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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

NOV 16 1971

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Dear Senator Brooke:

As you requested on July 29, 1971, we have reviewed the questions raised by Dorn Equipment Corp. concerning a solicitation by Litton Ship Systems, Inc., for plugs and terminals to be used in casualty power systems on LHA-1 vessels for the Navy. Casualty systems permit use of alternate electric power sources when a ship has been damaged.

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Dorn stated that the solicitation called for items for which there were no approved plans or specifications and that the specifications contained in Litton's request for proposals were preferential to Lockheed. In subsequent discussions Dorn stated that the specifications were inadequate to permit responsive competitive proposals.

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At the time of our review, the Navy had not approved the plans or specifications for the components of the casualty power system in the Litton request for proposals. The Navy contract with Litton for the LHA program contains performance-type specifications and does not require conformance with existing Navy-approved specifications or drawings. This contractual arrangement is intended to let the contractor make improvements so that the LHAs will incorporate the latest state-of-the-art features.

Lockheed was not one of nine firms to whom Litton sent requests for proposals on the casualty system items, nor did Lockheed submit a proposal on the items. Because three of the four suppliers that responded to the proposal offered items along the lines specified by Litton, it appears that the proposal specifications were adequate for competitive response. Although no award had been made at the time of our review, the Navy informed us that it would not approve a subcontract for any item of a proprietary nature or one for which it would not acquire design rights and detailed specifications suitable for direct competitive procurement by the Navy. The Navy's rights to design appear to be adequately protected by the terms of the Navy contract with Litton.

NEED FOR IMPROVEMENT

Navy officials informed us that the casualty power system presently in use was a Navy design which had had little improvement since World War II, that they had been aware of problems with this system for some years, and that the Navy would

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have undertaken improvements or a new design by in-house efforts long ago except for lack of manpower and funds.

In using the present system, each of three cable conductors must be connected separately. The end of each conductor is inserted in the receptacle and fastened by tightening a set screw with a special tool mounted in a rack near the terminal. Polarization (proper phase connection) is accomplished by matching the number of servings or wrappings (one, two, or three) around the conductor with the appropriate number of raised dots on the terminal. This "braille" phase identification system was designed to permit connection by touch when visual markings could not be read, as the case may be in casualty situations.

Ship Engineering Center officials advised us that the most serious deficiency in the present system was the personal hazard inherent in handling bare cable ends during engagement and disengagement. Although conductors may not normally be energized during drills, anything could happen during an actual emergency. We were told that a number of cases of shock, along with one fatality, were on record from handling this type of equipment. Internal Navy reports list other problems which indicate that the present system is inconvenient, time consuming, and subject to misuse and damage.

LOCKHEED DESIGN

4 In 1970 the Lockheed California Company, a division of Lockheed Aircraft Corporation, approached the Navy with a proposed connector system which Lockheed stated would reduce personal hazards, prevent possible misconnections, avoid the use of tools, reduce time required for hookup, and prevent damage to terminals and plugs. The system essentially consisted of (1) plugs with shielded contacts and a keyway to provide positive polarization by a one-way insert position and (2) matching terminal outlets having shielded contacts and captive covers to protect them when not in use. Lockheed had made several changes in its design as a result of meetings with personnel of damage control schools, ship design activities, and the Naval Safety Center.

The Naval Ship Engineering Center, which has cognizance over specifications, took no action in response to Lockheed's proposal. In April 1971, however, the Center did offer comments to Viking Industries, Inc., which had acquired an interest by sublicense in certain detailed features included in

Lockheed's design. The Center advised Viking that the design appeared well suited for its intended use but would require reduction to military specification format to permit competitive procurement and to ensure interchangeability when plugs and receptacles were made at different times by different manufacturers.

Navy officials advised us that they would take no action with respect to approval of a new design until specifications in proper format were actually submitted for that purpose. They advised us that, as a matter of policy, the Navy would not approve for fleet use any items of a proprietary nature, and they pointed out that, under the provisions of ship construction contracts, the Navy would acquire all necessary rights to permit competitive bidding for resupply and standardization of subcontracted parts and components.

Regarding Litton's evident intention to introduce a new system pursuant to its performance-specification-type contract for the LHAs, Navy officials pointed out that award of a sub-contract exceeding \$100,000 in total value required approval by the administrative contracting officer and that the subcontract for casualty power components reasonably could be expected to exceed that amount. The contracting officer, in performing this task, makes a full evaluation of the proposal package, including its technical aspects. Technical approval would require concurrence of the Ship Engineering Center.

LITTON SPECIFICATION

The contracting officer stated that the request for proposals specification had been developed by the cognizant Litton engineer and that it was possible that some of his ideas had come from a Lockheed or Viking design. The specification itself, however, is general and Litton has told the Navy that it does not infringe upon any patents.

STATUS OF THE SOLICITATION

The request for proposals file shows that Litton had solicited bids from nine potential suppliers, including four small businesses, but had excluded Lockheed. Responses were received from two large and two small businesses. As of October 5, 1971, Litton was still in the process of evaluating the proposals.

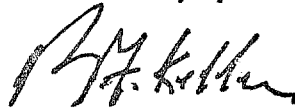
The contracting officer indicated that a proposal from Viking--one of the small business bidders--considered the use of five patents under its licensing agreement with Lockheed. We were told that the patents covered small hardware items, such as pins and clips, which Viking planned to use in its design and that no royalties were involved in the Viking proposal. Litton planned to protect itself and the Government in the subcontract by including a patent infringement clause which would make the subcontractor responsible for any infringement liabilities. The contracting officer indicated that the Navy concurred in the use of the clause and that two bidders had indicated that the clause was acceptable to them.

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To obtain information about the contract requirements and the items Litton proposed to furnish through subcontract, we visited Headquarters, Naval Ship Systems Command, Alexandria, Virginia; the Naval Ship Engineering Center, Hyattsville, Maryland; and the Navy Plant Representative's office at Litton Ship Systems, Culver City, California. We also discussed the questions raised on the solicitation with the president, Dorn Equipment Corp., Melrose, Massachusetts.

We are making a similar report to Congressman Torbert H. Macdonald who also referred this matter to us. As you requested we are returning the letter to you. We shall be glad to discuss this matter with you or your staff if you so desire.

Sincerely yours,



Deputy Comptroller General
of the United States

Enclosure

The Honorable Edward W. Brooke
United States Senate