

MIL-F-5504B  
AMENDMENT 3  
23 February 1982  
SUPERSEDING  
AMENDMENT 2  
3 APRIL 1969

## MILITARY SPECIFICATION

### FILTERS AND FILTER ELEMENTS, FLUID PRESSURE, HYDRAULIC MICRONIC TYPE

This amendment forms a part of Military specification MIL-F-5504B, dated 17 October 1958, and is approved for use by all Departments and Agencies of the Department of Defense.

Page 2, paragraph 2.1:

(a) Under Military Specifications delete reference to Specification MIL-D-5028 and add the following: "MIL-D-1000 Drawings, Engineering and Associated Lists."

(b) Under Military Specifications delete reference to Specification MIL-P-5514 and add the following: "MIL-G-5514 Gland Design; Packings, Hydraulic, General Requirements for."

(c) Under Military Standards add the following: "MIL-STD-143 Specifications and Standards, Order of Precedence for the Selection of."

Page 3:

(a) Paragraph 2.1: Delete "Publications" and reference to Air Force-Navy Aeronautical Bulletin No. 143.

(b) Paragraph 3.2.4, seventh and eighth lines: Delete "ANA Bulletin No. 143" and substitute "Standard MIL-STD-143."

Page 4, paragraph 3.3.9, third and fourth lines: Delete "MIL-P-5514" and substitute "MIL-G-5514."

Page 5, paragraph 3.4, eighth line: Delete "MIL-D-5028" and substitute "MIL-D-1000."

Page 6:

(a) Add the following new paragraph under section 4:

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"4.01 Responsibility for inspection. 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. 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."

(b) Paragraph 4.1: Delete the following:

"(b) Acceptance tests: Acceptance tests are those tests performed on individual lots which have been submitted for acceptance."

and substitute:

"(b) Quality conformance inspection: Quality conformance inspection consists of those tests performed on individual lots which have been submitted for acceptance."

Page 7:

(a) Paragraph 4.3: Delete, and substitute the following:

"4.3 Quality conformance inspection. The quality conformance inspection shall consist of individual tests."

(b) Paragraph 4.3.1.1: Add the following:

"(c) Relief-valve operation....(4.5.7)."

\* (c) Paragraph 4.3.1.2(b): After bubble test add "line and reservoir filter elements."

(d) Paragraph 4.3.2: Delete the entire paragraph.

Pages 7 and 8, paragraph 4.4.2: Delete, and substitute:

"4.4.2 Temperature. Unless otherwise specified, the tests shall be conducted with the oil at a temperature of 90° to 100° F and Solox 190, or equivalent, at a temperature of 65° to 75° F. The temperature of the fluids during each test specified herein shall be noted in the test report."

Page 9, figure 1:

(a) Delete "FLUID CONFORMING TO SPECIFICATION MIL-H-5606" and substitute "SOLOX 190 OR EQUIVALENT."

(b) Delete "SOLAX" and substitute "SOLOX 190 OR EQUIVALENT."

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Page 10, paragraph 4.5.7 and 4.5.7.1: Delete, and substitute the following:

"4.5.7 Relief-valve operation.

"4.5.7.1 Line-type filter.

"4.5.7.1.1 Qualification. To test line-type filters for relief valve operation, an effective means for stopping flow through the filtering element shall be provided. By means of a power-driven pump, pressure shall be applied to the inlet port of the filter, beginning with a pressure of 45 psi and increasing in increments of 5 psi or less until cracking pressure of the relief valve in the filter being tested is reached. At each increment the pressure shall be maintained constant for 5 minutes. At each pressure increment, time shall not be considered 'in' or leakage noted until the beginning of the third minute. The leakage rate, as noted during the last 3 minutes of each pressure increment, shall be recorded. The pressure at which the leakage rate through the valve amounts to 4.0 cc (approximately 80 drops) per minute shall be considered as cracking pressure. Cracking pressure for line filters shall occur at 50 +5 psi. Leakage up to 40 psi shall not exceed 2.0 cc (approximately 40 drops) per minute. Pressure shall be increased until rate flow through the filter is obtained. Rated flow shall occur at a pressure differential between inlet and outlet ports not exceeding 80 psi. Pressure shall be reduced in 5 psi decrements, as above. The pressure at which the leakage rate through the valve does not exceed 2.0 cc (approximately 40 drops) per minute shall be considered reseating pressure, and shall be not less than 32 psi.

"4.5.7.1.2 Quality conformance.

- "(a) Line type filter housings shall be tested for relief valve operation. By means of a power driven pump, pressure shall be applied to the inlet port of the filter housing. At each pressure increment, the pressure shall be maintained constant for 3 minutes except that, for the first increment, adequate time shall be allowed to permit all cavities to fill with fluid and steady state conditions to be obtained.
- "(b) The pressure at the inlet port shall initially be raised to 45 psi. If steady state leakage through the relief valve is less than 2.0 cc (approximately 40 drops) per minute, the test shall be continued with item (d).
- "(c) If leakage is between 2.0 cc (approximately 40 drops) and 4.0 cc (approximately 80 drops) per minute, the inlet pressure shall be dropped below 32 psi and then raised to 40 psi. Leakage at 40 psi shall not exceed 2.0 cc per minute.
- "(d) The inlet pressure shall then be raised to 55 psi. Flow through the relief valve shall exceed 4.0 cc per minute. The inlet pressure shall be further increased to produce rated flow through the relief valve. The differential pressure between the inlet and outlet port shall not exceed 80 psi. The inlet pressure shall then be reduced to 32 psi. Leakage through the relief valve shall be less than 2.0 cc per minute.

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"4.5.7.2 Vent-type filter. The test vent-type filters for relief valve operation, an effective means for stopping flow through the filtering element shall be provided. By means of a power-driven pump, pressure shall be applied to the inlet port of the filter, beginning with a pressure of 1 psi and increasing in increments of 1 psi or less until cracking pressure of the relief valve in the filter being tested is reached. At each increment the pressure shall be maintained constant for 5 minutes. At each pressure increment, time shall not be considered 'in' or leakage noted until the beginning of the third minute. The leakage rate, as noted during the last 3 minutes of each pressure increment, shall be recorded. The pressure at which the leakage rate through the valve amounts at least 4.0 cc (approximately 80 drops) per minute shall be considered as cracking pressure. Cracking pressure for vent-type filters shall occur between 4 and 5 psi. Leakage up to 4 psi shall not exceed 4.0 cc (approximately 80 drops) per minute."

Page 19:

(a) Paragraph 4.5.9.5(d), fourth line: Delete ".02, .02" and substitute ".02, .05."

(b) Paragraph 4.5.9.5(e), sixth line: Delete "0.14" and substitute "0.60."

(c) Paragraph 4.5.9.5(g), first line: Delete "0.14" and substitute "0.60."

Page 21, paragraph 4.5.10, eleventh line: After ".05 second.", change period to comma and add, "and the rate of pressure rise shall be between 200,000 and 300,000 psi per second."

Page 24, paragraph 6.1: Delete, and substitute:

"6.1 Intended use. The filters covered by this specification are intended for use in aircraft hydraulic systems operating with hydraulic oil conforming to MIL-H-5606, at temperatures from -65° F to +160° F and at operating pressure not exceeding 3000 psi."

Page 25:

(a) Paragraph 6.4.1, eleventh through fifteenth lines: Delete, and substitute:

"the Naval Air Systems Command, Navy Department, Washington, DC 20360. However, information pertaining to qualification of products may be obtained from the Naval Air Development Center, AMD, Code MAEF, Johnsville, Warminster, Pennsylvania 18974."

(b) Delete "Notice" paragraph.

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The margins of this amendment are marked with an asterisk or vertical lines to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

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