

GAO

Report to the Chairman and Ranking  
Minority Member, Committee on Armed  
Services, House of Representatives

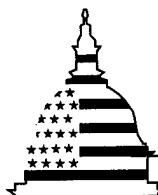
October 1999

# DEPOT MAINTENANCE

## Army Report Provides Incomplete Assessment of Depot-type Capabilities



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GAO

Accountability \* Integrity \* Reliability

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## Abbreviations

AMC	Army Materiel Command
BRAC	Base Realignment and Closure
DOD	Department of Defense
SRA	Special Repair Authority

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United States General Accounting Office  
Washington, D.C. 20548

National Security and  
International Affairs Division

B-283179

October 15, 1999

The Honorable Floyd Spence  
Chairman  
The Honorable Ike Skelton  
Ranking Minority Member  
Committee on Armed Services  
House of Representatives

Under 10 U.S.C. 2460, depot maintenance and repair involves the overhaul, upgrade, and rebuilding of military systems, subsystems, parts, and assemblies. In recent years, some depot maintenance workloads have become fragmented—that is, some depot maintenance workloads have shifted to non-depot facilities—leading to uncertainty about the magnitude of depot maintenance-type capabilities, workforce requirements, and the distribution of work to public and private sector facilities.

In response to direction from your Committee, the Army submitted a report on April 14, 1999, on its study of the proliferation of depot maintenance-type activities at non-depot facilities.<sup>1</sup> You also required that we report on the completeness and adequacy of the Army's report along with any other relevant information.<sup>2</sup> Specifically, this report determines the extent to which the Army's report (1) identifies the total amount of depot maintenance-type work conducted at local maintenance facilities and the cost efficiency of such work in view of the Army's overall requirements and (2) addresses plans for consolidating fragmented maintenance operations. Additionally, this report highlights continuing challenges the Army faces in its efforts to resolve proliferation issues.

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<sup>1</sup> In this report we refer to depot maintenance-type activities as work performed by local maintenance and repair facilities that meets the definition for depot maintenance in 10 U.S.C 2460.

<sup>2</sup> The Committee (report number 105-532) also required that we evaluate the completeness and adequacy of the Army's report on the Army's Workload and Performance System, an automated system for identifying workforce requirements. We plan to issue a separate report addressing implementation of this system.

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## Results in Brief

The Army's report did not sufficiently identify the extent of depot maintenance-type work performed at non-depot facilities. The Army reported that 40 staff years of depot maintenance-type work was performed outside of the formal depot system by non-depot maintenance providers operating under special repair authorities. However, other sources of information indicate that additional amounts of depot maintenance-type work and capabilities exist at various non-depot facilities. Further, the Army was unable to develop accurate and consistent estimates of its depot maintenance-type work because its reporting criteria are not consistent with the definition in 10 U.S.C. 2460, and management information systems and procedures are not equipped to assess the magnitude and cost-effectiveness of all maintenance and supply functions.

Citing inadequate data on the subject, the Army's report did not make any recommendations for consolidating depot maintenance-type facilities to the public depots. Nonetheless, the report did outline a number of ongoing initiatives, and it recommended other actions to improve the management of information on facilities performing depot maintenance-type tasks. These actions should provide some of the data and management improvements needed to support future consolidation recommendations. Although not specifically addressed in the Army's report, the Army has developed a draft strategic plan for its depot maintenance facilities. However, key details for implementing many of the planned actions remain to be developed, including plans to assess the current capabilities of and future requirements for the Army's maintenance support structure.

We identified a number of continuing challenges the Army faces in attempting to address the fragmentation of depot maintenance work and the proliferation of depot maintenance-type facilities. Key among them is the amount of depot maintenance-type capabilities controlled by major commands in the active Army and the Army National Guard. For various reasons, these commands are reluctant to reduce their present capability for performing depot maintenance-type workloads. Eliminating the fragmentation, duplication, and excess capacities within the Army's maintenance infrastructure—while implementing solutions that are best from a warfighting perspective and most cost-effective to the Army as a whole—represents a formidable challenge for Army leadership.

This report makes recommendations to the Secretary of Defense intended to strengthen the Army's abilities to address the fragmentation of depot

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maintenance work and the proliferation of depot maintenance-type facilities.

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## Background

The Army assigns maintenance and repair work to four different levels.<sup>3</sup> From the least to the most intensive, they are unit level, direct support, general support, and depot level.

Unit and direct support workload categories are assigned to deployable military units located at various field locations. Maintenance at these two levels generally focuses on day-to-day and routine recurring maintenance, but it is not expected to go beyond the removal and replacement of components.

General support maintenance is conducted by military personnel, government civilians, or contractor employees, usually at fixed (non-mobile) industrial-type facilities located on Army posts, camps, and stations.<sup>4</sup> Maintenance at this level involves the repairing and overhauling of parts and assemblies and some end items, such as trucks. General support maintenance units are under the command and control of major operating commands; as with lower-level maintenance facilities, these units are supported by direct appropriations for operations and maintenance.<sup>5</sup>

Depot-level support is the most intensive level of maintenance and repair; as noted, it involves overhauling, upgrading, and rebuilding of military systems, subsystems, parts, and assemblies. When compared to general support maintenance, depot-level maintenance work generally involves the use of higher skilled technicians and more sophisticated test and plant equipment. Depot-level maintenance has traditionally been performed by government civilians working at government-owned industrial facilities under the command and control of the Army Materiel Command (AMC) or by contractor personnel working in contractor-owned and -operated

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<sup>3</sup> However, the maintenance structure for Army aircraft and components is comprised of three levels—unit, intermediate, and depot.

<sup>4</sup> Military personnel operate general support units that are deployable for theater operations.

<sup>5</sup> Such funding is used to pay for most costs associated with establishing and operating maintenance facilities at this level. One key exception is the cost of military personnel that may be involved in such work. The cost of military personnel are accounted for in a separate, centrally managed, Military Personnel appropriations account.

facilities performing work specified by AMC-managed maintenance contracts. The Army's five government-operated maintenance depots are managed within the Army Working Capital Fund. Contract depot maintenance work is not managed under the working capital fund.

Army maintenance facilities obtain repair parts through a two-tiered, wholesale and retail logistics support system. Despite long-standing efforts to merge the wholesale and retail supply systems, each system continues to operate independently. Under the current system, Army retail supply managers may arrange for unserviceable repair parts to be repaired by local maintenance facilities or they may order replacement parts from the wholesale system.

Responsibility for the Army's wholesale system is assigned to four major commands subordinate to the Army Materiel Command. The subordinate commands manage repairable item inventories, arranging for the repairs of unserviceable items returned to the supply system and for the procurement of new items directly from vendors.<sup>6</sup> In addition, the Defense Logistics Agency arranges for the procurement and distribution of various supplies used in the maintenance process.<sup>7</sup>

Responsibility for the Army's retail supply system is assigned to field-operating commands. Retail supply activities may draw repair parts from wholesale inventories that are held in government warehouses to meet the demands of retail customers or arrange for the repair of items through local maintenance facilities. Since April 1992, Army wholesale inventory managers have been charging retail customers, such as combat units and retail supply support activities, for repairable items that they previously provided at no cost. This change was implemented as a cost-reduction effort to encourage retail customers to order no more than they needed and to fully diagnose equipment malfunctions and repair items within their capability.

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<sup>6</sup> The four subordinate commands are the Tank-Automotive and Armaments Command, the Communications-Electronics Command, the Soldier Biological and Chemical Command, and the Aviation and Missile Command.

<sup>7</sup> In some instances, the Army may rely on prime vendors for repair items. Prime vendors are contractors that buy inventory from a variety of suppliers, store it in commercial warehouses, and ship it to customers when ordered.

## Depot Maintenance Workloads Declining and Fragmented

In recent years the amount of work assigned to the Army's major industrial maintenance depots has declined significantly.<sup>8</sup> Work at the major maintenance depots has declined for a number of reasons, including reduced force structure, increased emphasis on outsourcing, and DOD and Army policies that advocate placing maintenance and repair workloads at the lowest level maintenance facility with capability to perform the task. In addition, as we have previously reported, operating units sometimes believe they can obtain repairs at less cost at non-depot facilities that do not operate under the working capital fund and that are not required to recoup from customers the full costs of providing goods and services.<sup>9</sup> Likewise, we have reported that in recent years the Army's Forces Command and Training and Doctrine Command have operated an increasing number of regional repair facilities at active Army installations that siphon depot maintenance-type workloads from regular depot facilities. The Army National Guard also operates regional repair facilities at state-owned National Guard sites. Categorized as integrated sustainment maintenance (ISM) facilities, they repair Army equipment above the direct support level, including general support and depot-level support tasks. Current Army policy allows some ISM sites to perform depot-level tasks under a Special Repair Authority (SRA).<sup>10</sup> While some Army officials told us the ISM program involves only a small amount of depot maintenance-type work based on their understanding of the Army's 4-level maintenance process, other sources told us the amount of depot maintenance-type work would be substantial, given the depot maintenance definition enacted in 1997, and codified at 10 U.S.C. 2460.

Despite declining workloads, the Army's maintenance organizations employ a large number of skilled personnel, some of which are

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<sup>8</sup> As a result of these declining workloads, the number of operating maintenance depots decreased from 10 to 5 between 1976 and 1995. Even so, Army officials have recognized that they continue to retain excess capacity in their depot system and that factor, along with continuing reductions in programmed maintenance work, results in higher operating costs. The Army has previously proposed reducing the number of government-owned and -operated maintenance depots from five to three, but actions of the 1995 Base Realignment and Closure (BRAC) Commission resulted in five depots being retained.

<sup>9</sup> *Army Industrial Facilities: Workforce Requirements And Related Issues Affecting Depots and Arsenals* (GAO/NSIAD-99-31, Nov. 30, 1998).

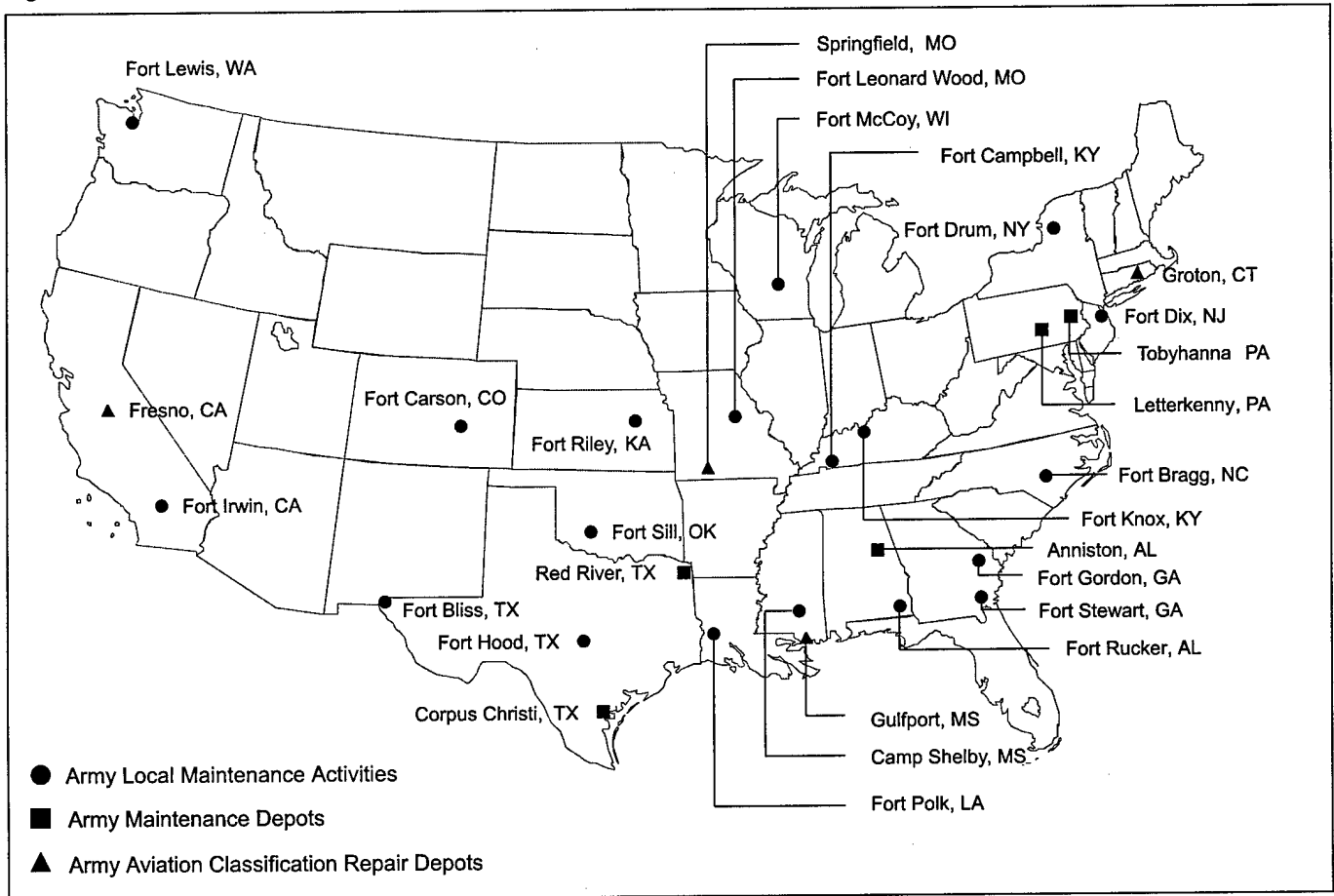
<sup>10</sup> Special repair authorities are approved after AMC determines that the repair sites have adequate facilities, equipment, and sufficient trained personnel to accomplish the tasks. Overall cost-effectiveness to the Army is not evaluated.

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underutilized. As we previously reported, at the end of fiscal year 1998 the Army's five depots reportedly employed about 11,200 persons that were involved in depot maintenance-type work utilizing about 68 percent of available production capacity. While detailed information is not currently available to document the capabilities, capacity utilization, and size of the Army's network of potential local maintenance providers, Army records show that in fiscal year 1998 about 9,800 persons were employed at 133 different local maintenance facilities worldwide. About 46 percent of the local maintenance personnel are employed by the National Guard, 22 percent by the Forces Command, 12 percent by the Training and Doctrine Command, 19 percent by the European Command, and 1 percent by the Army Reserve. In fiscal year 1998, the Army reportedly spent about \$1.7 billion on depot-level maintenance work, of which \$941 million, or about 54 percent, was provided to government-operated facilities and \$788 million, or about 46 percent, to contractor-operated facilities.

Figure 1 shows the location of the Army's five working capital funded maintenance depots and the locations of the Army's direct appropriation funded local maintenance facilities within the continental United States.

Figure 1: Location of the Army's Maintenance Facilities Within the Continental United States



Note: In addition to the sites shown above, the Army National Guard operates one or more sites in each state. See appendix II for a complete list.

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## Concerns About Identifying All Depot-Level Work and Determining Work Force Requirements

With changes in sources of repair and what appeared to be movement of some depot-level work to below-depot level facilities in recent years, questions have arisen concerning the definition of depot-level work and the allocations of depot maintenance workloads between the public and private sector facilities. The Congress enacted legislation specifying the characteristics of depot maintenance workloads, and requiring annual reports on workload allocations between the public and private sectors.<sup>11</sup> As we have previously pointed out, under the statutory definition, depot maintenance work was not limited to a specific level or category of repair activity.<sup>12</sup> Therefore, depot maintenance-type work performed at non-depot facilities that meets the definition contained in 10 U.S.C. 2460 should be included as part of the Army's assessment of its maintenance programs and activities.

The House National Security Committee, in its report accompanying the Defense Authorization Act for Fiscal Year 1999 (report number 105-532), voiced concern over the Army's active and reserve component installations developing depot-like capabilities without assessing the impact on the Army's overall maintenance infrastructure. Further, the Committee questioned the process the Army used to determine workforce requirements for depot facilities.

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<sup>11</sup> Section 2460 of title 10 as amended by the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, provides that depot maintenance workloads include maintenance and repair requiring the overhaul, upgrade, or rebuilding of parts, assemblies, or subassemblies and the testing and reclamation of equipment as necessary, regardless of the source of funds or the location where work is performed. DOD is required by 10 U.S.C. 2466 to prepare an annual report of public and private sector workload allocations.

<sup>12</sup> *Defense Depot Maintenance: Public and Private Sector Workload Distribution Reporting Can Be Further Improved* (GAO/NSIAD-98-175, July 23, 1998).

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## Depot Work Performed by Local Maintenance Facilities Is Understated, and Financial Impact Is Uncertain

In April 1999, the Army reported that in fiscal year 1998 local maintenance facilities, operating under special repair authorities, completed 40 staff-years of depot maintenance-type work at a reported cost of \$17.6 million. The Army's report acknowledged that its report did not take into consideration the most current definition of depot maintenance work contained in 10 U.S.C. 2460, and it recognized significant limitations in systems and procedures to fully quantify and assess the cost efficiency of depot maintenance-type work being done outside the formal depot system. A separate DOD report sent to the Congress on February 5, 1999,<sup>13</sup> as well as our own assessment of other depot maintenance-type workloads being conducted by local maintenance providers, indicates that the amount of the Army's depot-level work being performed at non-depot facilities is much greater than the Army's April report indicates.

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<sup>13</sup> DOD's annual report of public and private sector workload allocations required by 10 U.S.C. 2466.

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## Army's Process for Identifying Depot-Level Maintenance Workload Does Not Reflect Statutory Definition and Masks Total Workload Volume

The Army has not yet revised its maintenance policies and technical manuals to reflect recently enacted legislation defining depot maintenance workloads. In this context, any attempt by the Army to estimate the amount of depot maintenance work conducted at local maintenance facilities likely would be misleading. Army officials at the local maintenance facilities that we visited had limited knowledge of the definition of depot maintenance contained in 10 U.S.C. 2460. When questioned about the amount of depot maintenance work conducted at the local level, they routinely referred to technical maintenance manuals and the maintenance allocation charts that assigned detailed work tasks according to the four levels of Army maintenance. These manuals and allocation charts did not address the statutory definition. They stated that depot-level work tasks were not performed unless higher commands had granted special repair authorities.<sup>14</sup> Nonetheless, they acknowledged that in some instances local repair activities were overhauling or rebuilding various Army equipment. Officials said that maintenance manuals specified that the individual work tasks did not require that work be performed in a depot. Further, in their way of thinking, maintenance work that is not performed in a depot is not depot maintenance.<sup>15</sup>

Army headquarters officials told us they were revising maintenance regulations and technical manuals to reflect the statutory definition. In commenting on a draft of this report, Army officials stated that they planned to publish revised regulations during the first quarter of fiscal year 2000 that will include the statutory definition for identifying and reporting depot maintenance-type workloads. However, efforts to update the Army's technical manuals, will require significant labor intensive reviews and analyses by numerous maintenance technicians, and therefore completion dates are dependent upon approval of necessary funding to support the work.

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<sup>14</sup> Special repair authorities are granted after AMC determines that repair sites have adequate facilities, equipment, and trained personnel. Once approved, they enable local repair sites to perform depot-level tasks on specific items for as long as 3 years.

<sup>15</sup> Our recent report on depot workload allocations provides additional information concerning limitations associated with the Army's depot workload data. See: *Depot Maintenance: Workload Allocation Reporting Improved, but Lingering Problems Remain* (GAO/NSIAD-99-154, July 15, 1999.)

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### Special Repair Authority Data Files Are Inconsistent and Incomplete

The Army's report based its estimate of depot maintenance-type workloads at non-depot facilities on work conducted under special repair authorities. However, the report noted that inconsistencies existed between automated SRA databases maintained by various Army headquarters and field-level organizations. For example, the Army's April 1999 report shows 2,233 approved SRAs based on information obtained from the Army Materiel Command's database and about 1,274 SRAs based on information obtained from major operating commands' automated databases. Further, our discussions with members of the Army's depot proliferation study team indicate that the major operating commands have not developed complete and accurate reports of SRA expenditure data. For example, the Forces Command reported that Fort Hood, Texas, completed SRA workloads costing about \$369,000, while Fort Hood's records value the SRA work at about \$487,000. Further, the reserve components reported only limited involvement with SRA workloads, but the actual amount could be higher than reported because they routinely performed depot-level tasks that were not specifically authorized by a special repair authority. For example, during our January 1999 visit to the Aviation Classification Repair Activity Depot in Gulfport, Mississippi, we learned that National Guard personnel routinely performed depot-level work on older non-mission critical helicopters without seeking authority from higher headquarters. An official at the Gulfport facility stated that about 10 percent of their workload could be considered depot maintenance tasks. However, based on their understanding of internal operating procedures formulated by the National Guard Bureau, the aviation depots thought they were not required to seek approval or report on the value of SRA-related workloads for non-mission critical aircraft. Subsequent to our visit, the Gulfport facility initiated requests for about 34 individual SRAs, as of July 1999.

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### Examples of Significant Depot Maintenance Workloads Conducted at Non-Depot Facilities

While the Army's report was focused on quantifying the amount of depot maintenance work conducted under special repair authorities, it identified several examples of significant equipment overhaul and rebuild programs that were assigned to local maintenance facilities and that could be considered as depot maintenance work under the 10 U.S.C. 2460 definition. However, due to uncertainties and inconsistencies in the Army's criteria for categorizing and reporting depot maintenance-type workloads and ineffective management information systems, the Army's April 1999 report did not identify the total magnitude of work being conducted, or the number of local repair facilities and personnel performing depot maintenance-type services. Specifically, our review of these programs shows the following:

- The Army overhauls and rebuilds numerous components—including engines, transmissions, circuit cards, and generators—at more than 100 local maintenance facilities managed under the integrated sustainment maintenance program. In fiscal year 1998 the integrated sustainment maintenance program coordinated secondary item repair programs with a reported cost exceeding \$260 million. While much of this work meets the definition of depot maintenance as specified by 10 U.S.C. 2460, current Army policies and procedures allow it to be done at non-depot locations.<sup>16</sup> Appendix II provides a list of the maintenance organizations currently involved in the Army's integrated sustainment maintenance program within the continental United States.
- The Army authorizes 20 different local maintenance facilities to repair and rebuild tank engines and modules. The Army does not maintain records indicating the costs associated with each engine repair action or the number of units being repaired at each of the facilities. Army officials told us the M1 tank engine work was traditionally assigned to the Anniston Army Depot, but later it was partially assigned to the local level to avoid the perceived higher prices charged by the working capital funded depot. Additionally, Army officials cited readiness advantages in having maintenance resources located close to the end users. We noted that in some instances M1 engine maintenance capabilities have been established and continue to operate in relatively close proximity to one another. For example, three units operate in the area of Fort Hood, Texas, while two operate in the area of Fort Riley, Kansas, and two within the Korean theater of operations. Further, we found that capabilities at one of the Fort Riley facilities were recently expanded to enable the Kansas National Guard to perform depot-level overhauls that will provide work for about 55 full-time employees. A Kansas National Guard official estimated that his repair activity has capacity to completely overhaul 100 M1 engines per year and plans to become the maintenance provider of choice within the National Guard community by offering lower rates than can be obtained from working capital funded depots.

<sup>16</sup> Over time, the Army's major operating commands developed extensive local maintenance facilities at multiple installations that supported similar capabilities and workloads. In 1996 the Army established the integrated sustainment maintenance program to consolidate workloads and to eliminate some of the proliferation that had occurred.

- Local maintenance facilities are receiving millions of dollars to repair and rebuild tactical wheeled vehicles. For example, between fiscal years 1995 and 1999 contractor-operated repair facilities at Fort Polk and Fort Riley received about \$48 million to rebuild and refurbish 1,586 semi-trailers; 225 fuel tankers; 802 cargo trucks and tractors; and 712 general-purpose vehicles. The contractor operated facilities received funding through the Army Forces Command. Further, the Mississippi National Guard was completing a multiyear program to repair and refurbish 1,182 vehicles under the European retrograde program at a budgeted cost of \$64 million.<sup>17</sup> Also, the Army's supporting documentation for the fiscal year 1998 workload allocations shows that the Maine, Mississippi, Kansas, and Texas National Guard organizations received about \$2 million to rebuild 5-ton trucks. Army officials said they were assigned this work because the Army's remaining depots were unaffordable. Based on the Army's current workload allocation process, Army officials commented that the work did not need to be performed in a depot. Following the Base Realignment and Closure Commission (BRAC) directed closure of the Tooele Army Depot in 1993, the Army downgraded all of its tactical-wheeled vehicle maintenance work, directing that it be performed at the general support level and below. More recently, Army headquarters officials told us they were considering changing some of the tactical-wheeled vehicle workload classifications to once again reflect depot-level tasking, but it is unclear how this change in policy will impact future workload assignments.
- AMC has established several forward repair activities<sup>18</sup> to perform depot-level tasks at local installations having a high concentration of fielded equipment within a selected geographic area. Personnel assigned to the forward repair activities are depot employees paid by the Army working capital fund. For example, in fiscal year 1997, the Command established a forward repair activity at Fort Bliss, Texas, to support field artillery repair programs. As of December 1998, the forward repair activity employed 25 civilian personnel under the control and supervision of the Army's Letterkenny, Pennsylvania, depot. Army

<sup>17</sup> This work was accomplished on vehicles that had been returned to the United States as a result of downsizing initiatives within the European Theater. The work was intended to return the vehicles to operating condition and, according to National Guard officials, involved mostly general support and direct support tasks.

<sup>18</sup> The forward repair activities are also called logistics centers of excellence. These activities are funded, directed, and controlled by the Army Materiel Command and provide depot-level support at non-depot locations to lower operating costs at the unit level.

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briefing documents indicate that concentrating equipment specialists in close proximity to users reduced repair costs by 30 percent and repair turnaround times by 50 percent. While potentially beneficial, the Army has not completed such an analysis on a broader scale. Army officials explained that the forward repair activity concept reduced costs and repair turnaround times through use of higher skilled personnel and more sophisticated test equipment than are normally available at local maintenance facilities. To enhance warfighting readiness, AMC is planning to establish a forward repair activity in Korea for support of various aviation and missile systems.

While we were unable to fully evaluate the costs associated with these maintenance providers, they do suggest the presence of significant depot-level repair capabilities in the Army's non-depot facilities.

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### Overall Cost Efficiency of Local Repair Programs Is Uncertain

The Army's report stated that major operating commands were taking extraordinary measures to avoid placing orders for repair parts with wholesale inventory managers due to the perceived higher cost of the depot repair programs, but did not evaluate the cost efficiency of the alternative local repair sources in view of the Army's overall requirements. Further, the report stated that the Army lacks effective management information and procedures to determine the cost tradeoffs of more frequent local repair programs versus less frequent and more extensive depot overhaul programs.

Although the Army was unable to fully evaluate the cost benefits of local repair programs, the current separation of the wholesale and retail supply support systems sub-optimizes resources, leading to the accumulation of excess stocks and duplication of repair workloads and infrastructure. For example, we found that multiple local maintenance facilities were repairing items for which the Army's wholesale inventory managers already had supplies of serviceable items on hand in excess of requirements. As indicated in appendix I, the Army's current fragmented depot maintenance management and workloading process may not lead to the most cost-effective decisions and can undermine efforts to maximize cost-effectiveness of the Army's overall logistics support.

In commenting on a draft of this report, Army officials acknowledged that local maintenance facilities were repairing items when the Army's overall inventory of serviceable items exceeded requirements. However, they stated that this practice would cease upon implementation of the evolving

national maintenance program. While the national maintenance program will likely reduce the volume of unnecessary and uneconomical local repairs, the evolving program is dependent upon timely and effective completion of ongoing initiatives to consolidate wholesale and retail level stocks. Further, as currently planned, the evolving national maintenance strategy will allow local repair activities to continue performing depot maintenance-type workloads if repaired items are returned to using organizations rather than a supply system shelf. Thus it is unclear to what extent these ongoing initiatives will resolve the fragmentation and duplication problems we have discussed in this report.

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**No Consolidation  
Recommendations  
Made, but Ongoing  
Initiatives Should  
Strengthen  
Management  
Information and  
Promote Consolidation  
Efforts**

The Army's report noted that better data about the amount and nature of the maintenance performed by local repair and maintenance facilities is needed before any conclusions can be drawn regarding the potential for consolidation of depot maintenance-type facilities. Consequently, the report did not include any recommendations for consolidations. Nevertheless, the report did outline a number of ongoing initiatives and recommended actions to improve the management of information on facilities performing depot maintenance-type tasks, which could provide management information and organizational controls to identify and implement future options for consolidating fragmented depot maintenance-type workloads. In summary, these initiatives include plans to implement a new maintenance strategy and a centralized process for evaluating logistics requirements. Although not specifically addressed in the report, the Army is implementing a recommendation we made in a previous report to develop a strategic plan for depot maintenance-type facilities.<sup>19</sup> However, key details for implementing many of the planned actions remain to be developed.

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<sup>19</sup> *Army Industrial Facilities: Workforce Requirements and Related Issues Affecting Depots and Arsenals* (GAO/NSIAD-99-31, Nov. 30, 1998).

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## Army Plans to Group Maintenance Requirements Into Two Broad Categories, but Impact on Maintenance Depots and Local Repair Facilities Is Uncertain

The Army is drafting changes to its maintenance policies and procedures that will group the four levels of maintenance into two maintenance categories—field-level maintenance and national-level maintenance.<sup>20</sup> The current plans are as follows:

- The field-level maintenance category will include support from non-depot activities, including unit level, direct support, and general support maintenance facilities. Field-level maintenance will be focused on the repair and return of parts and assemblies to the users. Field-level maintenance is intended to support the near term readiness of military units and will be controlled and financed by the users.
- The national-level maintenance category will include support from regular maintenance depots, industrial base contractors, and qualified local maintenance providers. National-level maintenance will be focused on the repair and return of parts and assemblies to the supply system. National-level maintenance will be distributed by a single manager and require the total overhaul of items to like new condition.

The planned policy revision will more closely align the Army's maintenance categories with the 10 U.S.C. 2460 definition of depot maintenance work. As a result, the total range of depot maintenance-type workloads will be more visible, which will enable Army leaders to better identify opportunities for consolidating fragmented and duplicative workloads. Army headquarters officials told us the Army's major operating commands received notice of these emerging changes in a message issued on July 14, 1999, and estimated that the Army would formally publish the policy change in November 1999. We were advised that the Army was developing phased implementation plans for this change. However, at this point, completion dates and the affect on workload distributions to the regular maintenance depots and the Army's network of local maintenance facilities are unclear. Army headquarters officials told us the policy change could possibly result in shifting some work from local maintenance providers to regular depots. However, commanders may be reluctant to change sources of repair, given the perceived lower costs offered by local maintenance providers and the existing capabilities and capacity of local providers to accomplish necessary repair tasks.

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<sup>20</sup> The Army's four levels of maintenance are unit level, direct support, general support, and depot level. The Army's maintenance policies and structure are described in Army Regulation 750-1.

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## Army Plans to Centralize Maintenance and Logistics Management Practices

Key to the Army's ongoing maintenance restructuring is the implementation of a single stock fund to replace the current dual system. In November 1997 the Army's Vice Chief of Staff approved a strategy to implement a centralized management process for evaluating logistics requirements and managing maintenance facilities. Army officials stated that by fiscal year 2001 the current wholesale and retail repair parts inventories will be centrally owned and managed; thus customers will no longer have financial incentives to seek and obtain maintenance support from alternative repair sources. The goal is that future repair program requirements will be based on the overall needs of the Army, rather than the sub-optimized needs of individual commands.

In July 1999 the Army designated the Commander of the Army Materiel Command as the National Maintenance Manager with responsibility for overseeing the Army's logistics and maintenance support programs. To gain purview over the maintenance capabilities and work being performed by the Army National Guard and major operating commands within the active duty component, the national maintenance office is developing plans to transfer command and control of a small number of employees from the major operating commands to AMC. Army officials told us they initially identified 210 personnel spaces for transfer from the operating commands to AMC; however, more recent information indicates the number will be substantially lower. Army headquarters officials told us the major operating commands are reluctant to transfer resources to AMC because they fear such transfers could adversely affect readiness. Additionally, the major operating commands do not have visibility over the impact of the maintenance actions they take with regard to the Army's total logistics costs. It is unclear to what extent the major operating commands may erode the authority of the national maintenance program.

Upon implementation, the national maintenance management office plans to centrally coordinate the allocation of depot maintenance-type work to private sector contractors, regular working capital funded maintenance depots, and a relatively small number of local maintenance facilities. As the national maintenance office gains purview over the full range of potential providers of depot maintenance-type services, it plans to award future maintenance workloads on the basis of best value analysis, and consolidate duplicative and redundant workloads as appropriate. Army officials told us that ultimately this approach could result in several "mini depots" being strategically placed throughout the continental United States to provide for the repair and overhaul of items for which the regular depots and maintenance contractors lack sufficient capability or capacity. However, at

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this point it is unclear how these facilities would be organized or the basis on which such decisions would be made. In addition, the national maintenance office has no firm plans or procedures for assessing the capabilities or cost-effectiveness of each depot maintenance-type facility—critical information that the Army needs for assessing opportunities for consolidating or eliminating unneeded maintenance infrastructure.

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**Army Report Recommended  
Actions to Improve  
Maintenance Management  
and Oversight**

The Army's report to the Congress recognized opportunities for additional improvements to the management of information and coordination of work performed by depot maintenance-type facilities. For example, it recommended that senior Army leaders and major Army commands

- expand and institutionalize the Army's definition of depot maintenance in accordance with 10 U.S.C. 2460 and also clarify and reach agreement with the Congress on the distinction between field-level repair and depot-level maintenance;
- modify and standardize Army data systems to provide for the full accounting of depot maintenance-type work at all locations;
- improve processes, procedures, and accounting systems for managing SRAs and require all active and reserve component maintenance organizations to submit annual SRA production reports to the Army Materiel Command; and
- establish policies, decision structure, and analysis tools for determining whether opportunities exist for reaching specific conclusions on the consolidation of local depot maintenance-type facilities to the depots.

These actions recognize the Army's inability to provide sufficient information on the proliferation of depot maintenance-type work at non-depot facilities. The report does not provide a time frame for accomplishing these actions; therefore it is uncertain when the Army will be able to formulate plans for consolidating duplicative and fragmented depot maintenance-type workloads.

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## Strategic Plan Being Developed

Our November 1998 report on Army industrial facilities recommended that the Army develop a strategic plan to guide future downsizing of regular depots and manage the full spectrum of local maintenance facilities with capabilities to perform depot maintenance-type work.<sup>21</sup> While the Army's April 1999 report on depot proliferation did not address the Army's ongoing efforts to develop a strategic plan for its depot maintenance-type facilities, we reviewed draft documents associated with the development of the strategic plan, and we found that its goals and objectives would be key to addressing the proliferation issue, although specific implementation details are not yet developed. The five strategic goals, objectives, and performance measures associated with the Army's draft strategic plan are summarized as follows:

- Centrally identify and manage all depot maintenance requirements. The current depot customer base is fragmented between various commands and does not provide an accurate estimate of future work. To achieve this goal, the Army plans to develop a process within 1 year to coordinate Army-wide depot requirements, improve information systems, and evaluate and analyze customer satisfaction. Customers will also be required to commit resources to deliver at least 80 percent of the forecasted workload to the designated source of repair, and depots will be required to rightsize their workforces to support the forecasted workload estimates.
- Develop processes and procedures to ensure that source-of-repair decisions support overall Army goals and objectives. This process affects the amount of work the central depot maintenance manager has to distribute across the full spectrum of potential providers and affects the stability of workload forecasts, depot maintenance costs, and mission readiness. To achieve this goal, the Army plans to develop revised source-of-repair processes and policies within 1 year.
- Maintain a sustainable, multiskilled workforce capable of meeting future depot requirements. The depots have been faced with a hiring freeze for the last 13 years and are in danger of losing significant numbers of skilled personnel as large numbers of employees become eligible for retirement. To achieve this goal, the Army will determine and publicize the core competencies for each depot and establish a timeline for depots to have their workforces proficient in the selected competencies. The depots will work with employee unions to establish

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<sup>21</sup> *Army Industrial Facilities: Workforce Requirements and Related Issues Affecting Depots and Arsenals* (GAO/NSIAD-99-31, Nov. 30, 1998).

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employment practices that rely more heavily on cross-trained artisans and temporary employees to supplement the regular depot workforce. Within 1 year the Army will draft a plan for hiring and training new workers to replace skilled workers that will likely retire in the near future.

- Improve the management of material (parts) to provide for more efficient depot operations. Currently, the unavailability of high value, long-lead time parts prevents the depots from completing maintenance work on time. To achieve this goal, the Army plans to improve parts forecasting techniques and revise parts ordering policies to enable depots to place higher priority requisitions with supply system managers.
- Improve the competitiveness of organic depots by making their rates more comparable with private sector contractors. To lower depot rates, the Army plans to eliminate one half of the non-value added costs from depot rates within 2 years and validate the costs and requirements for maintaining unutilized plant capacity during peacetime for use during contingencies.

Army officials told us they expect to finalize their plan by September 1999, but the final plan's degree of specificity is unclear. As of June 1999 the draft planning documents contained limited implementing details, milestones, or funding requirements necessary to achieve the plan's objectives. Further, the plan did not address specific goals and objectives concerning the allocation of depot maintenance-type workloads between regular maintenance depots and local maintenance providers in both the active and reserve component forces, nor did it address methods and goals for reducing excess capacity—concerns that we highlighted in our November 1998 report.

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## Ongoing Challenges Must Be Addressed to Eliminate Fragmentation and Proliferation

Although the Army is taking actions designed to achieve better control over its maintenance resources and increase operating efficiencies at its regular maintenance depots, we identified several factors that could significantly limit its progress unless they are adequately addressed. For example, the Army has not clearly articulated plans for evaluating options for effectively utilizing maintenance resources at the various types of depot maintenance-type facilities, including plans for downsizing or consolidating unneeded infrastructure. Also, until the Army completes ongoing efforts to fully integrate its logistics systems, Army customers may continue to choose local sources of repair, rather than ordering depot-repaired items from the Army supply system.

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Specifically, our work showed that the physical plant infrastructure of the Army's regular maintenance depots and local repair facilities were generally sized to accomplish a volume of work in excess of current requirements. As already noted, we found that the Army's major operating commands have developed and continue to operate modern and extensive industrial maintenance facilities that are similar in appearance when compared to the five major maintenance depots, but smaller in size. In some cases, active and reserve components independently operate similar sized maintenance and repair facilities in close proximity to one another. We visited local maintenance facilities at active and reserve component units located in five states. (Comparative organizational, staffing, and other information for these local repair and maintenance organizations and the Army's five maintenance depots is shown in appendix III.)

Plans for reducing fragmentation and inefficiencies in depot maintenance capabilities will likely be hampered by the Army's lack of information concerning its full capacity for completing depot maintenance-type work at existing depot facilities as well as at other locations. Likewise, information is lacking on the comparative cost-effectiveness of each category of facility. Such information is essential to formulating optimum plans for consolidating fragmented, duplicative, and excessive capabilities and infrastructure.

Significant reductions in excess capacity, to the extent it involves elimination of facilities, will likely be difficult absent legislation authorizing future BRAC rounds. As the Army and the Department of Defense (DOD) continue to seek authority from the Congress for additional BRAC rounds to reduce excess facilities, the Army will need to develop more complete information on its depot capabilities and their cost-effectiveness if it is going to realistically determine the full extent of its excess facilities. In the past, the Army has stated that it only needed to retain three of its maintenance depots, but more recent actions indicate that excess capacity could be much greater if all depot repair capabilities, as well as greater reliance on the private sector for this work were considered. Complete and reliable cost information will be essential to sound decisions about the most cost-effective location and source for depot-level maintenance.

Progress has been limited in reforming the Army's logistics supply system that supports maintenance facilities. Army officials told us they are continuing with plans announced several years ago to integrate the wholesale- and retail-level logistics systems; however, completion has been delayed until fiscal year 2001. The primary reasons given for delay are

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(1) the inability of the Army's outdated computer systems to share information and (2) the need for approval of financial resources to support system changes. While the Army has been slow in implementing logistic reform initiatives, actions taken a few years ago to charge customers for repairable items previously provided at no cost continue to stimulate efforts of field-level customers to seek alternate sources of supply through the use of local maintenance and repair facilities. Our work shows that customers have minimized their local equipment support costs, even though inefficiencies were created in the larger maintenance support system (see app. I). Therefore, any plan to reduce the proliferation of depot maintenance-type capabilities at the local level is highly dependent upon timely implementation of the Army's logistics support system reforms.

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## Conclusions

The Army incompletely quantified the extent of depot maintenance-type work performed at non-depot facilities. Data was not obtained using the recently enacted statutory definition of depot maintenance work. Consequently, the Congress and Army managers do not know the extent to which depot repair capabilities have spread to other locations. However, our work indicates the extent of proliferation is greater than reported by the Army and is contributing to excess depot repair capabilities within the Army.

The Army's report, citing inadequate data on the subject, did not make any recommendations for consolidating depot-type facilities to the public depots. Nonetheless, the report did present a number of related initiatives and recommendations to improve the management of information on organizations performing depot maintenance-type work, reforms which could provide a framework for developing information in support of future consolidations. These initiatives include actions to centralize maintenance and logistics management practices under a national manager responsible for overseeing the program; however, it is unclear how or when the national manager will gain authority over maintenance capabilities and work currently provided by the Army National Guard and major operating commands within the active duty component. The Army recognizes that it needs to modify and standardize Army data systems to fully account for depot maintenance-type work at all locations, but it has not established clear action plans, milestones, and funding requirements for doing so. The Army is also taking steps to develop a strategic plan for depot maintenance facilities. However, key details for implementing many of the planned actions have not been supplied.

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Lastly, we identified a number of ongoing challenges the Army faces in attempting to address the fragmentation of depot maintenance-type workloads. Key among them is the significant amount of depot maintenance-type capabilities operated by major commands in the active Army and the National Guard, each with its own high-level proponents. Further, the Army currently lacks complete information on the magnitude of its capabilities for performing depot-level maintenance at various locations, and it lacks information on the cost-effectiveness of each category of maintenance and repair facility, including related supply support. Accordingly, Army leaders are faced with a formidable challenge as they attempt to eliminate fragmentation, duplication, and excess capacities, and at the same time implement solutions that are best from a warfighting perspective and, most cost-effective to the Army as a whole.

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## Recommendations

We recommend that the Secretary of Defense require that the Secretary of the Army, in developing and implementing the Army's strategic plan for depot maintenance facilities, ensure that the strategic plans and tactical implementing plans

- identify requisite action items, time frames, and funding requirements for improving the Army's information management systems to fully identify the magnitude and cost-effectiveness of depot maintenance-type work at various locations within the Army;
- establish (1) clear time frames and action plans for assessing requirements for the various types of depot maintenance facilities and (2) plans for achieving necessary consolidations and reductions of excess capabilities; and
- incorporate the depot maintenance-type capabilities of both active and reserve components under the national maintenance program and assign the national maintenance manager with requisite responsibility and authority for depot maintenance capabilities in active and reserve components.

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## Agency Comments and Our Evaluation

The Department of Defense provided written comments that are included as appendix IV and technical comments that have been incorporated in the body of the report as appropriate. DOD's comments stated that the Department generally concurred with our recommendations.

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With regard to the first two recommendations, DOD said that the Army has developed a strategic plan for improving its depot maintenance program from a corporate perspective. Further, the next step in this planning process is to establish timelines and assign responsibility for each goal and objective to specific organizations. More specific strategic action plans are expected to be developed through a series of project action teams by the second quarter of fiscal year 2000. We believe the completion of a corporate strategic plan is a step in the right direction. However, we are concerned that available information about this plan does not confirm how the Army plans to identify and obtain necessary funding to support implementation of effective management information systems for determining the magnitude and analyzing the cost-effectiveness of depot maintenance-type work at various locations within the Army. Further, the Army has not determined how or when it might develop plans and goals for achieving consolidations of redundant maintenance infrastructure and reductions in costly excess industrial capabilities.

With regard to the third recommendation, DOD stated that the Army is implementing a national maintenance manager program that will be the focal point for sustainment maintenance requirements. As currently planned, the national maintenance program, which will be managed by the Army Materiel Command, includes plans for consolidating future requirements for the overhaul of component parts returned to the supply system. These workloads will be competitively distributed to maintenance activities with existing capability and capacity. Under this concept the Materiel Command could choose to distribute some portion of work to local maintenance activities remaining under the command and control of active and reserve component operating forces. The evolving national maintenance program concept appears to be a reasonable start toward addressing problems identified in our report. However, a variety of factors make it unclear to what extent this concept can be successfully implemented to achieve desired consolidations and reductions in excess capacity within the Army's maintenance infrastructure. For example, while the evolving national maintenance program is intended to consolidate and distribute overhaul work for components returned to the supply system, the evolving management framework will continue to allow local maintenance activities to repair items returned directly to using organizations—work which could meet the statutory definition of depot maintenance. Additionally, some other depot maintenance-type work is not covered by the national maintenance program. For example, it does not address the allocation of depot maintenance-type requirements for overhauling, rebuilding, or upgrading of major end items, such as tactical

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wheeled vehicles, that are currently being overhauled in field-level maintenance activities or by contracts managed by field-level organizations even though this work meets the statutory definition of depot maintenance-type work.

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## Scope and Methodology

To evaluate the completeness and accuracy of the Army's report to the Congress on the proliferation of depot maintenance-type facilities—including (1) the amount of depot maintenance-type work assigned to local maintenance facilities and the cost efficiency of such work and (2) plans for consolidating fragmented maintenance operations—we interviewed officials and obtained documentation from the Office of the Army's Deputy Chief of Staff for Logistics, Army Materiel Command, Army Forces Command, Army Training and Doctrine Command, Army Reserve Command, National Guard Bureau, and the Eighth U. S. Army (Korea). We also interviewed members of the Army's study group to gain insight into the varying approaches that exist within the Army community for identifying the detailed characteristics of depot maintenance-type workloads and reviewed copies of backup documentation supporting the Army's depot proliferation study. We reviewed copies of current and proposed changes to Army maintenance regulations and compared current and emerging policy statements with the depot maintenance definition in 10 U.S.C. 2460. We also reviewed the Army's report to the Congress concerning the allocation of depot maintenance-type workloads to public and private sector providers. We made site visits to observe ongoing work and discussed depot proliferation issues with officials at three of the Army's five working capital funded maintenance depots and selected local maintenance facilities located in Texas, Kansas, Louisiana, North Carolina, Mississippi, and several locations in Korea. In addition, we obtained summary information from a recently completed analysis by the Army's Materiel Systems Analysis Agency and judgmentally selected and analyzed 43 items repaired by local maintenance facilities under the integrated sustainment program during fiscal year 1998. We also discussed and obtained comments from inventory management officials as deemed appropriate.

To determine the challenges the Army faces in its efforts to resolve depot maintenance proliferation and infrastructure fragmentation, we interviewed officials representing the Army's Deputy Chief of Staff for Logistics, the Army Materiel Command, and Army contractors assisting in the development of the Army's draft strategic plan. We reviewed background documentation describing the Army's tentative strategic goals and objectives for the depot maintenance enterprise, and we relied heavily

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on information obtained in prior GAO reviews of Army depot maintenance programs.

We conducted our review from October 1998 to June 1999 in accordance with generally accepted government auditing standards.

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We are sending copies of this report to Senator John W. Warner, Chairman, and Senator Carl Levin, Ranking Minority Member, Senate Committee on Armed Services; the Honorable William S. Cohen, Secretary of Defense; the Honorable Louis Caldera, Secretary of the Army; and the Honorable Jacob J. Lew, Director, Office of Management and Budget. We will also make copies available to others on request.

Please contact me at (202) 512-8412 if you or your staff have any questions concerning this report. Other GAO contacts and acknowledgments are listed in appendix V.



David R. Warren, Director  
Defense Management Issues

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## Repair Parts Obtained at Local Levels Bypassing Normal Supply Process

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Retail supply managers and local combat units claim substantial cost avoidance by having items repaired locally versus ordering replacement items from the wholesale supply system. Wholesale system managers store items in government warehouses that have been repaired in regular maintenance depots and new items purchased from private contractors. For example, in fiscal year 1998, the retail supply customers had 19 UH-1 helicopter engines repaired by local maintenance organizations. (These engines have a replacement price of \$167,500 per unit or approximately \$75,000 when repairable carcasses are returned to the wholesale manager.) As an alternative, the retail supply managers arranged for the unserviceable engines to be repaired by direct-funded local repair facilities at a reported unit cost of \$5,000 per engine. The cost avoidance, at the user activity level, totals \$1.3 million, or 19 engines with a cost avoidance of \$70,000 per engine.

To the user, the local source appears to be a less costly alternative to more centrally managed supply sources operating under the Army's working capital fund—a funding source that, unlike direct- or mission-funded facilities, seeks to recoup the full costs of the products and services it provides to customers. Whether the local source is less expensive is unclear since comparable cost and performance data are not readily available. However, the perception of lower costs for maintenance repairs and parts obtained at below depot levels was followed by a downward trend in workloads at Army depots following the change in policy that required retail customers, such as combat units, to pay for depot repairs that were previously provided at no cost. Table 1 shows such decreases in workloads involving various military engines at three of the Army's depots.

Appendix I  
 Repair Parts Obtained at Local Levels  
 Bypassing Normal Supply Process

Table 1: Historical Workload Data for the Repair and Overhaul of Various Military Engines at Three Army Depots

Fiscal year	Tank turbine engines at Anniston, Alabama, depot	Helicopter turbine engines at Corpus Christi, Texas, depot	APC <sup>a</sup> diesel engines at Red River, Texas, depot
1991	506	1,518	1,721
1992	348	1,063	1,646
1993	57	853	52
1994	33	740	77
1995	5	440	741
1996	76	393	816
1997	55	472	721
1998	100	295	186

<sup>a</sup>Armored Personnel Carriers.

Source: Army depots.

Our work shows that local maintenance facilities were expected to rebuild end items and components and return them to normal operating condition—a maintenance concept the Army refers to as reliability-centered, inspect and repair only as necessary. In comparison, depots are expected to overhaul and rebuild items to like new condition—a maintenance concept requiring that most assemblies or sub-assemblies be rebuilt or replaced with little or no regard to current operability and remaining useful life.

## Army Lacks Data to Adequately Compare Cost-Effectiveness of Local Repairs and Depot Overhauls

We found that the Army currently has only limited historical data to evaluate the cost benefits of more frequent local repairs versus less frequent but more comprehensive depot overhaul programs. For example, information recently developed at the Army's National Training Center at Fort Irwin, California, shows a reported 21-percent reduction in operating and support costs for Abrams tanks supported by more extensive depot overhauls compared to operating costs of tanks repaired under the reliability-centered maintenance process. Army documents indicate that overhauled tanks are completely disassembled and rebuilt to like new condition, including replacement or refurbishment of all components with any evidence of wear. In comparison, local maintenance and repair facilities performing work under the reliability-centered maintenance concept generally do not replace or refurbish component parts until they fail.

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**Appendix I**  
**Repair Parts Obtained at Local Levels**  
**Bypassing Normal Supply Process**

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For several reasons, the Army lacks comparative information on the relative cost-effectiveness of the two sources of repair for its other weapon systems. First, the Army does not routinely track maintenance and operating costs for individual supply items. Further, many of the Army's current weapon systems are designed on a modular basis; therefore operating costs for such items (e.g. aircraft and tank engines) cannot be easily tracked due to regular and routine exchanges of modular components.

The Army's April 1999 report to the Congress stated that major operating commands were taking extraordinary measures to avoid placing orders with wholesale inventory managers due to the perceived higher cost of the depot repair programs. Further, the report stated that local repair and maintenance organizations were not actively seeking to take work formerly assigned to major depots, but the report did not assess the cost-effectiveness and need for local repair programs in relation to the Army's overall requirements. A study by the Army's Materiel Systems Analysis Activity showed that 42 percent of the items repaired by local maintenance facilities during the first three quarters of fiscal year 1998 could have been avoided if the Army had issued replacement items from existing inventories of serviceable items. Our work shows that wholesale item managers were generally not aware of the local repair programs, and they commented that these actions contribute to excessive stock build-up. In one instance, we found that a wholesale item manager had sent excess engines to disposal that were subsequently reclaimed by a retail supply manager, repaired outside the formal depot system, and entered into the retail stock accounts for later sale to retail customers at reduced prices.

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**Inefficiencies in Multiple**  
**Uncoordinated Supply**  
**Sources**

While the Army's report did not adequately address the inefficiencies inherent to the Army's current logistics systems, our work shows that multiple local maintenance facilities were repairing items for which Army wholesale managers already had supplies of serviceable items on hand in excess of requirements. Such inefficiencies could have been avoided if the Army had integrated management responsibility for its wholesale- and retail-level inventories. Our limited review of selected items managed by three of the Army's wholesale inventory management commands shows repairs of some items were being accomplished by local maintenance facilities even though central logisticians had available stocks of usable items. The following examples illustrate this problem:

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**Appendix I**  
**Repair Parts Obtained at Local Levels**  
**Bypassing Normal Supply Process**

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- We reviewed the wholesale supply records for 10 items managed by the Army's Communications-Electronics Command, but which had been repaired by local maintenance facilities. For 7 of the 10 items, we found that existing wholesale inventories would have likely satisfied retail-level requirements. For example, Army records show that local maintenance facilities at Forts Riley and Gordon repaired a total of 57 power supplies at an estimated cost of \$5,000 when the wholesale inventory contained 6,932 serviceable units to support a total requirement of 2,052 units. Additionally, Army records indicate that Fort Hood repaired 25 radios used on weather radar systems at an estimated cost of about \$30,000 when the wholesale-level inventory contained 314 serviceable units to support a requirement of only 25. In both instances, the item managers were unaware that repairs were being accomplished at field locations.
- We reviewed the wholesale supply records for 19 items managed by the Army's Aviation and Missile Command, but which had been repaired by local maintenance facilities. For 8 of the 19 items, we found that existing wholesale inventories would have likely satisfied some of the retail-level requirements. For example, Army records show that Forts Carson and Bragg repaired a total of 65 flutter dampeners used on the UH-60 aircraft for a total estimated cost of about \$25,500 when wholesale inventory contained 1,459 units on hand to support a requirement of 784. Additionally, Army records indicate that Fort Hood repaired 5 night sensor assemblies for a total estimated cost of about \$60,000 when the wholesale inventory contained 25 units to support estimated requirements of 6.
- We reviewed the wholesale supply records for 14 items managed by the Army's Tank-Automotive and Armaments Command, but which had been repaired by local maintenance facilities. For 6 of the 14 items, we found that existing wholesale inventories would have likely satisfied some of the retail-level requirements. For example, Forts Bliss and Bragg repaired 18 engines for 5-ton trucks in fiscal year 1998 at a total estimated cost of \$40,674 during which time the wholesale item manager determined that 37 serviceable items were excess to the Army's needs and had them sent to disposal yards.

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Reclamation and Repair of  
Excess Items Further  
Indicates Degree of  
Inefficiencies Present in  
Logistics System

The Army's Forces Command currently has contractor operated materiel management and repair centers at seven active Army installations. These contractor-operated facilities repair and refurbish more than 350 component parts and maintain inventories that were reportedly valued at about \$40 million near the end of fiscal year 1998. In fiscal year 1998, the contractor-operated centers withdrew excess material from the Defense Marketing and Reutilization Service with an estimated replacement value of about \$60 million, of which items valued at about \$41 million were considered unserviceable. During the same period, the repair centers received about \$1.8 million to repair and refurbish unserviceable items. Forces Command representatives told us that none of the repair work was considered depot level and most involved only limited testing and servicing to ensure operability. Once the items are repaired, the Forces Command offers them for resale to customers at reduced prices.

This practice has the potential for creating significant inefficiencies in the wholesale supply system. It is essentially a duplicate wholesale supply system that operates without coordination with the formal system. While the Forces Command has claimed cost avoidance totaling \$195 million over a 4-½ year period, we cannot be certain of the cost-effectiveness of such logistics practices to the Army as a whole, given the duplication in repair capabilities and wholesale inventory management functions. Further, this practice likely contributes to inventory items being declared as excess because actual demands are not known to the wholesale inventory managers.

# Potential Providers of Depot Maintenance-Type Services Maintenance Program Within the Continental United States

Maintenance activity	Number of personnel	
	Direct labor	Indirect labor
National Guard		
CSMS Montgomery, Ala.	92	19
CSMS Windsor Locks, Conn.	33	14
CSMS New Castle, Del.	10	4
CSMS Starke, Fla.	57	14
CSMS Atlanta, Ga.	61	17
CSMS Springfield, Ill.	36	11
CSMS Riverside, Ill.	27	9
CSMS Indianapolis, Ind.	66	15
CSMS Frankfort, Ky.	49	13
CSMS Pineville, La.	75	17
CSMS Augusta, Maine	26	9
CSMS Havre De Grace, Md.	42	10
CSMS Fort Devens, Mass.	69	13
CSMS Lansing, Mich.	65	19
CSMS Hattiesburg, Miss.	99	28
CSMS Concord, N.H.	12	5
CSMS Bordentown, N.J.	48	9
CSMS West Orange, N.J.	35	9
CSMS Peekskill, N.Y.	35	17
CSMS Staten Island, N.Y.	37	16
CSMS Rochester, N.Y.	39	11
CSMS Raleigh, N.C.	81	20
CSMS Newark, Ohio	64	19
CSMS Annville, Pa.	86	17
CSMS Eastover, S.C.	85	27
CSMS Smyrna, Tenn.	85	17
CSMS Richmond, Va.	32	14
CSMS Point Pleasant, W.Va.	20	9
CSMS Edinburgh, Ind.	19	7
CSMS Cullman, Ala.	50	18
CSMS Coraopolis, Pa.	26	6
MATES Fort Stewart, Ga.	152	48
MATES Camp Grayling, Mich.	57	21

(continued)

**Appendix II  
Potential Providers of Depot Maintenance-  
Type Services Maintenance Program Within  
the Continental United States**

Maintenance activity	Number of personnel	
	Direct labor	Indirect labor
MATES Fort Polk, La.	88	19
MATES Fort Pickett, Va.	86	24
MATES Fort Knox, Ky.	47	20
MATES Fort Bragg, N.C.	95	28
MATES Fort Drum, N.Y.	69	28
CSMS Phoenix, Ariz.	42	8
CSMS Little Rock, Ark.	69	18
CSMS Stockton, Calif.	45	28
CSMS Long Beach, Calif.	65	13
CSMS Longmont, Colo.	26	10
CSMS Boise, Idaho	57	33
CSMS Johnston, Iowa	53	16
CSMS Topeka, Kans.	26	10
CSMS Little Falls, Minn.	68	14
CSMS Jefferson City, Mo.	58	15
CSMS Helena, Mont.	27	8
CSMS Lincoln, Nebr.	20	13
CSMS Santa Fe, N. Mex.	43	8
CSMS Norman, Okla.	51	18
CSMS Clackamas, Oreg.	70	17
CSMS Mitchell, S. Dak.	22	9
CSMS Fort Worth, Tex.	61	22
CSMS Austin, Tex.	79	20
CSMS Draper, Utah	42	19
CSMS Tacoma, Wash.	47	19
CSMS Camp Douglas, Wis.	51	16
CSMS Rapid City, S. Dak.	9	6
MATES Colorado Springs, Colo.	27	15
MATES San Miguel, Calif.	159	29
MATES Fort Irwin, Calif.	69	23
MATES Fort Sill, Okla.	17	6
MATES Fort Hood, Tex.	190	49
MATES Yakima, Wash.	125	45
MATES Sparta, Wis.	45	21
MATES Fort Riley, Kans.	84	23
AVCRD Gulfport, Miss.	84	21

(continued)

**Appendix II  
Potential Providers of Depot Maintenance-  
Type Services Maintenance Program Within  
the Continental United States**

<b>Maintenance activity</b>	<b>Number of personnel</b>	
	<b>Direct labor</b>	<b>Indirect labor</b>
AVCRD Groton, Conn.	105	26
AVCRD Springfield, Mo.	100	25
AVCRD Fresno, Calif.	81	20
<b>Army Reserve</b>		
DOL Fort Dix, N.J.	19	21
DOL Fort McCoy, Wis.	59	34
<b>Active Army-government operated</b>		
DOL Fort Bragg, N.C.	90	88
GS MAINT Fort Bragg, N.C.	215	104
DOL Fort Benning, Ga.	18	251
DOL Fort Campbell, Ky.	55	81
DOL Fort Drum, N.Y.	56	44
DOL Fort Eustis, Va.	57	53
DOL Fort Gordon, Ga.	66	51
DOL Fort Jackson, S.C.	24	55
DOL Fort Knox, Ky.	29	133
DOL Fort Lee, Va.	13	34
DOL Fort Polk, La.	231	67
DOL Fort Rucker, Ala.	47	25
DOL Fort Stewart, Ga.	61	70
DOL Fort Bliss, Tex.	66	154
DOL Fort Carson, Colo.	95	51
DOL Fort Huachuca, Ariz.	87	18
DOL Fort Hood, Tex.	113	139
GS MAINT Fort Hood, Tex.	120	147
DOL Fort Leonard Wood, Mo.	55	62
DOL Fort Riley, Kans.	158	55
DOL Fort Sill, Okla.	101	36
<b>Active Army-contractor operated</b>		
DOL Fort Campbell, Ky.	48	11
DOL Fort Stewart, Ga.	29	29
DOL Fort Bragg, N.C.	27	3
DOL Fort Bliss, Tex.	34	8
DOL Fort Hood, Tex.	125	93
DOL Fort Polk, La.	51	9
DOL Fort Sill, Okla.	106	69

Table notes on next page.

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**Appendix II  
Potential Providers of Depot Maintenance-  
Type Services Maintenance Program Within  
the Continental United States**

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DOL—Directorate of Logistics

CSMS—Consolidated Support Maintenance Shop

MATES—Maneuver Area Training Site

GS Maint—General Support Maintenance Companies (active duty military)

AVCRAD—Aviation Classification Repair Activity Depot

Source: U.S. Army Materiel Command.

# Local Maintenance Facilities and Depots Visited by GAO

Location	Organization	Government staff	Contractor staff	Facility size in square feet	Year facility constructed/renovated
Fort Bliss, Texas	DOL-Surface	113	6	160,747	1997
Fort Hood, Texas	DOL-Surface	188	0	462,000	1980/1990s
	DOL-Aviation	0	385	211,000	1970s
	National Guard MATES	243	0	252,000	1980/1992
	190th General Support	267	10	33,848	1958
Fort Riley, Kansas	DOL-Surface	10	139	186,000	1980s
	National Guard MATES	83	0	130,000	1981/1993
Fort Polk, Louisiana	DOL-Surface	220	9	175,673	1995
	DOL-Aviation	1	59	250,600	1989
	National Guard MATES	106	0	207,119	1976/1995
Fort Bragg, North Carolina	DOL-Surface	165	18	318,000	1994
	DOL-Aviation	21	30	115,000	1995
	National Guard MATES	116	0	87,500	1992
Mississippi National Guard	AVCRAD-Gulfport	112	31	356,000	1988
	Camp Shelby- CSMS	93	0	79,301	1995
	Camp Shelby- GSM	63	0	113,598	1940s/1999
	Camp Shelby- MATES	108	0	138,000	1983
Anniston Army Depot	Maintenance depot	1,771	0	1,392,000	1950s/1990s
Corpus Christi Army Depot	Maintenance depot	2,690	88	2,119,652	1941/1999
Letterkenny Army Depot	Maintenance depot	1,090	0	894,232	1940s/1990s
Red River Army Depot	Maintenance depot	841	25	556,262	1940s/1980s
Tobyhanna Army Depot	Maintenance depot	2,506	0	1,400,000	1951/1994

DOL—Directorate of Logistics

AVCRAD—Aviation Classification Repair Activity Depot

MATES—Maneuver Area Training Equipment Sites

CSMS—Consolidated Support Maintenance Shop

GSM—General Support Maintenance

# Comments From the Department of Defense



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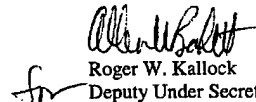
SEP 10 1999

Mr. David R. Warren  
Director, Defense Management Issues  
National Security and International Affairs Division  
U.S. General Accounting Office  
Washington, DC 20548

Dear Mr. Warren:

This is the Department of Defense response to the General Accounting Office (GAO) draft report, "DEPOT MAINTENANCE: Army Report Provides Incomplete Assessment of Depot-type Capabilities," dated July 27, 1999 (GAO Code 709375/OSD Case 1866).

The Department of Defense response to the GAO recommendation is enclosed. We generally concur with the recommendations.

  
Roger W. Kallock  
Deputy Under Secretary  
of Defense (Logistics)

Enclosures:  
As stated



GAO DRAFT REPORT - DATED JULY 27, 1999  
GAO CODE 709375/OSD CASE 1866

ARMY REPORT PROVIDES INCOMPLETE ASSESSMENT OF DEPOT-TYPE  
CAPABILITIES

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

**RECOMMENDATION:** The GAO recommended that the Secretary of Defense require that the Secretary of the Army in developing and implementing the Army's strategic plan for depot maintenance facilities, ensure that the strategic plans and tactical implementing plans:

- (1) Identify requisite action items, time frames, and funding requirements for improving the Army's information management systems to fully identify the magnitude and cost effectiveness of depot maintenance-type work at various locations within the Army.
- (2) Establish [1] clear timeframes and action plans for assessing requirements for the various types of depot maintenance facilities and [2] plans for achieving necessary consolidations and reductions of excess capabilities.

**DOD RESPONSE:** Concur. The Army has developed an enterprise-wide depot maintenance strategic management plan. The strategic plan incorporates the mission, vision, strategic issues, goals, objectives and performance measures for the depot maintenance enterprise, from a corporate perspective. The next step in this process is to establish timelines and assign responsibility for each goal/objective to specific organizations. The Army expects this process to be complete by second quarter FY2000.

- (3) Incorporate depot maintenance-type capabilities of both active and reserve components under the national maintenance program and assign the national maintenance manager with requisite responsibility and authority for depot maintenance capabilities in active and reserve components.

**DOD RESPONSE:** Concur. The Army announced a plan to move to a centrally controlled and coordinated maintenance system. This program, known as the National Maintenance Program (NMP), requires the designation of a National Maintenance Manager (NMM) responsible for the sustainment maintenance for the Army. The Commanding General United States Army Material Command has been designated as the NMM. The NMM will be the focal point for all sustainment maintenance requirements. The NMM will distribute the total sustainment maintenance workload across depot and below depot activities based on national need, through a national requirement determination process. The NMM will also identify all of the maintenance activities required to support the sustainment maintenance workload and distribute the workload based on capability and best value. Through this process the NMP will identify redundancies in capability and excess capacity. The end result will be to right size the total Army's sustainment maintenance capacity to match the sustainment maintenance requirement.

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# GAO Contacts and Staff Acknowledgments

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## GAO Contacts

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## Acknowledgments

In addition to those named above, Glenn Knoepfle, David Epstein, Bonnie Carter, Paul Newton, Edward Waytel, David Marks, and Kate Monahan made key contributions to this report.

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# Related GAO Products

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*Depot Maintenance: Status of the Navy's Pearl Harbor Pilot Project* (GAO/NSIAD-99-199, Sept. 10, 1999).

*Depot Maintenance: Maintenance of T700 Series Engines for U.S. Forces in Korea* (GAO/NSIAD-99-234R, Aug. 13, 1999).

*Depot Maintenance: Workload Allocation Reporting Improved, but Lingering Problems Remain* (GAO/NSIAD-99-154, July 13, 1999).

*Air Force Logistics: C-17 Support Plan Does Not Adequately Address Key Issues* (GAO/NSIAD-99-147, July 8, 1999).

*Army Logistics: Status of Proposed Support Plan for Apache Helicopter* (GAO/NSIAD-99-140, July 1, 1999).

*Air Force Depot Maintenance: Management Changes Would Improve Implementation of Reform Initiatives* (GAO/NSIAD-99-63, June 25, 1999).

*Public-Private Competitions: Reasonable Processes Used for San Antonio Engine Depot Maintenance Award* (GAO/NSIAD-99-155, May 27, 1999).

*Public-Private Competitions: Reasonable Processes Used for Sacramento Depot Maintenance Award* (GAO/NSIAD-99-124, May 12, 1999).

*Navy Ship Maintenance: Allocation of Ship Maintenance Work in the Norfolk, Virginia, Area* (GAO/NSIAD-99-54, Feb. 24, 1999).

*Army Industrial Facilities: Workforce Requirements and Related Issues Affecting Depots and Arsenals* (GAO/NSIAD-99-31, Nov. 30, 1998).

*Navy Depot Maintenance: Weaknesses in the T406 Engine Logistics Support Decision* (GAO/NSIAD-98-221, Sept. 14, 1998).

*Defense Depot Maintenance: Public and Private Sector Workload Distribution Reporting Can Be Further Improved* (GAO/NSIAD-98-175, July 23, 1998).

*Defense Depot Maintenance: Contracting Approaches Should Address Workload Characteristics* (GAO/NSIAD-98-130, June 15, 1998).

*Defense Depot Maintenance: Use of Public-Private Partnering Arrangements* (GAO/NSIAD-98-91, May 7, 1998).

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*Defense Depot Maintenance: DOD Shifting More Workload for New Weapon Systems to the Private Sector* (GAO/NSIAD-98-8, Mar. 31, 1998).

*Depot Maintenance: Lessons Learned From Transferring Alameda Naval Aviation Depot Engine Workloads* (GAO/NSIAD-98-10BR, Mar. 25, 1998).

*Force Structure: Army's Efforts to Improve Efficiency of Institutional Forces Have Produced Few Results* (GAO/NSIAD-98-65, Feb. 26, 1998).

*Defense Depot Maintenance: Information on Public and Private Sector Workload Allocations* (GAO/NSIAD-98-41, Jan. 20, 1998).

*Outsourcing DOD Logistics: Savings Achievable but Defense Science Board's Projections Are Overstated* (GAO/NSIAD-98-48, Dec. 8, 1997).

*Navy Regional Maintenance: Substantial Opportunities Exist to Build on Infrastructure Streamlining Progress* (GAO/NSIAD-98-4, Nov. 13, 1997).

*Defense Depot Maintenance: Challenges Facing DOD in Managing Working Capital Funds* (GAO/T-NSIAD/AIMD-97-152, May 7, 1997).

*Defense Depot Maintenance: Uncertainties and Challenges DOD Faces in Restructuring Its Depot Maintenance Program* (GAO/T-NSIAD-97-112, May 1, 1997) and (GAO/T-NSIAD-97-111, Mar. 18, 1997).

*Defense Outsourcing: Challenges Facing DOD as It Attempts to Save Billions in Infrastructure Costs* (GAO/T-NSIAD-97-110, Mar. 12, 1997).

*High-Risk Series: Defense Infrastructure* (GAO/HR-97-7, Feb. 1997).

*Army Depot Maintenance: Privatization Without Further Downsizing Increases Costly Excess Capacity* (GAO/NSIAD-96-201, Sept. 18, 1996).

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