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Depot Maintenance In Germany-- A Costly Operation B-163143

Department of the Army

*UNITED STATES
GENERAL ACCOUNTING OFFICE*

~~Z02125~~ [095836] JUNE 13, 1967



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS
DIVISION

B-163143

The Honorable
The Secretary of Defense 5

Dear Mr. Secretary:

This is our report on depot maintenance activities in Germany. The report identifies opportunities for potential savings through improved management of maintenance operations and resources.

We shall appreciate receiving your comments on these matters and being advised of any planned actions designed to correct similar conditions that could occur.

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

Sincerely yours,

A handwritten signature in cursive script, reading "F. J. Shafer".

Fred J. Shafer
Director

D I G E S T

WHY THE REVIEW WAS MADE

The environment in which the Army operates depot maintenance plants in Germany has changed. There is no longer an excess of laborers, and labor costs have increased. Maintenance costs have also increased because of dollar devaluation, high inflation in Germany, and reduced levels of depot maintenance operations.

GAO reviewed three depot maintenance plants in Germany--at Boeblingen, Schwaebisch Gmuend, and Mainz--to determine the effectiveness of their operations. Our review centered on maintenance of tactical and combat track vehicles.

FINDINGS AND CONCLUSIONS

The maintenance cost per direct man-hour in Germany ranged from \$5.05 to \$5.79 in fiscal year 1970. During fiscal year 1974 the same cost ranged from \$11.93 to \$19.75. Because of this increase and a lower level of activity at the plants, maintenance operations have not been economical.

Mileage criteria used to determine when combat and tactical vehicles should be overhauled are questionable, not consistent with usual Army criteria, and often are not followed. This hinders effective scheduling of vehicles in and out

of the plants. It is also costly since it results in overhauling vehicles that would not be overhauled if the usual Army criteria were applied.

The plants have done work which is not consistent with their mission of overhauling combat vehicles and components. By doing work which should be done by lower maintenance levels, the plants have not effectively used their skills or capabilities.

The U.S. Army Materiel Management Agency's frequent changes in the level of effort it requires from the plants have caused problems in contract administration and negotiations. Such changes adversely affect workload scheduling and personnel requirements.

In addition, plant contractors recorded costs inaccurately or allocated them improperly. Without accurate overhaul costs the Army cannot determine a contractor's performance or make sound decisions on future operations.

Because of rising maintenance costs in Germany, the Army decided to close the Schwaebisch Gmuend plant. Then, as a result of a recent Army study, the Army tentatively decided to close the Boeblingen plant. Closing these plants should significantly improve maintenance operations in Germany.

RECOMMENDATIONS

GAO recommends that the Secretary of Defense direct the Secretary of the Army to:

- Reevaluate the mileage criteria on overhauls with a view toward establishing the same criteria for Europe and the United States. If modified criteria are required for Europe, the Secretary of the Army should insure that the criteria are followed.
- Insure that depots do only depot level maintenance work.
- Refine requirements determinations

to allow better contract negotiations and more efficient operations.

- Exclude the cost of replacing missing components when making repair or overhaul comparisons.
- Insure that the depots follow Army regulations on allocating costs and that they charge all costs to the applicable end-item.
- Establish a program for shipping components to the United States when the repair costs in Europe exceed those in the United States.
- Close the Boeblingen plant.

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Principal officials of the Departments of Defense and the Army responsible for administration of activities discussed in this report	

ABBREVIATIONS

GAO General Accounting Office
DM deutsche mark
CEGE Combat Equipment Group, Europe

CHAPTER 1

INTRODUCTION

The Department of the Army has millions of dollars worth of equipment in the European theater. The equipment either is with active Army units or is in storage.

Repair and overhaul facilities necessary to maintain the equipment are available in the United States and in Europe. Some types of unserviceable equipment (aircraft and other selected items) are returned to the United States for repair or overhaul, but much of the equipment is repaired or overhauled in Europe. We have reviewed depot maintenance of tactical and combat track vehicles and their components in Europe.

ORGANIZATIONAL STRUCTURE OF REPAIR FUNCTIONS

Maintenance activities in Europe are categorized by type or level of work. The using units are normally responsible for minor repairs of their equipment, including crew or operator services and certain maintenance which can be done by the unit mechanics. The following backup facilities, in ascending order of skills or complexity of work, make repairs which are beyond the capabilities of using units. These activities are not normally authorized to do work of higher levels; however, all activities have the capability of doing work of lower levels, although they are discouraged from doing so.

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

DEPOT MAINTENANCE OPERATIONS

The Army has three depot maintenance plants in Germany equipped to repair or overhaul tactical and combat track vehicles (tanks, howitzers, etc.) and their major components (engines, transmissions, etc.). The Army operates one of these with local national employees and contracts for operation of the other two.

The Army-operated plant at Schwaebisch Gmuend had about 900 local national employees as of June 1973.¹ Fiscal year 1973 operating costs amounted to \$10.5 million. The contractor-operated plants at Mainz and Boeblingen had fiscal year 1973 operating costs of \$33 million and \$20.1 million, respectively. The Army has operated the plants at Boeblingen and Schwaebish Gmuend since the mid-1940s and the Mainz plant since 1951.

The U.S. Theater Army Support Command, Europe, has overall responsibility for operating the Schwaebisch Gmuend plant and for awarding and administering contracts for the other two plants. The Support Command's Materiel Management Agency develops the annual maintenance program for each plant and schedules assets--unserviceable equipment from active Army units and reserve stocks--into the plants for repair and overhaul.

ECONOMIC CHANGES IN GERMANY

According to Army personnel, tactical considerations were not major factors in establishing depot maintenance plants. When the Army established the plants, the German economy had not fully recovered from the Second World War and U.S. activities, such as the maintenance plants, were regarded as desirable to provide jobs for local citizens. Also, because labor costs in Germany were relatively low, it was more economical and quicker to repair equipment there than to return it to the United States.

The situation has changed, however. Labor is no longer plentiful, unemployment is less than 1 percent, and Germany

¹Operation of the plant was scheduled to be discontinued at the end of March 1974, and the plant was scheduled to be closed at the end of June 1974.

now imports workers from other countries. The number of guest workers in Germany totaled about 2.4 million in 1972.

United States costs have increased as a result of drastically increased wages and the devaluation of the dollar overseas.

Because of increased wages and the dollar devaluation, the continued operation of these maintenance plants in Germany was questionable and a reassessment of the need to maintain these plants was warranted. Accordingly, we studied the three plants to evaluate how the Army used them and to determine the feasibility of returning more of the equipment to the United States for repair or overhaul.

SCOPE OF REVIEW

We made our review in Germany at:

U.S. Army Materiel Management Agency, Europe	Zweibruecken
U.S. Army Procurement Agency, Europe	Frankfurt
U.S. Army Maintenance Plant	Mainz Boeblingen Schwaebisch Gmuend

We reviewed reports, programs, correspondence, and other records and discussed our findings with Army personnel.

We curtailed our review to avoid duplicating efforts of an Army group which, after the start of our review, began a study in the same area.

CHAPTER 2

RISING COSTS OF MAINTENANCE IN EUROPE

The costs of operating U.S. Army maintenance plants in Europe have risen sharply since 1969. As a result, the United States has had to spend more and more dollars to buy fewer and fewer maintenance man-hours, as shown below.

<u>Fiscal year</u>	<u>Dollars</u>	<u>Man-hours</u>	<u>Man-hour cost including labor, material, and overhead</u>
	_____ (millions) _____		
1969	\$40.6	4.0	\$10.0
1970	44.3	3.7	11.9
1971	51.9	3.6	14.4
1972	53.8	3.4	15.8
1973	59.1	3.4	17.3

From 1963 to 1972, hourly wages in Germany increased 107 percent.¹ These wages are paid in deutsche marks (DMs) which the United States must buy with dollars. Early in 1969 \$1 would buy 4 DMs; by June 1973 \$1 would buy only 2.8 DMs. A foreign national employee's salary of \$100 a week in 1969 would be about \$250 in 1974.

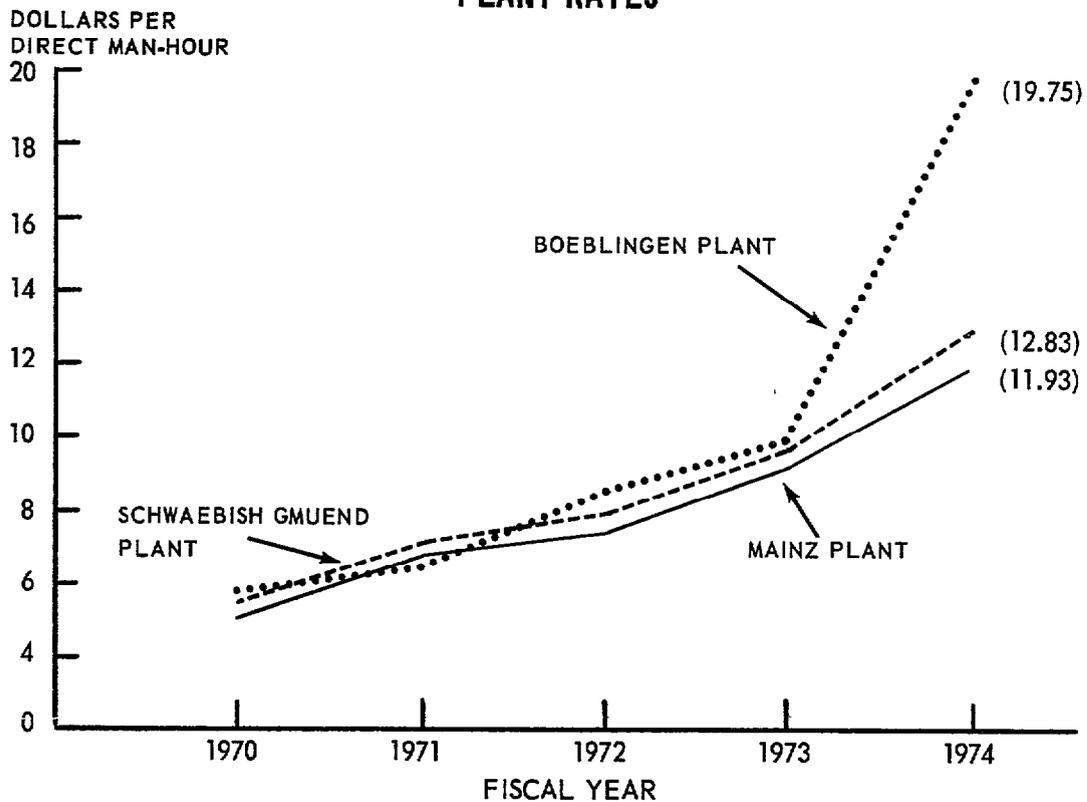
The upward trend in man-hour costs is expected to continue and recent price increases of crude oil may be a further impetus.

INCREASED PLANT RATES

The plant rate is an estimate of all dollar costs per direct man-hour except for direct material. Since 1970 the rate at each of the plants has steadily increased, as shown on the following graph.

¹Source: International Financial Statistics published by the International Monetary Fund.

PLANT RATES



INCREASED UNIT COSTS

Although the number of man-hours required to overhaul an item has not appreciably increased, unit costs have increased rapidly.

Unit costs and man-hours spent on some of the major maintenance programs in Europe are shown in the following table.

	M60/M60A1 tank	M109 howitzer	M110 howitzer	1790-2A tank engine	1790-6A tank engine
Fiscal year 1969:					
Man-hours	2,655	2,391	2,972	395	268
Unit costs	\$28,651	\$23,433	\$32,040	\$4,988	\$3,360
Fiscal year 1970:					
Man-hours	2,642	2,244	2,666	413	274
Unit costs	\$31,410	\$22,047	\$32,331	\$6,493	\$3,485
Fiscal year 1971:					
Man-hours	2,903	2,109	2,389	394	277
Unit costs	\$34,845	\$25,116	\$33,741	\$6,784	\$4,399
Fiscal year 1972:					
Man-hours	2,712	2,217	2,457	414	290
Unit costs	\$40,553	\$28,792	\$38,938	\$7,767	\$5,413
Fiscal year 1973:					
Man-hours	2,596	2,253	2,283	400	282
Unit costs	\$41,686	\$34,857	\$43,367	\$8,327	\$5,870

Overhaul costs have increased and in some cases have almost doubled. Since most of these costs are paid in DMs, they have a detrimental effect on the U.S. balance-of-payments position.

ARMY MAINTENANCE STUDY

Rising maintenance costs in Germany and reduced program funds have led both the Army and us to believe that a major change in the maintenance operation is needed.

During our fieldwork the Army announced the closing of the Schaebisch Gmuend plant, effective March 31, 1974. Despite this action the Mainz and Boeblingen plants would remain in operation at well below their economic capacities. On the basis of funding guidance for fiscal years 1975 and 1976, Army personnel estimated that they could contract for only 1.5 million maintenance man-hours. They planned to allocate the work between the plants as follows.

<u>Plant</u>	<u>Economic workload level (man-hours)</u>	<u>Planned man-hours</u>
Boeblingen	1,000,000	600,000
Mainz	<u>1,800,000</u>	<u>925,000</u>
Total	<u>2,800,000</u>	<u>1,525,000</u>

As the table shows, neither plant would have enough work to operate economically.

Shortly after we began our review, the Army began a study which was entitled "Feasibility of Eliminating Depot Maintenance in USAREUR [U.S. Army, Europe]." The study recognized the increasing costs to operate in Europe and noted that:

"* * * savings that once occurred in USAREUR in terms of labor rates may no longer exist. Depot facilities outside CONUS [continental United States] should be allowed to continue only if they are cost effective when compared with CONUS facilities."

The Army study concluded that some of the equipment should be returned to the United States for repair. It identified items requiring 377,589 man-hours of work at

Mainz and 859,197 man-hours at Boeblingen that could be repaired more economically in the United States. The study stated that some of the repair work being done at depots in Europe was the type that should be done below the depot level. We agree with the study's conclusions, and in November 1973 we informally proposed to the Army maintenance staff that Boeblingen and Mainz be consolidated. The staff said it would consider our proposal.

The Department of the Army has tentatively decided to adopt the Army study's proposals. Since the study would return to the United States more work than Boeblingen had planned to do, the Army has also tentatively decided to close the Boeblingen plant. These actions, should improve depot maintenance operations in Germany, since Mainz has the capacity, equipment, and skills necessary for the entire fiscal year 1975 program. However, the precise economic mix of items to be returned to the United States for repair and those to be repaired at Mainz should be determined.

CHAPTER 3

USE OF MAINTENANCE RESOURCES IN EUROPE

Although the Army has adequate resources in Europe to perform its maintenance mission, these resources have not always been used effectively. The Army uses special restrictive overhaul criteria in determining requirements for Europe because, according to officials of the Army Materiel Management Agency, Europe, there are peculiar tactical requirements in Europe. However, these special restrictive criteria often are not followed.

Moreover, depots frequently repair components that should be repaired at lower levels. These actions not only contribute to inefficient plant operations but also tend to inflate their work loads and to improperly justify the need for continuing maintenance activities which otherwise could be consolidated or eliminated.

DETERMINING REQUIREMENTS

The Materiel Management Agency holds a conference twice a year to schedule the overhaul of unserviceable combat and tactical vehicles. Vehicles are scheduled on the basis of mileage rather than condition.

The basic mileage criterion applied by the Army in Europe is that combat vehicles be driven 5,000 miles before overhaul. The criterion for combat vehicles in the United States is 6,000 miles, except the M114A1 (carrier, command and reconnaissance, armored vehicle) for which the criterion is 7,500 miles.

The difference between the European and U.S. mileage criteria was initially attributed to the more rigid readiness requirements for units in Europe. There is no empirical data available to show that vehicles operated under the 6,000-mile criterion would not provide an adequate readiness posture. In fact between October 1972 and May 1973, officials in Europe extended the criteria for the M114 series vehicles from 5,000 to 6,000 miles and the M60A1 tank to 5,500 miles.

On the basis of fiscal year 1974 man-hour figures, the Army in Europe could have saved approximately 183,860 man-hours costing approximately \$2.1 million if it had applied the 6,000-mile criterion.

An unserviceable vehicle not meeting the mileage criterion can also be scheduled into depot maintenance plants

--if it has been driven more than 3,000 miles, or if 7 years have passed since its last overhaul, or

--if its repair cost estimate exceeds 50 percent of its overhaul costs.

A number of vehicles overhauled have been driven less than 5,000 miles. During fiscal year 1972 the Mainz plant overhauled 177 M60/60A1 tanks, of which only 51 had been driven 5,000 or more miles and 40 had been driven less than 3,000 miles. Some had been driven less than 500 miles.

The age criterion appears to be peculiar only to vehicles in Europe. In a message dated March 21, 1973, the Department of the Army noted that there was no age criterion for overhauling vehicles.

Our analysis of Vehicle Classification Inspection Reports, which the plants use to indicate the degree of repair or overhaul required, showed that, of the four overhauled M577A1s, three had generator assemblies missing and one (12EM72) had an auxiliary generator support missing. Missing components can cause the estimated repair cost to exceed 50 percent of the overhaul cost. The following table illustrates what happens when the generator costs are subtracted from the estimated repair costs.

<u>Vehicle serial number</u>	<u>Estimated repair cost</u>	<u>Standard overhaul cost</u>	<u>Estimated repair cost without generator</u>
12EM72	\$4,851 (52.4%)	\$9,256	\$2,213 (23.9%)
12E167	5,252 (56.7%)	9,256	2,714 (29.3%)
12EV45	5,443 (58.8%)	9,256	2,905 (31.4%)
12EL02	7,651 (82.6%)	9,256	5,113 (55.2%)

The repair cost, not including the cost of missing components, of only one of the four vehicles exceeded 50 percent of the overhaul cost. We believe that units should be held accountable for replacing missing components or should explain why they are missing. Further, when a plant decides whether a vehicle is to be repaired or overhauled, missing components should not be the dominant factor.

SCHEDULING WORKLOADS

The Materiel Management Agency determines the total maintenance requirements and presents them semiannually at the Army Worldwide Depot Maintenance Conference. The Agency tries to notify the maintenance plants a year in advance of scheduled programs so that plant personnel have sufficient time to requisition repair parts and to prepare themselves. In addition, representatives from the Agency and the plants meet each quarter to formulate a firm 6-month program.

The purpose of the 6-month program is to reduce difficulties at the maintenance plants caused by program variations and to optimize the use of the plants' resources. However, the resources have not been used effectively, since the depots have done lower level work which does not contribute to their missions.

Lower level work done at depot maintenance level

Maintenance work at lower levels is done, for the most part, by military personnel at fixed costs; that is, the military personnel are available in relatively fixed numbers. If a lower level does not do this work, the depot level receives it and contracts for it at a variable cost that can be decreased if the workload decreases. Therefore, it is costly for depot maintenance plants to do engine and component overhaul and repair work which the direct and general support units have the skills and resources to do.

An example of this is the equipment prepositioned in Europe and maintained by the Combat Equipment Group, Europe (CEGE). Because CEGE has not completely maintained the equipment, much of it has been sent to contractor-operated depot maintenance plants. During fiscal years 1972 and 1973,

the contractor at Mainz repaired 164 tanks for CEGE out of a total repair-overhaul program of 410 M60/M60A1 tanks. Thus, 40 percent of Mainz's workload in both years should have been done by CEGE.

Contractor personnel also carried out modification work orders for the V Corps, the VII Corps, and CEGE that should have been carried out at lower levels. During fiscal year 1973 personnel at the Mainz plant carried out an average 4.96 modification work orders for each vehicle overhauled.

Unmodified vehicles received at plants for overhaul obviously should have the modification kits applied during overhaul, but vehicles should not be scheduled for depot level maintenance primarily to install minor modifications.

Inspections of unserviceable vehicles and components varied among the plants. Plant records did not show the number of items repaired or overhauled that should have been handled at a lower level. Personnel at the Boeblingen plant, however, had accumulated some data on this. From January to June 1973, 10 percent of all engines received were randomly selected and inspected. Of those inspected, 16 percent needed only minor repairs which should have been done at a lower level.

As previously mentioned 71 percent of the 177 M60/60A1 tanks overhauled at Mainz in fiscal year 1972 had been driven less than the required 5,000 miles. Mainz personnel automatically overhaul engines received that have been driven over 1,500 miles without testing them. Undoubtedly, many of these need only minor repairs which should be done at a lower level. This problem is not limited to the maintenance plants. We visited one general support unit within the Theater Army Support Command to determine the kind of work the unit did. Maintenance officials estimated that about 80 percent of this unit's work should be done by direct support units. The officials stated that the unit did not do general support type work, simply because most of it was directed to the maintenance plants. Moreover, general support personnel noted in a January 1973 memo that:

"* * * the engine repair workload in the battalion has been adversely affected by directed actions from higher headquarters. The object of these

actions has been to keep MATCOM [Army Materiel Command] plants gainfully occupied and to prevent breaks in programmed production runs. Frequently, theater-wide command emphasis is placed on getting unserviceable assets into the MATCOM maintenance facilities. Approximately a year ago, the 1-1/4-ton engine repair program at the 8901st [general support unit, German labor service] was reduced to minor repairs and the 8901st was directed to evacuate all engines needing internal repairs to Schwaebisch-Gmeund."

The general support unit we visited had test equipment to do general support work but did not use it. Equipment valued at over \$150,000 had been on hand at least 3 years and had not been installed and some of it was still crated.

Other uses of maintenance resources

Two of the plants have done major maintenance work for other countries. This work was done on a reimbursable basis under foreign military sales agreements, as shown in the following table.

<u>Fiscal year</u>	<u>Direct maintenance man-hours (note a)</u>		
	<u>Mainz</u>	<u>Boeblingen</u>	<u>Total</u>
1972	106,544	85,462	192,006
1973	76,155	52,672	128,827
1974 (note b)	52,521	62,630	115,151

^aIncludes some work under the Military Assistance Program.

^bEstimated.

Plant personnel are also used for other tasks which detract from the plant's overhaul mission. A summary of these tasks for fiscal year 1974 follows.

<u>Description</u>	<u>Mainz</u>	<u>Boeblingen</u>	<u>Total</u>
Maintenance support for firing practices	4,355	-	4,355
Maintenance support for field training	7,300	2,593	9,893
Field inspection and repair	1,460	1,591	3,051
Training U.S. Army and Military Assistance Program personnel	1,200	4,278	5,478

Using depot maintenance personnel to support field exercises and training is costly. The direct and general support units should do these tasks.

CHAPTER 4

ADMINISTRATION OF CONTRACTS

The U.S. Army Procurement Agency, Europe, is responsible for negotiating labor man-hours and overhead rates for depot maintenance contracts. The commanding officers of the maintenance plants are designated as administrative contracting officers. They monitor contractor operations to insure that the terms of the contracts are met and that the contractors operate in the best interests of the U.S. Government.

CHANGES IN REQUIREMENTS

Contractors use the Army-estimated requirements as a basis for their bids on annual maintenance contracts. One of the problems in negotiating and administering contracts is the Army's frequent changes in requirements.

For example, the Materiel Management Agency's initial procurement request for Boeblingen's fiscal year 1974 contract called for 1 million direct production man-hours. The contractor's proposal was received on March 19, 1973. In April the Agency decreased the requirement from 1 million man-hours to 600,000, and on April 26 it requested the contractor to submit another proposal based on the revised requirement.

The contractor revised its proposal and the contract was negotiated--but not without difficulty, as indicated by the contracting officer in a June 11, 1973, memorandum.

"Due to the large reduction in the maintenance effort projected for FY 74, negotiations were extremely difficult. The reduction from 1 million manhours to 600,000 will cause a reduction in the contractors work force at this plant from 1,379 men to 1,069."

The contractor proposed a minimum work force of 1,114 for the fiscal year 1974 workload. The technical evaluation made by the contracting officer's staff indicated that, with a realignment of work, the job could be done by 1,030 men, or a reduction of 84. The contractor strongly opposed this reduction, stating that it would destroy the performance and management of an operation that took years to build. After

lengthy negotiations on this point, the contractor and the contracting officer compromised with a 45-man reduction starting in the first quarter of the fiscal year.

The Army's changing of requirements occurs not only during negotiations but throughout the contract period. For example, one of the first indications of Boeblingen's workload was presented on April 25, 1973. The workload was to include 42 line items which would require an estimated 424,000 direct man-hours. Following is a recap of the major changes to that planned workload.

<u>Date</u>		<u>Workdays</u>	<u>Man-hours change</u>		<u>Man-hours increase or decrease (-)</u>
<u>From</u>	<u>To</u>		<u>From</u>	<u>To</u>	
4-25-73	5-17-73	16	424,000	520,000	96,000
5-17-73	7-10-73	38	520,000	568,746	48,746
7-10-73	8- 6-73	18	568,746	670,903	102,157
8- 6-73	8-10-73	4	670,903	578,563	-92,340
8-10-73	8-13-73	1	578,563	573,563	-5,000

Effective planning at the plants depends on firm maintenance programs. Fluctuations directly affect inventory and personnel requirements. The personnel requirements are especially significant in view of the tight labor market in Germany and German labor laws. The laws require that, depending on the types of workers and their tenure with the company, the workers be given release notices of as long as 7-1/2 months or the equivalent severance pay.

Materiel Management Agency officials attributed most of the program changes to vehicle demand patterns. Other reasons cited were changes in theater asset positions due to authorization changes and modernization or replacement programs.

PROBLEMS IN MONITORING CONTRACTOR ACTIVITIES

To evaluate contractors' performances and to make sound decisions on future operations, the costs recorded by the contractors must be accurate. We found that the contractors' costs were not always accurate because they were not properly allocated.

For example, in analyzing unit overhaul costs, we tested 10 M577A1 vehicles and found costs not charged that would have increased the average overhaul cost of each vehicle by at least \$1,689. This resulted chiefly from failure to charge for parts used.

No value assigned to excess repair parts

Army regulations provide that excess material, supplies, and repair parts be turned in to the maintenance inventory when the last item on a job or service order is completed. Excess materials are not to be charged to job orders under any circumstances because these charges would overstate job order costs.

The contractor at Boeblingen, however, charged excess materials to job orders. If all the parts and materials were not used for a production run, the parts were carried on the contractor's internal inventory records at no cost; when they were used on a later production run, they were not charged to the end-item. As a result some production runs were overstated and others were understated.

No value given to repair parts cannibalized from vehicles

According to Army regulations, when materials and parts are removed or cannibalized from one end-item to overhaul or repair another end-item, the cost of labor, materials, and overhead to remove and/or repair the materials or parts should be shown as a funded cost. The difference between this funded cost and the standard catalog price for the cannibalized item is to be shown on the job order as the unfunded cost.

The contractor at Boeblingen did not assign any funded or unfunded costs for cannibalized parts. We could not assign any value to such parts because records did not show the specific parts taken from vehicles or the vehicles on which they were installed. We were told, however, that about 17,000 man-hours were used during fiscal year 1973 to cannibalize parts.

Overhaul and repair costs combined

During fiscal year 1972 the contractor at Mainz reported that it had overhauled 210 M60/M60A1 tanks at a unit cost of \$40,553. Actually only 177 tanks were overhauled and the remaining 33 were repaired at a unit cost of \$22,964. By lumping repaired and overhauled tanks into the same category, the contractor gave a distorted view of the true unit overhaul cost, which was actually \$43,832.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The environment in which the Army operated when the maintenance plants were established no longer exists, and maintenance costs have risen drastically over the past few years. Reductions in funds available for maintenance have further reduced the Army's maintenance programs.

A recent Army study found that it would be more economical to return many items from Europe to the United States for repair and that some additional repairs should be done at levels below depot maintenance. The Army has tentatively decided to adopt these proposals and to close the Boeblingen plant. Closing both Schwaebish Gmuend and Boeblingen should improve maintenance operations in Germany. However, use of maintenance resources and administration of maintenance contracts also need to be improved.

Some of the problems in these areas are:

- The Army's frequent changes in the level of effort it requires from the plants have caused problems with contract administration and negotiations. Such changes also adversely affect workload scheduling and personnel requirements and thus impact on efficiency of plant operation.
- Mileage criteria used in Europe in determining requirements differ from those used in the United States and result in increased workload and overhaul costs.
- By doing work other than overhauling combat vehicles and components, the maintenance plants are not making maximum use of their skills, resources, and capabilities.
- Maintenance plants are including the costs of missing components in the repair costs, which frequently inflates the cost and sometimes causes engines to be needlessly overhauled.

- Depot maintenance personnel have been used for field exercises and other lesser duties which should be done by direct and general support units.
- Unit overhaul costs reported by the contractors have not always been accurate.

RECOMMENDATIONS

We recommend that the Secretary of Defense direct the Secretary of the Army to:

- Reevaluate the mileage criteria on overhauls with a view toward establishing the same criteria for Europe and the United States. If modified criteria are required for Europe, the Secretary of the Army should insure that the criteria are followed.
- Insure that depots do only depot level maintenance work.
- Refine requirements determinations to allow better contract negotiations and more efficient operations.
- Exclude the cost of replacing missing components when making repair or overhaul comparisons.
- Insure that the depots follow Army regulations on allocating costs and that they charge all costs to the applicable end-item.
- Establish a program for shipping items to the United States when the depot repair costs in Europe exceed those in the United States.
- Close the Boeblingen plant.

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. 1969	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
Kenneth Rush	Feb. 1972	Jan. 1973
Vacant	Jan. 1972	Feb. 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
Barry J. Shillito	Jan. 1969	Feb. 1973
Thomas D. Morris	Sept. 1967	Jan. 1969
<u>DEPARTMENT OF THE ARMY</u>		
SECRETARY OF THE ARMY:		
Howard Calloway	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 I

<u>Tenure of office</u>	
<u>From</u>	<u>To</u>

DEPARTMENT OF THE ARMY (continued)

ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS AND LOGISTICS):

Vincent P. Huggard (acting)	Apr. 1973	Present
Dudley C. Mecum	Oct. 1971	Apr. 1973
J. Ronald Fox	June 1969	Sept. 1971

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