

September 1996

ARMY ACQUISITION

Javelin Is Not Ready for Multiyear Procurement



**National Security and
International Affairs Division**

B-272415

September 26, 1996

Congressional Committees

The Army is purchasing a new \$4-billion man portable, antiarmor weapon system—known as the Javelin—to replace its aging Dragon system. Javelin is a joint Army and Marine Corps program expected to increase the infantry's lethality against advanced armor threats. In 1997, the Army plans to award a multiyear (3 year) production contract and begin full-rate production.

We reviewed the Javelin program under our basic legislative authority to determine whether (1) the system meets criteria established for multiyear production contracts, (2) the Army has adequately tested Javelin to determine its suitability for full-rate production, and (3) the Army is using sound economic judgment in purchasing command launch units during limited production. This report, which contains a matter for congressional consideration, is addressed to your committees because they have jurisdiction in this area. We are suggesting that the Congress may wish to take the corrective actions that the agency has indicated an unwillingness to take.

Results in Brief

The Army plans to award a multiyear contract for Javelin full-rate production in 1997, even though the system does not meet the criteria established for multiyear production contracts and the Army has not yet adequately tested Javelin's suitability for full-rate production. The Army has not demonstrated that Javelin's design is sufficiently stable for a multiyear contract, and tests have not shown that the weapon to be produced during full-rate production is suitable for combat. The Army expects the multiyear contract and design changes to decrease system costs. However, if the Army has to modify the multiyear contract because the system requires further redesign to meet operational needs, program costs could increase. Therefore, we believe the Army should (1) not award a multiyear contract for Javelin production at this time and (2) operationally test the redesigned Javelin, as required by regulation, before proceeding to full-rate production.

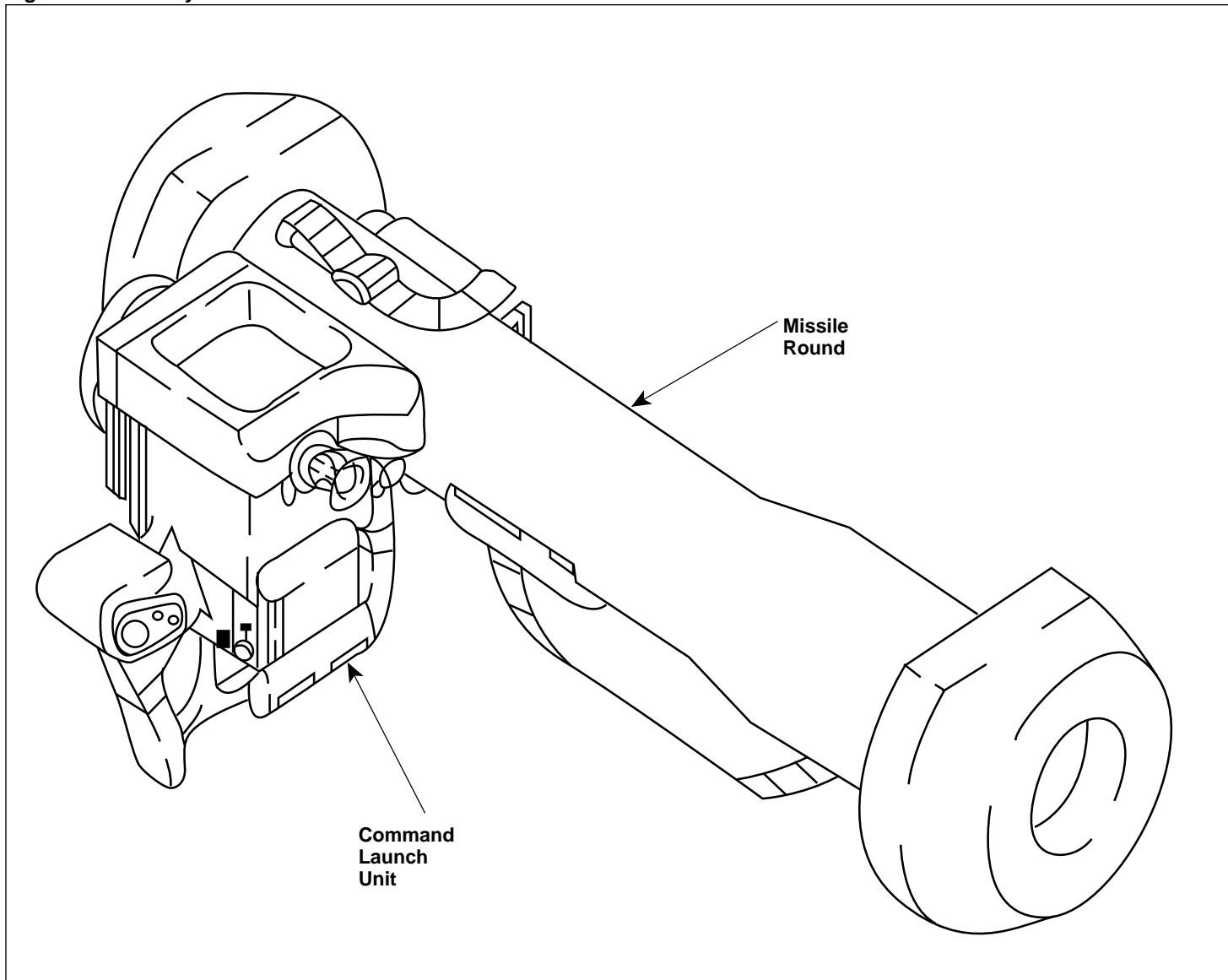
In addition, the Army decision to award a third low-rate initial production contract for command launch units was questionable because (1) the Army plans to replace these launch units with redesigned units about 3 years after the originals are fielded and (2) the Army is not purchasing

Javelin to address an urgent threat, but rather to improve warfighting capability. Accordingly, we believe the contract should be modified to produce as few command launch units as possible.

Background

The Javelin is a man portable, fire-and-forget, antitank weapon system composed of two major components—a command launch unit and a round, which is a missile sealed in a disposable launcher container. (See fig. 1.) For operation of the system, the round is mated with the launch unit, but the launch unit may also be used in a stand-alone mode for battlefield surveillance and target detection. The Army expects Javelin to defeat armored targets out to distances of 2,000 meters, during the day or night and in adverse weather.

Figure 1: Javelin System



The Army completed development of the Javelin system in December 1993. However, operational testing showed that the system's design did not meet operational suitability requirements. As a result, the Army made numerous design changes to the launch unit and round before the contractor initiated low-rate production in June 1994.

The Javelin system has experienced significant cost increases since it was first approved. In the early 1990s, the Army made budget decisions that stretched Javelin's procurement phase from 6 to 14 years. In addition, the end of the cold war caused the Army and Marine Corps to reduce Javelin's procurement quantities. Combined, these actions increased the average cost of the launch unit to about 4.5 times its originally estimated cost and more than doubled the average cost of the round.

To mitigate these cost increases, the Army is attempting to shorten the system's procurement phase. Initially, the Army planned to shorten procurement from 14 to 11 years by using production, logistics, and multiyear savings to purchase Javelin systems earlier than planned. On February 13, 1996, the Army announced that Program Budget Decision 104 added \$993 million of additional procurement funds for fiscal years 1999 through 2001 to reduce Javelin's procurement phase to 9 years. As the program is currently planned, these funds allow the Army to complete fielding by fiscal year 2004.

The Army also hopes to reduce Javelin's cost by awarding two multiyear contracts—one in 1997 and another in 2000. Multiyear procurement is a method of acquiring up to 5 years' requirements of a system with a single contract. The procurements help the government reduce costs and provide incentives to contractors to improve productivity by investing in capital facilities, equipment, and advanced technology. However, multiyear contracts decrease annual budget flexibility. The Congress and the Department of Defense (DOD) commit themselves to fund multiyear contracts through completion or pay any contract cancellation charges, which may be substantial.

According to the President's 1997 Budget, the Army and the Marine Corps plan to purchase 31,269 Javelin rounds and 3,264 command launch units. The Army's share of the purchase is 26,600 rounds and 2,800 command launch units. The Marines Corps plans to acquire 4,669 rounds and 464 launch units.

Javelin's Design May Not Be Stable

The Army has not demonstrated that Javelin's design is sufficiently stable for a multiyear production contract. By awarding a multiyear production contract before the design has stabilized and the system has been thoroughly tested, the Army risks cost overruns and/or schedule delays that could more than offset the savings produced by the contract.

Pursuant to 10 U.S.C. 2306b, a military service is authorized to award multiyear contracts for the purchase of weapon systems if certain criteria are met. These criteria include the requirement that the design of the system remain substantially unchanged during the period covered by the multiyear contract. If the government awards a multiyear contract for a weapon system with an unstable design, the government could lose its budget flexibility without corresponding cost savings because contract changes or termination costs may substantially increase the cost of the weapon system.

Between the end of development in 1993 and the beginning of low-rate production in 1994, the Army made 39 design changes to correct reliability problems. Since 1994, the Army has made a number of changes to the system's design to reduce production and logistics costs and expects to continue making changes through the beginning of full-rate production in 1997. Most of these changes are being incrementally incorporated into hardware produced under three low-rate production contracts. The contractor is continuing production while changes are developed and qualified. As changes are approved, the contractor incorporates them into units in the production process.

The Army estimates it will spend approximately \$49.4 million from fiscal year 1994 through fiscal year 1997 while Javelin is in low-rate production to redesign various Javelin components. These changes are expected to reduce production and logistics costs by \$329 million. However, because redesigned components are added to the production line as they are developed and qualified, the contractor will produce at least one and sometimes two variations of the Javelin system during each of the three low-rate production runs. According to current schedules, the last planned changes will not be incorporated into the production line until after full-rate production begins in 1997 under the planned multiyear contract.

Javelin tests conducted to date have identified the need for additional design changes. During the first 8 months of Javelin round assembly, the round contractor stopped final assembly twice so engineers could redesign components that failed during testing. In January 1996, warheads in missiles undergoing production verification tests failed to function properly. Engineers said the failures occurred after they made minor changes to the fuzing device's electronics. However, the warhead failures stopped production for 4 weeks until a remedy could be identified and implemented. In April, the contractor stopped round assembly for 2 weeks

when electrical problems in the restraint pin mechanisms¹ of two missiles occurred during a limited user test. The problems prevented one missile from leaving the launch tube after the gunner pulled the trigger and caused another to dive into the ground shortly after launch. During this test, a third missile failed when a short occurred in a transistor. This missile also failed to leave the launch tube. Army officials said the restraint pin assembly has been modified to remedy the problems that occurred during the limited user test. The contractor is retrofitting already produced missiles with the new assembly.

Other unscheduled design changes could also be necessary as the Army continues to test the Javelin system.

Operational Testing of Javelin Is Inadequate

Even though it is making over 50 separate changes to Javelin's original design, the Army does not plan to conduct any operational tests of missiles with all of the design changes until after full-rate production begins under a multiyear contract. In the opinion of Army officials, technical tests and a limited user test provide adequate information on Javelin's operational capability. However, technical tests are conducted under controlled conditions and the limited user test does not test hardware that incorporates all design changes.

The military services are statutorily required to operationally test each major weapon system under realistic combat conditions to determine if the system is operationally effective and suitable for combat prior to entering full-rate production. The military services are also required by DOD regulation to retest equipment if the design changes materially after initial operational testing. Therefore, we believe the Army must ensure that the redesigned Javelin works as intended prior to any commitment to full-rate production. In our view, the best way to accomplish that would be to conduct additional operational tests using fully redesigned systems.

Javelin Is Being Extensively Redesigned

The Javelin system that will enter full-rate production will be significantly different from the Javelin that the Army operationally tested in 1993. To correct reliability failures recognized during full-scale development, and to reduce the cost of producing and supporting Javelin, engineers are changing many major components of the system. Between the end of the early operational testing and the beginning of low-rate production, the Army made changes to the round's guidance unit, fuzing mechanism,

¹The restraint pin mechanism holds the missile in place within the launch tube until the missile is fired.

propulsion unit, control system, battery coolant unit, and launch tube assembly, as well as the launch unit's detection device, optics, display screen, and software. The Army will make additional round and launch unit changes during low-rate production. According to project office estimates, about 35 percent of the command launch unit's components and 23 percent of the round will be redesigned during low-rate production.

While Javelin's Chief Engineer agreed that the command launch unit the Army plans to produce during full-rate production will be significantly different from the original configuration, he said that the round changes will not be significant. However, tests of warheads and rounds from the first low-rate production line have already identified potentially serious problems. Before low-rate production began, engineers made changes to electronic components in the warhead fuzing device. When missiles incorporating the changes were fired, the warheads failed to function properly. Army officials considered this problem so serious that they stopped round assembly until engineers identified and implemented a solution. Another post-development change—buying a liner for the main charge warhead from a second source—also caused problems. The liner should collapse and form a jet capable of perforating armor. However, the new vendor's liner formed a jet that was not compatible with other Javelin components. Project office engineers believe the jet would have degraded Javelin's lethality. The engineers modified Javelin components to correct the problem.

Army Officials Think Planned Testing Is Adequate

Army officials told us that technical tests will provide sufficient proof that Javelin is suitable for combat. However, these tests—which determine if redesigned hardware (1) performs its intended function, (2) is compatible with other components of the system, and (3) can withstand various environmental stresses—are conducted under controlled conditions. Some technical tests are planned by the contractor and conducted at its facility. Even if tests are controlled by the government, test officials try to control as many variables as possible. For example, an Army operational test official said that during technical tests, trained technicians handle the equipment and follow precise guidelines. According to one DOD systems analyst, hardware may be sufficiently reliable to pass required technical tests, but still lack the endurance needed for battlefield conditions.

The Army and the Marine Corps are jointly conducting one limited user test of Javelin prior to full-rate production. However, this test will not provide data that the Army can use to assess the suitability of the full-rate

production configuration of Javelin. Soldiers participating in the test are using command launch units and rounds coming off the first low-rate production line that do not include all planned cost reduction changes. The Army does not plan to operationally test the system with all changes until 1998, over a year after the Army makes its decision to begin Javelin full-rate production.

Early Tests Indicate Javelin Rounds May Not Meet Reliability Goal

DOD requires that before Javelin proceeds into full-rate production, flight tests must prove the round is 82 percent reliable. According to the Army, tests conducted through June 19, 1996, demonstrated the round should perform as designed 81.5 percent of the time. However, some of the tests used to predict reliability could have potentially inflated the reliability score.

By the end of May 1996, the Army had completed 22 planned test flights under controlled test conditions. The Army did not score five of the tests for reliability because the tests did not meet the Army's criteria for a valid reliability test or the purpose of the flights was to assess round safety. Of the 17 scored tests, 2 were failures. In one test, the missile overflew its target; in another, the missile did not leave the launch tube because its launch motor did not fire.

The Army planned to fire six more rounds as part of a limited user test. However, after three failures, Javelin's Project Manager halted the tests to determine the cause of the failures and, if required, make design modifications. When flight tests were halted, 75 percent of all rounds tested had functioned as intended upon launch.

Before resuming the limited user test, the Army modified a missile component and completed 12 unplanned controlled test flights to verify performance of the design change. Of the 12 flights, 10 were successful. With the design deficiency corrected, the Army resumed the limited user test and successfully fired six rounds. According to the Army, considering the results of all 38 scored tests, 81.5 percent of the rounds tested met established reliability criteria.

However, the last 18 tests may not be useful for predicting reliability because the Army used a method of selecting the missiles for these tests that potentially could have affected the test outcome and inflated the reliability score. Army officials carefully screened the production records of the missiles selected for the 12 controlled test flights and the 6 final

limited user tests. Only missiles that the Army was highly confident would perform as designed were retained for testing. Test officials said about one-third of the missiles were eliminated from the sample.

The Army does not agree that the 18 tests are not useful for assessing reliability. Project officials said the purpose of screening the missiles before testing them was to ensure that the latest configuration was being tested, that subsystem performance specifications were met, and to review the manufacturing and assembly process. They acknowledged, however, that these actions increased the likelihood that the tests would be successful.

The officials said that they do not believe the screening process prejudiced test results. They said that since the completion of the limited user test, they have either tested or performed a second review of the production records for all eliminated rounds. As a result, the officials said they believe some missiles were needlessly eliminated from the sample. However, if a test or second production review indicated an eliminated missile was defective, all missiles at the contractor's facility were screened for similar deficiencies. In addition, Javelin's Project Manager said that rounds tested during lot acceptance test scheduled for October will be randomly chosen and should further prove the round's reliability.

Army Can Purchase Fewer Low-Rate Production Launch Units

The Army plans to replace all 277 launch units manufactured under the 3 low-rate production contracts about 3 years after they are produced. The Army is redesigning the command launch unit to reduce production and logistics costs, and plans to replace all the original production units because it cannot afford to maintain two configurations of the launch unit. To minimize replacement costs, the Army could reduce quantities to be produced under its third low-rate production contract to a minimum level of production.

During low-rate production, the Army is redesigning the launch units' electronics and housing and adding built-in-test equipment that it estimates will reduce each unit's procurement cost an average of \$14,590 and total logistics cost by \$45.1 million. The contractor will not begin producing launch units with all the changes incorporated until 1997. Javelin's Chief of Logistics said the Army cannot afford to maintain both the low-rate production and redesigned launch unit configurations. He said that if soldiers were given different launch units, the Army would have to maintain inventory and train personnel to repair both

configurations. In addition, the Army would have to develop and produce test equipment for the low-rate production configuration because it will not have built-in-test equipment to diagnose system failures.

Before the Army awarded the third low-rate production contract in February 1996, we expressed concern about the Army's plan to produce launch units at a relatively high rate and then replace them only 3 years after the units are fielded. The Deputy Director of DOD's Land Warfare Office, which is responsible for Javelin oversight, asked the Javelin Project Manager to delay contract award until his office and the project office could determine if actions could be taken to minimize replacement costs. Despite the request, the Project Manager awarded the contract. He later explained that reducing Javelin production would delay fielding to infantry battalions that urgently need an improved antiarmor system. However, officials in the Office of the Secretary of the Army for Research, Development, and Acquisition said Javelin is not needed to address an urgent threat as it was before the decline of the Warsaw Pact nations, but rather will be used to improve overall warfighting capability.

The Army can still modify the third low-rate production contract to purchase as few as 36 launch units because the contractor has not begun assembly of the units and the level of production required to keep the manufacturing facility running is 3 units per month, or 36 units per year.² The contract, when originally awarded on February 29, 1996, called for production of 125 units at a cost of about \$29 million. According to project office cost officials, reducing the purchase to 36 launch units would decrease the contract cost by \$18.5 million. But, the officials said that purchasing fewer launch units will increase the per unit cost of the remaining units because the contractor has already purchased materials and incurred costs in anticipation of production. However, they agreed that some of the materials could be used during future production contracts. In addition, the Army is already decreasing the number of command launch units being purchased under the contract. The Army has already decided to cancel production of 17 of these units and may cancel production of another 12 if 1 infantry battalion returns the 12 launch units that battalion borrowed to participate in the Army's Advanced Warfighting Experiment.

²Army officials said that even if production is reduced, the minimum level of production that will allow the command launch unit contractor to proceed to full-rate production in fiscal year 1997, as currently planned, is 72 launch units.

Recommendations

According to Army estimates, the changes in the Javelin weapon system should result in a more effective, less expensive weapon. However, the Army risks these gains by accelerating production and committing to a multiyear contract before it has demonstrated that the system's design is stable and operational tests prove the redesigned system is suitable for combat. The Army has already increased system cost by purchasing launch units in relatively large quantities before all design changes were incorporated. But replacement cost can be reduced somewhat by modifying the third low-rate production contract to purchase fewer launch units.

Therefore, we recommend that the Secretary of Defense direct the Army to (1) award annual (vice multiyear) Javelin contracts for the minimum quantity needed to sustain production until the Army demonstrates that the system's design is stable, (2) operationally test the redesigned Javelin before proceeding to full-rate production, and (3) modify the third low-rate production contract to reduce command launch unit production from 125 to the contractor's minimum production level of 3 units per month or 36 total units.

Agency Comments and Our Evaluation

We obtained written comments on a draft of this report from DOD (see app.I). DOD disagreed with our recommendation that the Secretary of Defense direct the Army to award annual Javelin contracts for the minimum quantity needed until the Army demonstrates that the design of Javelin is stable. While DOD agreed that Javelin has undergone a large number of design changes, in their opinion the stability of the design has been verified through successful production verification testing and limited user testing. However, production verification testing for the Javelin configuration that the Army will produce during full-rate production is not complete and full-rate production representative items have not been subjected to any type of operational test. Until the tests are successfully completed and the stability of Javelin's design is demonstrated in production, the Army cannot be certain Javelin's design is stable.

DOD agreed that the redesigned Javelin should be operationally tested before proceeding to full-rate production. Before a decision is made in May 1997 to begin Javelin full-rate production, the Army will complete an operational test program with production representative hardware.

DOD did not agree that the third low-rate production contract should be modified to reduce the command launch unit production from 125 units to 36 units. DOD commented that the (1) currently deployed Dragon antiarmor system cannot effectively engage or destroy modern armor; (2) savings of reducing the purchase to 36 units will be only \$10 million—not the \$18.5-million reduction in contract cost—if parts salvaged from low-rate production units can be used as repair parts; and (3) cost of replacing units produced during low-rate production is more than offset by the benefits of having Javelin in the contingency forces. Although we agree that Javelin should improve the Army and the Marine Corps' warfighting capability, Army officials told us that there is no longer an urgent need for Javelin as there was before the decline of the Warsaw Pact nations. Without an urgent need, the Army should purchase only the quantity of command launch units required to keep the manufacturing facility running.

Matters for Congressional Consideration

We continue to believe that the Army should not pursue a multiyear production contract for Javelin at this time and should reduce the number of launch units procured under the third low-rate production contract. Therefore, we suggest that the Congress consider requiring that the Army (1) award annual (instead of multiyear) Javelin contracts for the minimum quantity needed to sustain production until the Army demonstrates that the system's design is stable and (2) reduce the command launch unit production to the contractor's minimum production level of three units per month.

Scope and Methodology

We reviewed the Army's justification for a multiyear contract and discussed multiyear criteria with officials in the Army's Javelin Project Office, Redstone Arsenal, Alabama, and the U.S. Marine Corps Ground Weapons System, Quantico, Virginia. We also obtained information on quantity requirements and Javelin's design stability from the Army Office of the Deputy Chief of Staff for Operations and Plans, Washington, D.C., and the Army Material Systems Analysis Activity, Aberdeen, Maryland.

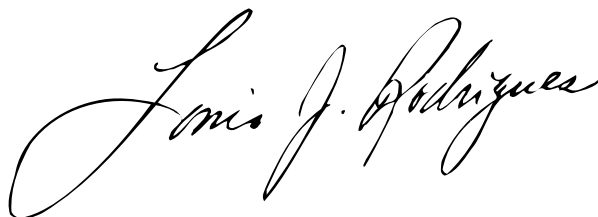
To determine the adequacy of planned system testing, we obtained and reviewed test plans and reports from the Javelin Project Office. We discussed Javelin testing with project office officials and officials from the Army Operational Test and Evaluation Command, Alexandria, Virginia; the Office of the Director, Operational Test and Evaluation, Washington, D.C.; and the Army Material Systems Analysis Activity, Aberdeen, Maryland.

To assess the Army's decision to purchase launch units, we evaluated production and fielding plans and held discussions with officials in the Javelin Project Office; the Army Missile Command Acquisition Center, Redstone Arsenal, Alabama; the Office of the Secretary of the Army (Research, Development, and Acquisition), Washington, D.C.; and the Office of the Under Secretary of Defense for Acquisition and Technology, Washington, D.C.

We conducted our review from December 1995 to June 1996 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretaries of Defense, the Army, and the Navy; the Commandant of the Marine Corps; and the Director of the Office of Management and Budget. Copies will also be made available to others upon request.

If you or your staff have questions concerning this report, please contact me at (202) 512-4841. The major contributors to this report were Lee Edwards, Barbara Haynes, and John Randall.

A handwritten signature in black ink that reads "Louis J. Rodrigues". The signature is written in a cursive style with large, flowing letters.

Louis J. Rodrigues
Director, Defense Acquisition Issues

List of Congressional Committees

The Honorable Strom Thurmond
Chairman

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Committee on Armed Services
United States Senate

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The Honorable Daniel K. Inouye
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Comments From the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

16 AUG 1996

Mr. Louis J. Rodriques
Director, Defense Acquisition Issues
National Security and International Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Rodriques:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "ARMY ACQUISITION: Javelin Is Not Ready for Multiyear Procurement," dated July 15, 1996 (GAO Code 707140/OSD Case 1191).

The DoD non-concurs with two of the sub-recommendations. The Cost Reduction Plan, which was required as a result of the Milestone IIIA decision, was approved by the Army Acquisition Executive and reviewed by the Office of the Secretary of Defense. This plan documents the need to reduce Javelin's cost by adopting a multiyear contracting strategy. Moreover, the decision to replace the 4-board-configured Command Launch Unit -- produced during Low-Rate Initial Production -- with a 2-board-configured Command Launch Unit -- produced during full-rate production -- was reviewed by the Principal Deputy Under Secretary of Defense (Acquisition and Technology). He concurred that the \$10 million cost to effect the change was more than offset by the benefits of having the Javelin capability in the contingency force. The 2-board to 4-board change is also discussed in the Cost Reduction Plan. The DoD concurred with the sub-recommendation that additional operational testing is required. The DoD's position on the draft recommendations and comments on the report's technical accuracy are attached.

Sincerely,

A handwritten signature in cursive script, appearing to read "George R. Schneider".

George R. Schneider
Director
Strategic & Tactical Systems

Attachments



See comment 1.

Appendix I
Comments From the Department of Defense

GAO DRAFT REPORT DATED JULY 15, 1996
(GAO CODE 707140) OSD CASE 1191

"ARMY ACQUISITION: JAVELIN IS NOT READY
FOR MULTIYEAR PROCUREMENT"

DEPARTMENT OF DEFENSE COMMENTS TO
THE GAO RECOMMENDATIONS

RECOMMENDATIONS: The GAO reported that according to Army estimates, the changes being made to the Javelin weapon system should result in a more effective, less expensive weapon. The GAO concluded, however, that the Army risks these gains by accelerating production and committing to a multiyear contract before quantity requirements and the system's design stabilize and operational tests prove the redesigned system is suitable for combat. The GAO pointed out that the Army has already increased system cost by purchasing launch units in relatively large quantities before all design changes were incorporated, but noted that replacement cost can be reduced somewhat by modifying the third low-rate production contract to purchase fewer launch units.

Accordingly, the GAO recommended that the Secretary of Defense direct the Army to:

- (1) award annual (vice multiyear) Javelin contracts for the minimum quantity needed to sustain production until the Army and the Marine Corps firmly determine their quantity requirements and the system's design stabilizes;

DoD Position. Non-concur. The quantity of Javelin missiles to be procured through the first multiyear contract is stable. The Marine Corps' reduction in quantities was effected prior to the multiyear contract award. There is no anticipated reduction in Army quantities. The Army continually re-evaluates all materiel requirements and then prioritizes those requirements as a function of available resources. The Army's quantities were last adjusted before the Milestone IIIA decision in June 1994 and have remained invariant.

The GAO's statement that a large number of design changes were made to Javelin between the conclusion of Engineering and Manufacturing Development and the initiation of Low-Rate Initial Production is accurate. However, many of the design changes were made to reduce the unit cost of Javelin and are documented in the Army's Cost Reduction Plan. The Cost Reduction Plan was approved

See comment 2.

Appendix I
Comments From the Department of Defense

by the Army Acquisition Executive and forwarded to the Office of the Secretary of Defense on September 1, 1994. Javelin's design stability was verified through successful Production Verification Testing and Limited User Testing.

(2) operationally test the redesigned Javelin before proceeding to full-rate production; and

DoD Position: Concur. The Army is currently structuring a portability and operational test program before the Milestone III decision in May 1997. This testing will include live firings and hardware having a Full-Rate Production configuration. We are confident that the data will support the multiyear contract awards.

(3) modify the third low-rate production contract to reduce Command Launch Unit production from 125 to the contractor's minimum sustaining rate of 3 units per month, or 36 total units. (pp. 13-14/GAO Draft Report)

DoD Position: Non-concur. The Army is purchasing Javelin to meet an immediate requirement. The currently-deployed Dragon anti-armor weapon cannot effectively engage or destroy enemy armored vehicles, much less future threats. The senior leadership within the Department of Defense approved the fielding of Javelin with the 4-board Command Launch Unit -- from the three Low-Rate Initial Production contracts -- with the first-to-fight units. This action precluded delaying the fielding of Javelin by several years until the 2-board Command Launch Units -- from Full-Rate Production -- were available. Army data indicate the cost of 4-board versus 2-board conversion was less than \$10 million, and the Army believes the cost is more than offset by the benefits of having Javelin's capability in the contingency forces. Moreover, the change over from the 4-board to the 2-board Command Launch Unit was integral to the Army's Cost Reduction Plan.

See comment 3.

Now on pp. 13-14.

See comment 4.

The following are GAO's comments on the Department of Defense's (DOD) letter dated August 16, 1996.

GAO Comments

1. DOD provided comments on the technical accuracy of the report. We have reviewed DOD's suggestions and made changes as appropriate.
2. Based on new information provided by DOD as a result of its review of our report, we no longer question the stability of the Javelin quantities the Army and the Marine Corps will purchase during the multiyear contract. At the time of our audit, the Marine Corps had not formalized their plans to reduce their purchase of Javelin rounds and it appeared likely that quantities could be reduced during the period of the multiyear contract. With DOD's assurance that the Marine Corps' reductions will be known before the multiyear contract is awarded and that the Army anticipates no changes in their requirements, we have removed information regarding this issue from the report.
3. Javelin's design has been in transition since it was operationally tested in 1993. Each production of Javelin through the first year of full-rate production will produce a different configuration of the system. The Army has not completed technical and operational tests of Javelin with all design changes incorporated. In addition, early tests have shown that some changes require additional redesign. By delaying the multiyear contract until the Army has successfully tested Javelin's design and the design's stability is demonstrated by production, the government can reduce the risk that additional redesign will reduce or eliminate multiyear cost savings.
4. We agree that the Javelin should be a significant improvement over the aging Dragon system. However, because there is no urgent threat, we believe that the Army should reduce their third low-rate production contract to purchase only the minimum quantity necessary to keep the manufacturing facility running. This will minimize the costs of replacing these launch units with redesigned units.

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