Ways Of Increasing Productivity In The Maintenance Of Commercial-Type Vehicles

Department Of Defense
General Services Administration
United States Postal Service

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Administrator of General Services
Postmaster General
Secretary of Defense

This report points out ways of increasing productivity in the maintenance of commercial-type vehicles.

We are sending copies of this report to the Director, Office of Management and Budget; the Secretaries of the Army, Navy, and Air Force; and the Chairmen and ranking minority members of the House and Senate Committees on Appropriations, Government Operations, Armed Services, and Postal Service and Civil Service.

Director

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ABBREVIATIONS

DOD	Department of Defense
GAO	General Accounting Office
GSA	General Services Administration
USPS	United States Postal Service
VMF	vehicle maintenance facility

GENERAL ACCOUNTING OFFICE REPORT

WAYS OF INCREASING PRODUCTIVITY IN THE MAINTENANCE OF COMMERCIAL-TYPE VEHICLES

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D I G E S T

FINDINGS AND CONCLUSIONS

Federal agencies have extensive programs to maintain more than 420,000 commercial-type vehicles. The total cost of operating and maintaining these vehicles exceeded $475 million in fiscal year 1973.

The Postal Service, the General Services Administration (GSA), and the military services own over half of the Government's vehicles. Their maintenance practices can be improved.

Flat-rate standards not properly used

Flat-rate standards, which set the average time to complete a task, can be effective management tools for judging maintenance efficiency. Many maintenance facilities, however, did not use standards. Those military facilities that did use them apparently did so primarily to comply with agency directives rather than to improve employee or shop productivity.

Most actual repair times at facilities visited exceeded the standards, sometimes by as much as 100 percent. But because the standards were not used, management thought shop efficiency was good. (See pp. 5 and 13.)

Preventive maintenance done too frequently

Most Postal Service, GSA, and military maintenance facilities did preventive maintenance more frequently than recommended by manufacturers. This is a costly practice.

Some reasons installation officials gave for the frequent servicing were dusty conditions, old vehicles, and frequent stop-and-go driving. Although these

conditions may warrant more frequent servicing of vehicles, not all vehicles operate under such conditions. Consistent early servicing does not appear reasonable in view of the low vehicle mileages and the high cost involved. (See pp. 7 and 15.)

During GAO's review the Postal Service extended its preventive maintenance intervals to more closely conform to manufacturers' recommendations. (See p. 9.)

Overstaffing of maintenance facilities

Ratios of vehicles to maintenance personnel varied among the facilities reviewed, and many facilities were apparently overstaffed. GAO believes much of the variance is caused by the agencies' lack of effective methods for determining staffing levels.

The primary control over staffing at GSA facilities was funding limitations. Postal Service staffing was limited primarily by the total staffing authorized to the district level. Although the military services made internal reviews of staffing levels, those reviews were not made often enough or in sufficient depth to insure proper staffing levels. (See pp. 9 and 26.)

Improvements needed in other maintenance practices

Agency procedures provide that vehicle maintenance history records be checked during unscheduled maintenance to determine if vehicles are due for preventive maintenance. Because this was not always done, vehicles were returned to the shop for preventive maintenance shortly after unscheduled repairs. (See pp. 10 and 19.)

Unnecessary costs were also incurred because vehicles had similar or identical repairs done within short periods. (See pp. 10 and 19.)

Many vehicles had excessive downtime while in maintenance shops. Obtaining command approval to exceed the repair cost limit and obtaining parts accounted for much of this time. (See p. 20.)

Improved management information needed

Data generated by most agencies' maintenance management systems was not adequate for pinpointing and correcting problem areas. Because costs for personnel and supplies needed to do the work were usually merged with other maintenance costs, these costs could not be related to specific maintenance tasks. (See p. 32.)

Reported costs per mile varied greatly among agencies, primarily because of incomplete, and sometimes inaccurate, reporting. Both vehicles and personnel were sometimes excluded from cost reporting. (See p. 32.)

The Air Force's information system provides data on maintenance productivity to base-level management officials. If conscientiously applied, this system could provide a basis for identifying and correcting many problem areas. (See p. 34.)

Alternatives for improving maintenance management

Managers should look to alternative means of improving productivity and reducing costs. Some of these alternatives are:

--Having preventive maintenance done commercially with in-house staff concentrating on unscheduled maintenance. (See p. 39.)

--Consolidating vehicle maintenance facilities in those areas having a concentration of Government vehicles. (See p. 40.)

--Billing manufacturers for in-house repairs of vehicles under manufacturers' warranties. (See p. 42.)

--Using oil analyses to extend preventive maintenance cycles. (See p. 43.)

RECOMMENDATIONS

GAO recommends that the Postmaster General, the Secretary of Defense, and the Administrator of General Services require motor pools to:

--Use flat-rate standards to improve productivity.

--More closely monitor operations.

--Reevaluate motor pool staffing, with a view to staffing only those personnel needed for the extended maintenance cycles and standards recommended above.

GAO also recommends that the Secretary of Defense and the Administrator of General Services require motor pools to follow manufacturer-recommended preventive maintenance intervals more closely.

GAO further recommends that:

--The Postmaster General install exception reporting at the various management levels and require these levels to take corrective actions on major deviations.

--The Secretary of Defense encourage the military services to develop management information systems similar to the Air Force system, including base-level reporting on costs and higher level reporting on exceptions.

Tear Sheet

--The Administrator of General Services require that more informative reporting be developed.

AGENCY ACTIONS AND UNRESOLVED ISSUES

Some actions which the agencies have taken or are planning to improve productivity are highlighted below. (See app. II to IV.)

--Postal Service. A new handbook which includes a section on use of flat-rate standards will soon be issued.

  Also, a new system which will provide exception reporting to the various management levels is being developed.

--Department of Defense. Maintenance management guidance is being reviewed to determine where further improvement or refinement is needed. In addition, special attention will be given to the identification and correction of deficiencies resulting from noncompliance with, or misinterpretation of, current guidance.

--GSA. Labor standards are being developed for most preventive maintenance tasks, and a new preventive maintenance program conforming very closely to manufacturers' recommended intervals is ready to be implemented. Also, an automated, more informative reporting system is being planned to insure maximum shop productivity.

Actions being taken or planned, if conscientiously carried out, should be effective means for reducing costs and improving the management of vehicle maintenance.

GAO believes the alternatives discussed in chapter 6 also warrant further management attention since they offer potential for even greater savings.

CHAPTER 1

INTRODUCTION

Federal agencies' vehicle maintenance programs are designed to maintain vehicles efficiently and economically to insure that they are safe and serviceable.

As of June 30, 1973, 36 Federal agencies operated more than 420,000 Government-owned, commercial-type vehicles, including sedans, station wagons, ambulances, buses, and trucks. The total cost to operate and maintain these vehicles exceeded $475 million in fiscal year 1973. The operations and maintenance cost per mile ranged from $0.05 to $0.25 among the Federal agencies.

The following table shows the variances in vehicle mileages and costs reported for fiscal year 1973 by the agencies discussed in this report.

	Vehicle inventory	Vehicle mileage	Operations and maintenance cost	Cost per vehicle
Air Force	[a]28,147	268,050,508	$ 29,706,158	$1,055
Army	[a]37,245	305,469,000	34,672,325	930
Navy	[a]20,210	167,497,000	20,068,264	933
General Services Administration (GSA)	62,686	718,847,927	75,800,842	1,209
U.S. Postal Service (USPS)	95,949	613,469,245	165,632,811	1,726
	244,237	2,073,333,680	$325,880,400	

[a]Average number of vehicles in the domestic fleet in operation during the year.

These agencies' reporting systems were not designed to separate vehicle maintenance costs from operations costs at the headquarters level. Identifiable maintenance costs of

GSA and USPS were $18 million and $85.7 million, or about 24 percent and 52 percent, respectively, of total vehicle costs.

Maintenance costs are affected by the types of vehicles and the way the vehicles are used. For instance, GSA has predominantly passenger-carrying vehicles, many of which are driven many miles a year. Thus much of GSA's cost--for gas, oil, tires, etc.--is operational. On the other hand, many USPS vehicles operate under continuous stop-and-go conditions and accumulate fewer miles a year. Also, USPS vehicles need some heavy-duty parts, such as brakes, clutches, and transmissions. Therefore, USPS maintenance costs are higher and operations costs are lower. USPS' higher maintenance costs are also partly due to more complete cost reporting. (See p. 32.)

All the agencies reviewed provide both scheduled (preventive) and unscheduled maintenance. Preventive maintenance includes, among other things, routine oil and filter changes and engine tuneups. Unscheduled maintenance usually involves repairing or replacing defective parts.

MILITARY SERVICES

The military services usually maintain their vehicles in-house. Commercial facilities are used only to repair and rebuild major components and to help with maintenance backlogs.

The Department of Defense (DOD) has established policies for maintenance management of commercial vehicles. DOD's policies specify

--replacement and repair guidance and life expectancies,

--maintenance staff-hour input standards, and

--a uniform reporting system.

The military services have issued joint procedures for managing commercial vehicles and have established operating procedures and reporting practices.

In the Air Force and Navy, a single shop at each installation normally maintains all noncombat vehicles and equipment, including passenger-carrying vehicles, trucks, construction equipment, and materials-handling equipment. The shops are equipped to do all types of repairs. The Navy has established public works centers which provide consolidated vehicle maintenance for nearby defense activities. As of July 1, 1974, eight centers were chartered under the Navy Industrial Fund.

Army installations usually have separate shops for maintaining tactical vehicles and commercial-design, general-purpose, passenger-carrying vehicles, trailers, and trucks. At the time of our review, Fort Ord, California, was testing the feasibility and economy of a consolidated maintenance facility.

GSA

GSA operates 100 interagency motor pools throughout the United States, which generally do only service-station-type work and minor repairs. Commercial garages and contractors usually make the major repairs.

Since many agencies use GSA vehicles and since the agencies' operations may be widely dispersed or not readily accessible to a motor pool, maintenance at the motor pool cannot be predicted with much certainty. Some vehicles are continuously assigned to agencies, while others are maintained in a dispatch pool. Each vehicle carries instructions to help the user determine when and where to obtain maintenance and repair services and obtain approval when repairs exceed prescribed cost limits.

USPS

The USPS maintenance program's primary objective is to keep vehicles available for maximum mail transportation and to do so as economically as possible. Maintenance is usually done in-house at vehicle maintenance facilities (VMFs) and sometimes at local garages and service stations. A nearby VMF or a contractor maintains vehicles assigned to offices with no maintenance personnel. Repairs are made during preventive maintenance or when drivers report deficiencies.

USPS headquarters establishes vehicle maintenance standards and procedures in methods handbooks, which provide detailed instructions to VMFs on the organization, management, staffing, equipment, supplies, and forms to be used. Also, maintenance guidelines for the various makes and models of vehicles show the estimated repair times for preventive maintenance and repairs.

The five USPS regional offices are responsible for directing and carrying out the vehicle maintenance program in the field. However, the regional offices have no direct authority over district and VMF maintenance programs, except that they control the funds made available to the districts.

CHAPTER 2

USPS VEHICLE MAINTENANCE

USPS' fiscal year 1973 costs for vehicle maintenance totaled $85.7 million, or an average of $894 for each of USPS' 95,949 vehicles.

As stated in chapter 1 (1) USPS reports costs more completely than do other agencies and (2) USPS vehicles do more stop-and-go driving than most other Government vehicles. But on the basis of our work at the Atlanta and San Francisco VMFs, we believe the USPS costs are high, and a primary reason is inadequate management control over maintenance, which has led to the following deficiencies.

--Flat-rate standards are not properly used and are often exceeded.

--Vehicles are overmaintained.

--VMFs may be overstaffed.

As shown below, the average costs, including labor, materials, contracts, overhead, etc., to maintain USPS vehicles in fiscal year 1973 varied with locations.

	Costs by vehicle size		
	1 ton or less	More than 1 ton	Average
Atlanta district	$ 917.42	$4,642.73	$1,050.38
San Francisco VMF	1,613.46	6,414.32	2,067.54
Southern region	675.55	3,243.27	735.32
Western region	650.68	3,743.40	733.87
USPS-wide	744.87	4,406.43	893.61

FLAT-RATE STANDARDS NOT USED

Flat-rate standards are one of the tools used to judge maintenance efficiency. A flat-rate standard is the average time for a mechanic with average experience to complete a task; that is, to obtain the work order, get the needed repair parts, bring the vehicle into the repair shop, make the

repair, complete the work order, and return the vehicle. Standards are shown in the USPS maintenance manual for scheduled maintenance tasks and in commercial manuals.

The Atlanta and San Francisco VMFs did not use the standards. At Atlanta, the estimated repair times--which were calculated on the basis of past experience and manufacturers' standards--were much higher than the flat-rate standards. Since repairs often took less time than the work order estimates, management thought shop efficiency was good. If flat-rate standards had been used, management would have seen that actual repair times exceeded the standards by as much as 46 percent, as shown below for scheduled maintenance on selected vehicles.

Hours			Percent	
Work order estimate	Actual	Flat-rate standard	Estimate over standard	Actual over standard
153.60	133.30	91.24	68.3	46.1

The Postal Inspection Service reported in December 1972 that the San Francisco VMF's actual repair times also exceeded the flat-rate standards. This VMF used neither estimates nor standards. According to the Inspection Service, the estimated repair times for most of the jobs tested were the same as the actual times, which indicated that the estimates were entered on work orders after the work was completed. Actual repair times exceeded standards by as much as 100 percent, as shown below.

Vehicle size	Percent actual times exceeded standards
Up to 2 tons	61
5-ton trucks	81
Tractors	100

Without flat-rate standards, or at least reasonable estimates of repair times, management is deprived of one of the basic tools for judging shop efficiency. USPS should emphasize the use of standards as a management tool for identifying and correcting problems.

OVERMAINTENANCE OF VEHICLES

Preventive maintenance of USPS vehicles was done more frequently than recommended by manufacturers, and unnecessary jobs were done during preventive maintenance. The differences between USPS and manufacturer-recommended preventive maintenance intervals for lubrications and oil and filter changes are shown below.

USPS:	Intervals
High mileage (over 2,000 miles every 4 weeks)	6 weeks
Intermediate mileage (1,000 to 2,000 miles every 4 weeks)	12 weeks
Low mileage (less than 1,000 miles every 4 weeks)	16 weeks
American Motors (¼- and ½-ton vehicles)	5 months or 5,000 miles
General Motors (up to 1-ton vehicles)	4 months or 6,000 miles
Ford Motor Company (up to 1-ton vehicles)	6 months or 6,000 miles

Selected vehicles at the Atlanta VMF were driven an average of 1,228 miles between preventive maintenance services. As shown below, some vehicles with less than 500 miles were serviced.

Miles driven	Number of services	Percent
Under 500	6	8.1
501 to 1,000	26	35.1
1,001 to 2,000	31	41.9
2,001 to 3,000	9	12.2
Over 3,000	2	2.7
	74	100.0

The Atlanta VMF routinely did other tasks during preventive maintenance, such as steam cleaning engines, servicing door locks, and cleaning battery terminals. Also, transmission bands were adjusted and strainers cleaned during each annual maintenance rather than every other annual maintenance as specified in the maintenance manual.

A 1971 GAO survey of vehicle maintenance in the San Francisco VMF and a 1972 Postal Inspection Service review also disclosed overmaintenance of vehicles. The Inspection Service reported that, although the western region had extended preventive maintenance intervals to 16 weeks for vehicles under 2 tons, services were actually being done more frequently. Also, the mileage between maintenance on selected ¼-ton vehicles ranged from 292 to 3,920 miles.

USPS officials in Atlanta and San Francisco agreed that maintenance practices need to be improved. The Atlanta VMF hired a fleet manager to coordinate vehicle operation and maintenance activities and to try to correct maintenance deficiencies. Some practices, such as routinely steam cleaning engines and changing oil filters during each preventive maintenance service, have reportedly been eliminated.

In response to the energy crisis, USPS headquarters directed a 10-percent reduction in fuel consumption in January 1974 and a 20-percent reduction in vehicles' mileage in February 1974. Other directed actions included

--extending the service intervals on vehicles regularly maintained at a VMF to a minimum of 16 weeks or, if determined feasible by local management, to 24 weeks;

--maintaining vehicles not close to a VMF in the local area; and

--insuring that vehicles are properly tuned and tires inflated 5 pounds above that previously specified.

Regional and district USPS offices took additional measures to reduce fuel consumption and maintenance. For example, the southern region stopped idling vehicles whenever drivers were away from them.

Also, during our review USPS distributed changes to its maintenance manual that extended preventive maintenance intervals to a minimum of 16 weeks or a maximum of 24 weeks for 1/4- and 1/2-ton vehicles. These extended intervals can be adjusted for local conditions on the approval of the regional director. On the basis of June 1973 inventories, over 80 percent of the USPS vehicles will be affected by this change. Thus, on a calendar basis, USPS is following manufacturer-recommended intervals. We believe these extended intervals, if followed, will reduce the cost of vehicle maintenance.

OVERSTAFFING OF MAINTENANCE SHOPS

The principal regional control over VMF staffing is the total staffing authorized to the district. Each district can staff its VMFs as it chooses within this limitation.

The schedule below compares the number of vehicles with the number of mechanics and garagemen and with the number of total VMF employees during calendar year 1973.

	Total vehicles	Mechanics	Vehicles per mechanic	Total employees	Vehicles per employee
Atlanta VMF	1,321	72	18.3	92	14.4
San Francisco VMF	421	48	8.8	64	6.6
Southern region	23,660	872	27.1	1,198	19.7
Western region	18,263	(a)	(a)	960	19.0
USPS-wide	95,949	(a)	(a)	5,739	16.7

[a]Not available.

Although the Atlanta and San Francisco facilities have some differences, the differences are not large enough to warrant the differences in the number of vehicles which each employee can maintain. By using the Atlanta VMF's ratio as an example, the San Francisco VMF would be overstaffed by 35 employees.

Overstaffing has contributed to another maintenance problem--assigning mechanics to non-mechanic-type jobs. Many mechanics, for example, shuttled vehicles to and from VMFs, cleaned vehicles, and changed oil and lubricants. Since mechanics' pay is higher than that of junior mechanics and garagemen, higher costs than necessary were incurred for routine tasks. An Atlanta VMF official said that mechanics were sent on road calls to avoid bringing vehicles to the garage for repair and that garagemen were used as much as possible to shuttle vehicles for scheduled maintenance.

After recognizing the overstaffing problem, the San Francisco VMF reduced its staff from 64 to 41 in May 1974, and additional reductions are expected. Consolidation of VMFs in the San Francisco area is being studied as a means of further reducing the number of VMF personnel. Also, some staffing reductions at the Atlanta VMF are anticipated.

IMPROVEMENTS NEEDED IN OTHER MAINTENANCE PRACTICES

USPS maintenance procedures provide that, when vehicles are in the shop for unscheduled repairs within a week before the scheduled maintenance day, the scheduled maintenance be done at the same time as the repairs. This was not always done. For example, a radiator was replaced on a light delivery vehicle and the vehicle was returned to service. The next day the vehicle was returned to the VMF for scheduled maintenance.

Also, similar or identical repairs were made within short periods. For example, in 14 months the Atlanta VMF replaced a ½-ton vehicle's front brake linings 12 times; removed, ground, and reinstalled the front brake linings 7 times; and turned the front brakedrums 7 times. The vehicle was driven only 11,808 miles during this period. Similar

problems with brakes and tire replacement were noted on other vehicles. The Atlanta VMF manager stated that driver abuse, negligence, and inexperience had contributed to such problems. He also said part of the brake problem had to do with the particular make and model of the vehicles. The manufacturer had provided two modification kits, but the problem was not corrected.

CONCLUSIONS

USPS needs to reconsider its costly maintenance policies. Since VMF officials are concerned primarily with insuring that vehicles are available, they may not be sufficiently concerned with maintaining the vehicles as economically as possible. Some indications of this are overstaffed VMFs, nonproductive use of personnel, and make-work situations. Also, management did not use flat-rate standards to judge shop efficiency.

USPS actions to extend maintenance intervals should reduce maintenance costs by curtailing overmaintenance and thereby reducing overstaffing.

RECOMMENDATIONS

We recommend that the Postmaster General require VMFs to:

--Use flat-rate standards to improve productivity.

--More closely monitor operations to insure that maintenance jobs are done only if inspections determine a need for the jobs.

--Reevaluate staffing, with a view to staffing only those personnel needed for the extended maintenance intervals and standards recommended above.

AGENCY COMMENTS AND OUR EVALUATION

In a March 12, 1975, letter (see app. II), USPS described a number of actions taken to improve productivity and main-

tenance management. Addressing each of our recommendations, USPS said:

--Flat-rate standards had been developed and were in use. A new handbook, which included a section on the use of standards, would soon be issued and VMFs would be given more definitive instructions and closer monitoring.

--The USPS regions had monitored VMFs more closely over the past year with a view to improving parts management and quality of service. USPS was developing a new reporting system which would permit even closer monitoring.

--USPS had reevaluated maintenance staffing and since 1973 had raised the ratio of vehicles to maintenance employees from 16.7 to 21.4--a 28-percent increase. USPS hoped to achieve even greater efficiencies in the future, recognizing that any actions taken must be in accordance with its labor agreements and obligations to its employees.

USPS also pointed out that, during a period of unprecedented inflation, in which the price of auto parts rose 35 to 45 percent and its employees received two cost-of-living increases, its vehicle maintenance costs rose only 1 percent. We commend USPS for keeping its costs down during such a period. However, we believe more can be done to reduce maintenance costs, even below previous years' costs. The actions which USPS has taken or planned, if conscientiously carried out, should be effective means of reducing these costs.

CHAPTER 3

VEHICLE MAINTENANCE IN OTHER AGENCIES

The maintenance management problems we found in USPS can also be found in the military services and GSA. Inefficient maintenance practices, such as those listed below, have caused unneccessary costs, excessive vehicle downtime, and unnecessary paperwork.

--Flat-rate standards were not always used or were not properly used to improve productivity.

--Preventive maintenance was done too frequently and often shortly after unscheduled repairs.

--Similar or identical repairs were sometimes made within short periods.

--Vehicle downtime was high, partly because of inadequate quality control and partly because of the long time it took to obtain command approval for certain repairs and to obtain repair parts.

USE OF FLAT-RATE STANDARDS

GSA does not require its motor pools to use flat-rate standards; DOD does. The military agencies' joint procedures for managing commercial vehicles state that:

> "To insure effective control over shop productivity, the application of flat rate repair time standards is essential. The flat rate standards for administrative use vehicles of commercial design will be made available for each vehicle type by the DOD component concerned. The standards may be developed and published based on experience factors or authorization granted to apply flat rate standards published by commercial firms in applicable flat rate manuals. Maintenance supervisors will apply flat rate standards in evaluating performance and in programing workloads."

It should be noted that the standard time is not always the most efficient time. Since each standard includes time for such tasks as bringing the vehicle into the repair shop and since several repairs, each with its own standard, may have to be done on the vehicle, the total standard time could be more than necessary. However, standards are an effective tool for judging shop efficiency.

Not all military activities were using standards. For example, at Patrick Air Force Base, Florida, maintenance control personnel estimated repair times on work orders, rather than used flat-rate standards. Reasons given were the length of time it took to find standards in the manual, insufficient work descriptions, and a shortage of manuals. Some of the estimates were lower than the standards, but the actual repair times exceeded both the estimates and the standards. Motor pool officials had not tried to determine why estimated repair times had been exceeded.

At McClellan Air Force Base, California, standards were often identical to actual repair times. A maintenance official said standards were frequently entered on work orders after the work was completed. At other times, the estimator relied on his memory and experience because of the difficulty in finding a standard time in the flat-rate manuals.

At Fort Gordon, Georgia, another activity which did not use standards, the latest flat-rate manual available was a 1967 edition. Since most Fort Gordon vehicles were later models than 1967, these standards would not have been compatible with engineering changes, such as emission control devices.

Some activities did use flat-rate standards. Repair analysts at the Jacksonville Naval Air Station, Florida, entered standards on the work orders furnished to mechanics making the repairs. The actual repair times were only 0.03 percent above the standards, which indicates that the mechanics may have been working to meet standards rather than working at their most productive level. At Fort Ord, which also uses standards, work orders' descriptions of repairs were not always sufficient to compare actual performance with standards. Several work orders, however, showed that the

actual hours exceeded standards by as much as 26 percent. Fort Ord officials said that when actual repair times exceed the standards by 10 percent, the vehicle inspector tries to determine why. However, his records were not available.

Because actual repair times at the military activities we visited often exceeded the standards, the use of the standards is not fully effective in controlling or improving maintenance productivity. The activities which use standards apparently do so primarily to comply with DOD and agency directives.

PREVENTIVE MAINTENANCE TOO FREQUENT

Many GSA and military motor pools have adopted more frequent preventive maintenance intervals than recommended by manufacturers. In addition, they actually do preventive maintenance more often than their adopted intervals require. This is a costly, inappropriate practice, especially since high-quality engine oil is used.

A schedule of the average intervals between preventive maintenance at selected activities is shown below.

	Instances of preventive maintenance	Average interval	
		Days	Miles
Fort Ord	80	90	2,127
Patrick Air Force Base	35	127	2,410
McClellan Air Force Base	129	110	2,669
Fort Gordon	31	(a)	3,125
GSA's motor pool at Kennedy Space Center	93	119	3,110
Jacksonville Naval Air Station	89	138	3,542
Alameda Naval Air Station	35	(a)	4,441

[a]Not calculated.

These intervals, as can be seen below, are much shorter than those recommended by manufacturers for 1974 vehicles.

	Service interval (note a)					
	Oil change		Oil filter change		Lubrication	
	Days	Miles	Days	Miles	Days	Miles
Chevrolet	122	6,000	365	12,000	122	6,000
Ford	182	6,000	365	12,000	182	6,000
Plymouth	91	4,000	182	8,000	1,095	36,000
American Motors	152	5,000	152	5,000	-	25,000

[a]The manufacturers' recommended intervals were in months; we converted them to days.

GSA

GSA did not provide for preventive maintenance at manufacturer-recommended intervals; instead, it provided for periodic inspections at 3,000-mile intervals. These inspections included oil and oil filter changes for Chrysler and General Motors vehicles. By applying this criterion to GSA's reported average mileage per vehicle in fiscal year 1973--which was 11,920 miles--each vehicle could have been serviced about every 3 months. This frequency is much higher than recommended by most manufacturers. Because some preventive maintenance was done late, we did not estimate the possible excess preventive maintenance done. However, GSA could obtain large savings if it followed manufacturers' recommendations.

GSA officials said they plan to revise their preventive maintenance program to correspond to manufacturers' recommendations. This program is still being developed but is expected to be implemented in fiscal year 1976.

Military services

The military services have policies which provide for preventive maintenance at manufacturer-recommended intervals. The Navy, however, is the only service which made a study to determine the best maintenance policy. This 4-year study of

the maintenance cost and availability of vehicles considered the following four alternative maintenance policies.

1. Scheduled preventive maintenance. Certain components and accessories are periodically inspected and, if necessary, repaired or serviced.

2. Limited preventive maintenance. Chassis are lubricated and oil and filters are changed at specified intervals. Mechanical inspections, repairs, and adjustments are made only when vehicles fail or malfunction.

3. Breakdown maintenance. Repairs or adjustments are made only when safe operation of the vehicle is in jeopardy.

4. Manufacturers' recommended preventive maintenance.

The Navy study showed that scheduled preventive maintenance was the most expensive policy. Although breakdown maintenance was more economical during the early life of a vehicle, later repairs became more frequent and more expensive. The report concluded that maintenance extremes--too much or none--were too expensive and that a moderate program should be followed. Limited preventive maintenance was found to be the most economical maintenance policy. However, when vehicle availability was considered, the manufacturers' recommended service was considered more economical.

Although the military services' policies provide for doing maintenance at manufacturer-recommended intervals, shorter intervals have often been used. Some examples follow.

--Fort Ord used a 3-month or 3,000-mile interval. Because the vehicles were not used often, preventive maintenance was usually done at 3-month intervals, after an average of 2,127 miles. An average of 1.44 direct labor hours were charged for each maintenance service.

--McClellan Air Force Base's established preventive maintenance interval was 4,000 miles or 122 days. But, as shown on page 15, the average interval was shorter. Engines were also tuned up more frequently than recommended by the Air Force and the manufacturers, as shown below.

	Days	Miles
McClellan's actual interval	192	4,223
Air Force's and manufacturers' recommended interval	365	12,000

--In contrast to McClellan, most military installations tuned up engines not more than once a year. At the Jacksonville Naval Air Station, some vehicles received more frequent tuneups. An additional problem at this location appeared to be repetitive repairs. (See p. 19.)

--Alameda and Jacksonville Naval Air Stations generally did preventive maintenance more frequently than recommended by manufacturers on a mileage basis but were often late on a calendar basis. Officials at both installations said they were understaffed. Alameda generally did preventive maintenance when the vehicles were brought in for unscheduled maintenance. Because the vehicles were old, they were usually brought in at least twice a year.

Installation officials gave some reasons for the frequent preventive maintenance and tuneups, including:

--High condensation which warranted frequent oil changes and lubrications.

--Command emphasis on preventing late servicing.

--Rescheduling to prevent peak workloads.

--Age of the vehicles.

--Frequent changes in drivers and frequent stop-and-go driving.

Although these factors may influence maintenance intervals, they should not dictate the maintenance policy for all vehicles.

In addition to doing preventive maintenance more often than recommended by manufacturers, most activities changed oil filters each time they changed oil. All major automobile manufacturers, except American Motors, recommend that oil filters be changed during every other oil change.

PREVENTIVE MAINTENANCE DONE SHORTLY AFTER UNSCHEDULED REPAIRS

Agency procedures provide that vehicle maintenance history records be checked during unscheduled maintenance to determine if vehicles are due for preventive maintenance. Because this has not always been done, vehicles have been returned to the shop for preventive maintenance shortly after unscheduled repairs. This causes unnecessary shuttle time, costs, and downtime.

Agency criteria vary, and in some instances are silent, about how close the due date should be for doing preventive maintenance during unscheduled shop visits. We selected 250 miles and 14 days as reasonable criteria and determined that preventive maintenance could have been done during unscheduled shop visits in the following instances.

--GSA's motor pool at Kennedy Space Center: 10 visits of 32 selected vehicles.

--Patrick Air Force Base: 8 visits of 19 selected vehicles.

--Fort Ord: 10 visits of 40 selected vehicles.

--Jacksonville Naval Air Station: 13 visits of 20 selected vehicles. (Preventive maintenance was already due at the time of 7 of these unscheduled shop visits.)

REPETITIVE REPAIRS

Unnecessary costs were also incurred because many vehicles had similar or identical repairs done within short periods. Following are examples of such repairs, none of which were due to accidental damage, fire, or theft.

1. At Fort Ord, during a 9-month period in 1973, the starter on a 1968 2-1/2-ton truck was replaced five times. On a 1969 sedan, the carburetor was either repaired or replaced three times during a 4-1/2-month period.

2. The Jacksonville Naval Air Station repaired one vehicle's brakes six times during a 13-month period when the vehicle had been driven only 6,845 miles. Also

four batteries were put on one vehicle during a 7-month period when the vehicle had been driven less than 2,000 miles. Another vehicle received six tune-ups during an 11-month period when it had been driven only 7,773 miles.

3. GSA's Chicago motor pool installed two new carburetors on a vehicle within 4,041 miles and 5 months.

Because Air Force maintenance records indicated only when systems or components were repaired but did not indicate the types of repairs, we could not determine whether Air Force installations had made repetitive repairs.

According to agency officials, factors contributing to repetitive repairs include a lack of sufficiently trained mechanics and relatively young and inexperienced drivers who sometimes abuse and neglect vehicles. We believe inadequate inspections after vehicles are repaired and low-quality parts and supplies could also have contributed to repetitive mechanical failures.

EXCESSIVE VEHICLE DOWNTIME

Some activities had excessive vehicle downtime for maintenance. Excessive downtime results in a larger investment in vehicles to maintain operations or in the inability of an activity to handle all of its functions while the vehicles are out of commission.

The percentage of downtime considered reasonable varies among agencies. The Navy specifies that downtime should not exceed 7 percent. The Air Force has not established a goal for vehicle downtime but has authorized each major command to determine its own goal. The Air Force Systems Command goal is 10 percent--8 percent for maintenance and 2 percent for obtaining parts. Likewise, the Army has not established downtime goals, but the Army Forces Command has established 7 percent as its limit on downtime. GSA has not specified downtime goals.

At selected activities, the following downtime percentages were experienced.

Patrick Air Force Base	17.9
McClellan Air Force Base	7.2
Fort Gordon	12.9
Fort Ord	[a]11.3

[a]Based on a 1-month analysis by the Army Training and Doctrine Command.

According to Patrick Air Force Base officials, the high vehicle downtime was due to

--the time required to obtain command approval for exceeding the repair cost limit,

--difficulty in obtaining parts, and

--the corrosion control problem in the area.

Most of these problems could be solved. Command approval by telephone, subject to written confirmation, could eliminate one problem. The problem with obtaining parts appears to be due to a new parts contractor and should be eliminated with experience.

We believe other maintenance deficiencies, including inadequate quality control, contribute to vehicle downtime. For example, from January through September 1973, 13.3 percent of the vehicles inspected by the quality control department were rejected. Reworking these vehicles took additional time.

Another deficiency is that some vehicles are not worked on during much of their time in the maintenance shop. For example, a sedan was in maintenance for 13 days. Although all necessary parts were available, only 4.2 direct labor hours were charged for wheel alignment, lubrication, periodic inspection, and work on the lights and only 1.5 hours were charged for other preventive maintenance.

At Fort Gordon selected vehicles were down for maintenance an average of 32.5 working days during calendar year 1973. The average downtime for preventive maintenance was 2.3 working days. Obtaining command approval for exceeding the repair cost limit and obtaining parts accounted for much of the downtime. For example, a sedan was received in the maintenance shop on October 10, 1973. Permission was not requested to exceed the repair cost limit until December 5, 1973, almost 2 months later. After permission was obtained on December 13, maintenance personnel determined that a required short block was not available on the local market and would have to be ordered. The short block had not been received as of January 22, 1974. In such instances, as soon as the problem is identified, telephone authorization, subject to written confirmation, should be obtained and action should be taken to get the necessary parts. Downtime could have been reduced by as much as 2 months for this sedan.

IMPACT OF ENERGY CRISIS

The energy crisis forced most agencies to bring their preventive maintenance programs more in line with manufacturers' recommended intervals. This should reduce maintenance costs. On January 21, 1974, GSA, as manager of Federal energy programs related to vehicles, issued Federal Management Circular 74-1 which

- --required that Government vehicles' mileage be reduced 20 percent[1] below the previous year's mileage and
- --imposed a 50-mile-per-hour speed limit on all Government vehicles.

Some agencies began their own mileage reduction programs. Also, most agencies voluntarily extended preventive maintenance intervals to reduce consumption of oil and lubricants, as follows:

- --The Air Force changed from manufacturer-recommended intervals to every 4,000 miles, but at least annually, for lubrications and oil changes. Tuneups were required every 12,000 miles or annually.

[1]Effective April 11, 1974, GSA changed the reduction to 15 percent.

--The Army doubled the intervals for changing oil (engine and gear) and coolant antifreeze, except that vehicles under warranty remained under manufacturer-recommended intervals. Intervals for changing filters (oil, fuel, etc.) were not changed.

--GSA changed maintenance intervals from 3 months or 3,000 miles to 6 months or 6,000 miles, except for vehicles under warranty, 1970 and later model Fords with 351 or larger cubic inch displacement engines, and vehicles operating under extreme conditions.

As a result of the changes in preventive maintenance intervals, some agencies are anticipating reductions in the number of maintenance personnel needed. However, no reductions have occurred, and agency officials would not estimate the anticipated reductions.

CONCLUSIONS

GSA's and the military services' costs of maintaining commercial vehicles are higher than necessary, primarily because of inefficient maintenance practices. If flat-rate standards were used properly, management could identify and correct some of these practices and could judge the overall efficiency of the workforce. The standards could be an effective tool in determining and improving shop productivity.

Although management's actions in response to the energy crisis will help to curtail overmaintenance of vehicles, more action is needed. Management should increase its monitoring of motor pools and try to correct such deficiencies as doing preventive maintenance shortly after unscheduled repairs, doing repetitive repairs, and keeping vehicles in the maintenance shops for excessive periods. Some alternatives for improving maintenance management are presented in chapter 6.

RECOMMENDATIONS

We recommend that the Administrator of General Services and the Secretary of Defense require motor pools to:

--Use flat-rate standards to improve productivity.

--Follow manufacturer-recommended preventive maintenance intervals more closely. Sufficient justifications should be required when activities do not follow these intervals.

--More closely monitor operations. Motor pool managers should (1) make sure that maintenance history records are checked during unscheduled maintenance to determine if vehicles are due for preventive maintenance and (2) notify appropriate line supervisors of any obvious misuse of equipment.

AGENCY COMMENTS AND OUR EVALUATION

In a March 24, 1975, letter (see app. III), DOD said it generally agreed with our findings and conclusions. DOD also said it believed that actions taken or underway would carry out the intent of our recommendations. As examples, DOD pointed out that (1) it was reviewing maintenance management guidance to determine where further improvement or refinement was needed and (2) it would give special management attention to identifying and correcting deficiencies which result from noncompliance with, or misinterpretation of, current guidance.

By letter dated March 26, 1975 (see app. IV), GSA said it also agreed, in general, with our recommendations. GSA stated that it was developing proper labor standards for most preventive maintenance tasks. GSA pointed out that for major repairs, which are usually done commercially, the work orders state the manufacturer's flat-rate standards for making the repairs. These standards normally were met; if they were not, the deviations in time usually were discussed between the commercial facility and the motor pool before the repairs were completed.

GSA said that, in prescribing uniform standards and staffing requirements, it should be recognized that single average standards could not properly be applied to considerably different kinds of vehicles or to similar kinds operating under different conditions. Therefore, it believed that a variety of standards would have to be developed for consideration.

Recognizing the improvements needed in the vehicle preventive maintenance program, GSA said it was ready to implement a program that would conform very closely to manufacturers'

recommended intervals. The new program is expected to allow motor pool managers to monitor operations by selecting service intervals more closely aligned to vehicle-operating conditions and should prevent overmaintenance.

We believe that, when the above actions are completed and deficiencies are corrected, DOD and GSA should be able to manage their vehicle maintenance more effectively.

CHAPTER 4

DETERMINING AND CONTROLLING STAFFING LEVELS AT GSA AND MILITARY MOTOR POOLS

Like USPS, neither the military services nor GSA has developed effective methods for determining appropriate staffing levels at vehicle maintenance activities. As a result, many activities are overstaffed, unnecessary costs are incurred, and productivity suffers. The overmaintenance, especially preventive maintenance, being done at Government motor pools has tended to justify and perpetuate this overstaffing.

Although most agencies have guidelines for determining staffing levels, the guidelines are not structured to assure headquarters that only necessary staffing exists. The primary controls over motor pool staffing are (1) funding limitations, (2) limited internal reviews, and (3) reliance on motor pool managers to keep staffing at the level necessary to insure that the vehicles are safe and serviceable.

The differences in staffing of the motor pools included in our review are shown below.

Activity	Vehicles maintained	Maintenance employees (note a)	Vehicles per employee
Fort Ord	633	19	33.3
Fort Gordon	745	25	29.8
McClellan Air Force Base	436	17	25.6
Patrick Air Force Base	445	38	11.7
Jacksonville Naval Air Station	381	20	19.1
Alameda Naval Air Station	279	6	46.5
GSA motor pool at Kennedy Space Center	1,479	38	38.9

[a]Does not include clerical or administrative personnel.

The staffing shown above for Alameda Air Station was computed on the basis of direct labor hours, which may be less than actual staffing. Staffing at the time of our review was not representative because of early retirements and a prohibition against new hiring, and information on staffing in earlier periods was not available. Also, the number of vehicles per employee at Kennedy Space Center is not as high as shown because vehicles on assignment to agencies outside the area and vehicles being held for disposal were not being maintained there.

Activities may have certain characteristics which affect the amount and type of maintenance work and therefore the size of the workforce. Some of these characteristics are:

--Average age of the vehicles, since older vehicles usually require more maintenance.

--Use of the vehicles, such as short versus long trips, high versus low mileage, and stop-and-go driving versus one-destination driving.

--Drivers of the vehicles, such as many different drivers versus only one driver who might show personal interest in the vehicle.

--Climatic conditions, such as cold versus hot and the corrosive conditions of a beach area versus the less corrosive conditions of inland areas.

--Makeup of the vehicle fleet, such as predominantly sedans and pickup trucks versus heavier vehicles.

Some of these characteristics may be responsible for the variance in the number of vehicles per employee, but this is doubtful. For example, Fort Ord, McClellan Air Force Base, and Alameda Naval Air Station range from 25.6 to 46.5 vehicles per employee. This does not appear reasonable because these activities, all in northern California, have essentially the same climatic conditions and maintain the same types of commercial vehicles. The lack of effective systems for determining and controlling staffing levels, in our opinion, is the primary reason for the differences in the number of vehicles per employee.

GSA

GSA does not have a system for determining staffing requirements at its motor pools. According to GSA headquarters officials, motor pool managers determine their staffing needs. The manager of GSA's motor pool at Kennedy Space Center stated that the staffing level had initially been based on Air Force standards but that limited funds had reduced the level from 112 to 71 since 1971. The reduction included administrative staff, dispatchers, drivers, and automotive servicemen, but no mechanics.

GSA is trying to devise a work measurement system which it believes will help in establishing and controlling staffing levels.

ARMY

The Army has a staffing guide, but the guide appears to be used primarily as a starting point. Actual staffing levels are determined on the basis of available funds and the ability of motor pool managers to convince installation officials of their requirements. For example, the system at Fort Gordon operates as described below.

1. Using the guide, transportation division officials determine a staffing level based on the number of vehicles, ages of the vehicles, and operating conditions.

2. The Army Training and Doctrine Command reviews the proposed level and establishes a recognized requirement based on all functions considered necessary to insure that the vehicles are safe and serviceable. The recognized requirement then becomes part of the activity's proposed budget.

3. Actual funding may be more or less than Fort Gordon's budget request or recognized requirement. However, the actual funding to the motor pool is an installation prerogative and may depend on the ability of motor pool management to convince installation management of staffing needs. Since the motor pool manager is responsible for vehicle operations and

maintenance, he has some opportunity for trade-offs of personnel between the operations and maintenance functions.

The Continental Army Command made the latest review of Fort Gordon's staffing in May 1972. Therefore, changes in the number of vehicles since then may not be accounted for in the authorized staffing level.

Fort Ord has consolidated maintenance in-house on a test basis and has thereby reduced the number of its personnel. From 1972 to 1974, the number of vehicles supported decreased 30 percent, from 908 to 633, and the number of shop personnel decreased 59 percent, from 49 to 20.

NAVY

The Navy maintenance manual lists maintenance staff-hour standards by vehicle class for every 1,000 miles driven. The standards are used primarily for budgeting. Staffing levels are based almost entirely on the availability of funds and the ability of motor pool managers to convince installation officials of their needs. The only other apparent controls over staffing are internal reviews by Navy area audit offices and by the Naval Facilities Engineering Command.

AIR FORCE

The Air Force determines motor pool staffing on the basis of the number of vehicle equivalents maintained. A vehicle equivalent is an arbitrarily selected number applied to a base vehicle, such as a sedan. The equivalents for other vehicles are calculated on the basis of the difficulty of maintaining each vehicle in comparison with the base vehicle. Available information did not show what maintenance functions were included in an equivalent or how the number of equivalents which one mechanic should maintain was determined.

The Air Force plans to revise its method of determining staffing by developing standards based on data in its vehicle-integrated management system. The standards are expected to be completed in fiscal year 1976.

The Air Force tries to control staffing by manpower evaluation reviews. After a review at Patrick Air Force Base,

authorized staffing was reduced from 58 to 42 mechanics and from 112 to 76 total motor pool personnel, primarily because the base no longer maintained contractor-assigned vehicles. Five additional positions were authorized because of unusual corrosive conditions. The base retained 14 maintenance personnel above those authorized because of expected rehiring of personnel in fiscal year 1975. Such retention of personnel eliminates reduction-in-force actions and subsequent rehiring.

The evaluation team did not question the inclusion of 170 GSA vehicles in the base's staffing requirements. The base was to maintain these vehicles under an interservice support agreement, but it did not. An additional eight positions should have been eliminated for these vehicles. Also, the evaluation team did not adjust the staffing level for civilian personnel. The Air Force standards contain a factor for decreasing the staffing level for civilians because they are available full time, whereas military personnel are required to perform military duties not related to vehicle maintenance. Two additional positions could be eliminated for this factor.

CONCLUSIONS

No effective systems for determining and controlling staffing levels exist. The primary control is limited funding. Although internal reviews have disclosed overstaffing, these reviews apparently are not often enough or in sufficient depth to insure that only necessary personnel are staffed.

All staffing levels, in our opinion, should be reevaluated. Flat-rate standards should be developed and used in determining the levels. Also, each activity's characteristics, such as climatic conditions, and requirements should be determined. Requirements can be determined on the basis of preventive maintenance cycles and experience with unscheduled maintenance. Thus, accurate records of past maintenance experience must be kept and must show both the frequency and the type of maintenance. Once the proper staffing level has been determined, it should be reviewed and adjusted, if necessary, to workload requirements.

A particular activity's workload requirements are not inflexible. To reduce costs and improve productivity, activities should consider having maintenance work done commercially or having another activity do the work. (See ch. 6.)

RECOMMENDATION

We recommend that the Secretary of Defense and the Administrator of General Services direct motor pool management to reevaluate staffing levels, as outlined on pages 39 to 42, with a view to staffing only those personnel necessary for the minimum workload. Additionally the overstaffing at Patrick Air Force Base should be corrected.

AGENCY COMMENTS AND OUR EVALUATION

As stated previously, DOD and GSA said they had actions underway to correct deficiencies in maintenance management. DOD did not comment in detail on actions taken to improve maintenance staffing levels but indicated that it was complying with the intent of our recommendation.

GSA said its planned reporting procedure would provide management with sufficient information to continually monitor and review staffing levels to insure the maximum use of personnel consistent with workload patterns. This new procedure is discussed further on page 38 and in appendix IV.

CHAPTER 5

MANAGEMENT INFORMATION NEEDED TO CONTROL MAINTENANCE COSTS

Federal Property Management Regulations require that all agencies report to GSA their vehicle inventories, fleet changes, vehicle acquisition costs, and data on rental vehicles. Agencies holding 2,000 or more vehicles also are to report operating data, such as mileage, and cost data. GSA consolidates this data into an annual report to help Federal agencies more efficiently operate and manage their vehicles. However, this report is not a reliable guide to the effectiveness of agency controls over operations and maintenance because agencies classify data differently and do not report all required costs.

Most agencies' maintenance management systems are designed to generate and report to top management only the type of data reported to GSA. This data, which is usually in terms of costs per mile, is not adequate to give management the necessary data for pinpointing and correcting problem areas. Although most agencies specify preventive maintenance frequencies and the tasks to be done, information on the personnel and supplies required to do the work is merged with other maintenance costs. Therefore, maintenance costs cannot be related to specific maintenance tasks.

DIFFERING AND INCOMPLETE COST DATA

Agencies' reported costs per mile to operate and maintain Government-owned vehicles vary greatly, partly because of the difference in the number of miles operated. Many USPS vehicles, for example, are low-mileage, frequent stop-and-go vehicles which receive scheduled maintenance at time intervals. Therefore, USPS' maintenance costs per mile are relatively high. On the other hand GSA has predominantly passenger vehicles which accumulate more mileage between maintenance services and thus have lower costs per mile.

The variance in reported costs per mile is also caused by incomplete, and sometimes inaccurate, reporting. For example, USPS' higher costs per mile were partly due to its more complete reporting. While most agencies report

only incidental shuttle costs, such as for mechanics' shuttles, shuttle costs accounted for over 3 percent of some VMFs' costs. Also, USPS reports costs for training and for rental and depreciation of buildings, furniture, and equipment, whereas other agencies report few such costs.

Military agencies' reported vehicle mileages and costs appear to be understated. On June 30, 1973, the Army, Navy, and Air Force reported 163,146 vehicles on hand, but they reported cost and mileage for only 110,724 vehicles, or about 68 percent of the inventory. An Army official said some activities, such as the Pentagon motor pool, the National Guard, units in Thailand, and tactical units, do not report cost and performance data. A Naval Facilities Engineering Command official stated that some of the smaller Navy units, such as recruiting offices or activities aboard ship, may not submit cost and performance reports or may not submit them in time to include in the report to GSA. This official said the Navy makes no attempt to verify that all activities have reported.

Certain personnel were excluded from cost reporting at some activities. The Air Force, for example, does not include any cost for its reports and analysis personnel, who accumulate and analyze data on vehicle maintenance and operation. Although these personnel report on many types of vehicles, a large portion of their time should be considered a cost of operation and maintenance of general-purpose, commercial-type vehicles.

There are also indications that the cost data reported is adjusted to maintain standards, as follows:

--At McClellan Air Force Base, we were told that when indirect labor hours exceeded 60 percent of direct labor hours, which is the limit specified by DOD, certain labor charges were changed from indirect to direct. This change has a double impact on the percentage of indirect to direct labor.

--Jacksonville Naval Air Station also adjusted data to reduce the indirect to direct labor ratio. The time for two tire and battery personnel was arbitrarily charged as direct labor to specific vehicles whether

they were working on the vehicles or repairing and servicing tires and batteries for stock. Other arbitrary charges to specific vehicle cost codes were low-cost parts and materials requisitioned for use on various vehicles and service charges by the parts store contractor for issues of certain parts not shown in a price list.

AIR FORCE MANAGEMENT INFORMATION SYSTEM

The Air Force's new maintenance information system, which should provide base management with a basis for identifying and correcting many problem areas, will generate data on

--direct, indirect, unproductive, and total available hours;

--maintenance personnel and their use;

--scheduled maintenance done and not done;

--vehicle downtime for maintenance, parts, etc.;

--maintenance staff-hour analyses;

--actual repair hours compared with flat-rate standards and DOD standards;

--cost-per-mile comparisons; and

--quality control inspection analyses.

The Air Force system, if conscientiously applied, could be useful in reducing vehicle maintenance costs. However, until the Air Force uses flat-rate standards and includes clerical and administrative costs as part of the vehicle maintenance costs, the real cost to own and operate vehicles cannot be determined.

OTHER MAINTENANCE INFORMATION SYSTEMS

Other agencies' maintenance information systems usually show mileage and direct and indirect labor-hours and costs and measure performance against some type of standard. The

management reports, usually in terms of costs per mile, do not show sufficient data on the number of personnel required or the costs to do the various types of maintenance services.

The Army maintenance management system keeps a record, by calendar year, of when vehicles received preventive maintenance and how much mileage they had. Copies of installation maintenance work orders which contain data on the specific work done on a vehicle, materials used, labor hours required, vehicle downtime, and similar data are usually destroyed after 90 days. Direct maintenance hours worked and the costs incurred are reported but are not related to specific maintenance tasks. The Army's system required using the Army-wide maintenance staff-hour input standards. These standards provide for a specified number of maintenance hours for each 1,000 miles of operation by vehicle type, to determine the number of mechanics required and to measure maintenance workloads and efficiency.

The Navy maintenance information system is similar to the Army's. Navy maintenance facilities retain repair orders and could calculate historical costs by vehicle and service provided. The repair orders could also be used to determine if repetitive repairs were made and to identify vehicles' maintenance problems. We did not find any evidence that this was being done.

The Navy's basic report for performance evaluation compares actual maintenance staff-hours with maintenance staff-hour input standards by type of vehicle. Navy instructions provide for adjusting the input standards for such factors as low productivity of personnel, excessive corrosion, and poor roads. These adjustments are required to be approved individually by the Naval Facilities Engineering Command. If properly developed and supported, such standards could help to determine the overall effectiveness of performance.

GSA records most of its costs for operating and maintaining vehicles in expense accounts and periodically compares them with its charges to Federal agencies for leasing vehicles, to determine profit or loss on motor pool operations. The expense accounts for direct and indirect labor, contract maintenance, parts and supplies, and vehicle depreciation are further calculated on a cost-per-mile basis. Increases in the cost per mile for a specific expense

account may require management action. However, some costs are static, regardless of miles driven. Therefore, a decrease in mileage, such as occurred during the energy crisis, could increase the cost per mile but may not require management action.

GSA's reporting system lacks management information on the productivity of its motor pools and the costs to do particular services. For example, the number of people who do routine preventive maintenance services and the number of such services done are not reported.

USPS has a detailed reporting system. One of the major reports prepared, a financial report by make and model of vehicle, shows total costs, costs per mile, costs per hour, and costs per vehicle for selected costs. Although this report tells how management has performed financially, it does little to show productivity or point out problem areas to either top management or VMF managers.

USPS headquarters officials told us they were making a vehicle accounting study to develop a new maintenance information system. The new system is expected to generate data on total vehicle costs and the costs to do various tasks, such as preventive maintenance. The data will be used primarily by VMF managers to direct their attention to problem areas and problem vehicles.

CONCLUSIONS

The vehicle maintenance information presently generated is not adequate to permit management action in the necessary areas. Although most agencies require that work orders for each vehicle show standard and actual times to do specific tasks, management does not appear to use the data to reduce maintenance costs by pinpointing problem areas in scheduled and unscheduled maintenance.

Such information as the number and cost of scheduled maintenance services, number of vehicles serviced, vehicle downtime, and personnel used could help management determine whether

--maintenance was done in accordance with specified intervals,

--the workforce was productive, and

--costs were lower or at least comparable to commercially available services.

By using such information on unscheduled maintenance, management could also determine whether

--drivers abused vehicles and a training or discipline problem existed;

--the vehicle fleet was too old and maintenance was too costly;

--repetitive repairs were made, which indicated maintenance personnel were inexperienced or were careless;

--unscheduled work in-house was too costly and should be done commercially;

--repair times were excessive compared with flat-rate standards, indicating inefficient performance and/or overstaffing; and

--scheduled maintenance cycles should be extended or shortened.

RECOMMENDATIONS

We recommend that the Secretary of Defense encourage the military services to develop management information systems similar to the Air Force system, to provide to the base level data on the costs to do various types of maintenance and the number of personnel used. Summary and exception reporting of this information should be made to higher management levels.

We also recommend that the Administrator of General Services require that more informative reporting be developed to include total vehicles available, servicing provided to assigned vehicles and dispatch vehicles, and the number of personnel providing the servicing. Since GSA generally does not do other than scheduled maintenance, its management system would not have to provide such detailed information as the military services' systems.

We further recommend that the Postmaster General, as part of the vehicle accounting system being studied, install exception reporting at the various management levels and require these levels to take corrective actions on major deviations.

AGENCY COMMENTS AND OUR EVALUATION

In commenting on our report (see app. II), USPS said it was working on a system to provide exception reporting to the various management levels and would use the system to monitor management actions more closely.

DOD said that DOD Directive 4500.36, "Management, Acquisition, and Use of Motor Vehicles," established the policy for management information systems. (See app. III.) DOD also said that this policy was consistent with our recommendation and that more detailed instructions were being prepared.

GSA stated that plans were being made for an automated, more informative reporting system for day-to-day operations. The system is expected to provide sufficient information to forecast needs; insure maximum use of personnel and equipment; and develop a program of maximum shop productivity, minimum downtime, and lowest total cost.

The actions being taken, in our opinion, should help management to effectively identify problem areas in vehicle maintenance. Once problems are identified, however, managers should be required to promptly take corrective actions.

CHAPTER 6

ALTERNATIVES FOR IMPROVING MAINTENANCE MANAGEMENT

With today's shortage of critical materials and increasing labor rates--both military and civilian--maintenance must be managed as efficiently as possible. Management should investigate better means of improving productivity and reducing costs. Controls over staffing levels are especially needed, as shown in the previous chapter. Having some maintenance work done commercially could help to reduce both staffing levels and costs. Management should also consider having in-house work done at consolidated maintenance centers serving facilities in the same areas.

Other alternatives for improving maintenance management and reducing costs are:

--Billing manufacturers for repairs done in-house on vehicles under manufacturers' warranties.

--Using oil analyses to extend preventive maintenance cycles.

COMMERCIAL MAINTENANCE SERVICES AVAILABLE

In-house maintenance has been costly, and unnecessarily large maintenance workforces have been retained. If some maintenance were done commercially, maintenance facilities could be staffed to the minimum necessary for unscheduled repairs, and they could do preventive maintenance when their workloads were low.

Government agencies' major arguments against having vehicle maintenance done commercially are

--commercial garages have shown only limited interest in bidding on Government contracts,

--commercial work is too expensive, and

--vehicle downtime is too long.

These arguments, in our opinion, might not be valid if staffing were predicated on doing unscheduled maintenance in-house, with a large part of the preventive maintenance done by commercial service stations. Government mechanics, who are trained for making rather extensive repairs, could be more productively used if they did not have to do routine oil and filter changes and lubrications. These services are among the least expensive, as well as the easiest, services to obtain commercially. Service stations are usually readily available, either on base or nearby, and would like to have the business. Although the costs of parts and materials at service stations are high, service stations usually do not charge additionally for labor on oil and filter changes. In addition, since some drivers--such as USPS drivers--already have arrangements with service stations for parking their Government vehicles during off-duty hours, it would be very convenient to have these stations do preventive maintenance during such hours.

This alternative is worth future exploration by agencies as a possible means of reducing costs.

OPPORTUNITIES TO CONSOLIDATE MAINTENANCE

Once agencies decide which maintenance work to do in-house, they must decide where and how the work will be done. One economical way to get the work done is to consolidate vehicle maintenance facilities where more than one Government agency has motor pools.

The Navy has already tested consolidated maintenance and proved it to be practical and economical. It established public works centers which provide for consolidated maintenance, including vehicle maintenance and other support activities. Savings of over $21 million annually have been reported for the eight centers, as follows:

Personnel	$20,059,000
Transportation equipment	974,000
Shop equipment	151,000
Shop space	288,000
Total	$21,472,000

Effective July 1, 1974, the Navy established the San Francisco Public Works Center to provide transportation support, utilities, housing, engineering services, and other public works services to four Navy activities, an Army activity, and an Air Force activity in the San Francisco area. The center, established as a Navy Industrial Fund activity, will operate as a revolving fund activity. Customers will be billed periodically for services. The estimated savings from the center are $2.3 million annually, plus one-time savings of almost $2 million.

Similar savings might be realized if agencies established consolidated vehicle maintenance centers in areas with a concentration of Government vehicles.

--Fewer supervisors and clerical personnel would be needed, since there would be fewer motor pools. Also, fewer mechanics would be needed because they would specialize in particular maintenance tasks and therefore would do the tasks more efficiently. The continuous workflow should also result in more productive time by mechanics.

--Only one completely equipped garage would be required for each center.

--By having one central inventory, motor pools could reduce their inventories of vehicles which they loan to users while vehicles are being maintained.

--Each center would need one large shop, rather than many smaller shops.

But consolidated maintenance has its disadvantages. Some additional shuttle time may be required because of a centralized facility. This disadvantage could be minimized by having shuttle personnel, whenever possible, return a completed vehicle at the time one is taken to the shop. Also, some agencies believe that their maintenance would lose top priority and therefore take longer. However, considering the downtime at some activities (see p. 21), the time to maintain all vehicles may actually decrease due to

--a wider range and inventory of parts and supplies,

--the availability of more specialized mechanics, and

--larger and better equipped facilities.

GSA now has consolidated facilities for providing routine services, but GSA vehicles and services are used mostly by civil agencies. Considering the commonality of vehicles and the similarity of the maintenance done and parts used, there seems to be no reason why one facility could not service vehicles of all Government agencies, including the military services and USPS, in a particular location.

At the completion of our review, GSA was studying the feasibility of having one of its facilities provide maintenance services to nearby Patrick Air Force Base.

USE OF VEHICLE WARRANTIES

Taking advantage of vehicle warranties is another way in which agencies could reduce maintenance costs. Low-cost warranty repairs are usually done in-house because of the time and expense involved in taking vehicles to the dealers. Officials at most military installations said vehicles were taken to dealers for major repairs.

The maintenance policies of DOD and USPS provide for doing warranty work in-house and billing the manufacturers under certain circumstances. However, USPS is the only agency that routinely bills the manufacturers for such work. USPS officials estimate that $1.5 to $2 million has been recovered annually. Their projections indicate substantial reimbursements from bill-backs will continue, although perhaps not as high as in past years.

Our recent report[1] on DOD's and GSA's use of warranties on trucks concluded that the use of a bill-back procedure similar to the USPS procedure could result in large savings. The principal requirement for such a procedure is a provision in the vehicle procurement contracts for making the billings or separate agreements with manufacturers for those vehicles already procured.

Because of USPS' success with its bill-back procedure and the potential savings if other Government agencies adopted such a procedure, we believe the procedure should be used Government-wide, to the extent practicable.

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[1]"Savings Expected from Better Use of Truck Warranties by Government Agencies" (PSAD-75-64, Mar. 20, 1975).

USE OF OIL ANALYSES

Preventive maintenance intervals for vehicles were initially established on the basis of tests and analyses of those parts or materials that could fail. Since manufacturers could not know the operating conditions to which vehicles would be subjected, considerable margins between the suggested intervals and probable failure of vehicles would be expected. Oil analyses would help to more scientifically determine when preventive maintenance should be done, extend preventive maintenance intervals, and result in both dollar and energy savings.

Spectrometric oil analyses are one of several laboratory techniques which analyze the increase in metal particles suspended in engine oil to detect catastrophic engine wear. Wear problems can be identified for such parts as bearing bushings, crankshafts, rocker arms, valves or gear trains, and transmissions. Spectrometric oil analyses, which are used by the military services, are mostly used for aircraft.

Two basic types of equipment are used for these analyses.

--Atomic-absorption equipment functions by burning a sample of solvent-diluted oil into a burner and taking a separate reading of the magnitude of each metal element present. One machine can analyze over 200 samples in 8 hours.

--Direct-emission equipment burns an oil sample between 2 carbon electrodes and simultaneously reads the magnitude of all elements present--up to 20 elements. One machine can analyze about 200 samples in 8 hours.

Our recent review[1] of DOD's use of oil analyses demonstrated that the analyses offer great potential for extending the intervals between oil changes on DOD vehicles. We believe Government agencies with vehicles should take advantage of oil analyses when feasible and cost effective and especially when the needed laboratory equipment is available. In the continental United States, about 150 military laboratories already have spectrometric oil analysis equipment.

[1]Our report on this review has not yet been issued.

CONCLUSIONS

Considering today's high cost of vehicle maintenance, alternative approaches to maintenance should be explored. The new concepts and technology discussed in this chapter are not the only alternatives for improving the management of maintenance, but they show that potential exists for reducing costs. If these concepts were appropriately applied, over-maintenance could be reduced, overstaffing could be eliminated, and overall productivity could be improved.

CHAPTER 7

SCOPE OF REVIEW

Our review included USPS; GSA; and the Departments of the Army, Navy, and Air Force. At the agencies' headquarters in Washington, D.C., we discussed with maintenance management officials their policies and procedures for maintaining commercial vehicles, staffing maintenance shops, and reporting on maintenance costs.

At the following activities, we reviewed vehicle jacket files and other available records on maintenance and motor pool staffing.

Army:
- Fort Gordon, Georgia
- Fort Ord, California

Navy:
- Naval Air Station, Alameda, California
- Naval Air Station, Jacksonville, Florida

Air Force:
- McClellan Air Force Base, California
- Patrick Air Force Base, Florida

GSA:
- Cape Kennedy, Florida, Interagency Motor Pool
- Chicago, Illinois, Interagency Motor Pool

USPS:
- Atlanta, Georgia, VMF

We also followed up on the San Francisco VMF's efforts to correct deficiencies noted during prior GAO and Postal Inspection Service reviews.

SUMMARIES OF PRIOR REPORTS ON VEHICLE MAINTENANCE

PRIOR GAO REPORTS

Over the past 12 years, we have issued a number of reports on Government agencies' deficient vehicle maintenance practices. Following are summaries of some of these reports.

1. Vehicle maintenance practices of the Air Force and the Army were inefficient, compared with those of the Navy. If the Air Force and the Army conducted vehicle maintenance operations as efficiently as the Navy, the Air Force could save about $55 million a year and reduce its maintenance staff by 10,000 men and the Army could save about $11 million a year and reduce its staff by about 2,000 men. ("Examination of Costs and Manpower Involved in Maintenance of Noncombat Vehicles in the Department of Defense," B-133244, Nov. 30, 1962.)

2. Excessive vehicle maintenance costs resulted from repairing vehicles without regard to their age, condition, or imminence of removal from the fleet or to the cost of replacement vehicles. ("Deficiencies in Motor Vehicle Maintenance, Use, and Replacement Practices, Atomic Energy Commission," B-152006, July 20, 1965.)

3. Savings could be obtained by adopting specific preventive maintenance programs developed by manufacturers in place of GSA programs which generally provided for more frequent preventive maintenance. ("Opportunity for Savings by Adopting Manufacturers' Recommended Preventive Maintenance Programs for Interagency Motor Pool Vehicles, General Services Administration," B-161340, Oct. 12, 1967.)

4. Maintenance costs of the Air Force and the Army have been higher than the DOD goal, which the Navy met, primarily because they used more maintenance staff-hours. The large number of staff-hours used was attributed to using military personnel rather than civilians; doing preventive maintenance too often; making uneconomical repairs; and duplicating effort

in recordkeeping and reporting, much of which was not usable. ("Cost Reductions Obtainable by Improving the Management of Maintenance of Commercial Vehicles, Department of Defense," B-133244, Dec. 3, 1968.)

5. Replacing GSA sedans each year would save an estimated $5.1 million annually because during the first year of ownership (1) maintenance, repair, and tire costs are lowest and (2) the discount obtained by the Government when it purchases sedans substantially offsets the depreciation factor. ("Potential Savings by Replacing Government-owned Sedans Each Year, General Services Administration," B-158712, June 9, 1971.)

INTERNAL REVIEWS

Except for USPS, few internal reports on maintenance of commercial vehicles were available. Some of the more pertinent reports available are listed below.

USPS Inspection Service

1. Three audit reports found that excessive hours were routinely charged for doing scheduled maintenance. At the Louisville, Kentucky, VMF, the time actually used was 100 percent more than the standard time. Mechanics, instead of garagemen, were used to shuttle vehicles, and scheduled maintenance was done too frequently.

   In addition, the number of VMF employees had not been reduced to correspond with reductions in the number of vehicles and scheduled maintenance services. ("Operational Audit, Maintenance Management of Motor Vehicle Service, Louisville, Kentucky," Jan. 1973; "Vehicle Maintenance Costs, San Francisco District," Dec. 1972; and "Vehicle Maintenance Cost, Los Angeles District," Apr. 1973.)

2. Because of the high cost of vehicle operations and maintenance, leasing under a vehicle-hire contract was found to be cheaper. ("Review of Cost Advantages

of Postal-Owned Vehicles Versus Leased Vehicles, San Francisco District," July 1973.)

GSA

A March 1973 review of the Chicago Interagency Motor Pool by the Region V Motor Equipment Division disclosed such deficiencies as an inaccurate inventory of tires and a need for action on specific vehicles. Vehicle jacket files showed that some vehicles' inspections were overdue, repetitive repairs were made, repairs were made and paid for which should have been under warranty, and records were not kept up to date.

In October 1971, GSA's Region IV Internal Audit reported on its review of the Cape Kennedy Interagency Motor Pool. The principal findings were that (1) the tire maintenance program needed to be improved to extend tire mileage and (2) paint and repairs due to rust and corrosion were contributing substantially to maintenance costs of vehicles over 3 years old.

Military services

The operations of the Transportation Division at the Jacksonville Naval Air Station had not been evaluated by an external review team since before May 1971. The Transportation Equipment Management Center, Atlantic Division, Naval Facilities Engineering Command, began a review in May 1974.

In September 1972 the Internal Review Division at Fort Gordon reported on its review made to determine if the motor pool was repairing uneconomically repairable vehicles. The review disclosed that

--reporting on the status of dispatched vehicles and vehicles in the maintenance shop had discrepancies and

--the cost of military labor used to repair commercial vehicles was not charged against the repairs.

At Army activities, command survey teams usually make annual management surveys of the total transport function.

The Army Training and Doctrine Command surveyed activities at Fort Gordon in October 1973 and at Fort Ord in January 1974. The findings pertaining to maintenance are shown below.

Fort Gordon

1. The number of mechanics should be reduced unless the 54-percent productivity rate, which excluded sick and annual leave, increases.

2. Flat-rate staff-hour standards were not recorded on work orders for comparison with actual repair times.

3. Many vehicles were serviced on a time rather than a mileage basis, because of low usage. Therefore, some preventive maintenance services recommended by manufacturers could possibly have been eliminated.

Fort Ord

1. Preventive maintenance scheduling on a 90-day or 4,000-mile basis for all vehicles was excessive and not in accordance with manufacturers' recommendations.

2. The productivity rate of 71 percent, which did not consider holidays and leave, was considered to indicate a possible need for personnel adjustments.[1]

3. The costs of labor and parts were not shown on work orders.

[1]This rate of productivity is much higher than at Ford Gordon, after excluding annual and sick leave.

APPENDIX II

THE POSTMASTER GENERAL
Washington, DC 20260

March 12, 1975

Mr. Victor L. Lowe
Director, General Government
Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Lowe:

This letter comments on the recommendations addressed specifically to the Postal Service in your draft report to the Congress entitled "Maintenance Management of Commercial-Type Vehicles."

1. Insure That Flat Rate Standards Are Used To Improve Productivity

Flat rate standards have been developed and are in use in the Postal Service. Our Office of Fleet Management is about to issue a new handbook which includes a section governing their use. Coincident with the issuance of this handbook, we intend to intensify our efforts to improve our productivity through more definitive instructions to our maintenance facilities and closer monitoring of their performance.

2. Insure That Manufacturers' Recommended Preventive Intervals Are Followed

The report noted that preventive maintenance was scheduled more frequently than recommended by manufacturers. Our Office of Maintenance Management has developed maintenance cycles for our various classes of vehicles which now provide for longer intervals between preventive maintenance than the intervals recommended by most manufacturers.

3. Insure That VMF's Are More Closely Monitored To Insure That Maintenance Jobs Are Done Only If Inspection Of Vehicles Determines A Need For The Job

Our regions have been monitoring VMF's more closely over the past year with a view to improving parts management, improving quality

of service and reevaluating staffing, and a new reporting system which we are developing will permit even closer monitoring.

4. Insure That VMF Staffing Is Reevaluated And Adjusted To Only That Level Needed For The Extended Maintenance Intervals And Standards Recommended Above

As indicated above, we have been reevaluating our maintenance staffing in the light of our extended maintenance intervals and flat rate standards. Since 1973, we have raised the ratio of vehicles to maintenance employees from 16.7 to 21.4, which is a 28% increase.

During a period of unprecedented inflation, in which the price of auto parts rose 35-45% and our employees received two cost-of-living increases, our vehicle maintenance costs rose only 1%. Our complement of maintenance employees is down 4.7% from last year, although our fleet has grown.

Our staffing studies are continuing and we hope to achieve even greater efficiencies in the future, recognizing of course, that any actions we take to improve efficiency must be in accordance with our labor agreements and our obligations to our employees.

5. Install Exception Reporting At The Various Management Levels And Require These Levels To Take Corrective Actions On Major Deviations

We are working on a system to provide exception reporting to the various levels of management and will use it to monitor management actions more closely.

Sincerely,

Benjamin F. Bailar

APPENDIX III

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

INSTALLATIONS AND LOGISTICS

24 MAR 1975

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

Dear Mr. Shafer:

This is in response to your letter of December 24, 1974, to the Secretary of Defense forwarding your draft report to the Congress entitled "Maintenance Management of Commercial-Type Vehicles" (OSD Case #3981).

We generally agree with your findings and conclusions concerning the need for some improvement in the management of vehicle maintenance programs in the Department of Defense. The following deficiencies based on a relatively small sample were noted in your report: (1) flat-rate standards not properly used, (2) preventive maintenance done too frequently, (3) overstaffing of maintenance facilities, (4) maintenance practices need improvements, (5) management information systems need improvement, (6) maintenance alternatives need improvement.

We consider actions have been taken or are currently underway that will carry out the intent of the GAO recommendations insofar as the Department of Defense is concerned. For example, a review is being made of DoD maintenance management guidance for the purpose of determining where further improvement or refinement is needed. Also special management attention will be given to the identification and correction of deficiencies which result from non-compliance, mis-interpretation or deviation from current guidance. With respect to the recommendation on page 7 concerning management information systems, DoD Directive 4500.36, "Management, Acquisition, and Use of Motor Vehicles," establishes the DoD-wide policy. This policy is consistent with your recommendation. More detailed instructions are being readied for issuance.

On page 10 your reference to the Navy's public works center should be changed to read: "The Navy has established Public Works Centers which

provide consolidated motor vehicle maintenance for nearby Defense activities. As of July 1, 1974, there were eight such activities chartered under the Navy Industrial Fund."

Your continued interest and assistance in improving the vehicle maintenance program within the Department of Defense is appreciated.

Sincerely,

John J. Bennett
Principal Deputy Assistant Secretary of Defense
(Installations and Logistics)

GAO note: Page references in this appendix may not correspond to pages of this report.

APPENDIX IV

UNITED STATES OF AMERICA
GENERAL SERVICES ADMINISTRATION
WASHINGTON, D.C. 20405

MAR 26 1975

Honorable Elmer B. Staats
Comptroller General of the United States
General Accounting Office
Washington, D.C. 20548

Dear Mr. Staats:

Thank you for affording us an opportunity to comment on your draft report, "Maintenance Management of Commercial-Type Vehicles," a copy of which was furnished us with your letter of December 24, 1974.

We agree, in general, with the recommendations outlined in the draft.

We are in the process of developing proper labor standards for the majority of the preventive maintenance tasks performed by our maintenance force. As stated in your report, it is true that the majority of our major repairs are contracted out to commercial facilities. However, it is our policy that when these jobs are contracted out the work orders specifically state what maintenance is required and what the manufacturer's time frame is for performing these repairs. Normally, these standards are adhered to by the commercial vendors. If there is a deviation in the amount of time required to perform the specified work it is usually discussed between the commercial vendor and motor pool prior to completion. The flat rate standards specified by the manufacturers are normally met by commercial shops that are staffed and equipped to be competitive in the automotive repair market.

In prescribing uniform standards of maintenance labor-hour and manpower requirements compatible with commercial standards for motor pool personnel, it should be recognized, however, that single average standards cannot properly be applied to substantially different kinds of vehicles, nor to similar kinds when operated under substantially different conditions. Hence, it is likely that a variety of standards will have to be developed for consideration.

GSA has long recognized that there was improvement needed in the preventive maintenance program for its vehicles, and the Office of Transportation and Public Utilities, FSS, is presently ready to implement a new program that will conform very closely to manufacturers' recommended intervals. This new program will allow our motor pool managers to monitor operations through the selection of service cycles more closely aligned to vehicle operating conditions and should prevent what your report described as over maintenance of vehicles.

Plans are being made for ultimate automation to reduce the all inclusive type reporting to more informative reporting required for day-to-day operations. The new reporting procedure will provide us with sufficient information to forecast needs and insure maximum utilization of manpower and equipment. Also, the new reporting method will provide management with data for developing a program of maximum shop productivity, minimum operations downtime, and lowest total cost. It will also provide management with sufficient information to continually monitor and review staffing levels to insure the maximum utilization of manpower resources consistent with workload patterns.

I would again like to express my appreciation for the constructive points covered in your draft report. It is evident that the application of some of the suggestions included will result in significant improvement in motor vehicle management.

Sincerely,

ARTHUR F. SAMPSON
ADMINISTRATOR

APPENDIX V

PRINCIPAL OFFICIALS OF THE AGENCIES RESPONSIBLE FOR ADMINISTERING THE ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
DEPARTMENT OF DEFENSE		
SECRETARY OF DEFENSE:		
James R. Schlesinger	July 1973	Present
William P. Clements, Jr. (acting)	Apr. 1973	July 1973
Elliot L. Richardson	Jan. 1973	Apr. 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
DEPUTY SECRETARY OF DEFENSE:		
William P. Clements	Jan. 1973	Present
Kenneth Rush	Feb. 1972	Jan. 1973
Vacant	Jan. 1972	Feb. 1972
ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS):		
Arthur I. Mendolia	June 1973	Present
Hugh McCullough (acting)	Jan. 1973	June 1973
Barry J. Shillito	Jan. 1969	Jan. 1973
DEPARTMENT OF THE ARMY		
SECRETARY OF THE ARMY:		
Howard Callaway	July 1973	Present
Robert F. Froehlke	Jan. 1971	Apr. 1973
UNDER SECRETARY OF THE ARMY:		
Herman R. Staudt	Oct. 1973	Present
Vacant	June 1973	Oct. 1973
Kenneth F. Belieu	Aug. 1971	June 1973
ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS AND LOGISTICS):		
Harold L. Brownman	Oct. 1974	Present
Edwin Greiner	Aug. 1974	Oct. 1974
Edwin Greiner (acting)	May 1974	Aug. 1974
Vincent P. Huggard (acting)	Apr. 1973	May 1974
Dudley C. Mecum	Oct. 1971	Apr. 1973

DEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY:		
J. William Middendorf	June 1974	Present
J. William Middendorf (acting)	Apr. 1974	June 1974
John W. Warner (acting)	May 1972	Apr. 1974
UNDER SECRETARY OF THE NAVY:		
David S. Potter	Aug. 1974	Present
Vacant	June 1974	Aug. 1974
J. William Middendorf	June 1973	June 1974
Frank Sanders	May 1972	June 1973
COMMANDER, NAVAL FACILITIES ENGINEERING COMMAND:		
Rear Admiral A.R. Marshall	June 1973	Present
Rear Admiral Walter M. Enger	Aug. 1969	June 1973

DEPARTMENT OF THE AIR FORCE

SECRETARY OF THE AIR FORCE:		
Dr. John L. McLucas	July 1973	Present
Dr. John L. McLucas (acting)	June 1973	July 1973
Dr. Robert C. Seamans, Jr.	Jan. 1969	May 1973
ASSISTANT SECRETARY OF THE AIR FORCE (INSTALLATIONS AND LOGISTICS):		
Frank A. Shrontz	Oct. 1973	Present
Richard J. Keegan (acting)	Aug. 1973	Oct. 1973
Lewis E. Turner	Jan. 1973	Aug. 1973
Philip N. Wittaker	May 1969	Jan. 1973

GENERAL SERVICES ADMINISTRATION

ADMINISTRATOR:		
Arthur F. Sampson	June 1973	Present
Arthur F. Sampson (acting)	June 1972	June 1973
Rod Kreger (acting)	Jan. 1972	June 1972
Robert L. Kunzig	Mar. 1969	Jan. 1972
COMMISSIONER, FEDERAL SUPPLY SERVICE:		
Michael J. Timbers	June 1973	Present
Milton S. Meeker	Jan. 1972	June 1973
Lewis E. Spangler (acting)	May 1971	Jan. 1972

APPENDIX V

UNITED STATES POSTAL SERVICE

POSTMASTER GENERAL:		
Benjamin F. Bailar	Feb. 1975	Present
Elmer T. Klassen	Jan. 1972	Feb. 1975
Merrill A. Hayden (acting)	Oct. 1971	Dec. 1971
DEPUTY POSTMASTER GENERAL:		
Vacant	Feb. 1975	Present
Benjamin F. Bailar	Oct. 1974	Feb. 1975
Vacant	Oct. 1972	Oct. 1974
Merrill A. Hayden	Sept.1971	Sept.1972
Vacant	Jan. 1971	Sept.1971
ASSISTANT POSTMASTER GENERAL, BUREAU OF OPERATIONS:		
Frank J. Nunlist	Apr. 1969	June 1971
SENIOR ASSISTANT POSTMASTER GENERAL, MAIL PROCESSING:		
Harold F. Faught	Aug. 1971	Aug. 1973
SENIOR ASSISTANT POSTMASTER GENERAL FOR OPERATIONS:		
Edward V. Dorsey	June 1973	Present

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