



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

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MISSION ANALYSIS AND
SYSTEMS ACQUISITION DIVISION

B-208521

AUGUST 10, 1982

The Honorable Caspar W. Weinberger
The Secretary of Defense



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Attention: Director, GAO Affairs

Dear Mr. Secretary:

Subject: Progress of the Light Armored Vehicle
Program Should Be Closely Monitored
(GAO/MASAD-82-41)

This report discusses the joint Army and Marine Corps' program development of light armored vehicles. Almost from the beginning, the Light Armored Vehicle Program has been marked by indecision as to the types of vehicles that would best suit the services' needs.

The Marine Corps' requirements for a basic light assault vehicle, mounting a 25-mm Bushmaster gun, appear to be firm but its choices of variants to this vehicle are still changing. Its version of the basic vehicle has been tested although some reliability, maintainability, and durability tests have not yet been completed. The Army's requirements for this vehicle, as well as for a companion light armored squad carrier, have fluctuated for some time. It was only this past June that some decisions were made as to the types of vehicles that should be acquired.

The Army's version of the light assault vehicle has not been tested although, because of vehicle similarities, test results of the Marine Corps vehicle should be useful in evaluating the Army's version. An important distinction between the two is a gun stabilization system the Army would like to incorporate in its vehicle to permit shooting while on the move.

The Army is about to select a contractor for a 5-year firm-fixed-price production contract scheduled to be awarded during the week of August 16, 1982, covering 969 light assault vehicles; 289 of which are designated for the Marine Corps. In addition, several variants to the light assault vehicle are to be included as options in the contract. Under these options, the Army may buy 69 recovery vehicles and the Marine Corps may purchase 297 additional vehicles which represent several types of variants to the basic assault vehicle.

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The Light Armored Vehicle Program has progressed from one that was first envisioned as a low-cost acquisition of off-the-shelf vehicles to one that is potentially a \$1 billion program involving vehicles that have not previously been produced. With the choices of several variants to the basic vehicle that are still being considered for acquisition, we are concerned that the program may be reaching the level where its affordability should be questioned. We believe it is important to closely monitor this program, particularly the proposed acquisition of different types of variants to ensure that the services do not lose sight of the Congress' intent and the objectives of your office in establishing the joint program, for example, the acquisition of basically similar, low-cost vehicles.

SCOPE

We examined requirement documents, test plans, test results, and other data related to the program. Also, we held extensive discussions with the Project Manager, Light Armored Vehicles, located at the Army Tank-Automotive Command. Program data was also reviewed and interviews were held with officials at the Army and the Marine Corps Headquarters and various Army and Marine Corps test and evaluation centers.

Our review was performed in accordance with our "Standards For Audit of Governmental Organizations, Programs, Activities, and Functions."

LIGHT ARMORED VEHICLE PROGRAM

In 1980, at the urging of the Congress, the Marine Corps began a program to acquire off-the-shelf, airliftable, lightweight armored vehicles which would provide mobility, protection, and firepower in support of the rapid deployment force. The Marine Corps was to start production in 1982 and begin fielding the vehicles in 1983. In 1981 after the Army began developing its own lightweight armored vehicle requirements, the Office of the Secretary of Defense, recognizing the economic potential of the services acquiring similar vehicles, directed the Army and the Marine Corps to develop their requirements under a joint program. Unlike the Marine Corps, the Army has not set a date for beginning its vehicle deployment. The Army has considered the program a high risk because of the accelerated schedule for testing and deploying a system that is not strictly off the shelf.

Because of its experience in acquiring armored vehicles, the Army was designated as the contracting agency with overall acquisition responsibility. A joint program office was established in September 1981 at the Army Tank-Automotive Command with a Marine officer as project manager.

Request for proposals to provide competitive prototypes for testing were issued in April 1981. Seven contractors responded, one of which proposed two types of vehicles. The Army selected the following contractors for the test and evaluation phase.

<u>Contractor</u>	<u>Type</u>
General Motors of Canada	8-wheel vehicle
Cadillac Gage	6-wheel vehicle
Cadillac Gage	4-wheel vehicle
Alvis Limited (England)	Track vehicle

Although these vehicles were purported to be basically "off-the-shelf," three have been modified to some extent and a fourth represents a model not previously built, as shown below:

<u>Contractor</u>	<u>Changes from off-the-shelf design</u>
General Motors of Canada	Swiss design, not previously produced in 8-wheel version
Cadillac Gage	4-wheel vehicle stretched by 18"
Cadillac Gage	6-wheel vehicle not previously produced
Alvis Limited	Modified engine and transmission

From November 1981 through May 1982, tests and evaluations were made of four models of the Marine Corps version furnished by the three contractors. These tests were done primarily at Yuma Proving Ground, Arizona, and at Twenty-Nine Palms Marine Base and Camp Pendleton, California. A production contract for the 969 light assault vehicles is to be awarded to one of the three contractors in August 1982.

SYSTEM DESCRIPTION

The light armored vehicle, of which approximately 10 variants may ultimately be developed, is to have cross-country mobility; armor protection against small arms fire and shell fragments; high road speed; swim capability; nuclear, biological, and chemical protective capability; air transportability; and offensive firepower. Agility characteristics, such as quick acceleration and short turning radius, and mobility characteristics, such as road speed and range, are expected to enhance survivability and be compatible with the capabilities of other combat wheeled and tracked vehicles. The light armored vehicle's weight of no more than 14.5 tons will make it compatible with the lift capability of the CH-53E helicopter. It can also be carried on C-130, C-144, and C-5A aircraft.

The basic vehicle to be procured under the program is the LAV-25, a light assault vehicle whose primary weapon is to be the

25-mm Bushmaster gun. There are two versions of this vehicle. For its version, the Army is considering an optional gun stabilization system capable of an accurate shoot-on-the-move capability. Its vehicle would carry a crew of three--driver, commander, and gunner. The Marine Corps' version will carry, in addition to the crew, a minimum of six combat equipped troops. The Marine Corps does not require a gun stabilization system.

The Army is considering several variants of the basic LAV-25, including a maintenance/recovery vehicle and an electronic systems carrier. The Marine Corps also plans several variants, such as antitank, air defense, assault gun, mortar carrier, command and control, maintenance/recovery, and logistics vehicles. Only the two versions of the light assault vehicle are firm requirements to be placed under contract. The other variants may be purchased at the option of either service after prototype testing. Two prototypes for each of the five variants currently included in the proposed contract will be provided by the winning contractor.

PROGRAM UNCERTAINTIES

What was initiated as a nonmajor, low-cost, off-the-shelf vehicle program, has developed into a major program whose vehicle composition is still to be determined and that carries a potential for cost growth in view of the fluctuating requirements, decisions to be made on the variants, and testing still to be done.

Fluctuating requirements

Since the request for proposals for the production phase were issued in September 1981 to the three competing contractors, there have been numerous changes in the procurement quantities. The greatest potential impact was the fifth modification to the proposal, dated February 17, 1982. This change made the Army light armored squad carrier variant an alternative rather than a firm contract requirement, thereby reducing the quantity to be purchased by 775 vehicles. The Army's decision was complicated by the existence of two infantry planning centers with differing proposed approaches. One center at Fort Benning, Georgia, did an initial study on light armor needs and capabilities which served as the basis for establishing the Army's requirement for the Light Armored Vehicle Program. Another center at Fort Lewis, Washington, has also been studying the types of vehicles that would best meet the Army's light vehicle needs. It suggested a lighter armored vehicle of 3 to 4 tons that would be liftable by the Blackhawk helicopter. This suggestion led the Army to drop the 14.5 ton light armored squad carrier vehicle.

The Army originally scheduled a decision by June 1, 1982, on whether to include its light armored squad carrier vehicle under the same contract along with its LAV-25 requirements. When no

decision was made, the light armored squad carrier requirements were omitted from the proposed contract.

On July 9, 1982, just before the initially planned contract date of mid-July, the Marine Corps decided to defer for further study the air defense and assault gun variant vehicles. As a result of this action--another in a series of determinations and redeterminations affecting the program's acquisition profile since the program began--the project manager made a second call for best and final offers on July 16. A contract is expected to be awarded during the week of August 16.

Testing

Because the Army joined the program after the Marine Corps had already solicited proposals from industry for test vehicles, none of the possible Army configurations will be tested before contract award. For its version of the light assault vehicle, the Army will hold its own tests during the period mid-September to December 31, 1982. To accomplish this, one of the Marine Corps' configured vehicles will be shipped to the winning contractor, converted to the Army configuration, tested in this configuration, and shipped back to the contractor for return to the Marine Corps configuration.

Since the accelerated test program did not provide sufficient reliability, availability, maintainability, and durability testing, such testing will not be completed until after the production contractor is selected.

Availability of helicopters for airlifting vehicles is uncertain

While the Marine Corps was instrumental in requiring the assault vehicles to be liftable by the CH-53E helicopter, it is doubtful whether the helicopters will meet the Marine vehicle deployment schedule. Helicopters required for the first of three helicopter squadrons may not be available until 1986 or about 3 years later than the 1983 vehicle deployment date. In view of maintenance float requirements, it is also doubtful that sufficient numbers of helicopters will be available at any one time to meet the Marine Corps requirements unless the Marines procure additional helicopters over those planned.

CONCLUSIONS

Both the Army and the Marine Corps abandoned plans to procure three vehicle types that were originally a part of the contract to be awarded later this month. These changes, and the options that each service has retained to acquire differing variants of the light assault vehicle, indicate that the vehicle composition of the light armored forces is far from settled. There exists a

potential for the proliferation of vehicles and a resultant program cost growth unless the acquisition plans of the two services are reviewed periodically by your office to ensure that they are conforming to the intent of the Congress and the objectives of the joint program. As a first step, it seems appropriate to place the Light Armored Vehicle Program under the Selected Acquisition Reporting system so that the program's progress can be monitored by your office and to provide a higher visibility for the Congress.

RECOMMENDATION TO THE
SECRETARY OF DEFENSE

We recommend that the Light Armored Vehicle Program be placed under the Selected Acquisition Reporting system to ensure that its progress can be more closely followed by your office and by the Congress.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs 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 are sending copies of this report to the Chairmen of the Senate and House Committees on Armed Services and Appropriations, House Committee on Government Operations, and Senate Committee on Governmental Affairs; the Director, Office of Management and Budget; the Secretary of the Army; the Secretary of the Navy; and the Commandant of the Marine Corps.

We appreciate the courtesies and cooperation extended to us by the Army and the Marine Corps during the course of our review.

Sincerely yours,



W. H. Sheley, Jr.
Director