

MIL-F-24402D(SH)
AMENDMENT 1
24 October 1983

MILITARY SPECIFICATION

FILTERS (HYDRAULIC), FILTER ELEMENTS (HIGH EFFICIENCY),
AND FILTER DIFFERENTIAL PRESSURE INDICATORS

This amendment forms a part of Military Specification MIL-F-24402D(SH), dated 12 April 1982, and is approved for use by the Naval Sea Systems Command, Department of the Navy and is available for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.1, line 1: Delete "hydraulic filters", and substitute "hydraulic filter assemblies".

At bottom of page, beneficial comments, line 3: Delete "3112" and substitute "5523".

PAGE 2

1.2.1.3, line 7: Delete "4-rated fatigue pressure of 4000 lb/in²".

PAGE 4

2.1.1, under "STANDARDS, MILITARY": Add "MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes."

PAGE 8

Add as new paragraph, 3.2.9.1:

"3.2.9.1 Types 2N and 2R fatigue rated assemblies shall incorporate right/left-hand outlet porting configuration as specified herein. Unless otherwise specified (see 6.2), each filter assembly shall be assembled in the right-hand outlet porting configuration. A plugging device shall be provided to seal the unused outlet port and shall mate with the 4-bolt flange head connection. When specified (see 6.2), the filter assembly shall be assembled in the left-hand outlet porting configuration. The right/left-hand outlet porting configuration does not apply to non-fatigue rated assemblies."

3.2.11, line 1: Delete "elements", and substitute "parts".

3.3.1, fourth sentence: Delete and substitute: "Cadmium or zinc plating shall not be used for surface protection on parts in contact with the oil."

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3.4.1: Add: "Type 3N and 3R assemblies shall have an indicator installed in a manner that would allow it to be rotated 180 degrees to permit the indication to be viewed from either side of the assembly."

PAGE 13

3.5.9, line 1: Delete "flow", and substitute "pressure".

PAGE 14

3.7.1.5, second sentence: Delete and substitute: "Military standard hardware and aluminum parts internal to the filter assembly are exempt from this marking requirement."

PAGE 17

Add as new paragraphs 4.3.2 through 4.3.2.2:

"4.3.2 Qualification by similarity. Qualification on the basis of similarity will be considered by the Naval Sea Systems Command as specified in 4.3.2.1 through 4.3.2.2.

"4.3.2.1 Assemblies.

"4.3.2.1.1 Qualification approval without additional testing will be considered for type 1N, 2N and 3N assemblies based on qualification approval of similar type 1R, 2R and 3R assemblies where the only change is the deletion of the relief valve.

"4.3.2.1.2 For non-fatigue rated assemblies, qualification approval for type 1R, 2R and 3R will be considered based on relief valve qualification testing and prior qualification of a similar type 1N, 2N or 3N assembly.

"4.3.2.1.3 Qualification approval for an assembly with different forms of pressure indicators can be extended from the original assembly qualification provided the additional forms of pressure indicators have passed qualification tests. The rated fatigue pressure of the indicator must be at least equivalent to the fatigue rating of the assembly.

"4.3.2.2 Elements. Test for one size element may be accepted as applicable to another size element when more than one size element is being tested concurrently. This acceptance based on similarity shall be subject to the following restrictions:

- (a) Identical type media is used in the elements.
- (b) Generally, acceptance by similarity will be limited to media migration and fluid compatibility.

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- (c) When more than two sizes of element are being tested concurrently, flow fatigue and degree of filtration for all sizes may be based on testing on the smallest and largest size elements.
- (d) Acceptance based on similarity is at the discretion of the engineering representative of the qualifying activity witnessing the tests."

4.4: Delete and substitute:

"4.4 Quality conformance inspection. Quality conformance inspection shall consist of the following:

- (a) Individual inspection (see 4.4.1).
- (b) Sampling tests (see 4.4.2)."

Add as new paragraphs 4.4.1 and 4.4.2:

"4.4.1 Individual inspection. The individual inspection, specified in table III, shall be conducted on each filter housing, element and differential pressure indicator. Any filter housing, element, or pressure indicator containing a defect shall be rejected.

"4.4.2 Sampling tests (filter element). A sample shall be selected from each inspection lot (see 4.4.3) in accordance with MIL-STD-105 using special inspection level S-1. The sampling tests, specified in table III, shall be conducted on each sample filter element. Failure of the test shall be cause for rejection of the filter element inspection lot."

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TABLE III: Delete and substitute:

"TABLE III. Quality conformance inspection.

Individual inspection			
Item	Examination and tests	Requirement paragraph	Test paragraph
Filter housings	Examination	3.2, 3.6.1, 3.7, and 3.10	4.6
	Proof pressure ^{1/} ^{2/}	3.5.5	4.7.1.2
	Relief valve operation	3.4.3	4.7.1.5.2
	Differential pressure indicator operation ^{1/}	3.4.1 and 3.7.3	4.7.1.4
	Selector valve operation and leakage	3.4.4	4.7.1.6.2
	Check valve leakage	3.4.4.1	4.7.1.7
Filter elements	Examination	3.3.2, 3.6.1 through 3.6.5, 3.7.2 and 3.10	4.6
	Bubble point	3.3.2	4.7.2.1.3
Differential pressure indicators	Examination	3.4.1, 3.6.1 and 3.7.3	4.6
	Indicator operation	3.4.1.1, 3.4.1.2 and 3.4.1.3	4.7.1.4.2 and 4.7.1.4.3
Sampling tests			
Filter elements	Filter element ^{3/} pressure drop	3.5.7.3	4.7.2.5.1

^{1/} Fluid temperature and viscosity specified in 4.5.1 do not apply. Fluid in accordance with MIL-H-5606 may be used.

^{2/} Proof pressure test shall be conducted prior to all other tests.

^{3/} Where test fluid other than MIL-L-17331 is used for testing, the test data shall be comparison converted to MIL-L-17331."

PAGE 31

6.2(b), second sentence: Delete and substitute: "For type 2 fatigue rated assemblies, specify when left-hand outlet porting configuration is required (see 3.2.9.1)."

6.3, line 10: Delete "SEA 3112" and substitute "SEA 5523".

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PAGE 33

Figure 1: Delete and substitute the attached figure 1.

PAGE 38

Figure 7: Delete and substitute the attached figure 7.

PAGES 40 AND 41

Figure 9: Delete and substitute the attached figure 9.

PAGE 43

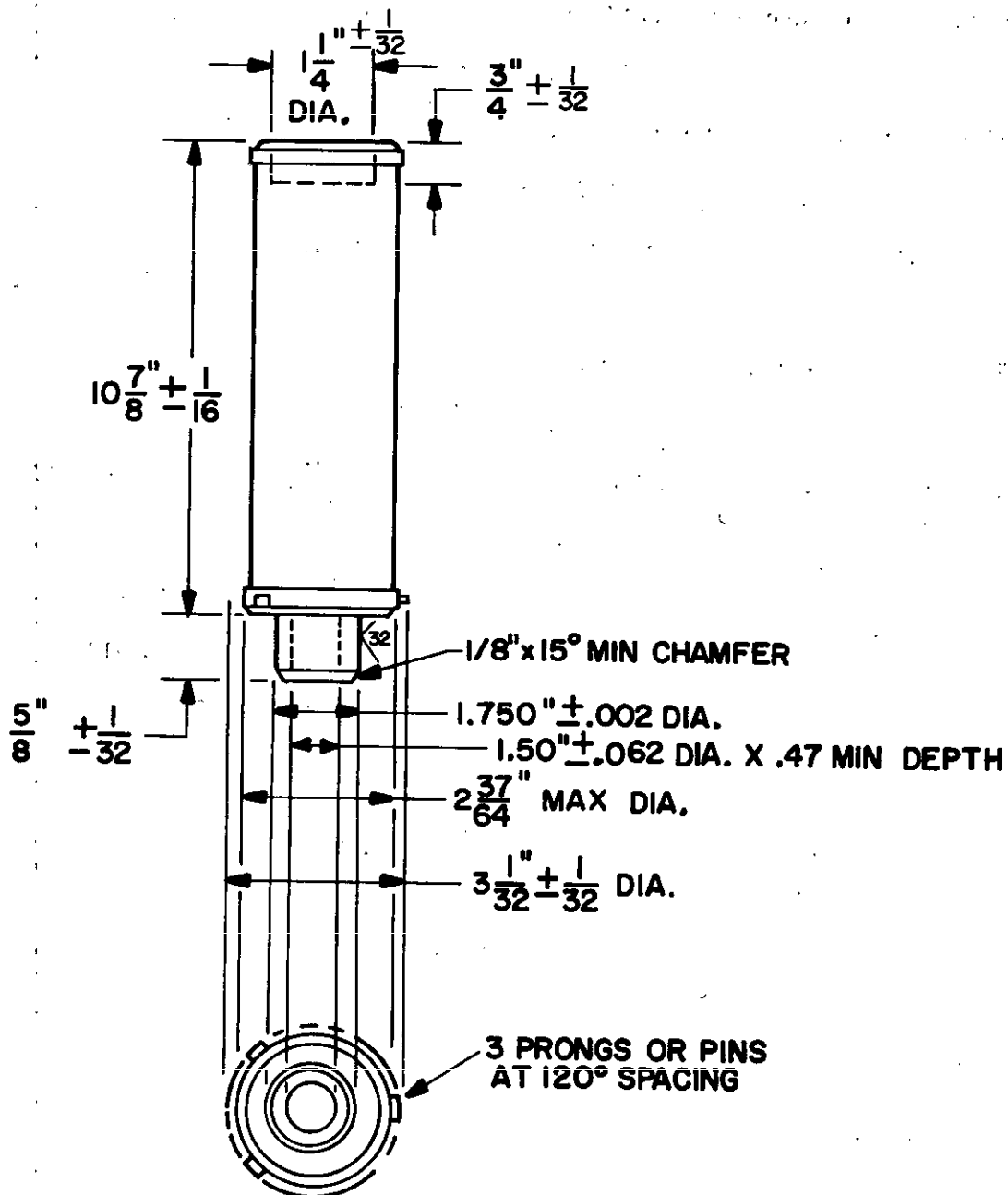
Figure 11: Delete and substitute the attached figure 11.

LAST PAGE

DD 1426, Standardization Document Improvement Proposal: Delete "(SEA 3112)" and substitute "(SEA 5523)".

Preparing activity:
Navy - SH
(Project 4330-N031)

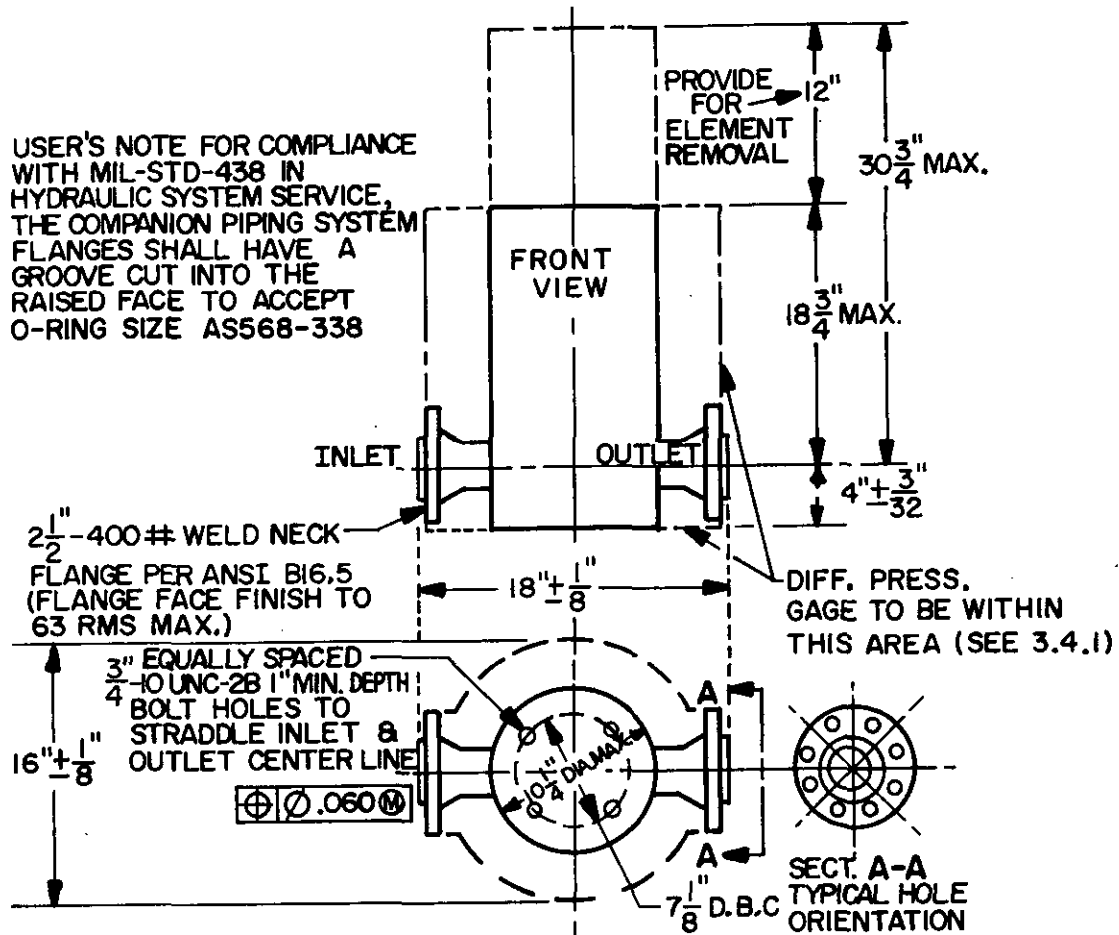
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SH 9855 .

FIGURE 1. Filter elements dimensions, size A.

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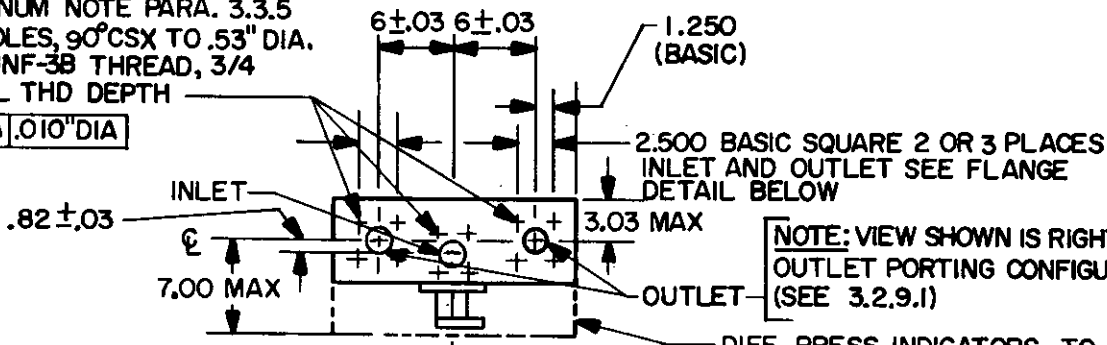
SH 10522A

FIGURE 7. Type 3N and 3R, class BF filter assembly outline dimensions.

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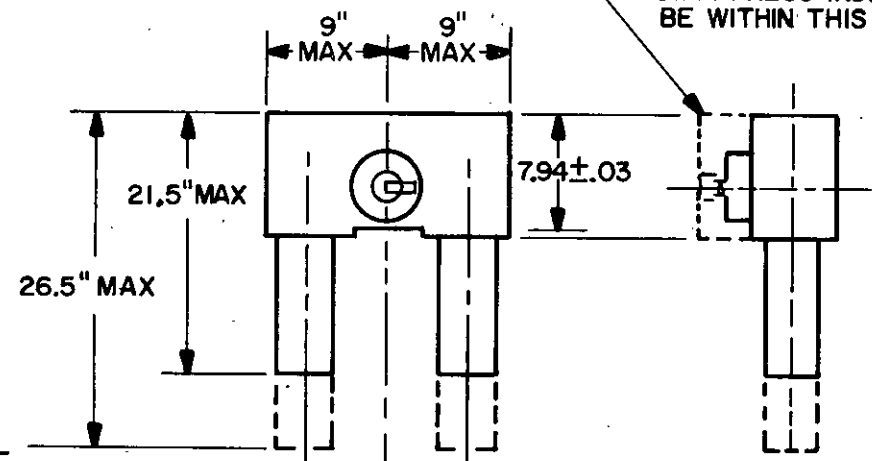
IF ALUMINUM NOTE PARA. 3.3.5
8 OR 12 HOLES, 90°CSX TO .53" DIA.
1/2 20 UNF-3B THREAD, 3/4
MIN FULL THD DEPTH

\oplus A .010" DIA



NOTE: VIEW SHOWN IS RIGHT/LEF HAND
OUTLET PORTING CONFIGURATION.
(SEE 3.2.9.1)

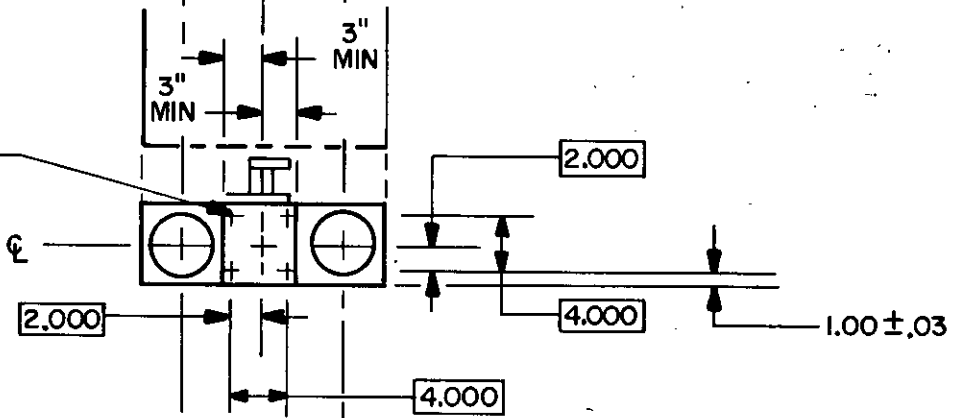
DIFF. PRESS INDICATORS TO
BE WITHIN THIS AREA



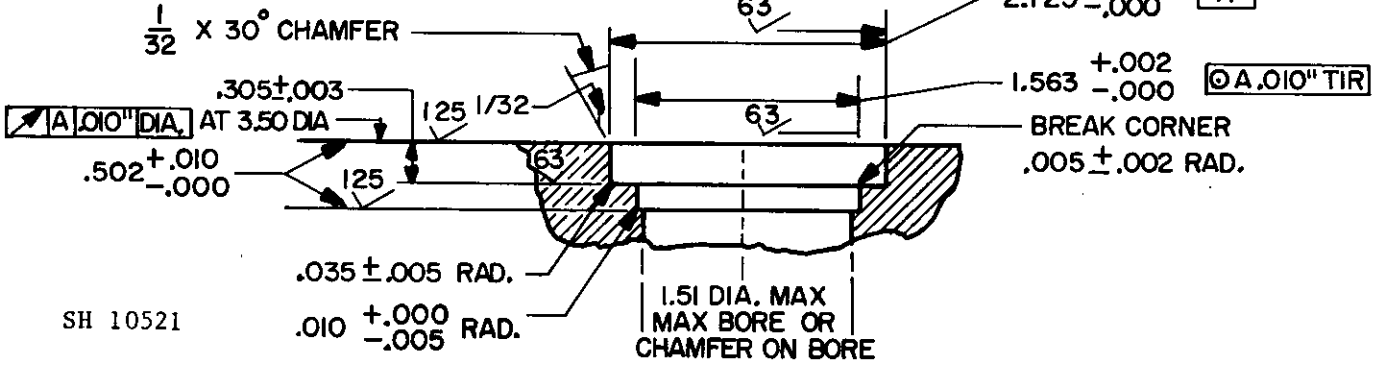
ELEMENT REMOVAL
CLEARANCE

IF ALUMINUM SEE 3.3.5
4 HOLES, 1/2-20 UNF-3B
THREAD .800 MIN FULL
THD DEPTH

\oplus \ominus .030 M



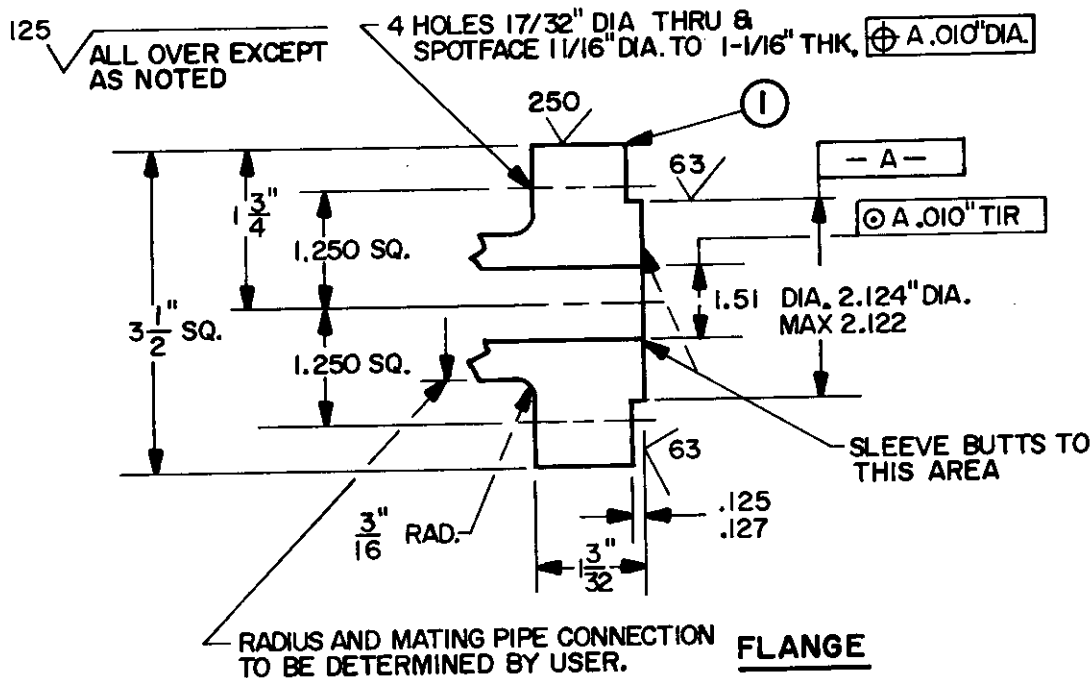
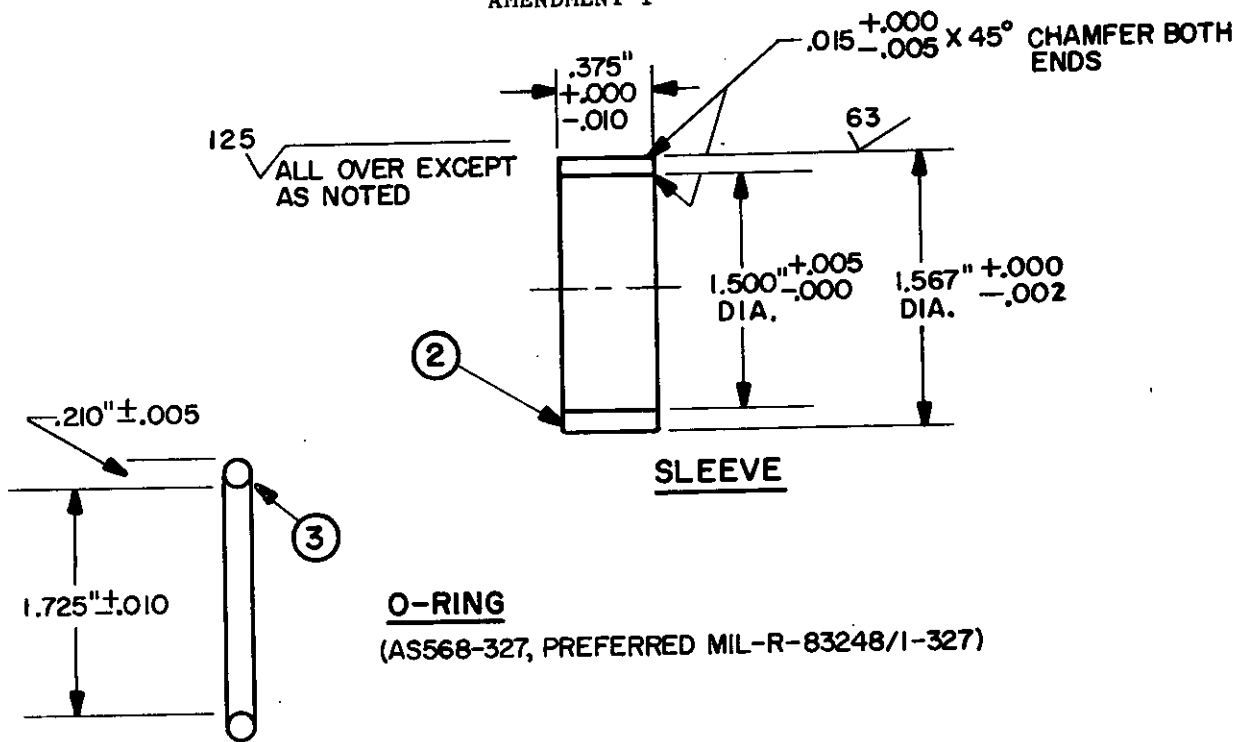
PORTING DETAIL FOR MATING FLANGES



SH 10521

FIGURE 9. Type 2N and 2R, class BF filter manifold assembly outline dimensions.

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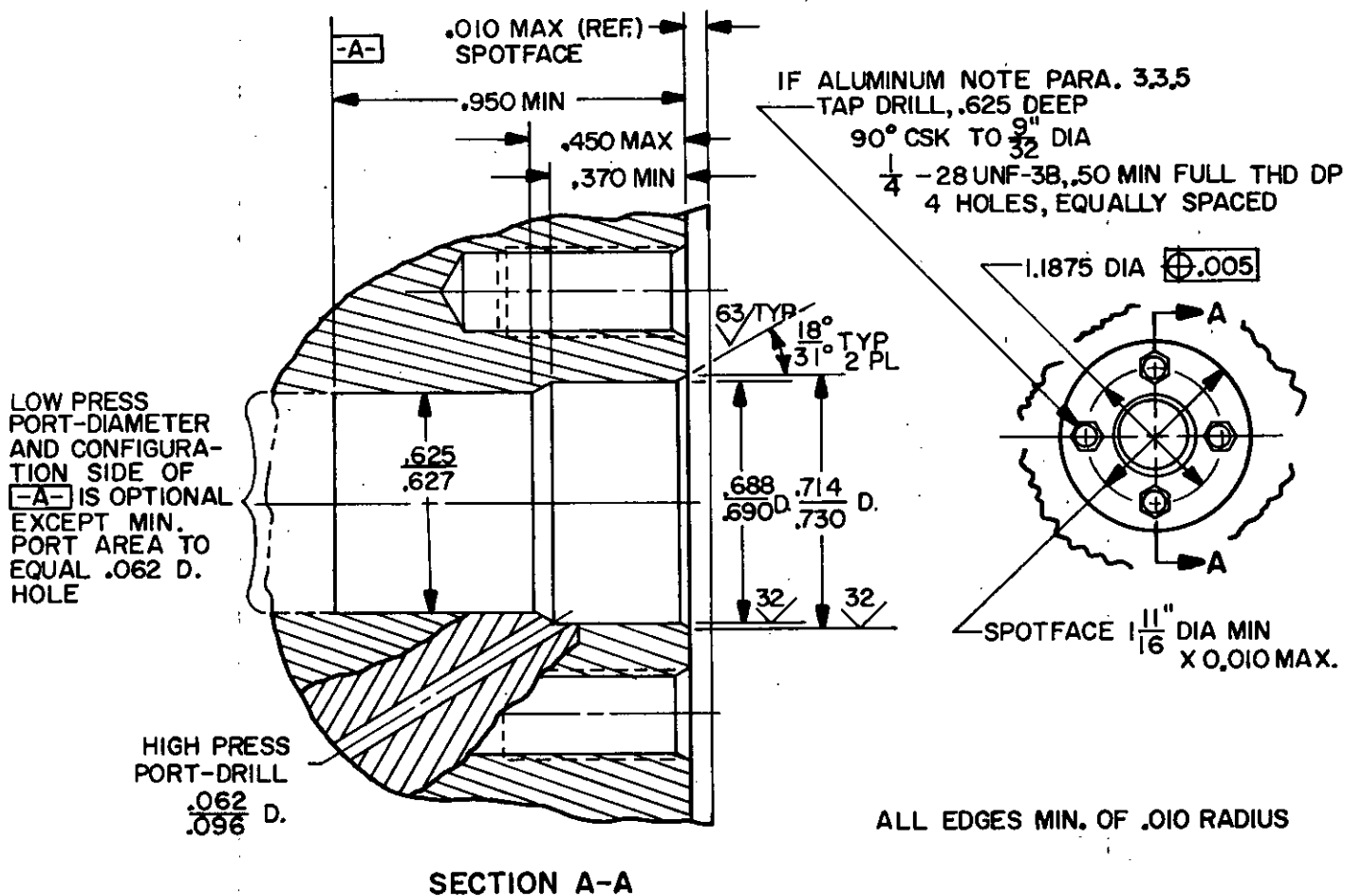
USER'S NOTES:

- (1) PIECES 1, 2, AND 3 PROVIDED BY USER.
- (2) FOR ASSEMBLY, PIECE 2 OUTSIDE DIAMETER PASSES INTO MATING FLANGE DETAIL ON FILTER ASSEMBLY DIMENSION 1.563 +.002 -.000.
- (3) O-RING FITS GROOVE CREATED BY SLEEVE O.D. AND MATING FLANGE DETAIL DIMENSIONS 2.125 +.002 -.000.

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FIGURE 9. Type 2N and 2R, class BF filter manifold assembly outline dimensions. - Continued

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LIMITS OF PRESS PORT PENETRATION FROM SPOTFACE SURFACE

	MIN	MAX
HIGH	.220	.440
LOW	.970	—

SH 10156

FIGURE 11. Differential pressure indicator port.