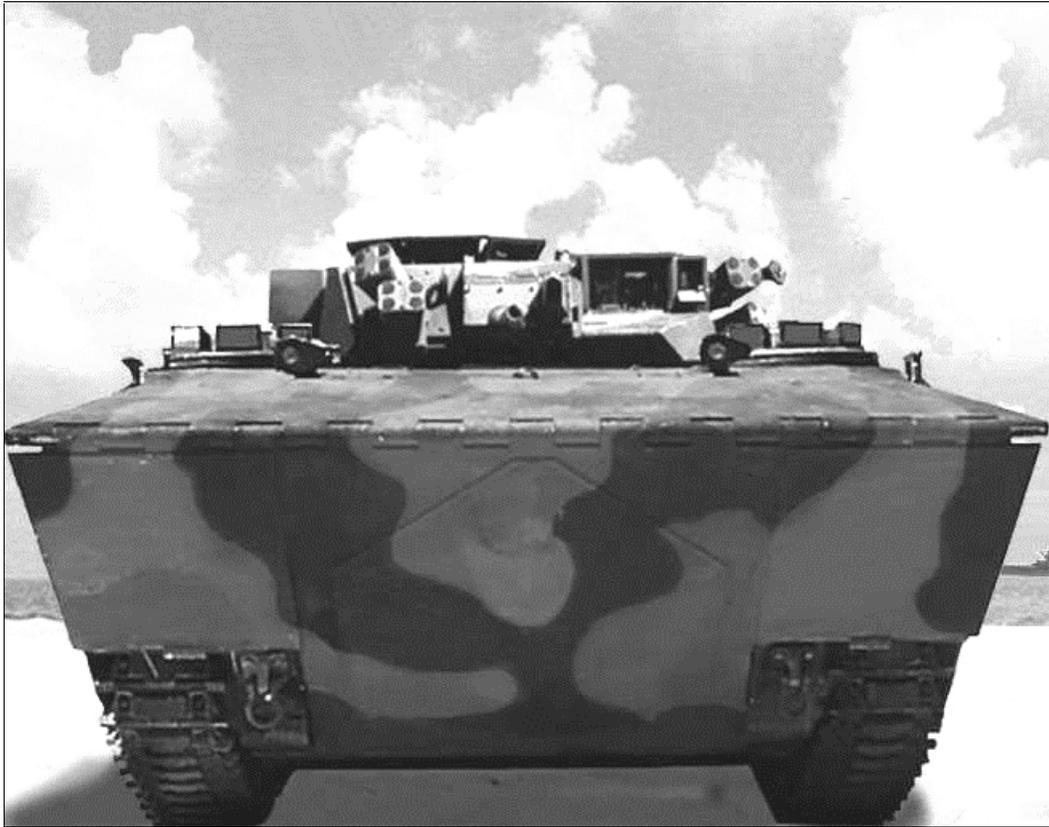


## ADVANCED AMPHIBIOUS ASSAULT VEHICLE (AAAV)



### Navy ACAT ID Program

Total Number of Systems:	1,013
Total Program Cost (TY\$):	\$7501M
Average Unit Cost (TY\$):	\$6.6M
Full-rate production:	2QFY06

### Prime Contractor

General Dynamics Amphibious Systems

### SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Advanced Amphibious Assault Vehicle (AAAV) is a high, water-speed amphibious armored personnel carrier that will replace the current family of Marine Corps assault amphibians—the AAV7A1 series. An operationally configured AAAV will weigh about 37 tons, be able to carry 17 combat-equipped Marines and a crew of three over 3 ft high waves in excess of 20 knots, and travel over land at 45 mph. Armed with a 7.62 mm machine gun and a 30 mm cannon, the AAAV will use Global Positioning System, forward-looking infrared, and a night vision system for navigation, targeting, and intelligence gathering.

The AAAV force is designed to provide a tactical assault and sustainment capability for Marines of the Marine Air-Ground Task Force. From amphibious ships standing well offshore—even over-the-horizon—from the objective, the AAAV rapidly transports the surface assault element of the landing force over the beachhead to an objective ashore, using maneuver and speed, plus on-board firepower to

achieve superiority over enemy forces. Once ashore, the AAV will serve as an armored personnel carrier, providing transportation, protection, direct fire support and command, control and communications for the Marines.

High water speed requires minimal hydrodynamic drag. To accomplish this, the AAV will retract its tracks and suspension system and deploy cover plates on its underside to present a smooth surface. Thus, while in the water and traveling at high speed, the AAV will be a planing hull craft. When the AAV approaches 15 to 20 ft of water depth at the shore, it will reduce speed to come off plane, retract the cover plates, lower the suspension and tracks, and travel the remaining distance to the shore at a speed of approximately 8 to 10 knots.

Once ashore, the Marine Corps will use the AAV (P) as a tracked armored personnel carrier to accomplish *dominant maneuver* and *precision engagement*. In that mode, the 17 infantrymen carried inside will typically dismount to fight. The crew will use the AAV (P)'s primary and secondary weapon (30mm cannon and 7.62mm coaxial mounted machine-gun, respectively, with fully stabilized turret and forward looking infrared optics) to support the infantry and armor combat elements.

The AAV's land mobility characteristics must be comparable to the Marine Corps' M1A1 Abrams main battle tank. This requires a top speed of approximately 45mph, the capability to traverse the same terrain as the tank during cross-country operations, and the capability to cross the same obstacles and terrain features (for example, trenches, hills, walls, and soft soils) as the tank.

## **BACKGROUND INFORMATION**

The AAV will provide the principal means of water mobility, land mobility, and direct fire support to Marine Corps infantry units. In the future, the Marine Corps intends to use Landing Craft Air Cushion and AAVs to land the surface-landed component of the landing force and the MV-22 OSPREY and CH-53E rotorcraft to land the air-landed component.

The AAV is under DOT&E oversight for both LFT&E and OT&E. The TEMP approved in 1994 contains the initial AAV LFT&E vulnerability strategy. Early Operational Assessments in FY92 and FY93 found that the AAV design represented a potentially effective and suitable weapon system for the 21<sup>st</sup> century. The planned test-based LFT&E program features a building block approach that will culminate in a full-up, system-level test of two AAV systems.

## **TEST & EVALUATION ACTIVITY**

OT&E was not conducted on the AAV program this year. DOT&E participated in a Combined Test Working Group, in which representatives of the system user, developer, and DT&E and OT&E communities discussed their requirements and planned for sharing resources when possible.

A substantial portion of the armor validation testing has been completed, which will support the building block LFT&E vulnerability evaluation. The program has also undertaken numerous tests of existing and developmental 30mm high-explosive incendiary/tracer and armor-piercing, fin-stabilized, discarding-sabot/tracer (APFSDS-T) ammunition that will provide data to be used in development of an ammunition specification and selection of final designs. Testing of the APFSDS-T rounds included firing against a threat target as part of Joint Live Fire testing.

## **TEST & EVALUATION ASSESSMENT**

Early Operational Assessments in FY92, FY93, and FY99 found the design to be potentially operationally effective and potentially operationally suitable. The Marine Corps Operational Test and Evaluation Agency (MCOTEA) is working very closely with the program, and it is important that MCOTEA continue its role in early involvement.

The OT&E and LFT&E program plans are adequate to support decisions regarding operational effectiveness, operational suitability, and survivability.

## **CONCLUSIONS, RECOMMENDATIONS, LESSONS LEARNED**

The AAV program is aggressively pushing Live Fire test events early in the design process to incorporate what is learned into the design. This push can lead to challenges in integrating these events into the building block process due to their nature as contractor developmental testing and the degree to which the test articles are production representative.

