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UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS
DIVISION

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The Honorable
The Secretary of the Navy /

Dear Mr. Secretary:

GAO has inquired into the development and acquisition of the Navy's Junior Participating Tactical Data System (JPTDS). JPTDS was developed to provide low-cost, computer-based command and control capabilities on ships where space and cost requirements precluded installation of the Naval Tactical Data System (NTDS).

The Navy has stated that the success of military operations increasingly depends on computer-automated systems. According to Navy officials, computer-based command and control systems are the coordinators needed so the weapons and sensors of ships and aircraft can function effectively in today's sophisticated tactical environment. The Assistant Secretary of the Navy, Installations and Logistics, recently emphasized this point.

"* * * a modern warship represents a host of interlocking weapons systems which are placed on a platform to operate in a hostile environment--the sea--for as much as 20 years. * * * It must have the ability to communicate with other ships and with the shore. * * * It must have a computer to provide the skipper with the ability to effectively coordinate and manage these systems."

NTDS was developed to provide computer-based command and control capability for ships. NTDS deals at electronic speeds with tactical problems which can no longer be effectively handled manually. NTDS computers and peripheral equipment receive information from sensors--such as radars and sonars, weapon systems, and communication systems--process this information, and communicate the results and recommended actions. NTDS also provides rapid exchange of combat information among ships and aircraft. In general, it provides for both inter-ship and intraship command and control.

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The Navy now has more than 40 ships equipped with various versions of NTDSs, costing from \$2.1 to \$4.4 million each, excluding the approximate \$1 million installation cost.

COMMAND AND CONTROL FOR SHIPS WITHOUT NTDS

To provide low-cost, computer-based command and control capabilities on ships for which NTDSs were not practical, the Navy has spent approximately \$7.6 million of research and development funds on the JPTDS program through fiscal year 1972. An additional \$1.8 million is planned for fiscal year 1973 to complete the program. JPTDS's primary function is to permit instantaneous exchange of tactical information between the sensors and weapon systems of NTDS-equipped ships and ships not so equipped.

As originally proposed JPTDS was to process and display overall tactical information concerning air, surface, and subsurface threats to the ship on which it was installed and to the tactical force as a whole. JPTDS was to be modularly designed to provide additional capabilities for specific ships.

As of August 1972 JPTDS could be used on approximately 100 ships, consisting of guided missile destroyers, destroyer escorts, and guided missile destroyer escorts. However, only four JPTDSs are being procured with fiscal year 1972 funds. These are to be installed, at a cost of about \$2 million each, on four guided missile destroyers. Capabilities of these systems exceed those expected in the originally proposed JPTDS.

Importance of computer-based command and control systems in combat situations

The importance of computer-based command and control systems was demonstrated in a recent incident in Southeast Asia. A high-speed enemy aircraft attacked a U.S. destroyer not equipped with a computer-based command and control system. An NTDS-equipped ship located several miles from the destroyer identified and tracked the enemy aircraft. The destroyer, however, unable to automatically receive data from the NTDS-equipped ship, could not be rapidly warned of the threat. The enemy aircraft bombed and damaged the destroyer. The NTDS-equipped ship subsequently destroyed the enemy aircraft with an NTDS-guided missile.

This incident indicates that ships not equipped with computer-based command and control systems can be severely disadvantaged against high-speed threats. Such a disadvantage

could impair the integrity of the individual ship and the associated task force.

Views of fleet command

The Commanders in Chief, Atlantic and Pacific Fleet Command Headquarters, have emphasized to the Chief of Naval Operations the need for JPTDSs in today's tactical environment. They pointed out that the increased operational effectiveness afforded by tactical command and control systems cannot be measured in terms of cost alone--the integrity of the fleet must be considered.

Alternatives to JPTDS are inferior

To provide some low-cost automated tactical capability in lieu of JPTDS, the Navy is considering three other systems--the Data Correlation and Transfer System (DATACORTS), the Teletype Integrated Display System (TIDY), and the Tactical Assignment Console (TAC). DATACORTS and TIDY are being evaluated for service use, and TAC is in the early development stage.

Although DATACORTS and TAC provide some automated capabilities for the integration of weapons and sensors, they are not capable of automated communication with the command and control systems on other ships and aircraft. The primary purpose of TIDY is to aid the manual process of tracking threats; it does not provide any overall automated capabilities. Navy officials stated these systems would be inferior to automated command and control systems such as JPTDS.

A preliminary Navy study indicates that JPTDS may be more cost-effective than DATACORTS, TIDY, and TAC. The study indicates, when command and control costs for additional sophisticated weapon systems planned for installation on selected ships are considered, savings in personnel, logistics, and training might be accomplished by using JPTDS instead of these systems.

CURRENT VERSION OF JPTDS CONSIDERED TOO COSTLY

As originally proposed JPTDS was to be a miniaturization of the NTDS. The four JPTDSs which are being procured are more sophisticated than initially planned and have expanded capabilities for air, surface, and subsurface threats. These four systems will cost approximately \$2 million each, excluding installation costs.

Lower-cost JPTDS available

An operational JPTDS configuration could be provided at a cost ranging from about \$800,000 to \$1,100,000 plus installation costs ranging from about \$375,000 to \$1 million a system. In addition, there will be some cost associated with developing the software interface. Although this version of JPTDS would meet the original requirements, the \$2 million version being procured has additional capabilities. For example, the proposed system could have two or three display consoles while the system being procured has many more. All versions could be expanded.

CONCLUSIONS

The Navy has spent over \$7 million to develop computer-based command and control capabilities for non-NTDS ships. Current plans, however, provide for procuring only four JPTDSs for shipboard installation because the current version is considered too costly.

Although the alternatives are less costly, they do not provide automated communication with the command and control system aboard other ships and aircraft that will be as effective as JPTDS.

We understand that the Systems Analysis Division of the Chief of Naval Operations is considering whether future JPTDS procurements are desirable; therefore we are not making any recommendations or performing any additional reviews of the matter at this time. We would, however, appreciate being informed of the Navy's decisions concerning JPTDS.

We are sending copies of this report to the House Committee on Appropriations, the House Committee on Government Operations, the Senate Committee on Appropriations, the Senate Committee on Government Operations, and the House and Senate Committees on Armed Services. We are also sending copies to the Secretary of Defense.

Sincerely yours,


J. K. Fasick
Director