RECORD OF REVISED SHEETS										
100										
90										
80										
70										
60	SEE SHEET 3									
50										
40										
30										
20										
10										
	0	1	2	3	4	5	6	7	8	9

SUPERSEDES (S) - MODIFIED (M)

MICROFILMED				
REV	DATE		REV	DATE

THIS DWG. MEETS ASME Y14.5-2009. UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES B

TOLERANCE:
1 PLACE DECIMALS ± .120"
2 PLACE DECIMALS ± .020"
3 PLACE DECIMALS ± .005"
4 PLACE DECIMALS ± .0005"
ANGLES ± 1/2 Degree

Distribution Statement D: Distribution authorization to DoD and DoD contractors only; Administrative/Operational use. Other U.S. requests shall be refered to COMNAVSEASYSCOM (SEA OOD)

PRINT ISSUE RECORDS

ESTIMATORS DATA								
CODE/PHONE ESTIMATOR DATE								
JOB ORDER	9913-33-COPY-000 PT32002	9913-33-COPY-000 PT32002						
REV.	-	A	B					
06 R & D	1	0	Filed Electronically					
38	1	0						
903T	1	0						
2302.3	1	0						
2320.1	1	0						
2320.3	1	0						
2320.5	1	0						
NNSY S/06	1	0						
NNSY C/2320	1	0						
NNSY S/31 (C/906)	1	0						
NAVSEA 08M	1	0						
BPMI	1	0						
PNSY C938	1	0						
PHNSY C/930.1	1	0						
PHNSY C/2320	1	0						
SNVY (NNS)	1	0						
SHIP FOR WHICH ISSUE	VARIOUS	VARIOUS	VARIOUS					

THIS IS A NON-DEVIATION DRAWING

THIS DRAWING COMPLIES WITH NAVSEA 08 DOCUMENTS REFERENCED HEREIN AND DOES NOT VIOLATE APPLICABLE NAVSEA REQUIREMENTS. THIS DRAWING IS GOVERNED BY NO LEAD YARD DRAWINGS.

PUGET SOUND NAVAL SHIPYARD & IMF
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BREMERTON, WA. 98314-5001 B

DEPARTMENT OF THE NAVY B
PUGET SOUND NAVAL SHIPYARD & IMF, BREMERTON, WA

NUCLEAR ENGINEERING DEPARTMENT, CODE 2300

CODE: 2320.5	**PHONE: (360) 476-3665**
BRANCH SUPERVISOR	C. Tran
PROJECT ENGINEER	D. Lawrence
CHECKED BY	M. Blankenship
DRAWN BY	J. Reside

APPROVED BY:
See revision desc.

INFLATABLE PLUGS

ABBRIVIATED TITLE: INFLATABLE PLUGS

SIZE	FSCM NO.	WT GRP	NAVSEA DRAWING NO.	REV
A	53711	820	7584557	B

SCALE: None

SHEET: 1

PSNS 9020/574 (7-85)

List of Page Changes				
Sheet	**Rev**	**Sheet**	**Rev**	**Sheet**
1	B			
2	B			
3A	B			
3B	B			
4	B			
5A	B			
5B	B			
6	B			
7A	A			
7B	B			

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Shop Store Tooling\7584557_InflatablePlugs\sheet02_listofpagechanges.dft

PUGET SOUND NAVAL SHIPYARD & IMF 1400 FARRAGUT AVE. BREMERTON, WA 98314 DEPARTMENT OF THE NAVY NAVAL SEA SYSTEMS COMMAND WASHINGTON D.C. 02382	SIZE **A**	FSCM NO. **53711**	NAVSEA DWG NO. **820-7584557**	REV. **B**
DRAWN BY: J.RESIDE CHECKED BY: M.BLANKENSHIP	SCALE: NONE	MAT'L:	SHEET: **2**	

Rev	Made By	Reviewed By	Sheet#	Description	Date	Approved
B	Tom Kruger 12/12/12	D. Lawrence 12/12/12	5B	1) 5a, 6, 7: Updated References per sheet 4 2) 5c: Changed to reference sheet LR-1, not sheet 7, updated ref D 3) 5d: Changed "Replace" to "Remove", and added "Reinstall the Valve Stem (Pc 3) 4) 6a & 6d: Changed "Buna-N" to "Natural Rubber" 5) 8: Replaced MIL-STD-767 & UIPI 5050-450 with Ref A 6) Added Notes 8a to 8c to detail leak testing procedures		B. Hippe - See Sheet 3A
	Tom Kruger	Dave Lawrence	6	1) Added Nylon as acceptable material for Pc 4, Revised Comment note 2) Changed Ref F to Ref D (5 locations) 3) Changed Buna-N to Natural Rubber 4) Added 04E to acceptable ferrules (Pc 6) in comment column 5) Changed all to 04B, 04C, and 04E to match sheet 7B, Dwg 820-6896275, and Dwg 820-8355126		Bill Hippe
			7B	1) Updated table to reflect additional acceptable parts for Pc. 4 2) Changed "Buna-N" to "Natural Rubber" 3) Added "04E" as an allowable ferrule for the lanyard. This agrees with Sheet LR-1 of 820-6896275 (Ref D) 4) Added the 0 in front of "04B/04C/04E" for consistency with reference drawings		

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SIZE	FSCM NO.	NAVSEA DWG NO.	REV.
A	53711	820-7584557	B

DRAWN BY: D. LAWRENCE
CHECKED BY: T. KRUGER

SCALE: NONE | MATL: | SHEET: 3B

Rev	Made By	Reviewed By	Sheet#	Description	Date	Approved
-	J.Reside 9-23-05	M.Blankenship 12-01-05	All	Original Issue Code 2320.1 CONCURS Eric Heitzmann 10-24-05	10/25/2005	Canh Tran
A	C. Brandon 12-17-07	Arno Birts 02-15-2008	All	1) Removal of Non-Deviation Drawing labels. 2) Removal of Date.	3/5/2008	Canh Tran
			1	1) Revised the Records of Revised sheets block. 2) Revised the Microfilmed block.		
			2	1) Added Revision A description.		
			3	1) Update List of Page Changes.		
			5B	1) Added note 8.		
			7	1) "x" were replaced by "X".		
B	Tom Kruger 1/8/2013	Dave Lawrence 1/8/2013	1	1) Updated Sheetfor Rev. B. 2) Added "&IMF" to PSNS 3) Changed ANSI Y14.5M to ASME Y14.5-2009	01/11/2013	Bill Hippe
			2	1) Sheets 2 and 3 swapped for consistency with current drawing practice. 2) List of Page Changes moved from Sheet 3 and updated for new rev		
			3A	1) Changed sheet 2 to sheet 3A 2) Added Revision B description. 3) Reformatted page.		
			3B	1) Sheet 3B added for additional revision description		
			4	Updated References; Ref. A: Deleted MIL-STD-2041 and added NAVSEA TM 0989-064-3000. Ref. B: Deleted MIL-STD-767 and inserted NPM Clean-B-1. Ref. C: Deleted NPM Clean-A-2 and inserted UIPI 5050-450. Ref. D: Moved Ref. B. Ref. E: Moved to Ref. C. Ref. F: Moved to Ref. D. Ref. G: Deleted NAVSEA INSTRUCTION 9210.36.		
			5A	1) Note 1: Changed ref. D to ref. B 2) Note 2: Changed ref. D to ref. A & deleted ref. G 3) Added to note 3: Markings can optionally be made on the retaining ring rather than the tag 4) Added note 3b for Warning note 5) Deleted reference to note 4b from note 4 4) 4b. Deleted		

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SIZE	FSCM NO.	NAVSEA DWG NO.	REV.
A	53711	820-7584557	B

DRAWN BY: J. RESIDE
CHECKED BY: M. BLANKENSHIP

SCALE: NONE | MAT'L: | SHEET: 3A

REFERENCES

A. NAVSEA TM 0989-064-3000; Cleanliness Requirements for Nuclear Propulsion Plant Maintenance and Construction.

B. NPM CLEAN–B-1; Cleanliness Closures, Design and Usage.

C. UIPI 5050-450; Steam Plant Cleanliness for Nuclear Powered Ships.

D. NAVSEA DWG NO. 820-6896275; Injection Molded Plugs & Miscellaneous Parts.

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PUGET SOUND NAVAL SHIPYARD 1400 FARRAGUT AVE. BREMERTON, WA 98314 DEPARTMENT OF THE NAVY NAVAL SEA SYSTEMS COMMAND WASHINGTON D.C. 02382	SIZE **A**	FSCM NO. **53711**	NAVSEA DWG NO. **STD-820-7584557**	REV. **B**
DRAWN BY: J.RESIDE CHECKED BY: M.BLANKENSHIP	SCALE: NONE	MAT'L:	SHEET: **4**	

GENERAL NOTES

1. **SCOPE -** Manufacture, inspection and packaging shall be in accordance with reference (B) and the following notes. This drawing provides information for material requirements and assembly of the Inflatable style and controlled plugs, also known as Bladder Plugs. B

2. **MATERIAL -** All materials shall meet the requirements of reference (A). B See sheet 6 for a complete list of materials. The bladder (pc1), the cloth cover (pc2), and the heat shrink tubing (pc8) shall be tested for detrimental materials per reference (A). The rubber bladder has a shelf life of 3 years.

3. **MARKINGS –** The retainer tag, piece 9, shall be marked with a label, piece 10, showing the type of plug, size and expiration date as follows: B

INF - size
EXP: month/year

B If the markings of this note can be applied directly to the retaining ring (Pc 4) then use of the Retaining tag Pc 9 and 10 is not necessary.

B **3b.** Mark each cloth bag "Warning: Test before each use" with indelible ink.

4. **WARNING TAG -** Ensure that a WARNING TAG (Read Instruction Manual and Test Bag before each use) from the bag manufacturer is with each plug assembly. B

4a. The following table shows the recommended inflation pressures for the polyester covered bags:

Polyester Covered Bags Inflation Pressures			
Bladder Plug Size, inch	**Inflation Pressure, psi**	**Bladder Plug Size, inch**	**Inflation Pressure, psi**
2.5	15	12	8
3	15	14	7
4	15	16	6
6	15	18	5
8	12	20	5
10	10		

B **4b.** Deleted.

PUGET SOUND NAVAL SHIPYARD & IMF 1400 FARRAGUT AVE. BREMERTON, WA 98314 DEPARTMENT OF THE NAVY NAVAL SEA SYSTEMS COMMAND WASHINGTON D.C. 02382	Saved as: //Shop Store Tooling/7584557 Inflatable plugs/Sheet05A_gennotes.dft			
	SIZE **A**	FSCM NO. **53711**	NAVSEA DWG NO. **820-7584557**	REV. **B**
DRAWN BY: J. RESIDE CHECKED BY: M. BLANKENSHIP	SCALE: NONE	MAT'L:	SHEET: **5A**	

GENERAL NOTES CONT'D

5. CLEANING & ASSEMBLY

5a. The bladder and hose assembly shall be cleaned separately from the cloth cover to ensure all surfaces are clean. Cleaning shall be done per Appendix "A" of Reference (B) (NPM CLEAN-B-1).

5b. Prior to washing the cloth cover (pc2), fold edges and stitch to prevent the fabric from damage. After washing and drying the cloth cover, relocate and sew the loop as shown on Detail 7A to secure the Clip, Pc 7.

5c. Lanyard (Pc 5) & Sleeve/Ferrule (Pc 6): shall be manufactured per sheet LR-1 of reference (D).

5d. Remove the Valve Stem (Pc 3) and remove any exposed plumber's putty or Teflon tape, clean per general note 6. Reinstall the clean Valve Stem (Pc 3).

5e. Use three to four sizes of Heat Shrink Sleeve (Insulation), Pc 8 to create layers with overlapped end connection (see sheet 7A & B) for a tight seal between ends of the polyester cover (cloth), Pc 2 and valve stem fitting, Pc 3.

6. INSPECTION:

Inspect each item for compliance with this drawing and reference (B). Reject any item, which has defects and could affect the end use of the plug such as the following.

6a. Crevices/dimples on the Natural Rubber bladder.

6b. Any cracks on Bladder or Hose.

6c. Damaged cloth, loose lint, unraveled threads, tears or rips.

6d. Presence of oil on the Natural Rubber bladder and hose surfaces.

6e. All parts list materials.

7. PACKAGING – Each plug assembly shall be packaged to maintain cleanliness per reference (B).

8. Leak Testing - To ensure plugs can meet the requirements of reference (A) prior to use, all plugs shall be leak tested before being shipped. Leak test all plugs prior to installing the cloth cover by either Note 8a or 8b below. In addition, final test all plugs by Note 8c below.

8a. Soap Test

I. Inflate the bladder, without the cloth cover, to 115 - 120% of the nominal diameter (test diameter = nominal diameter x 1.15 to 1.2).

II. Thoroughly wet the bladder with a 3:100 mix of LHB non-ionic detergent and Grade B or better water. Criteria for satisfactory test: no bubbles appear within 5 minutes.

III. Rinse off the detergent mix with Grade B or better water.

8b. Immersion Test

I. Inflate the bladder, without the cloth cover, to 115 - 120% of the nominal diameter (test diameter = nominal diameter x 1.15 to 1.2).

II. Immerse the plug in Grade B water and watch for bubbles. Note that the plug does not need to be entirely submerged at any time—in general, submerging the surface of the plug ½ to 2 inches is adequate to show any leaks. Slowly turn/rotate the plug as needed to ensure all surfaces of the plug are observed while under water. Use a mirror or other devices as needed to ensure the submerged portion of the plug can be observed. Criteria for satisfactory test: no bubbles appear.

8c. Final Leak Test

I. Following installation of the cloth cover and shrink tubing, inflate the plug to 2 – 5 psi. Check the bladder after 10 minutes to ensure it has not lost any pressure or size.

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	SIZE A	FSCM NO. 53711	NAVSEA DWG NO. 820-7584557	REV. B
DRAWN BY: J. RESIDE CHECKED BY: M. BLANKENSHIP	SCALE: NONE	MAT'L:	SHEET: 5B	

Material List

Pc#	Qty	Description	Material	Comments
1	1	Bladder Plug with hose	Natural Rubber, coml B	Supplier: COB Industries, Inc.
2	1	Cloth Cover	Polyester, coml	Same as above
3	1	Valve Stem, 1/8" NPT	Stainless Steel/Chromed Brass	Same as above
4	1	Ring, Retaining B	Stainless Steel, coml, or Nylon	See Ref (D) B
5	1	Lanyard, .062 x 24" approx.	Stainless Steel, coml	See Gen Note 18 of Ref (D), Pc 5B B
6	2/4	Sleeve; Swaging Round Ferrule (for .062 Ø wire rope)	SS UNS 30400 Seamless	Ref (D); Pc 04B, 04C, or 04E. B B
7	2	Clip, 4 inch	Stainless Steel, coml	Ref (D); Pc 2B. B
8	as req	Insulation, heat shrink sleeving	Polyolefin, black, ZHTM Series	Supplier: RayChem, Div of Tyco Electronics (see Gen. Note 5).
9	1	Retaining Tag	Nylon	Ref (D); Pc RT-01 B
10	1	Label, Deep Freeze for Laser Printers, .94 x.50	Plastic, Self Adhesive	GA International, CL-12W.

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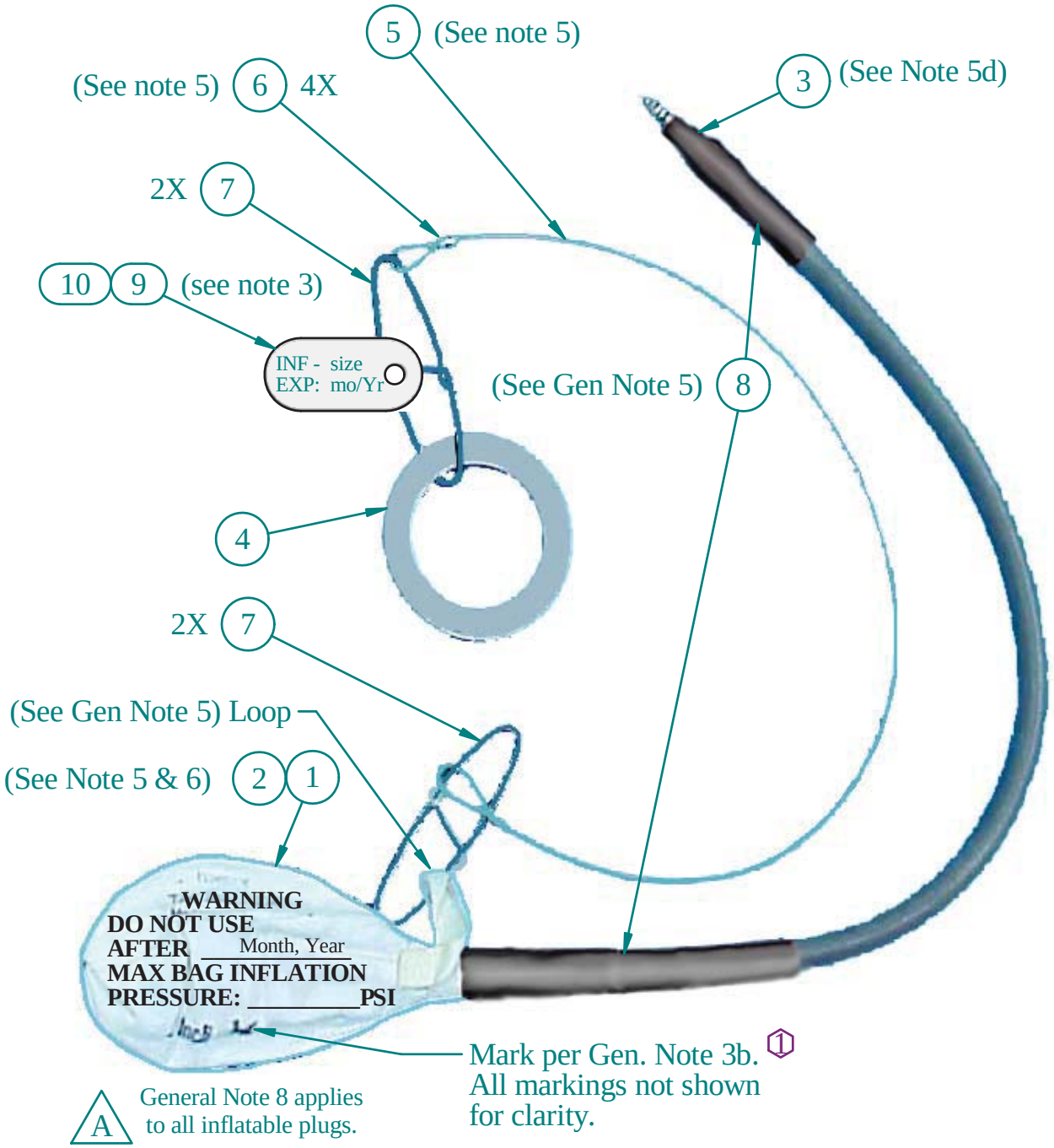
SIZE	FSCM NO.	NAVSEA DWG NO.	REV.
A	53711	820-7584557	B

DRAWN BY: J.RESIDE
CHECKED BY: M.BLANKENSHIP

SCALE: NONE | MAT'L: Various | SHEET: 6

PEN&INK 1 D. Lawrence 7-3-13



DETAIL 7A

Note: See sheet 6 and 7B for parts list.

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PUGET SOUND NAVAL SHIPYARD 1400 FARRAGUT AVE. BREMERTON, WA 98314 DEPARTMENT OF THE NAVY NAVAL SEA SYSTEMS COMMAND WASHINGTON D.C. 02382	**Bladder Plug Assembly, INF-2.5 thru INF-20** For Pipe Plug Closure, Controlled			
	SIZE **A**	FSCM NO. **53711**	NAVSEA DWG NO. **STD-820-7584557**	REV. **A**
DRAWN BY: J.RESIDE CHECKED BY: M.BLANKENSHIP	SCALE: NONE	MAT'L: Various	SHEET: **7A**	

1 Bladder Plug (Natural Rubber) w/ hose B	Diameter (inches)	2 Cover (Polyester) See Sheet 6	3 Valve Stem (SS/Chromed Brass) See Sheet 6	4 Retaining Ring# (SS, or Nylon) See Sheet 6 B	5 Lanyard See Sheet 6	6 Sleeve See Sheet 6 B	7 Clips (2X) SS, coml See Sheet 6	8 Heat Shrink Sleeve (Polyolefin, black) See Sheet 6	9 Retaining Tag See Sheet 6
INF-2.5	2.5		1/8" NPT	01D, RT-04	.062 Ø x 24" approx.	04B/04C/ 04E	2B	3 layer - small sizes	RT-01
INF-3.0	3.0			01E, RT-05					
INF-4.0	4.0			01F, RT-06					
INF-6.0	6.0			01G					
INF-8.0	8.0			01H				4 layer - large sizes	
INF-10.0	10.0			01I					
INF-12.0	12.0			01J					
INF-14.0	14.0			01L					
INF-16.0	16.0			01M					
INF-18.0	18.0			01N					
INF-20.0	20.0			01P					

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Bladder Plugs, INF-2.5 thru INF-20.0

For Pipe Plug Closure, Controlled

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SIZE	FSCM NO.	NAVSEA DWG NO.	REV.
A	53711	820-7584557	B

DRAWN BY: J.RESIDE
CHECKED BY: M.BLANKENSHIP

SCALE: NONE | MAT'L: Various | SHEET: 7B