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WASHINGTON, D.C. 20548

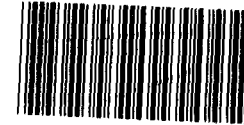
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MISSION ANALYSIS AND
SYSTEMS ACQUISITION DIVISION

B-206851

APRIL 2, 1982

The Honorable Caspar W. Weinberger
The Secretary of Defense



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Attention: Director, GAO Affairs

Dear Mr. Secretary:

Subject: Need to Reexamine JTIDS Requirements and
Architecture (MASAD-82-28)

In light of the Office of the Secretary of Defense planned March 31 antijam (AJ) workshop followup meeting to review proposed service AJ communications architectures, we would like to inform you of several potential issues which we identified during the course of our survey of the Department of Defense's development of the Joint Tactical Information Distribution System (JTIDS) class 2 terminal. We believe these issues require your immediate attention. Specifically:

- The utility and cost effectiveness of JTIDS class 2 terminals may be questionable since the Air Force and the Navy have continued to reduce their total number of class 2 terminals planned for procurement until only a fraction of U.S. forces will be JTIDS equipped. Service requirements for JTIDS still have not been firmly established, which was also noted in our previous JTIDS report, "The Joint Tactical Information Distribution System--How Important Is It?" (PSAD-80-22, Jan. 30, 1980).
- With Office of the Secretary of Defense approval in 1980, the Air Force and the Navy are continuing to develop JTIDS using two different technologies, Time Division Multiple Access and Distributed Time Division Multiple Access, respectively. We are concerned that the use of two different technologies with the associated increased development costs and interoperability problems may not be appropriate. We understand that the Navy's Distributed Time Division Multiple Access has greater capacity growth potential which would appear to be desirable for the Air Force as well.

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- Though savings could be realized by provisioning for future JTIDS installation during the production of certain aircraft, no firm plans have been made by the services in this regard. It appears that provisioning for JTIDS installation during production, versus retrofitting, would be a primary goal if the services were totally committed to JTIDS.
- The Air Force has shown a lack of funding commitment for the JTIDS class 2 terminal development. For instance, at least \$10 million of prior year funds is being reprogrammed from JTIDS to other programs. This, and other actions, suggests that JTIDS does not represent a high priority system within the Air Force.
- Certain JTIDS costs are included in the host platform cost or in aircraft modification accounts, rather than in the JTIDS account. This fragmented funding precludes the identification of JTIDS' total program cost. Thus, an adequate evaluation of its affordability and any viable alternatives to JTIDS is difficult.
- The inherent identification capability of JTIDS may not be exploited to its greatest potential. The economic and technical feasibility of developing a small JTIDS-type terminal to provide an identification capability to the aircraft without the full JTIDS capability, instead of the MARK XV identification system, should be examined. This could preclude the need for a separate identification, friend or foe device for aircraft and ground air defense units equipped with JTIDS.
- JTIDS should be identified as a prime candidate for the application of very high speed integrated circuit (VHSIC) technology, especially since it is questionable whether JTIDS, in its present form, will fit into the Air Force's F-16 aircraft. The Navy has addressed VHSIC applicability to JTIDS in their VHSIC Technology Insertion Plan, while the Air Force has not. In view of JTIDS' high cost and questionable affordability, it would appear prudent for the Air Force to consider incorporating VHSIC technology into its JTIDS program to achieve potential production cost savings; higher reliability; increase in system capability; and reduction in weight, size, and power.

Our January 1980 report addressed many of these same issues, which still have not been resolved.

Further, of utmost importance is the resolution of existing conflicts among the services regarding future jam-resistant voice and data communications. It became apparent during the course of our survey that JTIDS and other jam-resistant secure communications systems were being developed to meet purported

service-unique requirements. These separate service developments could create costly unnecessary duplication and overlap in the future. Such a situation may also limit interoperability among the services and with our North Atlantic Treaty Organization allies as well.

Our October 1981 report, "Redirection of the Air Force's Tactical Radio System Is Needed" (C-MASAD-82-1), for example, questioned the need for the Air Force's \$3 billion Seek Talk program. In that report, we pointed out that one alternative to Seek Talk, the Jam-Resistant Secure Voice Communications System, had the potential for significant savings, up to \$1.6 billion, and would provide equivalent capabilities to those of the Seek Talk system. We still believe that Seek Talk is not the most cost-effective solution to the Department of Defense's tactical air voice communications requirements. We also believe that the capabilities of JTIDS may also satisfy a portion of the Air Force's requirements for secure and AJ voice communications.

In this regard, we noted that the Deputy Under Secretary of Defense for Research and Engineering (C3I) initiated certain activities which appear to address some of our concerns. Specifically, in early October 1981, an AJ voice and data communications workshop was held which focused on JTIDS and other service communications systems' jam-resistance and interoperability. As a result of the workshop, the services were tasked with a number of followup initiatives, including the assessment of an improved, more cost-effective JTIDS. The services must also jointly develop an overall AJ voice and data communications architecture for the future.

These efforts seem to be a step in the right direction. We support the initiatives, and expect that selecting an optimum technology and hardware mix for the tactical voice and data communications architecture will effect economies by eliminating redundancy in the development and acquisition of communications systems and improve equipment interoperability between all the military services and our North American Treaty Organization allies.

We request that you provide us with the results of the March 31 meeting by early May 1982 and keep us informed of the plans and progress being made by the Office of the Secretary of

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Defense and the services regarding AJ voice and data communications. The outcome of your current effort will be considered in determining the future direction and scope of our continuing JTIDS review.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "W. H. Sheley, Jr.", written in dark ink.

W. H. Sheley, Jr.
Director