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

LOGISTICS AND COMMUNICATIONS
DIVISION

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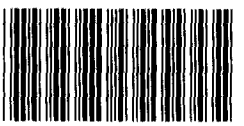

The Honorable Harold Brown
The Secretary of Defense

Dear Mr. Secretary:

Subject: Transportation Vehicles Available in Europe for Medical Evacuations (LCD-80-71)

This report summarizes the results of our review of Army and Air Force medical transportation vehicles available in Europe to meet wartime medical evacuation needs. Our review was directed primarily at evaluating the physical condition of those air and ground vehicles with a dedicated wartime mission of evacuating casualties from the battle area to and among treatment locations intheater.

We also included in our review selected activities in the continental United States (CONUS) with medical transportation vehicles that may be used to augment intheater vehicles during contingencies.

Although the Army and Air Force have numerous other air and ground vehicles which could be used for medical evacuation purposes, most of these vehicles have other primary wartime missions; thus, they may not be available for casualty evacuation when needed. Therefore, it is essential that vehicles with a dedicated evacuation mission be maintained at a high state of readiness.

Although Army and Air Force units are able to perform their peacetime missions, we found that:

--Many of the medical units were experiencing difficulty in maintaining the onhand vehicles. This problem is attributed primarily to the age of the vehicles and problems of obtaining needed repair parts.

--The medical units were apprehensive about their capability to perform wartime missions because of the above problems and because of operational difficulties of the vehicles which limit their use in a tactical environment.

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As mentioned previously, we limited our review to an evaluation of the physical condition of medical evacuation vehicles. This was possible because of a comprehensive report issued in November 1978 by the Defense Audit Service 1/ that discussed a range of problems relating to the military services, medical treatment, and evacuation capabilities.

During our review, we noted that many of the problems noted by the Defense Audit Service continue to plague the Army and Air Force. However, officials told us that the problems were under study and that to correct them would require a long-term effort.

SCOPE OF REVIEW

Our review was performed at the Army and Air Force locations shown in enclosure I. We reviewed readiness and maintenance reports on the major types of air and ground ambulances--Army UH-1H helicopter; M-792, M-886, M-893 and M-718 trucks; and Air Force ambulance vans, trucks, and buses. (See enc. II for photographs of the M-886 and M-792 ground ambulances.) We also reviewed pertinent Army and Air Force regulations, studies, and instructions relating to casualty evacuation, and held discussions with responsible officials on medical evacuation problems being experienced.

PROBLEMS IN MAINTAINING ONHAND MEDICAL VEHICLES

Army and Air Force officials cited inordinate downtime due to lack of needed repair parts as the major problem in keeping onhand vehicles operationally ready. During our visits to the units, the vast majority of the vehicles were classified operationally ready. However, officials told us that they were able to obtain this status only through intensive maintenance efforts.

Although most of the vehicles were classified operationally ready, Army and Air Force officials were not

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1/Report on the Audit of Armed Forces Capabilities to Evacuate and Care for Combat Casualties in the European Theater, dated Nov. 29, 1978.

optimistic about the vehicles being dependable in a wartime environment. Many of the vehicles, particularly the Air Force vehicles, are old, have high mileage, and require intensive maintenance to keep them operational in peacetime. For example:

--At the U.S. Air Force Hospital, Weisbaden, Germany, officials said that 8 of the 10 bus ambulances could not be depended on in war because of mechanical problems which could preclude extensive use. The ambulances were from 7 to 14 years old, and four of them had from 40,000 to 140,000 miles. Additionally, the ambulances were deadlined for repair parts from 66 to 119 days during the past year.

--At the 42d Medical Company, the 24 M-886 ambulances were deadlined 525 out of a total of 2,208 days for the 3-month period ended September 15, 1979. Awaiting parts accounted for 448 days and organizational maintenance accounted for the other 77 days.

--At the 3d Medical Battalion, the 32 M-886 ambulances were deadlined 314 out of a total of 2,944 days for the 3-month period ended September 15, 1979. Awaiting parts accounted for 305 days and organizational and support maintenance accounted for the other 9 days.

--At the 557th Medical Company, the 30 M-886 ambulances were deadlined 147 of the 2,358 days for the 3-month period ended September 15, 1979. Awaiting parts accounted for 134 days and organizational and support maintenance accounted for the other 13 days.

Similar delays in receiving spare parts for M-886 ambulances were noted at Army activities visited in CONUS. For instance:

--At one unit, an ambulance was down 6 months waiting for a replacement door to be delivered.

--At another unit, back door handles for several ambulances had been on order since May 15, 1979. At this same location, a passenger seat had been on order since April 12, 1979.

--At another unit, an ambulance was deadlined from November 15, 1978, to February 15, 1979, for a muffler

replacement. At this location, another ambulance was deadlined from March 8 to August 30, 1979, waiting for a replacement drive shaft. We also noted that another ambulance was deadlined from April 18 to August 16, 1979, waiting for a replacement steering gear box. This was also the case at another unit location where a vehicle was down 190 days waiting for a steering gear box.

Regarding the 49 Army helicopters dedicated to casualty evacuation, the 7th Medical Command reported an annual operational readiness rate of 76 percent--the Army standard is 75 percent. However, the availability and capability of these aircraft to fully perform their intended missions may be overstated because the reported readiness rates include time during which the aircraft were not fully mission capable.

The table in enclosure III shows the effect of including reduced material condition hours in the operationally ready rate for the helicopter units for the month ended July 15, 1979.

The Army has recognized the inadequacy of including reduced material condition time in operationally ready time and has directed that, effective with the reporting period beginning December 16, 1979, readiness time will be reported as fully mission capable and partially mission capable.

In addition to supply and maintenance, the commander of the 421st Medical Company said that shortage of pilots and repair parts also had affected the readiness posture.

We did not perform an indepth review of the factors affecting readiness of medical helicopters because of our continuing review of the readiness of Army helicopters.

In addition to ground vehicles and helicopters having a dedicated wartime mission of evacuating casualties, the services have other vehicles which could be used for transporting casualties. For example, the Army may use M-113 armored personnel carriers, CH-47 helicopters, and U-21 fixed wing aircraft. The problem is that these vehicles have other primary wartime missions and may not be available when needed to perform casualty evacuations. The Army and the Air Force also have school and other passenger buses which can be fitted with ambulance conversion kits enabling them to transport litter patients. A limiting factor is the number of conversion kits available.

OPERATIONAL LIMITATIONS OF MEDICAL VEHICLES COULD AFFECT MISSION CAPABILITY

Army officials were concerned about the operational limitations of medical vehicles--primarily the M-886--which could adversely affect their wartime mission capability. Of particular concern was the fact that the M-886, a four-litter or eight-ambulatory patient ambulance

--was not designed as a tactical vehicle; thus, its ability to perform in an off-the-road environment is limited;

--has limited range due to poor gas mileage; and

--does not have adequate bumper protection for the rear doors.

During our visits, we noted several vehicles with damaged doors that could only be opened from the inside. As a result, patient loading and unloading could be delayed.

We also noted that the two upper litter assemblies in the M-886 were not adequately supported and that the assemblies had a tendency to bow when used to transport patients. Once the assemblies are bowed, the locking pins may not engage and the assembly could fall. The commander of one of the units visited had issued instructions that the two upper litter assemblies were not to be used because of the safety hazard to patients. Bowed assemblies were noted at four of the six medical units visited; however, none of the units had reported the problem to higher headquarters so that action could be taken to correct the design deficiency.

Since the M-886 is the Army's primary patient carrying vehicle intheater, failure to correct the deficiency could severely limit casualty evacuation capability in wartime.

Army officials also expressed concern about using the M-792 (Gama Goat), a three-litter or four-ambulatory patient carrying vehicle. According to these officials, the M-792 is excessively noisy and rides too rough to be used to transport seriously wounded patients.

The Army officials also were concerned about the lack of onboard communication means. The majority of the medical evacuation vehicles do not have radios which would make it difficult to direct and control these vehicles in a wartime situation due to the frequent relocation of aid stations. To illustrate their concern, Army officials cited problems encountered during recent field exercises:

--Ambulances remained unaccounted for during long periods.

--Ambulance drivers had difficulty locating the mobile aid stations and refueling points.

--Command and control of the ambulances was virtually impossible.

We discussed the operational limitations of the Army medical vehicles with U.S. European Command officials. The officials agreed that the M-886 and M-792 have certain limitations which could hamper wartime casualty evacuations. Regarding the upper-litter-assembly problem, the Chief of Staff, U.S. European Command, asked the command's senior medical adviser to followup on this matter to ensure that it is corrected.

The Chief of Staff also said that no radios will be installed in the ground ambulances because of the expense involved. He agreed, however, that the lack of communication with the ambulances in wartime could present serious command and control problems. He said that the Army would reassess the situation and determine if a workable alternative, such as the use of inexpensive, short-range citizen band type radios, would be feasible.

Because of the problems identified in Europe, we also reviewed the medical transportation assets of selected CONUS-based activities that may be used to augment intheater operations during a contingency situation.

Officials in CONUS also expressed many of the identified operational problems which limited the usefulness of medical

vehicles in Europe. However, these officials called attention to other limitations. For instance, we found the following problems involving the M-886 ambulance:

--Each unit visited had experienced problems with the vehicle's steering wheel column. The column wears and becomes loose causing easy and free steering wheel play. One ground ambulance company reported that 18 of its 35 vehicles had experienced this problem.

--The jacks that came with the vehicle are not sturdy or stable enough to support the ambulance. The drivers and mechanics we talked to said that they would be hesitant to use the jack on anything but a smooth straight surface, and even then they would be very cautious. One of the ground ambulance detachment units visited has replaced the original jacks with hydraulic jacks.

--Vehicles do not have lifting or towing shackles and can only be towed by a chain connected to hooks under the front of the cab. This requires removing the front bumper, which is time consuming. Also, using chains rather than a tow bar connected to towing hooks makes towing a disabled vehicle a dangerous operation.

--The ambulances are not authorized blackout lights, and according to Army officials, without these lights the vehicles could not operate in wartime without being detected.

--The electrical system of the vehicle is a constant problem. For instance, the surgical lights inside the cabs, along with the headlights and fuses, continuously blow out.

--Poor ventilation in the patient compartment makes it excessively hot and uncomfortable on warm days.

At some of the locations, we were advised that when the installation first received the ambulances a number of problems were detected and corrected by the Army. For instance, at one location, all 36 vehicles received had water leakage problems, which the installation corrected at the Army's expense. At another location, when the vehicles arrived all were missing their steering column bushings, which the installation corrected at the Army's expense.

Regarding the M-792 Gama Goat, conversations with motor pool mechanics revealed that the vehicle's design provides poor access to even routine maintenance points. For instance, the transmission console must be removed to make oil level checks. In addition, the usually simple removal and replacement of an oil filter is made through a limited access hole in the underside of the hull, a location which makes the work difficult and lengthy. Also, the patient compartment has an installed heater that operates on diesel fuel. We tested the heater on four Gama Goat ambulances and found that an odorous fuel was leaking from the heater hoses.

In addition to the operational limitations of the M-792, we also found that the vehicle needed frequent maintenance and repairs, thereby making it very costly to operate. At one unit we visited, repair parts alone cost about $1,000 per vehicle per year.

Some of the more significant M-792 maintenance problems are:

--Brake drums crack easily and have to be replaced at a cost of about $65. Twenty-five have been replaced from June through November 1979.

--Canvas tops for patient compartments are frequently replaced at a cost of about $550. Apparently, the canvas tops dry rot quickly, and according to unit personnel, some canvas tops already show signs of dry rot when they arrive at the unit.

--Metal holding canvas to the cabs has to be replaced frequently.

--Differentials and transmissions frequently break down and have to be replaced.

For example, one M-792 has had transmission changes in June 1971 and February 1974. As of February 1974, this vehicle had only 983 miles. Another M-792 has had three different engine changes on August 25, 1971, December 9, 1976, and December 17, 1976.

We have previously reported 1/ problems concerning the drivability, durability, and maintainability of the Gama Goat vehicle.

Concerns raised about the air ambulance helicopters assigned to CONUS units follow.

Deficiencies with air ambulance helicopters communication systems can adversely affect their evacuation missions

To effectively carry out their evacuation missions during contingencies, air ambulance helicopters (UH-1H) must have reliable radio communications. Of the five communication radios on the UH-1H, the FM radio is the most important. The FM radio enables the UH-1H to communicate with the ground units, and in contingency situations, directs the aircrew to where casualties are waiting to airlift.

Information available at both helicopter ambulance detachment units visited showed that the helicopters radio communication systems frequently are down for repairs. At one of the installations, replacement radios were not available; thus, when radios were being repaired, the helicopters operated without communication systems.

Some of the problems noted with the radio systems include constant static, vibrations, lights going out, etc. Pilots and mechanics told us the radios required excessive upkeep because of old age (7-10 years).

For example, at one location, the aircraft's monthly inventory, status, and flying time report showed that for a a 1-month period for six helicopters, the radio systems were down 1,588 hours out of 4,464 hours that the helicopters were available for duty. In another month, one helicopter radio system was down for repair during all of the 744 available hours. The maintenance and repairs were performed at a nearby installation and replacement radios were not provided.

At the other location, the inventory, status, and flying time report for a 12-month period showed no downtime for radio

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1/"Should the Gama Goat Be Improved or Replaced?" (PSAD-76-48, Dec. 9, 1975).

communication repair or maintenance. At this installation, replacement radios were provided, thus, downtime was not incurred.

Although the helicopter ambulances can operate in CONUS during peacetime, if deployed to augment units during a contingency, their usefulness in evacuating casualties would be limited severely.

AGENCY COMMENTS

In a May 23, 1980, letter (see enc. IV), the Assistant Secretary of Defense, Health Affairs, agreed with our recommendations and said the Department of Defense would take corrective actions.

CONCLUSIONS AND RECOMMENDATIONS

The problems discussed in this report could seriously affect the capability of the Army and Air Force in Europe to fully accomplish their wartime casualty evacuation missions. While the services have taken certain actions and have other actions planned to improve mission capability, we believe that additonal actions are necessary.

We recommend that you direct the Army to

--take action to modify the existing M-886 to correct the deficiencies noted;

--reassess the need for onboard communication means to facilitate wartime command and control of medical evacuation air and ground vehicles; and

--ensure, in developing future procurement plans for medical evacuation vehicles, that the deficiencies noted in our report with the M-886 and M-792 ground ambulances are adequately considered.

We also recommend that you direct the Army and Air Force to

--take appropriate action to ensure that needed repair parts are made available to units in Europe and CONUS in a more timely manner to reduce the inordinate downtime cited by Army and Air Force officials and

--assess the potential for increasing evacuation capability by acquiring ambulance conversion kits for the existing and planned procurement of school and general-purpose buses.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement of actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We wish to express our appreciation for the cooperation and assistance provided during the review.

Sincerely yours,

R. W. Gutmann
Director

Enclosures - 4

ENCLOSURE I

UNITS INCLUDED IN OUR REVIEW OF MEDICAL VEHICLES

Unit	Location
Army:	
7th Medical Command	Heidelberg, Germany
Headquarters, 421st Medical Company	Stuttgart, Germany
Headquarters, V Corps	Frankfurt, Germany
Headquarters, 68th Medical Group	Ziegenburg, Germany
3d Armored Division	Frankfurt, Germany
557th Medical Company	Darmstadt, Germany
583d Medical Company	Landstuhl, Germany
45th Medical Battalion	Hanau, Germany
Theater Army Material Management Center	Zweibrucken, Germany
703d Maintenance Battalion	Kitzingen, Germany
U.S. European Command	Stuttgart, Germany
Headquarters, VII Corps	Stuttgart, Germany
651st Medical Comany	Stuttgart, Germany
3d Medical Battalion	Aschaffenberg, Germany
1/7th Medical Battalion	Aschaffenberg, Germany
1/40th, 3d Armored Division	Hanau, Germany
2/6th, 3d Armored Division	Hanau, Germany
42d Medical Company	Nurnberg, Germany
30th Medical Group	Stuttgart, Germany
Combat Equipment Group, Europe	Mannheim, Germany
Reserve Storage Activity	Germersheim, Germany
Air Force:	
U.S. Air Force, Europe	Ramstein Air Force Base, Germany
U.S. Air Force Hospital, Weisbaden	Weisbaden, Germany
435th Tactical Airlift Wing	Rhein Main Air Force Base, Germany
601st Tactical Control Wing	Sembach, Air Force Base, Germany
20th Tactical Fighter Wing Hospital	Upper Heyford, Great Britain
86th Tactical Fighter Wing	Ramstein Air Force Base, Germany

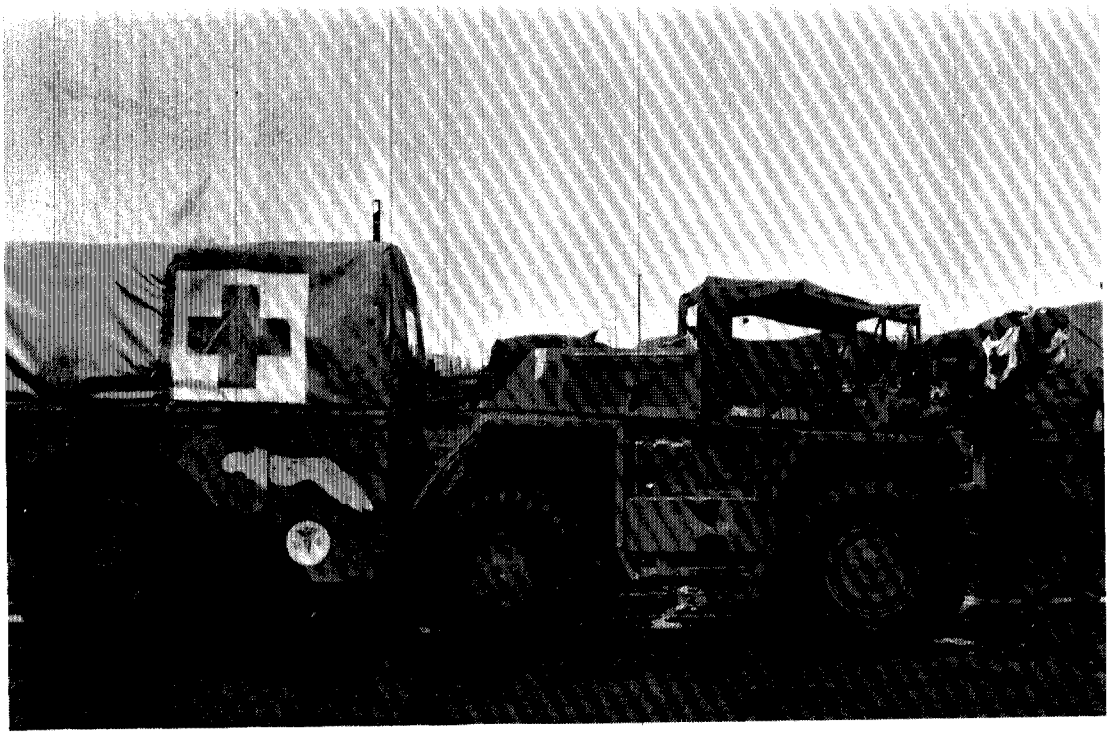
ENCLOSURE I

CONUS activities

438th Ground Ambulance Detachment	Fort Belvoir, Virginia
429th Ground Ambulance Company	Fort Bragg, North Carolina
57th Helicopter Ambulance Detachment	Fort Bragg, North Carolina
307th Medical Battalion	Fort Bragg, North Carolina
556th Ground Ambulance Company	Fort Dix, New Jersey
440th Ground Ambulance Company	Fort Meade, Maryland
247 Helicopter Ambulance Detachment	Fort Meade, Maryland

ENCLOSURE II

M–886 AMBULANCE



M–792 AMBULANCE (GAMA GOAT)

ENCLOSURE III

EFFECT OF INCLUDING REDUCED MATERIAL CONDITION HOURS IN OPERATIONALLY READY RATE--MONTH ENDED JULY 15, 1979

Unit	No. aircraft	Hours			Operationally ready rate	
		Total hours (note a)	Operationally ready (note b)	Reduced material condition	Reported	Excluding reduced material condition
					(Percent)	
421st Medical Co.:	13	9,360	6,891	1,776	74	55
2d Platoon	6	4,320	3,266	-	76	76
4th Platoon	6	4,320	3,033	-	70	70
63d Medical Detachment	6	4,320	2,476	520	69	57
15th Medical Detachment	6	4,320	3,000	-	69	69
159th Medical Detachment	6	4,320	2,736	1,608	63	26
236th Medical Detachment	6	4,320	2,834	-	66	66
Total	49	35,280	24,736	3,904	70	59

a/Number of aircraft x 24 hours x 30 days since last reporting period.

b/The difference between total hours and operationally ready hours is the time that vehicles are not ready due to supply and maintenance.

ENCLOSURE III

ENCLOSURE IV

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

HEALTH AFFAIRS

May 23, 1980

Mr. R. W. Gutmann
Director, Logistics and Communications Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Gutmann:

This is in reply to your letter of 4 April 1980 to the Secretary of Defense regarding your draft of a proposed report to the Congress entitled, "Transportation Assets for Medical Evacuation in Europe" (GAO Code 943462) (OSD Case #5409).

We are in agreement with the recommendations contained in your draft report and will initiate actions necessary to implement the recommendations to the Secretary of Defense. We are pleased to report that actions have already been undertaken to rectify some of the problems outlined in your draft report.

The Army has plans to phase out the M-886 and the M-792 using the following guidelines:

a. Division area: To be replaced by a "high mobility multipurpose wheeled vehicle (HMMWV)". These vehicles are being addressed in the FY 82-86 POM. Procurement profiles are being developed and will be available for planning purposes in mid-May 1980. However, it is not anticipated that these vehicles will be available for issue as replacements prior to FY 1984.

b. Corps area: To be replaced by a commercial ambulance.

The problems with the bowed litter assemblies in the M-886 will also be investigated by the Army.

The Army is currently addressing how division level medical support will be provided in 1986. If "Division 86" reorganization plans are implemented, ground ambulances will be equipped with the "Position Locating and Reporting System (PLARS)." This system will tell the driver where he is, where other ambulances are, and will transmit prearranged digital messages.

The Army is undertaking actions to acquire litter conversion kits for school buses. All buses being procured by the Air Force in the Federal Republic of Germany have ambulance conversion kits. In addition, the Air Force is going to investigate the availability of ambulance conversion kits for buses being purchased in the United Kingdom and, if available, will procure vehicles so equipped.

As of March 30, 1980, worldwide readiness status of the M-886 was 85.7% and the M-792 was 89.5%, up from 67% and 72.5% in early 1979. The Air Force implemented a new program in November 1979 to improve the supply of spare parts for overseas vehicles. The Air Force has worked with the other Military Services and the Defense Logistics Agency on a wide variety of revisions to support policies for overseas vehicles and other tactical support equipment. Some changes have already been implemented, and others are in the final stages of staffing between the Services and DLA.

Sincerely,

Vernon McKenzie
Principal Deputy Assistant Secretary