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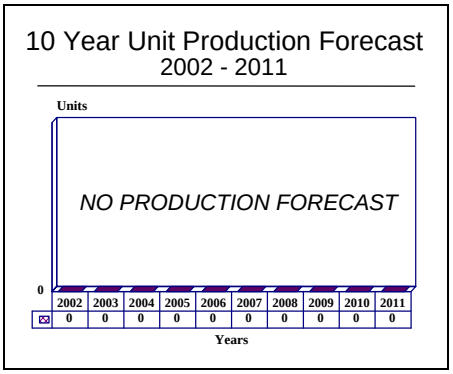
ASQ-114/212 – Archived 01/2003

Outlook

- No new orders have been placed for Lockheed Martin's ASQ-212
- Forecast International will analyze new ASQ-212 developments as they occur



Orientation

Description. The ASQ-114 is a Digital Data Computer. It is specifically designed for P-3C anti-submarine warfare (ASW) aircraft. The ASQ-212 is an upgraded version of the ASQ-114.

Sponsor

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Contractors

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Web site: http://www.lockheedmartin.com
(Development/production)

Status. The ASQ-114 production program has long been completed. Production of ASQ-212s was completed in 2001.

Total Produced. Over 400 ASQ-114s were produced. Approximately 205 ASQ-212s have been produced.

Application. To processes data from anti-submarine warfare sensors. The sole platform is the P-3C Orion aircraft.

Price Range. Based on a 1994 contract, the price of a CP-2044 retrofit kit to upgrade the ASQ-114 to the ASQ-212 configuration was approximately US$500,000 (1994 dollars).

Technical Data

ASQ-114. The ASQ-114 is a Digital Data Computer designed for P-3C anti-submarine warfare (ASW) aircraft. The system consists of one central processor, four Direct Read Only (DRO) core memory chassis, one input/output module, a power supply, and a top-mounted operator control console. Memory stacks can

be easily replaced without removing the modules from the mainframe.

The ASQ-114 processes data from ASW sensors, communications, navigation, and tactical armament status sources, as well as other vital data necessary for solving ASW problems. This computer is used to perform the following functions:

- Track sonobuoys in the water,
- Code and transmit messages,
- Pinpoint exact locations of aircraft, and
- Determine when to fire onboard weapons (such as the Harpoon missile).

The unit also contains built-in test (BIT) to troubleshoot itself in the event of a failure.

By design, the system interfaces with numerous terminals on a single mainframe, resulting in a high unit cost. The ASQ-114's memory is very limited, with only 64K 30-bit words and provision for addressing an additional 64K. The mass storage device (MSD) consists of two RD-319/ AYA-8 tape drives. The MSD operates at 200 and 556 bits-per-inch in non-updated P-3Cs.

The system includes seven data terminals with varying degrees of complexity. Three of the terminals are equipped with large multiple tactical displays. Two have smaller text-only auxiliary readouts, and several of the keypads are provided with simple projected readout displays. The multiple tactical displays use analog graphics driven by a function generator in a peripheral processor.

ASQ-212. The CP-2044 processor retrofit kit, which includes several interconnection devices, modifies the existing ASQ-114 computer by increasing throughput power and speed (30x) to accommodate new equipment upgrades for the Update III aircraft. The reconfigured computer is designated the ASQ-212.

The ASQ-212 CP-2044 uses an extended memory upgrade (to handle global and secondary memory) of the ASQ-114. The CP-2044 Motorola 68030 processor provides a throughput capability ranging from 10 to 25 Mips. The use of a VME open-bus architecture in the CP-2044 makes possible the flexible reconfiguration of the system to accommodate the additional input/output, memory, and processing modules. These modules are needed to provide Global Positioning System (GPS) and satellite communications (SATCOM) capabilities, as well as for such processing-intensive functions as data fusion and sensor post-processing. Significantly, in the full-up Update III Ada version, less than 50 percent of the CP-2044's minimum throughput and memory capacity is actually used.

Variants/Upgrades

Data Management Subsystem DMS. As part of a January 1995 contract for the upgrade of Australia's 18 P-3C Update II Orion maritime patrol aircraft, Unisys (now Lockheed Martin) was to supply a DDC-060 Data Management Subsystem (DMS). This version of the ASQ-212 offers increased speed, expanded data storage, active windowing capabilities, high-resolution color displays, and integrated software. Motorola 68060 processors enhance the processing capabilities. The upshot of these improvements is to permit access to sensor data for all sensor operators.

Program Review

Background. In the mid-1960s, the ASQ-114 was developed. This digital data computer was specifically designed for P-3C anti-submarine warfare (ASW) aircraft. The last production order for the ASQ-114 in its original configuration was issued in FY86. That order was for 17 units.

Development of the ASQ-212 began in September 1989 and was followed by several contracts for CP-2044 retrofit kits, which were awarded through the early 1990s. One of them, an export sale, was a US$6.5 million contract announced in December 1991 and completed in March 1994. This export order was for eight kits for South Korea and four for Norway. The latest known US contract, issued in February 1994 and worth US$30 million, called for the delivery of 60 CP-2044 kits for the US Navy. This contract was completed in July 1996.

In 1995, three countries announced P-3C upgrades. These countries were Australia (for 18 aircraft), the Netherlands (13), and Norway (4). Upgrades for Australia and the Netherlands included ASQ-212 procurements. In the case of Norway, the program was scheduled to run from 1997 to 1999, but the ASQ-212 portion of it had already been accomplished in the earlier contract mentioned above.

As a result of corporate reshuffling and acquisitions, the prime contractor for the ASQ-114/212 shifted from

Unisys, to Paramax (1992), back to Unisys (1993), to Loral (1995), and finally to Lockheed Martin (1996).

Funding

Funding figures for the ASQ-212 have not been published in FY02 US Department of Defense budget documents.

Recent Contracts

No recent contracts for the ASQ-212 have been identified.

Timetable

Month	Year	Major Development
FY	1970	ASQ-114 entered fleet service
FY	1986	Last production order for ASQ-114
Sep	1989	ASQ-212 development begun
Mar	1994	Completion of ASQ-212; deliveries to South Korea and Norway
Mar	1995	Unisys sold to Loral
FY	1996	Lockheed Martin acquired Loral; completion of last known CP-2044 kits; US contract
FY	2001	P-3C upgrades for Australia to be completed
FY	2002	P-3C upgrades for the Netherlands to be completed

Worldwide Distribution

The ASQ-212 is in service with the **US Navy**, **Australia**, the **Netherlands**, **Norway**, and **South Korea**. The ASQ-114 was known to be in service with **Iran** and **Japan**.

Forecast Rationale

The ASQ-114 is a Digital Data Computer. It processes data from anti-submarine warfare sensors. The ASQ-114 was specifically designed for P-3C anti-submarine warfare (ASW) aircraft. The ASQ-212 Digital Data Computer is an upgraded version of the ASQ-114.

The ASQ-114 production program has long been completed. Over 400 ASQ-114 computers were produced. Lockheed Martin manufactured the last ASQ-212 Digital Data Computer in 2001, and approximately 205 ASQ-212s have been produced. No new orders have been placed for Lockheed Martin's ASQ-212. Forecast International will analyze new ASQ-212 developments as they occur.

Ten-Year Outlook

No production of either the ASQ-114 or the ASQ-212 is expected. Consequently, the outlook chart has been omitted.

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