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MIL-A-5498D
11 APRIL 1988
SUPERSEDING
MIL-A-5498C
25 February 1957

MILITARY SPECIFICATION

ACCUMULATORS, HYDRAULIC, CYLINDRICAL 3000 PSI, AIRCRAFT

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. Scope

1.1. Scope. This specification covers aircraft hydraulic accumulators with piston type separators for use in aircraft hydraulic systems at rated pressures ranging up to 3000 pounds per square inch (psi) between the temperature range of -65 to +275F (see 6.1 and 6.4).

1.2 Reference number. When this document is used for procurement of accumulators, reference numbers shall consist of the folowing:

a. The letter followed by the specification number not inluding the revision letter or activity symbol.

b. A dash followed by the appropriate dash number from Table 1.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

PPP-B-636	Box, Shipping, Fiberboard

MILITARY

MIL-P-116	Preservation, Method Of
MIL-H-5440	Hydraulic Systems, Aircraft Types, I And II, Design And Installation Requirements For

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use improving this document should be addressed to: Oklahoma City Air Logistics Center/MMEDO, Tinker AFB OK 73145-5990 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 1650

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MIL-H-5606	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, And Ordnace
MIL-I-6866	Inspection, Penetrant Method Of
MIL-H-8775	Hydraulic System Components, Aircraft And Missiles General Specification For
MIL-H-83282	Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Aircraft, Metric, NATO Code Number H-537

STANDARDS

MILITARY

MIL-STD-129	Marking For Shipment And Storage
MIL-STD-130	Identification Marking Of U.S. Military Property
MIL-STD-1523	Age Controls Of Age-Sensitive Elastomeric Materiel (For Aerospace Applications)
MIL-STD-1949	Inspection, Magnetic Particle
MIL-STD-2073-1	DOD Material Procedures For Development And Application Of Packaging Requirements

MS Standards

MS33649	Boss, Fluid Connection-Internalstraight Thread

AIR FORCE-NAVY AERONAUTICAL

AN806	Plug Flared Tube
AN818	Nut, Tube Coupling, Short

(Copies of specifications, standards, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Other publications. The following document(s) form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS shall be the issue of the nongovernment documents which is current on the date of the solicitation.

American Society For Testing And Materials (ASTM)

ASTM D3951 Packaging, Commercial

(Application for copies should be addressed to: ASTM, 1916 Race St, Philadelphia PA 19103).

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(Nongovernment standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets AN or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Qualification. The accumulators furnished under this Specification shall be a product which has been tested and has passed the Qualification tests specified herein.

3.2 General. The requirements of Specification MIL-H-8775 apply as requirements of this specification. When the two specifications conflict, this specification shall govern.

3.3 Design and contruction. Accumulators shall be designed and constructed to contain gas and hydraulic fluid under pressure. The accumulator shall be provided with a fluid port and a gas port. The accumulator shall be provided with a suitable piston type separator to separate the fluid and gas within the accumulator. Accumulators shall contain a safety provision to assure dissipation of the accumulator gas pressure and fluid pressure before any component parts can be disassembled.

3.3.1 Dimensions. Accumulators shall conform to Specification sheet MIL-A-5498/1.

3.3.2 Fluid port. The fluid port shall be designed to offer minimum restriction to fluid flow. Means shall be provided to prevent a metal to metal seal between the piston and the part(s) it contacts when the piston is bottomed on the fluid end.

3.3.3 Pressures. The accumulators shall be designed and constructed for operating at hydraulic pressure of 3000 psi. Accumulators shall be based on a maximum gas charge pressure of 2000 PSI with all fluid exhausted. Separators shall be designed to withstand a pressure differential from the oil to air side, or vice versa, of 4500 psi, without damage. The accumulator shall be designed to withstand proof pressure (6000 psi) and burst pressure (12000 psi) tests at 275F after loss of strength of the materials caused by aging at 275F for 1000 hours.

3.4 Performance. The accumulator shall pass the tests specified in section 4.

3.5 Markings. Each accumulator shall be provided with a permanent, legible, attached warning in red letters stating:

MAXIMUM OPERATING PRESSURE 3000 PSI.

RELEASE GAS AND FLUID PRESSURE BEFORE DISASSEMBLING, STORING, OR SHIPPING ACCUMULATOR.

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3.6 Identification of product:

3.6.1 Nameplate. Each accumulator shall be furnished with a nameplate marked in accordance with MIL-STD-130, and shall include the following information:

M5498/1 (and dash number)
Manufacturer's name
Manufacturer's part number
Manufacturer's serial number

3.7 Age controls. Accumulators containing elastomeric seals shall be marked in accordance with MIL-STD-1523.

3.8 Use of alinement rings. When alinement rings are used on pistons, it shall not be possible to trap pressure between the piston seal area and the alinement ring area. In other words, the alinement ring must not be able to act as a seal. The use of multi-turn spiral backup rings as alinement rings is prohibited.

3.9 Use of retainer rings (snap rings). When retainer rings are used to secure end caps, it shall not be possible to incorrectly assemble the parts and create a situation where the retainer ring is forced out of its groove by the end cap or other parts of the accumulator.

3.10 Recycled and reclaimed materials. Recycled and reclaimed materials shall be used to the maximum extent possible without jeopardizing the end use of the item.

4. Quality Assurance Provisions.

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchse order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

(a) Qualification inspections (4.3)

(b) Quality conformance inspections (4.4)

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4.3 Inspection conditions. Unless otherwise specified all inspections shall be performed in accordance with the test condition specified in this specification.

4.4 Retention of qualification. To retain qualification, the contractor shall forward a report at 6-month intervals to the qualifying activity. The report shall be submitted certifying that the company still has the capabilities and facilities necessary to produce the item.

4.5 Qualification inspections. The qualification samples (as specified in 4.6) shall be subjected to the following inspections in the order listed:

(a)	Separator under pressure	(4.7.1)
(b)	Volumetric efficiency	(4.7.2)
(c)	Fluid immersion	(4.7.3)
(d)	Proof pressure	(4.7.4)
(e)	Cycling and endurance	(4.7.5)
(f)	Leakage	(4.7.6)
(g)	Seizing of parts	(4.7.7)
(h)	Non-destructive inspection	(4.7.8)
(i)	Burst pressure	(4.7.9)
(j)	Fragmentation	(4.7.10)

4.6 Quality conformance inspection. Each accumulator submitted for acceptance under contract shall be subjected to the following tests:

(a)	Examination of product	(Specification MIL-H-8775)
(b)	Non-destructive inspection	(4.7.8)
(c)	Leakage	(4.7.6.1 except leakage rates shall not exceed those specified in 4.7.5.1)
(d)	Proof pressure	(4.7.4)

4.7 Qualification test units. Two qualification test units shall be built for each size on which qualification is desired. The first unit shall be selected to insure that the clearance between sliding parts will be within 10 percent of the minimum clearance permitted by the tolerances on the manufacturer's detail drawings. The second unit shall be selected to insure that the clearance between sliding parts is at least 80 percent of the maximum clearance permitted by the tolerances on the detail manufacturer's drawings.

4.8 Inspection of packaging. The sampling and inspection of the preservations, packing, and container marking shall be in accordance with the requirements of MIL-A-5498.

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4.9 Methods of inspection.

4.9.1 Separator under pressure. With the accumulator mounted in a vertical position and with the gas port down, the accumulator separator shall withstand 4500 ± 100 psi fluid pressure applied to the fluid port with the gas port open for 2 minutes without leakage or damage. Also, the accumulator mounted in a vertical position and with the fluid port down, the accumulator separator shall withstand 4500 ± 100 psi fluid pressure applied to the gas port with the fluid port open for 2 minutes without leakage or damage.

4.9.2 Volumetric efficiency. The accumulator shall be mounted in a vertical position, with the gas port down, and with the piston bottomed on the gas end. The accumulator shall be filled with fluid and the volume of the fluid shall be measured and recorded. Pressure shall then be applied to the gas port and the piston will be allowed to travel until it is bottomed on the fluid end. The volume of fluid exhausted shall be measured and recorded. The volumetric efficiency shall be determined by the following formula:

$$\text{Volumetric efficiency percent} = 100 \times \frac{\text{Volume of exhausted fluid}}{\text{Volume of admitted fluid}}$$

The volumetric efficiency shall not be less than 95 percent. With a gas precharge of 500 ± 25 psi and the separator bottom at the fluid end of the accumulator, the fluid pressure required to move the piston shall not exceed 700 psi. Under 3000 ± 50 psi fluid pressure, the piston shall not bottom at the gas end.

4.9.3 Fluid immersion. All accumulators shall be filled with hydraulic fluid conforming to Specification MIL-H-5606, in such a manner that all internal parts of the unit are in contact with the fluid. The accumulators shall be immersed continuously in hydraulic fluid conforming to Specification MIL-H-5606 for a period of 72 hours at a fluid temperature of not less than 225F in a closed container prior to conducting the remainder of the qualification tests specified herein. After the 72 hour soak period, the accumulators shall remain in the fluid at normal room temperature until ready for test.

4.9.4 Proof pressure. With the piston in approximately midposition, completely fill both ends of each accumulator with fluid and plug the gas end. Fluid pressure shall be applied at the fluid port until a pressure of 6000 ± 100 psi is obtained and maintained for 5 minutes. There shall be no leakage of fluid or sign of failure in any part of the accumulator.

4.9.5 Cycling and endurance. With all fluid exhausted, the accumulator shall be precharged with pure dry nitrogen gas as specified in the steps of Table I. Fluid shall then be cycled to the accumulator in accordance with the corresponding pressures and temperatures specified. The fluid and the gas in the accumulator shall attain the specified temperature before tests are started. The tests shall be conducted in the order specified. The stabilized gas temperature, the pressure, and leakage of fluid and gas shall be recorded and shall not exceed that specified in Table I. There shall be no external leakage or malfunctioning of the accumulator during this test. Only one set of packing gland seals shall be used throughout tests 1 through 6.

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4.9.5.1 Gas charge leakage. Immediately after completion of the tests specified in step 1 of table I, the fluid port shall be opened to the atmosphere. The accumulator shall be placed in a cold box, and the temperature shall be reduced to -65F. Gas pressure shall be so replendished as to provide 1000 psi pressure when the temperature is stablilized at -65F. The accumulator shall be kept in a horizontal position for a period of 24 Hours. There shall be no external leakage. Leakage of gas through the fluid port shall not exceed the rate of:

(a) 2 milliliters (ml.) of free gas per hour for M5498/1-1 and -2 accumulators

(b) 3 ml. of free gas per hour for M5498/1-3, -4, and -5 accumulators

(c) 10 ml. of free gas per hour for M5498/1-6 and -7 accumulators

4.9.6 Leakage. After completion of step 6 in table I, the leakage tests specified in 4.7.6.1, 4.7.6.2, and 4.7.6.3 shall be performed. After completion of these tests, the accumulator shall be disassembled and the accumulator piston removed. A new set of packing glands seals may be installed at this time. The accumulator will be reassembled with the accumulator piston not installed. Step 7 of table I will then be accomplished.

4.9.6.1 Normal temperature gas leakage. With the fluid port open to atmosphere, gas pressure shall be applied to the gas port at both 200 ± 25 and 2000 ± 50 psi. There shall be no evidence of external leakage. Internal leakage shall be no greater than:

(a) 5 ml per hour of free gas for M5498/1-1 and -2 accumulators

(b) 10 ml per hour of free gas for M5498/1-3, -4, and -5 accumulators

(c) 20 ml per hour of free gas for M5498/1-6 and -7 accumulators

4.9.6.2 Fluid leakage. With the accumulator mounted in a vertical position with the gas port down and open to the atmosphere of 4 ± 0.5 inches of mercury and 3000 ± 50 psi shall be applied to the fluid port for periods of 1 hour each. There shall be no evidence of external leakage, and internal leakage shall not exceed a total of two drops.

4.9.6.3 Fluid leakage test for quality conformance tests. This test shall be conducted in a manner similar to that described in 4.7.6.2, except that pressure shall be applied for a period of 3 minutes only.

4.9.7 Seizing of parts. All accumulators shall be tested for seizing of parts throughout the temperature range of 275F to -65F. Operation of the unit during this test can be accomplished by removing the seals from the piston and then manually sliding the piston through its entire stroke by use of suitable push rods through the oil and air ports. If fluid is used to accomplish the cycling, the entire amount of fluid used shall have reached the proper stabilized temperature. The method used shall be recorded in the test report. The assembly shall be maintained at a temperature not less than 275F for at least 6 hours, after which 2 cycles of operation shall be made. The sliding parts shall be operated throughout the cooling period and at least 2 complete cycles after the 24-hour period.

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The assembly shall then be rapidly warmed up to room temperature and operated during this period. There shall be no evidence of malfunctioning or seizing of parts caused by thermal contracting or expansion of the parts. At least 10 full cycles of operation shall be made during cooling and warmup periods.

4.9.8 Non-destructive inspection. All parts made of ferrous materials shall be subjected to magnetic inspection in accordance with MIL-STD-1949. All aluminum parts shall be penetrant inspected in accordance with MIL-I-6866. These tests shall reveal no cracks or other injurious defects.

4.9.9 Burst pressure. (This test and the fragmentation test of 4.7.10 shall be conducted on only one of the two qualifications exhibits.) The piston shall be approximately in midposition and the gas chamber shall be filled with fluid during this test. With the fluid and unit temperature stabilized at 275F (Minimum), pressure shall be applied at the fluid port from a maximum pressure source of 25,000 PSI until a pressure of 12000 psi is obtained. The accumulator shall not rupture.

4.9.10 Fragmentation. The accumulator shall be pre-charged to 1200 psi gas pressure and charged to 3000 psi fluid press, and shall be hit with a .50 caliber projectile fired at a range of 25 to 50 yards. The projectile shall have a muzzle velocity of 2700 to 2900 feet per second. The projectile shall be tumbled and shall not be considered tumbled unless the projectile produces an "in" hole at least .50 inch wide by 1.50 inch long. The accumulator shall be supported in a manner similar to a typical aircraft mounting. Attached to the fluid port shall be a length of tubing with a shutoff valve located 3 feet from the port. The projectile shall be so directed that it will hit the fluid side of the accumulator approximately midway between the piston and the mounting strap. The accumulator approximately midway between the piston and the mounting strap. The accumulator when struck by gun fire as specified shall remain in one piece and the greatest dimension of the opening (cut and tear) created by the projectile shall not exceed the dimensions of the hole (cut) created by the projectile by more than 3 inches in any one direction. Cutting shall be considered as the actual section of the accumulator cut by contact with the projectile and a "tear" shall be considered as an extension beyond the cut.

5. PACKAGING

5.1 Preservation. Preservation shall be level A, B, C, IAW MIL-STD-2073-1 or Industrial IAW ASTM D3951, as specified. (see 6.3)

5.1.1 Level A. Unless otherwise specified, Accumulators shall be individually packaged in accordance with Method IIC of Specification MIL-P-116.

5.1.1.1 Cleaning. Accumulators shall be cleaned in accordance with applicable processes of MIL-P-116.

5.1.1.2 Drying. Accumulators shall be dried in accordance with the applicable processes of MIL-P-116.

5.1.1.3 Preservation application. Not applicable.

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5.1.1.4 Unit packaging. Unless otherwise specified by the contracting activity, Accumulators shall be individually packaged in accordance with MIL-P-116, Method IIC insuring compliance with the applicable requirements of that specification.

5.1.2 Level C. Accumulators shall be clean, dry, and indiviaully 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.

5.1.3 Industrial. The industrial preservation of accumulators shall be in accordance with ASTM D3951.

5.2 Packing. Packing shall be level A, B, C or Industrial as specified. (see 6.3)

5.2.1 Level A. Unless otherwise specified by the contracting activity, accumulators packaged as specified in 5.1.1.1 shall be packed in shipping containers applicable to level A requirements of MIL-STD-2073-1. Insofar as practical exterior shipping container shall be of uniform shape, size, minimum tare and cube consistent with the protection required.

5.2.2 Level B. Accumulators packaged as specified in 5.1.1 shall be packed in shipping containers conforming to PPP-B-636, class weather-resistant, unless otherwise specified by the contracting activity. Other requirements as specified in 5.2.1 are apply.

5.2.3. Level C. Packing shall be applied which affords adequate protection during domestic shipments from the supply source to the first receiving activity. This level shall conform to applicable carrier rules and regulations.

5.2.4 Industrial. The industrial packing of Accumulators shall be packed in accordance with ASTM D3951.

5.3 Marking. In addition to any other markings required by the contract order (see 6.3), interior and exterior containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. These accumulators are intended for use in aircraft for both type I and type II hydraulic systems covered by Specification MIL-H-5440. Unless otherwise authorized by the contracting activity, only hydraulic fluids conforming to Specifications MIL-H-5606 or MIL-H-83282 will be used in the accumulator.

6.2 General. Except as specified herein, the provisions in section 6 of Specification MIL-H-8775 are applicable to this specification.

6.3 Ordering data. Procurement documents should specify the following:

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

(b) MIL-A-5498/1 part number

(c) Applicable level of packaging and packing (See section 5)

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6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in Qualified Products List (QPL No.) whether or not such products have actually been so listed by that date. The attention ofthe contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose toofer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is (insert name and address of preparing activity) and information pertaining to qualification of products may be obtained from that activity.

6.5 Definitions. A hydraulic accumulator, within the meaning of this specification, is a cylindrical container with a floating piston. One side of the accumulator is precharged with compressed inert gas which provides a cushion and an energy source for the fluid of the hydraulic system which occupies the volume on the other side.

6.6 Subject term (key word) listing.

Accumulator
Hydraulic system
Piston
Piston to Piston type accumulator
3000 PSI accumulator

6.7 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:
AIR FORCE -99
NAVY -AS
ARMY -AV

Preparing activity:
AIR FORCE -71

Project number:
1650-0424

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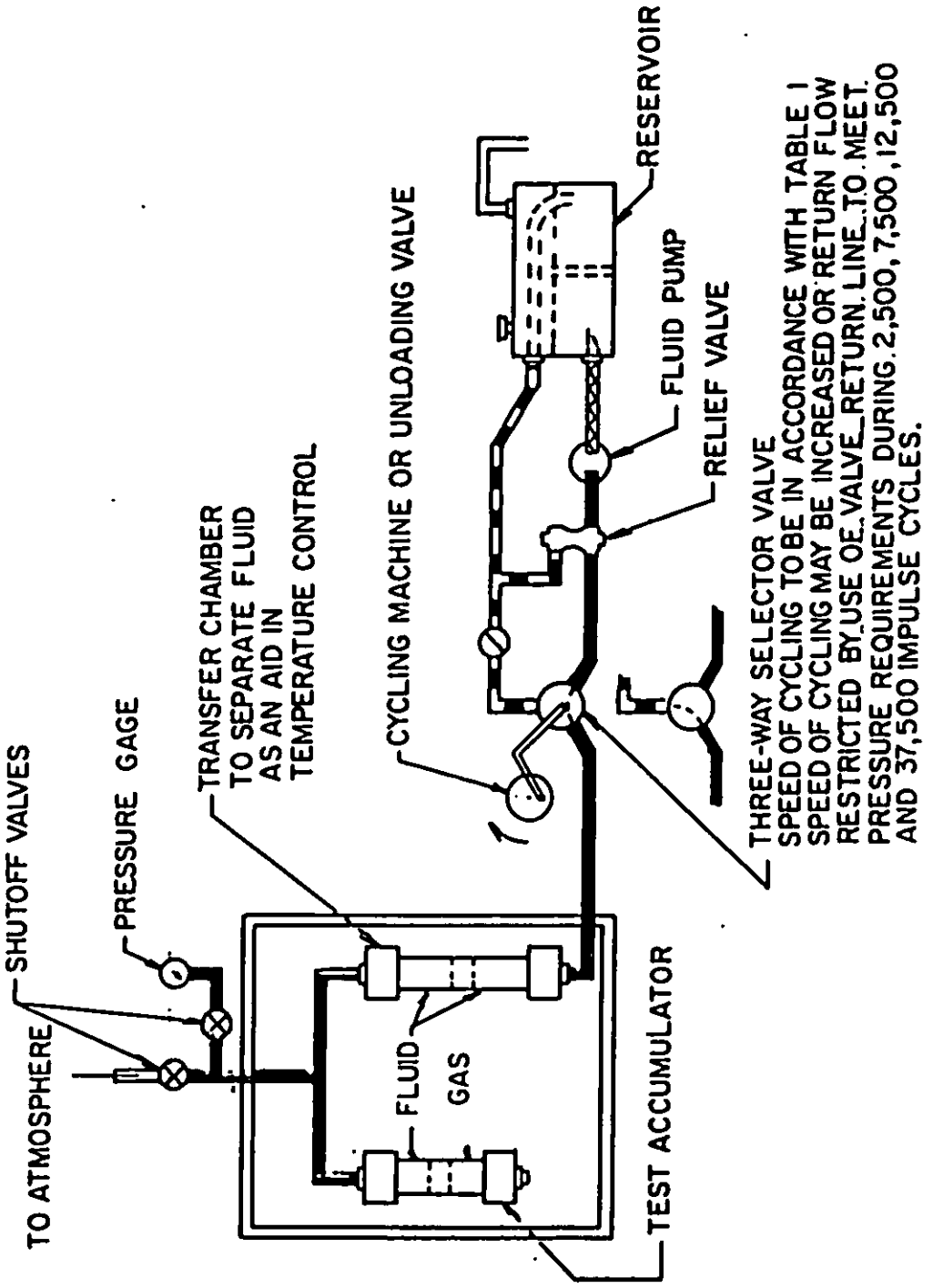

FIGURE 1. Typical accumulator cycling test machine.

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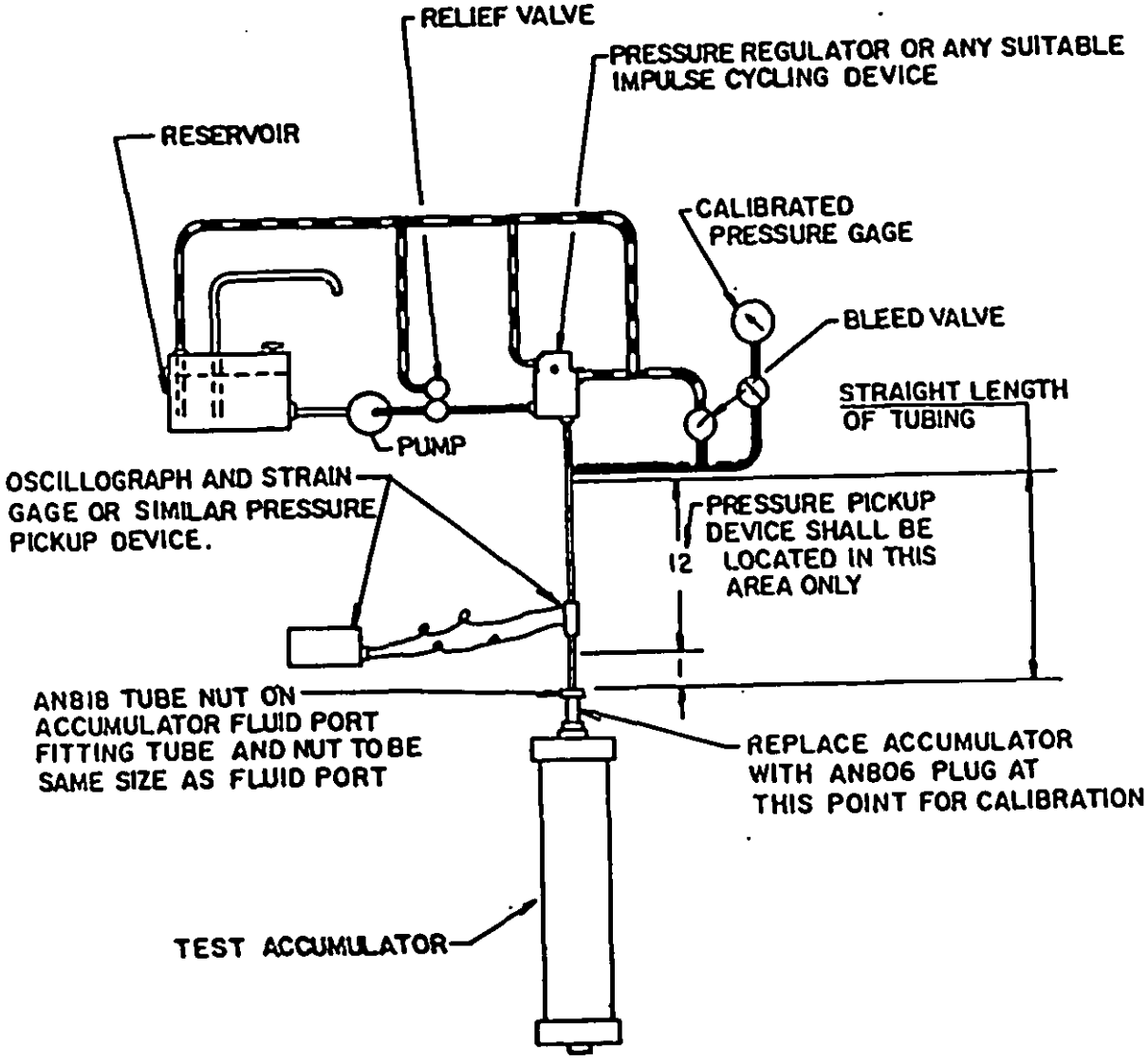

DIMENSIONS IN INCHES.

FIGURE 2. Suggested cycling and endurance test rig.

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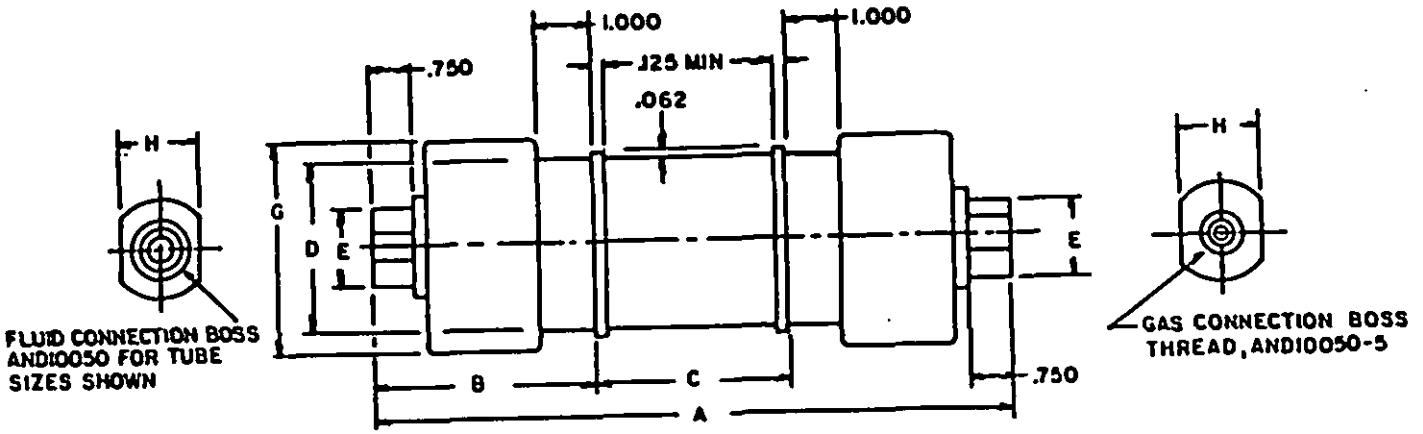

FIGURE 3. Accumulator, hydraulic, cylindrical, 3000 psi.

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TABLE I. CYCLING AND ENDURANCE TESTS. (SEE FIGURE 1) (SEE NOTE 1)

STEP NO.	TOTAL CYCLES (MINIMUM)	CYCLING RATE (CYCLES PER MINUTE)	GAS CHARGE PSI ± 25 PSI)	FLUID PRESSURE CYCLING LIMITS (PSI) LOWER LIMIT MAX	UPPER LIMIT MIN	TEMPERATURE (DEGREES F+10F) FLUID	AMBIENT AIR	LEAKAGE OF FLUID TO GAS SIDE (PER CENT OF ACCUMULATOR'S VOLUME) (SEE NOTE 5)	LEAKAGE OF GAS (PERCENT DROP IN GAGE PRESSURE)
1	2,000	0.2 to 2	1,000	200	3,000	275	(NOTE 2)	2	1
2	GAS CHARGE LEAKAGE TEST (4.7.5.1)								
3	50	(NOTE 3)	500	200	3,000	-65	-65	0.5	5
4	500	0.2 TO 2	500	200	3,000	-40	-65	1	3
5a	2,500	3 TO 10	1,000	200	3,000	275	(NOTE 2)	3	3
5b	7,500	3 to 10	1,000	200	3,000	225	(NOTE 2)	3	3
6a	12,500	3 to 10	500	2,600	3,000	275	(NOTE 2)	2	3
6b	37,500	3 to 10	500	2,600	3,000	225	(NOTE 2)	2	3
7a	12,500	OPTIONAL	(NOTE 4) N/A	10	3,500	100	(NOTE 2)	N/A	N/A
7b	500,000	OPTIONAL	N/A	200	3,000	275	(NOTE 2)	N/A	N/A
7c	1,000,000	OPTIONAL	N/A	2,000	3,000	100	(NOTE 2)	N/A	N/A

1. During all cycling tests, the gas side of the accumulators shall be lubricated with an amount of fluid equal to approximately .50 of 1 percent of accumulator rated volume. Fluid leakage shall be determined by draining through the gas port without disassembling the accumulator. Gas pressure shall be measured at stabilized and identical temperature before and after each step of Table I.

2. Ambient temperature shall be maintained such that the gas temperature equals or exceeds the fluid temperature at the end of each compression stroke.

3. The accumulators shall be charged to a minimum of 3000 psi fluid pressure. Accumulators shall be maintained in this condition for 24 hours at the temperature specified in step 3 of Table I. The 50 cycles shall be fast discharge followed immediately by recharged with oil at the specified temperature. A 2 hour minimum interval shall elapse between each of the cycles.

4. The accumulator piston shall be removed for all tests of step 7. The gas port shall be capped during this test. This test is intended to prove design of the accumulator shell construction and end cap construction. These tests shall be conducted in a test rig similar to that shown in Figure 2. The rate of pressure buildup and the peak pressures shall be recorded at the start and finish and at least 10 equally spaced intervals during each test. The pressure buildup rate shall be between 100,000 to 200,000 psi per second.

5. Be sure not to count the lubrication fluid on the gas side as leakage.

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TABLE II. Dimensions

DASH NO	GAS VOLUME (a) CU IN MAX	GAS VOLUME (a) CU IN MIN	TUBE SIZE REF	A ±.062	B ±.062	C +.000 -.031	D	E +.000 -.016	G MAX	H +.000 -.016
-1	27	23	.50	12.500	3.938	4.625	2.250	1.375	2.812	1.125
-2				20.375		12.500				
-3	54	46		12.500	4.438	3.625	3.187		3.812	
-4	108	92		20.375		11.500				
-5				36.125		27.250				
-6	216	184	.75	20.000	5.438	9.125	4.750	1.750	5.500	1.500
-7	416	384		33.375		33.375				

(a) DENOTES TOTAL GAS VOLUME OF ACCUMULATION WITH PISTON BOTTOMMED ON FLUID SIDE OF ACCUMULATOR.

DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES: DECIMALS ±.031

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(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)*

DD FORM 82 MAR 1426 PREVIOUS EDITION IS OBSOLETE.

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