

# ARCHIVED REPORT

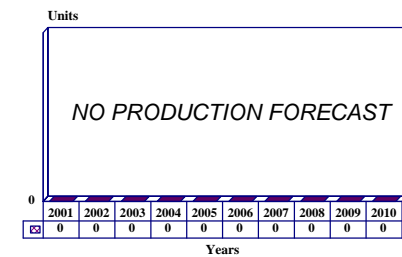
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## ASQ-151 – Archived 12/2002

### Outlook

- B-52H sole platform for ASQ-151
- Production of upgrade kit is believed to have been completed
- Barring any new activity, this report will be archived in the near future

10 Year Unit Production Forecast  
2001 - 2010



### Orientation

**Description.** Airborne Electro-optical Viewing System (EVS).

#### Sponsor

US Air Force  
Warner Robins Air Logistics Center  
Robins AFB, Georgia (GA) 31098  
USA  
Tel: +1 912 926 1110

#### Contractors

Lockheed Martin Fairchild Defense Systems Group  
(formerly Loral Fairchild Systems)  
300 Robbins Lane  
Syosset, New York (NY) 11791  
USA  
Tel: +1 516 349 2200  
Web site: [www.lmco.com](http://www.lmco.com)  
(FLIR Upgrade)

Northrop Grumman Corporation  
1840 Century Park East  
Los Angeles, California (CA) 90067  
USA  
Tel: +1 310 553 6262  
Fax: +1 310 201 3023  
Web site: [www.northrop-grumman.com](http://www.northrop-grumman.com)  
(AVQ-22 Subcomponent)

Raytheon Company  
141 Spring Street  
Lexington, Massachusetts (MA) 02421  
USA  
Tel: +1 781 862 6600  
Fax: +1 781 860 2172  
Web site: [www.raytheon.com](http://www.raytheon.com)  
(AAQ-6 Subcomponent)

**Status.** System production completed in 1982; improvements ongoing.

**Total Produced.** An estimated total of 375 ASQ-151 systems and upgrade kits were produced.

**Application.** B-52H aircraft.

**Price Range.** The price of an upgrade kit was about US\$180,000 in 1999, based on procurement quantities and funding amounts scheduled in US Air Force procurement plans (P-1).

## Technical Data

**Design Features.** The ASQ-151 Electro-optical Viewing System (EVS) is designed to allow B-52G/H crews to operate the aircraft in all weather conditions or with its thermal windows closed. Its primary subsystems are the Westinghouse (now Northrop Grumman) AVQ-22 Low-Light Level TV (LLLTV) and Hughes Aircraft (now Raytheon) AAQ-6 forward-looking infrared (FLIR) scanner. Beginning in June 1973, all B-52G/Hs were redelivered with the AVQ-22 and the AAQ-6.

The AVQ-22 LLLTV is a steerable optical sensor that provides a day or night visual image of the area ahead of the bomber's flight path. The LLLTV image is

formatted with an overlay containing other EVS data, including altitude, airspeed, heading, and radar terrain information. This overlaid image is transmitted to monitors in the cockpit for both pilots and the navigator and radar operator. The AAQ-6 FLIR is also a steerable sensor that enables bomber crews to fly low-level night operations by providing a TV-like thermal image of the oncoming terrain to cockpit displays.

The sensor heads are housed in individual turreted blisters located at the underside of the nose. The port blister contains the LLLTV, while the starboard blister contains the FLIR sensor. Both blisters can be steered + or - 45° horizontally and +15° and -45° vertically.

## Variants/Upgrades

**Digital Upgrade.** In 1986, the Air Force embarked on a US\$31 million ASQ-151 modernization effort. The program dramatically increased the ASQ-151's mean time between failures (MTBF), from its old 200-hour mark to over 3,500 hours.

The system's major upgrade was the production of a Digital Scan Converter (DSC), which replaces the

existing FLIR signal processor. The Warner Robins Air Logistics Center awarded Boeing a US\$14 million contract in January 1985. Boeing designed and built 291 update units, with deliveries running from February 1986 to July 1987. The system provides improved reliability and maintainability to the existing EVS system.

## Program Review

**Background.** In response to the growing effectiveness of threat air defense capabilities, the ASQ-151 Electro-Optical Viewing System (EVS) was developed for the B-52G/H to provide the strategic bomber with the ability to perform low-level penetration and damage assessment. Development began in the early 1970s.

The Boeing Military Airplanes Co completed system integration for the B-52 fleet in 1976. About 272 ASQ-151 EVS systems were delivered to Boeing by then, with Westinghouse and Hughes providing additional spares later in the decade. Production for the B-52 fleet was completed in 1982.

Since that time, significant modification efforts have kept the program active. The Air Force was to begin modification funding for the B-52G/H EVS Reliability Improvement Program (MN-19402B) in 1993, as part

of a 32-month development contract worth US\$5 million for production and testing of five prototype units. These were delivered through 1994, with another prototype delivered in 1997. Production contracts valued at US\$30 million for 97 kits were originally expected, but the B-52G was dropped from these plans and retired, narrowing the scope to the B-52H only.

In the 1998 budget, the overall goal was to enhance 66 B-52H aircraft to replace retired B-52Gs and therefore procure a like number of EVS kits, although only 56 kits were funded in procurement documents. Year 2000 funding, however, called for 89 of these kits through the year 2001. It is believed that all of the EVS kits have been delivered. No further procurement is expected.

## Funding

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No specific funding for the ASQ-151 has been identified.

## Recent Contracts

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No contracts over US\$5 million have been identified.

## Timetable

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<u>Year</u>	<u>Major Development</u>
1972	FLIR portion development
1973	LLLTV portion development
1977	Initial installation on B-52G/H
1982	Production completed
1985	Modernization of approximately 200 systems begun
1987	Final deliveries of digital scan converters
1991	EVS Improvement Program initiated
1992	Electro-optical sensor prototype development and testing initiated
1994	Five prototypes delivered under EVS Reliability Improvement Program
1995	Electro-optical sensor prototype testing completed
FY 2001	Last scheduled year of production for EVS modification kits

## Worldwide Distribution

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The ASQ-151 was delivered exclusively to the **US Air Force** for B-52G/H aircraft. Because of the subsequent retirement of the B-52G fleet, the current modification program involves only the B-52Hs remaining in inventory.

## Forecast Rationale

The ASQ-151 was initially installed in the B-52G/H bombers during the first half of the 1970s. Working in conjunction with the AAQ-6 forward looking infrared (FLIR) and the AVQ-22 low light level television camera (LLLTV), the ASQ-151 provided crews with an overlaid terrain avoidance profile trace, alphanumeric symbology, and artificial horizon overlay. By doing so, this electro-optical viewing system gives US Air Force B-52G/H crews enhanced awareness during low-level night flights, adverse weather conditions, or flights with closed thermal windows.

In an effort to increase its performance and mean time between failures rate, an upgrade contract was awarded

in 1992. Development, production and testing of five prototypes were completed in 1995. An additional prototype was reportedly delivered in 1997. In the 1998 fiscal year budget enhancements for 66 B-52H aircraft were funded.

It is believed that all of the ASQ-151 upgrade kits for this program have already been delivered. Although the B-52H platform may be operational until 2030, no further outlays are projected for the ASQ-151. Barring any new activity, this report will be archived in the near future.

## Ten-Year Outlook

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### ESTIMATED CALENDAR YEAR PRODUCTION

Designation	Application	Thru 00	High Confidence Level			Good Confidence Level			Speculative			Total 01-10	
			01	02	03	04	05	06	07	08	09		10
ASQ-151	Prior Prod'n:	375	0	0	0	0	0	0	0	0	0	0	0