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REPORT BY THE COMPTROLLER  
GENERAL OF THE UNITED STATES

OPPORTUNITIES FOR IMPROVING  
MANAGEMENT OF THE NAVY'S  
AEGIS CRUISER PROGRAM

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D I G E S T

The Aegis weapon system is the antiair warfare weapon designed to protect the Navy's carrier battle groups from Soviet air- and sea-launched missiles. It is comprised of an advanced design radar and related hardware and software. (See p. 1.)

The Aegis ship combat system is a combination of the Aegis weapon system and missiles, launchers, and other components. Two systems have been procured for the Navy's newest cruisers, the CG-47 and -48. The Aegis cruisers are being constructed at the Ingalls shipbuilding facility at Pascagoula, Mississippi. Additionally, the fiscal year 1981 Defense budget provides procurement funds for two more Aegis equipped cruisers, CG-49 and -50. (See p. 14.)



115229

AEGIS SYSTEM DEVELOPMENT

The Aegis system has been developed by the RCA Corporation which began the Aegis development program in December 1969 and should complete the Aegis combat system integration program in early 1981. During the past 11 years, a partial Aegis system has been tested at sea, aboard U.S.S. Norton Sound, and at a land-based facility in Moorestown, New Jersey. Although a complete Aegis weapon system will not be operated until the first Aegis equipped cruiser is launched, Navy and RCA officials profess confidence that their actual live tracking and simulator-assisted tests provided proof that the Aegis antiair warfare weapon system will be capable against the existing and currently foreseen threat. (See p. 1.)

Although the Navy contends that the Aegis weapon system will be most capable, serious questions surround the supply support aspects of its operational availability.

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The supply support policy planned for the Aegis weapon system will not insure that the system reaches its maximum operational availability. The Navy plans to use their standard supply support methodology, the Fleet Logistic Support Improvement Program, even though other methodologies have been proven to be better for the Aegis system. None of the analyses conducted by the Navy or the prime contractor considered the entire system, rather, each report examined only sub-systems of the Aegis weapon system. (See p. 5.) ID

## CG-47 PROGRAM

The conventionally powered CG-47 cruiser is being constructed using the same hull, propulsion, and mechanical components as employed on DD-963 class ships. As a result, the Navy expects few problems with these proven components. However, due primarily to the placement of the Aegis weapon on a DD-963 hull, much of the weight allowance for planned weapon systems has been consumed. (See p. 11.)

The Aegis radar system is the most powerful of the CG-47 sensors. This system is the Nation's most advanced shipboard air search sensor providing location and targeting information to destroy airborne threats. However, the CG-47 will have another air search radar system known as the SPS-49. The SPS-49 radar has some shortcomings and is not an adequate back-up for the AEGIS SPY-1 radar. Therefore, retaining the SPS-49 radar system is highly questionable. Project office officials and program sponsors disagree, however, and contend that the SPS-49 provides a useful function and enhances operational flexibility. However, the long-range surveillance function can be performed by the Aegis radar system in a superior manner. (See p. 9.) ID

To insure that the CG-47's many systems operate effectively, a stable source of power is required. Therefore, great importance is associated with the operating characteristics

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of the ship's solid state frequency converters. Two contractors have proposed converters to supply power for the many systems on the CG-47 class ship. However, before either system had completed technical testing, the Aegis cruiser project office was required to select a unit for the first ship in this class, CG-47. Although project office officials cautioned that this was not a decision for the entire class, we believe that there will be little incentive to consider other converters for future ships once logistic and supply channels have been established. (See p. 10.)

The CG-47 will be a fully equipped ship with little or no room for future weapons and electronic systems. Given this situation, it is doubtful that the CG-47 will be able to accept new systems planned for this ship class. (See p. 12.)

The first Aegis anti-air warfare system is scheduled for deployment in 1983, nearly 14 years after its development program began. Each fully equipped CG-47 class cruiser will cost in excess of \$1 billion and 18 are planned for the fleet in the next 10 years. (See p. 14.)

The Selected Acquisition Report for this program does not provide full disclosure to the Congress of the status of important weapon systems planned for the CG-47. (See p. 16.)

### CONCLUSIONS

The Nation has invested much in the capabilities of the Aegis weapon system. Yet, serious questions surround its readiness to support naval carrier battle groups. In addition to the Aegis SPY-1 radar, the CG-47 will be equipped with the SPS-49, a radar that does not appear to add capability commensurate with its weight and cost. Furthermore, this ship provides an inadequate margin for growth required by Navy standards. Additionally, controversy surrounds procurement practices for a component of the CG-47 and its Selected Acquisition Report could be improved.

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## RECOMMENDATIONS

To improve the effectiveness of the CG-47 Aegis cruiser, GAO recommends that the Secretary of Defense direct the Navy to:

- Evaluate how various supply support methodologies affect the availability of the entire Aegis weapon system. If methodologies other than the presently adopted the Fleet Logistic Support Improvement Program system can provide significantly greater system at about the same cost; it should be selected for implementation on the Aegis system.
- Reexamine the need for the SPS-49 on CG-47 class ships to determine that its benefits are commensurate with its weight and cost.
- Insure that Defense Acquisition Regulations are followed in the decision for procuring power converters for the CG-48 and subsequent ships in this class.
- Emphasize weight reduction efforts and carefully monitor the effect of future systems, such as the Vertical Launching System, on the ship's weight and stability.

GAO also recommends that the CG-47 Selected Acquisition Report identify the status of important weapon systems that are scheduled to be deployed on this multimission ship. If critical systems will not be available on time, such limitations in the ship's capability should be reported to the Congress. ~

GAO did not request official comments on this report because of the tight reporting deadline. Instead, a draft of this report was discussed with high level officials associated with management of the program to assure that the report is accurate and complete. Their points of view are included where they differ with GAO's.