

MIL-T-5578C
 AMENDMENT 5
26 July 1983
 SUPERSEDING
 AMENDMENT 4
 26 January 1981

MILITARY SPECIFICATION

TANK, FUEL, AIRCRAFT, SELF-SEALING

This amendment forms a part of Military Specification MIL-T-5578C, dated 31 July 1963, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2, Type II, line 2: Delete "MIL-J-5624" and substitute "MIL-T-5624".

*2.1, delete and substitute:

"2.1 Government documents

"2.1.1 Specifications, standards, and handbooks Unless otherwise specified, the following specifications, standards, and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

TT-S-735 Standard Test Fluids, Hydrocarbon

Military

MIL-G-5572	Gasoline, Aviation: Grades 80/87, 100/130, 115/145
MIL-T-5624	Turbine Fuel, Aviation, Grades JP-4 and JP-5
MIL-T-6396	Tanks, Fuel, Oil, Water-Alcohol, coolant Fluid, Aircraft, Non-Self-Sealing, Removable Internal
MIL-S-7742	Screw Threads, Standard, Optimum Selected Series: General Specification for
MIL-P-8045	Plastic, Self-Sealing and Non-Self-Sealing Tank, Backing Material
MIL-S-8879	Screw Threads, Controlled Radius Root With Increased Minor Diameter; General Specification for
MIL-N-25027	Nut, Self-Locking, 250°F, 450°F, and 800°F, 125 KSI Ftu, 60 KSI Ftu and 30 KSI Ftu
MIL-P-25621	Preservation, Packaging, and Packing of Rubber and Nylon Fuel, Oil, and Water-Alcohol Cells
MIL-I-27686	Inhibitor, Icing, Fuel System
MIL-T-83133	Turbine Fuel, Aviation, Kerosene Type, Grade JP-8

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STANDARDS

Federal

FED-STD-601 Rubber: Sampling and Testing
FED-STD-791 Lubricants, Liquid Fuels, and Related Products; Methods of Testing

Military

MIL-STD-129 Marking for Shipment and Storage
MIL-STD-130 Identification Marking of US Military Property
MIL-STD-143 Standards and Specifications, Order of Precedence for The Selection of
MIL-STD-801 Inspection and Acceptance Standards for Propulsion Fluid Cells and Fittings
MIL-STD-810 Environmental Test Methods
MIL-STD-831 Test Reports, Preparation of
MS20995 Wire, Safety or Lock
MS24665 Pin, Cotter (Split)
MS29558 Fitting, "O" Ring, Circular, Compression Type, Single Groove, Tank
MS29559 Fitting, "O" Ring, Circular, Thru Bolt Type, Single Groove, Tank
MS29560 Fitting, "O" Ring, Circular, Threaded Insert Type, Single Groove, Tank
MS29562 Fitting, Attachment, Molded Tank, Thru Hole, Flush, "O" Ring, Rectangular, 10 x 16
MS29563 Fitting, Attachment, Molded Tank, Flush, "O" Ring, Rectangular, 10 x 16
MS29564 Fitting, Attachment, Molded Tank, Thru Hole, Flush, "O" Ring, Rectangular; 12x18
MS29565 Fitting, Attachment, Molded Tank, Flush, "O" Ring, Rectangular, 12x18
MS29566 Fitting, Attachment, Molded Tank, Thru Hole, Flush, "O" Ring, Oval, 8x12
MS29567 Fitting, Attachment, Molded Tank, Thru Hole, Flush, "O" Ring, Oval, 10x16
MS29568 Fitting, Attachment, Molded Tank, Flush, "O" Ring, Oval
MS29582 Flange, Attachment, Molded Tank, Recessed, Full Molded, Rectangular 12.00 x 18.00
MS33540 Safety Wiring and Cotter Pinning, General Practices for
MS33581 Fitting, O-Ring, General Features of Construction

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

PAGE 2

* 2.2, delete and substitute:

"2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence."

PAGE 3

3.5, line 3: Delete "MIL-J-5624, or both," and substitute "MIL-T-5624 and MIL-T-83133, or all three,".

* 3.6.4, delete and substitute:

"3.6.4 Fittings. Fittings shall be in accordance with MS29558 through MS29560, MS29562 through MS29568, and MS33581 as applicable. The through bolt fittings may only be used for connections where no seal is required for the bolt. All threaded holes shall be blind, incorporating replaceable or repairable self-locking steel inserts in accordance with MIL-T-6396."

* 3.6.4.1, delete and substitute:

"3.6.5 Screw threads. Screw threads shall be in accordance with MIL-T-7742 or MIL-S-8879. Pipe threads shall not be used except for permanent closures. All threaded parts shall be positively locked by safety wiring, or shall employ self-locking features conforming to MIL-N-25027. Safety wire shall be corrosion resistant steel conforming to MS209954. The method of safety and diameter of wire shall conform to MS33540. Cotter pins shall conform to MS24665. The use of cotter pins on studs, or the use of lockwasher or staking is prohibited."

3.7, add:

"(m) Fittings . . . (4.6.13)".

PAGE 4

3.9, 3.9.1, 3.9.2, and 3.9.3, delete and substitute:

"3.9 Finish. The surfaces of the cells shall be ozone resistant or suitably treated to resist the action of ozone and the fluid contained in the tanks. All steel parts shall be of corrosion resistant alloys or suitably protected to satisfy a 120-hour salt fog test in accordance with MIL-STD-810. Cadmium plating shall not be used on any parts which come into contact with fuel. Aluminum alloy parts shall be anodized or chemically film treated, except for fully molded inserts. The anodize coating may be removed locally to satisfy electrical bonding requirements."

Add:

"3.10.3 Preformed packing. Where 'O' rings are required to seal tank fittings, the MS part number of the applicable 'O' ring shall be marked adjacent to or on the fitting where it can be read by maintenance personnel."

3.11(c), delete and substitute:

"(c) Specification MIL-T-5578C, Type , Class , Style Protection Level".

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* 4.1, first and second sentences: Delete and substitute "Unless otherwise specified in the contract or purchase 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."

* 4.3.1 , delete and substitute:

"4.3.1 Phase I preproduction testing. For the purpose of this specification, phase I tests are those tests accomplished on samples of the constructions (see 6.8) to be used in the manufacture of self-sealing or dual-construction fuel cells."

PAGE 5

* 4.3.1.1, last sentence: Delete and substitute "Any variations in the basic construction must be approved by the procuring activity and shall be indicated by a suitable dash numbering system."

4.3.1.2(b): Delete "Inner-layer ply" and substitute "Material sample tests".

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* 4.3.2.1, second sentence: Delete and substitute "The tank or tanks shall be of approved constructions (see 6.9) and shall be designed to fit a specific location in a specific aircraft."

* 4.3.3.1.1, first sentence: Delete "MIL-T-9107" and substitute "MIL-STD-831".

* 4.3.3.1.2: Delete.

* 4.3.3.2, first sentence: Delete "MIL-T-9107" and substitute "MIL-STD-831".

* 4.4.1, add:

"(e) Leakage (4.6.1.5)".

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4.4.2.4, line 4: Delete "Bulletin No. 112" and substitute "MIL-STD-801".

4.5.1, line 2: Delete "MIL-S-3136" and substitute "TT-S-735".

4.5.1.1, line 1: Delete "MIL-S-3136" and substitute "TT-S-735".

4.5.1.2, line 1: Delete "MIL-S-3136" and substitute "TT-S-735".

4.6.1.2, line 3: Delete "Bulletin No. 112" and substitute "MIL-STD-801".

* Add:

"4.6.1.5 Leakage. The tank, with all openings sealed and with a minimum of external support necessary to maintain the tank shape, shall be subjected to the internal air pressure specified in the manufacturer's approved inspection specification. Then the tank shall be completely submerged in water or covered with soapy water. Leakage, as indicated by the presence of air bubbles forming in the water or soapy water solution, shall be cause for rejection. If approved by the acquisition activity, other acceptable leakage tests include a phenolphthalein-ammonia test or an unconfined liquid stand test using the appropriate test fluid applied at room temperature for 24 hours with a head pressure on the bottom of the tank which is mutually satisfactory to both the tank and the airframe manufacturers. Alternate leakage tests acceptable to the acquisition activity may also be used."

4.6.2,
third sentence: Delete and substitute "During the filling process, the capacity test of 4.6.7 shall be performed on class B tanks to determine compliance with 3.5.2."

last sentence: Delete "Bulletin No. 107" and substitute "MIL-STD-801".

PAGE 13

4.6.3, line 3: Delete "Bulletin No. 107" and substitute "MIL-STD-801".

4.6.4, delete and substitute:

"4.6.4 Material sample tests. Samples of the materials used in the construction intended for protection levels (A) and (B) and of the self-sealing portions of protection levels (C) and (D) shall be subjected to the following tests:"

4.6.4.2, first sentence: Delete and substitute "The tensile strength of the inner-layer ply, without barrier, shall be determined in accordance with Federal Test Method Standard No. 601, Method 4111, before and after immersion in a solution of 25 percent MIL-I-27686 inhibitor and 75 percent waters by volume, for 72 hours at a temperature of 135°F ± 3°F."

PAGE 16

4.6.4.3.2, NOTE, line 3: Delete "46" and substitute "24".

4.6.5.1,
line 1: Delete "cells" and substitute "No. 3 test cell".

line 3: Delete "cells" and substitute "cell".

line 5: Delete "cells" and substitute "cell".

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4.6.5.2, line 1: Delete "The phase" and substitute "The No. 3 phase".

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4.6.5.5, delete and substitute:

"4.6.5.5 Phase I stand test. Following the slosh resistance test (4.6.5.2), a 90-day test shall be conducted on the No. 3 test cell. For this test, the cell shall be properly supported, completely filled with type III test fluid and allowed to stand. The cell shall be carefully examined every 30 days for evidence of failure. After 90 days, if no evidence of failure is found, the cell shall be considered as satisfactorily completing the test."

PAGE 19

4.6.7, delete and substitute:

"4.6.7 Capacity. For class A cells, the airframe manufacturer shall have the responsibility for compliance with 3.5.2. For class B cells, the supplier will perform a capacity check of the first 10 production cells and of subsequent cells selected for the stand test of 4.6.2. For this test, the cell shall be slowly filled to capacity with type III fluid. The volume in gallons and the head in inches shall be recorded at a sufficient number of points during the filling to construct a head vs. volume curve."

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4.6.10.1, line 5: Delete "Bulletin No. 107" and substitute "MIL-STD-801".

PAGE 21

Add :

"4.6.13 Fitting tests. The fittings shall demonstrate basic integrity by satisfying the test requirements of MIL-T-6396 for fittings and inserts."

5.1, 5.1.1, 5.1.1.1, 5.1.1.2, and 5.1.2, delete and substitute:

"5.1 Preservation, packaging, and packing. Preservation, packaging, and packing shall be in accordance with MIL-P-25621, level A, B, and C, as specified in the order."

5.2, 5.2.1, 5.2.2, and 5.2.3, delete and substitute:

"5.2 Marking. Markings shall be in accordance with MIL-STD-129 and MIL-P-25621."

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5.3 and 5.4: Delete.

* 6.3.1, delete and substitute:

"6.3.1 Manufacturer. This term and the terms tank manufacturer and supplier are used interchangeably to indicate the particular plant where the tank is manufactured ".