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Cost and Performance of Various Antisubmarine Warfare Systems

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The Honorable Edward M. Kennedy
Chairman, Subcommittee on Projection
Forces and Regional Defense
Committee on Armed Services
United States Senate

The Honorable William S. Cohen
Ranking Minority Member
Subcommittee on Projection
Forces and Regional Defense
Committee on Armed Services
United States Senate

In response to the Subcommittee's letter of November 19, 1986, we are providing information on the cost and performance of various antisubmarine warfare (ASW) systems, including the SQR-17A acoustic processor, to aid your review of the mix of systems for use on Reserve ASW frigates.

Responses to your specific questions follow. We have also included information on an issue which surfaced during the review dealing with the utility of installing SQR-17A processors on ships with limited ASW detection capability. Information on additional issues related to the SQR-17A review is included in appendix I. Appendix II contains information showing current and planned ASW equipment for selected ship types. We are also providing a classified supplement to this report separately.

Questions and Responses

What Is the Function of the SQR-17A?

The primary function of the SQR-17A is to process and display acoustic information received from sonobuoys placed in the ocean to listen for signals that enable the ship's ASW team to detect, classify, and determine the location of (localize) enemy submarines. Sonobuoys are placed in the water either by a helicopter or the ship, and their signals are received either directly on board the ship or are relayed to the ship by a helicopter monitoring the sonobuoys. The SQR-17A's secondary function is

to act as a backup processor for the SQR-18A towed array sonar and as a signal processor for the SQS-26CX or SQS-53A sonar, which is mounted on the ship's hull. The SQR-17A includes several improvements over the SQR-17, primarily its ability to process data from the Navy's newest and best sonobuoys (DIFAR/DICASS), which tell the operator what direction the target is from the sonobuoy. The SQR-17A can also process data from twice as many sonobuoys, thus covering a larger area of ocean. It has "user friendly" displays, and it has better resolution than the SQR-17.

The SQR-17A is a "stand alone" signal processor and is not integrated with the shipboard ASW combat system. It serves as the signal processor for the SQR-17A/SQR-18A/Light Airborne Multi-Purpose System (LAMPS) MK I ASW system (hereafter called the MK I system), that consists of the following components:

- a sonar array (SQR-18A),[1] which is towed behind the ship, to initially detect an enemy submarine;
- a LAMPS MK I helicopter (SH-2) to fly to the target area to drop sonobuoys and receive data from them;
- a data link (AKT-22) to relay sonobuoy data from the helicopter to the ship;
- a shipboard antenna (SKR-4A) to receive the acoustic information from the helicopter; and
- an SQR-17A to analyze, display, and record the acoustic signals transmitted by the helicopter.

Acoustical information from the sonobuoys is processed by the SQR-17A, and combined with the geographic locations of the sonobuoys. With this information, the ship's ASW team can localize the contact, project its course, speed, and range, and determine the type of submarine detected. It is important to note that until sonobuoys are in the water and transmitting acoustic signal data, the SQR-17A is of no use. The MK I system as described above is effective against today's submarine threat to a given distance. However, according to Navy reports and testimony, it is losing effectiveness as the Soviets build quieter submarines.

[1]For purposes of this report the towed array sonar for the MK I system is from the SQR-18A family and could be either the SQR-18A, SQR-18A(V), SQR-18A(V)1, or SQR-18A(V)2.

What Requirements Has the Navy Stated for This Equipment? Has That Plan Changed?

As of February 24, 1987, the Navy's stated requirement was for 85 SQR-17As and, as of March 1986 it had signed contracts for 77. Plans for the 85 units are shown in table 1.

Table 1: Planned Distribution of SQR-17A Units

	Units
FF 1052 class frigates (including eight Reserve class)	46
FF 1040 class ships[a]	5
The Coast Guard	12
Shore based installations	14
Interim installation on Reserve FFG-7s	8
Total	**85**

[a]On February 24, 1987, the Navy's SQR-17A program coordinator told us that due to changing fleet priorities, some of these 1040 class ships might not receive SQR-17As.

Before June 1986 the Navy had planned to also install the SQR-17A on all 18 of its Naval Reserve Force FFG-7s. However, in June 1986, after reevaluating the increasing Soviet threat, the Navy adopted a "mirror image" policy for its Reserve ships, including the 18 FFG-7s. Under this policy, the Navy plans to equip the Reserve FFG-7s with the next generation SQQ-89 system, plus an upgraded LAMPS MK I T-700 ASW helicopter. The SQQ-89 system consists of the SQR-19 towed array and the SQQ-28 acoustic processor. [2] The SQQ-89 is the same equipment that will be on Active FFG-7s. The Navy plans to install two SQQ-89 systems a year on Reserve FFG-7s from fiscal years 1988 through 1996. The installation plan coincides with the overhaul schedule for these ships. The decision to equip the FFG-7s with the SQQ-89 systems eliminated the requirement for SQR-17A processors for these ships.

In announcing the mirror image policy, the Deputy Chief of Naval Operations for Surface Warfare stated that installation of any system less capable than the SQQ-89 would not be cost effective in view of the mission requirements during the expected service life of the Reserve FFG-7s. He said that these ships would be around to combat the Soviet threat in the 21st century.

Subsequently, however, the Navy decided to install SQR-17As that had been requested in the fiscal year 1987 budget on some FFG-7s as an interim upgrade. Under this plan, eight Reserve FFG-7s would use

[2] Actual signal processing within the SQQ-28 is done by a UYS-1 processor.

SQR-17As for a minimum of 3 years before installation of the SQQ-89 system. If delivery or installation dates for SQQ-89 systems lag, more Reserve FFG-7s would meet the Navy's 3-year criteria for interim installation of SQR-17As.

When the Navy purchases 20 units using fiscal year 1987 funds, it will have 97 SQR-17As, 12 more than the current requirement. At this time, the Navy does not have a plan for where it would put these 12 units. The Navy told us they would consider placing excess SQR-17A units on ships that already have a towed array sonar (six ships have "portable" SQR-15 tails), but that have a lesser processing capability (i.e., an SQR-17 or SQS-54).

What Is the Navy's Acquisition Plan for the SQR-17A?

The Navy is following the October 1986 direction of the House appropriations conferees and is purchasing 20 SQR-17As this year. The Navy, which expects to sign a sole-source contract for the SQR-17As by August 1987, does not intend to buy any more SQR-17A units after this buy is made.

How Many SQR-17As Have Been Procured?

The Navy has purchased 77 SQR-17A units under three separate contracts. Table 2 shows the purchase quantity and delivery schedule under each contract.

Table 2: SQR-17A Contracts and Deliveries

Contract Date	Quantity purchased	Contracted Delivery Period	Number Delivered
06/83	18	12/84 - 07/85	18
12/84 and 04/85	22	01/86 - 08/86	9
03/86	37	06/87 - 12/88	•
Total	**77**		**27[a]**

[a]As of February 6, 1987, 27 had been delivered and installed. In addition, 11 more have been accepted by the Defense Contract Administration Services, minus parts, and are with the contractor awaiting Navy delivery instructions.

What Alternatives to the SQR-17A Exist?

According to the Navy, the SQQ-28 sonobuoy signal processor component of the SQQ-89 system is the only shipboard alternative to the SQR-17A sonobuoy signal processor. Further, no other shipboard acoustic processor capable of processing data from modern sonobuoys is available, in development, or planned. As currently configured, the SQQ-28 and the SQR-17A are not interchangeable without additional

modification and cost. The SQQ-89 system, which includes the SQQ-28 processing system and the SQR-19 towed array sonar, is the alternative to the SQR-17A/SQR-18A system. As of mid- March 1987, there were five SQQ-89 systems operating in the fleet. A comparison of the MK I system and the SQQ-89 system is included in appendix I.

According to Navy evaluations, reports, interviews, and testimony, the SQQ-89 has greatly increased the Navy's ASW capability against the evolving threat of significantly quieter enemy submarines. Navy program coordinators attribute this superiority to the system's ability to detect and track modern Soviet submarines at ranges approximately three times greater than the MK I and to the system's integration, which provides superior automated data flow and contact management capability needed to track the increased number of contacts picked up by longer range sensors (i.e., the SQR-19). Other advantages of the SQQ-89 system over the MK I system include the SQQ-89's ability to

- track multiple contacts;
- receive and process sonobuoy data relayed by either the LAMPS MK I (when equipped with an interoperability kit) or MK III helicopters;
- use Navy standard building block architecture, which produces economies in total system support, including spare parts, documentation, test equipment, and personnel training;
- perform the ASW mission with fewer people; and
- be upgraded with software changes.

Equipping the 18 Reserve FFG-7 class frigates with the SQQ-89 system, plus an upgraded LAMPS MK I T-700 ASW helicopter, will give them ASW capabilities similar to their 33 active force counterparts. According to the testimony of the Deputy Chief of Naval Operations for Surface Warfare, this will produce logistic and training benefits.

What Are the Relative Costs and Capabilities of the SQR-17A and Its Alternatives?

Comparing the processors of the two LAMPS systems is difficult because they are not interchangeable and have different capabilities and characteristics. The SQR-17A provides input to the ASW team equipped with the SQR-17A/SQR-18A suite, and the SQQ-28 does the same for the team with an SQQ-89 system. While they both basically process acoustic signals from sonobuoys, they have very different capabilities. Keeping in mind that they are not interchangeable, we will compare some aspects of the SQR-17A and the SQQ-28. At our request, the Navy provided more complete comparisons of the processors, tails, and helicopters, which are contained in the classified supplement to this report.

Cost

The procurement cost of the SQR-17A is about $714,000 and installation is another $25,000. The cost of the SQQ-28 is about $1.1 million, which does not include the cost of displays it shares with the SQR-19 tail. According to the SQQ-89 program manager, half the cost of the shared displays would add about $900,000. The Navy estimates the cost of installing the SQQ-28 at $800,000. Thus, the purchase and installation cost of the SQR-17A is about $750,000 versus about $2.8 million for the SQQ-28.

Capabilities

The following discussion compares the relative capabilities of the SQR-17A and SQQ-28 acoustic signal processors. The comparisons are based on information supplied by the Navy and the SQR-17A contractor.

Processing

In comparison to the SQR-17A, the SQQ-28 provides the ability to simultaneously process more DIFAR sonobuoys, better capability to redetect and localize contacts when the particular signals the submarine is emitting are initially unknown, and better resolution of the characteristics of all submarines simultaneously.

Integration

The SQQ-28 is fully integrated into the ship's ASW combat system which, according to Navy program officials, is perhaps its major advantage over the SQR-17A. It electronically transmits its acoustical data to the ASW combat system, where information from various sources, such as the towed array, the hull mounted sonar, and the helicopter, is coordinated and analyzed to determine target location, course, and speed. The SQR-17A is not part of an integrated system and cannot electronically transmit its acoustic data to other ASW systems. In addition, the SQR-17A requires voice communication to transmit its data to the ASW team. This requires more people and introduces human problems in data communication and problem solving into the ASW situation.

Target Motion Analysis

The SQQ-28 creates a graphic representation (called a "situation summary") of the geographical pattern of sonobuoys transmitting acoustical signals and then uses the acoustic data to automatically project the range, course, and speed of various targets. The situation summary provides greater tracking ability for targets detected by a shipboard sensor because the ASW team can see on a screen the location of the sonobuoys, helicopters, and targets in relation to the ship. This situation

summary is a clear advantage over the SQR-17A. The SQR-17A is supposed to be able to semiautomatically track and analyze the movement of a single target held by a ship's sensors or over the side sonobuoys, using a feature known as mean assisted target estimator/maximum likelihood estimator (MATE/MLE). However, in recent exercises, MATE/MLE has not functioned properly, leading the Navy to cancel Fleet Operational Test and Evaluation of the system until the contractor remedies the problems. The SQR-17A does not have a situation summary and part of the problem with the MK I system is that the ASW team is sometimes unsure about the location of the sonobuoys.

System Upgrades

Adding capability to the SQR-17A would require hardware changes that would have to be implemented across all fleet SQR-17A units by technicians. The majority of SQQ-28 upgrades can be implemented by software changes that may be as simple as providing the fleet with computer tape(s) with the appropriate modification.

Logistic Support

The SQQ-28 is supported as part of the SQQ-89 Integrated Logistic System. Since the principal components, the UYS-1 and the UYK-20/44 computers are standard in the Navy and are also used in other equipments on board FFG-7s, economic advantages are gained in the quantities of spare parts purchased, documentation, test equipment, and personnel training. The SQR-17A is a unique piece of equipment requiring an individually tailored Integrated Logistic Support plan and spares unique to the system.

Output Media

The SQR-17A produces a paper printout of the acoustic signals it processes, which Navy officials we interviewed believe is a good feature. The SQQ-89 does not have a paper printout, which the Navy has cited as a deficiency and is studying remedies for. Both systems display data on a cathode ray tube. The advantage of a paper printout is that it allows the signature of a contact to be captured on hard copy for future reference, especially for post-mission analysis, which facilitates collecting peacetime intelligence. The disadvantage of a paper printout is that it requires a large amount of storage and only a small amount of the paper is actually needed for future reference.

The SQR-17A printout displays only acoustic data and does not provide a graphic equivalent to the SQQ-28 situation summary. According to the Program Manager of the Advanced Acoustics Processing Project, tests

have shown that for on-the-spot analysis of contacts with either a cathode ray tube or a hardcopy printout, the results are equivalent. Further, all shipboard and airborne systems under development are eliminating paper in favor of cathode ray tubes.

Both the SQR-17A and SQQ-28 contain magnetic tape recorders to record sonobuoy information for post mission analysis. The SQR-17A recorder has the additional capability of recording acoustic data from the SQR-18A towed array. According to the SQQ-89 program coordinator, this capability is being developed for the SQR-19 as well.

Resolution

The UYS-1 processor provides better resolution than the SQR-17A. More details on the comparative resolution characteristics are in the classified supplement to this report.

Interoperability

When installed aboard the FFG-7s with an interoperability kit, the UYS-1 signal processor within the SQQ-28 will be able to process and display acoustic signals from both the LAMPS MK I and LAMPS MK III helicopters. The SQR-17A is not scheduled to receive an interoperability kit. Thus, it will be limited to processing data transmitted from the LAMPS MK I helicopter. Since it will not be able to receive data from LAMPS MK III helicopters, this could limit its interoperability when serving with LAMPS MK III equipped ships.

What Is the History of Funding Requested and Provided for the SQR-17A?

Table 3 shows the procurement history of the SQR-17A in recent years.

Table 3: Procurement History—Number of SQR-17A Units

	Prior to FY 1985	FY 1985	FY 1986	FY 1987
Navy request	29	11	16	8
Conferees' direction	29	28	20	20
Increase over Navy request	•	17	4	12
Cumulative total	**29**	**57**	**77**	**97**

As shown, the Conference Committee on Appropriations has directed the Navy to buy more SQR-17As than requested for three consecutive years. In fiscal year 1985, the conferees directed the Navy to buy 17 additional SQR-17As and to reprogram fiscal year 1985 funds to do so. Pursuant to this direction, the Navy reprogrammed $14.5 million for this purchase and related production support. In fiscal year 1986, appropriation conferees directed the Navy to buy 20 SQR-17As, but did not provide additional funds to purchase the 4 over the Navy's request. For fiscal year 1986, conferees provided $6.8 million to purchase three SQR-17A on board trainers that the Navy had not requested. The contract for the three trainers was signed in November 1986.

In fiscal year 1987, the appropriations conference committee directed the Navy to purchase 20 SQR-17As and appropriated $16.9 million for the purchase—an increase of $9.1 million and 12 SQR-17As more than the Navy had requested. Thus, the Navy's purchases of the SQR-17As have been accelerated and when the fiscal year 1987 buy of 20 takes place, the Navy will have 12 more SQR-17As than its stated requirement.

Utility of Installing SQR-17As on "Tail-Less" FFG-7s

An issue that surfaced during our review was the usefulness of putting SQR-17As on ships without towed array sonars (tails). The Reserve FFG-7s do not have tails and are not scheduled to have them until the SQQ-89 systems are installed, beginning in 1988. The tail is towed behind the ship to listen for signals emitted by submarines. Detection is based on its ability to distinguish these signals from background ocean noise. When detection is made, LAMPS helicopters are launched to the target area to drop sonobuoys to begin to locate the target.

Navy officials told us that without a tail, the ship has an ineffective initial detection capability, and the SQR-17A processor adds no additional ASW capability over the SQR-17 until sonobuoys are in the water and sending acoustic information. Thus, installing an SQR-17A on a "tail-less" FFG-7 provides a marginal increase in ASW capability. However, these Navy officials provided some scenarios in which a ship equipped with an SQR-17A but no tail could be useful. Details on these uses are included in appendix I to this letter.

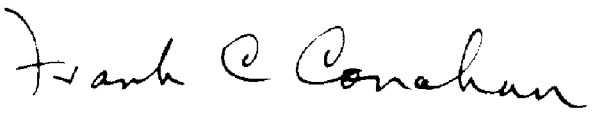
In short, Navy officers' opinions as to whether the increased capability of the SQR-17A on a tail-less ship was worthwhile were varied. Some fleet operators believed that since the SQR-17A allows a ship to "get in the ASW game," any of them are worthwhile; others said that all

available money should be devoted to the SQQ-89 system because of its demonstrated superiority. None of the Navy officials we interviewed believed that additional SQR-17As should be purchased beyond fiscal year 1987.

We conducted this review from December 1986 to February 1987 by interviewing officials and collecting documents from Navy program offices in the Washington, D.C. area; the SQR-17A contractor, and ship commanders and operators from both the Atlantic and Pacific Fleets. Also, we observed the operations of the components of the MK I and SQQ-89 systems on Active fleet ships and reviewed available Navy operational evaluations and test results of the equipment.

The Department of Defense reviewed this report and fully concurred with its findings and observations. Their comment letter is attached as appendix III.

Copies of this report are being sent to Senator J. James Exon; the Secretary of Defense; and the Chairmen, Senate Committees on Appropriations and on Governmental Affairs and House Committees on Appropriations and on Government Operations.



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Abbreviations

ASW	antisubmarine warfare
LAMPS	Light Airborne Multi-Purpose System
MATE/MLE	mean assisted target estimator/maximum likelihood estimator

Additional Issues Concerning the SQR-17A

More information on issues which surfaced during the course of our review is provided below.

Capability and Uses of a "Tail-Less" FFG-7 With an SQR-17A

The Reserve FFG-7s do not have towed array sonars (tails) and will not receive them until installation of the SQQ-89 system which includes the SQR-19 towed array. Without the detection capability of a towed array, the Reserve FFG-7 is severely limited because it cannot effectively perform one of the basic ASW functions, initial detection of enemy submarines.

Navy officials told us that adding an SQR-17A to a ship without a tail results in a very marginal improvement in ASW capability that could be utilized only in certain circumstances. Fleet commanders described the following scenarios in which tail-less FFG-7s with SQR-17As could be used. First, in some instances, a submarine might be detected by another ship's tail, ASW plane, or other means. If this happens, the tail-less FFG-7 could be directed by the other source to use its helicopters to localize and track the contact. Second, the tail-less FFG-7 can act as a "pouncer" stationed above the enemy submarine to keep it from following the rest of the convoy. Third, the tail-less FFG-7 could send its helicopter(s) ahead of the convoy to drop sonobuoys in front of the convoy's intended path to "sanitize" the convoy route. In these scenarios the SQR-17A would provide a significant advantage over the SQR-17 because of its ability to process DIFAR/DICASS sonobuoys, which provide directional bearing information.

According to the SQR-17A program coordinator, an escort formation would normally include one or more ships with a towed array. If another ship's tail detects a contact, it could trigger tail-less Reserve FFG-7s' helicopters to the general area.

The Navy's Interim Plan for SQR-17A Processors for Reserve FFG-7s

As previously noted, the Navy has proposed installing SQR-17As as an interim improvement on some Reserve FFG-7s, and any Reserve FFG-7 that would be able to use an SQR-17A for more than 3 years before installation of the SQQ-89 system will receive one. Opinions within the Navy on the effectiveness of installing SQR-17A processors under this plan are varied. Some Navy officers we interviewed believed this money could be better spent by buying as many tails as possible, believing detection ability is the key to ASW. The Commander of an ASW squadron told us that if the Navy could not afford the SQQ-89 system for each ship, putting an SQR-17A on a Reserve FFG-7 as an interim measure was

a good idea. He believes it is crucial to get as many strong players in the ASW problem as possible, and ships without SQR-17As and without tails are not strong players. On the other hand, both the commanding officer of a MK I helicopter squadron and the LAMPS MK III program coordinator told us that if the upgraded processor for the MK I T-700 helicopter is as good as the Navy thinks, it will lessen the need for the SQR-17A on the ship since the helicopter will be able to track contacts by itself. Another ASW officer said the Navy should not spend any more money on SQR-17As, but should spend every available dollar on the SQQ-89 system. The Director of the Atlantic Fleet's Tactical Analysis Support Center believed the SQQ-89 system should be the top priority, but if funding prevented SQQ-89 purchases, buying more SQR-17As was a good idea. The Naval Reserves support the installation of SQR-17As on its FFG-7s as an interim measure only.

Cost and Capabilities of the SQR-17A/ SQR-18 System and the SQQ-89 System

The MK I system, which now includes the SQR-18A towed array, the SQR-17A acoustic signal processor, and the LAMPS MK I helicopter is an updated 1970s system that provides effective performance against today's enemy submarines. The next generation SQQ-89/LAMPS MK III system, which includes the SQR-19 towed array, the UYS-1 acoustic signal processor embedded in the SQQ-28, and the LAMPS MK III helicopter (SH-60B), is a fully integrated system to combat the increasingly quieter threat of future generation Soviet submarines.

Cost

According to the Navy, the cost of an SQQ-89 is roughly twice the cost of the SQR-17A/SQR-18A system ($20.7 million versus $9.5 million).

Capabilities

According to the testimony of the Deputy Chief of Naval Operations for Surface Warfare, and several other Navy sources, the increase in ASW warfighting capability provided by the SQQ-89/LAMPS MK III system is increased by a factor greater than 2. The relative capabilities of these two systems' components vary, as discussed in the following sections.

Towed Array

The SQQ-89 system provides detection ranges approximately three times longer than the SQR-17A/SQR-18A system. This is due to the capabilities of the SQR-19 towed array acoustic sensor. Operations and evaluations clearly show the SQR-19 to be a more capable system than the SQR-18A in detecting contacts at higher speeds and longer ranges, in

tracking and passive localization accuracy, and in automatically handling volumes of data generated on the contact.

Escort Protection

At our request, the Naval Surface Weapons Center performed a computer modeling simulation that compared the escort protection capabilities of ships equipped with SQR-19s to ones with SQR-18A(V)2 sonar arrays. It concluded that based on the detection capabilities of the towed arrays, the Navy would need six times more ships with an SQR-18A(V)2 tail than with the SQR-19 tail to provide similar escort protection to a convoy.

Multiple Contacts Capability

The SQQ-89 system's towed array has an automated target tracking feature that can detect and track many more contacts in bearing and frequency than the manual SQR-18A towed array of the LAMPS MK I system. The difference in number of contacts tracked between the two systems involves orders of magnitude.

Integration

The SQQ-89 is a completely integrated system whose components, the acoustic processor, towed array, and helicopter, are electronically coordinated through the ASW combat system. This facilitates automated data communication and problem solving. Navy officers told us that because of the SQR-17A/SQR-18A system's lack of integration, voice communication and hand plots are necessary, which make the ASW problem even more difficult. Further, an exercise report cited circuitous and inefficient channels of data exchange in the LAMPS MK I system as a major cause of problems.

Manpower

Commanders or former commanders of ships told us that the SQQ-89 system requires a smaller ASW team than the SQR-17A/SQR-18A system. On the ships visited, we observed that 16 people were dedicated to the ASW problem using the MK I system, while the SQQ-89 system employed only an eight-member ASW team.

SQR-17A and SQQ-28 Interchangeability

Due to the wide cost variation between the SQR-17A and SQQ-28 acoustic processors, we reviewed whether the SQR-17A acoustic processor could be substituted for the SQQ-28 processing system in the SQQ-89 system. As currently configured, the SQR-17A is not interchangeable with the SQQ-28 without additional modification and cost

because the SQR-17A (1) is a "stand alone" processor that is not fully integrated with the ASW combat system, (2) cannot process data from the LAMPS MK III helicopter, (3) does not provide a "situation summary", (4) does not possess the processing capability of the SQQ-28, and (5) has a different cable and plug structure.

According to the company that produces the SQR-17A, it could be modified to perform the SQQ-28's functions at a nonrecurring cost of $5 million and a recurring additional cost of $100,000 per system. Such modifications would allow the new system to

- have equal processing capability,
- interface with the MK 116 Fire Control System,
- receive digital data from MK III helicopters,
- interface with the SQR-19,
- provide a geographic situation summary,
- process low frequency active sonar, and
- interface with the SQS-53C hull mounted sonar.

The contractor did not provide a time frame for these modifications and we did not verify its cost estimates.

The SQQ-89 program manager believes that given enough time and money anything can be modified. However, according to the June 10, 1986, testimony of the Deputy Chief of Naval Operations for Surface Warfare, the Navy does not want to spend research and development funds to develop a "maverick" system that would be close in capability to the SQQ-89 system. In addition, this would put the SQQ-89 system on the Active ships and the maverick system on the Reserve ships, and the Navy wants to train all operators on the same equipment. Further, the SQQ-89 system (with the SQQ-28 processor) is a proven reliable system and modifying the SQR-17A to replace the SQQ-28 would necessitate breaking up that system. According to the SQQ-89 program manager, substituting the modified SQR-17A for the SQQ-28 would also lose the Navy standard building block advantage of overall integrated logistics support, parts commonality, and the software upgradable characteristics of the SQQ-28. In addition, an effort to extend its performance and capability would require new research and development funds.

Installed ASW Equipment and Upgrades Planned by the Navy for ASW Mission Ships

Ships With Potential for Additions of AN/SQR-17A	Number In Fleet	Dates Commissioned	Current Processor	Planned Upgrades	Towed Array	Navy Explanation of Upgrade Decision
FFG-7 Active	33	1977-	SQR-17(V)3	SQQ-28	SQR–19	Primary ASW asset.
FFG-7 Reserve	18	1977-	SQR-17(V)3	SQQ-28	SQR–19	Want mirror image to Active FFG-7. Due to timing some ships will get SQR-17A before getting SQQ-28.
FF-1040	10[a]	1964-8	SQS-54/ SQR-17(V)1	SQR-17(V)1 (ALE Kit)	None	Not being upgraded because of age of ship (i.e., platform obsolescence).
FFG-1	6	1966-8	SQS-54	SQR-17(V)1 (ALE Kit)	None	Not being upgraded because of age of ship (i.e., platform obsolescence).
DD-963	31	1975-83	SQR-17(V)1	SQQ-28	SQR–19	Primary ASW asset to get the best ASW equipment possible.
DD-993	4	1981-2	SQR-17(V)1	SQQ-28	SQR–19 (planned)	Has a primary ASW mission assigned and requires SQQ-89 system.
CG-26	9[a]	1964-7	SQR-17(V)1/ SQS-54	SQR-17(V)1 (ALE Kit)	None	ASW is secondary mission so no upgrade planned.
CG-47	27	1983-	SQR-17(V)1	SQQ-28	SQR–19	Has a primary ASW mission assigned and requires SQQ-89 system. CG-47/ 48 will be backfitted with SQQ-28.
CGN-35	1	1967	SQS-54	SQR-17(V)1 (ALE Kit)	None	ASW is secondary mission so no upgrade planned.
FF-1052	46	1969-74	SQR-17(V)/ SQR-17A(V)	SQR-17A	SQR–18	Not being upgraded to SQQ-28 because cost not justified due to age of ship.
CGN 36-41	6	1974-80	None	None	None	Not helicopter capable.
WHEC (CG) (Hamilton Class)	12	1964	None	SQR-17A	None	Some ASW capability desired for Coastal Defense/Maritime Defense Zone Duties.
WMEC (CG)	13	1983-	None	None	None	No current operational requirement to make them ASW ships.

[a]Only 5 FF-1040s and 8 CG-26s are LAMPS MK I qualified.

Comments From the Office of the Under Secretary of Defense

OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301

ACQUISITION

01 MAY 1987

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and
International Affairs Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Conahan:

This is the Department of Defense (DOD) response to the General Accounting Office (GAO) draft report entitled, "Cost and Performance of the AN/SQR-17A and Various ASW Systems," dated April 1, 1987, (GAO Code 394193/OSD Case 7261).

The DOD has reviewed the report, fully concurs with its findings and observations, and has no further comments. Thank you for the opportunity to comment on the draft report.

Donald N. Fredericksen
Deputy Under Secretary
of Defense
(Tactical Warfare Programs)

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