AIRCREW AUTOMATED ESCAPE SYSTEMS, GENERAL SPECIFICATION FOR

This specification has been approved by the Naval Air Systems Command, Department of the Navy.

1. SCOPE

1.1 This specification establishes (a) the general criteria to be used for selecting the type aircrew automated escape system for specific aircraft applications, (b) the general testing requirements for demonstrating escape system performance and conformance to specification requirements, and (c) the general escape system data requirements.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids or request for proposal, form a part of the specification to the extent herein specified,

SPECIFICATIONS

MIL-E-9426	Escape Systems, Requirements Conformance Demonstrations and Performance Tests for; General Specification for
MIL-S-18471	Aircrew Automated Escape, Ejection Seat Type System; General Specification for
MIL-A-23121	Aircrew Environmental, Escape and Survival Cockpit Capsule System; General Specification for
MIL-D-81816	Data, Aircrew Automated Escape System; General Specification for
AR-47	Technical Information Requirements for Automated Aircrew Systems Proposals
AR-72	Aircrew Automated Escape Systems, Service Release Test Programs, Contractor Furnished Equipments and Government Furnished Equipments; Requirements for

(When requesting any of the applicable documents, refer to both title and number, All requests should be made via the cognizant Government quality control representative, Copies of this specification and other unclassified specifications

and drawings required by contractors in connection with specific procurement . functions should be obtained upon application to the Commanding Officer, Naval Supply Depot (Code 1051), 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120, All other documents should reobtained from the procuring activity eras directed by the contracting officer.)

3. REQUIREMENTS

3.1 Purposes of aircrew automated escape systems - Escape and Survival - Aircrew automated escape systems are incorporated into aircraft to provide aircrewmen a safe, reliable escape capability from disabled aircraft under a wide range of flight conditions, as well as from ground level and submerged conditions,

3.1.1 Emergency Operation - The escape system, when actuated, shall initiate in planned sequence all escape system functions to ensure (a) the orderly, safe removal of all aircrewmen and their survival equipment from the aircraft, and (b) safe recovery of all aircrewmen in a manner to facilitate location and rescue and in such condition that they can undertake, - individually and/or jointly, necessary tasks during the survival and/or enemy evasion phases of their escape to aid in effecting their rescue,

3.1.2 Flight Operations -During fright operations, aircrew automated escape system seats support and restrain the aircrewmen to enable them to perform their assigned tasks.Careful integration of the aircrew automated escape system and its components subassemblies with cockpit/aircrew stations and aircrew environmental systems to enhance aircrew operational efficiency and aircrew comfort can improve weapons system effectiveness.

3.2 Aircrew automated escape system type selection criteria - The following criteria shall be utilized in selecting the type of aircrew automated escape system to be incorporated in aircraft:

(a) Number of aircrewmen.

(b) Contiguous/noncontiguous aircrew stations.

(c) Maximum dynamic pressures within aircraft flight envelope,

(d) Enhancement of aircrew operational performances.

(e) Such additional criteria as specified by the procuring activity in its request for proposal,

3.2.1 Selection criteria bearing upon aircrew inflight escape problem-

3.2,1.1 Effect of aircrew size -When individual escape systems are used for two or more aircrewmen, avoidance of rocketblast injuries and/or mid-air collisions or system interferences requires the timed sequencing of the individual escape systems, Under adverse conditions in which time is critical, timed sequencing penalizes the escape capability of some air crewmen. In addition, the aircrew maybe separated widely following an inflight escape preventing mutual assistance and making more difficult the location and rescue of the survivors.

3.2.1.2 Effect of contiguity/noncontiguitY of aircrew stations - To insure the escape of all crewmen following escape system initiation by cockpit/flight deck personnel, the aircrew automated escape systems for noncontiguous aircrew stations require interconnection by signal transmission and escape sequencing systems, Contiguous aircrew stations permit the aircrew to be removed as a unit from the disabled aircraft thereby reducing the time required to effect crew escape from a disabled aircraft,

3.2.1.3 Effect of aircraft maximum dynamic pressure - The high dynamic pressures encountered during inflight escapes at airspeeds in excess of 600 KEAS require measures to protect the aircrewman from injury and his equipment from damage caused by exposure to the windblast.

3.2.1.4 Effect of need for enhancement of aircrew operational performance - Enhancement of aircrew operational performance requires integration of escape system, environmental systems with aircraft equipment, displays and controls to reduce crew mobility restrictions and provide optimal crew placement in relation-ship to equipment.

3.3 Conditions governing aircrew escape system selection -

3.3.1 Desired use of aircrew capsule systems - Use of cockpit capsule systems is desired when one or more of the following operational or aircrew escape conditions exists:

(a) Three or more aircrewmen in contiguous aircrew stations, or

(b) The maximum aircraft speed (V_L) exceeds 600 KEAS.

3.3.2 Use of ejection seat permitted - Individual ejection seats maybe used under the following operational and escape conditions:

(a) Whenever there are no more than two aircrew men,

(b) The aircraft maximum airspeed (V_L) is less than 600 KEAS, or

(c) The aircrew stations are non-contiguous

3.3.3 Use of other types of aircrew automated escape systems - Other types of aircrew automated escape systems may be proposed to the procuring activity for consideration provided that the:

(a} performance capabilities and characteristics,

(b) degree of aircrew protection, and

(c) enhancement of aircrew operational performance

afforded by the proposed escape system shall be equal to, or greater than, that afforded by systems considered acceptable for use under similar escape conditions (3.3.1 and 3.3.2) and complying with the requirements of MIL-A-23121 or MIL-S-18471.

3.4 Specification Requirements Conformance Demonstrations and Performance Test - Specification requirements conformance demonstrations and performance tests for aircrew automated escape systems shall reconducted in accordance with MIL-E-9426 requirements.

3.5 Data - Data requirements for aircrew automated escape systems are specified in MIL-D-81816.

3.5.1 Data Requirements for Proposals - Proposals for aircrew automated escape systems shall comply with the requirements of AR-47.

3.6 Contractor/Government Furnished Equipments Requirements - Program requirements for both contractor furnished equipments and government furnished equipments necessary for conducting and/or supporting component qualification and system service release testing are delineated in AR-72.

4. QUALITY ASSURANCE

4.1 . Quality assurance procedures throughout the design, development, test, and manufacture of aircrew automated escape systems shall be such as to ensure satisfactory system operation under normal and emergency conditions. The procedures shall be developed by the contractor in general conformance to the requirements of MIL-S-18471 and MIL-A-23121 and shall be submitted to the Government procuring activity for review and approval.

5. PACKAGING AND DELIVERY - Not Applicable,

6. NOTES

6.1 Intended Use - Aircrew automated escape systems furnish aircrew support/retention during normal flight conditions and must enhance the aircrew's

performance by careful integration with the aircrew stations. In emergencies the aircrew automated escape system is intended to be used to propel the trained and hard-to-replace aircrewmen safely away from the disabled aircraft and to return the aircrewmen to the surface in such condition that each individual is able to undertake the tasks associated with the survival and/or enemy evasion phases of his escape. Relatively minor injuries may degrade the escaped aircrewman's ability to perform these tasks and may result in his death or capture.

6.2 Ordering data - Procurement documents should specify the following:

(a) Title, number, and date of this specification,

(b) Data required (see 6,3),

6.3 Data- For the information of Contractors and Contracting Officers, except for data specified in 3.5, applicable documents listed in Section 2 of this specification, or referenced lower-tier documents need not be prepared for the Government and shall not be furnished to the Government unless specified in the contract or order. The data to be furnished shall be listed on DD Form 1423 (Contractor Data Requirements Lists), which shall be attached to, and made a part of the contract or order,

Preparing activity:
Navy - AS
(Project No. 1680-N374)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

OMB Approval
No. 22-R255

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DOCUMENT IDENTIFIER AND TITLE
MIL-A-81815(AS) AIRCREW AUTOMATED ESCAPE SYSTEMS, GEN SPEC FOR

NAME OF ORGANIZATION AND ADDRESS

CONTRACT NUMBER

MATERIAL PROCURED UNDER A
☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

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