

INCH-POUND

MIL-F-24402E(SH)  
AMENDMENT 2  
26 May 1995  
SUPERSEDING  
AMENDMENT 1  
7 July 1992

MILITARY SPECIFICATION

FILTER (HYDRAULIC), FILTER ELEMENTS (HIGH EFFICIENCY), AND  
FILTER DIFFERENTIAL PRESSURE INDICATORS,  
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-F-24402E(SH), Dated 3 April 1990, and is approved for use by the Naval Sea Systems Command, Department of the Navy and is available for use by all Department and Agencies of the Department of Defense.

PAGE 2

Add the following specifications to the Military Specifications Listing:

MIL-F-24704 - Flanges, Four Bolt Square, Hydraulic, General Specification for.  
MIL-F-24704/4 - Flanges, Four Bolt Square, Blind For Hydraulic Systems.  
MIL-F-24704/5 - Flanges, Four Bolt, Insert Sleeves For Hydraulic Systems.

PAGE 3

\* Add the following standard to the American Society For Testing And Materials (ASTM) :

A 342 - Standard Test Methods for Permeability of Feebly Magnetic Materials.

PAGE 4

\* 3.4: Add the following:

" The aluminum parts of the filter elements are exempted from anodizing requirements. Plated socket head cap screws shall not be utilized".

AMSC FSC 4330  
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\* Add the following new paragraph:

"3.3.4 Filter element magnetic permeability. The size B and size C filter elements shall have a relative magnetic permeability of less than 2.0 when tested in accordance with ASTM-A432."

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3.4.2.1, Line 5: Delete " housings " and substitute "housing bowls".

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3.6.3: Delete item "(d)" in its entirety.

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Table I:

(a). Delete footnote 1/ from the check valve leakage test.

\* (b). Add the following test after "Examination" under "Element no. 1":

| Examination and tests | Requirement                           | Test method |
|-----------------------|---------------------------------------|-------------|
| <u>Element only</u>   |                                       |             |
| Element no. 1         |                                       |             |
| Examination           | 3.3.3, 3.4.1.3, 3.4.3, 3.6.2, and 3.7 | 4.6         |
| Magnetic permeability | 3.3.4                                 | 4.7.2.9     |

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Table II, Sampling: Delete "Pressure point 3/" and substitute "Clean element pressure drop 3/".

Table II, **Footnote 1/** : Delete and substitute "Fluid, temperature, and viscosity specified in 4.5.1 do not apply. For leakage tests with other than MIL-L-17331 fluid, an increased leakage is permitted only when specifically approved by the qualifying activity."

4.4.2 Delete "and 4.4.2.2" and substitute "through 4.4.2.3".

4.4.2.1 and 4.4.2.2: Delete and add the following paragraphs.

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"4.4.2.1 Sampling for examination and tests. For the purpose of sampling, filter elements shall be grouped into lots not exceeding 501 pieces. A lot is defined as elements produced at one facility, fabricated by the same process, which are of same material, size, type and part number."

"4.4.2.2 Examination and bubble point test. As a minimum the manufacturer shall select a sample quantity from each lot of filter elements in accordance with table III and inspect them in accordance with table II. If one or more defectes are found in any sample, the entire lot shall be rejected. The manufacturer has the option of screening 1002 of the rejected lot for the defective characteristic(s) or providing a new lot which shall be inspected in accordance with the sampling plan contained herein."

"4.4.2.3 Clean element pressure drop test. As a minimum the manufacturer shall select a sample quantity from each lot of filter elements in accordance with table III and inspect them in accordance with table II. Failure of the test shall be cause for rejection of the element lot."

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Table III: Delete and substitute:

"TABLE III. Sampling plan for filter elements.

| Lot size | Sample                       | Size                        |
|----------|------------------------------|-----------------------------|
|          | Examination and bubble point | Clean element pressure drop |
| 1 - 29   | All                          | 1                           |
| 30 - 501 | 29                           | 1                           |

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4.7.2.5: Add the following:

"An acceptable pressure build-up and collapse test setup, with cleanup device installed, is shown on figure 3."

4.7.2.5.1: Delete and substitute:

"4.7.2.5.1 Clean element pressure drop and Pressure buildup.

(a) Clean element pressure drop. With the full flow dummy element installed in a test housing, the housing shall be installed in the forward flow direction. A test flow (see table I of MIL-F-24402/4) shall be established at the temperature determined to obtain 100 cst oil viscosity, and the differential pressure shall be recorded. This is the tare value. The dummy element shall be removed and replaced with the test element. A test flow (see table I of MIL-F-244402/4) shall be established at the temperature used for the tare value. The recorded differential pressure is gross value. Difference between the tare and gross value is the pressure drop of the clean element. The clean element pressure drop shall be no greater than the value specified in the applicable specification sheet.

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(b) Pressure buildup. With the element in a test housing, standardized air cleaner (A-C) test dust shall be added immediately upstream of the filter element at 4-minute interval. The amount of dust added at each interval shall be as specified in the specification sheet for filter elements. The temperature of the test fluid shall be maintained as specified in 4.5.1. Pressure differential, flow rate, and temperature shall be recorded 2 minutes after each dust addition. The pressure differential at test flow (see table I of MIL-F-24402/4) shall be not greater than the value specified in the applicable specification sheet after the specified amount of dust has been added. Additional dust shall be added until either a differential pressure of 150 **lb/in<sup>2</sup>** is obtained across the element at test flow or until twice the minimum weight of test dust has been added. Fluid flow shall not be interrupted during pressure build-up testing. Add intervals, amount of dust added, and pressure shall be included in the qualification test report. Curve showing the differential pressure across the element versus weight added in gram of A-C fine test dust shall be included in the qualification test report. Cleanup filters are allowed in the test stand during pressure build-up testing at the contractor's facilities. When testing is conducted by the Government, cleanup element efficiency shall be equal to or better than that required for MIL-F-27656 elements."

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\* Add the following new paragraph:

"4.7.2.9 Magnetic permeability. The filter element shall be subjected to a magnetic permeability test as specified in ASTM-A432. Nonconformance to the requirement of 3.3.4 shall constitute failure of this test."

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5.1.2: Delete in its entirety.

PAGE 27

5.2.2.1: At the end of sentence, Add "of MIL-P-116"

NOTE: 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 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.

Preparing activity  
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