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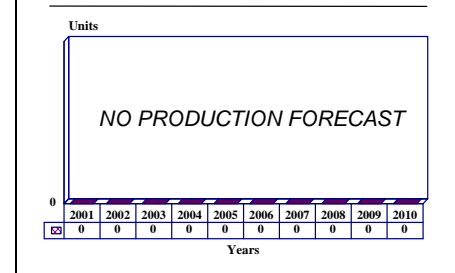
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ALQ-126B - Archived 04/2002

Outlook

- In service; logistics support continues
- Limited production complete
- F/A-18E/F baselined for IDECM suite

10 Year Unit Production Forecast
2001 - 2010



Orientation

Description. Airborne Defensive Electronic Countermeasures (DECM) set.

Sponsor

US Navy

Naval Air Systems Command
NAVAIR HQ
47123 Buse Road, Unit IPT
Patuxent River, Maryland (MD) 20670-1547
USA
Tel: +1 301 342 3000
Web site: <http://www.nawcad.navy.mil>

Contractors

BAE Systems – North America
Information and Electronic Warfare Systems
(formerly Sanders, a Lockheed Martin Co)
95 Canal Street
Nashua, New Hampshire (NH) 06060
USA
Tel: +1 603 885 4321
Fax: +1 603 885 3655
Web site: <http://www.baesystems.com>

Status. In service, with ongoing logistics support; added production now expected.

Total Produced. Through 2000 an estimated 1,828 units had been produced.

Application. Installed on the F/A-18C/D, F/A-18E/F, EF-18, CF/A-18, and AV-8B (ALQ-164(V) pod configuration), and can be carried by the EA-6B.

Price Range. Estimated cost is US\$75,000 to US\$120,000 per unit.

Price is estimated based on an analysis of contracting data and other available cost information, and a comparison with equivalent items. It represents the best-guess price of a typical system. Individual acquisitions may vary, depending on program factors.

Technical Data

	<u>Metric</u>	<u>US</u>
Dimensions		
<u>ALQ-126B</u>		
Size:	41.1 x 27 x 60.9 cm	16.2 x 10.6 x 24 in
Volume:	67,580 cm ³	2.3 ft ³
Weight		
Upper deck:	38.6 kg	85 lb
Lower deck:	47.7 kg	105 lb
<u>ALQ-164(V) pod</u>		
Size:	212.5 x 40 cm	85 x 16 in
Weight:	157.5 kg	350 lb
Characteristics		
Frequency range:	2 to 18 GHz	
Power managed:	to 1 kW/band	
Response time:	0.1 µsec	
Coverage:	60E beamwidth 15° down angle	

Design Features. The ALQ-126B is internally mounted on the F/A-18C/D and CF-18 and pod-mounted on the AV-8B. The system features a digital instantaneous frequency measurement receiver, distributed microprocessors, large-scale integrated circuits, and solid-state microwave amplifiers.

It incorporates a varied antenna system. There is a set of high-band antennas just aft of the radome, a set of mid-band and low-band antennas on either side of the aircraft just ahead of and just behind the wings on both sides of the aircraft, and a high-band antenna on top of the left tail.

The ALQ-126A was a vast improvement over the older ALQ-100(V); still, development was begun on an enhanced version with a distributed microprocessor control system in 1978. The ALQ-126B can be reprogrammed to counter changing threats. Advances in signal processing technology were incorporated into the new unit. Microprocessors prioritize jammer action to manage available power in a multiple threat environ-

ment. Improved software processing allows the ALQ-126B to interface with the ALR-67(V) warning receiver.

Operational Characteristics. Jamming techniques are developed in response to the identification of received signals based on a user data file carried in an onboard library of threat characteristics. The ALQ-126B system was designed to employ various jamming techniques, including:

- Inverse Conical Scanning (ICS)
- Range Gate Pull Off (RGPO)
- Velocity Gate Pull Off (VGPO)
- Swept Square Wave (SSW)
- Main Lobe Blanking (MLB)

The ALQ-126(V) can operate independently, but the system is also interoperable with APR-43(V), ALR-45F, ALR-67(V), and ALQ-162(V), and the HARM, Sparrow, Phoenix, and AMRAAM missiles.

Variants/Upgrades

ALQ-126A. This original version is no longer in production.

ALQ-164(V). A podded version of the ALQ-126B, designated the ALQ-164, can be carried by the AV-8B

Harrier II. The ALQ-164(V) also contains a Northrop ALQ-162(V) continuous wave (CW) jammer as part of the pod design.

Program Review

Background. The ALQ-126A was developed under the Navy's Charger Blue EW Update program and provided a wider coverage of radar frequency bands than the ALQ-100(V). The ALQ-126A incorporated improved deception techniques, modernized construction and cooling arrangements.

In 1991, the Republic of Korea changed its planned procurement of F/A-18s and selected the F-16 instead. The ALQ-165(V) ASPJ was selected as the electronic countermeasures (ECM) system to be installed on the 120 aircraft planned for procurement.

On November 26, 1991, Lockheed Sanders completed deliveries based on the Lot V production contract with the US Navy. This was the last contracted production of the ALQ-126B system. Spares and maintenance support efforts continued, including the production of a limited number of spare units. Up to 850 retrofit kits were manufactured for the US and possibly 130 kits for Foreign Military Sales (FMS) customers. This enhanced the acquisition capabilities and deception effectiveness against new threat radar modes. Efforts included both software and hardware improvements, many in response to combat experience in the Persian Gulf.

In December 1992, the Navy terminated all production contracts on the ASPJ because of troubled testing. Funding was allocated to test the airborne self-protection jammer (ASPJ) on the F-14D.

In September 1993, the Navy began to develop a new defensive electronic countermeasures suite for current and future F/A-18E/F aircraft. This was prompted by the ASPJ termination decision and the need for a replacement for the ALQ-126B. A key part of the IDECM program was an evaluation of F/A-18 survivability needs.

In 1994, Finland and Switzerland decided to procure the ALQ-165(V) ASPJ system for their F/A-18s. South Korea made a similar decision. By establishing the ALQ-165(V) as a viable defensive countermeasures suite, these decisions significantly impacted future production requirements.

On November 3, 1995, the Naval Air Systems Command issued a US\$26.8 million cost-plus-incentive-fee/award-fee contract for the development of the RF countermeasures subsystem for IDECM. The contract was awarded to Sanders, which had teamed with ITT Avionics.

The IDECM system will provide an onboard technique generator (ALQ-214(V)) connected to an ALE-55(V) towed decoy that will transmit jamming signals to divert RF missiles. It will integrate the RF countermeasures suite with a common missile warning system (CMWS) and advanced strategic/tactical expendable (ASTE) flares to defeat infrared (IR)-guided missiles.

An August 11, 1998, *Commerce Business Daily* announced that the Naval Air Warfare Center, Aircraft Division, Lakehurst, New Jersey, intended to initiate a modification to contract N68335-95-C-0200 (an existing contract with Support Systems Associates Inc [SSAI]). The proposed modification was for the development of spare and repair parts for the ALQ-126B CASS test program sets (TPS). The 30 specific items would support the CASS TPSs in the fleet. Because SSAI is the designer, developer and original equipment manufacturer (OEM) of the ALQ-126B CASS TPS and thus the only firm with the unique knowledge, experience, and proprietary data required to fulfill requirements for spare and repair parts, the contract would be awarded sole-source.

Funding

Current funding is from Operations and Maintenance accounts.

Recent Contracts

(Contracts over US\$5 million)

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Teledyne	19.0	Apr 2001 – ID/IQ FFP contract for major repair and test of ALQ-126B Traveling Wave Tubes. To be completed May 2006. (N00164-01-D-

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Electronic Tech		0014)
Triton Electron Technology	10.4	Apr 2001 – ID/IQ FFP contract for major repair and test of ALQ-126B Traveling Wave Tubes. To be completed May 2006. (N00164-01-D-0013)

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1969	ALQ-126 development begun
	1973	ALQ-126A in production
	1975	ALQ-126B development begun
Oct	1981	ALQ-126B approved for service use
Aug	1982	Initial ALQ-126B production contract awarded
Sep	1983	Production of ALQ-126B begun
Jan	1984	First production deliveries of ALQ-126B
	1991	Last ALQ-126B deliveries
Dec	1992	Navy cancels ASPJ production contracts
	1994	Finnish and Swiss decision to procure the ASPJ
Nov	1995	IDECM EMD contract award
Jan	1997	Korea selects ASPJ for EW needs
	2000	Last estimated production
	2001	Support continues

Worldwide Distribution

Australia. The Australians use the ALQ-126B on their F/A-18s

Canada. The CF-18 carries the ALQ-126B

Denmark. Denmark carries the units on its F-35s and F-16s

Kuwait. Kuwaiti F/A-18s carried the ALQ-126

Malaysia. Contracts call for the initial units to support a future F/A-18C/D procurement

Spain. Spain uses the system on its EF-18 fleet

Forecast Rationale

The ALQ-126B was the first multimode, power-managed, reprogrammable defensive ECM system used by the US Navy and Marine Corps. It is a capable, flexible, supportable system that met Navy needs, but is older technology and will not be installed on next-generation aircraft. Originally, plans were to use ALQ-126Bs for EW on the first F/A-18E/Fs to come off the production line because the IDECM system would not be ready in time. Plans changed, however, and the Navy decided to use in-stock ALQ-165(V) ASPJ units as the onboard jammer and the ALE-50(V) towed decoy as the Block I IDECM system. Block II would incorporate the planned ALQ-214(V) onboard system.

The ALQ-126B performed adequately in Persian Gulf combat, but weaknesses in the Navy's reprogramming capability diminished what could have been better performance. Coupled with the loss of three F/A-18C/Ds in the Gulf, it was difficult for the ALQ-126B to claim superior performance in combat. Competitors took advantage of that fact to make inroads into potential markets. A 1997 GAO report cited the value of towed decoys for protection, and noted that suites such as the IDECM are more operationally effective than onboard equipment. The GAO even recommended adding the off-the-shelf ALE-50(V)s to operational F/A-18C/Ds. The Navy decided against this because of aerodynamic problems.

This eliminated any chance of significant further US production of the ALQ-126B. The last USN orders were funded in FY89, and surge production to support the Persian Gulf War allowed the company to complete the contract ahead of schedule. Production covered both F/A-18C/D and AV-8B (ALQ-164(V)) require-

ments. An adequate supply is on hand to support near-term F/A-18 production.

Production of spare/replacement parts continues to support systems in the field. Follow-on repair of systems in the active inventory will continue.

Ten-Year Outlook

No further production anticipated.

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