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MILITARY SPECIFICATION

PNEUMATIC COMPONENTS, AERONAUTICAL - GENERAL SPECIFICATION FOR

This specification has been approved by the Department of the Air Force and by the Navy Bureau of Aeronautics.

1. SCOPE

1.1 This specification covers general requirements that are common to pneumatic valves and similar equipment used in aircraft pneumatic systems. In case of conflict between the requirements of this specification and the detail specification for a specific component, the requirements of the detail specification shall govern.

2. APPLICABLE SPECIFICATIONS, STANDARDS, DRAWINGS, AND PUBLICATIONS

2.1 The following specifications, standards, drawings, and publications, of the issue in effect on date of invitation for bids, form a part of this specification:

SPECIFICATIONS

Federal

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|---|---|
| QQ-P-416 | Plating, Cadmium (Electrodeposited) |

Military

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|---|---|
| MIL-A-8625 | Anodic-Coatings, for Aluminum and Aluminum Alloys |
| MIL-C-5015 | Connectors; Electrical |
| MIL-D-5028 | Drawings and Data Lists; Preparation of (For Engines, Accessories and Other Auxiliary Equipment) |
| MIL-E-7894 | Electric Power, Aircraft, Characteristics of |
| MIL-G-5510 | Gasket; Straight Thread Tube Fitting, Boss |
| MIL-I-6868 | Inspection Process, Magnetic Particle |
| MIL-L-4343 | Lubricating Grease, Pneumatic System |
| MIL-M-7911 | Marking, Identification of Aeronautical Equipment, Assemblies and Parts |
| MIL-M-860 | Motors, Direct-Current, 28-Volt System, Aircraft, General Specification for |
| MIL-P-5514 | Packings; Installation and Gland Design of Aircraft Hydraulic and Pneumatic (General Specification for) |
| MIL-P-5516 | Packings and Gaskets Hydraulic Aircraft |
| MIL-P-5517 | Plastic Parts in Aircraft Hydraulic Equipment; General Tests for |
| MIL-P-5633 | Packaging and Packing of Aircraft Material in Steel Shipping Containers |

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| MIL-P-6064 | Packaging of Lightweight Aircraft Accessories |
| MIL-P-6871 | Plating, Chromium |
| MIL-P-6906 | Plates, Information and Identification |
| MIL-R-5521 | Rings; Aircraft Hydraulic Packing Back-Up |
| MIL-S-4040 | Solenoid, Electrical, General Specification for |
| MIL-S-6743 | Switches; Push Button and Limit |
| MIL-S-7742 | Screw Threads; Standard, Aeronautical |
| JAN-B-121 | Barrier-Materials; Greaseproof |
| JAN-C-149 | Compound, Protective, Strippable (Hot Dipping) |

STANDARDS

| | |
|---|---|
| MIL-STD-10 | Surface Roughness Waviness and Lay |
| MIL-STD-129 | Marking of Shipments |
| MS33540 | Safety Wiring, General Practices for |

DRAWINGS

Air Force-Navy Aeronautical Standard Drawings

| | |
|---|---|
| AN814 | Plug and Bleeder - Screw Thread |
| AN995 | Wire - Lock |
| AN6290 | Gasket - Straight Thread Tube Fitting, Boss |
| AND10050 | Bosses - Standard Dimensions for Gasket Seal Straight Thread |
| AND10056 | Fitting End - Standard Dimensions for Flared Tube Connection and Gasket Seal |
| AND10057 | Fitting End - Standard Dimensions for Bulkhead Flared Tube Connections |
| AND10064 | Fittings - Installation of Flared Tube, Straight Threaded Connectors |
| AND10074 | Boss Spacing - Hydraulic |
| AND10398 | Metals - Definition of Dissimilar |

PUBLICATIONS

Air Force-Navy Aeronautical Bulletins

| | |
|---|---|
| No. 143 | Specification and Standards; Use of |
| No. 391 | Changes; Engineering, To Aircraft Engines, Propellers, and Aeronautical Equipment in Production and Service |

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

3. REQUIREMENTS

3.1 Materials.- Materials shall conform to applicable specifications and shall be as specified herein. Materials which are not covered by applicable specifications, or which are not specifically described herein, may be used only when approved by the procuring activity.

3.1.1 Metals.- Metals shall be of a corrosion-resisting type or shall be adequately protected to resist corrosion during the normal storage and service life of the component.

3.1.2 Dissimilar metals.- Unless suitably protected against electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other. Dissimilar metals are defined in Drawing AND10398.

3.1.3 Selection of materials.- Specifications and standards for all materials, parts, and Government certification and approval of processes and equipment, which are not specifically designated herein and which are necessary for the execution of this specification, shall be selected in accordance with ANA Bulletin No. 143, except as provided in the following paragraph.

3.1.3.1 Standard parts.- Standard parts (MS, AN, and JAN) shall be used wherever they are suitable for the purpose, and shall be identified on the drawing by their part numbers. Commercial utility parts such as screws, bolts, nuts, cotter pins, etc, may be used, provided they possess suitable properties and are replaceable by the standard parts (MS, AN, or JAN) without alteration, and provided the corresponding standard part numbers are referenced in the parts list and, if practicable, on the contractor's drawings. In the event there is no suitable corresponding standard part in effect on date of invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

3.1.4 Storage life.- Metals shall be so selected as to insure that no corrosion will occur during a 5-year storage period. Synthetic rubber packings, gaskets, and other component parts used shall not be over 2 years old when the component is submitted for acceptance under contract. For components which incorporate other organic materials that may deteriorate with age, the contractors shall define storage life expectancy and submit substantiating data to support their recommendations.

3.2 Design and construction.-

3.2.1 General.- The configuration, dimensions, and other details of design shall conform to the requirements of the applicable AN or MS Standard drawings.

3.2.2 Temperature range.- The components shall be designed to operate continuously throughout a temperature range of -54° to 71°C (-65° to 160°F). Components intended for use at operating temperatures beyond this range, shall be designed and tested to satisfy the desired conditions.

3.2.3 Plugs.- All plugs, except permanently installed plugs that will not have to be removed during the life of the component, shall conform to Drawing AN814 and shall be sealed with gaskets conforming to Drawing AN6290. Permanently installed plugs may be pipe-threaded or of any form suitable for the purpose.

3.2.4 Bosses.- All internally threaded bosses for connecting fittings shall conform to Drawing AND10050. Boss spacing shall comply with Drawing AND10074. Bosses shall be made deep enough or shall incorporate fitting stops to prevent damage to internal mechanism or the blocking of internal fluid passages when universal fittings are screwed into the bosses to excessive depths. Male-threaded tube connections shall conform to Drawing AND10056 or AND10057. Ports shall be permanently marked to indicate proper connections to be made, and direction of flow.

3.2.5 Seals.- All packings and gaskets shall conform to the requirements of Specification MIL-P-5516 or MIL-G-5510. Back-up rings shall conform to Specification MIL-R-5521. Installations of packings shall conform to Specification MIL-P-5514 and Drawing AND10064. Components shall be so designed that in the assembly of parts sufficient clearance exists to permit assembly of the component without damage to "O" rings, where they pass threaded parts or sharp corners.

3.2.6 Safetying.- All threaded parts shall be positively locked or safetied by safety-wiring, self-locking nuts, or other approved methods. Safety wire shall be applied in accordance with the practice outlined in Standard MS33540, and shall conform to Drawing AN995.



JS4

3.2.7 Snap rings.- Except where they are positively retained from being dislodged from their grooves, retainer or snap rings shall not be used in pneumatic system components in any location where failure of the ring will allow blow-apart of the unit due to internal pressure. Neither shall they be used in locations where the build up of clearances and manufacturing tolerances will allow destructive end-play in the assembly contributing toward failure of packings or gaskets, brinelling, or fatigue failure of parts. For retainer ring applications other than those where retention of pneumatically pressurized components is involved, such as locking in place nonpressurized end caps, etc, rings shall be in accordance with NAS-50 and NAS-51 standards or other approved designs, and capable of being installed and removed with standard pin-type pliers or other standard tools developed for use with the specified rings.

3.2.8 Function-adjustment screws.- Function-adjustment screws, if used, shall be so designed and constructed that they can be positively locked to prevent loosening under vibration or flow. It shall be possible to adjust and lock the adjustable screws with a standard wrench or screw driver, and in addition, lockwire may be used to insure positive lock, if required. Where practicable, the adjustment means shall be such that the adjustment can be made under full system pressure with negligible loss of air during the adjustment. Standard countersunk hex head (Allen type or equivalent) steel adjustment screws may be used in sizes up to 1/2 inch hex. For pressure adjustment screws, a suitable seal, permanently marked with the pressure setting, shall be attached to the lock wire.

3.2.9 Ruggedness.- Controls which are manipulated during operation of pneumatic valves shall be of such rugged design and construction that they will not be damaged when repeatedly operated by unskilled personnel under service conditions. Where stops are used they shall be sufficiently rugged to prevent damage to the mechanism.

3.2.10 Alinement.- All plungers, poppets, balls, pistons, etc, shall be accurately guided to prevent misalinement or chattering on their seats.

3.2.11 Electrically controlled components.-

3.2.11.1 Electrically actuated valves shall be designed to operate on 28-volt d-c or 115-volt a-c, 250 to 420 cps electrical systems having characteristics as specified in Specification MIL-E-7894, and as covered in the detail specifications. Electrical failure shall not affect manual override when such is provided.

3.2.11.2 Voltage.- Electrically actuated valves, designed for 28-volt d-c systems, shall operate at a minimum of 18 volts with operating pressure applied to the valve, and shall operate at 1-1/2 times operating pressure at 28 volts. Electrically actuated valves designed for 115-volt a-c systems shall operate at a minimum of 85 volts with operating pressure applied to the valve, and shall operate at 1-1/2 times operating pressure at 115 volt ac.

3.2.11.3 Limit switches.- When limit switches are used, they shall conform to Specification MIL-S-6743 and be driven by positively secured means.

3.2.11.4 Electric motor-operated components.- The characteristics of electric motors for operating components shall conform generally to Specification MIL-M-8609, including the oil-proof and explosive-proof requirements.

3.2.11.5 Solenoid-operated valves.- Solenoids for operating vlaves shall be in accordance with Specification MIL-S-4040, and the following requirements.

3.2.11.5.1 The solenoids shall be of compact design and of sufficiently rugged construction to withstand the mechanical shocks and stresses incident to their use in aircraft. Solenoids shall be designed for continuous or intermittent duty and shall be provided with single-coil windings. Solenoids shall be totally enclosed in order to prevent moisture from coming in contact with the electrical windings. The coil shall be firmly fixed in the frame to prevent ultimate failure of leads due to vibration.

3.2.11.5.2 Temperature rise.- Solenoids designed for operation on 28-volt d-c aircraft electrical systems, shall not have a temperature rise greater than 117°F when operated 3 minutes at 30 volts. Solenoids designed for operation on 115-volt a-c, shall not have a temperature rise of more than 117°F, when operated 3 minutes at 135 volts.

3.2.11.5.3 Dielectric strength.- The 28-volt solenoids shall be capable of withstanding a test voltage of not less than 1,000 volts, rms, at commercial frequency (60 cps) between terminals and ground, for 1 second for production units, and for 60 seconds for Qualification test units. 115-volt solenoids shall be capable of withstanding a test voltage of not less than 1,250 volts, rms, at commercial frequency (60 cps) between terminals and ground, for 1 second for production units, and for 60 seconds for Qualification test units. Flashover or a noticeable decrease in insulation resistance, as a result of this test shall constitute a failure.

3.2.11.5.4 Coils.- The coils shall be evenly wound and insulated to meet the performance requirements specified herein. The coils shall be securely fixed to the frame and completely insulated from the frame and other grounded parts. Coils shall be suitably taped and impregnated as required, to prevent damage under prolonged exposure to humidity and salt-fog environmental conditions in conformance with Specification MIL-S-4040.

3.2.11.5.5 Terminals.- The solenoid coil shall be terminated with electrical connectors conforming to Specification MIL-C-5015, or screw-type studs of appropriate size, suitably plated and insulated from the solenoid housing, as specified in the detail specification. External ground connections only, shall be used.

3.2.11.5.6 Creepage and clearance distances.- The minimum creepage distance on insulation surfaces between current-carrying parts and ground shall be 1/8 inch, and the minimum clearance in air between current-carrying parts and any other portion of the solenoid, other than insulating material, and also between current-carrying parts of opposite polarity, shall be 1/16 inch.

3.2.11.5.7 Clutches or brakes.- On assemblies using clutches or brakes to limit over-travel, the design shall be such as to prevent overtravel sufficient to cause malfunctioning of the component, even with oil on the clutch or brake surfaces. Positive mechanical stops shall be incorporated to assure accurate positioning.

3.3 Interchangeability.- All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. Changes in manufacturer's part numbers shall be governed by the drawing number requirements of Specification MIL-D-5028. Subassemblies composed of selected mating components must be interchangeable as assembled units, and shall be so indicated on the manufacturer's drawings. The individual components of such assembled units need not be interchangeable.

3.4 Weight.- Weight shall be maintained as low as possible, consistent with the requirements of this specification. The weight of the assembled component shall be specified on the manufacturer's assembly drawings.

3.5 Threads.- Except for permanently installed plugs, and unless otherwise specified on the applicable drawing, only straight threads conforming to Specification MIL-S-7742, National Fine Thread Series, class 3 (NF3), or unified thread series classes 3A and 3B, shall be used. Male threaded fitting ends on components shall be of steel in sizes below 1/2 inch tube size. For tube sizes 1/2 inch and above these ends may be of aluminum alloy or steel.

3.6 Lubricants.- Unless otherwise authorized by the procuring activity, only lubricants conforming to Specification MIL-L-4343 shall be used.



J55

3.7 Finish.-

3.7.1 Surface roughness.- Surface roughness finishes where required, shall be established and shall be specified in the manufacturer's drawings as outlined in Standard MIL-STD-10. The determination of surface finish shall be made by profilometer, comparator brush analyzer, or other suitable comparison equipment with an accuracy of ±5 microinches at the level being measured.

3.7.2 Aluminum-alloy parts.- Unless otherwise authorized, all aluminum-alloy parts shall be covered with an anodic film conforming to the requirements of Specification MIL-A-8625.

3.7.3 Steel or copper-alloy parts.- Unless otherwise authorized, all steel, except for corrosion-resistant alloys, and all copper-alloy parts shall be cadmium plated, in accordance with Specification QQ-P-416, type I, class B; or chrome plated, in accordance with Specification MIL-P-6871.

3.7.4 No finishes or paints, other than those specified above, or color markings specified herein or otherwise authorized by the Services, shall be applied to the components either externally or internally prior to installation in the airplane.

3.8 Physical defect inspection.- All magnetizable highly stressed parts shall be subjected to magnetic inspection in accordance with Specification MIL-I-6868, where necessary. Such inspection shall be called for on the manufacturer's drawing. Cracks or other injurious defects disclosed by magnetic inspection shall be cause for rejection.

3.9 Changes.- No changes shall be made in the assembly or detail parts or part number of AN approved components, without prior approval of the Qualification test or procuring activity and notification of such approval received from the Aeronautical Standards Group.

3.10 Nonstandard components.- Nonstandard components will normally be intended for use in a specific model airplane. The operating features of the components will in many cases be similar to those of components for which a Military specification exists. The airframe manufacturer shall therefore require from the component manufacturer, test data to satisfy the requirements of such specifications and any additional requirements pertinent to the specific airplane installation. The data shall be submitted to the procuring activity directly by the airframe manufacturer, and approval, when given, is to the airframe manufacturer for specific use of the component rather than to the component manufacturer for general use of the component in other aircraft.

3.11 Performance.- The components shall satisfy the performance tests specified in the applicable detail specifications.

3.12 Special tools.- The design shall be such that special or unusual tools will not be required for normal maintenance and inspection of the component.

3.13 Identification of product.-

3.13.1 Nameplate.- Each component shall be clearly and permanently identified by a durable nameplate conforming to Specifications MIL-P-6906 and MIL-M-7911 with the following information:

Name of component
Rating and pertinent characteristics
MS or AN Part No. or MIL Specification No.
Stock No. (USAF or Navy, as applicable)
Manufacturer's Part No.
Manufacturer's Serial No.
Contract or Order No.
Manufacturer's name or trade-mark
US

The nameplate shall be securely attached to the component by the use of screws, rivets, or welding. Nameplates which are attached by use of adhesives will require prior approval of the procuring activity.

3.13.2 Use of AN or MIL designations.- AN or MIL designations shall not be applied to a product, except for Qualification test samples, nor referred to in correspondence, until notice of approval has been received from the activity responsible for qualification, or from the Aeronautical Standards Group.

3.14 Workmanship.- All details of workmanship shall be of a sufficiently high grade to insure proper operation and service life.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES

4.1 Classification of tests.- The inspection and testing of pneumatic components shall be classified as follows:

(a) Qualification tests: Qualification tests are those tests accomplished on samples submitted for qualification as a satisfactory product.

(b) Inspection tests: Inspection tests are those tests accomplished on each specimen of a qualified component manufactured and submitted for acceptance under contract.

4.2 Qualification tests.-

4.2.1 Sampling instructions.- The Qualification test samples shall consist of two specimens of each device. Samples shall be identified as required, and forwarded to the activity responsible for qualification, designated in the letter of authorization from the qualifying activity. (See paragraph 6.3.)

4.2.1.1 Minimum clearance specimen.- One of these specimens shall be assembled of parts which have been selected to provide that the clearance, with regard to linear, diametral, and concentric tolerances, between moving and nonmoving members conducive to wear, leakage, or malfunctioning at extreme temperatures, or as a result of prolonged operation, will be within 10 percent of the minimum clearance permitted by the manufacturer's drawings. "O"-ring packing glands conforming to Specification MIL-P-5514 may be fabricated to nominal dimensions. For cases of certain sliding seals where packing friction would influence the performance of the device, such as where pistons are operated by springs, the maximum packing friction anticipated shall be induced in the test specimen. This may be accomplished by use of packings which have been pre-swelled by aging in high-swell fluid. In these cases "O"-ring packing glands shall be fabricated to provide maximum design "O"-ring squeeze, including the effect of adverse "O"-ring cross-section tolerance. This specimen shall be marked No. 1.

4.2.1.2 Maximum clearance specimen.- The second specimen shall be assembled of parts which have been selected to provide that the clearances, with regard to linear, diametral, and concentric tolerances, between moving and nonmoving members conducive to wear, leakage, or malfunctioning at extreme temperatures, or as a result of prolonged operation, will be within 10 percent of the maximum clearance permitted by the manufacturers drawings. "O"-ring packing glands conforming to Specification MIL-P-5514 may be fabricated to nominal dimensions. This specimen shall be marked No. 2.

4.2.1.3 The manufacturer shall subject specimen No. 1 to the Extreme temperature functioning tests and the Inspection tests set forth in the detail specification. The manufacturer shall subject specimen No. 2 to all of the tests of the detail specification, except that the Extreme temperature tests need not be conducted. Upon satisfactory completion of these tests, the manufacturer shall forward two copies of a report



J56

of these tests, two sets of detail and assembly drawings of the device, and a letter indicating the manufacturer's desire for Air Force-Navy Qualification tests, to the activity responsible for qualification indicated in the detail specification, with duplicate copies of each to the other Service. Upon acceptance of the report and drawings by the activity responsible for qualification, notice of authorization of Qualification tests and shipping instructions for the No. 1 and No. 2 specimens will be forwarded to the manufacturer. Upon receipt of the specimens, the activity responsible for qualification will subject specimen No. 1 to all the tests of the detail specification and use specimen No. 2 for inspection and comparison of results, provided the component has not failed during the burst test.

4.2.1.4 In the case of series of devices which are intended to serve the same general function in a pneumatic system, qualification of one device of the series may at the discretion of the Services, be applied to any other device of the series if all of the internal working parts are identical in every detail with the corresponding internal working parts of the qualified device and provided it meets proof and burst pressure tests and such operation requirements as may be designated by the Services. For example, qualification of this type would apply to all devices which differ from previously qualified devices only insofar as port size, port location, external body dimensions, and external body configuration are concerned.

4.2.1.5 Qualification approval applies only to the design, materials, construction, and nominal dimensions of the specimens tested. Such features shall be identified by the manufacturer's part number submitted in his test report. Any change in any of these features may require new Qualification tests at the option of the activity responsible for qualification. Such changes shall be made in conformance with the requirements of Specification MIL-D-5028 or ANA Bulletin No. 391, and shall receive Air Force-Navy approval prior to incorporation in production. At the option of the Government, minor changes in these features may be approved without an attendant change in the part number. The contractor shall submit to both Services a list of all parts which make up the component giving drawing numbers with dated revisions at the time of submittal for Qualification tests. This list shall be revised and resubmitted when any changes are incorporated.

4.2.2 Assembly and detail drawings.- Two sets of assembly and detail drawings shall be furnished to each Service, with each new model component submitted for Qualification tests. Assembly drawings shall show a cut-away section of all details in their normal assembly position and shall carry part numbers of all details and subassemblies. The material of each part shall be indicated by properly cross hatching each part in the cut-away section or by providing a bill of materials. Protective surface finish or plating of each part should also be indicated. The following data shall be furnished on or together with all assembly drawings:

(a) Mounting dimensions
(b) Port dimensions
(c) Over-all dimensions
(d) Rated flow capacity
(e) Dry weight
(f) Maximum operating pressure
(g) Complete dismantling procedure and description of special tools needed
(h) Any special installation or operating instructions considered necessary

4.2.3 Tests.- The Qualification tests shall consist of all the tests of this specification, as described under "Test methods," and those specified in the detail specification. The Qualification tests may be supplemented with tests under actual service conditions, at the option of the procuring activity.

4.3 Inspection tests.- The Inspection tests shall consist of Individual tests and Sampling tests.

4.3.1 Individual tests.- Each component to be furnished under contract shall be examined to determine conformance with the requirements of this specification and subjected to the Individual tests specified in the applicable detail specification.

4.3.2 Sampling tests.- Components up to 2 percent of the contract may be selected for any other tests specified in the applicable detail specification which the Inspector considers necessary to determine conformance with the requirements of the detail specifications.

4.3.3 Rejection and retest.- Failure of any component subjected to Inspection tests to conform to any of the requirements of the applicable specification shall be cause for rejection of that component and the components represented. Components which have been rejected may be reworked or have parts replaced to correct the defects found in the original and resubmitted for acceptance. Before resubmitting, full particulars concerning previous rejection and the action taken to correct the defects found in the original shall be furnished the Inspector. Components rejected after retest shall not be resubmitted without the approval of the procuring activity.

4.4 Samples subjected to destructive tests shall be in addition to the quantity specified in the contract or order, and shall be furnished without additional cost to the Government.

4.5 Test conditions.-

4.5.1 Test media.- Qualification and Inspection tests shall be performed with air or nitrogen, except that Proof and Burst pressure tests may be performed with a liquid.

4.5.1.1 Filtration.- The test gas or fluid shall be continuously filtered so as to be free of all foreign matter (lint, dirt, metal particles, etc.) over 10 microns in size. The test gas shall be maintained free of oil. The filter used shall be inspected or changed regularly to avoid clogging.

4.5.1.2 Specific humidity.- The moisture content of the test gas shall not exceed 0.12 grains of moisture per pound of dry gas.

4.5.2 Temperatures.- Except where otherwise specified, the tests of this specification shall be conducted at a room temperature, between 21° and 32°C (70° to 90°F). The ambient temperature of the air supply shall also be maintained within these limits for room temperature tests. The actual ambient temperatures shall be recorded.

4.5.3 Standard air.- Standard air shall be considered as dry air at 69°F temperature, 14.7 psi pressure, and weighing 0.075 pcf (density).

4.6 Test methods.-

4.6.1 Examination of product.- Each component shall be carefully examined to determine conformance with the requirements of this specification for design, weight, workmanship, marking, conformance to applicable drawings, and for any visible defects. The manufacturer's drawings and the manufacturer's applicable specifications which were approved when qualification approval was granted, shall be used by the Inspector, as necessary, to determine that the components submitted for acceptance under contract are identical to the design approved by the Services.

4.6.2 Plastic parts.- In addition to the tests specified herein, components containing plastic parts shall be tested in general conformance with the requirements of Specification MIL-P-5517, except that all tests shall be accomplished using water in lieu of hydraulic fluid as the immersion medium.



JS7

5. PREPARATION FOR DELIVERY

5.1 Application.- The requirements of Section 5 apply only to direct purchases by or direct shipments to the Government.

5.2 Preservation, packaging, and packing.-

5.2.1 Preservation.- Lubricated surfaces shall be coated with the specified lubricant. No contact preservative shall be applied to any other areas of parts and equipment except that external splined surfaces may be dipped in material conforming to Specification JAN-C-149, in lieu of using sleeve-type protectors. All external threads and all external splined surfaces not coated with material conforming to Specification JAN-C-149 shall be covered with suitable protectors. Surfaces of protectors in contact with threads and splines shall be neutral and acid free as defined by Specification JAN-B-121. Openings to the interior of the components shall be sealed with closures which will permit circulation of air, but exclude dirt and other foreign matter. Vent openings which cannot be adequately sealed with such a closure, shall be adequately masked to exclude dirt and other foreign materials. Positive precautions shall be taken to insure that all internal surfaces are dry at the time of packaging.

5.2.2 Packaging and packing.- Components shall be packed in accordance with Specification MIL-P-6064, Group V, VI, VII, VIII, IX, or X, Type II container or in accordance with Specification MIL-P-5633. Size of container and quantity and type of dunnage shall be the minimum consistent with meeting the performance requirements of Specification MIL-P-5633.

5.3 Marking of shipments.- Interior packages and exterior shipping containers shall be marked in accordance with Standard MIL-STD-129. The nomenclature shall be as specified in the detail specification.

6. NOTES

6.1 Intended use.- The components covered by this specification are intended for use in aircraft pneumatic systems conforming to Specification MIL-P-5518, at operating pressures which do not exceed those specified in the applicable detail specification.

6.2 Ordering data.- Contracts and orders should state the part number of the component to be furnished, and whether overseas packing is desired.

6.3 Provisions for Qualification tests.- In the procurement of products requiring qualification, the right is reserved to reject bids on products that have not been subjected to the required tests and found satisfactory for inclusion on the Military Qualified Products List. The attention of suppliers is called to this requirement, and manufacturers are urged to communicate with the Commander, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, or with the Bureau of Aeronautics, Navy Department, Washington 25, D.C., the activities responsible for qualification, with a copy to the other Service, and arrange to have the products that they propose to offer to the Navy or the Air Force, tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products covered by this specification may be obtained from the above designated activities responsible for qualification.

6.3.1 In the case of failure of the sample or samples submitted, consideration will be given to the request of the manufacturer for additional tests only after it has been clearly shown that changes have been made in the product which the Government considers sufficient to warrant additional tests.

6.3.2 It is to be understood that components supplied under contract will be identical in every respect to the sample tested and found satisfactory, and to the detail drawings thereof, except for changes previously approved by the Government.

6.4 Definitions.- For the purpose of this specification, the term "component(s)" is used to mean a valve or similar device of a pneumatic system.



Custodians:
Navy - Bureau of Aeronautics
Air Force