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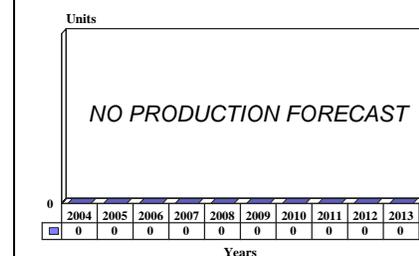
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BQN-17(V) Secure Depth Sounder - Archived 4/2005

Outlook

- Last upgrade completed in year 2002
- No additional production seen at this time
- Follow-on applications reportedly under investigation
- Barring further activity, this report will be archived in April 2005

10 Year Unit Production Forecast
2004 - 2013



Orientation

Description. The BQN-17(V) Secure Depth Sounder is a fathometer (sonar) used by U.S. submarines for determining water depth below the keel.

Sponsor

United States Navy
Naval Undersea Warfare Center, Division Newport
Newport, Rhode Island (RI)
USA

Status. U.S. Navy Los Angeles class submarines modernization and all other upgrades are believed to have been completed by the end of year 2002.

Total Produced. Approximately 100 full system units of the BQN-17(V) were believed produced for the U.S. Navy. The last modernization involved the production of 31 upgrade kits/systems (one for testing and 30 for active Los Angeles class submarines).

Application. Depth (bottom) sounding for submarines.

Price Range. The original BQN-17 was estimated to cost between US\$250,000 and US\$300,000 per unit. The Los Angeles class modernization was estimated to cost US\$306,666 per unit (price based on FY00 contract cost averaging).

Contractors

EDO Electro-Ceramic Products, <http://www.edoceramic.com>, 2645 South 300 West, Salt Lake City, UT 84115-2968 United States, Tel: 1 (801) 486-7481, Fax: 1 (801) 484-3301, Email: sales@edoceramic.com, Prime

Raytheon Naval Integration Center, <http://www.raytheon.com>, 1847 West Main Road, Portsmouth, RI 02871-1087 United States, Tel: 1 (401) 847-8000, Fax: 1 (401) 842-5200, Second Prime

Digital System Resources, Inc., DSR, <http://www.dsrnet.com>, 12450 Fair Lake Circle, #500, Fairfax, VA 22033 United States, Tel: 1 (703) 263-2800, Fax: 1 (703) 263-2802, Subcontractor

Technical Data

Design Features. The BQN-17(V) is a navigational depth sounder. By incorporating standard electronics modules, it reportedly achieved reliability levels of 0.05

failures per million hours of operation. The U.S. Navy is retrofitting all BQN-17(V)s in service with extensive modifications and upgrades developed by EDO

Corporation. The SSN-688 Los Angeles class submarines were the last to receive this system. The more recent SSN-688Is have received the integrated BSY-1 Submarine Advanced Combat Systems, which integrate the functions of several systems previously carried

separately. This system reportedly incorporates major portions of BQN-17(V) technology. The SSN-21 Seawolf class submarines have a different depth sounder/fathometer.



USS Columbia (SSN-771) is a U.S. Navy Los Angeles class submarine. This class is the primary platform installation for the BQN-17A

Source: U.S. Navy

Variants/Upgrades

The BQN-17(V) modernization upgrade, using commercial off-the-shelf technology (COTS) for U.S. Navy Los Angeles class submarines, was completed by the end of year 2002. The last model is known as the BQN-17A, which enhanced the processing and display software for the COTS-based control and display unit.

Program Review

The BQN-17(V) concept was formulated in FY72 when the original manufacturer, Raytheon, received a US\$594,000 contract from the U.S. Navy to design, develop, test, and furnish two engineering development models. Acceptance tests were completed in FY74. At-sea certification tests were successfully completed in 1976. Through FY78, Raytheon was awarded US\$13.6 million for production of 69 units. Between FY79 and FY84, Raytheon received contract increments totaling US\$5.53 million for engineering support, spares, and technical assistance. Raytheon delivered the last of its production around 1992, which for all practical purposes marked the end of the BQN-17(V).

Through the late 1990s, the U.S. Navy continued upgrade work on the BQN-17(V) and was expected to have finished all system work by the end of 1999. However, with the decommissioning of older

submarines and the budget cuts that have severely limited the building of new boats, the Navy decided it had better do a major modernization to existing systems, as the Los Angeles class submarines are being given a life extension themselves.

In March 2000, EDO Corporation was awarded a US\$9.164 million contract to modernize and upgrade 31 BQN-17(V) units (one test system and 30 production units for fleet submarines). The fleet upgrade was completed by the end of 2002.

EDO and the U.S. Navy reportedly discussed possible follow-on applications and extensions for surface ships and Trident submarines based largely on the inherent capabilities of DSR's design approach to the BQN-17(V)'s current software modernization and

architecture. However, no further information on the subject has been forthcoming.

Funding

No additional funding beyond the upgrade contract to EDO has been identified at this time.

Recent Contracts

<u>Contractor</u>	<u>Award (US\$ millions)</u>	<u>Date/Description</u>
EDO	9.2	Feb 2000 – An FFPC contract consisting of one first article unit and 30 production units of the BQN-17 Secure Depth Sounder for U.S. Navy Los Angeles class submarines. Contract completed in September 2002. (N66604-00-C-2223)
DSR	N/A	Mar 2000 – Subcontract from EDO to design the architecture and develop the processing and display software for the COTS-based control and display unit of the two-unit BQN-17. The subcontract award was for non-recurring engineering plus one first article unit, along with recurring assembly, integration, and testing for 30 production units.

Timetable

<u>Year</u>	<u>Major Development</u>
1972	Initial concept development
1974	Acceptance tests completed
1975	First system delivered
1976	Initial production models
1986	Upgrade implementation
1987	Los Angeles class receives BSY-1 C ² system
2000	Major modernization effort (BQN-17A) for 30 Los Angeles class submarines
2001	Concept development for surface ship applications
2002	BQN-17A upgrade for Los Angeles class submarines complete

Worldwide Distribution

The BQN-17(V) is a **U.S. Navy**-only system. It was originally installed on a number of U.S. submarine classes, and is the primary depth finder on the Los Angeles class, for which the system has been heavily upgraded.

Forecast Rationale

The BQN-17A Secure Depth Sounder upgrade was a good success; so much so that the U.S. Department of Defense and the manufacturer EDO Corporation are investigating follow-on and other applications of the system and its architecture – something that was not considered when the original BQN-17 was designed. Such an investigation is a sound decision for this system

since the existing product offers a baseline from which to start and negates reinventing the wheel for a next-generation system. Although the BQN-17(V) seems to have ended with the latest modernization production run (the BQN-17A model), it will be interesting to watch and see how the technology is applied to other areas.

Ten-Year Outlook

No further production is forecast, thus the production chart has been omitted. This report will be archived in April 2005. Should activity on this system resume, this report will be updated and reissued as appropriate.

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