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Report to the Secretary of the Air Force

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AIR FORCE LOGISTICS

Improvements Needed in Managing Items Critical to Combat Capability

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GAO

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National Security and
International Affairs Division

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June 5, 1986

The Honorable Edward C. Aldridge, Jr.
Acting Secretary of the Air Force

Dear Mr. Secretary:

This report shows that improvements are needed in managing items critical to combat capability.

The report contains recommendations to you. As you know, 31 U.S.C. §720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, and House and Senate Committees on Appropriations and on Armed Services; the Secretary of Defense; and the Director, Office of Management and Budget.

Sincerely yours,

Frank C. Conahan
Director

Executive Summary

The Air Force reports about 15 shortages of mission-essential parts for every 100 flying hours. These shortages ground aircraft or prevent aircraft and other weapon systems from performing one or more of their missions. The Air Force's Critical Item Program is intended to intensively manage the more critical shortages and minimize their impact on combat capabilities. GAO reviewed the program to determine whether it was

- identifying shortages that seriously impair mission capability,
- restoring supply of mission-essential parts as quickly as possible, and
- identifying underlying causes of the shortages so that actions can be taken to prevent recurrences.

Background

To maintain the combat capabilities of its weapon systems, the Air Force manages an inventory of 670,000 spare and repair parts valued in excess of $26 billion. It also spends more than $6 billion annually to replace and repair these parts.

Operating bases are to report each incident when a mission-essential part fails and cannot be replaced from base supply. Also, the bases are to report the hours accumulated from issuance of the requisition for the mission-essential part to its receipt on base. The Air Force then uses the part's accumulated requisition hours to identify candidates for intensive management under the Critical Item Program. To illustrate, a mission-essential nonengine part shortage is considered critical and a candidate for intensive program management when it accumulates Air Force-wide 1,000 or more requisition hours in 1 month. The service requires these candidates to be entered into the program when their supply support status show that they will not be corrected within the next 60 days.

All major Air Force commands, as well as bases, are involved in the program, but the Air Force Logistics Command and its five air logistics centers have primary responsibility.

Results in Brief

GAO's review of management activities and a small random sampling of critical items showed that the program was not fully achieving its objectives because program management was not providing the needed direction, oversight, and support. More specifically, the logistics centers did not (1) identify for intensive program management all critical items, (2) quickly eliminate the critical shortages, and (3) identify and correct underlying causes of many shortages.

Because identifying and eliminating critical item shortages will improve weapon systems' combat capabilities, GAO believes that the Critical Item Program should successfully compete with other Air Force programs for the emphasis and resources needed to achieve its objectives.

Principal Findings

Identifying Shortages

The air logistics centers did not follow prescribed procedures for entering qualified items into the Critical Item Program, and the Air Force Logistics Command reports showed these deviations. For example, in July 1985, the centers entered only 706, or 72 percent, of the 985 items meeting GAO's conservative application of program criteria. (See table 2.1.) As a result, Air Force personnel worldwide were not alerted that the remaining mission-essential items were in critically short supply and that intensive actions were needed to alleviate the shortages and minimize their impact on combat capabilities.

Restoring Supplies

For many items included in our review, the centers did not take timely actions to alleviate the critical shortages. More often than not there were many months of delay in

- taking physical inventories to verify purchase requirements and items available for distribution and repair;
- processing requests for contract proposals, awarding contracts, and obtaining expedited deliveries; and
- receiving the bases' broken units for repairs. (See p. 20.)

Identifying Causes

The air logistics centers did not identify and correct the underlying causes of item shortages in 10 of 24 cases reviewed. (See p. 28.) Program guidance does not emphasize the identification and elimination of underlying causes as an objective, and an effective system to accomplish such an objective does not exist. For example, logistics centers identified major contributing cause codes for the critical shortages, but the codes were often inappropriate and/or not specific enough to support corrective actions. Even when the code cited may have been specific enough to be acted upon, such as the bases' "untimely return of repairables," the Air Force did not obtain effective servicewide corrective actions. (See p. 32.)

Providing Direction, Oversight, and Support

The need for additional direction, oversight, and support was evidenced by the lack of

- follow up and correction of program deficiencies reported by Air Force auditors;
- enforcement of minimum standards for reviewing critical items and documenting program direction, actions, and status; and
- timely award of contracts.

Program management considers the main program implementation problem to be the lack of resources needed to intensively and effectively manage the large number of critical items. (See p. 39.)

Recommendations

GAO recommends that the Secretary of the Air Force direct that steps be taken to increase the Critical Item Program's priority and visibility. Specifically, GAO recommends that these steps include actions to

- ensure that each of the air logistics centers uniformly adhere to program entry criteria;
- enforce the centers' management review standards that provide direction and support to operating personnel responsible for timely remedial actions, and ensure complete documentation of directions given, actions taken, and results achieved;
- clearly state in Air Force Manual 67-1 that identification and elimination of underlying causes of critical shortages is a program objective and prescribe the procedures and responsibilities for achieving this objective; and
- develop the means for measuring program effectiveness and require Air Force Logistics Command and Air Force Headquarters to continuously assess program management's effectiveness.

Agency Comments and GAO Evaluation

The Department of Defense concurred with the recommendations and generally agreed with the findings and conclusions in this report, noting that the Air Force is taking steps to

- increase the program's priority and visibility,
- ensure compliance with program entry criteria and management review standards,
- incorporate procedures and responsibilities for identifying and eliminating causes of shortages into Air Force Manual 67-1, and
- develop the means for measuring program effectiveness.

We have made changes to the report and incorporated their comments where appropriate.

Successful completion of the above actions should correct the problems discussed in this report. This, however, requires continued command emphasis on correcting the reported problems and monitoring program effectiveness.

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Abbreviations

AFAA	Air Force Audit Agency
AFLC	Air Force Logistics Command
ALC	Air Logistics Center
GAO	General Accounting Office
MICAP	Mission Capability

Introduction

To maintain the combat capabilities of its weapon systems, the Air Force manages an inventory of over 670,000 spare and repair parts valued in excess of $26 billion. The service spends more than $6 billion annually to replace, repair, and maintain the spare and repair parts. In spite of this investment, operating bases report about 15 incidents of mission-essential parts shortages per 100 flying hours. A mission-essential parts shortage is one that renders a weapon system not mission capable or partially not mission capable; that is, the aircraft or other weapon systems is either grounded or not able to perform one or more of its missions.

Operating bases use the Mission Capability (MICAP) Reporting System to report shortages affecting the combat capability of their weapon systems to their major commands, Air Force Logistics Command (AFLC) and air logistics centers (ALCs). In general, the bases report each incident when a mission-essential part fails and cannot be replaced from base supply. The bases report the hours from issuance of a requisition until receipt of the needed part on the base (MICAP requisition hours). The responsible ALC uses the MICAP requisition hours, along with recommendations from system managers and major commands, to identify items for intensive management under the Critical Item Program.

The Critical Item Program

The primary goal of the Critical Item Program is to provide the intensive management needed to minimize the number and duration of parts shortages that ground aircraft and/or prevent aircraft or other weapon systems from carrying out their missions. This exception management program was established more than 20 years ago.

An item in short supply is to be included in the program when monthly MICAP hours Air Force-wide exceed established thresholds and when the supply status is not expected to get well[1] within the next 60 days. The current thresholds for program entry are 2,500 hours for engine parts, 1,000 hours for nonengine parts, and 500 hours for parts used on low population equipment. When items exceed these thresholds, the shortages are considered to be significant impairments to combat capability. After identification, the items are subject to in-depth reviews and are to be entered into the program if they are not expected to get well within 60 days.

[1]To "get well" in the context of the program means to obtain sufficient supplies to allow filling priority needs through normal supply channels.

Items are added to the Critical Item Program by entering them into the summary report of the MICAP Reporting System. Entry of an item into the program alerts Air Force personnel worldwide that the item requires intensive management, including expedited processing, repair, procurement, and transportation. Items remain in the program until sufficient supplies are obtained to allow filling priority needs through normal supply channels.

Air Force Manual 67-1 (vol. III, part 1, ch. 15) provides guidance for the Critical Item Program and assigns overall program responsibility to AFLC. AFLC has assigned management responsibility to its five ALCs, which are responsible for (1) intensively managing the items to restore them to satisfactory supply status as quickly as possible, (2) identifying major causes of supply problems and taking corrective actions, and (3) ensuring effective program additions, deletions, and other administrative actions.

At each ALC, the focal point for the program is the directorate of materiel management, where inventory management specialists initiate the day-to-day actions necessary to get critical items well. These actions include requesting expedited purchase or repair of the items and redistributing available items to locations where most needed.

Other ALC directorates also play key roles in the program. The contracting directorate is to expeditiously award contracts and follow up with contractors to expedite delivery. The supply directorate is to promptly conduct physical inventories of all items entering the program so that quantities of available items are known for determining requirements and for distributing existing supplies. Finally, the maintenance directorate is to expedite repairs of critical items.

Air Force bases worldwide also have important program responsibilities. They are to expedite base level repairs and promptly return to the ALCs those critical items requiring repairs beyond their capabilities.

Monthly Critical Item Summary Reports

AFLC's critical item summary report for MICAP hours accumulated during July 1985 listed 706 items, 670 of which were repeat items from the previous months. Shortages of these items had caused 1,083 war reserve material withdrawals, 2,366 cannibalization actions, and many thousands of hours of mission impairment. The 706 items had been critical for periods of 1 to 70 months, and over 300 had been critical for

more than a year. As shown in table 1.1, the San Antonio ALC is responsible for managing 360, or more than 50 percent, of the 706 critical items. Of the 360 items, 198 had been in the program more than a year.

Table 1.1: Critical Items by Number of Months in Program

		Number of months in program		
Managing ALC	**Number of items**	**Under 7 mos.**	**7-12 mos.**	**Over 12 mos.**
Ogden	28	10	13	5
Oklahoma City	92	48	20	24
Sacramento	81	46	12	23
San Antonio	360	64	98	198
Warner Robins	145	39	26	80
Total	**706**	**207**	**169**	**330**

The monthly summary reports cite up to 25 different causes for the shortages. Because many items have more than one cause listed, the July report listed a total of 897 causes for the 706 items. Table 1.2 shows the seven most frequent causes, which account for 65 percent of the listed causes.

Table 1.2: Frequently Cited Causes

Cause	**Number of times listed**
Shortage of repair parts	206
Depot repair delays or problems	104
Understated requirements	61
Long procurement lead time	58
Contractor delivery slippages	58
Contractor bidding problems	52
Untimely return of repairable parts	47
Total	**586**

Objectives, Scope, and Methodology

We reviewed the Critical Item Program to determine whether it was achieving its objectives of

- identifying, for intensive management purposes, the shortages that seriously impair combat capability;
- taking effective and timely actions to eliminate the shortages; and
- identifying and correcting the underlying causes of the shortages to prevent recurrences.

To determine if critical items were being properly identified, we (1) reviewed Air Force criteria and guidance for entering items into the program, (2) discussed program entry controls and operating procedures with officials at AFLC and at two ALCs, and (3) reviewed AFLC reports of all five ALCs' items that met program entry criteria but had not been entered into the program.

We reviewed in detail management of the Critical Item Program at the San Antonio ALC because it manages over 50 percent of the critical items. In addition, we selected for detailed work the Sacramento ALC, which has a much smaller work load of critical items.

To determine if corrective actions were appropriate, effective, and timely, we reviewed the histories of 4 critical items during our preliminary work at the San Antonio ALC, and 10 critical items each at the San Antonio and Sacramento ALCs during our more detailed work. Because case records more than a year old were frequently not available, we randomly selected the 20 items from those that had been critical for 3 to 12 months. We selected the items from the December 1984 critical item summary report, which included 448 items managed by the two ALCs. Our criterion of 3 to 12 months eliminated 258 of the 448 critical items. Those eliminated included items with long-term supply problems and with problems that management had been the least successful in resolving.

In reviewing the 24 items, we (1) examined critical item files and related documentation, (2) traced procurement actions, (3) reviewed the repair status of repairable items, and (4) discussed item management actions and decisions with managers at various levels and with operating personnel, such as inventory management specialists, buyers, equipment and production management specialists, and supply managers. To broaden our coverage of the timeliness and adequacy of the physical inventories, we examined the records on 33 additional items.

To assess program actions aimed at avoiding future shortages by correcting underlying causes, we (1) reviewed program guidance, (2) reviewed internal audit reports, (3) examined reports showing the major recurring causes of shortages, and (4) discussed uses of these reports with managers at AFLC and at the San Antonio and Sacramento ALCs.

In general, we investigated management issues contributing to program effectiveness. However, we did not fully investigate the reasons many individual program actions were not timely, appropriate, or otherwise

effective because of the time and resource requirements. Rather, we reviewed management efforts to identify and pursue these matters.

We did our work from March through August 1985 at Headquarters, Air Force Logistics Command, Dayton, Ohio; San Antonio ALC, Kelly Air Force Base, Texas; and Sacramento ALC, McClellan Air Force Base, California. Our work was performed in accordance with generally accepted government auditing standards, except that we did not review computer controls for the MICAP Reporting System. That is, we accepted, without audit, the critical item data obtained from the MICAP Reporting System and related automated data systems.

Identifying Critical Items

The Critical Item Program prescribes criteria for identifying when parts shortages seriously impair combat capabilities and procedures for program entry. However, none of the five ALCs completely followed the procedures for identifying and entering qualified items into the program. For example, in July 1985, the ALCs entered only 706, or 72 percent, of the 985 items that we conservatively determined met the program criteria. The Department of Defense contends, however, that some of the 279 may have been excluded from the program based on an indepth evaluation of their asset positions. We both agree that the program did not alert Air Force personnel worldwide to the fact that some additional mission-essential items were in critical supply status and therefore required priority repairs, processing, and shipment.

In May 1985 Air Force program personnel expressed concern that the number of critical items was proving unmanageable. They proposed to AFLC officials that the thresholds for entering items into the program be increased. However, they had not determined the impact of the proposals on combat capabilities or on improved program management. Accordingly, AFLC officials authorized the ALCs only to test their proposals.

Program Criteria Not Always Followed

Air Force Manual 67-1 states that items meeting the MICAP hour thresholds (see p. 8) for entry to the Critical Item Program and not expected to get well within 60 days must be included in the program. Items initially deferred from the program because they were expected to get well within 60 days are to be immediately entered if the expectation is not realized. Program guidance specifies that decisions to enter or not enter items are to be made at no lower than the division level within the ALCs' materiel management directorates. Lower management levels (branch and section) are to make recommendations for or against item entry but are not to make the final decisions.

Data available to AFLC (the customer support branch, directorate of materiel policy, which has primary responsibility for the program) showed that during July 1985, 279 items that had met the MICAP hour criteria for 3 or more consecutive months had not been entered into the program.[2] Table 2.1 shows, by ALC, the total number of items meeting program criteria, the number actually entered into the program, and the number not entered.

[2]We used the 3-consecutive months criterion to conservatively pick only those items whose expectations of getting well within 60 days were either not appropriate or not realized.

Table 2.1: Items Meeting Program Criteria During July 1985

Managing ALC	Items meeting MICAP criteria	Items in program	Items not in program
Ogden	45	28	17
Oklahoma City	148	92	56
Sacramento	105	81	24
San Antonio	473	360	113
Warner Robins	214	145	69
Total	**985**	**706**	**279**

At the San Antonio and Sacramento ALCs many items were intentionally held out of the program and others were not entered because of problems in data entry.

The Sacramento ALC frequently used the exception that allowed items to be held out if item managers had firm information that a sufficient supply of a critical item would be available within 60 days. However, item managers used the exception when they had no such firm information. Rather than enter some qualified items in the program as required, the Sacramento ALC classified them as "potential" critical items. For example, 10 of 23 potential critical items examined in the communications and electronics division had exceeded the MICAP hour threshold for over 3 months and 5 of the 10 for over 7 months. Similarly, San Antonio's item management division classified 49 items as potential in February 1985. All 49 items had exceeded the MICAP hour threshold for periods ranging from 3 to 7 months.

Even after the ALCs elected to put critical items in the program, the automated data system frequently rejected the inputs. Data entry problems delayed program entry for 7 of our 10 case study items at the Sacramento ALC.

One case study item managed by Sacramento illustrates the above problems. A control coupler, an essential part of a communications system, exceeded the MICAP hour threshold in April 1983 but was initially deferred from the program using the 60-day exception. Although the coupler did not get well within 60 days, it was classified as a potential critical item until January 1984, and no attempt was made to include it in the critical item reporting system. This decision was made at the branch level rather than division level as required by Air Force Manual 67-1. In February 1984, the critical item monitor at the division level

tried to enter the coupler into the program. As a result of input errors, however, the coupler was not entered into the reporting system until October 1984—about 18 months after it qualified for program entry. Consequently, bases were not alerted to expedite return of their unserviceable couplers for depot repair. The Sacramento ALC had identified untimely return of repairables as one of the causes of the shortage.

Critical items not entered into the program's reporting system are not communicated to the various other data systems that alert Air Force personnel worldwide of the need for intensive management. For example, bases are not alerted that repairable critical items require prompt repairs, processing, and shipment to minimize the impact of the shortages on readiness. These and other effects of not entering qualified items in the program are discussed in more detail in the following two chapters.

At the conclusion of our field work, Sacramento ALC officials stated they were taking steps to ensure that items were entered into the Critical Item Program when they exceeded the MICAP hour threshold. San Antonio ALC officials, on the other hand, said they should have the flexibility to defer the entry of items into the program when, in their opinion, the items could be made well without program entry.

Proposed Modifications of Program Criteria

At the May 1985 annual Critical Item Worker Level Conference, ALC representatives proposed modifications to the program entry criteria that would reduce the number of critical items. They reported that the increasing number of critical items was proving unmanageable and that something must be done to provide relief from the large number of items. The conference reported the following planned actions and proposals to reduce the number of critical items.

- AFLC representatives approved for use by all ALCs revised supply standards that allow deleting items from the program that appear to be well (no MICAP incidents over the past 3 months or no priority backorders) but have not met program deletion criteria (do not provide a projected 60 day supply).
- AFLC representatives authorized San Antonio to test criteria for adding items to the program. Under the test provisions, San Antonio will be allowed to defer adding items to the program until they have exceeded the MICAP hour threshold for 3 consecutive months, rather than for 1 month as currently required. This change is expected to further reduce

the number of critical items, and San Antonio is to report test results at the next annual conference.

- San Antonio proposed increasing by twofold or more the existing MICAP hour thresholds for program entry. Under this proposal, mission capability could be impaired for 2,500 hours per month for nonengine parts, 5,000 hours for engine parts, and 1,000 hours for items used on low population equipment before the items qualified for program entry. AFLC deferred action on this proposal pending the results of the test of the relaxed deletion criterion.

The rationale behind most of the above actions is that (1) the large number of items currently in the program dilutes program effectiveness and (2) eliminating some items will allow the remaining items to be more intensively managed. However, other AFLC and major command representatives contend there is a need to improve selection criteria to better identify the most critical items of supply including the "true war stopper items." In response to these concerns, the Air Force Logistics Management Center will study and provide a formal analysis of selection criteria for the next Critical Item Conference. Estimated completion date of the study is June 1986.

Conclusions

Parts shortages meeting existing MICAP requisition hour thresholds can significantly impair combat capabilities. To illustrate, 1,000 hours a month for mission-essential nonengine parts can be equivalent to impairing the combat capabilities of six aircraft for 1 week. Also, since new critical shortages, by definition, may not be corrected for at least 60 days, the impairments can be expected to continue and possibly get worse over the next 2 months. Therefore, we believe all items that meet the criteria for inclusion in the Critical Item Program should be entered into the program and restored to a fully supportable supply status as soon as possible.

However, some ALC representatives proposed modifying the program entry criteria in order to reduce the number of items in the program and make it more manageable with existing resources. Other AFLC and major command representatives want to modify existing selection criteria to better identify the more critical items presumably for the purpose of priority handling. We believe any changes to existing criteria should be justified on the basis of better selecting the items having the more critical impact on combat capabilities rather than on reducing the number of critical items to better match current resources.

Because identifying and eliminating critical item shortages will improve weapon systems combat capabilities, the Critical Item Program should be able to successfully compete with other Air Force activities for the staff and resources needed to restore all critical items to fully supportable supply positions. However, the problems in identifying items that can seriously impair combat capabilities and isolating them for intensive management, as discussed in this chapter, are symptoms of management issues described in Chapter 5. Our recommendations to deal with these problems are presented in that chapter.

Agency Comments and Our Evaluation

The Department of Defense partially concurs with our finding that an additional 279 items were eligible for inclusion into the Critical Item Program during July 1985. The Department agrees all items eligible for the program were not entered into the program but believes some of 279 items may have been excluded based on an indepth review of their asset positions.

The Department of Defense stated that the 279 items identified by us as eligible for the Critical Item Program because they met the program's MICAP requisition hour thresholds oversimplified the selection process. The Department said that the MICAP hour thresholds are used to identify items that are candidates for critical item management. After identification, candidate items are reviewed by the item manager and selected for the Critical Item Program based on additional factors, including monthly accumulated Air Force-wide MICAP (not mission capable-supply and partially mission capable-supply) hours, special MICAP hour assessments for cannibalizations, supply support status codes, War Reserve Materiel withdrawals, buy/repair positions, item management data/experience, procurement/repair projections, Major Command and System Program Manager recommendations, and AFLC direction. All items are subject to an indepth review to determine the actual asset position before entry into the program.

We agree that the program's MICAP hour thresholds are used to identify candidates for the program and that subsequent reviews of the items are needed to verify the accuracy of accumulated MICAP hours and to ascertain the get-well dates. However, as stated in Air Force Manual 67-1, if candidate items are not expected to get-well within a 60-day time frame, they must be entered into the Critical Item Program. The manual further states that if a previously forecasted 60-day get-well date is not met, the item must be entered immediately. This is the Air Force's standard selection criteria that we used to identify the 279 items. We

applied it conservatively in that all 279 items met the program's MICAP hour thresholds for 3 or more consecutive months and therefore included only those items whose expectations of getting well within the 60 days were either not appropriate or not realized.

The Department's comments that item managers would have selected items for the Critical Item Program based on additional factors are misleading. The cited factors of accumulated Air Force-wide MICAP (not mission capable-supply and partially mission capable-supply) hours and special MICAP hour assessments for cannibalizations are not additional but rather are part of the accumulated MICAP hours that applies to the program's thresholds. Additional factors such as supply support status codes, War Reserve Material withdrawals, buy/repair positions, item management data/experience, and procurement/repair projections would influence the selection only if the factors had identified items whose accumulated MICAP hours did not meet, or should not have met, the prescribed thresholds or whose supply status could get well within the 60-day period. Since the accumulated MICAP hours for the 279 items met the criteria for at least 3 consecutive months, the chances of major inaccuracies in reported accumulated MICAP hours are reduced and the possibility of get-well dates meeting the 60-day time frame is eliminated. The remaining cited factors which include recommendations from the Major Commands and System Program Managers and direction from AFLC Headquarters are not relevant to the 279 items meeting the standard criteria since they apply to identifying items for the program that do not meet the standard selection criteria.

The Department of Defense reported that the Air Force Headquarters staff will direct AFLC to ensure that indepth reviews are performed on candidate items. Estimated date for the directive is May 31, 1986. The Department also reported that data errors in the reporting system and the data entry problems discussed in this report will be reviewed and corrected. It stated that an on-line data system is being developed to reduce the error rate with an estimated completion date of October 31, 1986.

Eliminating Shortages

The ALCs, with aid from other Air Force components, are responsible for eliminating shortages once they are identified and for minimizing the impact of the shortages on combat capabilities. In general, this requires prompt entry into the Critical Item Program and intensive actions to restore the supply of critical items, including

- promptly taking physical inventories to verify resources available for distribution and to verify purchase requirements,
- expediting purchases and deliveries,
- expediting return of broken units for repair, and
- expediting repairs and return of items to operating units.

However, the ALCs and other Air Force components were not timely in taking the above actions. Accordingly, many items remained critical longer than necessary.

Physical Inventories Not Promptly Taken

According to Critical Item Program guidance, physical inventories of items in depot supply should be taken soon after items become critical. Entry in the program serves as notification to supply personnel that inventories are needed. Once notified, supply is required to physically count the inventories and reconcile them with the stock records within 30 days.

Prompt physical counts are necessary because inventory management specialists need accurate information on the number of serviceable items available for distribution and the number of unserviceables available for repair. Also, the inventory research necessary to reconcile physical counts with stock records is an important internal control procedure. Without the inventory count and reconciliation, management specialists have to rely on stock records that are sometimes in error.

The San Antonio and Sacramento ALCs' physical inventories, including reconciliations with stock records, were not timely and, in some cases, were not taken. For the 53 items we reviewed, inventories had not been started for 8 items that had been critical for 10 to 15 months. Inventories of 13 items, which had been critical for 8 to 18 months, had been started but were not completed when we finished our review. Inventories for the remaining 32 items had been completed, but 23 of them were not timely. The times required to complete the inventories after the items became critical exceeded 3 months for all 23 items and exceeded 6 months for 12 of the 23 items.

Several problems caused the inventories at San Antonio and Sacramento to be untimely or not accomplished.

- The management decisions to defer qualified items from the program and the problems in data entry discussed earlier prevented supply personnel at both ALCs from knowing inventories were needed. At Sacramento, for example, program entry for 18 of 20 items was delayed for 2 months or more, and the average delay was over 4 months.
- Also at both ALCs, items entered into the critical item system often did not appear in the supply system for several months. For example, 12 San Antonio items that had been critical for 2 to 11 months all appeared in the supply system as new critical items on the same day.
- Even after supply was alerted to the need for inventories, the physical counts and reconciliation of those counts with supply records often took longer than the 30-day criterion. San Antonio, for example, completed 3 of 17 inventories within 30 days but took an average of 81 days to finish the remaining 14. Two of these took over 4 months. Similarly, Sacramento completed 3 of 15 inventories within 30 days but took an average of 60 days for the other 12.
- For reasons not readily apparent, San Antonio and Sacramento did not take inventories of three items and five items, respectively, although supply had been notified that the items were critical.

Without timely inventories, inventory management specialists had to rely on unverified supply records which, in some cases, understated available quantities. For example, 8 of the 32 inventories completed by the two ALCs showed more serviceable and/or repairable items on hand than were recorded. Earlier inventories could have permitted earlier use of the unrecorded items to satisfy mission-critical shortages.

In one case, Sacramento considered a part for a mission-essential generator critical in March 1984 but did not enter it in the program until October 1984. The required inventory, which was conducted in November 1984, revealed 35 serviceable items on hand, although the stock records reflected a zero balance. The inventory management specialist did not know how long the unrecorded items had been in the warehouse, but he said that an earlier inventory would have permitted earlier use to satisfy MICAP requirements.

In other cases, the inventory records did not accurately reflect the number of items available in the warehouses but we could not determine the causes for the differences or how they were found. For example, the

San Antonio ALC reported in June 1983 that it had 540 unfilled requisitions for an F-100 engine seal assembly and that the nonavailability of repairable seals was one reason that the item had been in the Critical Item Program since September 1982. Two months later, in August 1983, ALC personnel found in the warehouse 623 repairable seals that were not recorded on supply records. Again, in July 1984, the ALC found 1,200 more unrecorded repairable seals. We did not determine how long these unrecorded items had been in the warehouse. Once located, however, they became available for use in satisfying unfilled requisitions.

In another example, the San Antonio ALC added an F-100 engine liner assembly to the program in April 1984 because shortages of the liners in March had caused 87 MICAP incidents, 12 cannibalization actions, and the accumulation of over 28,000 MICAP hours. The ALC identified the cause of criticality as a lack of repairables. The ALC then reported that 1,215 repairable liners not recorded on stock records were subsequently found in the warehouse. The ALC also reported that 355 liners received on May 1, 1984, were lost in the warehouse for over a month before being found and shipped to the bases.

Delayed Processing of Procurement Actions

Delayed processing of procurement actions after items became critical caused them to remain in the program longer than necessary. Such delays occurred for 9 of the 24 critical items we reviewed.

For example, an aircraft engine impeller managed by the San Antonio ALC became critical in December 1983 after 4,768 MICAP hours were accumulated and was added to the Critical Item Program in January 1984. In August 1984, after unsuccessful attempts to accelerate delivery on 532 outstanding contract items and after an increase in back orders from 151 to 255, the inventory manager initiated a request to buy another 368 impellers and placed an urgent priority on 164 of them. After receiving AFLC's approval in October 1984 for purchase of the 368 impellers from a sole-source contractor, the inventory manager increased the buy to 478 in November and submitted another request for sole-source approval. AFLC's approval for this buy was hand carried to the contracting office in January 1985. In February, however, the inventory manager again increased the buy to 789 impellers. Although AFLC approved the final buy in March, the contractor's price quote was not obtained until June. The large quantity and proposed delivery schedule delayed the quote. In July 1985, a contracting office buyer estimated the contract would be awarded in August, or about 1 year after the purchase request was initiated.

Intensive management should have dictated that new purchase requests be submitted instead of continuing to amend the old one, especially since (1) the item became critical in January 1984, (2) a portion of the initial purchase request was placed on an urgent basis, and (3) the only known source had a procurement lead time of more than 2 years.

For another item, a San Antonio ALC managed C-141 aircraft fuel gauge, the inventory manager submitted a request for 15 units after Critical Item Program entry in March 1984. Six months later, the request was upgraded from routine to urgent priority and the quantity was increased to 45. The contracting office did not award this contract until April 1985, over a year after program entry. The procurement processing time exceeded the 100-day standard processing time for noncritical items by 183 days. Documents showed that the contract award was delayed because of inordinate buyer work loads and because the purchase request was held and used in a program to train new buyers. As a result, the fuel gauge remained in the program until June 1985, when most contract deliveries were completed.

In a third example, the Sacramento ALC reported that a motor used to drive a pump to purge fuel tanks became critical in May 1984 because of delayed contracting and bidding problems. Contracting problems began when a December 1982 contract was cancelled and reissued in April 1984, the month before the item became critical. However, input errors and computer problems delayed program entry until October 1984. In January 1985, after unsuccessful attempts to accelerate scheduled delivery of items under the April 1984 contract, the inventory manager initiated a request to buy more motors. In June 1985, the contracting office returned the request because it received no offers—even the contractor which received the April 1984 contract did not respond. One month later, the inventory manager increased the buy quantity and requested resolicitation. This time the 1984 contractor responded but was not the lowest bidder and consequently was not selected. As a result of these contracting and bidding problems, the motor was still critical in July 1985, after accumulating 3,369 MICAP hours.

Some Repairables Not Promptly Returned

Operating units are responsible for promptly returning critical items requiring repairs beyond their capabilities to the ALCs for expedited repair at the depots or contractors and return to the units. Fast turnarounds of repairables maximize the use of critically short supplies. However, for 4 of the 18 repairable critical items reviewed, the bases did

not return their repairables in time frames that we construed to be prompt. Such delays aggravated the shortages.

In one example at the San Antonio ALC, a nitrogen pump on trailers used to service most Air Force aircraft was entered into the Critical Item Program in August 1984. Due to the item's criticality, the inventory manager sent a message to all major commands requesting the prompt return of repairables. According to critical item reports, however, several bases would not return their repairables until serviceable replacements were sent to them. Since there was an insufficient supply of serviceable pumps in stock, the inventory manager had to wait for new pumps from the manufacturer before providing them to the bases and receiving their repairables. Deliveries of new pumps during the last half of calendar year 1984 improved the return of repairables allowing the inventory manager to send 62 pumps to the repair contractor in April 1985. At that time, the pump was still a critical item having accumulated 16 MICAP incidents and 8,534 MICAP hours during the month.

The inventory manager for a San Antonio ALC managed B-52 aircraft actuator and rotor assembly also cited lack of repairables as one reason for insufficient repair production. He found that because some bases were first trying unsuccessfully to repair the assemblies, their return for depot level repairs was delayed.

Sacramento ALC officials also cited untimely return of repairables as contributing to a continuing critical shortage of fuel pump motors. The item was entered into the program in October 1984. The ALC had no spare motors, and serviceables could be provided only if the bases returned the unserviceables for repair. Although the inventory manager repeatedly sent messages requesting bases to return unserviceable motors for repair, the bases did not return them until they received serviceable motors. As a result of this impasse, the Sacramento ALC had five back orders but only one motor at the repair contractor during June 1985.

Untimely or Inappropriate Repair Actions

Once the bases have returned their critical items for repair, the ALCs must expedite their repair and return to the bases. Untimely or inappropriate processing of repairs aggravate shortages. We found such untimely or inappropriate repair actions on 4 of the 18 repairable critical items reviewed (6 of the 24 items included in our review were not repairable).

At the San Antonio ALC, for example, a repair contract for C-130 impellers expired before the item entered the program in January 1984. The ALC then accumulated and stored almost 200 unserviceable impellers over an 8-month period before initiating a September 1984 urgent request for another repair contract. Because of other processing priorities, the contracting office did not award the contract until June 1985, about 9 months after the request. The buyer said such contracts are normally awarded in about 6 months. In this case, the ALC did not have a repair contract for 1-1/2 years, although a limited in-house repair capability existed and its activities were ongoing.

In another case, the San Antonio ALC shipped engine nozzle segments to a repair contractor. In October 1983 and May 1984, the contractor reported receiving over 200 unrepairable items, but the ALC did not act on the reports until July 1984, when the production management specialist made a technical assistance and production surveillance visit to the contractor. During the visit, it was discovered that among the items sent for repair were 84 nozzle segments that were burned in half. These items, which obviously could not be repaired, should have been scrapped and replaced by the ALC rather than shipped to the contractor for repair. The failure to replace such unrepairables can create or aggravate critical shortages.

Conclusions

For many items included in our review, the program actions taken to alleviate critical shortages were not timely. Such conditions are inconsistent with the program's purpose to provide intensive management needed to restore all critical items to a satisfactory supply position as soon as possible. Due to the lack of timeliness, many items remained critical longer than necessary. Although the specific reasons for the delays vary, we believe the underlying causes are the lack of program direction, supervision, and support. These management issues and recommendations to address them are discussed in chapter 5.

Agency Comments

The Department of Defense, in partially concurring with our findings, agreed that delays in (1) performing inventories, (2) procuring items, (3) returning repairables from bases, and (4) repairing unserviceable items aggravate shortages. The Department, however, believes that in some cases the delays have been or are being corrected. For example, DOD believes that automatic notification of an item's criticality will expedite performance of inventories. In some other cases, DOD believes the delays were justified. That is, some delays in procurement occurred

because of service's efforts to obtain increased competition and some delays in repairs occurred because of efforts to develop repair procedures.

Identifying Causes of Shortages

Critical Item Program guidance states that the ALCs should identify major causes of support problems and take the appropriate actions to prevent the shortages from recurring. Although the ALCs identified at least one major contributing cause for each part shortage, the cited causes, in many cases, were either inappropriate and/or not specific enough to support corrective actions.

Cited Causes of Shortages Often Inappropriate

Item managers at the San Antonio and Sacramento ALCs listed on the critical item reports major contributing cause codes and cited the status of the corrective actions taken. Each item entering the program was assigned 1 or more of 25 established codes that identified the cause(s) of the shortage. (See figure 4.1.) However, for at least 10, or 42 percent, of the 24 items we examined, the cited major contributing causes were surface causes or broad groupings of causes that were either inappropriate or not sufficiently specific to be acted upon. Also, for these 10 items, the status of corrective actions applied to restoring inventory supplies rather than addressing the underlying causes of the shortages.

Figure 4.1: Codes for Causes of Critical Items (By Category)

Code	Cause
Base Interest	
A	Demands exceed authorized stock levels
B	Untimely return of repairables
C	Inaccurate stock balance and consumption reporting/unaccounted-for assets
D	End item requisitioned in lieu of component items
E	Mishandling—improper installation or removal
F	Base repair less than forecast in requirements computation
Transportation	
G	Improper packaging and transportation programs
Quality of Material	
J	Design problems
K	Premature removals, failures, or malfunctions
L	Service life less than forecast in requirements computation
M	High condemnations
Repair Problems	
N	Depot repair problems/production less than scheduled due to equipment, skills, tech data, or other deficiencies
P	Modification/retrofit problems
Supply	
Q	Shortage of repair parts
R	Delayed processing of procurement request
S	Improper coding
T	Special projects—unprogrammed needs
U	Programs increased
V	Actual usage higher than factors used in computing requirements
W	Inadequate initial provisioning
X	Insufficient buy/restricted or limited procurement
Procurement	
2	Contractor delivery slippages
3	Late award of repair contract
4	Long lead time
5	Contracting or bidding problems

For example, the San Antonio ALC cited a shortage of repair parts, primarily armatures, as the reason for the shortage of an electric starter which entered the program before 1980. The sole-source contractor for new starters, armatures, and starter repairs quoted lead times of about 13 months to produce the armatures needed for starter repairs. Repeated attempts to get the contractor to accelerate production of the armatures were largely unsuccessful. In June 1981, when the ALC planned to renew its repair contract with the contractor, another repair

contractor submitted an unsolicited proposal and was subsequently awarded the contract. To overcome the armature shortages, the new repair contractor developed a rewinding procedure that reduced reliance upon the sole-source contractor for the armatures. The new contractor was successful, and the shortage problem improved. Before this item was totally well, however, the ALC elected to make the repairs in-house and allowed the repair contract with the new contractor to expire in April 1983. At the time of this decision, necessary tooling was not yet available, adequate supplies of repair parts had not been obtained, and in-house repair capability had not been proved.

In May 1985, the in-house repair capability was still not adequate, the starter was still in the program, and the San Antonio ALC was once again awaiting deliveries of new starters from the original sole-source contractor. The underlying cause, however, was not a shortage of parts, but the fact that a successful repair contract for a critical item was allowed to expire before the in-house repair capability had been established and proved. The cause codes shown on preceding page do not adequately identify such inappropriate management actions but codes N (depot repair problems) and 3 (late award of repair contract) might be more appropriate than Q (shortage of repair parts). The test is whether the cause codes can trigger appropriate corrective actions.

Another item, an F-100 engine part, was entered into the Critical Item Program by the San Antonio ALC in June 1984 because of "contractor delivery slippages." In October 1983, a purchase order had been issued to a small business contractor for 993 engine parts to be delivered in March 1984. The contractor, the low bidder, was a new, untried source for the engine part. The ALC, however, selected the contractor without a preaward survey to determine the contractor's performance capability. The contractor was ultimately unable to produce the parts and had to subcontract the work to a competitor who delivered most of the parts in January 1985.

Purchasing from an unproved contractor without a preaward survey appears to be the underlying cause which led to the part's shortage. However, the code "contractor delivery slippages" (Code 2) indicates a contractor deficiency rather than the management action that might have been taken to prevent recurrences. Code 5 (contracting or bidding problems) might more appropriately trigger management attention to the need for preaward surveys.

In another case, the Sacramento ALC reported that an A-10 aircraft landing gear fairing became critical in September 1984 because of procurement delays and a long production lead time. While these may have been contributing factors, we believe the underlying cause was inadequate preparation for a change in the item's repair status. Again Code N (depot repair problems, etc.) might more appropriately focus management's attention on the underlying cause described below.

In November 1983, the Sacramento ALC discontinued depot level repairs of the fairing because the repair cost was more than 75 percent of the replacement cost. This decision meant that further requirements would have to be met with serviceables already on hand or through new buys. When the decision was made, however, no assets were on hand or on order. Additionally, not until January 1984, 2 months after the change in repair status, did the ALC initiate a routine request to buy 31 units. In March 1984, another routine request to buy 10 units was initiated. The contracting office awarded the contract for 31 units in August 1984 and the contract for 10 units in December 1984. When the item became critical, Sacramento attempted to accelerate deliveries from the sole-source manufacturer but was unsuccessful. As of July 1985, contract deliveries of 31 were expected in September 1985, and 10 were expected in October.

In contrast to the preceeding examples, we concluded that the corrective actions taken or in process for 14 cases could prevent recurrences of the same shortages and that the cited causes were appropriate. For example, the Sacramento ALC entered the thrust fitting mounts on the F-111 engine as a critical item in April 1984. It cited "mishandling—improper installation or removal" as a major contributing cause. The ALC had determined that the bases were leaving the thrust fitting mounts on the engines shipped to the depot for overhaul and repairs. The depots removed the fittings during the repair process and returned the serviceable engines, without the fittings, to the bases. In addition to obtaining additional fittings, the ALC notified all bases to remove the mounts before shipping the engines for repairs. The mounts were subsequently removed from the program in July 1985.

Underlying Causes Not Identified by Cause Codes

The 25 cause codes represent surface causes more frequently than underlying or systemic causes. That is, they represent broad groupings of causes that generally are not specific enough to be acted upon. For example, the most frequently cited cause, a shortage of repair parts, does not identify the numerous underlying causes contributing to that

shortage. Remedial actions should be designed to correct the underlying causes of the problem, not the surface causes.

Some other frequently cited causes are depot repair problems, long (procurement) lead time, and bases untimely return of their repairables. The depot repair problem category is probably as broad as the lack of repair parts category and therefore does not identify the many underlying causes that need attention. Long procurement lead time could also cover a number of underlying causes, including the lack of competition, and the need for design changes or new manufacturing techniques and processes. Even when the cause code may be sufficiently specific to act upon, such as the bases' untimely return of repairables, AFLC and Air Force Headquarters have not obtained effective servicewide corrective actions. On the other hand, there were a number of different reasons the bases did not promptly return their repairables, and the service's failure to separately address these different reasons may explain its lack of effectiveness in correcting the problem.

Nevertheless, the cause codes may be useful for alerting management to broad groupings of causes that require further definition and deserve special attention. The Air Force reports the frequency that each cause code is cited in the Critical Item Program's monthly summary reports. (See discussion on page 10.) However, the chief of AFLC's customer support branch and the critical item monitors at the two ALCs visited stated that they did not use this information.

Lack of Program Emphasis

Over the years, program emphasis on identifying and correcting underlying causes of parts shortages appears to have decreased. Program guidance in use before April 9, 1979 (AFLC Regulation 67-21, Jan. 7, 1974), stated that the program's secondary objective was to acquire critical item data for use in analyzing the basic causes of criticality and determining corrective actions. It designated AFLC Headquarters as responsible for the necessary surveillance. Current guidance in Air Force Manual 67-1 states that the ALCs, rather than AFLC, should identify major causes of support problems and take appropriate actions. However, the guidance does not specifically identify those actions as a program objective, nor does it identify where, within the ALCs, the responsibility rests for such actions.

On May 5, 1982, the Air Force Audit Agency (AFAA) observed this lack of emphasis and recommended that AFLC require item and production

managers and equipment specialists to analyze item histories and determine the underlying cause of logistic support problems for critical items. AFAA also recommended that corrective actions be promptly taken and that the data be documented on AFLC critical item reports and forwarded to the critical item monitor and review board for follow up.

AFLC, in concurring with AFAA's findings and recommendations, stated that cause analysis and corrective actions would be routinely documented on critical item reports. Air Force Manual 67-1 was amended to instruct item managers to fill in the spaces for major contributing causes of item support problems and the status of corrective actions taken. Our review showed that the ALCs did record major contributing cause codes and the status of corrective actions, as required. However, the ALCs did not identify and correct underlying causes for 40 percent of the items examined nor did they use the information on major contributing causes. This indicates the need for additional management follow-up on previously reported problems.

Conclusions

We believe the Critical Item Program offers the Air Force an excellent opportunity to systematically identify and address underlying and systemic causes of parts shortages and to prevent the same and similar shortages from recurring. By exploiting this opportunity the service can be proactive as well as reactive. However, in 40 percent of the cases we reviewed, the underlying causes were not adequately identified. We believe that increased program emphasis, direction, supervision, and support are needed to achieve the objective. Our recommendation on this matter is presented in chapter 5, which discusses this and other program management issues.

Agency Comments

The Department of Defense concurred with our finding that the ALCs' cited causes of the critical shortages were often inappropriate. The Department reports that the AFLC Repair Process Steering Committee has tasked AFLC to study and correct the problem. Estimated completion date is June 1987.

Program Direction, Oversight, and Support

Program management from the ALCs to Air Force Headquarters is responsible for providing the direction, supervision, and support needed to achieve program objectives. The deficiencies in program implementation summarized in chapters 2 through 4 indicate that program objectives are not always being achieved and that additional management attention is required. The need for additional direction, oversight, and support is further evidenced by the lack of

- follow-up to correct previously reported problems,
- enforcement of minimum standards for conducting critical item reviews and for documenting program actions, and
- adequate oversight of contracting actions and program results.

Previously Reported Problems Not Corrected

The Air Force Audit Agency (AFAA) has previously reported on most of the problems discussed in chapters 2, 3, and 4. In 1982 AFAA reported that physical inventories of items newly added to the program were not taken within the 30-day time limit or were not taken at all. The report[3] attributed this condition to a lack of compliance with existing inventory procedures, inadequate manual procedures for notifying supply to take inventories, and weaknesses in inventory research and reconciliation practices. Although AFLC Headquarters concurred and promised corrective actions, inventories were still not being promptly taken at the time of our review.

The AFAA report also pointed out that bases did not expeditiously return repairable critical items for depot level repair. The Air Force auditors found that 24 of 70 items not repairable at the base level were, nevertheless, held at bases for periods of 10 days to 10 months either because base personnel were unaware of the requirement to promptly return critical items for repair or because they held the items pending receipt of serviceable replacements. In response to audit recommendations, Air Force Headquarters stated that it had sent a message to all major commands stressing the importance of rapid return of critical items. However, repairables were still not being promptly returned at the time of our review.

The fact that ALCs did not enter qualified items into the Critical Item Program was also discussed in AFAA's 1982 report. It reported that 10 items reviewed had been excluded from the program either because the ALCs did not follow prescribed criteria for adding items or because they

[3]Review of the Air Force Special Management Program for Critical Supply Items, Project 807713.

used unacceptable criteria. AFAA recommended that AFLC Headquarters establish controls to ensure that criteria for adding and deleting items were uniformly applied and documented. AFLC concurred and indicated that corrective action would be taken.

However, about 2 years later, AFLC Inspector General personnel continued to find that criteria and procedures followed at the Ogden, Oklahoma City, and Warner Robins ALCs did not ensure that all qualified items were being added to the program. The Inspector General attributed this problem to (1) the ALCs' noncompliance with Air Force policy and (2) the failure of AFLC Headquarters to take action on the earlier AFAA recommendations.

As of June 1985, AFLC had still not developed procedures for ensuring that all qualified items were entered into the Critical Item Program.

Lastly, AFAA reported that underlying causes of critical shortages were not adequately identified. As discussed in chapter 4, this condition continued at the time of our review.

Better Oversight of Program Actions and Results Needed

Our review indicates that AFLC's oversight of and participation in the Critical Item Program, along with that of the Air Force Headquarters, have been limited to policy and procedural matters. Continuing visibility of program results beyond the ALCs has generally been limited to the monthly summary reports which do not provide the information needed to effectively monitor program results. A major objective coming out of the 1985 Critical Item Worker Level Conference is to develop measurements of program effectiveness that will indicate the health of the program. AFLC and Air Force Headquarters need such measurements to monitor program results.

The ALCs' periodic management reviews of actions to restore critical items could have prevented many of the program implementation deficiencies discussed in previous chapters. However, the reviews conducted by the San Antonio and Sacramento ALCs did not provide adequate oversight partly because (1) program guidance in use since January 1984 lowered the standards and requirements for management reviews, (2) review standards were not enforced, and (3) managers did not place a high priority on conducting reviews.

The Critical Item Program guidance in use before 1984 required each ALC to establish a critical item review committee composed of representatives of each of the key directorates: material management, contracting, supply, and maintenance. The ALC review committees were to meet monthly to review all items in the program for more than 3 months. They were responsible for determining actions to improve supplies of critical items, designating responsibility for the actions, and reporting on progress made. Division level managers within the materiel management directorate were to review items in the program for 1 to 3 months.

In January 1984, AFLC authorized the ALCs to begin using a draft revision to the Air Force Manual that essentially delegated responsibility for item reviews from the ALC directorate level to the division level and below. The revision, which did not become official until May 1985, requires the ALC review committees to review only a "selected number" of program items. The remaining items could be reviewed at division, branch, or section level, provided all recurring program items are reviewed at least once every 3 months at the division level. However, the revision did not specifically delegate the functional responsibilities of the ALC critical item review committee, as described above, to the divisions. These changes in the review requirements were made because AFLC believed the large volume of items in the program precluded monthly reviews of all items at any level.

ALC Directorate Level Review Committees

Because of the change in review requirements and, in part, because of noncompliance with the new requirements, the critical item review committees at the San Antonio and Sacramento ALCs reviewed very few program items. For example, at the San Antonio ALC which handles an average of about 350 critical items per month, the Committee met only five times in 1984 and reviewed only 48 items. The committee met in May for the first time in 1985 and reviewed only five items. Meetings scheduled for the early months of both years were cancelled to allow personnel to concentrate on initiating parts purchases and meeting fund obligation goals. For the reviews that were held, we found no documentation of directed actions and assigned responsibilities.

San Antonio ALC officials pointed out that, while not a part of the Critical Item Program, they conducted support reviews with various using commands and these reviews included additional critical items. However, many items discussed at these reviews were of interest to the using commands but were not Air Force-wide critical items. We were unable to

assess the effectiveness of these reviews because the ALC could provide little documentation of directed corrective actions and the results achieved.

The Sacramento ALC, which handles an average of about 70 critical items per month, did not establish an ALC review committee until August 1984. Local guidance requires that it meet quarterly rather than monthly as specified in Air Force guidance. The Sacramento ALC also has a review committee at the materiel management directorate level that reviews two items each month.

Division and Branch Level Reviews

At both ALCs, responsibility for item reviews had essentially been delegated to the division level or below. The review procedures used varied between the two ALCs and among divisions within the ALCs. In some cases, the procedures were not adequate to ensure that the requirements in current guidance were being met or that the reviews effectively identified causes and assigned responsibility for corrective actions.

Sacramento's communications and electronics division, for example, handled 12 to 15 items in the Critical Item Program and reviewed all of them each month. However, the division held many qualified items out of the program and reviewed them at the branch level for periods of several months. Consequently, the implied minimum requirement for quarterly division level reviews of recurring items meeting program criteria was not met.

The critical item monitor in Sacramento's item management division told us that all critical items were reviewed at least quarterly. However, for one of our case study items managed by this division, we found no record of a review at any level during the 12 months it was critical. Further, in a recent 3-month period, the division did not hold reviews for 2 consecutive months and reviewed only 9 of 43 program items the following month.

San Antonio's propulsion management division, which handled 244 critical items in March 1985, has adopted an informal review procedure by which the division chief or deputy chief reviews and signs a critical item report and a summary analysis prepared by the division critical item monitor. Neither the report nor the summary analysis contains sufficient information on individual items to ascertain whether the root causes of shortages have been identified and whether appropriate corrective actions are being timely implemented.

This division's critical item monitor told us that individual item reviews were actually done at the branch level, where most items were reviewed every 3 months. These reviews, however, were not documented, and we could determine neither their frequency nor their effectiveness in restoring critical items to sufficient supply status. For six of our case study items managed by this division, we found no evidence of regularly recurring division or branch reviews. Also, this division effectively suspended its Critical Item Program from February to April 1985, during which time inventory managers were to concentrate on initiating procurement actions and obligating funds and were not required to update critical item reports. These reports, which normally require monthly updating, are intended to provide the basis for effective item reviews by management.

San Antonio's item management division, which handled 143 critical items in February 1985, had more systematic and better documented review procedures. A branch level manager regularly reviewed a selected number of the critical item reports prepared by inventory managers, and in some cases, the documentation showed the corrective actions directed by management. Nevertheless, improvements were needed. Division level managers reviewed only about 10 items each month and did not attempt to review all recurring items every 3 months. Most of the reviews were conducted informally by a manager at the branch level, but even there, not all items were reviewed every 3 months. For example, three of our case study items managed by this division had not received a quarterly review at any level.

Contracting Activities Not Effectively Monitored

Production contracts and/or repair contracts usually are awarded to restore critical items to satisfactory supply status. Program management, however, had not effectively monitored the processing and award of these contracts. This lack of oversight appears to have contributed to the contracting delays discussed in chapter 3.

Critical Item Program guidance, as well as related local guidance at San Antonio and Sacramento, does not prescribe specific procedures for the ALC contracting directorates to follow in making timely awards. While both ALCs had a critical item program monitor in their contracting directorates, the monitors' roles were primarily to (1) provide information on the status of contracting actions to the materiel management directorates when requested and (2) contact contractors and/or government contract administration activities to speed up delivery or to follow up on delinquencies. The monitors did not routinely track the status of critical

items or attempt to expedite processing of their purchase requests from the time of receipt in contracting until contract award. We believe this contributed to purchase request processing times, for the critical items we reviewed, often exceeding AFLC standards for processing noncritical item requests. At San Antonio, for example, six purchase requests involving four critical items required from 119 to 328 processing days from the date of receipt in contracting until the date of contract award. The average processing time for these requests exceeded the average of the AFLC standards by 108 days.

Contracting directorate critical item monitors at San Antonio and Sacramento indicated that they provided priority processing to purchase requests commensurate with priority codes assigned by the requestors, without any particular regard for items in the Critical Item Program. In some cases, buyers who process purchase requests may not be aware of an item's critical status. Critical item purchase requests were usually coded urgent, but requests for items not designated as critical were also coded urgent. Consequently, critical item requests were competing for priority handling on an equal basis with other requests.

Recent Air Force Actions

Several recent Air Force actions indicate recognition that critical items are not receiving the degree of intensive management necessary to reduce the number and duration of the shortages. The lack of resources needed to intensively manage the large number of critical items while adequately managing the many routine items has been viewed as the primary problem. Actions taken to date to address the problem have focused on (1) revising management's critical item review requirements, as discussed earlier in this chapter, and (2) reducing the number of critical items through changes in program criteria, as discussed in chapter 2.

In addition, the conferees at the May 1985 working level conference (described on page 16) discussed improvements that could increase program priorities, visibility, and support.

- The conferees discussed potential management initiatives to resolve critical shortages but did not agree on specific initiatives for use at all ALCs. San Antonio ALC officials, for example, briefed the attendees on their plans for a readiness center that would include a group of personnel dedicated full time to critical item support. These personnel would assume some of the intensive management responsibilities now being carried out by inventory management specialists.

- The conferees also discussed the need to develop some means of measuring the effectiveness of the Critical Item Program. AFLC plans to begin collecting data on program results and to include the Critical Item Program in the Command Information Network.

Conclusions

The Air Force's Critical Item Program is not fully achieving its objective of providing intensive management to minimize the number and duration of parts shortages that ground aircraft and/or prevent aircraft or other weapon systems from carrying out their missions. Additional management direction, oversight, and support of the program is needed. In our opinion, program managers at all levels from ALC branches to Air Force Headquarters have not given program implementation the priority emphasis and visibility that is warranted in view of the program's importance.

Specifically, we believe there is a continuing need to perform more management reviews at the various ALC organizational levels and a corresponding need for more complete documentation of directions given, actions taken, and results achieved in restoring critical items to fully supportive supply positions. Also, AFLC and Air Force Headquarters must be more directly involved in monitoring program results and assessing program management's effectiveness. In our opinion the increased supervision is needed to (1) enforce the program's prescribed entry procedures which identify critical shortages and (2) provide sufficient direction and support to operating personnel responsible for alleviating the shortages and for identifying and correcting their underlying causes.

Recommendations

We therefore recommend that the Secretary of the Air Force direct that steps be taken to increase the Critical Item Program's priority and visibility. Specifically, we recommend that these steps include actions to

- ensure that each of the ALCs uniformly adhere to program entry criteria;
- enforce the ALCs management review standards that provide direction and support to operating personnel responsible for timely remedial actions, and require complete documentation of directions given, actions taken, and results achieved;
- clearly state in Air Force Manual 67-1 that identification and elimination of underlying causes of critical item shortages is a program objective and prescribe procedures and responsibilities for achieving this objective; and

- develop the means of measuring program effectiveness and require AFLC and Air Force Headquarters to continuously assess program management's effectiveness.

Agency Comments and Our Evaluation

The Department of Defense concurred with our findings, conclusions, and recommendations. The Department stated that Air Force Headquarters will direct AFLC to place increased management attention and emphasis on ALC monthly management reviews and corrective actions. Automation of the tracking, updating, and review of critical items, which is under way, will allow real-time visibility of data needed for review and corrective actions by various levels of ALC management and for AFLC's and major commands' information and planning purposes. In addition, AFLC will review current procedures for monitoring contracting activities for critical items and publish detailed guidance for priority processing of critical items. Estimated completion date for these latter actions is July 31, 1986.

In regard to our specific recommendations, the Department of Defense reports that:

- Steps, including those mentioned above, are being taken to increase the visibility of the Critical Item Program. The Air Force Logistics Management Center is studying modifications of the Critical Item Program criteria and intends to develop more effective criteria by June 1986. Resource requirements will be evaluated and steps taken to ensure that proper priorities are also applied.
- To ensure that ALCs uniformly adhere to program entry criteria and to management review standards and procedures, the AFLC/Inspector General has been tasked to give special attention to the Critical Item Program. This action is in addition to increased program management reviews at all levels.
- The AFLC Repair Process Steering Committee has tasked AFLC to review 400 long standing problem items to determine generic root causes. After completing this analysis, estimated for June 1986, procedures and responsibilities for identifying and eliminating causes of critical item shortages will be incorporated into Air Force Manual 67-1. Estimated completion date is June 1987.
- The Air Force is in the process of developing three automated data systems to measure the program and program management's effectiveness. Two of the systems are to become operational in October 1986, and the third is to become operational in September 1987.

We believe successful completion of the actions being taken to improve management of the Critical Item Program should correct the problems discussed in this report. Successful completion, however, requires continued command emphasis on correcting the reported problems and monitoring program effectiveness.

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