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APP.

70280

DECISION



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

FILE: B-202283

DATE: December 18, 1981

MATTER OF: Fenwal, Inc.

DIGEST:

Agency's determination that its minimum needs for safety equipment for the F-4 aircraft can be satisfied only by a pneumatic-type (and not a resistive-type) system is reasonable because, in the agency's technical judgment (which has not been shown to be arbitrary), (1) currently available data based on actual use of the protester's old resistive-type system and the pneumatic-type system indicate that the pneumatic-type system is more reliable for this particular application and (2) the protester's old and modern systems are not significantly different.

Fenwal, Inc., protests the Air Force award of contract No. F42600-81-C-4525, on a sole-source basis, to Systron-Donner Corporation (S-D) for safety equipment for the F-4 aircraft. Fenwal, the only previous Air Force supplier of equipment to meet this need, contends that the sole-source award is not justified because Fenwal's resistive-type equipment is better and less costly than S-D's pneumatic-type equipment. The Air Force argues that the pneumatic-type equipment is more reliable and has a lower life-cycle cost than the resistive equipment; thus, award to S-D, the only known supplier of the pneumatic-type equipment, is justified. We conclude that Fenwal's protest is without merit.

The F-4 aircraft was built by McDonnell Douglas Corporation for use by the Air Force and Navy. McDonnell Douglas chose Fenwal as the supplier of the F-4's fire warning and overheat detection systems. In 1961, Fenwal's single-loop, resistive-type system

was accepted by the Air Force and until now has been the only system used in the F-4. At present, there are several different modern systems that could be used in the F-4--one is a dual-loop, discrete-sensing, resistive-type system supplied only by Fenwal; another is a pneumatic-type system supplied only by S-D.

The Air Force reports that the Fenwal single-loop system was prone to false warnings--indicating an over-heat or fire condition in one or both jet engines when none existed. These malfunctions reduce pilot confidence and could be an element in loss of the aircraft. After two accidents in which false warnings were determined to be a factor in the cause, the Air Force determined that solving the false warning problem was a major safety requirement. Furthermore, troubleshooting was difficult and often costly because good equipment was unnecessarily removed when the precise problem could not readily be discovered.

Air Force engineers have determined that the Fenwal single-loop, resistive-type system produced false warnings due to dirty connections and damaged sensors or loops. The Air Force reports that the S-D pneumatic-type system eliminates false warnings caused by dirty connections or contamination because the sensor and responder elements are hermetically sealed to prevent moisture from entering the system. The Air Force also reports that, when operating with damaged sensors or loops, the S-D system is superior to the Fenwal system. The Air Force relies on its experience with the S-D system on the T-38 aircraft; since 1974, there have been no false warning indications attributed to the S-D system. The Air Force concludes that the S-D pneumatic-type system is the most reliable safety system currently available to meet the Air Force's needs. This conclusion is based on the Air Force's comparison and evaluation of the modern Fenwal dual-loop, resistive-type system, which the Air Force concludes is not significantly different from the Fenwal single-loop system now on the F-4.

In reply, first, Fenwal points out that its safety system was not the cause of either accident referred to by the Air Force.

Second, using the same data relied on by the Air Force, Fenwal reaches significantly different conclusions: (1) about 50 percent of the false alarms could have been avoided if the Air Force had adopted Fenwal's proposals to improve the system and (2) about 50 percent of the false alarms would have occurred even if a pneumatic-type system was in place because the failures were caused by elements common to both types of systems.

Third, Fenwal cites a draft report prepared by the Air Force in 1980 concluding that (1) the S-D pneumatic-type system had not significantly improved the reliability of the resistive-type system previously on the T-38 aircraft and (2) the resistive-type system on the A-7 and A-10 aircraft was the most reliable system in the Air Force.

Fourth, Fenwal points out that, in theory, pneumatic-type systems can fail in ways that resistive-type systems cannot. Fifth, Fenwal argues that contrary to the Air Force's view, the Fenwal modern dual-loop system is substantially better than the old single-loop system because (1) element manufacturing techniques have improved, (2) direct connect fittings eliminate intermediate connectors, (3) improved chip-proof connectors and end fittings greatly reduce the possibility of element contamination, and (4) solid-state circuit control units with built-in test and output relays have been developed.

Fenwal concludes that the only engineering evaluation available does not support the Air Force position and that the Air Force analysis of false warning data does not show that a pneumatic-type system is inherently better than a resistive-type system.

In rebuttal, the Air Force states that the 1980 draft report, cited by Fenwal, was not released by the Air Force because it contains numerous false statements and incorrect assumptions regarding data, operation, and performance of the S-D system. Instead, the Air Force relies on a recent study by American Airlines and the Air Force cites a study involving Boeing 707/720 series aircraft; both studies indicate that the S-D system caused substantially fewer false alarms than

another dual-sensor, resistive-type system. In conclusion, the Air Force states that the best available information was used to form the basis for its determination.

The central issue is whether the Air Force has adequately justified the minimum need for a pneumatic-type system. The determination of the needs of the Government and the methods of accommodating such needs is primarily the responsibility of the contracting agencies of the Government. 38 Comp. Gen. 190 (1958); Manufacturing Data Systems, Incorporated, B-180608, June 28, 1974, 74-2 CPD 348. We recognize that Government procurement officials, who are familiar with the conditions under which supplies, equipment or services have been used in the past, and how they are to be used in the future, are generally in the best position to know the Government's actual needs. Particle Data, Inc.; Coulter Electronics, Inc., B-179762, B-178718, May 15, 1974, 74-1 CPD 257. Consequently, we will not question an agency's determination of its actual minimum needs unless there is a clear showing that the determination has no reasonable basis. Particle Data, Inc.; Coulter Electronics, Inc., supra; Manufacturing Data Systems, Inc., supra.

It is important to note our longstanding position that procuring agencies' technical conclusions concerning their actual needs are entitled to great weight and will be accepted unless there is a clear showing that the conclusions are arbitrary. See, e.g., Industrial Acoustics Company, Inc., et al., B-194517, February 19, 1980, 80-1 CPD 139. Furthermore, while determinations to make a sole-source award are subject to close scrutiny by our Office, we have recognized that where the legitimate needs of the Government can only be satisfied by a single source, the law does not require that these needs be compromised in order to obtain competition. See Winslow Associates, 53 Comp. Gen. 478 (1974), 74-1 CPD 14; Johnson Controls, Inc., B-184416, January 2, 1976, 76-1 CPD 4.

With regard to the acquisition of critical human survival items, as here, we have recognized that Government agencies may legitimately specify items

allowing for the highest possible reliability, effectiveness and safety performance characteristics. Bio-Marine Industries, B-180211, August 5, 1974, 74-2 CPD 78. We find no unreasonableness in specifying a component of a weapon system which has been proven to be the most likely to perform in a "life or death" combat situation. Maremont Corporation, 55 Comp. Gen. 1362 (1976), 76-2 CPD 181. See Sparklet Devices, Inc., 60 Comp. Gen. (B-199690, June 4, 1981), 81-1 CPD 446, aff'd, B-199690, October 8, 1981, 81-2 CPD ____.

In Maremont Corporation, supra, we considered a situation similar to the instant matter. There, we held that the Army's legitimate minimum needs could be limited to the most reliable and effective coaxial machine gun available. We concluded that the Army's selection based primarily on technical conclusions regarding reliability was not shown to be arbitrary.

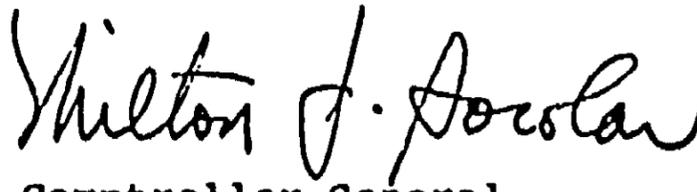
Our analysis begins with Fenwal's admission that its old single-loop system does not offer the advantages and improvements of modern state-of-the-art systems. Also, there is no dispute that installing a modern system would reduce, if not eliminate, the Air Force's current false-warning problem on the F-4. Further, studies referred to in the record ((1) the American Airlines information, (2) the comparison of safety systems on the Boeing 707/720 series aircraft, and (3) the Air Force's data on the pneumatic-type system on the T-38) support the Air Force's determination that the modern pneumatic-type system seems to be more reliable than the old Fenwal single-loop system. The only document containing a different conclusion is the 1980 draft report prepared by Air Force technical personnel; however, we are persuaded by the Air Force's explanation concerning errors in the report that the conclusion of the draft report should be disregarded in favor of the evidence supporting the Air Force's determination. Thus, we find that the Air Force had a reasonable basis to conclude that the old Fenwal single-loop system was not as reliable as the modern pneumatic-type system.

Our next question is whether there is adequate support for the Air Force's determination that the new Fenwal dual-loop system is not significantly different

from the old Fenwal system. The Air Force, relying on its technical judgment, reports that there is nothing new except the second loop; the Fenwal dual-loop system is still prone to the historical problems of a resistive-type system--problems that a pneumatic-type system does not have. We are not persuaded that the Air Force's determination was arbitrary in ignoring the apparently successful performance of the dual-loop system on the Air Force F-16, A-10 and F-15 aircraft. Instead, we are persuaded by the Air Force's explanation that the comparison is not valid because of (1) the low number of flight hours and different type of engine and different engine bay configuration of the F-16 and (2) the fact that the Fenwal system is not used for engine fire detection on the F-15 and A-10. Although the new and old Fenwal systems are different, the key similarity between the new and old Fenwal systems is the sensing element, which Air Force analysis shows is the primary cause of false warnings. Fenwal's attack on the Air Force's analysis relying on undocumented and unattributed information fails to present a compelling basis for our Office to conclude that the Air Force determination is arbitrary. Thus, we find that Fenwal has not shown on the record that the Air Force's technical judgment--that there are no significant differences between the old and new Fenwal systems--is arbitrary.

Accordingly, we conclude that the Air Force has reasonably determined that a pneumatic-type system is its minimum need and that Fenwal has not presented any basis for our Office to object to the Air Force's determination. In view of this conclusion, Fenwal's concerns over (1) the Air Force's basis for negotiation, (2) the option provision of the contract, (3) the Air Force's notification of Fenwal of the award, and (4) the Air Force's delay in reporting on the protest need not be considered.

Protest denied.

for 
Comptroller General
of the United States