

GENERAL ACCOUNTING OFFICE
REPORT TO THE
SECRETARY OF DEFENSE

THE ADVANCED MEDIUM RANGE
AIR-TO-AIR MISSILE: RESOLVE
UNCERTAINTIES BEFORE PRODUCTION

D I G E S T

(U) The Air Force and the Navy are developing the Advanced Medium Range Air-to-Air Missile (AMRAAM) to meet their air-to-air missile requirements in the 1985-2005 time frame. AMRAAM is to be compatible with the latest Air Force and Navy fighter aircraft and is also intended to be more capable, affordable, and maintainable than the Sparrow missile, which it is to replace.

(U) If performance expectations are met, AMRAAM will offer advantages not obtained from the Sparrow. However, several critical capabilities have not and will not be demonstrated until after production begins.

(U) AMRAAM is in a 50-month, full-scale development phase that began in December 1981, when the Hughes Aircraft Company's design was selected. Early test program milestones have slipped, and contractor performance has not met expectations. The total estimated program cost--about \$14 billion as of December 1982--has more than tripled in the past 4 years and further increases are likely.

(U) GAO made this review to examine AMRAAM's potential usefulness and progress and to determine the status and significant issues concerning this program.

(U) PRODUCTION COMMITMENTS SHOULD
DEPEND ON TEST RESULTS

(U) AMRAAM might go into production without adequate assurance that it will be operationally effective. If all goes as planned, the Air Force will exercise several priced production options while some initial operational testing and evaluation is still going on. The risks involved in committing resources before



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(U) completing testing, however, may be greater than the Air Force currently envisions because there are clear indications that development and testing schedules will slip. If delays occur, the Air Force will not know as much about the missile's suitability as it was counting on when it fixed the expiration dates for the production options. Therefore, GAO believes that the Air Force should attempt to negotiate a contract adjustment in which expiration of those options is keyed to achievement of specific test and evaluation objectives.

(U) COST GROWTH AND ITS IMPLICATIONS

(U) AMRAAM's estimated cost has more than tripled since concept validation began 4 years ago. The \$14 billion estimate does not include all costs, and some uncertainty is associated with certain cost elements. If costs are not controlled, potential cost increases could have adverse effects on the rate at which AMRAAM is procured; the inventory levels; and, consequently, the overall combat effectiveness of the air-to-air mission.

(U) According to an Air Force study, AMRAAM is more cost effective than Sparrow. However, this study excluded some significant AMRAAM costs and did not consider recent cost increases. Also, because AMRAAM's effectiveness varies when used on different aircraft, these differences should be taken into account in updating the cost effectiveness assessments.

(U) RECOMMENDATIONS

(U) GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to explore the feasibility of negotiating a contract modification which would provide that production options not expire until specific test objectives have been achieved in initial operational test and evaluation with F-15 and F-16 aircraft.

(U) GAO also recommends that the Secretary of Defense direct the Secretaries of the Air Force and the Navy to

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- (U) make a joint cost-effectiveness study using the most complete and current cost and performance estimates and
- (U) use the results of that study to determine how force-level effectiveness would be affected by reductions in planned procurement rates.

(U) AGENCY COMMENTS

(U) In November 1983, a Department of Defense official reviewed a draft of this report and provided GAO with official oral comments. In general, this official did not disagree with GAO's facts and conclusions. He acknowledged the schedule concurrency and the resulting potential technical risks inherent in the AMRAAM program, but believed they were acceptable and manageable considering the critical operational need for the missile. The official generally concurred in GAO's recommendations, saying that the Air Force should probably enter into negotiations over extending the expiration dates for exercising production options. He also believed that cost effectiveness should be restudied when new independent cost analysis data becomes available in the summer of 1984.