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MILITARY SPECIFICATION

SEATS; AIRCREW, ADJUSTABLE; AIRCRAFT GENERAL SPECIFICATION FOR

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

1. SCOPE

1.1 Scope. This specification covers the requirements for two types of aircrew adjustable seats. The seats can be used for pilot/co-pilot or other crew-members requiring adjustable seat systems in rotary or fixed wing aircraft.

1.2 Classification. The adjustable seats shall be of the following types, as specified (see 6.2).

Type I - Floor attaching
Type II - Bulkhead attaching

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

QQ-C-320	Chromium Plating (Electrodeposited)
QQ-P-416	Plating, Cadmium (Electrodeposited)
QQ-Z-325	Zinc Coating Electrodeposited, Requirements for
PPP-B-601	Box, Wood, Cleated Plywood

FSC 1680

Federal (Continued)

PPP-B-621	Box, Wood, Nailed and Lock-Corner
PPP-B-636	Box, Shipping, Fiberboard

Military

MIL-P-116	Preservation Packaging, Methods of
MIL-S-5002	Surface Treatments and Inorganic Coatings for Metal Surfaces of Weapon Systems
MIL-C-5541	Chemical Conversion Coatings on Aluminum and Aluminum Alloys
MIL-C-6021	Casting, Classification and Inspection of
MIL-H-6088	Heat Treatment of Aluminum Alloys
MIL-W-6873	Welding, Flash, Carbon and Alloy Steel
MIL-H-6875	Heat Treatment of Steels (Aircraft Practice), Process for
MIL-F-7179	Finishes and Coatings, Protection of Aerospace Weapons Systems, Structures and Parts, General Specification for
MIL-R-8236	Reel, Shoulder Harness, Inertia Lock
MIL-I-8500	Interchangeability and Replaceability of Component Parts for Aircraft and Missiles
MIL-W-8604	Welding of Aluminum Alloys, Process for
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
MIL-W-25361	Webbing, Textile, Dacron, Low Elongation
MIL-W-45205	Welding, Gas Metal-Arc, and Gas Tungsten-Arc, Aluminum Alloys, Readily Weldable for Structures, Excluding Armor

STANDARDS

Federal

FED-STD-191	Textile Test Methods
FED-STD-595	Color

Military

MIL-STD-22	Welded - Joint Designs
MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-143	Standards and Specifications, Order of Precedence for the Selection of
MIL-STD-471	Maintainability Demonstration
MIL-STD-785	Reliability Program for Systems and Equipment Development and Production
MIL-STD-810	Environmental Test Methods
MIL-STD-838	Lubrication of Military Equipment
MIL-STD-889	Dissimilar Metals
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking, and Waterproofing, with Appropriate Test Methods
MIL-STD-1261	Welding Procedures for Constructional Steels
MIL-STD-1333	Aircrew Station Geometry for Military Aircraft
MIL-STD-1472	Human Engineering Design Criteria for Military Systems, Equipment and Facilities

REPORTS

Report No.	Report Title
NAEC-ACEL Report No. 533	Anthropometry of Naval Aviators - 1964 (DDC - No. AD626322)

DRAWINGS

NASC Dwg	
60A113D1	Parachute Assembly NB8

Military Handbook

• MIL-HDBK-5	Metallic Materials and Elements for Aerospace Vehicle Structures

(When requesting any of the applicable documents, refer to both title and number. All requests should be made via the cognizant Government quality assurance representative. Copies of this specification and other unclassified specifications, standards and drawings required by contractors in connection with specific procurement functions should be obtained upon application to the Commanding Officer, Naval Publications and Forms Center (Code 1051), 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120. All other documents should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 First article. Unless otherwise specified (see 6.2), the seat furnished under this specification shall be a product which has been inspected and has passed the first article inspection in 4.3 through 4.3.2.

3.2 Selection of specifications and standards. Specifications and standards for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-143.

3.3 Selection of materials and standard parts. The selection of materials, standard parts, processes, corrosion protection, and design features significant in adequate corrosion behavior shall be in conformance with the requirements of the aircraft detail design specification.

3.3.1 Materials. Materials shall conform to applicable specifications and shall be as specified herein and on applicable drawings. Materials which are not covered by government specifications, or which are not specifically described

herein, shall be of the best quality, of the lightest practicable weight, and suitable for the purpose intended, and shall be approved by the procuring activity. Particular care shall be given to close fitting parts in the choice of both materials and corrosion practices.

3.3.1.1 Metal parts. All metal parts shall be of the corrosion-resistant type or treated in a manner to render them resistant to corrosion. Unless suitably protected against electrolytic corrosion, dissimilar metals, as defined in MIL-STD-889, shall not be used in contact with each other. Riveted joints shall be designed in accordance with MIL-HDBK-5. Quality welding shall be in accordance with MIL-W-6873, MIL-W-8604, MIL-W-45205, MIL-STD-22 and MIL-STD-1261.

3.3.1.1.1 Heat treatment. Heat treatment of aluminum parts and steel parts shall be in conformance with MIL-H-6088 and MIL-H-6875, respectively.

3.3.1.1.2 Castings. Castings used in the seat system shall conform with the requirements of MIL-C-6021.

3.3.1.2 Non-metallic components. Non-metallic components shall be designed to minimize deterioration caused by abrasion and/or exposure to sunlight, microorganisms, moisture, heat, fuel, hydraulic and lubricating oil and grease, and salt spray. Protection shall be provided for those non-metallic components, particularly nylon lines, for which strength degradation is associated.

3.3.1.3 Lubrication. Lubricants and lubrication practices shall conform to the requirements of MIL-STD-838. Lubricants shall function satisfactorily throughout the temperature range from -65° F to +160° F. Choice of lubricants shall (a) reduce the hazards to non-metallic escape system components, (b) reduce damage to finishes adjacent to location of lubricant application, and (c) eliminate the need for frequent relubrication by field maintenance activities. If relubrication is required, choice of lubricants and practices should be such that relubrication need be accomplished only during progressive aircraft rework (PAR) periods.

3.3.1.4 Hydraulic fluids. Hydraulic fluids used in the seats or seat system components shall function satisfactorily throughout the temperature range from -65° F to +160° F. and shall be nonflammable, noncorrosive, nontoxic, and inorganic in nature and shall be approved by the procuring activity.

3.3.1.5 Fungus-proof materials. To the greatest extent practicable, the materials used in the seat system shall not be nutrients for fungi. If materials that are nutrients for fungi must be utilized, such materials shall be treated with a fungicidal agent approved by the Naval Air Systems Command.

3.3.2 Corrosion protection. Corrosion protective practices employed in the manufacture of the seats and seat components shall be in conformance with the MIL-F-7179 requirements for exterior surfaces.

3.3.2.1 Finishes. Protective coatings and finishes shall not crack, chip, or scale during normal service life, or in the herein specified extremes of atmospheric conditions. Surface treatments, coatings and finishes shall conform to MIL-S-5002, except that all aluminum and aluminum alloy parts shall be anodized.

3.3.2.2 Anodizing. All aluminum and aluminum alloy parts, except those subject to wear, shall be anodized in accordance with MIL-A-8625, Type II anodic coating. Anodic coatings for all aluminum and aluminum alloy parts subject to wear shall conform to MIL-A-8625, Type III, except for parts which are expensive and would normally be reworked during overhaul. For these parts, chromium plating in accordance with QQ-C-320 shall be used.

3.3.2.2.1 Chemical surface treatment. For aluminum and aluminum alloy parts not subject to wear, abrasion or erosion, chemical conversion surface treatment in accordance with MIL-C-5541 may be used in lieu of anodizing.

3.3.2.3 Plating. Steel parts in contact with aluminum or aluminum alloys shall be cadmium plated in accordance with QQ-P-416, Type II, Class 1, or zinc plated in accordance with QQ-Z-325.

3.3.3 Flammability and toxicity.

3.3.3.1 Flammability. The use of materials which will support a self-sustained combustion shall definitely be avoided. Materials used to cover cushions, headrests and armrests shall be flame resistant.

3.3.3.2 Toxic fumes. The use of materials which, when burned or exposed to high temperatures, give off toxic fumes shall definitely be avoided.

3.4 Environmental.

3.4.1 Temperature. The seat system shall withstand nonoperating exposure as well as deliver specified performance when subjected to the high- and low-temperature tests as specified in Section 4. There shall be no evidence of physical damage or deterioration.

3.4.2 Sunshine. All materials used in the construction of any seat system component or assembly which may be subjected to prolonged exposure to sunshine shall show no evidence of any degrading effect when subjected to the sunshine test specified in Section 4.

3.4.4 Humidity. The seat system shall operate satisfactorily during and after being subjected to the humidity test(s) specified in Method 507 of MIL-STD-810. There shall be no evidence of corrosion or deterioration.

3.4.4 Fungus. If any material utilized in the construction of the seat system is suspected to be a nutrient to fungi, the material shall show no deterioration when subjected to fungus tests specified in Section 4. The material shall show no evidence of fungus.

3.4.5 Salt fog. All materials used in the construction of the seat system shall be corrosion-resistant or so processed to withstand the salt fog test as specified in Section 4. There shall be no evidence of corrosion or deterioration.

3.4.6 Dust. The seat system shall be capable of satisfactory operation after exposure to the dust test specified in Section 4.

3.4.7 Vibration. The seat system shall be capable of satisfactory operation after being subjected to the vibration tests of Section 4. There shall be no evidence of damage or deterioration.

3.4.8 Mechanical shock. Components and equipment shall withstand normal shipping, handling, and installation without damage to required functional operation.

3.5 Maintainability. The procuring activity will specify the acceptable level of maintainability for the seat system (see 6.2). The maintainability program to achieve, demonstrate, and assure retention of the seat system maintainability shall be in accordance with MIL-STD-471.

3.6 Reliability. Because of the emergency nature of the seat system, prime importance shall be placed upon the attainment of a high overall degree of reliability. A reliability program shall be established in accordance with MIL-STD-785.

3.7 General design considerations. The designers of the applicable seat system, in order to ensure the long-term success of the crew seat system in achieving its purpose, should consider throughout the design and development phases, the ease or difficulty with which required maintenance tasks may be accomplished. Special attention should also be placed on the comfort aspects of the seating system for long duration missions lasting 4 to 6 hours. Normal aircraft vibrations, especially in rotary-wing aircraft should not be amplified by the seating system. The seat shall provide:

a. Survivable support and retention throughout the aircraft 3-axis "g" field and throughout the entire flight envelope of the aircraft.

b. Comfortable and adequate support and retention of the seat occupant's body under all conditions of flight throughout the aircraft performance envelope, including takeoff and landing.

3.7.1 Human factors general design considerations. Human factors design considerations shall be in accordance with MIL-STD-1472 and MIL-STD-1333 and the following:

a. Crewmember accommodation. The seat shall accommodate 3rd through 98th percentile crewmembers wearing applicable personnel protective equipment and shall provide a comfortable condition in which the efficiency and effectiveness of the aircrewman are optimized. All anthropometric data for the 3rd through 98th percentile aircrewmembers shall be in accordance with NAEC-ACEL Report No. 533.

b. Cockpit compatibility. The design of the seat shall be compatible with the aircrew station in which the seat shall be installed. Individual 3rd through 98th percentile aircrewmembers, while restrained in the full back position by the restraint system, shall be able to reach and fully actuate and/or manipulate all aircraft primary flight controls assigned to, and located within their respective aircrew stations. The extremes of functional reach for the 3rd percentile shoulder height (seated) aircrewmember shall be considered to be the 3rd and 70th percentiles, and for the 98th percentile shoulder height (seated) aircrewmember shall be considered to be the 30th and 98th percentiles. In addition, when the seat is adjusted to raise the occupant's eye level to the aircraft seat reference eye level, 3rd through 98th percentile aircrewmembers shall be able to actuate all normal and/or equipment controls assigned to, or located in, their individual aircrew stations. Location of the seat in relation to other aircraft equipment shall permit ready ingress to, and egress from the seat by aircrewmembers. This location shall not hinder emergency escape from the aircraft by aircrewmembers equipped with personnel parachutes and survival equipment.

3.8 Specific design considerations. The seat system shall include the following components, as applicable to the specific aircraft in which the system is utilized.

a. Seat bucket

b. Supporting energy attenuating structure and connections to aircraft

c. Restraint system

d. Comfort cushioning

e. Personnel recovery parachute provisions

The seat system and components shall not fail when subjected to the specified loads and tests specified in Section 4.

3.8.1 Seat bucket. The seat bucket geometry shall be in conformance with MIL-STD-1333, MIL-STD-1472, and Figure 1. It shall provide comfortable and adequate support for the 3rd through 98th percentile aircrewmember while performing his flight tasks in the aircraft. There shall not be any protrusions or edges on the bucket that will cause snagging during ingress or egress or present a hazard to the occupant during crash. It shall have provisions for:

a. Removable headrest (if applicable)

b. Removable or stowable armrests (if applicable)

c. Space and support for a back type parachute or comfort cushion.

d. Seat adjustment mechanisms: 1) vertical 2) fore and aft and 3) recline adjustment.

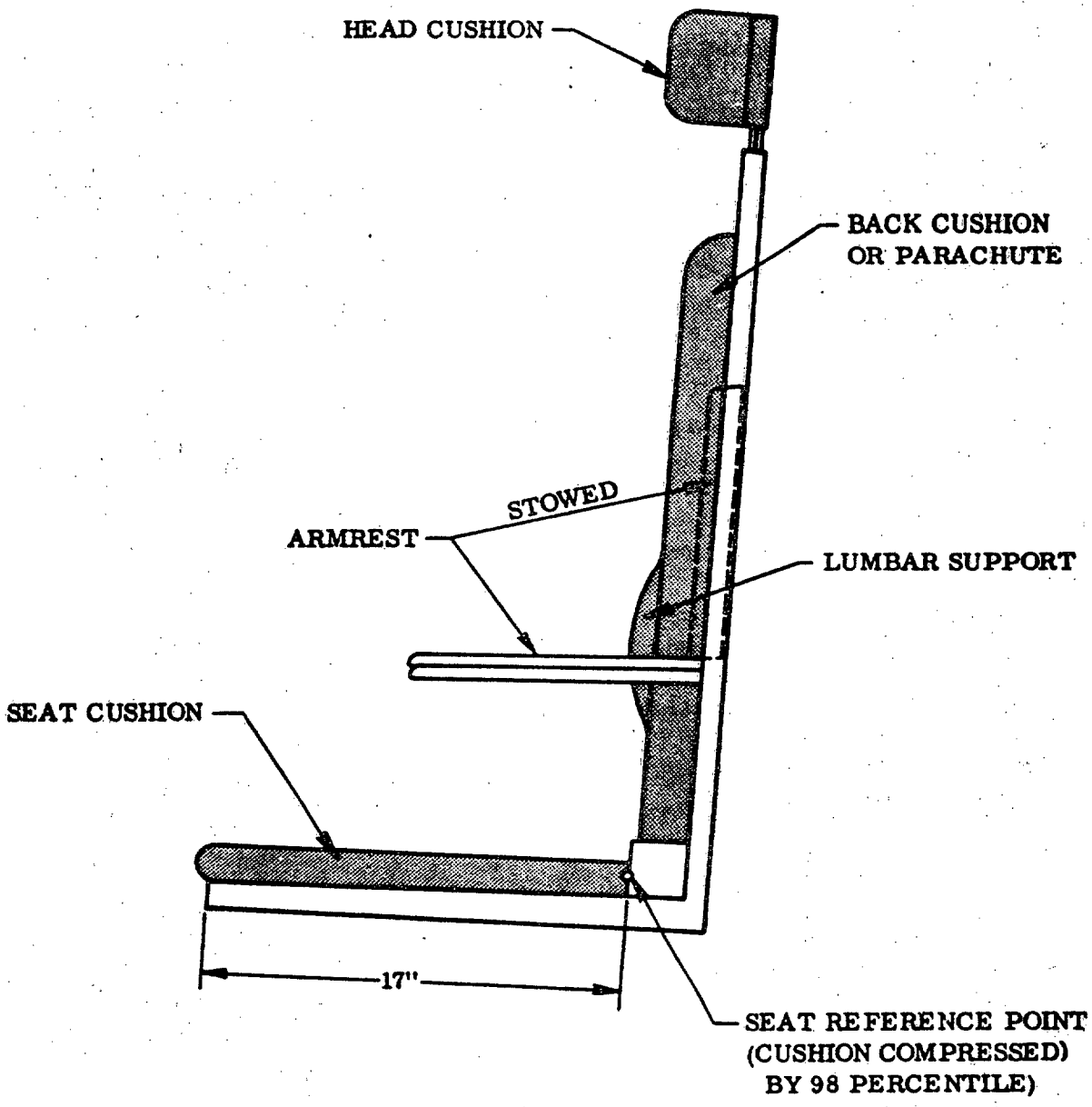
e. Mounting structure for restraint system.

f. Positive retention of comfort and support cushions to the bucket

g. Drain holes

3.8.1.1 Headrest (if applicable). The seat shall incorporate a removable headrest. The headrest shall be of a design that can be readily removed or installed without affecting the functioning of the seat or the shoulder straps. The design of the headrest shall be configured and contoured to comfortably accommodate the 3rd through 98th percentile aircrewmember wearing a helmet. Padding shall be durable, resilient and shall not pack due to use. An energy absorbing material shall be selected to reduce shock transmissibility during head impact. When tested as specified in Section 4, the headrest shall not fail or permanently deform more than 1 inch as measured on the uppermost portion of the headrest.

3.8.1.2 Armrests (if applicable). The seat shall incorporate removable armrests on each side of the seat. The armrests when in place shall be capable of being folded into a position where they will not interfere with ingress or egress of the occupant, or with the functional movement of the seated aircrewmember. The armrests shall be capable of being adjusted vertically plus or minus 1-1/2 inches



NOTES:

1. 17" of seating depth shall be provided, with additional depth to accommodate the back cushion or parachute
2. Minimum width of the seat shall be 18" inside dimension

Figure 1. General Arrangement

in increments of 1/2 inch. The armrests in their stowed positions shall not interefere with the crewmembers manipulation of the cyclic and collective controls in a rotary-winged aircraft. When tested as specified in Section 4, the armrest shall not fail or permanently deform more than 1 inch measured on the most forward portion of the armrest.

3.8.1.3 Back space for comfort cushion or parachute. Bucket back space shall be provided to accommodate either a comfort cushion or back type parachute. The weight of the parachute during normal flight shall be borne by a seat support shelf which shall be either an appropriate cushion or frangible material offering no source of contact injury to the occupant's pelvic or lower lumbar region during crash or hard landing. The back space provisions shall be adequate to prevent jamming of the parachute during emergency egress.

3.8.1.4 Seat adjustments. Seat adjustments shall be in conformance with MIL-STD-1333 and MIL-STD-1472 unless modified by this Specification. The provisions included for seat adjustment shall not reduce the structural integrity or crash worthiness of the seat. Type I seats shall have independent vertical and fore and aft adjustments. If not independent adjustment, Type II seats shall have combined diagonal adjustment to move the seat upward and forward or downward and backward over the specified ranges with reference to the neutral seat reference points (NSRP).

3.8.1.4.1 Vertical adjustments. The seat shall be provided with a 5-inch vertical adjustment ±2.5 inches from the NSRP. The seat shall be adjustable to any height within this range, in increments of not more than 5/8 inches. This adjustment shall incorporate a loaded mechanical "helper" device which shall tend to raise the seat as the occupant's weight is removed. The load shall not exceed 150 pounds when the seat is in the lowest position, nor less than 30 pounds when the seat is in its highest position. Suitable stops shall be provided at the ends of the adjustment range. The seat adjustment locking mechanism shall be a positive engaging type which shall not inadvertently release once the lock is set.

3.8.1.4.2 Fore and Aft adjustment. (Type I)--The seat shall be provided with a minimum fore-and-aft adjustment of 5 inches, ±2.5 inches from the NSRP, in increments of not more than 5/8 inch. (Type II)--The seat shall be provided with a minimum fore-and-aft adjustment of 3 inches, ±1.5 inches from the NSRP in increments of not more than 5/8 inch.

3.8.1.4.3 Recline adjustment (if applicable). When the seat is in the normal position, the back shall be inclined aft at an angle of 13 degrees from a line perpendicular to the plane of the floor, and the bottom shall be inclined upward so that the occupants' thigh tangent angle is a minimum of 5 degrees and a maximum of 20 degrees with the plane of the floor. The back shall be adjustable aft from the normal position 10 degrees in increments of 2 degrees. The design shall permit this adjustment to be made easily while the seat is carrying the weight of a 98th percentile crewmember.

3.8.1.4.4 Seat adjustment controls. (Type I) - The adjustment control lever for operating the vertical adjustment shall be located on the forward right hand side of the seat bucket and shall be easily accessible to the occupant. The adjustment control lever for operating the fore-and-aft adjustment shall be located on the left side of the seat in a position accessible to the seat occupant when the seat is in either the extreme up or down position. (Type II) - When a single control lever is used for a combined diagonal adjustment, it shall be located on the right side of the seat near the front of the bucket. The adjustment control lever for the reclining back locking mechanism shall be easily accessible to the pilot, and shall not be located at a position where interference with other adjustment control levers is possible. The seat adjustment locking mechanism shall be released by an upward movement of the lever and the mechanism shall automatically lock when the lever is released. The angular movement of the seat adjusting lever shall not exceed 50 degrees. In no case shall any adjustment control release during imposition of crash forces described herein or during bucket stroking.

3.8.1.4.5 Mounting structure for the restraint system. Mounting structure shall be provided on the bucket to accept all attachment fittings from the restraint systems. Location of the inertia reel shall be as close as possible to the exit point of the shoulder strap or straps from the seat back. Location of the mounting structure for the lap belt is shown in Figure 2.

3.8.1.4.6 Positive retention of comfort and support cushions to the bucket. Both the seat back cushion and buttocks cushion shall be positively retained against the bucket. Aircraft maneuvers or aircrewmembers motion in the seat shall not cause the cushions to displace or separate from the bucket surface. Removal and replacement of cushions shall be a simple operation and preferably shall not require tools.

3.8.1.4.7 Drain holes. Drain holes shall be provided to drain the bucket when the bottom of the bucket is in any position within its adjustment range and with the aircraft in its normal ground position.

3.8.1.4.8 Seat system adjustment performance requirements. The seat system when subjected to the operational cycle and functional tests as specified in Section 4, shall travel smoothly in the required direction without binding, shall lock in each adjustment position smoothly and shall release from any adjustment position when the specified load is applied to the control lever.

3.8.2 Supporting energy absorbing (E/A) structure and connections to aircraft. An accessible, visible, manual means shall be provided for easily connecting/disconnecting the seat system from supporting tracks or structure of the aircraft to enable field maintenance personnel to readily install or remove the seat in the aircraft. The seat system shall be attached to the basic aircraft structure using connectors with sufficient strength to preclude attachment failure when subjected to the loads imposed on it during all flight maneuvers and crash loads as specified herein.

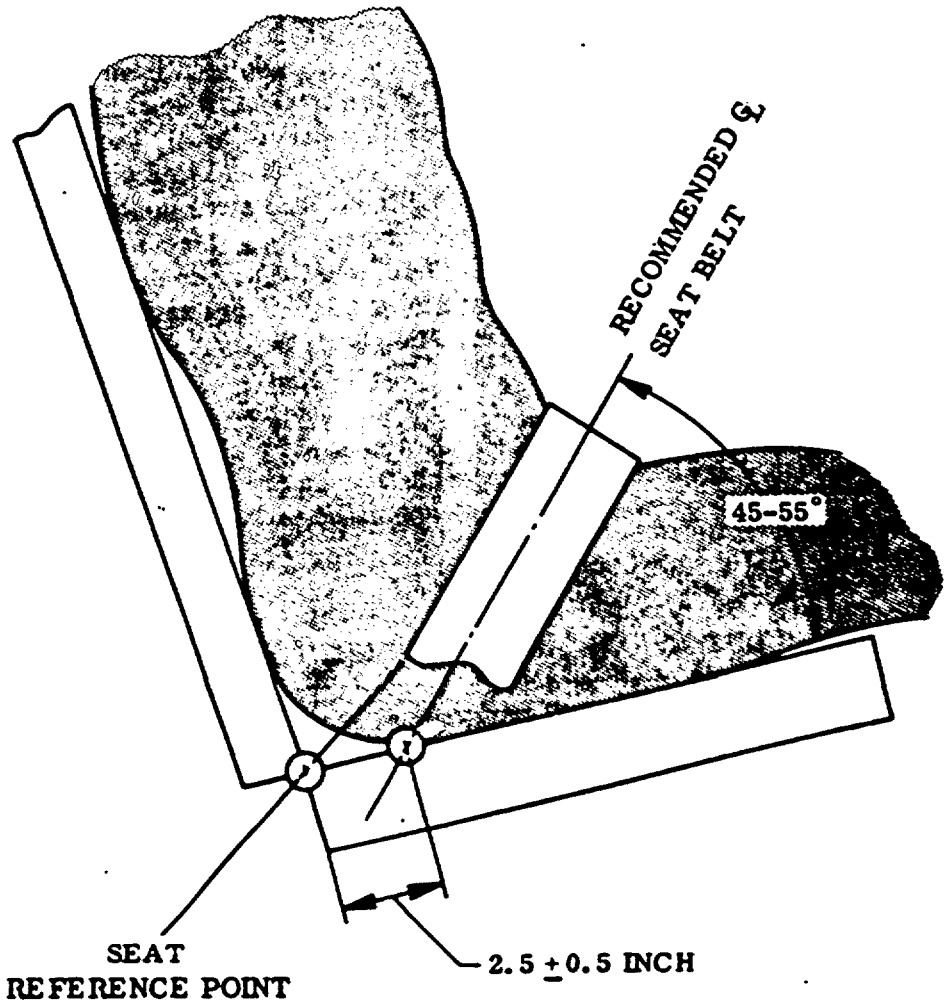


Figure 2. Lap Belt Anchorage Geometry

3.8.2.1 Supporting E/A structure. The bucket shall be attached to a supporting E/A structure which will form the interface between the bucket and airframe. The supporting E/A structure shall possess an energy absorption system designed to limit the crash loads specified herein by allowing the bucket to displace relative to the support structure. The E/A system shall be optimized for stroking load and available stroking distance between the seat bucket and the aircraft floor with the goal of reducing the relative velocity between both to zero before the bucket contacts the floor. The E/A mechanism stroke shall be the maximum attainable in the space between the bucket bottom and the floor. As the input crash load exceeds the level at which the E/A begins to operate, a portion of the total input load shall be absorbed by the E/A. As long as the load remains above this preset level, the E/A shall continue to stroke until its available stroke is exhausted. Should this occur, the E/A shall remain an integral unit and the remaining input load shall continue to be distributed to the aircraft floor through the support structure. Mechanical load limiting E/A systems shall have the ability to absorb both tension and compression loads. The E/A shall be of minimum size and cost and shall perform satisfactorily without special maintenance for the life of the seat. Weight of the E/A shall be kept to a minimum.

3.8.3 Restraint system. The restraint system shall mount on the crewmembers seat bucket. The restraint straps shall be in conformance with MIL-W-25361 - Type III except as otherwise specified in Table I.

TABLE I

WEBBING DIMENSIONS AND MINIMUM ULTIMATE STRENGTH

COMPONENT	WIDTH (in. ±.062)	THICKNESS (in. ±.010)	MINIMUM ULTIMATE STRENGTH (lbs)
Lap Belt	2.25	.085	6000
Shoulder Straps	1.75	.085	6000
Tiedown Strap	1.25	.075	4000

3.8.3.1 Restraint harness. The harness shall be comfortable, light in weight and easy to put on and remove. The harness shall provide freedom of movement for the occupant. It shall be adjustable to provide proper orientation for the aircrewmember, accommodating all body sizes ranging from 3rd to 98th percentile occupants. Table I summarizes the webbing width, thickness and minimum ultimate strength required of each restraint harness component.

3.8.3.2 Configuration. The minimum requirements for the restraint harness shall be a lap belt, two shoulder straps and a single point attachment and release fitting. A preferable feature shall be the inclusion of a tiedown strap from the single point attachment into the forward portion of the seat bucket.

3.8.3.3 Lap belt. The anchorage points of the lap belt shall be located on the seat bucket and shall be positioned to cross over or below the seated crewmembers illiac crest. A recommended location is shown in Figure 2. The specific lap belt subassembly shall be selected to fit, within the tolerances specified, the particular seat configuration. The adjustment hardware for the lap belt shall not be located directly over skeletal protuberances of the seated crewmember. The force required to adjust the webbing length shall not exceed 30 lbs and it shall be possible for the seated occupant to easily adjust webbing with either hand.

3.8.3.4 Shoulder straps. Shoulder straps shall be designed to pass over the occupant's shoulders in a plane parallel to the seat back as shown in Figure 3. The inside edges of the straps shall not bear against the occupant's neck. The adjustment hardware for the shoulder straps shall not be located directly over skeletal protuberances of the seated occupant. The force required to adjust the webbing length shall not exceed 30 lbs. A downward pull shall be used to adjust the tightness of the straps.

3.8.3.5 Tiedown strap (if applicable). The tiedown strap shall be permanently attached to the lower portion of the single point attachment and release mechanism. Its opposite end shall be attached to the bucket center line at a point 1 inch forward of the 98th percentile's lower torso. The specific fixed tiedown strap length selected shall be a function of the compressed seat cushion thickness at the buttock reference point of the 98th percentile crewmember. It shall provide a firm load path to restrain the single point attachment and release mechanism from upward motion. If necessary, the cushion shall be relieved to permit the tiedown strap to extend down to the bucket.

3.8.3.6 Single point attachment and release mechanism. The mechanism shall provide firm connection for the left and right hand shoulder strap and lap belt fittings. When the release mechanism is actuated, it shall simultaneously release all four fittings. The release mechanism shall minimize the possibility of inadvertent release. It shall be designed to be easily opened with either hand. The mechanism shall have no protusions, sharp edges, or features which would tend to entangle or catch on clothing or body-worn equipment. The mechanism shall maintain its lock on the restraint system components under vibrational operational loads and impact loading described in this specification. The single-point mechanism shall be equipped with a pad attached to its underside to provide a soft interface and to permit distribution of loads to the torso.

3.8.3.7 Attachments of belts and straps. Belts and straps shall be attached to the seat structure in a manner which shall preclude premature failure due to stress concentrations caused by misalignment of components during any seat deflection and body orientation, or a combination of both, during the crash sequence. In general, fittings shall permit angular movement of 45 degrees between mating components, in any direction, without imposing load on the components.

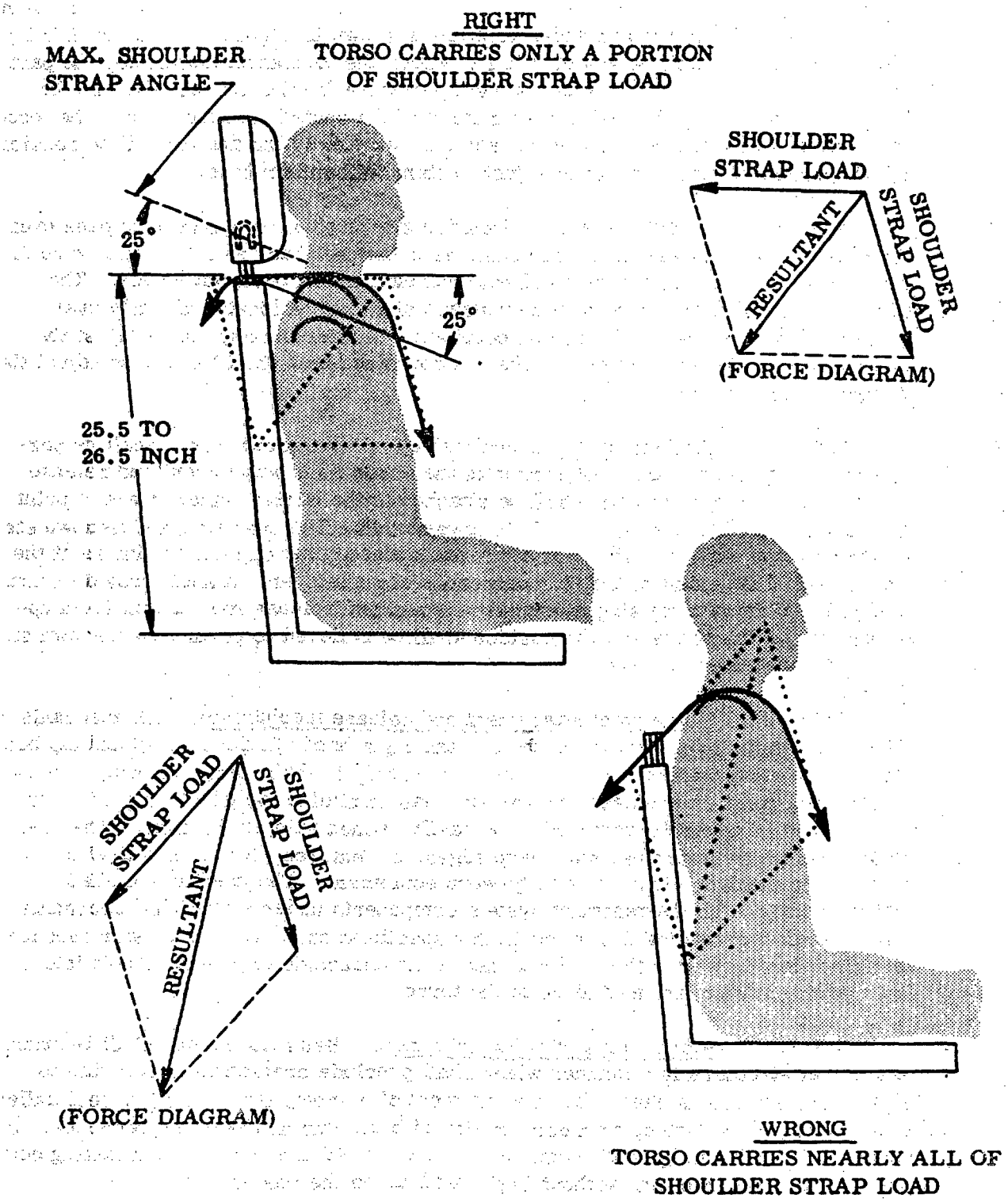


Figure 3. Shoulder Harness Anchorage Geometry

3.8.3.8 Inertia reel. Both shoulder straps shall be served by a single inertia reel conforming to MIL-R-8236, mounted on the back of the seat. The reel shall be a rate-of-extension type. The inertia reel manual lock/unlock control shall be located on the left side of the seat.

3.8.4 Seat cushions.

3.8.4.1 Seat bucket cushion. The bucket cushion shall be designed for maximum comfort. It is not intended as a device to absorb energy in the vertical direction during crash and should not exceed 1-1/2 inches in maximum thickness. However, the design of the cushion should be optimized to reduce aircraft vibrations to the crewmember during flight. Visco-elastic and load rate sensitive materials should be evaluated to accomplish this goal. The cushion shall be properly contoured for the human body buttocks area over the 3rd to 98th percentile range. Cushion size shall be 17 inches deep and a minimum of 18 inches wide.

3.8.4.2 Seat back cushion. The seat back cushion shall provide adequate and comfortable back support for the crewmember and shall be interchangeable with a back type parachute. An adjustable contoured lumbar pad shall be provided as part of the back cushion system.

3.8.5 Personnel recovery parachute provisions. The bucket shall provide sufficient space for a personnel recovery parachute, NB-8, conforming to NASC drawing 60A113D1.

3.9 Construction.

3.9.1 Bolting, riveting, and welding. Riveting and welding may be used for assembling the component parts fabricated of metals which are suitable for this type of construction. Fittings and joints requiring disassembly for installation and removal of the seat from the aircraft or disassembly of the component parts of the seat shall be bolted. Bolt shear and tension allowables shall be in accordance with tables 8.1.2 (a) and 8.1.2 (b) of MIL-HDBK-5 respectively.

3.9.2 Projections. The inside surface of the bucket shall be free from projections that could catch or damage by abrasion, the parachute pack or the clothing of the occupant. The exterior surfaces of the bucket shall be free from sharp edges or any other projections that could scratch the hands or tear the clothing of the crewmembers as they move their arms about the sides of the bucket to handle equipment within reach.

3.9.3 Strength requirements.

3.9.3.1 Static design loads. The seat system shall be designed with sufficient strength to support the loads described herein. The deflections of the seat

and attachments under design loads shall not be of such magnitude as to allow the occupant's torso or head to contact other portions of the aircraft in the vicinity of the seat.

3.9.3.1.1 Headrest. With the seat back in the position indicated in Figure 3, the headrest shall withstand an aft load of 400 lbs uniformly distributed over the headrest.

3.9.3.1.2 Armrests. With loads applied at the center portion of each armrest, it shall be capable of withstanding a downward load of 250 pounds and a side load of 100 pounds applied outward or inward perpendicularly to each armrest in a horizontal plane. Simultaneous application of these loads shall not be required. The seat armrests shall be capable of supporting the weight of a 98th percentile crewmember. The armrests or armrest mounting provisions should not become hazardous to the occupant during or after a crash.

3.9.3.1.3 Upward load. With the seat adjusted to its NSRP, it shall support an upward load of 2000 pounds applied through the restraint system to the seat structure.

3.9.3.1.4 Downward load. With the seat at the top limit of vertical adjustment it shall support a downward load of 4000 pounds uniformly distributed over an area equal to that occupied by the seat cushion.

3.9.3.1.5 Aft load. With the seat at the top limit of vertical adjustment it shall support a rearward load of 2500 pounds uniformly distributed over an area equal to that occupied by the back cushion.

3.9.3.1.6 Forward lap belt and shoulder harness load. With the seat at the top limit of vertical adjustment, the lap belt including its fittings on the sides of the seat, and the seat shall withstand a load of 7500 pounds directed forward and parallel to the floor. Each lap belt including its fitting, and the seat shall withstand a load of 4000 pounds directed forward and 45 degrees sideward toward the axis of symmetry of the seat.

The shoulder harness passing over the seat back including the inertia reel and the seat back shall withstand a load of 3000 pounds acting:

a. forward and parallel to the floor

b. 20 degrees to the right of forward

c. 20 degrees to the left of forward

Each shoulder strap, including its termination, and the seat back shall withstand a load of 2000 pounds acting:

a. Forward and parallel to the floor

b. 20 degrees to the right of forward

c. 20 degrees to the left of forward

3.9.3.2 Dynamic crash loads. The seat system, including fittings and supporting structure, shall be capable of withstanding, without gross failure, loads developed as the result of testing to the conditions of Figure 4. The stroking load of the E/A and stroking distance of the bucket shall be optimized for crash force attenuation. The E/A mechanism and bucket stroke shall be the maximum attainable in the space between the seat and the aircraft floor.

3.10 Weight. The completed seat system shall have a weight which meets the requirements of the aircraft detail design specification.

3.11 Color. Unless otherwise specified by the procuring activity, the color of the seat shall be gray, conforming to 36321 per FED-STD-595.

3.12 Interchangeability and replaceability. Parts and assemblies of the seat shall be interchangeable or replaceable in conformance with MIL-I-8500.

3.13 Identification of product. Identification marking shall be in conformance with MIL-STD-130. Nameplates shall contain the following information:

SEATS, AIRCREW, ADJUSTABLE; AIRCRAFT TYPE _____
Specification MIL-S-81771A (AS)
Federal Stock No.
Manufacturer's Part No.
Manufacturer's Serial No.
Contract or Order No.
Manufacturer's Name or Trade Mark

3.14 Workmanship. Workmanship shall be of the highest quality to assure optimum performance, reliability, and service life. Particular attention shall be given to freedom from defects, burrs, and sharp edges; accuracy of dimensions, radii, fillets, and markings of parts and assemblies; thoroughness of welding, brazing, painting, and riveting; alignment of parts and tightness of assembly screws and bolts.

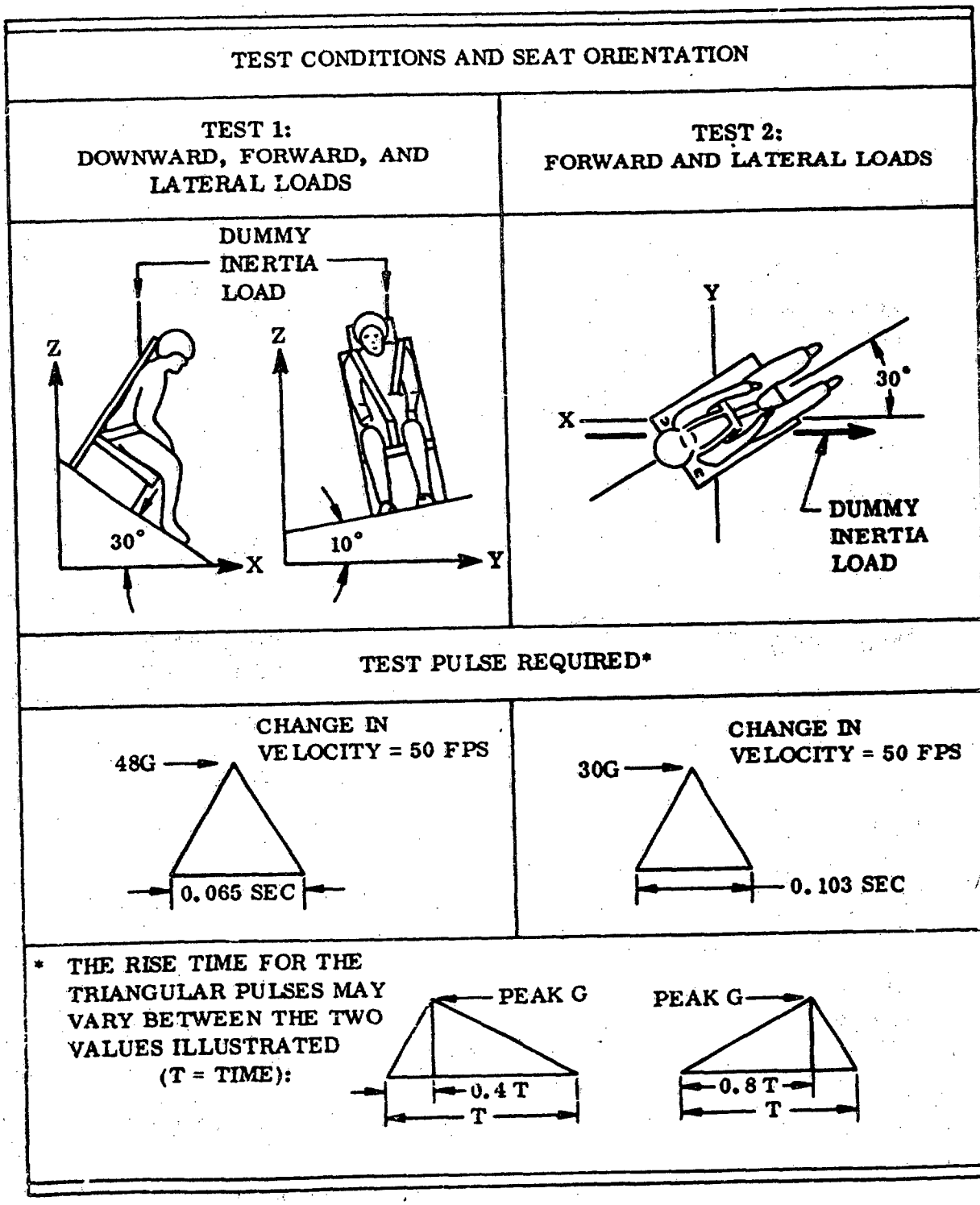


Figure 4. Dynamic Test Requirements

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Classification of inspection. The examination and testing of the seat assembly shall be classified as follows:

a. First article inspection. First article inspection consists of examinations and tests performed on samples which are representative of the production item after the award of a contract to determine that the production item conforms to the requirements of this specification (see 4.3).

b. Quality conformance inspection. Quality conformance inspection consists of examinations and tests performed on individual products or lots to determine conformance of the products or lots with the requirements set forth in this specification (see 4.4).

4.3 First article inspection. The first article inspection of the seat assembly shall consist of the examinations and tests specified in Table II.

TABLE II

FIRST ARTICLE EXAMINATIONS AND TESTS

INSPECTION	METHOD PARAGRAPH
Visual examination	4.5.1
Seat system operation tests	4.5.2
Restraint system tests	4.5.3
Strength	4.5.4
Static design loads	4.5.4.1
Dynamic crash loads	4.5.4.1.7
Environmental tests	4.5.5

4.3.1 First article samples. Unless otherwise specified, as soon as practicable after award of the contract or order, the manufacturer, shall submit four first article samples and sufficient E/A's to support the testing described herein. The samples shall be representative of the construction, workmanship, components and materials to be used during production. When a manufacturer is in continuous production of these seat assemblies from contract to contract, submission of further first article samples may be waived at the discretion of the procuring activity (see 6.2). Approval of the first article inspection samples or the waiving of first article inspection does not preclude the requirements for performing the quality conformance inspection. The first article inspection samples shall be furnished to the Government as directed by the contracting officer (see 6.2).

4.3.2 Upon completion of the first article inspection, all the applicable inspection reports and when applicable, recommendations and comments pertinent for use in monitoring production will be forwarded to the cognizant Government activity. The seats shall be consumed or destroyed in the first article inspection and shall not be considered as part of the quantity to be delivered under contract.

4.4 Quality conformance inspection. The sampling and inspection levels shall conform to MIL-STD-105. The quality conformance inspection shall consist of the inspections specified in Table III.

4.4.1 Sampling.

4.4.1.1 Inspection lot.

4.4.1.1.1 Seat assembly. An inspection lot size shall be expressed in units of one seat assembly made under essentially the same conditions and from the same materials and components. The sample unit shall be one seat assembly.

4.4.1.1.2 Preparation for delivery. An inspection lot size shall be expressed in units of one fully prepared shipping container, containing seat assemblies of one type, fully prepared for delivery from essentially the same materials and components. The sample unit shall be one shipping container, containing seat assemblies of one type, fully prepared for delivery with the exception that it need not be sealed.

4.4.1.2 Sampling for tests and examinations of the seat assemblies. The sample size, acceptance criteria, and general examinations and tests required for the seat assemblies are listed in Table III.

TABLE III

SAMPLE SIZE, ACCEPTANCE CRITERIA, TESTS AND EXAMINATIONS OF THE SEAT ASSEMBLIES

INSPECTION	METHOD PARAGRAPH	SAMPLE SIZE	ACCEPTANCE CRITERIA 1/
Visual examination (see classification of defects)	4.5.1	Every seat for critical defects. Inspection Level II for minor defects.	Reject all units with any critical defects. An acceptable quality level of 2.5 defects per hundred.
Seat system operational cycle tests	4.5.2.1	One seat from each 100 or fraction thereof	Acceptance number zero rejection number 1
Seat system operational function test	4.5.2.2	Every seat	Reject any defective units
Restraint tests	4.5.3	One seat from each 100 or fraction thereof	Acceptance number zero rejection number 1
Preparation for delivery	4.5.1.2	Inspection Level S-2	An acceptable quality level of 4.0 defects per 100 units

1/ The sampling plan acceptance numbers shall apply collectively to all the characteristics within a stated acceptable quality level.

4.5 Inspection methods.

4.5.1 Visual examinations.

4.5.1.1 Seat assembly. Every seat assembly shall be examined visually (for critical defects) to determine conformance to this specification and applicable drawings. The classification of defects, Table IV, shall be used to classify the defects found, as applicable.

TABLE IV

CLASSIFICATION OF DEFECTS FOR VISUAL EXAMINATION OF THE SEAT ASSEMBLY

CRITICAL	MINOR
1. Dimensions not within specified tolerances	201. Marking - missing, insufficient, incorrect, illegible, or not permanent
2. Material imperfections - foreign matter embedded	202. Color not as specified
3. Surfaces - misaligned or containing cracks, nicks or other flaws	
4. Any component missing, malformed, fractured or otherwise damaged	
5. Incorrect assembling or improper positioning of components	
6. Any component loose or otherwise not securely retained	
7. Any functioning part that works with difficulty	
8. Faulty workmanship or other irregularities	

4.5.1.2 Preparation for delivery. Each of the fully prepared shipping containers, containing seat assemblies, selected as a sample unit from the lot shall be examined to determine that the packaging, packing and marking conform to this specification. The classification of defects, Table V, shall be used to classify the defects found.

TABLE V

CLASSIFICATION OF DEFECTS FOR PREPARATION FOR DELIVERY

ITEM	DEFECTS
Exterior and interior markings	Missing, incorrect, incomplete, illegible; of improper size, location, sequence or method of application; markings not the same on the interior and exterior containers.

TABLE V (Continued)

ITEM	DEFECTS
Packaging and packing materials	Any nonconforming components; any component missing, damaged, or otherwise defective.
Workmanship	Inadequate application of the components such as incomplete closure of the unit package, intermediate packing, container flaps, or loose strappings, etc.; bulging or distortion of the containers.
Exterior and interior weight or content	Number per container is more or less than required; gross or net weight exceeds the requirement.

4.5.2 Seat system operational tests.

4.5.2.1 Operational cycle tests (as applicable).

4.5.2.1.1 Vertical cyclic adjustment. The seat system with a 95th percentile dummy or test block seated on it, shall be mounted simulating normal aircraft mounting. The bucket shall then be adjusted upward and downward from its NSRP to each of its adjustment positions until a total of 5000 adjustments has been completed. At each adjustment position, the bucket shall lock positively and smoothly. Release shall be accomplished by a load of 30 pounds or less exerted onto the vertical control lever.

4.5.2.1.2 Fore and aft cyclic adjustment. The seat system shall be set up as specified in 4.5.2.1.1. The bucket shall then be adjusted forward and backward from its NSRP to each of its adjustment positions until a total of 5000 adjustments has been completed. At each adjustment position the seat system shall lock positively and smoothly. Release shall be accomplished by a load of 30 pounds or less onto the adjustment control lever.

4.5.2.1.3 Combined cyclic adjustment. The seat system shall be set up as specified in 4.5.2.1.1. The bucket shall then be adjusted upward and forward then downward and backward from the NSRP to each of its adjustment positions until a total of 5000 adjustments has been completed. At each adjustment position, the bucket, shall lock positively and smoothly. Release shall be accomplished by a 30 pound or less load exerted onto the adjustment control lever.

4.5.2.1.4 Recline cyclic adjustment. The seat system shall be setup as specified in 4.5.2.1.1 and shall be tested for the reclining operation by adjusting it to each of its reclining positions until a total of 1000 adjustments has been completed. At each adjustment position, the seat shall lock positively and smoothly. Release shall be accomplished by a 30 pound or less load exerted onto the adjustment control lever.

4.5.2.2 Operational function tests (as applicable).

4.5.2.2.1 Vertical functional adjustments. The seat system shall be set up as specified in 4.5.2.1.1 and shall be adjusted upward and downward from its NSRP to each of its adjustment positions for a total of one adjustment per each adjustment position. At each adjustment position, the bucket shall lock positively and smoothly. Release shall be accomplished by a load of 30 pounds or less exerted onto the vertical control lever.

4.5.2.2.2 Fore and aft functional adjustments. The seat system shall be set up as specified in 4.5.2.1.1 and shall then be adjusted forward and backward from its NSRP to each of its adjustment positions for a total of one adjustment per adjustment position. At each adjustment position, the seat system shall lock positively and smoothly. Release shall be accomplished by a load of 30 pounds or less onto the adjustment control lever.

4.5.2.2.3 Combined functional adjustment. The seat system shall be set up as specified in 4.5.2.1.1. The bucket shall then be adjusted upward and forward then downward and backward from the NSRP to each of its adjustment positions for a total of one adjustment per each adjustment position. At each adjustment position, the bucket shall lock positively and smoothly. Release shall be accomplished by a 30 pound or less load exerted onto the adjustment control lever.

4.5.2.2.4 Recline functional adjustments. The seat system shall be set up as specified in 4.5.2.1.1 and shall be tested for the reclining operation by adjusting it to each of its reclining positions for a total of one adjustment per each adjustment position. At each adjustment position, the seat shall lock positively and smoothly. Release shall be accomplished by a 30 pound or less load exerted onto the adjustment control lever.

4.5.3 Restraint system tests.

4.5.3.1 Restraint system. Webbing for the restraint system shall be tested in accordance with FED-STD-191 as specified in MIL-W-25361.

4.5.3.1.1 Restraint hardware. With no load other than the adjustment reaction load, webbing shall be cycled through its adjuster 5000 times. The webbing shall then be tested for abrasion in accordance with the applicable tests of MIL-W-25361. Excessive abrasion of the webbing shall be unacceptable. The test shall be repeated for each dimensionally different webbing/adjuster combination.

4.5.3.1.2 Single point release. The shoulder straps and the lap belts shall be connected to the single point release in the correct positions for normal use. Tension shall be applied such that the tensile loads specified below exist for load conditions A and B.

Component	Load A	Load B
Lap Belt Strap	100 ± 10 lbs	1 ± lbs
Shoulder Harness Strap	100 ± 10 lbs	1 ± lbs
Tiedown Strap (if applicable)	100 ± 10 lbs	1 ± lbs

The single point release shall then be opened and the force at which release of all fittings is achieved shall be measured. Each load condition shall be repeated 25 times. All four straps shall be released simultaneously each time the mechanism is rotated. The force required to release shall be 15 to 25 lbs ±2 lbs for both load conditions A and B. The release of the straps shall be positive so that no strap can be relocked in the release mechanism once the mechanism has been actuated.

4.5.4 Strength tests. Conformance to strength requirements shall be determined by testing the seat as specified in 4.5.3.1 through 4.5.3.1.7.

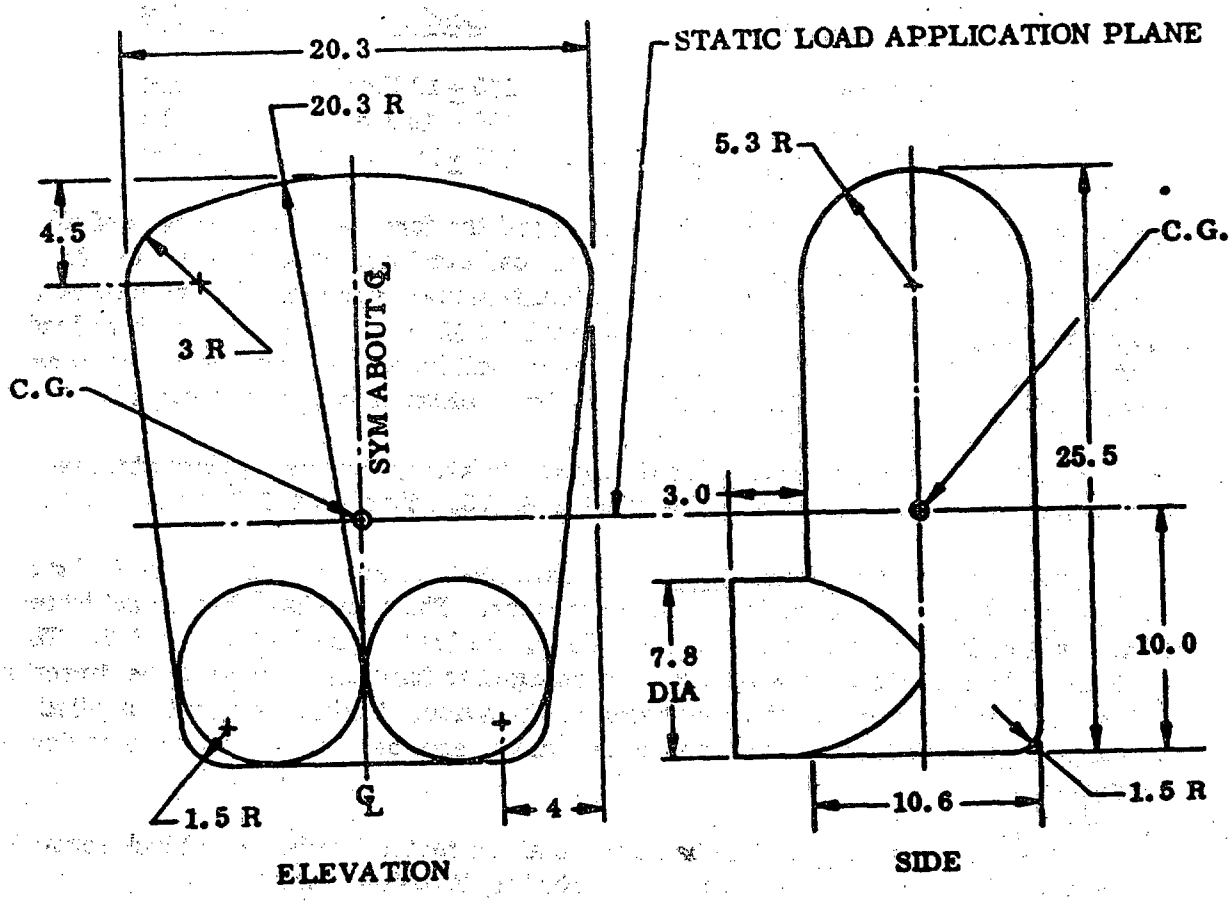
4.5.4.1 Static design loads. The seat shall be mounted in a suitable jig or fixture by utilizing the normal tiedown provisions. The seat shall then be subjected to and be required to withstand without failure, the loads specified in 3.9.3.1. The attitude of the seat during the test may be changed to facilitate testing if the direction of the loads with respect to the seat remains the same. The loads may be applied by means of hydraulic or pneumatic press, jacks, shot bags or equivalent high density material.

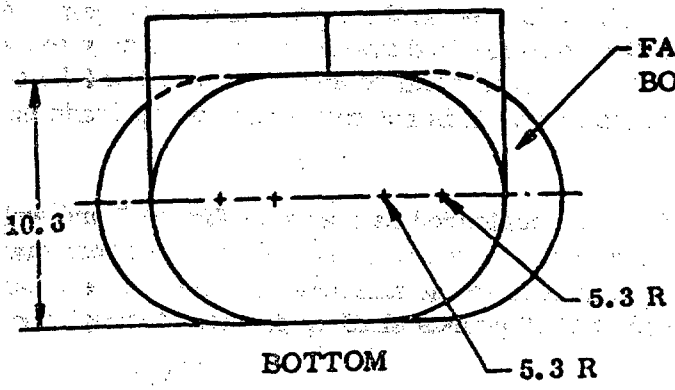
4.5.4.1.1 Headrest. The headrest shall be tested by placing a block formed into a head shape against the headrest and loading it to 400 pounds.

4.5.4.1.2 Armrests. The armrest shall be tested by applying a 250 pound downward load on a block, 2 by 4 inches, located at the center of the armrest. A side load of 100 pounds shall be applied outward and inward perpendicularly to the armrest in the horizontal plane. The side load shall be applied to a block 2 by 4 inches, located at the center of the armrest. It is not required that any loads be applied simultaneously.

4.5.4.1.3 Upward load. A block, contoured as shown in Figure 5 and weighing 230 pounds shall be installed on the bucket and restrained in the conventional manner. The seat shall be mounted on its attachments to the airframe which shall be mounted to a reaction plate. An upward load of 2000 pounds shall be directed through the block into the restraint.

4.5.4.1.4 Downward load. The block, shall be installed on the seat bucket which shall be located at the top limit of vertical adjustment. A downward load of 4000 pounds shall be applied on the block. The bucket may stroke through its available stroking distance but shall not fail during or after stroking.





DIMENSIONS IN INCHES

NOTES:

1. Block weight shall be 230 lbs.
2. C.G. will be located as shown by proper ballasting of block.

Figure 5. Lap and Shoulder Harness Test Block

4.5.4.1.5 Aft load. The block shall be installed on the seat bucket which shall be located at the top limit of vertical adjustment. An aft load of 2500 pounds shall be placed by the block onto the seat back.

4.5.4.1.6 Forward lap belt and shoulder harness load. The lap belt and shoulder harness shall be tested as attached to the seat and fitted to the block. With the bucket at the top limit of vertical adjustment and the lap belt firmly secured around the block, a load of 7500 pounds shall be directed forward and parallel to the floor. The inertia reel shall be locked in the fully retracted position during the test. If angular adjustment is a seat requirement, the seat shall be at the zero degree recline position during the test. The test shall be repeated with the loads applied 20 degrees to the right of forward and then 20 degrees to the left of forward. The bucket may stroke through its available stroking distance but no portion of the seat system shall fail during or after stroking.

4.5.4.1.7 Dynamic tests. Two complete seat systems shall be tested to the conditions specified in Figure 4. A 95th percentile anthropomorphic dummy weighing 230 pounds shall be placed in the seat which has been adjusted to its uppermost vertical position. At the conclusion of tests, the seats shall evidence no loss of structural integrity. Permanent deformations of portions of the structure which do not present a hazard to the occupant, are acceptable. However, the total movement of the seat shall occur in a predictable and controlled manner so that equipments and consoles in the immediate vicinity of the seated occupant are not contacted during seat movement. Energy absorption shall be demonstrated during test 1 by vertical stroking of the E/A to at least 70 percent of its available stroking distance.

4.5.5 Environmental tests. At least one test sample shall be subjected to each of the following environmental tests in the order listed and shall meet the applicable environmental requirements specified in Section 3.

4.5.5.1 Pretest performance record. Prior to testing, all seat and restraint adjusters, controls and release mechanisms shall be operated to establish compliance with required performance. At the conclusion of testing, these data shall provide the criteria for checking satisfactory performance of the seating system. Additionally, each energy absorber shall be statically tested at the conclusion of the environmental tests to establish that they stroke to within $\pm$ 10 percent of their preset value. The E/A shall then be inspected internally and externally to determine whether deterioration, corrosion or change in tolerance limits could in any manner prevent it from meeting operational service or maintenance requirements.

4.5.5.1.1 High temperature. High temperature tests shall be conducted in accordance with Method 501, Procedures I and II of MIL-STD-810. Highest operating temperature under which the seating system is designated to operate is 130 degrees Fahrenheit. At the conclusion of the high temperature tests, all adjusters, controls and release mechanisms shall be activated to establish compliance with required performance.

4.5.5.1.2 Low temperature. Low temperature tests shall be conducted in accordance with Method 502 of MIL-STD-810. The test temperature shall be -65 degrees Fahrenheit for storage and -20 degrees Fahrenheit for use. At the conclusion of the low temperature tests, all adjusters, controls and release mechanisms shall be activated to establish compliance with required performance.

4.5.5.1.3 Sunshine. The seat system shall be subjected to the sunshine test specified in Procedure I of Method 505 of MIL-STD-810.

4.5.5.1.4 Humidity. Humidity tests shall be conducted in accordance with Method 507 Procedure I of MIL-STD-810. At the conclusion of the humidity tests all adjusters, controls and release mechanisms shall be activated to establish compliance with required performance.

4.5.5.1.5 Fungus. If any material utilized in the construction of the seat system is suspected to be a nutrient to fungi, the material shall be tested in accordance with Method 508 of MIL-STD-810.

4.5.5.1.6 Salt fog. Salt fog tests shall be conducted in accordance with Method 509 of MIL-STD-810 with the seat system in the "as installed" condition. At the conclusion of the salt fog tests all adjusters, controls and release mechanisms shall be activated to establish compliance with required performance.

4.5.5.1.7 Dust. The seat system shall be subjected to the dust test specified in Method 510 of MIL-STD-810. At the conclusion of the dust tests the seating system shall be operated to establish that all adjusters, controls and release mechanisms function in compliance with required performance.

4.5.5.1.8 Vibration. Vibration tests shall be conducted in accordance with Method 514, Procedure I (Parts 1, 2 and 3) of MIL-STD-810. Vibration tests shall be conducted with a 95th percentile dummy installed on the seat. Instrumentation shall be placed within the dummy at the approximate location of its c.g. to determine whether the vibration transmitted to the dummy is attenuated or amplified in the range of 4 to 10 Hz and determine its response to fundamental frequencies and second harmonics in that range. At the conclusion of the vibration tests all adjusters, controls and release mechanisms shall be activated to establish compliance with required performance.

4.5.6 Maintainability. The maintainability program to demonstrate and assure retention of seat system maintainability shall be in accordance with MIL-STD-471.

4.5.7 Reliability. A reliability program shall be established in accordance with MIL-STD-785. As part of the reliability analysis, a goal for the probability of success shall be specified. As part of the reliability analysis a failure mode analysis

shall be conducted for each seat system component and subsystem which could, by failing, adversely affect the crash survival of the occupant. The analysis shall provide (1) probability of failure, (2) the expected mode(s), cause(s) of failure, and (3) consequence of each mode of failure.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be Level A or C, as specified (see 6.2).

5.1.1 Level A. Each seat shall be preserved and packaged in accordance with MIL-P-116, Method III, in a weather resistant unit container conforming to PPP-B-636.

5.1.2 Level C. Each seat shall be preserved and packaged in a manner that will afford adequate protection against corrosion, deterioration and physical damage during shipment from supply source to the first receiving activity for immediate use. This level may conform to the supplier's commercial practice, provided the latter meets the requirements of this level.

5.2 Packing. Packing shall be Level A, B or C, as specified (see 6.2).

5.2.1 Level A. Seats preserved and packaged as specified in 5.1.1 shall be packed in overseas type shipping containers conforming to PPP-B-601 or PPP-B-621. As far as practicable, shipping containers shall be of uniform shape and size, or minimum cube and tare consistent with the protection required, and contain identical quantities. The gross weight of each shipping container shall not exceed the weight limitation of the specification and appendix thereto.

5.2.2 Level B. Seats preserved and packaged as specified in 5.1.1 shall not be overboxed for domestic shipments. The unit container, closed and strapped in accordance with the applicable appendix of the container specification, shall be the shipping container.

5.2.3 Level C. Seats shall be packed in a manner that will afford adequate protection at the lowest rate against damage during direct domestic shipment from the supply source to the first receiving activity for immediate use. This level shall conform to applicable carrier rules and regulations and may be the supplier's commercial practice, provided the latter meets the requirements of this level.

5.3 Physical protection. Cushioning, blocking and bracing, shall be in accordance with MIL-STD-1186, except that for domestic shipments, waterproofing requirements for cushioning materials and containers shall be waived when preservation, packaging and packing of the item is for immediate use or when drop tests of MIL-P-116 are applicable

5.4 Marking.

5.4.1 Interior package. Each interior package shall be durably and legibly marked with the following information in such a manner that the markings will not become damaged when the packages are opened:

SEATS; AIRCREW, ADJUSTABLE; AIRCRAFT
Specification MIL-S-81771A (AS)
Type I or II (as applicable)
Manufacturer's Part No.
Manufacturer's Serial No.
Contract or Order No.
Name of Manufacturer
Name of Contractor (if different from the manufacturer)

5.4.2 Exterior shipping containers. The exterior shipping container shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The specification covers two types of adjustable aircraft seating systems intended for use by pilots, co-pilots, observers, and students in rotary wing or fixed wing aircraft not requiring ejection seats.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number and date of this specification

b. Type of seat (see 1.2)

c. Whether first article inspection is required (see 3.1 and 4.3.1)

d. Name and address of the first article inspection laboratory (see 4.3.1)

e. Specify acceptable level of maintainability (see 3.5)

f. Selection of applicable levels of preservation, packaging and and packing required

g. Items of data required (see 6.3).

6.3 Data. For the information of Contractors and Contracting Officers, any of the data specified in applicable documents listed in Section 2 of this specification or referenced lower-tier documents need not be prepared for the Government

unless specified in the contract or order. The data to be furnished shall be listed on DD Form 1423 (Contractor Data Requirements List), which shall be attached to and made a part of the contract or order; NavWeps Form 4200/25 (Drawings, Lists, and Specifications Required) shall be attached where applicable.

6.4 Supersession data. This specification includes the requirements of MIL-S-7832(Aer), dated 19 October 1954 and MIL-S-18619(Aer), dated 4 April 1955.

Preparing activity:
Navy - AS
(Project No. 1680-N411)

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Naval Air Engineering Center
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(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)* ☐ VENDOR ☐ USER ☐ MANUFACTURER ☐ OTHER *(Specify)*:
b. ADDRESS *(Street, City, State, ZIP Code)*	

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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