



# *REPORT TO THE CONGRESS*

## Improving Productivity Through Better Management Of Maintenance Operations In Europe

Department of the Army

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***BY THE COMPTROLLER GENERAL  
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To the President of the Senate and the  
Speaker of the House of Representatives

Our report discusses the fact that the Army in Europe could improve its productivity by managing its maintenance operations better.

We made our examination pursuant to the Budget and Accounting Act, **1921** (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

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

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of the United States

# C o n t e n t s

	<u>Page</u>
DIGEST	i
CHAPTER	
1 INTRODUCTION	1
Army maintenance system	1
Prior studies	2
2 BETTER COORDINATION NEEDED AMONG MAINTENANCE ACTIVITIES	4
Programs assigned to depots without considering general- support capability	4
Programs assigned to general- support level that could be done at direct-support level	7
3 MAINTENANCE ACTIVITIES BELOW DEPOT LEVEL NEED IMPROVEMENT	9
Equipment not promptly repaired	9
Ineffective use of military man- power	12
4 NEED FOR EVALUATIVE MANAGEMENT DATA	15
Current management information	15
Planning workloads	15
Evaluating performance	16
5 CONCLUSIONS AND RECOMMENDATIONS	18
Conclusions	18
Recommendations	18
Agency comments	19
6 SCOPE OF REVIEW	21
APPENDIX	
I Estimated staff-hour use of military mechanics in direct- and general- support maintenance activities dur- ing calendar year 1973	23

APPENDIX

Page

II	Agency comments	24
III	Principal officials of the Departments of Defense and the Army responsible for administration of activities discussed in this report	27

ABBREVIATIONS

USAMMAE	U.S. Army Materiel Management Agency, Europe
GAO	General Accounting Office

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

IMPROVING PRODUCTIVITY THROUGH  
BETTER MANAGEMENT OF  
MAINTENANCE OPERATIONS IN EUROPE  
Department of the Army

D I G E S T

WHY THE REVIEW WAS MADE

A recent GAO study, "Maintenance in Germany--A Costly Operation" (B-163143, June 12, 1974), showed that the Army often used U.S.-owned, contractor-operated depot maintenance plants to repair equipment that should have been repaired by lower level direct- and general-support maintenance activities. (See p. 2.)

To complement that study, which primarily involved depot-level maintenance, GAO reviewed the management of direct- and general-support activities of the V and VII Corps and the 1st Support Brigade in Germany.

FINDINGS AND CONCLUSIONS

The Army needs to better coordinate its maintenance activities in Europe.

As of January 1974, the Army had estimated it would cost \$34 million to repair vehicle components scheduled for contractor-operated depot maintenance plants in Europe during fiscal years 1974 and 1975. Most of these components could be repaired at a lower cost by general-support maintenance activities staffed by military personnel. (See p. 4.)

During 1973 general-support activities in Europe had 1.2 million unused staff-hours available,

estimated to cost over \$3.5 million.

During fiscal year 1975 the Army in Europe had an estimated \$6.8 million backlog of depot overhaul programs for which funds were not available. Shifting some programs done at depots to general-support activities would make better use of military mechanics and would free funds and depot skills for unfunded programs. (See p. 6.)

After GAO advised Army officials of this situation, they transferred several programs to general-support activities, effective July 1, 1974. This transfer should result in dollar savings or greater production valued at over \$544,000 and should add only about 41,700 staff-hours of work to the general-support level. GAO believes other programs should be evaluated for possible transfer. (See p. 6.)

Also, repairs which should have been done at the direct-support level were done at the general-support level.

Both direct- and general-support activities took too long to repair and return urgently needed equipment to combat forces in Europe. Over half of the jobs GAO analyzed took longer than the Army's time goals. Some reasons for these delays were:

--Maintenance managers did not

effectively control their shops.

- Repair parts were not available because of inadequate stock management.
- Mechanics did not use even half of their available time to repair equipment.
- Mechanics were not assigned to work they were trained to do.

Managers had no system for evaluating performance, so they could not identify and correct problems or plan workloads. (See pp. 16 and 17.)

#### RECOMNDATIONS

The Secretary of Defense should encourage the Army to improve maintenance management in Europe by:

- Using military capability at the direct- and general-support levels before assigning maintenance programs to contractor-operated depot-level facilities.
- Doing maintenance work at the lowest authorized level unless the work is beyond the capability of that level.
- Insuring a good supply of repair parts by improving stock management at all levels.
- Improving information available to maintenance managers at all

levels, to enable effective workload planning and performance evaluations.

#### AGENCY ACTIONS AND UNRESOLVED ISSUES

The Department of the Army agreed with GAO findings and commented on the corrective actions planned or now in progress. (See app. II.) These actions include reorganizing nondivisional maintenance support functions, providing direct support maintenance on an area-basis, testing new procedures for issuing repair parts, and providing information to maintenance managers tailored to their management level.

Improvement in maintenance productivity should greatly improve if these actions are carried out as planned.

#### MATTERS FOR CONSIDERATION BY THE CONGRESS

The Army has not used its below-depot maintenance capabilities effectively. It could take advantage of opportunities to reduce costs through improved scheduling and monitoring of workloads.

GAO believes this report will assist the Congress in evaluating the Secretary of Defense's semiannual reports which are required by section 302, Public Law 93-365. This law outlines specific reductions of European headquarters and non-combat military forces in relation to combat forces as of June 1976.

## CHAPTER 1

### INTRODUCTION

The Army defines "maintenance management" as using all available resources in the most judicious manner to maintain all supportive equipment in a combat-ready condition.

#### ARMY MAINTENANCE SYSTEM

Maintenance activities in Europe are categorized by type or level of work. Individual units are normally responsible for minor repairs of their equipment, including operator maintenance and certain maintenance which the unit mechanics can do. The following backup activities do repairs that are beyond the capabilities of individual units.

- Direct-support activities maintain equipment assigned to designated units.
- General-support activities back up direct-support units.
- Installation-support activities provide both direct- and general-support.
- Depot maintenance activities do repairs which exceed the capabilities of direct, general, and installation support maintenance activities.

These activities are not normally authorized to do work beyond their level; however, all activities are capable of doing work below their level, although they are discouraged from doing so.

Six major organizations in Europe are responsible for maintaining combat-essential equipment within assigned geographic areas. These organizations are the V Corps, VII Corps, Theater Army Support Command, U.S. Army Berlin, U.S. Army Southern European Task Force in Italy, and 7th Army Training Center. Most of the combat-support maintenance activities are assigned to the two corps and to the Theater Army Support Command, which manage individual units and direct- and general-support activities. The other organizations manage only individual units and direct-support activities.

The U.S. Army Materiel Management Agency, Europe (USAMMAE), an element of the support command, manages depot-level maintenance. Much of the work at this level has been done by German firms under contracts.

Combat-support activities repair communications, electronic, and construction-engineering equipment; weapons; aircraft; wheeled and tracked vehicles; and related components. If a unit has unserviceable equipment, it inspects the equipment to determine the problem and to decide whether the unit is authorized to repair it. When repair work is beyond its authorization, they send the equipment to the direct-support maintenance activity assigned to assist it. The direct-support activity also inspects the equipment to verify the problems identified by the unit. If this activity determines that it is not authorized to repair the equipment, it sends the equipment to its assigned general-support maintenance activity. If the general-support activity determines that the work is beyond its authorized level of repair, it forwards the equipment to a depot.

#### PRIOR STUDIES

During the past year, both the Department of the Army and GAO<sup>1</sup> studied depot maintenance in Europe because of the increasing cost caused by dollar devaluations and inflation in Germany. Both studies concluded that depot maintenance was too costly and recommended that depot-level programs be reviewed to see which ones could be done at a lower level. The Army study also recommended that items needing depot-level work be transferred to the United States if the transfer would be cost effective or would result in a balance-of-payments savings. As a result of the studies, Army officials closed two of the three depot-level plants in Germany.

Army officials in Europe have recognized the need to improve maintenance management. They held their first

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<sup>1</sup>"Depot Maintenance in Germany--A Costly Operation"  
(B-163143, June 12, 1974).

theater workload conference in May 1974 and plan to determine theater maintenance requirements and capabilities at later conferences. They will reexamine the **use** of depots for repairing equipment that can be repaired at lower levels.

Additionally, Army officials in Europe are analyzing the possibility of reorganizing the present structure of maintenance activities under the V Corps; the VII Corps; and the 1st Support Brigade, a part of the Theater Army Support Command. This analysis is to determine the number of maintenance personnel that can be reduced, to increase the number of combat personnel in Europe.

## CHAPTER 2

### BETTER COORDINATION NEEDED AMONG

#### MAINTENANCE ACTIVITIES

The Army organizations in Europe need to better coordinate their maintenance resources. German contractors and foreign employees at the depot level have repaired and overhauled engines, transmissions, and many other vehicle components that military mechanics at general-support activities should have repaired.

General-support activities had unused resources, as well as resources they used for repairs that should have been done at the direct-support level. Direct-support activities also had unused resources.

Maintenance management was ineffective, largely because it was decentralized. The two corps and the 1st Support Brigade planned the repair or overhaul of components without consulting USAMMAE. On the other hand, to satisfy lower level demands for serviceable components, USAMMAE personnel assigned component programs to depots without determining the unused capacity at lower levels.

#### PROGRAMS ASSIGNED TO DEPOTS WITHOUT CONSIDERING GENERAL-SUPPORT CAPABILITY

In fiscal year 1974, USAMMAE scheduled 59 vehicle component repair programs at the depot level. As of January 1974, 48 such programs had been scheduled for fiscal year 1975. Staff-hours required to complete these programs were estimated at 891,837 and 734,387, respectively. The estimated cost to complete these programs was over \$34 million.

Over the years USAMMAE assigned most of these programs to German contractors, which operated two of the Army's depot maintenance plants, without adequately determining whether general-support activities could make their own repairs. USAMMAE assigned the programs to the depot level under the assumption that the corps and 1st Support Brigade activities were doing all the work they could. A USAMMAE official said that demand for serviceable components was

a sound basis for establishing programs at the depot level and that **USAMMAE** was not responsible for insuring that the corps and 1st Support Brigade activities were doing their jobs.

The USAMMAE official also said that most of the component repair programs done at the depot level by civilian personnel could be done at the general-support level. Until the late 1960s, general-support activities repaired or overhauled some of the same types of engines that German contractors repaired. These engines were for 1/4-ton, 2-1/2-ton, and 5-ton trucks. However, in the late 1960s Army officials in Europe ordered that engine overhauls be discontinued below the depot level.

Corps officials also sent work that could have been done at the general-support level to the depot level. Since the components could be exchanged at the depot level at no cost to the corps, the corps saved on operations and maintenance funds. But by shifting the work to a higher level, the corps lost the dollar value of military mechanics and increased the overall cost to the U.S. Government.

Prompted by the closing of the Schwaebisch-Gmuend, Germany, maintenance plant on June 30, 1974, and the Boeblingen, Germany, plant on December 31, 1974, the Army has recognized the need to coordinate maintenance activities of the two corps and the 1st Support Brigade.

Some of the alternatives for redistributing the workloads are:

- Increasing the workload at the remaining depot-level, contractor-operated plant in Mainz, Germany.
- Returning the workload to maintenance facilities in the United States.
- Increasing the workload at direct- and general-support activities.
- Using a combination of these alternatives.

We believe that, when possible, the best alternative is to increase the workloads of direct- and general-support activities because they have not been fully used and are the

least expensive. As shown in appendix I, general-support activities had about 1.2 million unused net staff-hours available in 1973.

USAMMAE personnel had planned that some items assigned to the Boeblingen plant for repair would be transferred to the Mainz plant and that 17 items would be directed back to general-support activities when Boeblingen closed. In view of the unused military resources in general-support activities, we questioned the decision to include the 17 items in the Boeblingen contractor's fiscal year 1975 workload.

In a letter dated April 18, 1974, we told the Commander in Chief, United States Army, Europe, and Seventh Army, of the unused capacity in general-support activities. We suggested that the 17 items be transferred to general-support activities no later than July 1, 1974. Such a move would result in dollar savings or greater production estimated at about \$679,000. We also suggested that the Army identify other line items that qualify as general-support work but that are still scheduled for the fiscal year 1975 depot program. The transfer of these items from the depot level to the general-support level would enable Army officials to use depot funds for unfunded depot-level maintenance work. The plan for fiscal year 1975 includes unfunded repair programs worth over \$6.8 million.

Army officials told us that the theater requirements for 10 component programs had been transferred to V Corps' general-support activities, effective July 1, 1974. At the same time, one-half of the theater requirements for the 17 items referred to above and 1 other item will be transferred. Further, the VII Corps plans to establish additional component repair programs which will curtail the flow of repairs to the Boeblingen plant. This should result in dollar savings or greater production valued at over \$544,000 and should add only about 41,700 staff-hours of work to the general-support level.

We believe that repairs scheduled for the depot level should continue to be evaluated so that when opportunities to economize are identified, positive actions can be taken. For example, one corps' general-support activity tried to establish a repair program for certain engines that had been

assigned to the depot level. However, headquarters officials refused the request for funds, saying the reduction in staff-hours at contractor-operated depot plants would increase the costs of all other items being overhauled under contracts. However, 'funds paid to contractors for doing lower level work at depots could have been used for unfunded depot programs to repair combat and automotive items, such as the M114AE1 command and reconnaissance, M88 recovery, M578 light recovery, and M728 combat engineer vehicles.

PROGRAMS ASSIGNED TO GENERAL-SUPPORT LEVEL  
THAT COULD BE DONE AT DIRECT-SUPPORT LEVEL

For each component, the level of repair, direct or general support, is identified in the Army's maintenance allocation charts included in equipment technical manuals. However, in Europe many repairs which should have been done at the direct-support level were done at the general-support level.

As of January 1974, V Corps' general-support activity had 227 component repair programs, many of which were established because the activity had unused capacity. Of the **227** programs, 74, or **33** percent, were authorized to be carried out at the direct-support level.

Within the VII Corps, 48 percent of the programs assigned to general-support activities were authorized to be carried out at direct-support activities. Some of the items in these programs were:

Radiators	Distributors
Brake shoes	Starters
Brake drums	Alternators
Master cylinders	Regulators
Wheel cylinders	

Establishing component repair programs at the wrong levels has resulted in underusing equipment intended for both direct- and general-support activities. For example, in looking at direct-support activities of the 1st Support Brigade, we found equipment worth approximately \$200,000, such as

boring machines,, generators, and the like, that **had never** been uncrated. Officials expressed concern that, since the equipment has **not** been used, maintenance personnel will not be able to operate it when the need arises.

### CHAPTER 3

#### MAINTENANCE ACTIVITIES BELOW DEPOT

##### LEVEL NEED IMPROVEMENT

Direct- and general-support activities did not efficiently carry out their missions. Although Army managers in Europe had time goals for repairing and returning equipment to units, the goals usually were not met. Also, maintenance activities did not fully use available manpower.

##### EQUIPMENT NOT PROMPTLY REPAIRED

The suggested number of working days to repair an item varies according to its priority; items that directly affect the units' readiness condition are given a high priority and short recommended repair time. If repair parts have to be requisitioned through the supply system, 10 additional working days are allowed.

To determine the timeliness of maintenance, we analyzed 23 high-priority job orders completed during the 30 days before our visit by the 77th Heavy Equipment Maintenance Company, a general-support activity of the Theater Army Support Command. Of the 23 jobs, over 50 percent (13) exceeded the time goals--some by as many as 60 to 70 days. For one job, it took 80 days for repair even though no time was lost waiting for repair parts. The following table shows the delays in the jobs analyzed.

<u>Job order number</u>	<u>Days to repair</u>	<u>Days scheduled</u>	<u>Days over schedule</u>
YQ678	33	12	21
YQ396	66	12	54
YQ222	88	12	76
YQ713	14	12	2
YQ645	29	12	17
YQ269	80	12	68
YQ588	41	12	39
YQ418	58	12	46
MQ742	14	12	2
M0717	19	12	17
MQ598	32	12	20
<b>MQ555</b>	31	12	19
MQ967	27	12	15

We also looked at 223 high-priority job orders at two direct-support maintenance activities in each of the two corps. During the 90 days before our visits, the 4 units completed about 4,400 job orders, of which 964 were high priority. Data in 54 of the 223 job files was incomplete, so we could not determine the time taken to repair the equipment. Of the remaining 169 job orders, 62 percent (104) were not completed within the time goals.

The items that took excessive time to repair included.. some for which parts were readily available. The Army Audit Agency has repeatedly pointed out delays in repairing and returning equipment in its review of direct- and general-support activities but corrective actions have not been taken.

These delays occurred primarily because maintenance officers did not adequately control production or supervise personnel. Many maintenance personnel were not even aware of the time goals.

### Repair activities

Maintenance officers said that the most common methods of controlling repair activities were to (1) work on the oldest high-priority job order first and (2) have effective shop supervision, but these methods have not effectively controlled production.

Working on the oldest job first does not insure that the job will be completed on time. One unit that had a lot of equipment awaiting repair was doing very little work. When we inquired about the status of the equipment awaiting repair, a job order--presumably the oldest--was pulled and repair work was started. The job order called for replacing a jeep engine, but we noted that the unit was removing the engine from the wrong vehicle.

Also, direct supervision by shop supervisors is not necessarily an incentive for mechanics to do a better job. In the example above, the supervisor did not know the wrong vehicle was being repaired. In many shops, even though there was work to do, mechanics were sitting around, reading, or generally not applying themselves.

The apparent prevalence of the conditions leads us to conclude that these officers were not aware of the magnitude of these problems.

Supply activities

Mechanics obtain repair parts from one of several levels in the supply system; If needed parts are not stocked in the unit shop, but they are requisitioned from a supply support activity that is usually part of the maintenance unit, If the parts are not available at the supply support activity, they are requisitioned from **USAMMAE**.

Maintenance officials said the delay in repairing and returning equipment was due to the delay in getting repair parts. In both corps, it took an average of 50 days to get parts before mechanics could begin to repair, as shown below.

<u>Activity</u>	<u>Average days taken</u>
Unit inspects equipment to determine parts needed	1.0
Unit notifies shop supply to process parts requisition	3.7
Shop supply processes requisition through supply support activity	8.5
USAMMAE processes requisition and sends parts to supply support activity	<sup>a</sup> 29.4
Supply support activity sends parts to shop supply	4.7
Shop supply sends parts to mechanics	<u>2.7</u>
Total	<u>50.0</u>

<sup>a</sup>Not within the control of maintenance officials.

Following are some of the reasons for the delays.

- Demand data at maintenance units was not recorded, so management could not determine proper stock levels.
- Controls over the repair parts inventory were ineffective.
- Some requisitions were never received at the supply support activities or USAMMAE.
- Parts received were misplaced or used on another job without being recorded.

Maintenance officials generally were not aware of the slow reaction time of the activities they controlled. Better stock management practices would help reduce the time needed to repair and return equipment.

#### INEFFECTIVE USE OF MILITARY MANPOWER

Many maintenance staff-hours were lost due to authorized diversions of personnel from their primary missions. Such diversions include:

- Leave and holidays.
- Athletics and recreation.
- Unit activities (work details, paydays, etc.).
- Readiness training [alerts, exercises, etc.) .
- Other training.
- Work breaks, Christmas slowdown, etc,

**Amy** officials in Europe estimated that about 52 percent of the mechanics' available time was lost to these activities. Recognizing that mechanics must spend time on these other activities, maintenance officials should efficiently use the remaining resources; But they have not always done so.

#### Low productivity

Maintenance units had about 10.2 million' gross maintenance staff-hours available during 1973. About 52 percent of this time was lost to other authorized activities, so mechanic's time available for maintenance work was about 4.9 million hours.

Both direct- and general-support activities had unproductive staff-hours, as shown on the following page. Details on staff-hours, available and unused, are included in appendix I.

Low productivity was not caused by a lack of work. In 1973 maintenance activities of the two corps and the 1st Support Brigade had a monthly average of over 34,000 items to be

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<sup>1</sup>Based on a 40-hour week for mechanics. Does not include other personnel assigned to maintenance units.

repaired. About 69 percent of these items were either awaiting shop or in the shop to be repaired. However, in the same year, mechanics did not apply about 3.2 million staff-hours, or 65 percent of the net available time, to these items, Using an average hourly rate of \$2.88<sup>1</sup> for a military mechanic (grades E-1 through E-4), we estimated that the lost manpower cost the Government about \$9.3 million. (See app. I.)

<u>Activities</u>	<u>Staff-hours</u>			<u>Percent of</u>	
	<u>Gross avail-able</u>	<u>Net avail-able (note a)</u>	<u>Applied to job orders</u>	<u>Net avail-able time applied</u>	<u>Gross avail-able time applied</u>
	———— (000 omitted) ————				
General support	3,858	1,852	617	33	16
Direct support	<u>6,340</u>	<u>3,043</u>	<u>1,111</u>	<u>37</u>	<u>18</u>
Total	<u>10,198</u>	<u>4,895</u>	<u>1,728</u>	35	17

<sup>a</sup>48 percent of gross available.

Maintenance officials who are not getting a full day's work from their people are not effectively supervising them. The Commander in Chief, U.S. Army, Europe, recognized this situation in a letter to his subordinate commanders dated April 1973. He said:

"NCOs [noncommissioned officers] and warrant officers are not doing their jobs every hour of the day: they are not supervising and they are not teaching the young mechanics how to operate properly. I would sum it up by saying our maintenance is poor because we have a lot of intermediate technicians and commanders who are NOT earning their pay.?"

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<sup>1</sup>Computed from "Composite Standard Rates for Costing Military Personnel Services," effective July 1, 1973.

"It almost appears at times that commanders and supervisors are reluctant to demand performance from a soldier. I suggest we start talking about how much money a soldier makes when we start talking about performance on the job. We should get a full day's performance for a day's pay."

#### Poor assignment of mechanics

Maintenance managers said that diverting mechanics to other duties seriously hampered their ability to perform their missions. Diversions should be kept to the minimum, since they generally do not enhance the mechanic's development and are not an effective use of maintenance resources.

In his April 1973 letter, the Commander in Chief, U.S. Army, Europe, noted that:

"The time has come for commanders to insure that the soldier is assigned to the job for which he has been trained and then demand that he perform at the level for which he is being paid."

Subordinate commanders have not done this. One maintenance official estimated that about 16 percent of his total assigned personnel were diverted from their occupational specialty. Several mechanics, on a full-time basis, were

- working at battalion headquarters,
- providing ski instruction,
- working as dayroom orderlies,
- working as security police,
- acting as drug or alcohol specialists,
- working at the commissary, and
- operating youth centers (coffee houses and American youth activities).

## CHAPTER 4

### NEED FOR EVALUATIVE MANAGEMENT DATA

To manage production and use resources efficiently managers should know the time required to repair equipment and the staff-hours available to do it. At the activities visited, officials did not have this information.

### CURRENT MANAGEMENT INFORMATION

The primary source of maintenance management information is the automated tactical maintenance control system that the Army in Europe recently developed. This system provides managers with visibility over the amount of equipment awaiting shop, in shop, and waiting for parts. The system also shows the parts needed, the estimated staff-hours used on jobs, and the number of items repaired. Although this information is beneficial, managers need more information.

### PLANNING WORKLOADS

As discussed earlier, Army officials in Europe have established time goals for repairing and returning equipment. Workloads must be scheduled to determine whether the goals can be met with available staff-hours. If there are enough staff-hours available and the goals are not being met, management's attention is obviously needed. If the staff-hours are not sufficient, maintenance officers should consider alternatives for getting the work done.

One alternative is moving personnel from shops with little or no work to shops with heavy workloads. At one company, the automotive shop had repair parts on hand, but because of lack of manpower, equipment was not being repaired. At the same time, the engineering equipment shop had qualified mechanics available but had a very low workload. These mechanics were not detailed to the automotive shop although the supervisor of the engineering shop was aware of the heavy workload. The company maintenance officer should have re-assigned mechanics to where they were needed.

Another alternative is for battalion-level personnel to direct assistance from one company to another within a

battalion when workloads become so large that time goals cannot be met with available personnel. Battalion personnel would need information on the staff-hours of workload and staff-hours available for all companies in order to make intelligent decisions. However, since battalion personnel did not have this data, personnel and workloads could not be effectively shifted among companies.

Managers at the headquarters level within each of the corps and the 1st Support Brigade also should evaluate the workload of each maintenance battalion. If the workload cannot be handled, they should consider transferring work or personnel.

### EVALUATING PERFORMANCE

Performance evaluation is an essential management control to insure that objectives are met. Comparing actual results with planned results is a widely accepted method of measuring performance.

At the time of our review, performance was being evaluated by comparing the numbers of items completed and backlogged during the week with similar data accumulated during previous weeks. This method shows the increases and decreases in production and backlogs, but it does not show whether time goals are being met or identify problems and bottlenecks which cause delays in repairs.

Using labor standards is also a widely accepted method of measuring a labor force's performance. These standards indicate the time necessary for an experienced operator to do a job working at a normal pace in a predetermined manner, allowing adequate time for fatigue and personal needs.

Developing labor standards can be both time consuming and costly. As a minimum, however, maintenance officials could use the staff-hour use and efficiency rates and the percent of items repaired and returned to the units within desired time frames as indicators of performance. Staff-hour use is the ratio of the direct-labor staff-hour applied to those available. The efficiency rate is the ratio of standard staff-hours to actual hours applied.

The Research Analysis Corporation completed a study for the Army on "Logistics Performance Standards, Measurements

and Review Processes!! in December 1972. The corporation suggested that the Army compute the staff-hour use of direct-labor mechanics, but this had not been done as of April 1974. (The 1st Support Brigade attempted to do so but found that its data was not reliable.)

Activities did not determine the number of available staff-hours, nor did they accurately determine the number of hours applied. The actual time applied to each job was supposed to be recorded to the nearest tenth of an hour, but instead only an estimate **was** recorded. Maintenance officials at all levels showed little concern for knowing the number of staff-'hours applied to a job.

Managers need to evaluate and act on the performance of maintenance activities and personnel. Benefits of such evaluations are:

- Managers would **know** how much and how efficiently their people were working.
- Managers **would** know whether equipment had been repaired **promptly** so they **could** take corrective action when necessary.
- Managers could identify problem areas, such as the need ~~€~~ for training to improve the performance of subordinate managers and mechanics.
- Subordinate personnel would perform better because they would know what was expected of them.
- The sense of professionalism of personnel at all levels would be enhanced--a goal the Army is striving **for** under the voluntary Army concept.

## CHAPTER 5

### CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

The Army can improve productivity through better management of maintenance in Europe. Many parts were repaired and overhauled at depots when they should have been repaired by general-support activities and at general-support activities when they should have been repaired by direct-support activities. As a result, the Government incurred unnecessary costs, and mechanics did not receive the day-to-day training on equipment necessary in wartime.

Maintenance support units did not promptly repair and return urgently needed equipment because:

1. Mechanics were assigned to do work other than what they were trained to do.
2. Mechanics applied little of their available time to repairing equipment.
3. Maintenance managers did not have enough information to effectively plan workloads and evaluate the performance of subordinate managers and their operations.
4. Repair parts were not available because of inadequate stock management.

#### RECOMMENDATIONS

We recommend that the Secretary of Defense encourage the Army to improve maintenance management in Europe by:

- Determining and using existing military capability before assigning maintenance programs to contractor-operated depot-level facilities.
- Doing maintenance work at the lowest authorized level unless the work is beyond the capability of that level.

- Insuring a good supply of repair parts by improving stock management at all levels in Europe.
- Improving information available to maintenance managers at all levels, to enable effective workload planning and performance evaluations.

#### AGENCY COMMENTS

By letter dated December 16, 1974 (see app. 11), the Deputy Assistant Secretary of the Army (Installations and Logistics) agreed with our findings and outlined the following actions to improve maintenance in Europe.

- The nondivisional support maintenance structure is being reorganized to make better use of military maintenance capabilities. As part of this reorganization, a general-support classification, reclamation, and direct-exchange company will be established. This company will operate a large-scale, direct-exchange facility and will repair unserviceable components for return to general-support stock. Only those items actually requiring depot repair or excess to the command will be transferred to depots.
- The reorganization will provide the direct-support maintenance units with the ability to provide support on an area basis. Once this capability is established, there should be no requirement to transfer materiel to general support unless that level of work is actually required.
- A revised procedure for obtaining repair parts will be tested by a nondivisional maintenance company. The procedure will allow for parts to be issued over the counter and the stock record transaction to be handled on a post-by-post basis. The Army feels that the system will provide more prompt customer support, improve asset visibility, and be less complicated for supply personnel.
- The standard Army maintenance management system is being developed to provide automated recordkeeping and to provide maintenance managers with information

tailored to their management level. The system will replace maintenance management systems now in effect and will interface with other logistics systems either in existence or planned as adjuncts to the materiel maintenance and supply portion of the Army logistic system.

The actions taken or planned are consistent with our recommendations and, if carried out, should greatly improve maintenance operations in Europe.

## CHAPTER 6

### SCOPE OF REVIEW

Because most of the combat-support maintenance activities are assigned to the two corps and to the Theater Army Support Command, we concentrated on these organizations. We obtained data from the headquarters of these organizations and from selected maintenance battalions and companies. We also obtained information from Army headquarters in Europe and USAMMAE.

Principal organizations and locations visited in Germany were:

Headquarters, U.S. Army, Europe and 7th Army	Heidelberg
U.S. Theater Army Support Command, Europe	Worms
USAMMAE	Zweibruecken
1st Support Brigade	Kaefertal
V Corps support Command, V Corps	Frankfurt
2d Support Command, VII Corps	<u>Nellingen</u>

ESTIMATED STAFF-HOUR USE OF  
MILITARY MECHANICS IN DIRECT- AND GENERAL-SUPPORT  
MAINTENANCE ACTIVITIES DURING CALENDAR YEAR 1973

Category	V corps		VII Corps		1st Support Brigade (note b)		Total		Total
	Direct- support activities (note a)	General- support activities	Direct- support activities	General- support activities	Direct- support activities	General- support activities	Direct- support activities	General- support activities	
A. Average number of mechanics on hand	1,126	542	1,534	901	388	412	3,048	1,855	4,903
B. Annual gross staff-hours available (Ax2,080 staff-hours a year) (note c)	2,342,080	1,127,360	3,190,720	1,874,080	807,040	856,960	6,339,840	3,858,400	10,198,240
C. Staff-hours lost to authorized diversions from duties (52% of B)	1,217,882	586,227	1,659,174	974,522	419,661	445,619	3,296,717	7,006,368	5,303,085
D. Net available staff-hours (C-E)	1,124,198	541,133	1,531,546	899,558	387,379	411,341	3,043,123	1,852,032	4,895,155
E. Staff-hours applied	375,182	179,411	578,079	315,707	158,223	121,502	1,111,484	616,620	1,738,104
F. Percent of net available time applied (D+E)	33	33	38	35	41	26	37	33	35
G. Percent of gross available time applied (B+E)	16	16	18	17	20	14	18	16	17
H. Unused net available staff-hours (D-E)	749,016	361,722	953,467	583,851	229,156	289,839	1,931,639	1,235,412	3,167,051
I. Cost of unused net available staff-hours (Hx\$2.88 an hour) (note d)	\$2,157,166	\$1,041,759	\$2,745,986	\$1,681,491	\$659,969	\$834,736	\$5,563,120	\$3,557,986	\$9,121,106
J. Unused gross available staff hours (B-E)	1,966,898	947,949	2,612,641	1,559,010	648,817	735,458	5,228,356	3,241,780	8,470,136
K. Cost of unused gross available staff-hours (Jx\$2.88 an hour) (note d)	\$5,664,666	\$2,730,093	\$7,524,406	\$4,489,949	\$1,868,593	\$2,118,119	\$15,057,665	\$9,336,326	\$24,393,991

<sup>a</sup>Does not include the 8th Infantry Division because data was not available.

<sup>b</sup>Does not include the US Army Aviation Systems Support Center.

<sup>c</sup>Based on a 40-hour week, 52 weeks a year.

<sup>d</sup>\$2.88 an hour was the average hourly rate for grades E-1 through E-4, effective July 1, 1973.

APPENDIX II



DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY  
WASHINGTON, D.C. 20310

16 DEC 1974

Mr. Fred J. Shafer  
Director, Logistics and Communications  
Division  
General Accounting Office  
Washington, D. C. 20548

Dear Mr. Shafer:

On behalf of the Secretary of Defense, I am responding to your letter of 2 October requesting comments on Draft GAO Report 947088 dated March 4, 1974, concerning Army's maintenance activities in Europe.

The inclosed statement provides the Department of the Army position, reflects agreement with the audit findings and recommendations and furnishes appropriate discussion in each area cited for improvement.

Sincerely,

A handwritten signature in black ink, appearing to read "Edwin Greiner".

Edwin Greiner

Deputy Assistant Secretary of the Army  
(Installations and Logistics)

Incl  
a/s



Response: The geographic location of USAREUR maintenance support units has contributed to the performing of maintenance work at other than designated levels. It is anticipated that the reorganization of the maintenance support structure will solve a larger part of the problem and will provide direct support maintenance units with the necessary capability to provide support on an area basis. Once this direct support capability is established, there should be no requirement to evacuate materiel to general support unless that level maintenance work is actually required.

Recommendation: Insuring timely supply of repair parts to mechanics by improving stock management at **all** levels in Europe.

Response: Major efforts are being expanded to improve and upgrade automatic data processing systems in both divisional and nondivisional units. As part of the USAREUR maintenance support structure reorganization, a revised procedure for obtaining repair parts will be tested by a nondivisional maintenance company. This procedure will allow for issues to be made over the counter with the stock record transactions handled on a post-post basis. It is envisioned that the system will provide more timely customer support, improved asset visibility and be less complicated **for** supply personnel.

Recommendation: Improving information available to maintenance managers at **all** levels, to enable effective workload planning and performance evaluations.

Response: Concur. The Standard Army Maintenance Management System (SAMS), currently under development, is being designed to provide automated records keeping and to provide the maintenance manager with tailored information commensurate with his management level. SAMS is being designed to replace those maintenance management systems now in use and to interface with other logistics systems that are either now in existence or are being developed as adjuncts of the materiel maintenance and supply portion of the Army logistic system.

APPENDIX II

DEPARTMENT OF THE ARMY  
RESPONSE TO GAO RECOMMENDATIONS

"Better Management Could Improve Maintenance Operations in Europe"  
(GSD Case # 3917)

The GAO recommends that the Secretary of Defense encourage the Army to improve maintenance management in Europe by:

Recommendation: Determining and using existing military capability before assigning maintenance programs to contractor-operated depot level facilities.

Response: Concur. The nondivisional maintenance support structure within USAREUR is currently undergoing a major reorganization which should result in better utilization of the military maintenance capability. This reorganization is the result of the Department of the Army Depot Maintenance Study and the USAREUR support maintenance study. It is anticipated that the reorganized maintenance structure will result in a reduction of one thousand support spaces and by use of Modified Tables of Organization and Equipment authorization documents, maintenance units will be organized to provide support on an area basis. An integral part of the maintenance support reorganization is the development of a general support classification, reclamation and direct exchange company. This company will operate a large scale Direct Exchange (DX) facility and have the capability of repairing unserviceable components for return to general support (GS) stocks. It is expected that as a result of the USAREUR maintenance support reorganization only those items actually requiring depot level repair or those items excess to the command will be evacuated to depots. Headquarters, Department of the Army will monitor the USAREUR maintenance support reorganization. Only those items actually requiring depot level repair or those items excess to the command will be evacuated to depots.

Recommendation: Doing maintenance work at the lowest authorized level unless the work is justifiably beyond that level's capability.

PRINCIPAL OFFICIALS OF  
THE DEPARTMENTS OF DEFENSE AND THE ARMY  
RESPONSIBLE FOR ADMINISTRATION OF ACTIVITIES  
DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE :		
James R. Schlesinger	Apr. 1973	Present
Elliot L. Richardson	Jan. 1973	Apr. 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
Clark M. Clifford	Mar. 1968	Jan. 1969
DEPUTY SECRETARY OF DEFENSE:		
William P. Clements	Jan. 1973	Present
<b>Kenneth</b> Rush	Feb. 1972	Jan. 1973
Vacant	Jan. 1972	<b>Feb.</b> 1972
David Packard	Jan. 1969	Dec. 1971
Paul H. Nitze	July 1967	Jan. 1969
ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS):		
Arthur I. Mendolia	Apr. 1973	Present
Hugh McCullough (acting]	Feb. 1973	Apr. 1973
<b>Barry J.</b> Shillito	Jan. 1969	Feb. 1973
Thomas D. Morris	Sept. 1967	Jan. 1969
<u>DEPARTMENT OF THE ARMY</u>		
SECRETARY OF THE ARMY:		
Howard Callaway	May 1973	Present
Robert F. Froehlke	July 1971	May 1973
Stanley R. Resor	July 1965	June 1971
UNDER SECRETARY OF THE ARMY:		
Herman R. Staudt	Oct. 1973	Present
Vacant	June 1973	Oct. 1973
Kenneth E. Belieu	Aug. 1971	June 1973
Thaddeus R. Beal	Mar. 1969	July 1971

APPENDIX III

Tenure of office  


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From To

DEPARTMENT OF THE ARMY (continued)

ASSISTANT SECRETARY OF THE ARMY  
(INSTALLATIONS AND LOGISTICS):

Harold L. Brownman	Oct. 1974	Present
Eugene E. Berg	Nov. 1973	July 1974
Vincent P. Huggard (acting)	Apr. 1973	Apr. 1974
Dudley C. Mecum	Oct. 1971	<b>Apr.</b> 1973
J. Ronald <b>Fox</b>	June 1969	Sept. 1971