

MIL-STD-1511 (USAF)
12 January 1971

MILITARY STANDARD

INFLIGHT EMERGENCY ESCAPE SYSTEMS, AIRCRAFT,
REQUIREMENTS FOR



FSC 1680

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DEPARTMENT OF THE AIR FORCE

Inflight Emergency Escape Systems, Aircraft, Requirements for

MIL-STD-1511 (USAF)

1. This Military Standard has been approved by the Department of the Air Force and is mandatory for use by activities under the cognizance of the Air Force effective as of date of issue.
2. Recommended corrections, additions, or deletions should be addressed to the Aeronautical Systems Division (ENZSA), Wright-Patterson Air Force Base, Ohio 45433.

CONTENTS

Paragraph		Page
1	SCOPE	1
2	REFERENCED DOCUMENTS	1
3	DEFINITIONS	1
3.1	Escape capsule	1
3.2	Encapsulated seat	1
3.3	Ejection seat	1
3.4	Tractor rocket escape system	2
3.5	Sustained flight	2
3.6	Escape sequencing	2
4	GENERAL REQUIREMENTS	2
4.1	High speed flight	2
4.2	High performance flight	2
4.3	Medium performance flight	2
4.4	Low performance flight	2
4.5	System safety program	2
5	DETAIL REQUIREMENTS	2
5.1	Escape capsules	2
5.2	Encapsulated seats	4
5.3	Ejection seats	4
5.4	Unique systems	4

FIGURES

Figure 1.	Aircraft Performance Envelopes	3
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MIL-STD-1511 (USAF)
12 January 1971

INFLIGHT EMERGENCY ESCAPE SYSTEMS, AIRCRAFT, REQUIREMENTS FOR

1. SCOPE

1.1 This standard defines the requirements for emergency escape systems for aircraft.

2. REFERENCED DOCUMENTS

2.1 The issues of the following documents in effect on the date of invitation for bids form a part of this standard to the extent specified herein.

SPECIFICATIONS

Military

MIL-S-9479 Seat System: Upward Ejection, Aircraft, General
Specification for
MIL-C-25969 Capsule Emergency Escape Systems, General Requirements for

STANDARDS

Military

MIL-STD-882 System Safety Program for Systems and Associated Subsystems
and Equipment, Requirements for

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. DEFINITIONS

3.1 Escape capsule. An escape capsule is an escape enclosure about one or more aircraft crewmembers and forms a part of the aircraft. Upon initiation of escape, this portion of the aircraft separates and the crewmember(s) remain in the capsule until it has landed on the earth's surface.

3.2 Encapsulated seat. An encapsulated seat is an escape enclosure about an individual seat and crewmember. During normal flight the seat is uncovered to permit access to aircraft instruments and controls but the seat is entirely enclosed for escape. The crewmember remains in the encapsulated seat until it has landed on the earth's surface.

3.3 Ejection seat. An ejection seat is a seat with rigid back and bottom structure which provides emergency escape by ejection from the aircraft. The crewmember separates from the seat in the air and descends to the earth's surface by personnel parachute.

MIL-STD-1511 (USAF)
12 January 1971

3.4 Tractor rocket escape system. The tractor rocket system achieves emergency escape by extracting the crewmember from his position in the aircraft. Initiation of emergency escape launches a rocket which pulls the crewmember to a position clear of the aircraft. He descends by parachute to the earth's surface.

3.5 Sustained flight. As used in this standard, sustained flight is defined as flight of 30 minutes or longer duration.

3.6 Escape sequencing. Escape sequencing is a preplanned order of separating individual escape systems from an aircraft. Sequencing is initiated by the aircraft commander as a pre-ejection function and does not preclude other crewmembers from initiating their own ejections.

4. GENERAL REQUIREMENTS

4.1 High speed flight. For speeds exceeding 700 knots equivalent airspeed (KEAS) (refer to figure 1) an escape capsule shall be provided in accordance with MIL-C-25969.

4.2 High performance flight. For performance in the range of 600 to 700 KEAS or sustained flight at altitudes above 50,000 feet, either an escape capsule or an encapsulated seat shall be provided in accordance with MIL-C-25969.

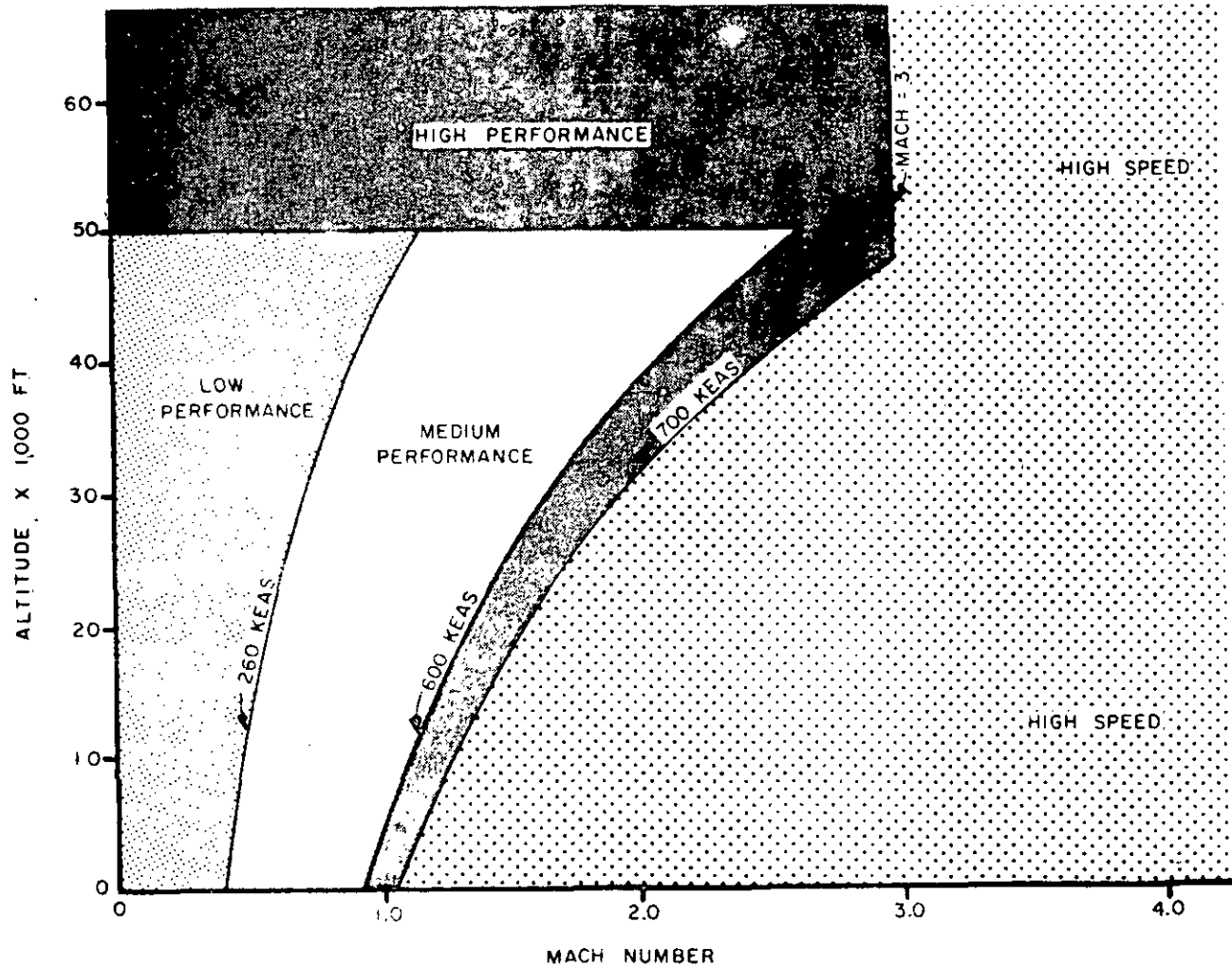
4.3 Medium performance flight. For speeds within the range of 260 to 600 KEAS and flight at altitudes up to 50,000 feet, an ejection seat shall be provided in accordance with MIL-S-9479, or alternate provisions for powered escape, such as a tractor rocket escape system, may be proposed on the basis that the escape requirements for the applicable aircraft mission are satisfied.

4.4 Low performance flight. For speeds up to 260 KEAS and flight at altitudes up to 50,000 feet, powered escape provisions are required, when indicated for the specific aircraft mission requirements.

4.5 System safety program. The system safety program shall comply with the applicable requirements of MIL-STD-882.

5. DETAIL REQUIREMENTS

5.1 Escape capsules. Based upon the aircraft crew station design requirements, a single escape capsule may be provided for the total aircraft crew, or separate escape capsules may be provided for separated groups of crewmembers. If more than one escape capsule is included in the aircraft design, escape sequencing, or a method of providing separation between ejected capsules shall be included to prevent interference between escape capsules and any harmful effects of one capsule on the other.



3

FIGURE 1. Aircraft Performance Envelopes

MIL-STD-1511

12 January 1971

5.2 Encapsulated seats. As applicable, an individual encapsulated seat shall be provided for each aircraft crewmember. For a multiplace aircraft, escape sequencing or some other means shall be included to prevent interference between encapsulated seats and any harmful effects of the one encapsulated seat on the other. The encapsulated seat for the pilot shall include provisions which permit the pilot to:

- a. Close and pressurize the encapsulated seat without ejection,
- b. Fly the aircraft down to a safe altitude, and
- c. Reopen the encapsulated seat for continued flight.

5.3 Ejection seats. As applicable, an individual ejection seat shall be provided for each aircraft crewmember. For a multiplace aircraft, escape sequencing or some other means shall be included to prevent interference between seats and any harmful effects of one seat on the other.

5.4 Unique systems. Any escape systems proposed which do not clearly fall within the general requirements of MIL-S-9479 or MIL-C-25969 shall provide safe escape under all mission conditions of the aircraft. Complete specifications for development must be approved by the procuring activity before the start of development.

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