

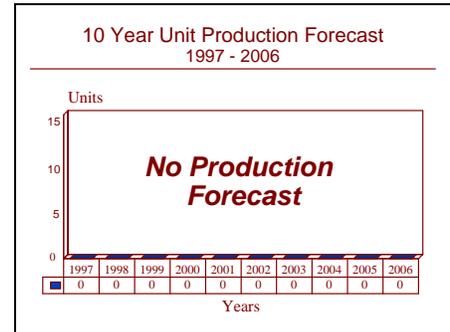
ARCHIVED REPORT

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ALQ-176(V) - Archived 3/98

Outlook

- Production complete; on-going logistics support
- Used for training EW operators



Orientation

Description. Pod-mounted radar jammer.

Sponsor

US Air Force
 Warner Robins Air Logistics Center
 Robins AFB, Georgia (GA) 31098
 USA
 Tel: +1 912 468 1001

Contractors

Hercules Defense Electronics Inc.
 13133 34th St. North
 Clearwater, Florida (FL) 34622
 USA
 Tel: +1 813 572 1900
 Fax: +1 813 572 2395

Status. In service, in production, ongoing logistics support.

Total Produced. An estimated 224 units have been produced.

Application. Can be carried by the F-4, F-5, F-16, Learjet 35A, and Canadair CC-144.

Price Range. The cost is estimated at US\$300,000 to US\$500,000, depending on configuration selected.

Technical Data

Dimensions	Metric	US
Weight:		
ALQ-176(V)1	100 kg	220 lb
ALQ-176(V)2	144.8 kg	319 lb
Pod Length:		
ALQ-176(V)1	202.2 cm	79.6 in
ALQ-176(V)2	263.1 cm	103.6 in
Pod diameter:	25.4 cm	10 in

Characteristics

Frequency coverage:	0.8 to 15.5 GHz
Power output:	150 to 400 W per tube CW Modulation:
Noise Pod:	
Input	Aircraft or ram air power
Output power	ALQ-176(V)1 - 2.6 kVA/1.2kW ALQ-176(V)2 - 4.5 kVA/2kW

Design Features. The ALQ-176(V) pod was designed to have a variable configuration, allowing for a two- or three-canister version. Each canister contains two high-efficiency, high-power, voltage-tuned cavity magnetron (VTM) transmitters. These transmitters are designed specifically to operate in the 1-15.5 GHz band. Additional solid state jamming components can provide a jamming capability below one GHz.

Depending on frequency band and tube selection, the VTM transmitters can generate 150-400 watts of jamming power at efficiencies of 50-60 percent. Alternatively, the ALQ-176(V) can be fitted with an automatic power management system. The two-canister variant can provide 3.2 kVA input/1.6 kW jamming output, while the three-canister variant can provide 4.5 kVA input/2.0 kW of output power.

The control panel is similar to the C-3361 used in the ALQ-119. It enables the pilot to select operational parameters and modes from the cockpit. The system has a built-in test capability.

The ALQ-176(V) radar jamming pod is used for combat evaluation and training exercises. The system can provide limited ECM support and standoff jamming in combat. The pod fits standard stores stations on most aircraft, enabling it to be used on fighter, attack, transport, and training aircraft.

Operational Characteristics. The ALQ-176(V) has a flexible design that makes it possible to change to new frequencies by replacing the final output power tubes. The main design advantage of the ALQ-176 is the use of a standardized transmitter. Transmitter spares, maintenance costs, and time and training skill requirements are greatly decreased by the standard transmitter design.

Variants/Upgrades

ALQ-176(V)1. Has up to three voltage-tuned magnetron transmitters.

ALQ-176(V)2. Has up to five transmitters.

Program Review

Background. The ALQ-176(V) was derived from the Sperry Corp Support Pac (V) ECM pod and initially planned for the low cost tactical ECM market. The Royal Thai Air Force acquired the system as a low-cost and simple way to prevent aircraft losses during ground attack missions. However, planners found the system useful for EW combat evaluation and training.

In 1987, Flight International won a US\$97.6 million USAF contract for 28 Learjet 35A aircraft for electronic warfare and air traffic control training. Flight International flies its own aircraft, releasing USAF pilots from training duties. Ten of the 28 Learjet aircraft are used for EW training. Onboard EW equipment consists of the ALQ-167 jammer, ALE-45 chaff dispenser, and the ALQ-176(V) internal installation.

Funding

Initial development was company-funded. Current contracting is from Operations and Maintenance accounts.

Recent Contracts

No recent contracts over US\$million recorded.

March 1997

Timetable

	1978	Development began
Mid	1983	Initial development completed
Sep	1984	First contract to US Air Force
Early	1985	Sale to Norway
	1986	Sale to Thailand
	1987	Flight International contract, system flight tested on F-16

Worldwide Distribution

Canada. Carried on the CC-144.

Norway. Uses the system on its F-16s.

Thailand. Procured for use on its F-5 fleet.

United States. Operates units primarily on Lear 35A training support aircraft.

Forecast Rationale

The ALQ-176(V) has been flight tested on USAF F-4, F-5, F-16 and Gates Learjet 35A. Canadair purchased one system for operational test and evaluation (OT&E) aboard a Canadair CC-144 Challenger, but did not procure any units. Norway and the Royal Thai Air Force have completed procurement of the system for their F-16 and F-5 fleets.

The ALQ-176 is relatively low cost, flexible, and can be adapted to many older aircraft. The system continues to fill an important market niche for many users. It can be used for ECM training without wear and tear on more expensive operational equipment, freeing the operational jammer inventory for operational needs.

Flight International leases its Learjet 35As to the Air Force for EW training. The equivalent of 10 pods (about 60 receivers and transmitters, along with spares) were purchased for this program. Hercules hoped to sell additional systems to Flight International as the market for contract training services expands among the US armed forces. A major new procurement has not taken place.

Budget constraints are pressuring the services to increase the use of simulation and training devices. As electronic combat becomes an increasingly important part of tactical planning, opportunities for this and similar systems will increase. These training and testing systems do not have to be as complex as fully operational jammers because, in the peacetime environment, many frequencies and techniques cannot be used without interfering with commercial communications and other electronics.

Thailand purchased a small number, estimated to be approximately ten, as an emergency protection capability. The units have been stored pending a decision.

Competition in the self-protection ECM market is intense among domestic and overseas suppliers. While Hercules continues to take advantage of an EW training and simulation market niche for the ALQ-176(V), the company would like to position the ALQ-176(V) at the lower end of the EW market for Third World nations that cannot afford or do not need a more sophisticated and expensive system.

Ten-Year Outlook

No further production expected.

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