I

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

15 AUG 1980

Mr. R. W. Gutmann
Director, Logistics
and Communications Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Gutmann:

This is in response to your letter dated June 6, 1980, to the Secretary of Defense concerning GAO draft report, "Supply Support Costs of Combat Ships can be Reduced by Millions and Readiness Enhanced", (OSD Case #5454) (GAO Code 943059). We discussed the report with your representatives during a meeting on 23 June 1980. Our detailed comments are contained in enclosures (1) and (2).

Subject report concludes that readiness can be improved by removing selected spare parts from Navy ships. The Department of Defense does not concur. Enclosure (1) provides comments keyed to the specific GAO recommendations. Further, the $101 million in projected savings does not exist. Enclosure (2) describes major errors and omissions made by GAO in developing the cost savings projections. The analysis also reflects a misunderstanding of current Navy policies and procedures regarding shipboard spare parts.

The GAO draft report evidences a serious lack of understanding of the purpose of shipboard allowances. The impression given is that the COSAL (Coordinated Shipboard Allowance List) is primarily a demand-oriented document. In fact, the investment in shipboard spare parts inventories serves as an insurance policy, to insure that a ship will be able to carry out its mission in a combat environment. Insurance items comprise 95% of all shipboard allowance items. Life-cycle cost studies indicate that this insurance premium currently represents less than one-half of one percent of the life-cycle cost of the ships being supported.

Rather than move large quantities of shipboard spare parts ashore, as the GAO draft report recommends, the preferable procedure is to provide the supply system with visibility of shipboard assets, for potential use and redistribution to satisfy urgent requirements on other ships. This is exactly the procedure currently used by the Navy.

It is not in the best interests of the Navy, DOD, or GAO for this draft report to be published in its current form.

Thomas E. Harvey
Principal Deputy
Assistant Secretary of the Navy
(Logistics)

Enclosures

Copy to:
ASD(MRA&L)

GAO Draft Report of 6 June 1980
on
Supply Support Costs of Combat Ships Can Be Reduced by Millions and Readiness Enhanced

(OSD Case #5454)

I. Summary of GAO Findings and Recommendations

The GAO has reviewed policies and practices for establishing and maintaining optimum stock levels on combat surface force ships. GAO believes the Navy can improve readiness as well as save as much as $101 million over a 5-year period on procurement and repair of supplies and parts for combat surface force ships. Specifically, GAO believes this can be done by revising policies for updating shipboard inventory allowances, and improving shipboard supply management controls, and practices.

To accomplish the savings, GAO recommended that Navy make several policy changes. Specifically, GAO recommends that: (1) SPCC identify and eliminate from a ship's allowance those parts that have been in the supply system for four or more years and were not used by that ship or any ship of the same type; (2) after a four-year demand development period, eliminate entirely from current demand forecasts, the influence of initial engineering estimates of failure rates; or, place greater emphasis on the latest annual parts usage in developing demand forecasts; (3) discontinue allowing ships completing supply overhauls to "arbitrarily" retain inventories not previously used; (4) establish procedures to identify and redistribute shipboard stock excesses between supply overhauls; and (5) give credits directly to the ships that turn in stock funded excesses.

In addition to recommending changes in Navy policy, GAO concluded that an undetermined amount of savings could be realized by improvements in executing current policy. Specifically, GAO recommends that improvements be made in (1) validating outstanding shipboard orders for material no longer needed; and, (2) inventory record accuracy. Also, GAO recommended that Fleet Commanders ensure realistic order and ship time data is used in computing stockage levels.

II. Summary of Department of the Navy Position

The draft GAO report contains several misinterpretations of Navy policy, incomplete cost analyses, and some conclusions that are inconsistent with the evidence presented. Consequently, the Navy does not concur in certain of the GAO recommendations. Some recommendations that relate to deficiencies in execution of Navy policy are acceptable and will be acted upon.

Enclosure (1)

The effect of implementing the policy changes recommended by GAO would be to reduce shipboard stocks. Yet GAO did not take into consideration the effects of the most recent action taken by Navy to significantly reduce shipboard inventories. In 1973, Navy revised its allowance policy for ships such that items having projected demand rates less than one in four years were no longer allowed. Since 1975, when the effects of this policy change began to hit the fleet, there has been a decrease in the fleet's ability to satisfy at the shipboard level material requirements. On-board Ship inventories now satisfy only 50% of their requirements. Prior to 1975, over 55% of the requirements could be satisfied from the ships' inventories of on-board repair parts.

In addition GAO did not assign a cost or readiness penalty to the consequences of not having a critical part on board when required. The immediate result is a degradation in the ship's combat systems readiness until the required part is obtained from another source. In the past year, the average delay times for critical parts requirements that cannot be satisfied at the shipboard level has been about 21 days. Due to the real world constraints of the DoD's material distribution system and the random geographical ship locations, that delay cannot be signficiantly improved. Consequently in some cases Navy is suffering significant combat system readiness degradations for prolonged periods due to inadequate inventory levels of repair parts on-board ships.

GAO's claim that it can offset $101 million in parts procurements over a five year period by physically removing material from ships is simply not valid. To the extent that demands for ships parts will be experienced whether that inventory is on or off the ship, long term costs are not avoided by changes in physical location of inventories. In the end the only real cost of placing an inventory in the wholesale system or afloat is the cost of those items that are not ultimately required. While GAO's recommendation could have some short term savings, those savings would have to be offset by not only the physical costs of handling and transportation but more importantly by the degradation in combat system readiness by not having a part on board a ship in the Indian Ocean, for example, rather than in Dayton, Ohio. To the extent that the offloaded part is in Dayton, Ohio and the ship is deployed, the alleged savings would be offset further by premium handling and transportation costs.

III. Specific Comments on GAO findings, conclusions and recommendations

a. Navy Comments on Specific GAO Recommendations. The GAO recommended that the Secretary of the Navy:

(1) Require the Ships Parts Control Center to identify and eliminate from updated inventory allowances for ships undergoing supply overhauls those parts that (1) have been in

the supply system 4 or more years and (2) were not used by the overhauled ships or by other ships of the same type for the past 4 years.

Navy Comment. Do not concur. The Navy did not have sufficient time to completely duplicate the tests performed by GAO. Therefore, we cannot concur with the conclusions drawn from the GAO sample. One possible flaw in the GAO analysis is that it used data recorded only in the Maintenance Data System (MDS). Navy uses data from both MDS and supply system demand files. It has long been recognized by the Navy that a data collection system as large as MDS and dependent upon input from hundreds of different activities is subject to some data loss. Therefore, Navy utilizes supply system demand data to supplement, but not duplicate, MDS when determining usage data. Navy proposes that GAO restudy this portion of their audit, using combined MDS and supply system demand data.

NSN 5950-00-310-1480 was cited as an example of the parts on CG-17 that had no usage during the past four years. The example item is a critical repair part supporting the AN/SPG-55B RADAR which is part of the TERRIER Missile Fire Control System. Failure of the part would result in loss of fire power in the ships in which the system is installed. The consequence of not having a spare aboard would be loss of fire power for about three weeks. This multi-million dollar system is the primary weapon system on these critical Anti-Air Warfare platforms. Consequently, this part is allowed on these ships even though the best replacement rate for the part is below the threshold contained in current allowance policy. Although this item was cataloged in the Supply System in 1973, Navy did not assume supply support responsibility until 1 October 1977. Therefore, the MDS data reviewed by GAO contained less than two years of usage data. A review of Supply System files indicates this part had been used by CG-20 and CG-23 during the past year.

(2) Require the Ships Parts Control Center to either (1) eliminate entirely the influence of initial technical estimates in updating combat surface force ship replacement rates for repair parts after a four-year demand development period or (2) place greater reliance on the latest annual parts usage reported by the Fleet in updating replacement rates for repair parts after a four-year period.

Navy Comment. Do not concur. GAO did not provide any realistic data that would support their conclusions. To the extent they used a hypothetical example, the example could have been skewed to present either side of the issue.

The hypotethical case used by GAO to demonstrate the effects of BRF (Best Replacement Factory) updates, is not a realistic one. By using a parts population of 25 times the average, and assuming a sixfold error in the initial technical estimate of the part's failure rate, it computes a possible overstockage of 400%. The use of realistic data results in an allowance quantity of one. Less than 5% of all allowance items are stocked in quantities greater than one replacement unit. The BRF update is primarily a range calculation, not depth. Therefore, the effect of BRF updates on shipboard allowance quantities is minimal. [See GAO note, p. 43.]

With regard to Navy's policy for placing greater reliance on older usage data, as stated in previous discussions with GAO, the Navy utilizes a conservative policy with regard to updating failure rates because of the extremely low installed equipment population within the Navy and the high sensitivity of the failure rate to any errors in usage data. As a result of previous national policy to competitively procure equipments, as much as possible, a large percentage of Naval equipments are installed in minimum quantities within the Fleet. In a study of the hull, mechanical and electrical equipment, a total of 156,600 different components were identified as currently installed on active Fleet ships. Of this total, 40,128 or 25.0% were installed on one ship only, and 99,116 or 63.2% were installed on five or less ships! The lack of equipment standardization has been well documented in previous audit reports and studies. Since the failure rate is computed by dividing reported usage data by installed part population, any deficiency or omission in usage reporting automatically results in a significant understatement of the failure rate in all instances where population is low. The computed failure rate will, therefore, always err on the side that will penalize readiness if the most recent usage data is given maximum or near maximum weight. It should be noted that in recent years, the number of items with failure rate decreases have exceeded those with increases by a ratio of nearly 10 to 1 using current Navy policy. [See GAO note, p. 43.]

(3) Discontinue policies of surface force fleet commanders which allow ships completing supply overhauls to arbitrarily retain repair parts which are not included in their updated repair part allowances due to lack of prior usage.

Navy Comment. Do not concur. Fleet Commanders have the authority to retain some items that are not included in updated allowances. That authority was granted based on policy approved by DoD in 1973. The retention policy is not arbitrary. It is based on a rational approach to implementing a significant change in Navy allowance policy.

In 1973, DoD imposed severe fiscal pressure on Navy resulting in a change to allowance policy. Until then, insurance quantities were allowed for items that had an average replacement rate of one in 6.67 years. That threshold was reduced to one in four years resulting in large numbers of items physically on board ships in excess of the new allowance criteria. In implementing the allowance change, Navy proposed and DoD approved a policy incorporating the following features:

-- During supply overhaul all depot level repairable items having wholesale system requirements would be returned to the supply system.

-- All other items still having applicability to the ship would be retained in minimum quantities.

-- These retained items would not be replenished after issue.

-- The Navy would provide the Type Commanders and the Inventory Control Point with visibility of all the retained items.

All the procedures necessary to comply with this policy are in effect. From a Navy standpoint the policy is still rational and is cost effective. Since all of the expensive depot level repairables are returned to the supply system, if required, the cost of this policy is minimized. It is recognized that a wholesale requirement for an item may emerge prior to the next supply overhaul; but, if the item were off-loaded at a time when no requirement exists, it may be disposed of in accordance with current materials returns policy. It is significant to note that retained items satisfy 3-5% of all the maintenance requirements of ships holding the retained material.

The Navy reviewed the records of 28 ships completing supply overhaul in the past year. Excluding repairable items that were retained because there were no wholesale requirements for

them, the ships retained an average of 6507 line items valued at $342,956 for an average line item value of $52.70. Currently, as established by DoD, material returned to the supply system having a line item value of less than $20 is immediately disposed of. It has been determined that it costs more than the value of the material to return these items to the supply system.

It was revealed during discussions with GAO representatives that they were not aware of the procedures used by Navy to satisfy requirements to correct fleet casualties. Stock lists (including retained items) for all Navy ships are routinely utilized by TYCOM and Inventory Control Point expediting teams to locate and direct shipment of material to correct casualties. This and other screening techniques permit maximum utilization of all Navy assets to maintain fleet readiness.

(4) Require fleet commands to establish uniform policies providing for periodic identification and prompt return to the wholesale supply system of shipboard stock excesses during intervals between supply overhauls.

Navy Comment. Concur in principle. It is acknowledged that some excesses do accrue during a ship's operating cycle; however, Navy does not agree that the problem is as significant as GAO has concluded. GAO assumed that all excesses off loaded during supply overhaul (except parts no longer needed because of changes in installed equipment) were due to lack of timely identification and redistribution of stock excesses. A significant amount of the material off loaded is due to the return of depot level repairables in accordance with the policy described in Navy comments to recommendation (3).

For smaller ships that are not currently mechanized, a periodic review and redistribution of excesses is so labor intensive from a data processing standpoint that it is currently prohibitive. Navy has an on-going program to mechanize these ships. This program will provide capability to identify excesses. In addition, it will provide capability to submit periodic asset information to inventory control points to permit redistribution of critical items. The large ships that do have installed supply data processing equipment submit quarterly stock status reports (QSSR's) to the Inventory Control Points (ICP's). The ICP's offset their buys by excesses identified during these intervals between supply overhauls.

(5) Revise Navy stock fund credit policy so that fund credits will be given directly to the ships that turn in stock excesses, rather than their fleet commands.

Navy Comment. Do not concur. Such action would impose a significant accounting and paperwork workload on ship personnel during a time when Navy is having difficulty in acquiring and retaining sufficient quantities of experienced personnel to fully man the ships. A second consideration is the constraint that would be imposed upon the Type Commander in effectively managing available funds. Under current procedures the TYCOM is able to redistribute funds generated by credits to fleet activities that have the most urgent funding needs. Without this capability the TYCOM would lose a strong control mechanism to ensure that funds are properly utilized. It should be noted that the TYCOM takes into account the credit record of a ship when considering a request for funding augmentations. [See GAO note, p. 43.]

(6) Require fleet commanders to take the necessary action to insure that realistic order and shipping time data is used in computing stockage levels.

Navy Comment. Concur. Fleet Commanders will be directed to reemphasize the importance of using realistic order and shipping time.

(7) As a part of its pilot program for establishing revolving fund controls over issues of appropriation funded reparables to ships, provide ships with funding credits for prompt turn-ins of inoperable and excess stocks.

Navy Comment. Partially concur. Navy does not concur in giving credits directly to ships for return of excess stocks. Navy comment on recommendation (5) states Navy position on this issue. However, Navy will implement a dual pricing scheme to, in effect, provide ships with credit for returning inoperable units. When the ship requisitions a replacement unit and indicates an inoperable unit is being returned, the ship will be billed only for the standard repair cost. Later, if the ship fails to return the inoperable unit, the ship will be billed the difference between the standard repair cost and the procurement cost. This procedure will minimize the number of accounting transactions required and have minimum impact on the ship's workload.

(8) Revise its stock fund credit policy so that fund credits will be given directly to the ships that turn in stock-funded excesses, rather than to their fleet commands.

Navy Comment. Do not concur. This is the same as recommendation (5). Navy position has been stated in response to that recommendation.

(9) Require fleet commanders to take the necessary action to insure that acceptable levels of inventory record accuracy are achieved and maintained.

Navy Comment. Concur. Fleet Commanders will be directed to take appropriate action to improve stock record accuracy.

(10) Require the Pacific Fleet Surface Force Command to adopt the Atlantic Fleet policy of periodic validation of outstanding shipboard orders for material and prompt cancellation, where appropriate.

Navy Comment. Concur. Navy agrees that validation of outstanding orders requires improvement.

APPENDIX I

ANALYSIS OF COST SAVINGS

The $101 million in savings over a five-year period is composed of the following elements:

I. AMOUNT	SOURCE		CALCULATION
$30M	Removal of Shipboard Allowance items for positioning ashore to satisfy Supply System requirements	$207M X.175 X.83 $ 30M	for 189 ships Unused by ships Usable by Supply System Savings

Comments:

a. The savings projection used procurement price rather than repair price, overstating gross savings by a factor of two. Repair costs usually amount to only 25% of procurement costs. Many of these items are normally repaired, rather than procured. Consequently, this error reduces the savings to $15M, assuming the projected savings are otherwise valid.

b. The projected savings assume the material involved will have no future value if retained aboard ship. This is invalid. The GAO report acknowledges that Supply System procurement and repair requirements exist for 83% of the dollar value of the items. Projected savings should have been discounted by the value of the material if retained aboard ship for future use or redistribution. Eight-three percent of the recalculated savings of $15M equates to $12.5M in usable material, reducing the projected savings to $2.5M.

c. The determination of unused parts considered only Maintenance Data System data. Supply System data was not used. Consequently, the .175 calculated by GAO as being unused should be lower, further reducing projected savings. An example is NSN 5950-00-310-1480. This part was cited by GAO as an example of parts that had no usage. Supply System files indicated this part has been used by two ships in the past year.

d. The cost to offload, package, and transport the material offloaded was not considered in the savings calculation.

e. The savings projection fails to assess the cost of not having a part on board the ship from which it was removed, if subsequently required. Premium handling and transportation costs would be incurred in delivering the parts. Since the likelihood of this occurring is high, these costs could more than offset the savings projected above.

Enclosure (2)

II. AMOUNT	SOURCE	CALCULATION	
$37M	Removal of AT-5 items (those items deleted from allowance but retained on board) for positioning ashore to satisfy Supply System requirements	$306,000	Excess per ship
		X189	Ships
		X.64	Usable by Supply System
		$ 37M.	Savings

Comments:

a. The Navy disputes the GAO claim that the utility of AT-5 items will be enhanced by removing them from aboard ship. AT-5 items currently contribute significantly to ship readiness, satisfying as much as 10% of shipboard maintenance requirements filled from on board stocks. Since AT-5 items are low in dollar value, their removal could cost more than their present value in enhancing readiness aboard ship. Conversely, the projected savings assume this material will have no future value if retained aboard ship. This is invalid. The GAO report acknowledges that Supply System procurement and repair requirements exist for 64% of the dollar value of the items. Projected savings should have been discounted by the value of this material if retained aboard ship for future use or redistribution. Sixty-four percent of the $37M savings equates to $24M in usable material, reducing the projected savings to $13M.

b. The analysis fails to recognize that offload material having a line item value under a specified dollar threshold is immediately disposed of or retained by the holding activity in accordance with DoD policy, since it costs more than the value of the material to return these items to the Supply System. On one ship, for example, 33,000 of 44,000 candidate items for allowance have a unit price below $20. Consequently, if an attempt were made to offload AT-5 items, the sixty-four percent calculated by GAO as being usable would not all be made available to the Supply System. Since the average dollar value at AT-5 items is only $52, most would be sent to disposal or retained by the holding activity. This factor virtually eliminates the balance of the projected savings.

c. The cost to offload, package, and transport the material offloaded was not considered in the savings calculation.

d. The savings projection fails to assess the cost of not having a part on board the ship from which it was removed, if subsequently required. Premium handling and transportation

costs would be incurred in delivering the parts. Since the likelihood of this occurring is significant, these costs could more than offset the savings projected above.

III. AMOUNT	SOURCE	CALCULATION	
$34M	More frequent offload of parts between supply overhauls	$209,700	Excess per ship
		X189	Ships
		X.86	Usable by Supply System
		$ 34M	Savings

Comments:

a. The savings projection used procurement price rather than repair price, overstating gross savings by a factor of two. Repair costs usually amount to only 25% of procurement costs. Most of these items are normally repaired rather than procured. Consequently, this error conservatively reduces the savings to $17M, assuming the projected savings are otherwise valid.

b. The Navy agrees that parts which are truly excess and will not be used should be offloaded as soon as possible. The problem is that the determination of what constitutes an excess item is not made until a new allowance list is prepared, in conjunction with a supply overhaul. Only the timing of the offload is at issue in the GAO proposal: periodic versus once every five years. The material in question is eventually returned to, and used by, the Supply System in any event. The GAO report acknowledges that Supply System demand exists for 86% of the dollar value of this material. Therefore, the projected savings should be discounted by the value of material retained on board for future use or redistribution. Eighty-six percent of the recalculated savings of $17M equates to $14M in usable material, reducing projected savings to $3M.

c. As noted in the discussion in enclosure (1), the remaining savings potential is only achievable through automation of smaller ships, because the labor intensity of continually screening items aboard ship for excesses is cost prohibitive. Therefore, the projected savings, even at the reduced level, are not achievable at this time.

GAO note: GAO's recommendations and related findings have been deleted from final report on the basis of Navy comments.

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