

MIL-V-5527A

14 MAY 1951

Superseding

MIL-V-5527

3 January 1950

## MILITARY SPECIFICATION

VALVES; AIRCRAFT, HYDRAULIC THERMAL  
EXPANSION RELIEF

This specification was approved by the Department of the Army, the Navy, and the Air Force for use of procurement services of the respective Departments.

## 1. SCOPE

1.1 Scope. - The specification establishes the requirements for hydraulic thermal expansion relief valves of the types and classes specified herein.

1.2 Classification. -

1.2.1 Types. - Hydraulic thermal expansion relief valves shall be of the following types:

Single - In accordance with Drawing AN6245

Dual - in accordance with Standard MS28016

1.2.2 Classes. - Hydraulic thermal expansion relief valves shall be of the following classes:

Class A - Pressure Range 1,000 to 2,100 psi (cracking pressure)

Class B - Pressure Range 2,100 to 4,100 psi (cracking pressure)

Class AB - Pressure Range 1,000 to 4,400 psi (cracking pressure)

1.2.3 Size. - Hydraulic thermal expansion relief valves shall be furnished in the sizes indicated the applicable AN drawing or MS standard, as specified.

## 2. APPLICABLE SPECIFICATION, OTHER PUBLICATION, AND DRAWINGS

2.1 The following publications, of the issue in effect on date of invitation for bids, shall form a part of this specification to the extent specified herein:

2.1.1 Specifications. -Federal

QQ-P-416

Plating, Cadmium (Electrodeposited)

Military

MIL-C-5501

MIL-D-5028

Closure; Aircraft Tubing Protective  
Drawings and Data Lists; Preparation of  
(For Engines, Accessories, and Other  
Auxiliary Equipment)

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MIL-H-5440	Hydraulic Systems; Design, Installation and Tests of Aircraft (General Specification for)
MIL-I-6868	Inspection Process, Magnetic Particle
MIL-O-5606	Oil; Hydraulic, Aircraft Petroleum Base
MIL-)6083	Oil; Preservative, Hydraulic Equipment
MIL-P-5514	Packings; Installation and Gland Design of Aircraft Hydraulic and Pneumatic (General Specification for)
MIL-P-5517	Plastic Parts in Aircraft Hydraulic Equipment; General Tests for
MIL-P-6064	Packaging of Lightweight Aircraft Accessories
MIL-P-6871	Plating; Chromium

Air Force-Navy Aeronautical

AN-QQ-A-696	Anodic-Films; Corrosion-Protective (for) Aluminum Alloys
AN-S-126	Screw-Threads; Standard, Aircraft

U. S. Army

94-40645	Marking; Exterior, Domestic, and Export Shipment, by Contractors
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2.1.2 Other Publications.-

Bureau of Supplies and Accounts

Navy Shipment Marking Handbook

Air Force-Navy Aeronautical Bulletin

NO* 143	specifications and standards, Use of
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2.1.3 Drawings.-

Military Standards (Sheet)

MS28016	Valves - Hydraulic, Dual Thermal Expansion Relief
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Air Force-Navy Aeronautical Standard Drawings

AN814	Plug and Bleeder - Screw Thread
AN995	Wire - Lock
AN6245	Valves - Hydraulic Thermal Expansion Relief
AN6290	Gasket - Straight Thread Tube fittings, Boss
AND10050	Bosses - Standard Dimensions for Gasket Seal Straight Thread
AND10074	Boss Spacing - Hydraulic

(Copies of this specification and copies of other publications referenced herein or required for Government procurement, and the Index of Military Aeronautical (AN or MIL) Standards, maybe obtained upon application to the Commanding General, Air Development Force, Wright-Patterson Air Force Base, Dayton, Ohio; or the Commanding Officer, U.S. Naval Air Station, Johnsville, Pennsylvania.)

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### 3. REQUIREMENTS

3.1 Materials.- Materials and processes used in the manufacture of these valves shall be of high quality, suitable for the purpose and shall conform to applicable Government specifications. Materials conforming to contractor's specifications may be used, provided the specifications are satisfactory to the Government and contain provisions for adequate tests. The use of contractor's specifications will not constitute waiver of Government inspection.

3.1.1 Metals.- All metals used in the construction of these valves, except metal which is in constant contact with the hydraulic fluid, shall be of a corrosion-resisting type or shall be adequately protected to resist corrosion during the normal service life of the valve. The use of dissimilar metals, especially brass, copper, or steel, in metal to metal contact with aluminum or aluminum alloy, shall be avoided wherever practicable.

3.1.2 Plastic Parts.- The use of plastic parts shall be subject to the approval of the Services for the specific application involved.

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 AN or JAN Standard parts. - AN or JAN Standard parts 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 AN or JAN Standard parts without alteration, and provided the corresponding AN or JAN part numbers are referenced in the parts list and, if practicable on the contractor's drawings. In the event there is no suitable corresponding AN or JAN Standard part in effect on date of invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

### 3.2 Design and Construction.-

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

3.2.2 Temperature Range.- The valves shall be designed to operate satisfactorily throughout a temperature range of -54° to +71°C (-65° to +160°F).

3.2.3 Plugs.- All plugs, except permanently installed plugs which will not have to be removed during the life of the valve, shall conform to Drawing AN814 and shall be sealed

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3.2.8 Snap Rings.- Snap Rings, if used, shall be used in accordance with the requirements of Specification MIL-H-5440.

3.2.9 Pressure Adjustment Screws.- Pressure adjustment screws shall be so designed and constructed that they may be locked to prevent loosening under vibration. It shall be possible to adjust and lock the adjustable screws with a standard wrench or screw driver. The adjustment means shall be such that the pressure adjustment can be made under pressure with no loss of hydraulic fluid during the adjustment. Standard recessed hex head (Allen type or equivalent) steel adjustment screws may be used in sizes up to 1/2-inch hex socket size.

3.2.10 Flow Rate.- The relief valve shall by-pass fluid, or have a minimum rated flow of 15cc per minute at 110 percent of the cracking pressure.

3.3 Interchangeability.- All parts having the same manufacturer 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. Sub-assemblies, composed of selected mating components, must be interchangeable as assembled units, and shall be so indicated on the manufacturer's drawing. The individual components of such assembled units need not be interchangeable.

3.4 Weight.- The weight shall be held to a minimum consistent with the requirements of this specification.

### 3.5 Finish.-

3.5.1 Aluminum-Alloy Parts.- Unless otherwise specified, all aluminum-alloy parts, except those in constant contact with hydraulic fluid shall be anodized in accordance with the requirements of Specification AN-QQ-A-696.

3.5.2 Steel Parts.- Unless otherwise specified, all steel or copper-alloy parts, except those in constant contact with hydraulic fluid, 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. Cadmium plating may be used in contact with hydraulic fluid provided there is no rubbing or abrasion on the surfaces to which it is applied. Surfaces in sliding contact with each other may be chrome-plated.

3.5.3 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 valves either externally or internally prior to installation in the airplane.

3.6 Magnetic Inspection.- All magnetizable, highly stressed parts of the valve 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.

3.7 Changes.- No changes shall be made in the assembly or detail part of an AN approved valve without obtaining prior approval from the Qualifying Agency and notification of such approval from the Aeronautical Standards Group.

3.8 Performance.- Valves shall satisfy the Performance tests specified in Section 4, under paragraphs headed as follows and shall be conducted in the order listed below:

- (a) Immersion
- (b) Proof Pressure
- (c) Static Leakage
- (d) Dynamic Leakage and Flow
- (e) Extreme Temperature Operation
- (f) Endurance
- (g) Burst Pressure

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3.9 Special Tools.- The design shall be such that specifal or unusual tools will not be required for normal maintenance and inspection of the valves.

3.10 Marking of Ports.- Pressure and return ports shall be clearly and permanently marked.

3.11 Identification of Product.-

3.11.1 Nameplate.- Each valve shall be clearly and permanently identified by stamping or by a securely attached nameplate, with the following information:

VALVE, AIRCRAFT HYDRAULIC THERMAL EXPANSION RELIEF  
MS or AN Part No.  
Manufacturer's Part No.  
Manufacturer's Serial No.  
Manufacturers Name or Trade-Mark  
Pressure Range \_\_\_\_\_

Decalcomanias are not considered permanent marking for this purpose

3.11.2 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 or sales matter, until notification has been received from the Qualifying Service that the product has been approved for aeronautical use.

3.12 Workmanship.- Workmanship shall be of a sufficeiently 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 valves shall be classified as follows:

- (a) Qualification tests: Qualification tests are those tests accomplished on samples submitted for qualification as satisfactory products.
- (b) Inspection tests: Inspection tests are those tests accomplished on valves-manufactured and submitted for acceptance under contract.

4.2 Qualification Tests.-

4.2.1 Sampling Instructions.-

4.2.1.1 The Qualification test sample shall consist of two valves of each part number upon which qualification is desired.

4.2.1.2 One of these valves shall be assembled of selected parts such that the clearance, with regard to linear, diametral, and concentric tolerances, between the moving members, conducive to malfunction at extreme temperatures, will be within 10 percent of the minimm clearance permitted by the manufacturers drawings, except that "O" ring grooves which are fabricated in accordance with Specification MIL-P-5514 shall be within the drawing tolerances. This sample shall be marked No. 1.

4.2.1.3 The second sample shall be assembled of selected parts such that the clearances, with regard to linear, diametral, and concentric tolerances between moving members, conducive to malfunction at extreme tempratures, will be within 10 percent of the maximum permitted by the manufacturer's drawings, except that "O" ring grooves which are fabricated in accordance with Specification MIL-P-5514 shall be within the drawing tolerances. This sample shall be marked No. 2.

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4.2.1.4 The manufacturer shall apply all the tests of this specification to valve No. 2, with the exception of the low temperature functioning tests. The manufacturer shall subject valve No. 1 to the low temperature functioning tests and inspection tests set forth in this specification. Upon satisfactory completion of these tests, the manufacturer shall forward one copy of a report of these tests and one set of detail and assembly drawings of the valve to the Qualifying Agency designated in paragraph 6.5 of this specification, with a copy to Air Development Force, with a letter stating that the manufacturer desires to obtain Air Force-Navy qualification. Upon acceptance of the report and drawings by the testing agency, notice of authorization of Qualification tests and shipping instructions for the No. 1 and No. 2 valves will be forwarded to the manufacturer,

4.2.1.5 The two samples shall be plainly identified by securely attached durable tags marked with the following information:

Sample for Qualification Test No.  
Submitted by (name of manufacturer) (date) for  
Qualification tests in accordance with the  
requirements of Specification MIL-V-5527A under  
authorization (reference to letter authorizing  
the tests)  
VALVE; HYDRAULIC THERMAL EXPANSION RELIEF  
MS or AN Part No.  
Manufacturer's Part No.  
Name of Manufacturer

An additional copy of the test report and drawings shall accompany the sample units.

4.2.1.6 Qualification of one type valve under this specification, may at the discretion of the services, be extended to other types of valves after performance of only one or two minor tests, if all of the internal working parts are completely identical and

valve. For example, qualification of this type might be applied to valves which differ from previously qualified valves only insofar as port size, port location, external body dimensions and external body configuration are concerned.

4.2.2 Tests. - Qualification tests of valves shall consist of all the tests of this specification. The Qualification tests may be supplemented with tests under actual service conditions.

4.3 Inspection Tests. - The contractor shall furnish all samples and shall be responsible for accomplishing the required tests. When inspection is conducted at the contractor's plant, all inspection and testing shall be under the supervision of the Government Inspector. Contractors not having laboratory testing facilities satisfactory to the Government shall engage the services of a commercial testing laboratory acceptable to the Procuring Service. The contractor shall maintain a record showing quantitative results for all tests required by this specification. Acceptance or approval of material during course of manufacture shall in no case be construed as a guaranty of the acceptance of the finished product.

4.3.1 Sampling.- Each valve furnished under contract shall be subjected to the Inspection tests specified herein. In addition, valves up to 2 percent of the contract may be selected for any of the other tests specified herein which the Inspector considers necessary to determine conformance with the requirements of this specification.

4.3.1.1 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.

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4.3.2 Tests .- The inspection tests of valves shall consist of the following, and as indicated above:

- (a) Examination of Product
- (b) Proof pressure
- (c) Static Leakage

4.3.3 Rejection and Retest.- Failure of any valve subject to inspection tests. to conform to any of the requirements of this specification shall be cause for rejection of that valve and the valves represented. Valves 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. Valves rejected after retest shall not be resubmitted without the approval of the procuring Service.

#### 4.4 Test Conditions.-

4.4.1 Test Fluid.- Qualification teests shall be performed with oil conforming to Specification MIL-O-5606. Inspection tests may be performed with oil conforming to either Specification MIL-O-5606 or MIL-O-6083.

4.4.2 Temperatures.- Exceot where otherwise specified, the tests of this specifi- cation shall be at a room temperature between 21° and 32°C (70° and 90°F) and an oil temperature between 21 and 43°C (70° and 110°F). The actual temperatures shall be recorded.

#### 4.5 Test Methods.-

4.5.1 Examination of Product.- Each valve shall be carefully examined to determine conformance with the requirements of this specification for workmanship, marking, con- formance to applicable drawings, and any visible defects.

##### 4.5.2 Immersion.-

4.5.2.1 Plastic Parts.- Valves containging plastic parts shall be tested in accord- ance with Specification MIL-P-5517 in addition to the tests specified herein.

11.5.2.2 Other Nonmetallic Parts.- Valves containg nonmetallic parts other than plastic parts or AN standard seals in AN standard glands shall be immersed in hydraulic fluid for a period of 7 days at a temperature of 70° ±10C (158° ±20F) prior to conducting the Qualification tests specified herein. All internal parts shall be in contact with the fluid during this period. If this test is necessary as a result of the use of nonstandard packing installations and if the packings pass over holes, ports, step diameters, etc., anti/or if the inside diameter, outside diamter, or sides of the seal are unrestrained during any part of their normal operation, the packings used in the test samples shall be fabricated of the approved AN packing compound having the highest swell, and the fluid used shall be the approved hydraulic fluid having the highest swell producing characteris- tics. (The Services will designate the applicable high swell packing compound and fluid upon request.) After the above immmersion, the valve shall remain in the high swell fluid at normal room temperature until ready for test. It shall not be exposed to air for any appreciable length of time during the tests.

4.5.3 Proof Pressure.- After bleeding all air from the valve, and plugging all ports except the pressure port, a proof pressure of 3,150 psi for the Class A valve, or 6,150 psi for the Class B or Class AB valve, shall be applied at the pressure port for at least 2 minutes. Any evidence of external leakage, failure, or permanent set, shall be cause for rejection.

4.5.4 Valve Setting.- Tests described herein, under Static Leakage, Dynamic Leakage and Flow and Extreme Temperature Operation shall be conducted with the valve adjusted to deliver rated flow at the minimum pressure setting indicated in table I, and the setting



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shall remain unaltered throughout the above series of tests. The valve shall then be adjusted to deliver rated flow at the maximum pressure setting indicated in table I and the above series of tests repeated. The adjustment of the valve shall remain unaltered throughout this series of tests. Static cracking, dynamic cracking and reseal pressures shall be determined for each rated flow pressure setting in conjunction with the above adjustments or during the performance of the "static and dynamic leakage tests.

TABLE I  
Thermal Relief Valve Pressure Range

Class	Minimum Pressure Setting PSI			Maximum Pressure Setting PSI		
	Pressure at Rated Flow (Ref 110%)	Minimum Allowable Cracking Pres (Ref 100%)	Minimum Allowable Reseat Pres (Ref 90%)	Pressure at Rated Flow (Ref 110%)	Minimum Allowable Cracking Pres (Ref 100%)	Minimum Allowable Reseat Pres (Ref 90%)
A	1000	910	820	2100	1910	1720
B	2100	1910	1720	4100	3730	3360
AB	1000	910	820	4100	3730	3360

4.5.4.1 Static cracking pressure is the minimum pressure at which fluid is by-passed through the valve at the rate of 0.1cc (approximately 2 drops) per minute during conditions of increasing pressure supplied by means of a hand pump.

4.5.4.2 Dynamic cracking pressure is the minimum pressure at which fluid is by-passed through the valve at a rate of approximately 5cc per minute during conditions of increasing pressure supplied by means of a power-driven pump.

4.5.4.3 Reseating pressure is the pressure at which fluid is by-passed through the valve at a rate of 1.5cc (approximately 30 drops) per minute during conditions of decreasing pressure supplied by means of a power-driven pump. See figure 1 for relationship between static and dynamic cracking pressure and reseating pressure.

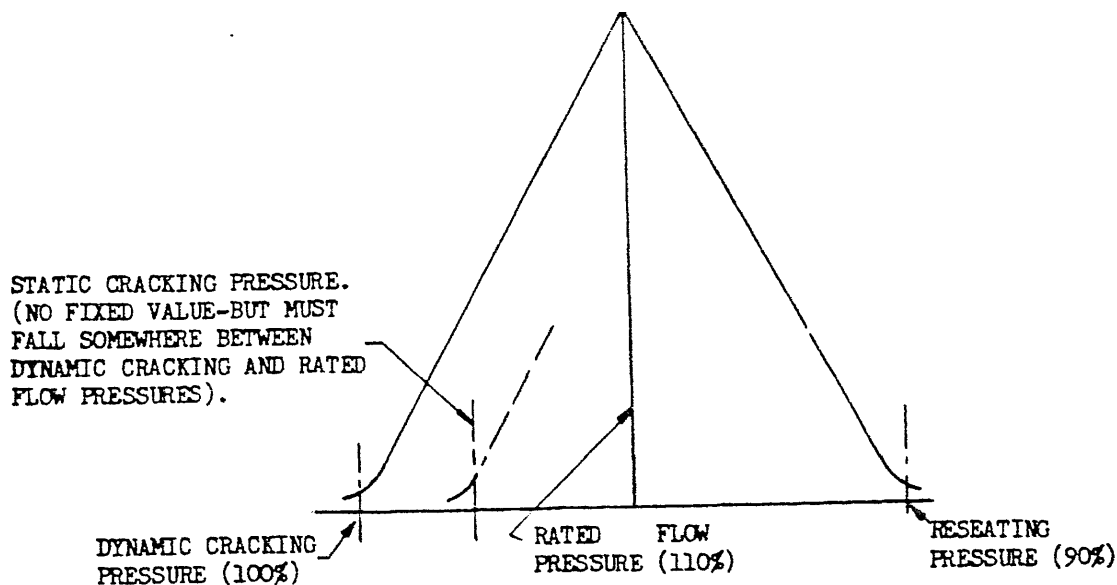


FIGURE 1. Relationship Between Static and Dynamic Cracking Pressures



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4.5.5 Static Leakage.- Pressure shall be applied to the valve by means of a hand pump beginning from a value of approximately 50 percent of the pressure setting to 95 percent of the cracking pressure specified in table 1, in increments not exceeding 10 percent of the pressure setting. At each increment the pressure shall be maintained constant for at least 8 minutes. Time shall not be considered "in" or leakage noted until the beginning of the third minute after the pressure required by each increment has been applied. The leakage rate, as noted during the final 6 minutes of each test shall not exceed the rate of 0.5 cc (approximately 10 drops) per hour. Continue to increase the pressure in suitable increments until the cracking pressure is determined. For inspection leakage tests, the procedure noted above may be performed only at a pressure equal to percent of the cracking pressure. A typical installation for the Static Leakage is indicated in figure 2.

4.5.6 Dynamic Leakage and Flow.- Pressure shall be applied to the valve by means of a power-driven pump, beginning from a value of approximately 50 percent of the pressure setting to 95 percent of the cracking pressure specified in table I in increments not exceeding 10 percent of the pressure setting. At each increment, pressure shall be maintained constant for 3 minutes with the pump operating continuously. The internal leakage in the third minute shall be noted and shall be considered the rate of internal leakage. Following these tests, pressure shall be increased in suitable increments, until cracking pressure and pressure at rated flow are determined. Flow through the valve shall then be reduced in suitable increments until the reseating pressure is determined. The pressure and rate of flow at each increment shall be recorded. The cracking and reseating pressures shall not be below the values listed in table If and the valve shall reseal within 2 minutes after reseating pressure is reached. Pressure shall then be reduced in increments not exceeding 10 percent of the pressure setting to a value of approximately 50 percent of the valve setting. By-passing of fluid at any pressure below the dynamic cracking pressure during increasing pressure or at any pressure below the reseating pressure during decreasing pressure shall not exceed 0.5 cc (approximately 10 drops) per minute. There shall be no external leakage or chatter during these tests. If this test is used for Inspection test purposes, it may be performed only at a pressure equal to 95 percent of the cracking pressure. A typical set-up for this test is shown on figure 2.

4.5.7 Extreme Temperature Operation.- Extreme temperature tests shall be conducted on valve (or valves) assembled with parts to the most adverse tolerances conducive to binding at the temperature tested.

4.5.7.1 Low Temperature and Rapid Warm-Up.- The valve shall be held at a temperature not warmer than -54°C (-65°F) for at least 24 hours. At the end of this period and with fluid at -65°F, the static cracking and reseating pressures shall be determined. The power-driven pump shall then be started, and pressure obtained at rated flow through the valve, shall be recorded. The values obtained under the above conditions shall vary, shall be recorded. not more than +10 percent or -5 percent from those obtained at normal temperature. The valve shall then be allowed to warm up rapidly and a minimum of five checks for static cracking pressure, and reseating pressure shall be conducted at approximately equal intervals before the valve warms up to room temperature. The static cracking and reseating pressures shall not vary more than +10 percent or -5 percent from the values obtained at room temperature. There shall be no evidence of external leakage or chatter during these tests.

4.5.7.2 High Temperature Operation.- The valve and hydraulic fluid shall be subjected to a minimum temperature of 71°C (160°F) for a minimum period of 6 hours. The test for Dynamic Leakage and Flow shall then be conducted at this temperature. Operation shall be within the limits specified for dynamic leakage and flow at normal temperature\*.

4.5.8 Endurance.- A typical set-up for the Endurance test is shown on figure 3. The Endurance test shall consist of opening the valve to produce rated flow of the maximum pressure setting specified in table I, and closing the valve under a reduction of pressure to 60 percent, or less of this pressure setting, for 10,000 cycles. The rate of cycling shall be between 5 and 35 cycles per minute. After completion of the life cycling and with the valve setting unchanged, static and dynamic leakage shall be determined. Static leakage shall not exceed 1.0 cc (approximately 20 drops) per hour. Dynamic leakage shall not exceed 1.0 cc (approximately 20 drops) per minute.

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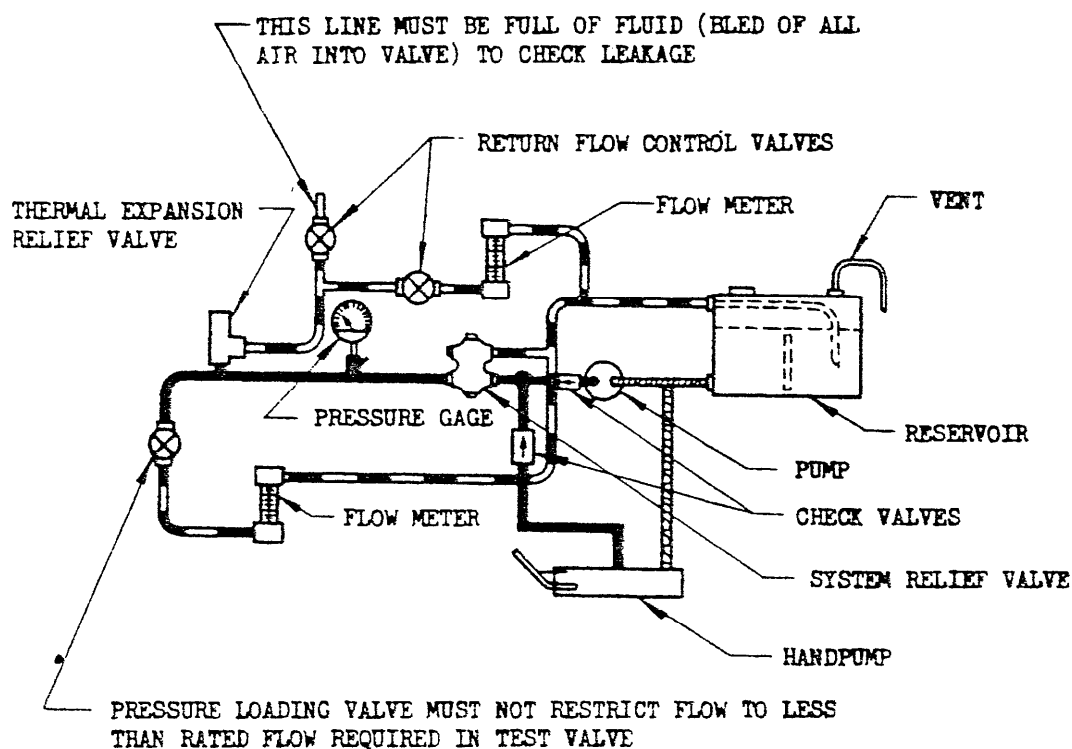


FIGURE 2. Typical Static Leakage and Dynamic Leakage and Flow Test Procedures

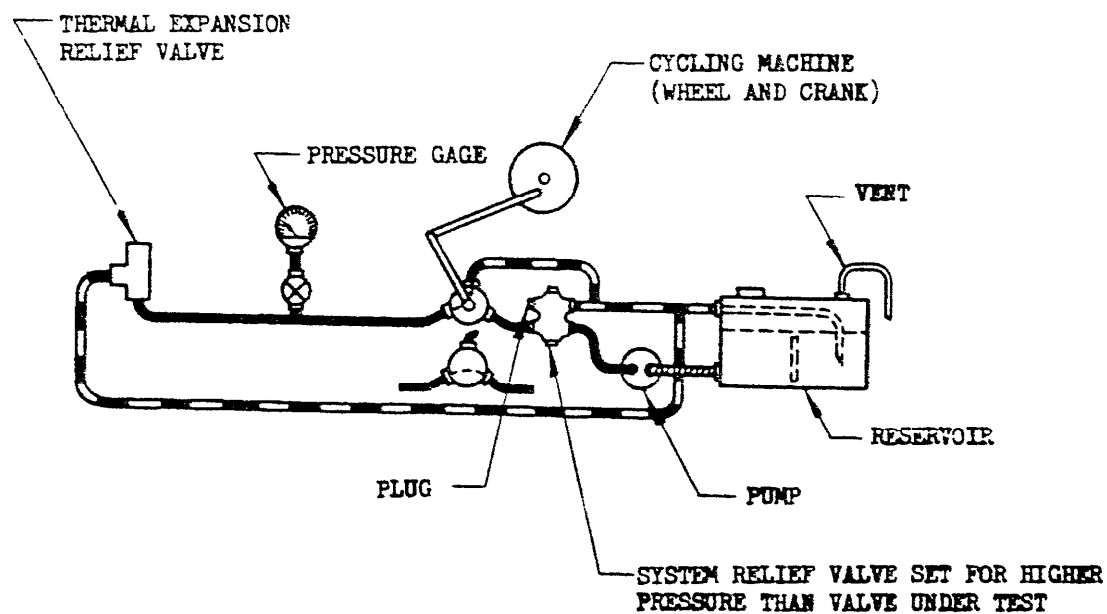


FIGURE 3. Typical Set-Up for Endurance Test

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4.5.9 Burst Pressure.- Hydrostatic pressure shall be applied to the pressure port with all other ports plugged. The pressure shall be applied at a rate not exceeding 25,000 psi per minute until a pressure of 5,250 psi is reached on a Class A valve or 10,250 psi on a Class B or Class AB valve. The valve shall withstand the specified pressure without rupture. The pressure may be increased above these values after all other Qualification tests have been conducted in order to secure data on actual burst pressure.

## 5. PREPARATION FOR DELIVERY

5.1 Application.- The packaging, packing, and marking requirements specified herein apply only to direct purchases by or direct shipments to the Government.

5.2 Preservation, Packaging, and Packing.- The interior surfaces of all parts of each valve shall be flushed with a rust inhibiting fluid conforming to Specification MIL-O-6083. The ports shall be sealed by closures conforming to Specification MIL-C-5501. and the valves shall be packaged for delivery in accordance with group I of Specification MIL-P-6064 in a type I container.

5.3 Marking and Labeling.- Marking shall be in accordance with the requirements of Specification MIL-P-6064, and as specified herein,

5.3.1 Packages.- 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:

VALVE; AIRCRAFT HYDRAULIC THERMAL EXPANSION RELIEF  
Specification MIL-V-5527A  
MS or AN Part No.  
Manufacturer's Part No.  
Name of Manufacturer  
Name of Contractor (if different from manufacturer)  
Contract or Order No.

5.4 Shipping Containers.- Each shipping container shall be marked in accordance with the requirements applicable to the individual Services, as specified in Specification 94-40645 for the Air Force, and the Navy Shipment Marking Handbook for the Navy.

## 6. NOTES

6.1 Intended Use.- The thermal relief valves covered by this specification are intended for use in aircraft hydraulic systems as covered by Specification MIL-H-5440 to provide for relief of excessive pressure resulting from volumetric changes, and should not be used with any hydraulic fluid other than that conforming to Specification MIL-O-5606 unless otherwise specified by the Procuring Service.

6.1.1 Class A valves shall be used only in 1,000 and 1,500 psi systems as defined in Specification MIL-H-5440.

6.1.2 Class B valves shall be used only in 3,000 psi systems.

6.1.3 Class AB valves may be used in either 1,000, 1,500, or 3,000 psi system.

6.2 Superseding Data.- This specification supersedes Specification MIL-V-5527, which was the number assigned by Cover Sheet to Specification AN-V-28.

6.3 Ordering Data.- Requisitions, contracts, and orders should state the MS or AN part number of the valves desired, and whether overseas packing is desired.

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6.4 Qualified Products List.- Products considered acceptable under this specification are listed in QPL-527 (latest revision).

6.5 Provisions for Qualification Tests.- The right is reserved to reject any bids on items which have not been subjected to the required tests and found satisfactory. The attention of the manufacturers is called to this provision, and they are urged to request authorization for tests of the items which they propose to offer to the Air Force or Navy under this specification. Requests for authorization of tests together with certified test reports showing conformance with all the requirements of this specification and the manufacturer's assembly and detail drawings, and for information as to the marking and forwarding of samples should be addressed to the Bureau of Aeronautics, Navy Department, Washington 25, D.C., the Qualifying Service, with a copy to the Commanding General, Air Development Force, Wright-Patterson Air Force Base, Dayton, Ohio.

6.5.1 It is to be understood that upon receipt of the Letter of Authorization, samples shall be furnished at no cost to the Government, and that the manufacturer shall pay the transportation charges to and from the designated point where tests are to be made. 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.

6.6 Detail and Assembly Drawings.- Detail and assembly drawings of the relief valve shall be furnished, in duplicate, for each new model valve. Assembly drawings shall show a cut-away section of all details in their normal assembled position and shall carry part numbers of all details and subassemblies. The following data shall be furnished on, or together with all assembly drawings:

- (a) Mounting position and dimensions
- (b) Port dimensions
- (c) Over-all dimensions
- (d) Actual flow capacity
- (e) Actual pressure range
- (f) Dry weight
- (g) Method of adjusting pressure rating
- (h) Dismantling procedure and procedure for replacing synthetic packings if used.
- (i) Any special installation or operating instructions considered necessary,

NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related there to.

custodian:  
Navy - Bureau of Aeronautics

Other interest:  
Air Force

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004
<p style="text-align: center;"><u>INSTRUCTIONS</u></p> <p>This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).</p>		
SPECIFICATION		
ORGANIZATION (of submitter)		CITY AND STATE
CONTRACT NO.	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT \$
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO IF "YES", IN WHAT WAY?		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity)		DATE