ASQ-164/ASQ-165 - Archived 01/2000

Outlook

- Fielded on US Navy SH-60B LAMPS Mk III helicopters

- Production is complete

- Deliveries of modification kits nearing completion

- **THIS REPORT WILL BE ARCHIVED NEXT YEAR (2000)**

10 Year Unit Production Forecast
1999-2008

Units

NO PRODUCTION FORECAST

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
⊠	0	0	0	0	0	0	0	0	0	0

Years
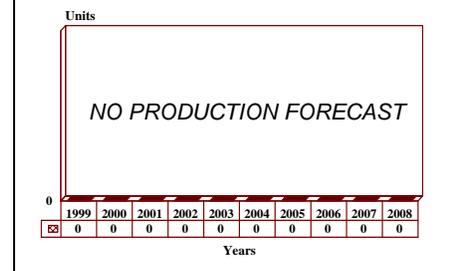
Orientation

Description. Control-Indicator Set (CIS) and Armament Control-Indicator Set (ACIS), respectively.

Sponsor
US Navy
  Naval Air Systems Command (NAVAIR)
  Air-09C/2.0C Bldg. 441
  21983 Bundy Road, Unit #7
  Patuxent River, Maryland (MD) 20670-1127
  USA
  Tel: +1 301 757 9044

Contractors
Orbital Sciences Corporation
  Fairchild Defense
  20301 Century Boulevard
  Germantown, Maryland (MD) 20874-1181
  USA
  Tel: +1 800 368 2812
  Tel: +1 301 428 6477
  Fax: +1 301 428 6885

Status. Production complete.

Total Produced. An estimated 197 ASQ-164 and 197 ASQ-165 systems were delivered through 1995.

Application. Sikorsky SH-60B LAMPS Mk III Seahawk helicopters for the US Navy only.

Price Range. Indeterminate.

Technical Data

Design Features. The ASQ-164 Control-Indicator Set (CIS) and the ASQ-165 Armament Control-Indicator Set (ACIS) were developed for a specific application aboard the US Navy's SH-60B Light Airborne Multi-Purpose Systems (LAMPS) Mk III helicopter. The SH-60B provides the Navy with extended anti-sub-

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marine warfare (ASW) capabilities while complementing other sea-based and land-based ASW operations. The SH-60B carries the LAMPS Mk III avionics suite, a sophisticated electronics system that ties together the aircraft's numerous sensors and provides the onboard tactical commander with pertinent data.

ASQ-164. The ASQ-164 CIS is an advanced avionics system designed to furnish control for the airborne tactical operator and the sensor operator. The CIS, which utilizes microprocessor technology, consists of two separate units: the C-10487/ASQ-164 Control Indicator for the airborne tactical operator's use, and the C-10486/ASQ-164 Control Indicator which is used by the sensor operator. The C-10487 measures 16.5 x 5.75 x 9.16 in (41.9 x 14.6 x 23.3 cm), whereas the C-10486 measures 5.75 x 16.5 x 9.16 in (14.6 x 41.9 x 23.3 cm); both weigh 20 pounds (9.1 kg). Control of functions that are assigned to each operator's station is made through the keysets of each unit.

The ASQ-164 CIS features built-in test (BIT) circuitry which can detect over 98 percent of possible keyset faults. The system also has compatibility at both the unit and module level for use by automatic test equipment. System integration with the AYK-14 Airborne Computer is via the MIL-STD-1553 databus. Operating temperatures for the ASQ-164 range from -40°C

(-104°F) to 70°C (158°F), with 30-minute operation at 95°C (203°F) possible. The mean time between failures (MTBF) of both keysets is 3,316 hours.

ASQ-165. The ASQ-165 ACIS controls a variety of equipment, including one or two Mk 46 Mod 0/1/2 torpedoes, two BRU-14A bomb racks, one or two Practice Multiple Bomb Racks (PMBRs) with Sound Underwater Sources (SUSs), and up to 25 air-launched sonobuoys. Inventory usage, functional status and BIT are controlled by a microprocessor, while the jettison function is handled by hard-wired circuits. In addition, jettison functions are redundant and designed so that no single circuit failure will result in the inadvertent release of stores or inability to jettison any stores.

The ASQ-165 ACIS consists of a C-10488/ASQ-165 Armament Control Indicator (ACI), weighing 4.5 pounds (2.0 kilograms) and used by the airborne tactical operator/pilot, and a CV-3531/ASQ-165 Armament Signal Data Converter (ASDC) weighing 23 pounds (10.4 kilograms). Dimensions of the ASQ-165 are 8.63 x 5.75 x 6.69 inches (21.9 x 14.6 x 17.0 centimeters) for the ACI, and 7.62 x 5.88 x 45.7 inches (19.4 x 14.9 x 45.7 centimeters) for the ASDC. The entire system is capable of operation between a temperature range of -40°C (-104°F) and 71°C (160°F). The cockpit-mounted ACI has an MTBF of 25,700 hours; the MTBF of the ASDC is 3,850 hours.

Variants/Upgrades

ASQ-198. The ASQ-198 ACIS is an improved, downward-compatible version of the ASQ-165. It features a C-11785/ASQ-198 ACI and a CV-4003/ASQ-198 ASDC, and, as with its predecessor, provides control of one or two Mk 46 Mod 0/1/2 torpedoes and up to 25 air-launched sonobuoys. It also interfaces with three BRU-14A bomb racks, the Mk 50 Advanced Lightweight Torpedo, and the Penguin missile.

The ACI subsystem measures 8.63 x 5.75 x 5.25 inches (21.9 x 14.6 x 13.3 centimeters) and weighs 5.7 pounds

(2.6 kilograms). Dimensions for the ASDC are 7.62 x 5.88 x 14.1 inches (19.4 x 14.9 x 35.8 centimeters); its weight is 30 pounds (13.6 kilograms). A MIL-STD-1553 databus provides communication with all parts of the system except the jettison function, which will not be affected by any single circuit failure. This databus allows connection with the AYK-14 computer. The ASQ-198 also includes a built-in test feature that detects 98 percent of faults to tested circuits. MTBF at 71°C is 10,000 for the ACI, and 4,600 hours for the ASDC.

Program Review

Background. Fairchild Defense (acquired by Orbital Sciences Corp in 1994) developed the ASQ-164 and the ASQ-165 for the Sikorsky SH-60B LAMPS Mk III ASW helicopter in the early 1980s. Deliveries of the first production systems began in 1983. Production of the ASQ-164 and ASQ-165 was to continue through the 1990s to support US Navy downsized requirements for the SH-60B LAMPS Mk III ASW helicopter.

As the ASQ-164 and the ASQ-165 are used only on this one platform, all production of the CIS and ACIS was directly tied to the livelihood of the ASW helicopter.

The Navy's originally planned SH-60B objective was to build 265 helicopters, including five prototypes, by the late 1990s. As a result of the ongoing downsizing of US forces, however, the Navy was compelled to cut procurement off at a total of 188 SH-60Bs. The last was delivered in September 1996, ensuring the end of ASQ-164/165 production.

The ASQ-164 was originally scheduled to equip the SH-60F also, but the Navy decided to go with a less sophisticated avionics suite, one without the CIS. At any rate, with ASW taking a lower priority among missions and funding, the US Navy has chosen to combine the SH-60F and HH-60H with the SH-60B into a single platform, designated SH-60R. This remanufactured helicopter will carry the ASQ-164 and the upgraded ASQ-198 version of the ASQ-165.

Funding

Funding related to the ASQ-164 and the ASQ-165 is not broken out in current US budget documents.

Recent Contracts

None identified.

Timetable

Month	Year	Major Development
Oct	1981	Preliminary testing completed
Apr	1981	First pilot production contracts awarded
Jan	1982	Inspection and survey trials
May	1983	Full production contracts awarded
Sep	1983	First production avionics suite delivered
	1994	Orbital Sciences Corp acquired Fairchild Defense
Sep	1996	Last SH-60B delivered to US Navy
Through	1998	ASQ-198 delivered to US Navy in form of upgrade kits

Worldwide Distribution

These systems were produced specifically for SH-60B LAMPS Mk III helicopters operated by the **US Navy**.

Forecast Rationale

The ASQ-164 and ASQ-165 were produced into the mid-1990s only for US Navy SH-60B helicopters, not for exports or any other platform. Along with the SH-60Bs, SH-60F and HH-60H helicopters are scheduled to be modified to the R standard, but this effort will not involve continued procurement of these sets.

The majority of subsystems composing the LAMPS Mk III avionics suite were marked for replacement as part of the Block I or Block II upgrades, and the ASQ-165 follows this trend. Deliveries of modification kits to bring it to the ASQ-198 standard were nearly complete as of late 1998. The ASQ-164 remains in service as originally fitted.

Ten-Year Outlook

No further production is forecast. **THIS REPORT WILL BE ARCHIVED NEXT YEAR (2000).**

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