INCH-POUND

MIL-V-5636C(USAF)
27 JANUARY 1995

SUPERSEDING
MIL-V-5636B
24 AUGUST 1965

MILITARY SPECIFICATION

VALVE, LUBRICATING OIL COOLER, PETROLEUM BASE, TEMPERATURE REGULATING WITH SURGE PROTECTION

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

1. SCOPE

1.1 - Scope. This specification covers temperature regulating, surge protection oil cooler valves incorporating pressure relief bypass, for use with petroleum base oils.

1.2 Classification. Oil cooler valves shall have a maximum continuous oil flow capacity, and shall be one of the following classes, as specified (see 6.2):

Class 1 -300 pounds per minute capacity
Class 2- 425 pounds per minute capacity.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which maybe of use in improving this document should be addressed to: Oklahoma City Air Logistics Center/TICLA, 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 F4294 FSC 2935

SPECIFICATIONS

FEDERAL

TT-S-735	Standard Test Fluid, Hydrocarbons

MILITARY

MIL-P-116	Preservation, Methods Of
MIL-L-6082	Lubricating Oil, Aircrart Piston Engine
MIL-P-6906	Plates, Identification, Aircraft
MIL-S-7742	Screw Threads, Standard, Optimum Selected Series. General Specification For
MIL-A-8625	Anodic Coatings, For Aluminum And Aluminum Alloys
MIL-L-22851	Lubricating Oil, Aircraft Piston Engine (Ashless Dispersant)
MIL-N-25027	Nut Self-Locking, 250°F, 450°F, And 800°F

STANDARDS

MILITARY

DOD-D-1000	Drawings, Engineering And Associated Lists
MIL-STD-105	Sampling Procedures And Tables For Inspection By Attributes
MIL-STD-129	Marking For Shipment And Storage
MIL-STD-130	Identification Marking Of U.S. Military Property
MIL-STD-831	Test Reports, Preparation Of
MIL-STD-889	Dissimilar Metals
MIL-STD-970	Standards and Specifications, Order Of Preference For The Selection Of
MIL-STD-2073-1	DOD Material Procedures For Development And Application Of Packaging Requirements
MS20995	Wire, Safety On Lock
MS29590	Cooler - Lubricating Oil, Aircraft Engine, Petroleum Base, Tubular Round
MS29593	Valve - Oil Cooler Temperature Regulating With Surge Protection
MS33540	Safety Wiring, And Cotter Pinning, General Practices For
MS33588	Nuts, Self-Locking, Aircraft, Reliability And Maintainability Usage Requirements For

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Document Order Desk, Bldg 4D, 1700 Robbins Avenue, Philadelphia PA 19111-5094.)

2.2 Non-Government publications The following document(s) form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2)

American Society For Testing And Materials (ASTM)

ASTM B633	Zinc on Iron And Steel, Electrodeposited Coatings Of
ASTM D3951	Packaging, Commercial

(Application for copies should be addressed to: ASTM, 1916 Race Street, Philadelphia, PA 19103)
(Non-Government Standards and other publications are normally available from the organizations that prepare or 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 document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First Article. When specified (see 6.3), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.2

3.2 Materials. Materials shall conform to applicable specifications as specified herein. Materials which are not covered by applicable specifications or which are not specifically described herein shall be of the best quality, of the lightest practicable weight and suitable for the purpose intended.

3.2.1 Metals. All metals used in the construction of all cooler valves shall be corrosion resistant or shall be suitably protected to resist corrosion during the normal life of the valve. The use of dissimilar metals, especially brass, copper, or steel, in contact with aluminum or aluminum alloy shall be avoided wherever practicable. Dissimilar metals are defined in MIL-STD-889. The use of magnesium is prohibited.

3.2.2 Nonmetals. Nonmetallic materials shall be suitably resistant to MIL-L-6082, grade 1100 oil and MIL-L-22851, type II oil, or a mixture of up to 50 percent (by volume) of TT-S-735 fluid, types I and III, with either of the above oils and any approved preservative compound, to ensure satisfactory operation under all conditions specified herein.

3.2.3 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 MIL-STD-970, except as provided in the following paragraph.

3.2.3.1 Standard parts. Standard parts (MS or AN) 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 MS or AN standard parts without alteration, and provided the corresponding MS or AN drawings. In the event there is no suitable corresponding MS or AN standard part in effect on date of invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

3.3 Design Class 1 and 2 valves shall be designed to conform to MS29593.

3.4 Construction. Oil cooler valves shall be constructed as to withstand the strains, jars, vibrations, and other such conditions as are incident to shipping, storage, installation, and service.

3 4 1 Size and weight The dimensions shall conform to MS29593 for class 1 and class 2 valves except those extensions into cooler ports required for satisfactory operation that do not interfere with mounting or interchangeability are permitted. The weight for class 1 and class 2 valves shall not exceed the value specified on MS29593.

3.4.2 Threaded connections.

3.4.2.1 Screw threads. Screw threads shall be m accordance with MIL-S-7742

3.4.2.2 Locking of parts All threaded parts shall be locked by safety wiring, by self-locking nuts conforming to MI L-N-25027, cotter pins, or other approved methods. Safety wire shall be installed in accordance with MS33540 and shall conform to MS20995. Self-locking nuts shall be used in accordance with MS33588 Self-locking nuts shall not be used where loosening or disengagement of the nut could result in the nut or other parts entering the oil system. The use of lockwashers or staking is not permitted.

3.4.2.21 Mounting studs All studs shall incorporate an adequate interference fit which will not allow loosening or packing out during normal service life or upon removal of any approved self-locking nut.

3.4.3 Finish.

3.4.3.1 Plating. Steel parts in contact with aluminum or aluminum alloy, except for parts completely immersed in oil, shall be zinc plated in accordance with ASTM B633.

3.4.3.2 Anodizing. All aluminum-alloy parts shall be anodized in accordance with MIL-A-8625

3.4.4. Thermostatic valve elements. The valve shall incorporate a thermal element

3.4.5 Relief valve. The valve shall incorporate a relief valve element for bypassing oil under excess pressure differential.

3. 4. 6 Surge protection element. The valve shall incorporate a surge protection element

3.4.7 Surge protection element. The valve shall incorporate a surge protection element

3.5. 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. Change in manufacturer's part numbers shall be governed by the drawing number requirements of DOD-D-1000.

3.6 Performance. The valve shall perform satisfactorily when subjected to the applicable tests specified in section 4.

3. 7 Special tools. Valves shall be so designed that special tools will not be required for assembly or disassembly

3.8 Identification of product The valves shall be marked for identification m accordance with MIL-STD- 130

3.8.1 Nmaeplate The following information shall be permanently and legibly marked on the valve or on a nameplate conforming to MIL-P-6906.

VALVE: OIL COOLER
MS29593 (Supply appropriate dash number)
Manufacturers part number (or identification)
Manufacturer's serial number
Contract or order number
Manufacturer's name or trademark
U.S.

3.9 Workmanship. All details of workmanship shall be sufficient to ensure satisfactory operation and service life of the valve. Parts shall not contain sharp edges, burrs, loose chips, dirt or other foreign matter.

3.10 Recycled and reclaimed materials. Recycled and reclaimed materials should be encouraged to the maximum extent possible without jeopardizing the intended end use of the item.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (exam inations and tests) as specified herein Except as otherwise specified in the contractor 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 this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements

4.1.1 Responsibility for compliance. All items shall 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 ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.2 Classification of tests The inspection and testing of valves shall be classified as follows

a. First article testing (4.3)

b. Quality conformance inspection(4.4)

4.3 First article tests. First article test of valves shall consist of all the tests specified in 4.6

4.3.1 First article test samples. The first article test samples shall consist of two valves of each manufacturer's part number upon which first article is desired The samples shall be accompanied by two complete sets of detail and assembly drawings and a complete test report show ing results of manufacturer's tests for each manufacturer's part number. Each first article test sample shall be plainly Identified by securely attached durable tags marked with

Sample for first article test
VALVE. OIL COOLER
MS29593 (list applicable dash number)
Submitted by (name of manufacturer) (date)
for first article tests in accordance with
MIL-V-5636C under authorization
(reference letter authorizing the tests)
Manufactured part number
Name of manufacturer

4.3.1.1 Manufacturer's drawing The manufacturer's drawings submitted with the first article test samples shall conform to DOD-D- 1000 and shall show a cutaway section showing all parts in then assembled position and shall specify part numbers of all parts and subassemblies.

4.3.1. 2 Tests reports The test reports submitted with the first article test samples shall conform to MIL-STD-831 and shall include a detailed statement indicating conformance, or extent of nonconformance, with all requirements of this specification, referring specifically to paragraph numbers. Wherever a requirement is considered to be inapplicable, the report should so state.

4.4 Quality conformance. Quality conformance tests shall consist of the individual test and sampling tests.

4.4.1 Individual tests. Each valve submitted for acceptance under contract shall be subjected to.

a. Examination (4.6.1)
b. Leakage (4.6.2).

4. 4. 2. Sampling tests. A random sample shall be chosen from each inspection lot of valves in accordance with MI L-STD-105, table I, inspection level S-1, acceptance number of zero for all tests and each sample valve shall be subjected to the following tests in addition to the individual tests

a. Temperature regulation (4.6. 4, conditions of table II only)
b. Pressure relief setting (4.6.5)
c. Surge protection (4.6.6.1, part I only).

4.5 Test conditions.

4.5.1 Standard atmospheric conditions. Unless otherwise specified, tests shall be conducted at atmospheric pressure and at ambient temperature between 60° and 90° F.

4.5.2 Test oil. Unless otherwise specified, the oil used in all tests shall conform to MIL-L-22851, type 11.

4.5.3 Instruments.

4.5.3.1 All pressure-indicating instruments used in tests shall be accurate w ithin one percent for pressures below 100 psi, and within two percent for pressures above 100 psi.

4.5.3.2 All temperature-measuring instruments shall have an accuracy of ± 2° F.

4.5.3.3 All flow-measuring devices shall be accurate within two percent

4 6 Test methods

4.6. 1. Examination The valves shall be examined carefully to determine conformance with the material, workmanship, design, construction, dimensions, and applicable drawing requirements of this specification

4.6. 1. 1 Packaging, packing, and marking Packaging, packing, and marking of the valves shall be examined to determine conformance to section 5.

4.6.2. Leakage. The valve shall be submerged in water at 150° to 175° F with all ports blanked Air pressure of 85 ± 15 psi shall be applied to the valve inlet for one minute. There shall be no leakage.

4.6.3. Pressure drop The valve shall be installed m a test setup similar to the one shown on figure 1. The pressures P_A, P_B, P_C, P_D, and P_E shall be measured at static holes flush with the inner surface of the oiliness and pressure plate as close to the valve as possible. The oil shall not undergo an appreciable cooling from the oil cooler during this test With gate valves "A," "B," and "D" open and gate valves "C," "E," and "F" closed, oil shall be circulated through the system and the test valve at a temperature of 200° ± 2° F. The total valve oil pressured drop $(P_A - PB) + (P_D - P_E)$ shall be measured The pressure drop shall not exceed 120 psi at the maximum continuous rate flow for each class of valve.

4.6.4 Temperature regulation The valve under test shall be installed in a test setup comparable to the one shown on figure 1. Gate valves "A," "B," "C," and "E" shall be wide open Gate valves "D" and "F" shall be adjusted.

for control of pressure $P_B - P_D$ and temperature T_B. Under no condition shall the pressure difference $P_B - P_C$ exceed five psi. A tolerance of ± 2° F shall apply to temperatures T_A and T_B. Prior to taking readings, temperatures T_A and T_B, oil flow, and pressure difference $P_B - P_D$ shall be stabilized at the test conditions for one minute. The oil out of the valve, temperature T_C shall be recorded for conditions listed in Tables I and II, as applicable, wherein "T" represents the thermostat design temperature.

4.6.5 Pressure relief setting The valve shall be installed in a test setup similar to the one shown on figure 1. With gate valves "A," "B," "C," and "D" open and with gate valves "E" and "F" closed, oil at a temperature of 225° F shall be circulated through the system and test valve at the maximum continuous flow rate until conditions are stabilized. Gate valve "D" shall then be gradually restricted, and the pressure $P_C - P_E$ required to start flow through the bypass port of the valve shall be determined. This pressure shall be 50 ± 5 psi. With gage valve "D" closed completely, pressure $P_C - P_E$ shall not exceed 65 psi.

4.6.6 Surge protection. The valve shall be installed in a setup similar to the one shown on figure 2. All air shall be eliminated from the system.

TABLE I. Temperature regulation (for first article only)

CLASS	OIL FLOW (LB/MIN)	T_A (°F)	T_B (°F)	$P_B - P_D$ (PSI)	REQUIREMENT T_C (°F)
1 and 2	130 ± 2	T + 90	T	15 ± 1	T to T + 5
1 and 2	130 ± 2	T + 20	T - 20	25 ± 1	T - 5 to T + 10
1 and 2	130 ± 2	T + 40	T - 20	30 ± 1	T - 5 to T + 10
1 and 2	250 ± 2	T + 90	T +10	20 ± 1	T + 10 to T + 15
1 and 2	250 ± 2	T + 20	T - 20	30 ± 1	T ± 5
2	380 ± 3	T + 60	T	30 ± 1	T to T + 10
2	380 ± 3	T + 20	T - 20	35 ± 1	T ± 5

TABLE II. Temperature regulation (for first article and acceptance)

CLASS	OIL FLOW (LB/MIN.)	T_A (° F)	T_B (° F)	$P_B - P_D$ (PSI)	REQUIREMENT T_C (° F)
1 and 2	130 ± 2	T + 60	T - 15	20 ± 1	T ± 10
1 and 2	250 ± 2	T + 60	T - 5	25 ± 1	T - 5 to T +10
2	380 ± 3	T + 90	T + 20	25 ± 1	T + 20 to T + 25

4.6.6.1 Part I. With gate valve "B," "C," and "D" closed, oil at a temperature of 45° ± 2° F shall be circulated through the bypass (valve A). The bypass valve (valve A) shall be closed and flow established through the relief valve to obtain a pressure PA of 200 ± 10 psi. The pressure shall be maintained for a period of 15 seconds. Pressure PC shall not exceed 100 psi and there shall be no leakage from lines E or F.

4.6.6.2 Part II. With gate valves "A" and "B" closed; and "C" and "D" open, oil at a temperature of 225° ± 2° F shall be allowed to flow into the test valve and out gate valve "C." Gate valve "C" shall be gradually restricted until the maximum continuous flow rate is established through gate valve "'D." Oil shall not start to flow from valve "D" until PA - P_B is 60 psi or greater. The full oil flow through valve "D" shall be obtained with PA - P_B not greater than 100 psi.

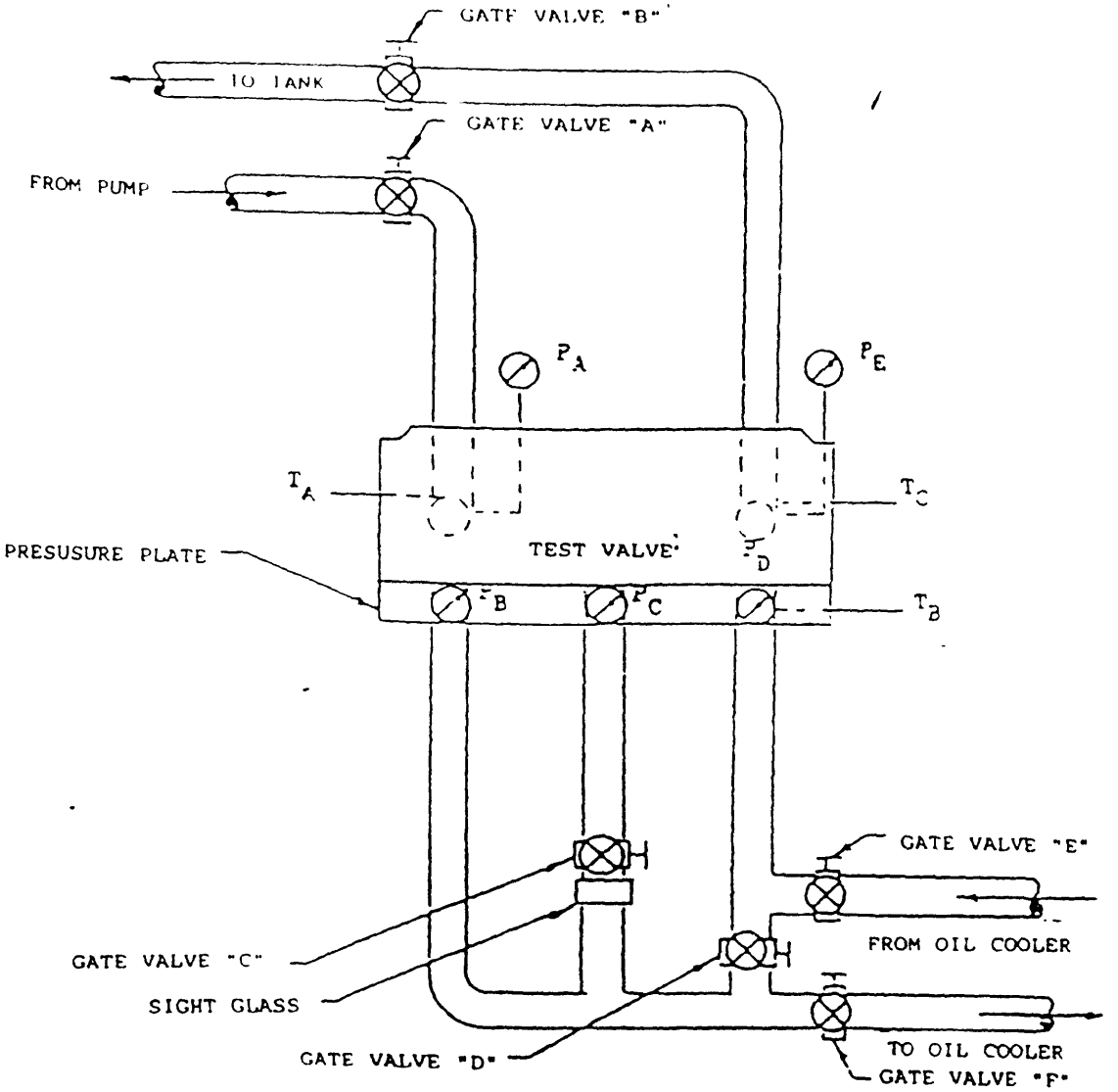

FIGURE 1. Temperature regulation test apparatus

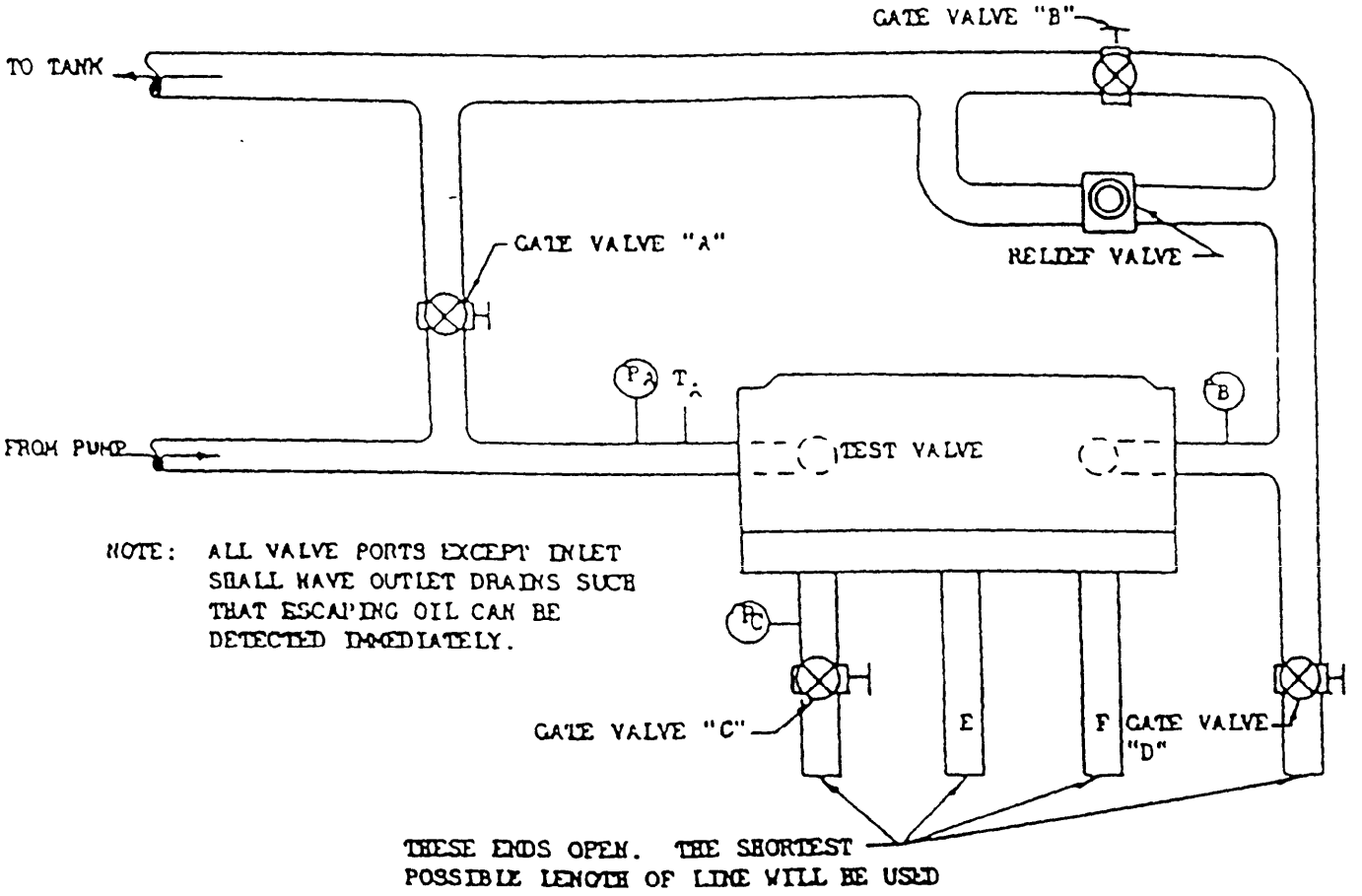

FIGURE 2. Surge valve operation

4.6.6.3 Part III (applicable to thermostatic surge elements o nly) With gate valves “A” and "D" closed, and “B” and “C” open, oil at a temperature of 45° ± 2° F shall be circulated through the system and valve The pressure P_A shall not exceed 60 psi The oil temperature shall be increased in Increments of 5° F until oil starts to leak out of the cooler inlet port (gate valve “C”), which shall not occur until the oil temperature has reached at least 60° F’

4.6.6.4 Part I V (applicable to thermostatic surge elements only) With gate valves “A” and “B” closed, and “C” and “D” open, oil at a temperature of 160° ± 2° F shall be allowed to flow into the test valve and out gate valve “C “ The pressure PA shall not exceed 60 psi The oil temperature shall be decreased m increments of 5° F until oil starts to flow from gate valve “D “. This shall not occur until the oil temperature is 145° For less.

4.6.7 High viscosity surge. The valve under test shall be installed in a test setup comparable to the one shown in figure 3 The test valve, adjacent oil lines, pressure plate holes, and oil cooler shall be filled with oil prior to chilling This oil shall then be chilled to 10° ± 2° F. With valve “A” and “B” closed, oil at a temperature not less than 60° F shall be circulated through the 400-psi relief valve to establish PA at 400 psi Valve “A” shall then be opened quickly to surge the 400-psi pressure against the cold lines and valve. This pressure shall be maintained for period of 15 seconds Pressure P_C shall not exceed 100 psi during this test. Installation to ensure true indication of pressure at P_C and P_B There shall be no evidence of damage to the valve or cooler after these tests.

4.6.8 Endurance test of surge e lement Surge valves shall be subjected to a 100-cycle endurance test The valve shall be installed in a setup similar to the one shown on figure 3. One cycle shall consist of the following for each type.

4.6.8.1 Pressure sensitive surge elements only

a. The test valve, adjacent oil lines, pressure plate holes, and oil cooler shall be filled with oil having a viscosity of approximately 9,000 SUV at -60° ± 5° F.

b. With valve “A” and “B” closed, oil at a temperature, not less than 60° F shall be circulated through the 400-psi relief valve to establish PA at 400 psi.

c. Valve “A” shall be opened quickly to surge the 400-psi pressure against the cold lines and valve This pressure shall be maintained for 15 seconds.

Means shall be provided for true indication of pressure P_B and P_C. Pressure P_C shall not exceed 100 psi during the cycle test. There shall be no evidence of damage to the valve or cooler after this endurance test.

4.6.8.2 Thermostatic surge elements only.The valve shall be subjected to six complete cycles as specified in 4.6.8.1, following which it shall be subjected to 100 cycles as follows.

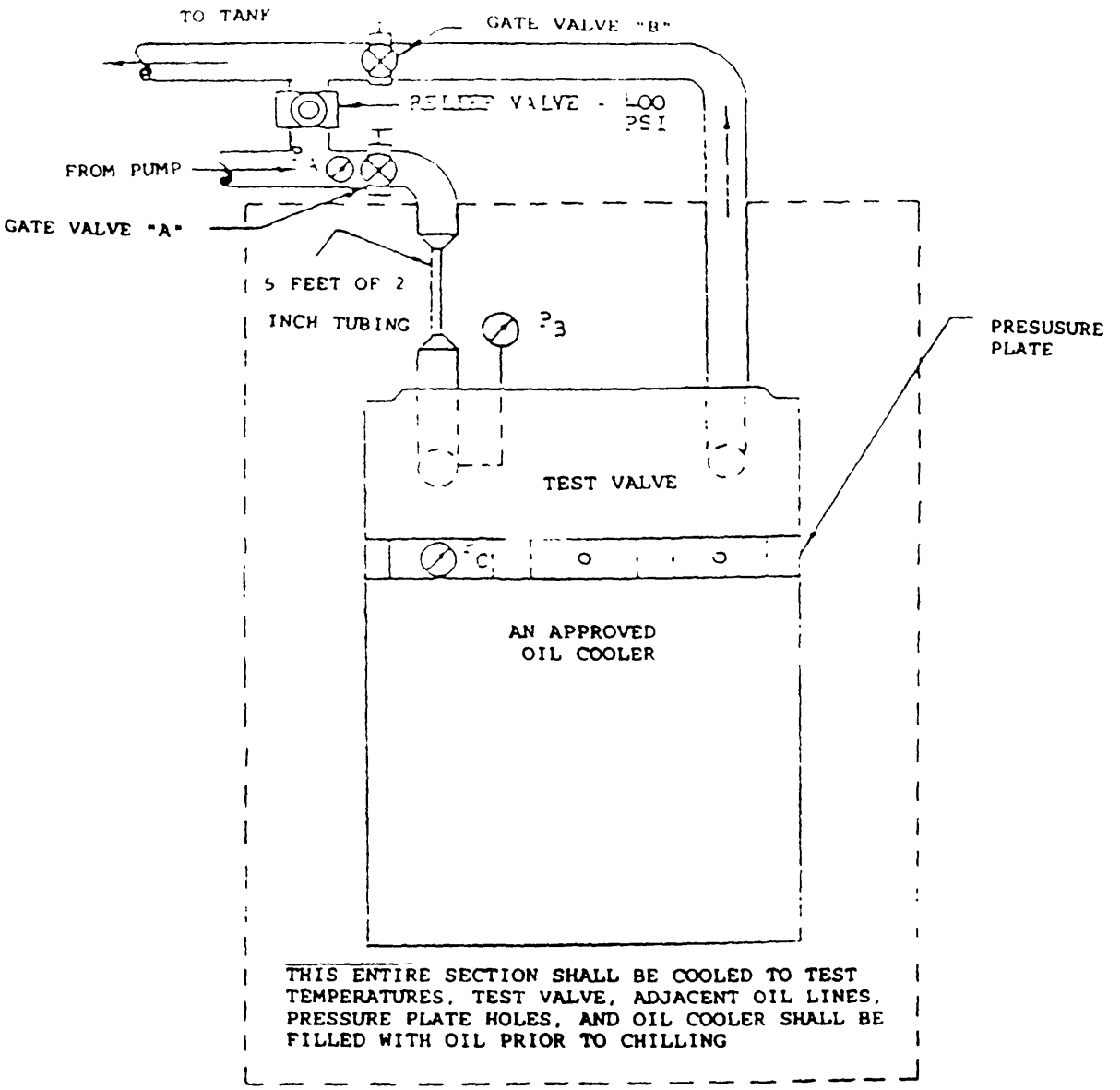

FIGURE 3. High viscosity surge test apparatus

a. The test valve, adjacent oil lines, pressure plate holes, and oil cooler shall be filled with oil. This oil shall then be cooled to 40° ± 2° F.

b.With valve “A” and "B" closed, oil at a temperature not less than 60° F shall be circulated through the 400-psi relief valve to establish PA at 400 psi.

c. Valve “A” shall be opened quickly to surge the 400-psi pressure against the cold lines and valve. This pressure shall be maintained for a period of 15 seconds.

d. The oil temperature shall be increased to at least 150° F and circulated through the test valve and lines for at least five minutes.

Means shall be provided for true indication of pressure P_B and P_C Pressure P_C shall not exceed 100 psi during the cycle test. There shall be no evidence of damage to the valve or cooler after this endurance test

4.6.9 Fluid resistance test In the testing of oil cooler valves employing only static seals, the fluid resistance test may be waived at the option of the procuring activity:

4.6.9. 1. High temperature The assembled valve shall be mounted on an approved oil cooler or a setup simulating oil cooler flow passages A mixture of 50 percent oil (by volume) and 50 percent TT-S-735 type III fluid shall be circulated through the valve at a temperature of 135° ± 10° F for 72 hours. The valve inlet pressure shall be maintained at 35 ± 5 psi. At the end of this period, oil at 275° ± 5° F shall be circulated through the valve for 96 hours. The valve inlet pressure shall be maintained at 35 ± 5 psi, except that five times in every 24 hour period, the pressure shall be momentarily raised to 100 ± 5 psi. Following this, oil at room temperature shall be circulated through the valve at pressures from 1 to 100 psi. The foregoing procedure shall be conducted six times There shall no leakage during this test.

4.6.9.2 Low temperature Following the high temperature fluid resistance test, the valve shall be soaked for 24 hours at -65° ± 5° F while filled with a mixture of 50 percent (by volume) TT-S-735 type I fluid and 50 percent oil While at -65° F, pressures of 1 and 100 psi shall be applied alternately at least ten times. There shall be no leakage Following this test, the valve shall be disassembled and all parts examined. Any damage or visible wear shall be cause for rejection.

4.6.10 Endurance test of thermostatic element. Themostatic elements will be subjected to a 10,000-cycle endurance test. One cycle shall consist of:

a. The assembled valve shall be immersed in oil at 220° ± 5° F until the thermostatic element has extended to its fill “hot” position. It shall remain the fill “hot” position for at least one minute

b. The valve shall be removed from the oil and allowed to remain in room temperature air until the thermostatic element has retracted to its full “’cold” position. It shall remain in the full "cold" position for at least one minute.

Following this endurance test, the valve shall be subjected to the temperature regulation test specified in 4.6.4. The temperature regulation test requirements shall again be met for all test conditions

4.6.1.1. Endurance and vibration test of check valves. The valve shall be installed m a test setup similar to figure 4. Oil pressure shall be imposed on the check valves first in one direction and then m the reverse direction to cause the valves to open and close periodically Sufficient oil flow shall be maintained to ensure that the check valves completely open and close. One cycle shall consist of the check valves completely opening and closing once During that part of the cycle when the check valves are closed, the pressure PA shall reach 80 ± 5 psi. At the same time the valve is being cycled, it shall be subjected to approximately 6,000,000 cycles with the valve mounted in the horizontal position (i.e., cooler mounting flange in the horizontal plane), and 6,000,000 cycles with the valve in the vertical position (i e., cooler mounting flange in the vertical plane). The frequency and amplitude shall be such as to provide a vibratory acceleration of ± 3.4 g (for example, a frequency of 2,000 cycles per minute and a double amplitude of 0.018 inch). During the vibration time, the check valves shall be cycled as described above for a total of 10,000 times with the cycles being evenly distributed throughout the total vibration time. Periodically, during and at the end of the vibration and cycle test, the check valves shall be respected for evidence of malfunction and wear. Any evidence of improper operation or serious wear shall be cause for rejection of the test valves.

5. PACKAGING

5.1 Preservation Preservation shall be level "A," "C," or "Commercial" as specified (see 6.2)

5.1.1 Level A. Unless otherwise specified by the contracting activity, each item shall be individually preserved and packaged in accordance with MI L-STD-2073- 1. The method of preservation shall conform to submethod 1 C- 1 of MIL-P-l16.

5.1.2 Level C. Each item shall be preserved and packaged in a manner which will afford adequate protection against corrosion, deterioration and physical damage during shipment from supply source to the first receiving activity for immediate use.

5.1.3 Commercial. The commercial preservation of items shall be in accordance with ASTM D3951.

5.2 Packing. Packing shall be level "A," "C," or "Commercial" as specified (see 6.2).

5.2.1 Levels "A." "B." or "C". The level of packing shall be specified by the contracting activity. The level of packing shall be accomplished in accordance with the requirements outlined in MIL-STD-2073-1.

5.2.2 Commercial. The packaged item shall be packed in accordance with ASTM D3951.

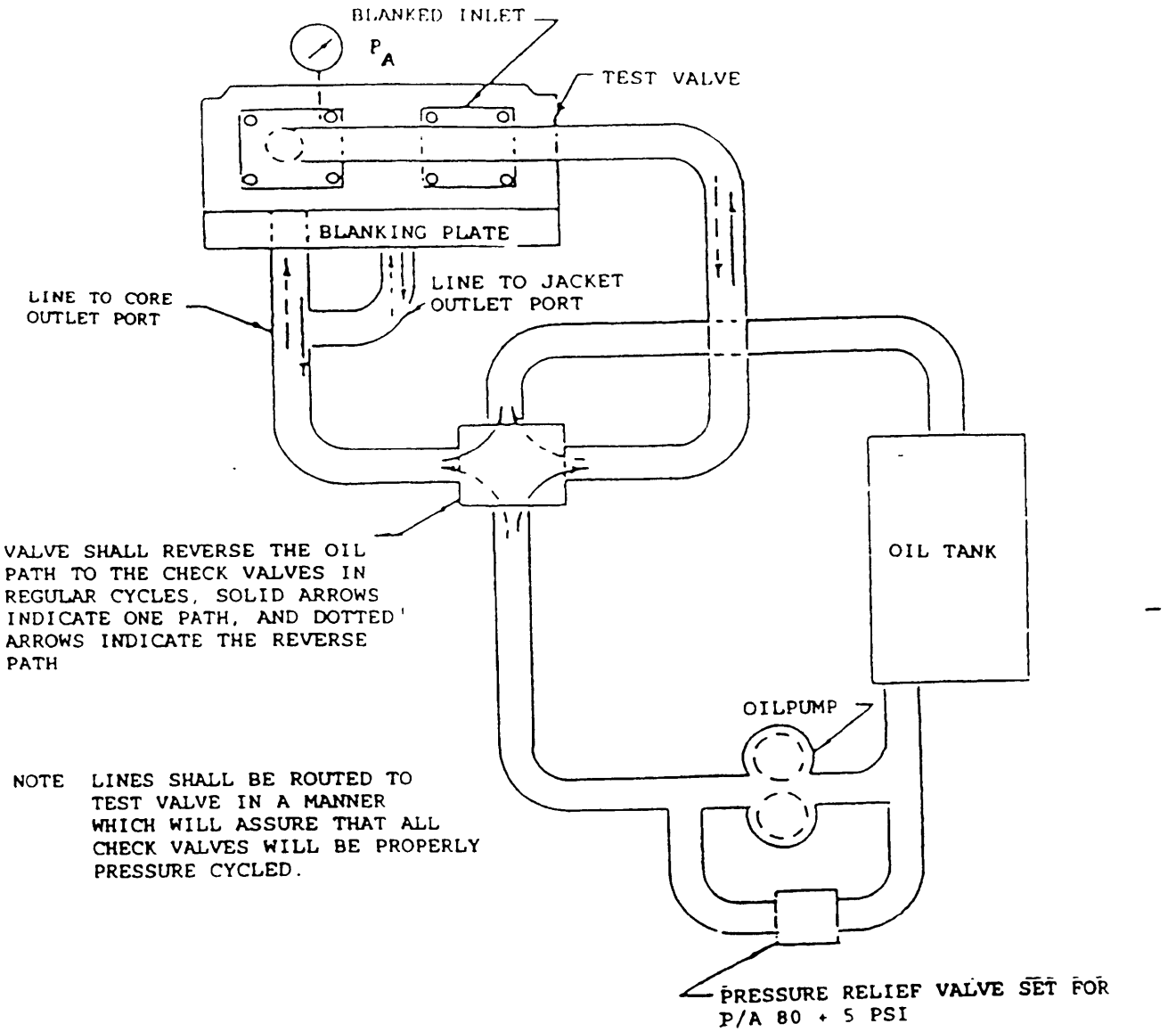

FIGURE 4. Endurance check of test valves

5.3 Marking. In addition to any specified marking required by the contract or order, marking shall be in accordance with MI L-STD- 129.

5.4 Inspection and test. Test of methods of preservation and packaging shall be accomplished m accordance with MIL-P-116 to ensure compliance with section 5 of this specification.

6. NOTES

(This section contains information of general or explanatory nature that maybe helpful, but is not mandatory.)

6.1 Intended use. The valves are intended for use with oil coolers conforming to MS29590 or as directed by procuring specification. The valves have temperature regulation with surge protection incorporating a pressure relief valve bypass.

6.2 Acquisition requirements. Acquisition documents must specify the following.

a Title, number, and date of specification

b. Issue of DODISS to be cited m the solicitation. and if required. the specific issue of individual documents referenced (see 2 I)

c. First article data requirements (see 6.3)

d. Desired levels of preservation, packaging, and packing (see 5 1)

e. Quantity and class of valves desired (see 1.2)

6.3 First article. When the first article inspection is required, the item will be inspected and tested in accordance with section 4 of this document. The contracting officer should include specific instructions m acquisition documents regarding arrangements for examination, test, and approval of the first article. _

6.4 Definitions.

6.4.1 Thermostat design temperature The thermostat design temperature is the approximate oil-out temperature which the valve is designed to maintain.

6.5 Data requirements. When this specification is used in acquisition and data are required to be delivered, the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DOD FAR Supplement, Part 27, Sub-Pan 27475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification are cited in the following paragraphs.

Paragraph No.	Data requirement's title	Applicable DID No.	Options
4.3.1 Test reports	DI-T-3718		-------
4.3 1	Engineering drawings	DI-E-7031	-------

(Data item descriptions related to this specification, and identified in section 6 will be approved and listed as such in DOD 5010 12-L AMSDL. Copies of data item description required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Form Center or as directed by the contracting officer.)

6.6 Subject term (key word) listing. Recommended key words are:

Oil Cooler
Pressure relief
Temperature Regulating
Valve

6.7. Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:
Air Force -99

Preparing Activity
Air Force -71

Project Number.
2935-F033