

MIL-F-22606B (SHIPS)
AMENDMENT 6
10 August 1977
SUPERSEDING
AMENDMENT 5
17 July 1974

MILITARY SPECIFICATION
FLASK, COMPRESSED GAS, AND END PLUGS;
FOR AIR, OXYGEN, AND NITROGEN

This amendment forms a part of Military Specification MIL-F-22606B (SHIPS), dated 12 June 1964 and is approved for use by the Naval Sea Systems Command and is available for use by all Departments and Agencies of the Department of Defense.

PAGE 2

2.1, under "SPECIFICATIONS, FEDERAL" add:

- "O-S-642 - Sodium Phosphate, Tribasic, Technical; Anhydrous, Dodecahydrate, and Monohydrate.
- "QQ-N-281 - Nickel-Copper-Alloy Bar, Plate, Rod, Sheet, Strip, Wire, Forgings, and Structural and Special Shaped Sections".

under "SPECIFICATIONS, MILITARY" add:

- "MIL-R-25897 - Rubber, High-Temperature, Fluid-Resistant.
- "MIL-C-81302 - Cleaning Compound, Solvent, Trichlorotrifluoroethane."

under "PUBLICATIONS", in title of NAVSHIPS 250-692-2: Delete "Radiographic" and substitute "X-Ray".

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2.2, under "AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)" add:

- "A285 - Specification for Low and Intermediate Tensile Strength Carbon-Steel Plates of Flange and Firebox Qualities."

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Add as paragraph 3.1.2.1:

"3.1.2.1 Inlet-outlet plugs for oxygen flasks shall be of nickel-copper in accordance with QQ-N-281, class A."

3.1.3, Delete and substitute:

"3.1.3 O-rings and backup rings. Backup rings shall be made of teflon. O-rings shall be in accordance with type II of MIL-G-23652 or MIL-R-25897, class 2 selected quality. Dimensions shall conform to figure 5."

Add as paragraph 3.1.4:

"3.1.4 Oil. Oils used in the production process during fabrication shall be of a type that will fluoresce under an ultra violet light examination."

Add as paragraphs 3.3.1 and 3.3.1.1:

"3.3.1 Special sizes and configurations. Flasks required for replacement in old ships or for new construction which differ from the dimensional characteristics of table II shall be furnished in accordance with the capacity, working pressure, outside diameter, and length specified by the command or agency concerned (see 6.2).

"3.3.1.1 Impulse flasks for diesel propelled submarines shall conform to the characteristics and dimension of figure 8A, when required."

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Following table II: Add:

"3.3.2 Wall thickness. Flasks shall be manufactured to the design wall thickness shown in table II based on the minimum tensile strength shown in table I. However, a wall thickness less than that required by table II is acceptable provided wall thickness is equal to or greater than that shown in table IIA for the actual tensile strength of material for the flask, and all other tests and inspection requirements are met. Flasks accepted under conditions of table IIA shall not comprise more than 10 percent of any single procurement.

Table IIA - Minimum wall thickness^{1/}.

Actual tensile strength of material psi	Minimum allowable wall thickness				
	Class 3000	Class 5000			
	18 Inch o.d.	6-5/8 Inch o.d.	10-3/4 Inch o.d.	18 Inch o.d.	20 Inch o.d.
	Inch	Inch	Inch	Inch	Inch
112,000	0.551	0.489	0.562	0.917	1.010
114,000	.542	.483	.553	.902	0.993
116,000	.534	.478	.545	.888	.997
118,000	.525	.473	.536	.874	.962
120,000	.517	.468	.528	.860	.947
122,000	.509	.463	.520	.847	.932
124,000	.502	.458	.513	.834	.918
126,000	.494	.454	.505	.822	.904
128,000	.487	.449	.498	.810	.891
130,000	.480	.445	.491	.798	.878

^{1/}See 3.3.2 and 3.9.1.

"3.3.2.1 Flasks in accordance with table IIA shall have special distinguishing marks as required by 3.9.1(d) and (e)."

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3.5.1, Delete and substitute:

"3.5.1 Flasks for service A shall, prior to painting, be thoroughly cleaned of all mill scale, rust and other contamination by abrasive blast followed, if necessary, by a detergent or other agent not detrimental to the surface to be painted."

3.5.2, Delete and substitute:

"3.5.2 After cleaning in accordance with 3.5.1, flasks for service B shall be subjected to the oil-free test of 4.4.3.5. Flasks showing any trace of oil contamination shall be flushed with cleaning solvent trichlorotrifluoroethane in accordance with MIL-C-81302, type I, or with trisodium phosphate in accordance with O-S-642. Flasks shall be reflashed until the ultra violet light examination shows no oil contamination."

Add as paragraph 3.5.3:

"3.5.3 After cleaning, flasks shall be thoroughly dried inside and outside prior to painting or inerting."

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3.6, Delete and substitute:

"3.6 Surface protection. Immediately after cleaning and drying, the flasks shall be given surface protection as follows:

- (a) Service A - The interior of service A flasks shall be given one coat of wash primer, formula 117, in accordance with MIL-P-15328 followed by a number of coats of vinyl zinc chromate, formula 120, in accordance with MIL-P-15930 sufficient to give an average thickness of 3 mils with not less than 2 mils dry film thickness. Alternate interior coating systems may be used if approved by the command or agency concerned.
- (b) Service B - The interior of service B flasks shall not be coated.
- (c) Services A and B - The exterior of all flasks shall be coated the same as the interior of service A flasks as specified in 3.6(a)."

PAGES 9 and 10

3.9.1, Add items (d) and (e):

- "(d) Actual measured wall thickness of flask using the prefix 'A'. A.551
- (e) Minimum thickness permitted by table IIA based on actual strength of material using the prefix 'M'. M.502"

PAGE 10

3.10, line 5: Delete "figure 10" and substitute "figure 19".

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4.4.3.2, Delete and substitute:

"4.4.3.2 Visual examination. After the hydrostatic test has been completed, hemispherical ends and necks of each flask shall be visually examined for surface cracks. Surface discontinuities such as blemishes, scale marks, chip marks, hammer marks, folds, seams, and scabs that would not be considered cracks and would not be rejectable on the cylindrical section also would not be considered cracks and would not be rejectable, on the hemispherical ends and necks."

4.4.3.3, Delete and substitute:

"4.4.3.3 Ultrasonic examination. After the hydrostatic test has been completed, each flask shall be 100 percent examined over the cylindrical section to a point 3 inches beyond the point of tangency with the hemispherical head. Examination may be either in a circumferential direction or a longitudinal direction in accordance with the methods specified in MIL-STD-271. Equipment shall be calibrated to detect a notch equal to 3 percent of the wall thickness."

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4.3.3.4, Delete "Reports." and substitute: "Discontinuities and discontinuity report."

4.4.3.6.1, Delete and substitute:

"4.4.3.6.1 If specimens fail tests specified in 4.4.2.1, 4.4.2.2 and 4.4.2.3, the manufacturer will be permitted to reheat treat the lot, and repeat the tests specified in 4.4, except chemical analysis (see 4.4.1)."

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5.2.1.2.1, line 2: Delete "pallitized" and substitute "palletized."

6.1, line 1: Delete "Indented" and substitute "Intended".

6.2, Add item (g):

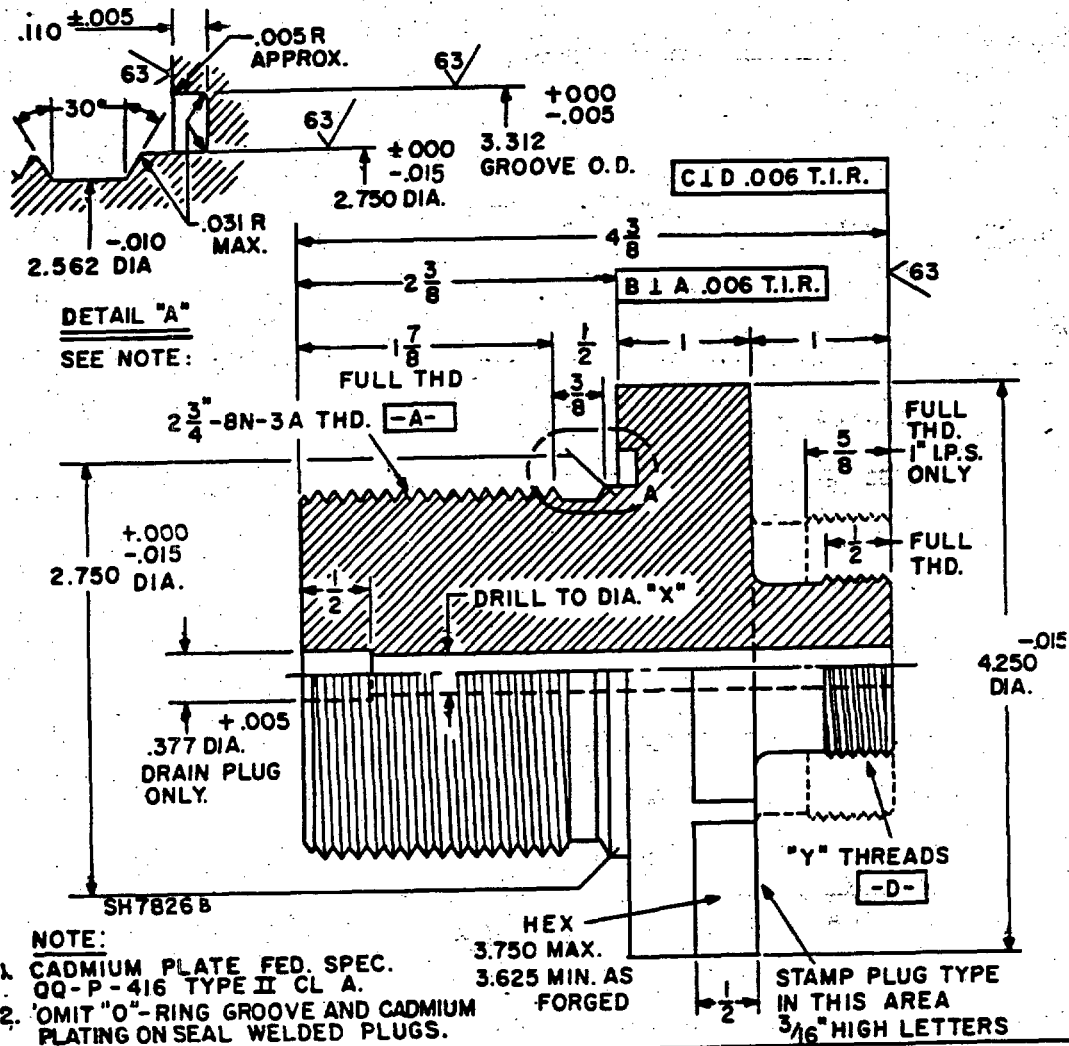
- "(g) Special sizes and configurations (see 3.3.1)."

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Figures 1, 2, 4 and 9: Delete and substitute attached figures 1, 2, 4, 8A and 9.

NOTE: The margins of this amendment are marked "*" 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.

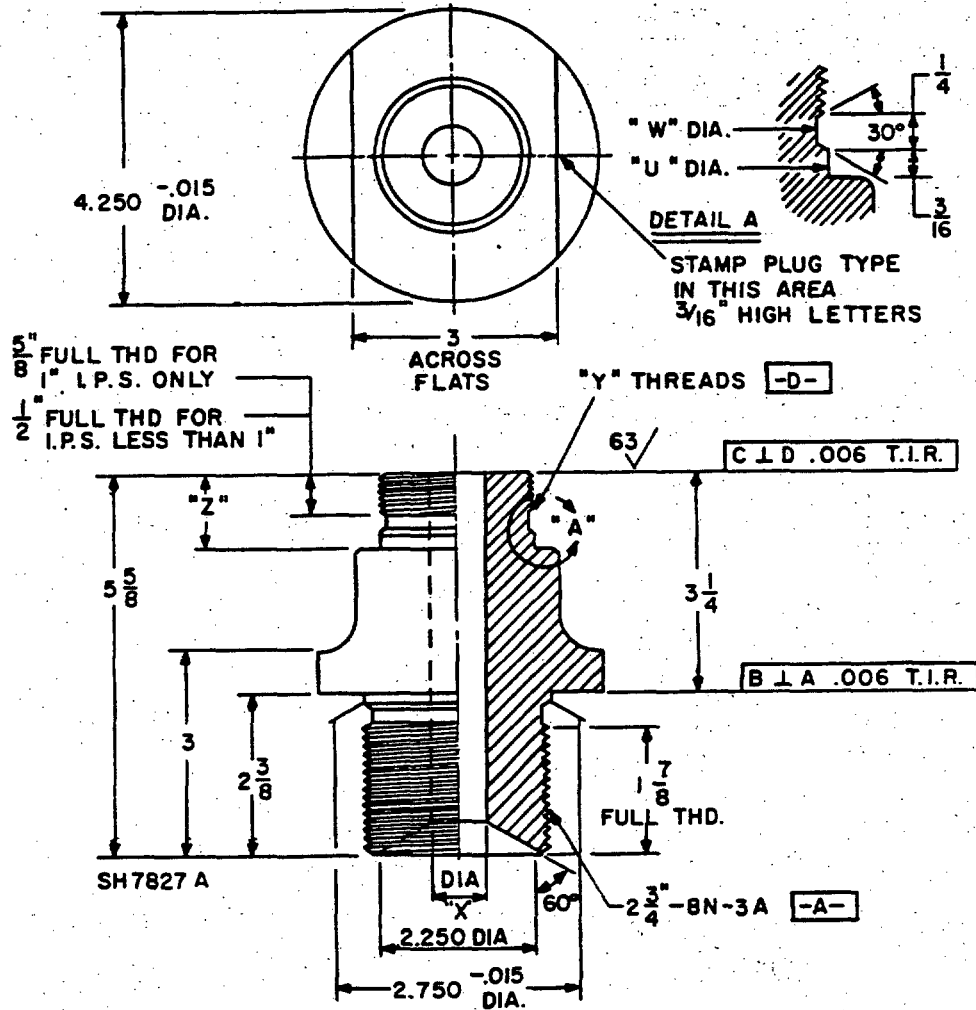
Preparing activity:
Navy - SH
(Project 8120-N375)



IRON PIPE SIZE	X DIA.	Y THREADS	REMARKS
1/4"	5/16"	1 3/16" -12UN-3A	DRAIN PLUG
3/8"	7/16"	1 3/8" -12UNF -3A	INLET AND OUTLET PLUG
1/2"	1/2"	1 3/4" -12UN -3A	INLET AND OUTLET PLUG
3/4"	5/8"	2" -12UN -3A	INLET AND OUTLET PLUG
1"	13/16"	2 5/16" -12UNS-3A	INLET AND OUTLET PLUG
SOLID	-	-	END CLOSURE PLUG-NO BOSS REQ'D

FIGURE 1. Plugs for "O" ring assembly.

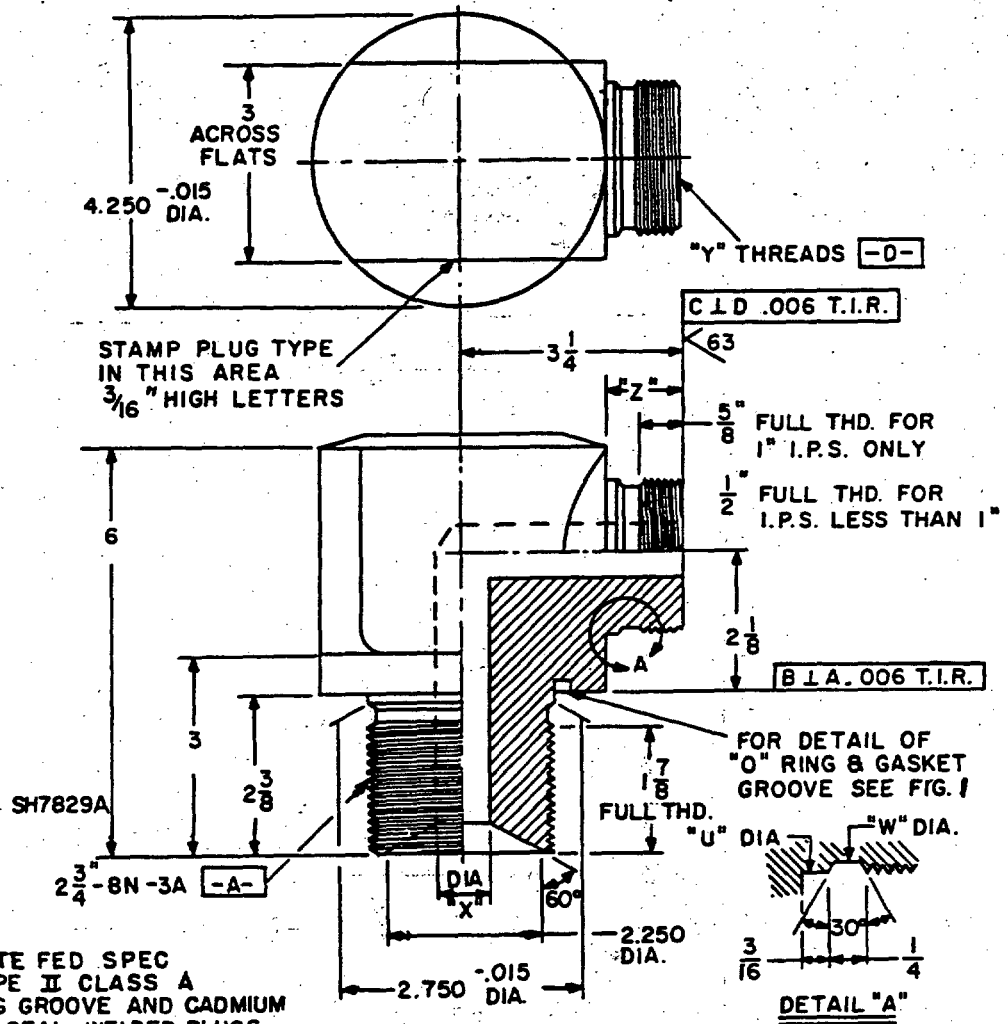
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IRON PIPE SIZE	"X" DIA.	"Y" THREADS	"Z" +.006	"U" DIA. -.010	"W" DIA. -.015	
1/4"	5/16"	1 3/16" -12 UN-3A	.916	1.187	1.075	
3/8"	7/16"	1 3/8" -12 UNF-3A	.916	1.375	1.262	
1/2"	1/2"	1 3/4" -12 UN-3A	.916	1.750	1.637	
3/4"	5/8"	2" -12 UN-3A	.916	2.000	1.887	
1"	13/16"	2 5/16" -12 UN-3A	1.041	2.312	2.200	
1/2"	13/16"	1 3/4" -12 UN-3	.916	1.750	1.637	SPECIAL

FIGURE 2. Inlet/outlet plugs for welded assembly.

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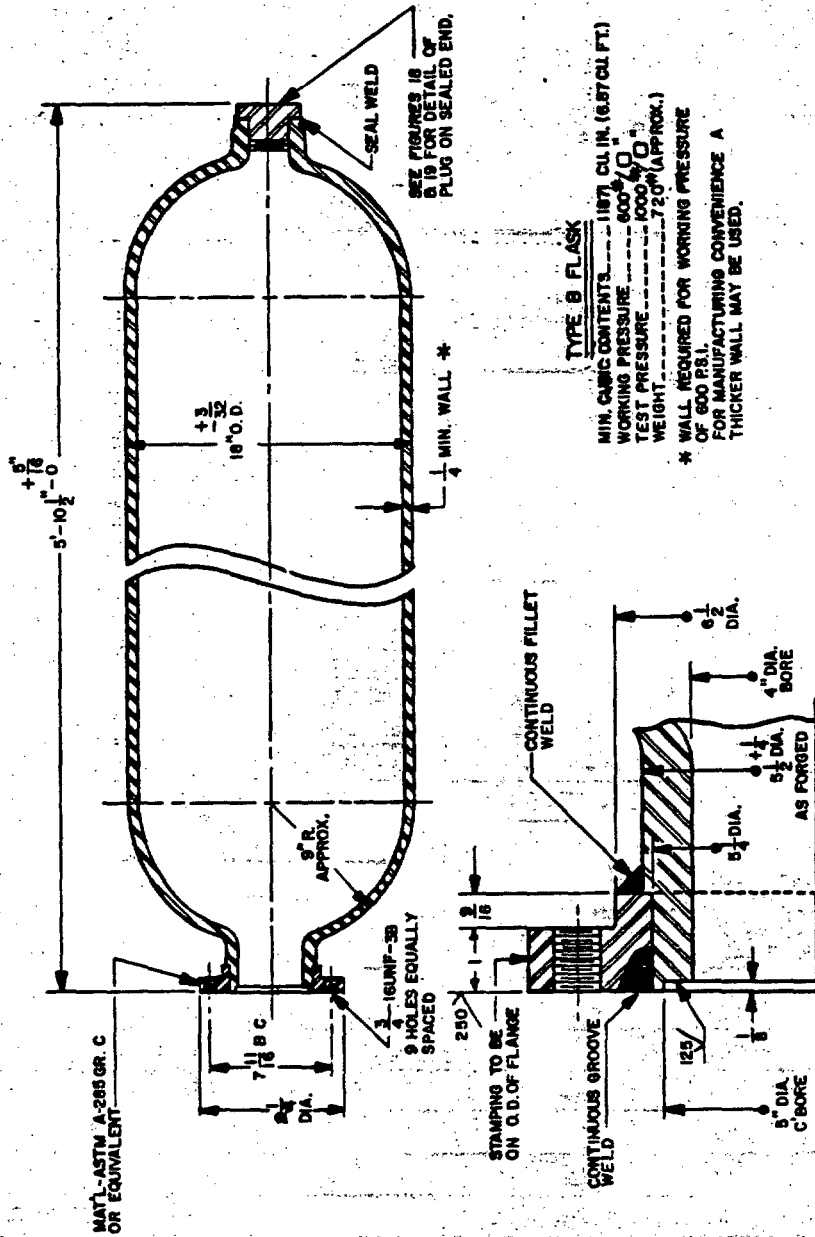
NOTE:

1. CADMIUM PLATE FED SPEC QQ-P-416 TYPE II CLASS A
2. OMIT "O" RING GROOVE AND CADMIUM PLATING ON SEAL WELDED PLUGS.

IRON PIPE SIZE	"X" DIA.	"Y" THREADS	"Z" +.006	"U" DIA -.010	"W" DIA -.015	
1/4"	5/16"	1 3/16" -12UN - 3A	.916	1.187	1.075	
3/8"	7/16"	1 3/8" -12UNF -3A	.916	1.375	1.262	
1/2"	1/2"	1 3/4" -12UN - 3A	.916	1.750	1.637	
3/4"	5/8"	2" -12UN-3A	.916	2.000	1.887	
1"	13/16"	2 5/16" -12UNS -3A	1.041	2.3125	2.200	
1/2"	13/16"	1 3/4" -12UN-3A	.916	1.750	1.637	SPECIAL

FIGURE 4. Inlet/outlet plugs angle type for welded or "O" ring assembly.

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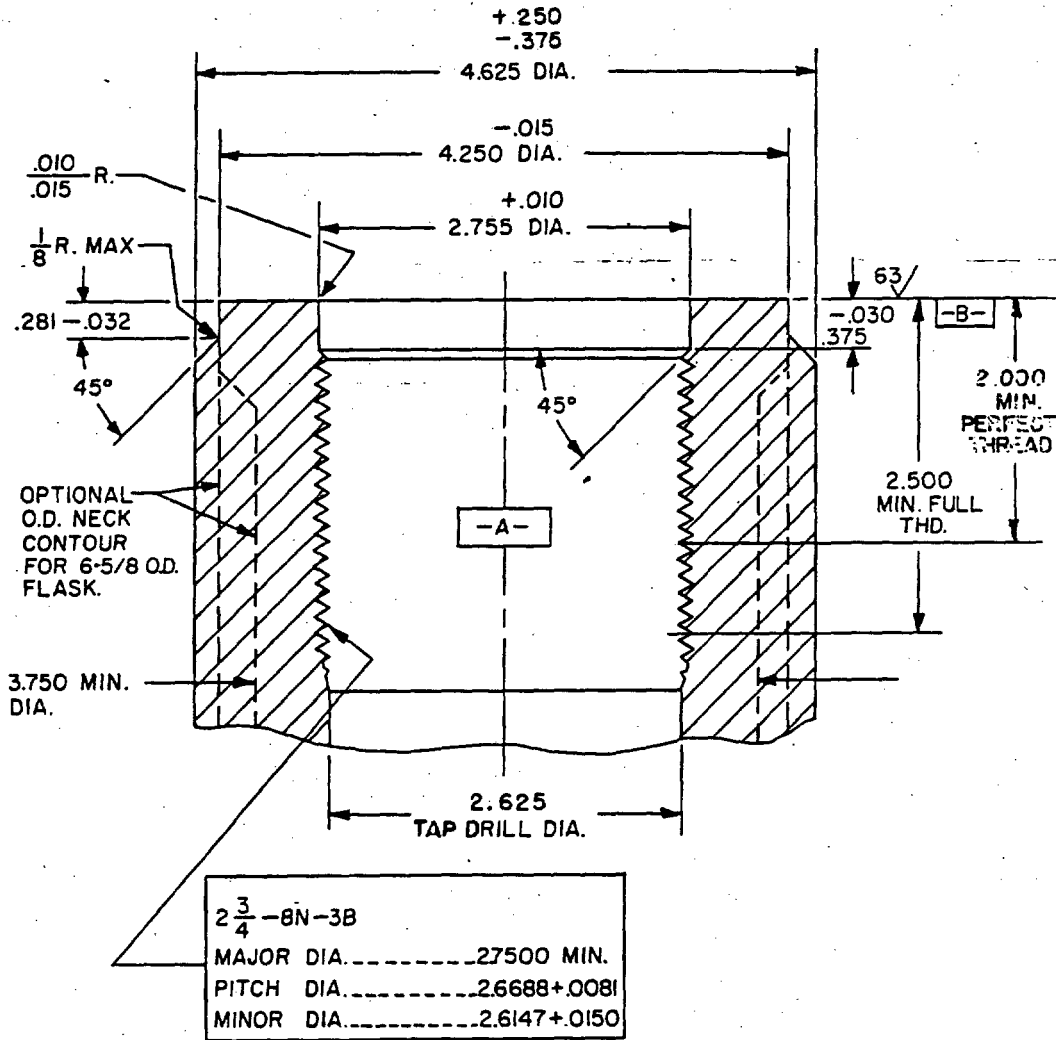


DETAIL OF NECK AND FLANGE

FIGURE 8A. Impulse flask.

SII 7:6B

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NOTE:
SURFACE **-B-** MUST BE PERPENDICULAR
TO AXIS **-A-** WITHIN .006 T.I.R

SH 7834A

FIGURE 9. Neck thread details.