NAVSEA
STANDARD ITEM

FY-28 CH-1

ITEM NO: 009-012
DATE: ***31 MAR 2026***
CATEGORY: II

1. SCOPE:

1.1 Title: Weld, Fabricate, and Inspect; accomplish

2. REFERENCES:

2.1 MIL-STD-1689, Fabrication, Welding, and Inspection of Ships Structure

2.2 American Bureau of Shipping (ABS) Rules for Building and Classing Steel Vessels

2.3 0900-LP-060-4010, Fabrication, Welding, and Inspection of Metal Boat and Craft Hulls

2.4 S9074-AQ-GIB-010/248, Requirements for Welding and Brazing Procedure and Performance Qualification

2.5 0900-LP-001-7000, Fabrication and Inspection of Brazed Piping Systems

2.6 S9074-AR-GIB-010/278, Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping, and Pressure Vessels

2.7 MIL-STD-22, Welded Joint Design

2.8 MIL-STD-2035, Nondestructive Testing Acceptance Criteria

2.9 T9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods

2.10 DOD-STD-2185, Requirements for Repair and Straightening of Bronze Naval Ship Propellers

2.11 S9221-C1-GTP-010/020, Main Propulsion Boilers; Repair and Overhaul

2.12 S9AA0-AB-GOS-010, General Specifications for Overhaul of Surface Ships (GSO)

2.13 MIL-STD-2191, Repair, Welding, Weld Cladding, Straightening, and Cold Rolling of Main Propulsion Shafting

2.14 S9CG0-BP-SRM-010/CG-47CL, Inspection, Testing, Fabrication, and Welding for Aluminum Superstructures During Repair, Alteration, and Modernization, for CG-47 Class Ships

2.15 TO300-AU-SPN-010, Fabrication, Welding and Inspection of Small Boats and Craft, Aluminum Hulls

2.16 S9086-RK-STM-010/CH-505, Piping Systems

2.17 S9LCS-BF-SRM-010/LCS-2, Inspection, Testing, Fabrication, and Welding for Structural Repair, Alteration, and Modernization, for LCS-2 Variant Ships

2.18 S9LCS-BG-SRM-010/LCS-1 CL, Inspection, Testing, Fabrication, and Welding for Structural Repair, Alteration, and Modernization, for LCS-1 Variant Ships

3. REQUIREMENTS:

3.1 Utilize specific requirements of 2.1 through 2.11 and 2.15 listed in Tables One, 2, 3, and 4 of this item for determining the welder and brazer qualifications, electrodes, weld design, welding requirements, brazing requirements, welding procedures, brazing procedures, welding parameters and controls, inspection standards, and acceptance criteria.

3.1.1 Maintain a Welding Workmanship Program and a Welding Surveillance Inspection Program if conducting structural and fabrication work in accordance with 2.1.

3.1.2 Maintain a Welding Training Program (including personnel training in Workmanship and Visual Acceptance Criteria) in accordance with 2.4.

3.1.3 Maintain a Brazing Process Inspection in accordance with 2.5.

3.1.4 Welding Procedure Specification (WPS) will be available at the work site during the performance of work.

3.2 Weld bell-end fittings in accordance with Section 505c8 of 2.12. Nondestructive testing inspection must comply with Class P-2 piping systems as defined by 2.6.

3.3 Ground welding machines, for purposes of providing a return path for welding current, using a grounding bar or lead which must be connected directly from the machine ground return connection to the ship's hull, sized on the basis of 1,000,000 Circular Mils per 1,000 amps per 100 feet, but in no event using less than a Number One cable (85,037 Circular Mils).

3.3.1 Welding machines used for welding on machinery, pressure vessels, or piping, rotating ordnance, electronic, or fire control equipment must have the ground return connection in the immediate vicinity of the work to ensure that current does not flow through bearings, pipe hangers, or other areas where arcing or high resistance paths exist. For ships constructed of non-magnetic materials, the ground return cables must be connected directly to the component being welded - as close to the weld zone as feasible.

3.3.2 Shipboard power distribution system must not be used as the power source for welding equipment unless approved by the SUPERVISOR. External power source must be used.

3.4 Process Control Procedure (PCP) for the specific welding, brazing, and inspection operations in 3.4.1 through 3.4.9 must be in accordance with NAVSEA Standard Items (See Note 4.1) and the following:

3.4.1 Class A-F, A-1, A-2, A-3, A-LT, P-1, P-LT, M-1, and T-1 welding, as defined by 2.6. These procedures must include, as a minimum, the information required by Paragraph 4.1.3 of 2.6 and supporting data such as a sketch of the weld repair areas and associated ship components. Joint numbers must not be duplicated on ship during the availability.

3.4.2 Class P-3a special category silver brazing, as defined by 2.5. The procedure must include, as a minimum, the information required by Sections 4 of 2.5.

3.4.2.1 All brazing of steam piping must conform to 2.5, Class P-3a special category, including ultrasonic inspection, for all pipe sizes .840 inch outer diameter or grater including any (existing) copper to (new) copper-nickel transition joints. Brazed joints must not be used in steam pipe sizes less than .840 inch outer diameter.

3.4.2.2 In steam systems, where brazed piping and fittings are to be reused, or piping has to be sized to achieve proper fit-up, the option for a 5X visual inspection for cracks listed in Sections 5.5.3, 5.10.1, and 5.10.2 of 2.5 must not be used; liquid penetrant inspection must be required.

3.4.3 For bronze propellers, using 2.10 for guidance.

3.4.4 For propellers other than bronze, using 2.6 for guidance.

3.4.5 For propulsion shafting and rudder stocks, using 2.13 for guidance.

3.4.6 For titanium-based materials, using 2.6 for guidance.

3.4.7 Accomplish aluminum welding and nondestructive testing for superstructure of CG-47 Class ships in accordance with 2.14.

3.4.8 Accomplish fabrication, aluminum welding and nondestructive testing of aluminum structures for LCS-2 variant ships in accordance with 2.17.

3.4.9 Accomplish fabrication, aluminum welding and nondestructive testing of aluminum structures for LCS-1 variant ships in accordance with 2.18.

3.5 The use of a permanent backing strap in accordance with Section 11, Paragraph 11.1 of 2.1 is specifically prohibited for ships unless detailed in the original weld joint design or when authorized by the SUPERVISOR. The use of a permanent backing strap is acceptable for small boats and crafts, in accordance with 2.3and 2.15.

(V)(G) “FIT-UP INSPECTION”

3.6. Joint fit-up of Class P-1 piping butt-welded joints requiring radiographic inspection.

3.6.1 Verify Joint Fit-Up Prior to Welding - (V)(G)

(I) or (I)(G) “NONDESTRUCTIVE TESTING”

3.7 Accomplish nondestructive testing in accordance with the following:

3.7.1 Manufacture, installation, and repair (welding, brazing, machining, or lapping) of Level I fittings or components:

3.7.1.1 Nondestructive Testing Visual Inspection - (I)

3.7.1.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant and Ultrasonic Testing (Final Only) - (I)(G)

3.7.1.3 Nondestructive Testing Radiographic - (I)

3.7.2 Welding/brazing of Class P-1, P-LT, P-3a piping systems or Class A-F, A-1, A-2, A-3, A-LT, M-1, T-1 welding, and Class P-2.

3.7.2.1 Nondestructive Testing Visual Inspection - (I)

3.7.2.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant and Ultrasonic Testing (Final Only) - (I)(G)

3.7.2.3 Nondestructive Testing Radiographic - (I)

3.7.3.4 Nondestructive Testing Visual Inspection (I)(G) materials S-51, S-52, S-53.

3.7.3 Welding on ship/craft listed in Attachment A hull or structure when required by the fabrication document:

3.7.3.1 Nondestructive Testing Visual Inspection - (I)

3.7.3.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant and Ultrasonic Testing (Final Only) - (I)(G)

3.7.3.3 Nondestructive Testing Radiographic - (I)

3.7.4 Weight handling equipment manufacture and repair:

3.7.4.1 Nondestructive Testing Visual Inspection - (I)

3.7.4.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant - (I)(G)

3.7.4.3 Ultrasonic Testing (Final Only) - (I)(G)

3.7.4.4 Nondestructive Testing Radiographic - (I)

3.7.5 Corrective maintenance within the certified boundaries of cranes (as defined in NSTM 589):

3.7.5.1 Nondestructive Testing Visual Inspection - (I)

3.7.5.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant - (I)(G)

3.7.5.3 Ultrasonic Testing (Final Only) - (I)(G)

3.7.5.4 Nondestructive Testing Radiographic - (I)

3.7.6 Maintenance on aircraft launch and recovery equipment:

3.7.6.1 Nondestructive Testing Visual Inspection - (I)

3.7.6.2 Nondestructive Testing Magnetic Particle, Liquid Penetrant and Ultrasonic Testing (Final Only) - (I)(G)

3.7.6.3 Nondestructive Testing Radiographic - (I)

3.7.7 Invocation of Operational Pressure Test Option for Piping Systems in accordance with 2.16:

3.7.7.1 Nondestructive Magnetic Particle and Liquid Penetrant testing accomplished to satisfy Operational Pressure Test Option requirements in accordance with 11.1.2.6 of 2.16 and not already required by 3.7.3.2. - (I)

(I)(G) "EVALUATION OF RT FILMS"

3.8 Accomplish RT film interpretation.

3.8.1 Provide the cognizant Government representative designated by the SUPERVISOR the evaluated radiographs and records within 2 days of the (G) point.

3.9 Provide and maintain a Welding Consumable Control System in accordance with 2.1, 2.2, 2.3, 2.5, 2.6, 2.10, 2.11, 2.13, 2.14, and 2.15, which covers the control and issuance of filler materials. The system must be described in a written procedure that must be submitted to the SUPERVISOR for review and acceptance prior to the initiation of production work. This procedure only requires a one-time submittal/acceptance unless the NAVSEA Standard Items change and/or references change or are updated. The Welding Consumable Control System must be subject to periodic conformity audits by the SUPERVISOR throughout the contract period. (See Note 4.4)

3.10 Utilize Attachment A to define combatant and non-combatant vessels and applicable table.

3.11 Where requirements in the repair and testing instructions for propulsion boilers conflict, 2.11 must take precedence.

4. NOTES:

4.1 If a Process Control Procedure (PCP) for all specific welding, brazing, and inspection operations in 3.4.1 through 3.4.9 is required; the use of Category II NAVSEA Standard Item 009-009 “Process Control Procedure (PCP); provide and accomplish” of NAVSEA Standard Items will be specified in the Work Item.

4.2 For Navy boats and craft all paragraphs apply except the following: 3.4.2.1, 3.4.2.2, 3.4.3, 3.4.4, 3.4.5, 3.4.6, and 3.7.7.

4.3 Welding procedure qualification reports (WPQR) previously approved by a NAVSEA Authorized Representative (AR) need not be reviewed and approved by another activity's NAVSEA AR when no changes requiring requalification per reference 2.4 have been made.

4.4 Welding Consumable Control Programs previously accepted by a NAVSEA activity do not require additional technical review.

TABLE 1
WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN	A	B	C	D		E
	SITUATION EVOLUTION	CLASS P-1, P-2 AND P-LT PIPING	CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	HARD FACING VALVE PARTS	CLASS A PRESSURE VESSEL	** PROPULSION BOILERS	*PROPELLERS (BRONZE)
1	WELDER AND BRAZER QUALIFICATION	S9074-AQ-GIB-010/248, PARAGRAPH 5	0900-LP-001-7000, SECTION 4	S9074-AQ-GIB-010/248, PARAGRAPH 5		S9221-C1-GTP-010/020	
2	WELDING PROCEDURE	S9074-AQ-GIB-010/248, PARAGRAPH 4	NOT APPLICABLE	S9074-AQ-GIB-010/248, PARAGRAPH 4		S9221-C1-GTP-010/020	DOD-STD-2185, PARAGRAPH 4
3	BRAZING PROCEDURE	NOT APPLICABLE	0900-LP-001-7000, SECTION 4	NOT APPLICABLE			
4	WELDING REQUIREMENTS	S9074-AR-GIB-010/278, PARAGRAPH 6	NOT APPLICABLE	S9074-AR-GIB-010/278, PARAGRAPH 6			MIL-STD-2185, PARAGRAPH 5

* - PARAGRAPH 3.4.4 APPLIES
** - PARAGRAPH 3.11 APPLIES

TABLE 1
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LINE	COLUMN	A	B	C	D		E
	SITUATION EVOLUTION	CLASS P-1, P-2 AND P-LT PIPING	CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	HARD FACING VALVE PARTS	CLASS A PRESSURE VESSEL	** PROPULSION BOILERS	*PROPELLERS (BRONZE)
5	FILLER MATERIAL	S9074-AR-GIB-010/278, PARAGRAPH 5	0900-LP-001-7000, SECTION 5	S9074-AR-GIB-010/278, PARAGRAPH 5		S9221-C1-GTP-010/020	DOD-STD-2185, PARAGRAPH 5
6	JOINT DESIGN	S9074-AR-GIB-010/278, PARAGRAPH 9 MIL-STD-22	0900-LP-001-7000, SECTION 5	NOT APPLICABLE	S9074-AR-GIB-010/278, PARAGRAPH 9 MIL-STD-22	S9221-C1-GTP-010/020	

* - PARAGRAPH 3.4.4 APPLIES
** - PARAGRAPH 3.11 APPLIES

TABLE 1
WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN SITUATION EVOLUTION	A CLASS P-1, P-2 AND P-LT PIPING	B CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	C HARD FACING VALVE PARTS	D CLASS A PRESSURE VESSEL	D ** PROPULSION BOILERS	E *PROPELLERS (BRONZE)
7	HEAT TREATMENT	S9074-AR-GIB-010/278, PARAGRAPH 6	0900-LP-001-7000, SECTION 5	S9074-AR-GIB-010/278, PARAGRAPHS 6 AND 11.6	S9074-AR-GIB-010/278, PARAGRAPH 6	S9221-C1-GTP-010/020	S9074-AR-GIB-010/278, PARAGRAPH 6 DOD-STD-2185, PARAGRAPH 5
8	WORKMANSHIP REQUIREMENTS	S9074-AR-GIB-010/278, PARAGRAPH 7	0900-LP-001-7000, SECTION 5	S9074-AR-GIB-010/278, PARAGRAPHS 7 AND 11.6	S9074-AR-GIB-010/278, PARAGRAPH 7	S9221-C1-GTP-010/020	S9074-AR-GIB-010/278, PARAGRAPH 7

* - PARAGRAPH 3.4.4 APPLIES
** - PARAGRAPH 3.11 APPLIES

TABLE 1
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LINE	COLUMN	A	B	C	D		E
	SITUATION EVOLUTION	CLASS P-1, P-2 AND P-LT PIPING	CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	HARD FACING VALVE PARTS	CLASS A PRESSURE VESSEL	** PROPULSION BOILERS	*PROPELLERS (BRONZE)
9	VISUAL INSPECT JOINT FIT-UP	S9074-AR-GIB-010/278, PARAGRAPH 9 MIL-STD-22	0900-LP-001-7000, SECTION 7	NOT APPLICABLE	S9074-AR-GIB-010/278, PARAGRAPH 9 MIL-STD-22	S9221-C1-GTP-010/020	DOD-STD-2185, PARAGRAPH 5
10	VISUAL INSPECTION	S9074-AR-GIB-010/278, PARAGRAPH 10 MIL-STD-2035, PARAGRAPH 4	0900-LP-001-7000, SECTION 7 AND 8	S9074-AR-GIB-010/278, PARAGRAPH 11.6.3 MIL-STD-2035, PARAGRAPH 4	S9074-AR-GIB-010/278, PARAGRAPH 10 MIL-STD-2035, PARAGRAPH 4		MIL-STD-2035, PARAGRAPH 4

TABLE 1
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LINE	COLUMN SITUATION EVOLUTION	A CLASS P-1, P-2 AND P-LT PIPING	B CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	C HARD FACING VALVE PARTS	D CLASS A PRESSURE VESSEL	D ** PROPULSION BOILERS	E *PROPELLERS (BRONZE)
11	RADIOGRAPHIC INSPECTION (RT)	S9074-AR-GIB-010/278 PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 3 MIL-STD-2035, PARAGRAPH 5 (NORMALLY ONLY P-1 AND P-LT)	NOT APPLICABLE		S9074-AR-GIB-010/278 PARAGRAPH 10 T9074-AS-GIB-010/271,PARAGRAPH 3 MIL-STD-2035, PARAGRAPH 5		NOT APPLICABLE

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LINE	COLUMN SITUATION EVOLUTION	A CLASS P-1, P-2 AND P-LT PIPING	B CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	C HARD FACING VALVE PARTS	D CLASS A PRESSURE VESSEL	D ** PROPULSION BOILERS	E *PROPELLERS (BRONZE)
12	ULTRASONIC INSPECTION (UT)	NOT APPLICABLE	0900-LP-001-7000, SECTIONS 6,7,8 AND 9 FOR CLASS P-3a SPECIAL CATEGORY PIPING ONLY	NOT APPLICABLE			S9245-AR-TSM-010/Prop Paragraph 5.6.5.2

TABLE 1
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LINE	COLUMN SITUATION EVOLUTION	A CLASS P-1, P-2 AND P-LT PIPING	B CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	C HARD FACING VALVE PARTS	D CLASS A PRESSURE VESSEL	D ** PROPULSION BOILERS	E *PROPELLERS (BRONZE)
13	LIQUID PENETRANT INSPECTION (PT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7 (NORMALLY ONLY P-1 AND P-LT)	0900-LP-001-7000, SECTION 7 AND 8 FOR CLASS P-3a SPECIAL CATEGORY SEE 3.4.2.2	S9074-AR-GIB-010/278, PARAGRAPH 11.6.3 MIL-STD-2035, PARAGRAPH 7	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7		MIL-STD-2035, PARAGRAPH 7 T9074-AS-GIB-010/271, PARAGRAPH 5

* - PARAGRAPH 3.4.4 APPLIES
** - PARAGRAPH 3.11 APPLIES

TABLE 1
WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN SITUATION EVOLUTION	A CLASS P-1, P-2 AND P-LT PIPING	B CLASS P-3a SPECIAL CATEGORY, OTHER CLASS P-3a, AND P-3b PIPING	C HARD FACING VALVE PARTS	D CLASS A PRESSURE VESSEL	 ** PROPULSION BOILERS	E *PROPELLERS (BRONZE)
14	MAGNETIC PARTICLE INSPECTION (MT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6 (NORMALLY ONLY P-1 AND P-LT)	NOT APPLICABLE		S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035 PARAGRAPH 6		NOT APPLICABLE

TABLE 1
WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN	F	G	H	I	J
	SITUATION EVOLUTION	MACHINERY CLASS M	TURBINE PARTS	CASTINGS	FORCED DRAFT BLOWERS	REDUCTION AND STEAM TURBINE DRIVEN AUXILIARY GEARS
1	WELDER AND BRAZER QUALIFICATIONS	S9074-AQ-GIB-010/248, PARAGRAPH 5				
2	WELDING PROCEDURE	S9074-AQ-GIB-010/248, PARAGRAPH 4				
3	BRAZING PROCEDURE	NOT APPLICABLE				
4	WELDING REQUIREMENTS	S9074-AR-GIB-010/278, PARAGRAPH 6				
5	FILLER MATERIAL	S9074-AR-GIB-010/278, PARAGRAPH 5				
6	JOINT DESIGN	S9074-AR-GIB-010/278, PARAGRAPH 9, AND MIL-STD-22				
7	HEAT TREATMENT	S9074-AR-GIB-010/278, PARAGRAPHS 6 AND 8				
8	WORKMANSHIP REQUIREMENTS	S9074-AR-GIB-010/278, PARAGRAPH 7				
9	VISUAL INSPECT JOINT FIT-UP	S9074-AR-GIB-010/278, PARAGRAPH 10, AND MIL-STD-22				
10	VISUAL INSPECTION	S9074-AR-GIB-010/278, PARAGRAPH 10 MIL-STD-2035, PARAGRAPH 4	S9074-AR-GIB-010/278, PARAGRAPH 14	S9074-AR-GIB-010/278, PARAGRAPH 13 MIL-STD-2035, PARAGRAPH 4	S9074-AR-GIB-010/278, PARAGRAPH 16	S9074-AR-GIB-010/278, PARAGRAPH 15

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WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN SITUATION EVOLUTION	F MACHINERY CLASS M	G TURBINE PARTS	H CASTINGS	I FORCED DRAFT BLOWERS	J REDUCTION AND STEAM TURBINE DRIVEN AUXILIARY GEARS
11	RADIOGRAPHIC INSPECTION (RT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 3 MIL-STD-2035, PARAGRAPH 5	S9074-AR-GIB-010/278, PARAGRAPH 14 T9074-AS-GIB-010/271, PARAGRAPH 3 MIL-STD-2035, PARAGRAPH 5	S9074-AR-GIB-010/278, PARAGRAPH 13	S9074-AR-GIB-010/278, PARAGRAPH 16 T9074-AS-GIB-010/271, PARAGRAPH 3 MIL-STD-2035, PARAGRAPH 5	NOT APPLICABLE

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WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

LINE	COLUMN SITUATION EVOLUTION	F MACHINERY CLASS M	G TURBINE PARTS	H CASTINGS	I FORCED DRAFT BLOWERS	J REDUCTION AND STEAM TURBINE DRIVEN AUXILIARY GEARS
12	ULTRASONIC INSPECTION (UT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 6 MIL-STD-2035, PARAGRAPH 8	S9074-AR-GIB-010/278, PARAGRAPH 14	S9074-AR-GIB-010/278, PARAGRAPH 13	S9074-AR-GIB-010/278, PARAGRAPH 16	S9074-AR-GIB-010/278, PARAGRAPH 15
13	LIQUID PENETRANT INSPECTION (PT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7	S9074-AR-GIB-010/278, PARAGRAPH 14 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7	S9074-AR-GIB-010/278, PARAGRAPH 13 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7	S9074-AR-GIB-010/278, PARAGRAPH 16 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7	S9074-AR-GIB-010/278, PARAGRAPH 15 T9074-AS-GIB-010/271, PARAGRAPH 5 MIL-STD-2035, PARAGRAPH 7

TABLE 1
WELDING, FABRICATION, AND INSPECTION OF PIPING, PRESSURE VESSELS, PROPELLERS, AND MACHINERY

	COLUMN	F	G	H	I	J
LINE	SITUATION EVOLUTION	MACHINERY CLASS M	TURBINE PARTS	CASTINGS	FORCED DRAFT BLOWERS	REDUCTION AND STEAM TURBINE DRIVEN AUXILIARY GEARS
14	MAGNETIC PARTICLE INSPECTION (MT)	S9074-AR-GIB-010/278, PARAGRAPH 10 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6	S9074-AR-GIB-010/278, PARAGRAPH 14 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6	S9074-AR-GIB-010/278, PARAGRAPH 13 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6	S9074-AR-GIB-010/278, PARAGRAPH 16 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6	S9074-AR-GIB-010/278, PARAGRAPH 15 T9074-AS-GIB-010/271, PARAGRAPH 4 MIL-STD-2035, PARAGRAPH 6

TABLE 2
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (COMBATANT)

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	* (HY-80/100, HSLA-80 AND STS)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
1	WELDER QUALIFICATION	S9074-AQ-GIB-010/248, PARAGRAPH 5					
2	WELDING PROCEDURE	S9074-AQ-GIB-010/248, PARAGRAPH 4		S9074-AQ-GIB-010/248, PARAGRAPH 4 ***S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPH 4 S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPH 4***	S9074-AQ-GIB-010/248, PARAGRAPH 4		
3	ELECTRODE	MIL-STD-1689, PARAGRAPH 10 TABLE X	MIL-STD-1689, PARAGRAPH 10 TABLE XI	MIL-STD-1689, PARAGRAPH 10 TABLE XVI; ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPH 4 S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPH 4 S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPH 4***	MIL-STD-1689, PARAGRAPH 10 TABLES XII AND XIII	MIL-STD-1689, PARAGRAPH 10 TABLES XIV AND XV	S9074-AR-GIB-010/278, TABLE II
4	JOINT DESIGN	MIL-STD-22 MIL-STD-1689, PARAGRAPH 11		MIL-STD-22 MIL-STD-1689, PARAGRAPH 11; ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPH 4 S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPH 4; S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPH 4***	MIL-STD-22 MIL-STD-1689, PARAGRAPH 11		

* PARAGRAPH 3.9 Applies

TABLE 2
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (COMBATANT)

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	* (HY-80/100, HSLA-80 AND STS)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
5	WELDING REQUIREMENTS	MIL-STD-1689, PARAGRAPH 13		MIL-STD-1689, PARAGRAPH 13; ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPHS 3 and 4 S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPHS 3 and 4 S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPHS 3 and 4***	MIL-STD-1689, PARAGRAPH 13		
6	WORKMANSHIP REQUIREMENTS	MIL-STD-1689, PARAGRAPHS 12 AND 14		MIL-STD-1689, PARAGRAPHS 12 AND 14 ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPHS 3 and 4; S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPHS 3 and 4; S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPHS 3 and 4***	MIL-STD-1689, PARAGRAPHS 12 AND 14		

ITEM NO: 009-012

* PARAGRAPH 3.9 Applies

FY-28 CH-1

TABLE 2
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (COMBATANT)

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	* (HY-80/100, HSLA-80 AND STS)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
7	VISUAL	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 4 T9074-AS-GIB-010/271, PARAGRAPH 8		MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 4 T9074-AS-GIB-010/271, PARAGRAPH 8; ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPHS 3 and 5*** ***S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPHS 3 and 5*** ***S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPHS 3 and 5***	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 4 T9074-AS-GIB-010/271, PARAGRAPH 8		
8	RADIOGRAPHIC INSPECTION (RT)	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 5 T9074-AS-GIB-010/271, PARAGRAPH 3		MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 5 T9074-AS-GIB-010/271, PARAGRAPH 3	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 5 T9074-AS-GIB-010/271, PARAGRAPH 3		

* PARAGRAPH 3.9 Applies

TABLE 2
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (COMBATANT)

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	* (HY-80/100, HSLA-80 AND STS)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
9	ULTRASONIC INSPECTION (UT)	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 8 T9074-AS-GIB-010/271, PARAGRAPH 6		MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 8 T9074-AS-GIB-010/271, PARAGRAPH 6 ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPHS 3 and 5*** ***S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPHS 3 and 5*** ***S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPHS 3 and 5***	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 8 T9074-AS-GIB-010/271, PARAGRAPH 6		
10	LIQUID PENETRANT INSPECTION (PT)	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 7 T9074-AS-GIB-010/271, PARAGRAPH 5		MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 7 T9074-AS-GIB-010/271, PARAGRAPH 5 ***9CG0-BP-SRM-010/CG-47 CL Rev 1, PARAGRAPHS 3 and 5*** ***S9LCS-BG-SRM-010/LCS-1 CL, PARAGRAPHS 3 and 5*** ***S9LCS-BF-SRM-010/LCS-2 CL, PARAGRAPHS 3 and 5***	MIL-STD-1689, PARAGRAPHS 6, 7, AND 8 MIL-STD-2035, PARAGRAPH 7 T9074-AS-GIB-010/271, PARAGRAPH 5		
11	MAGNETIC PARTICLE INSPECTION (MT)	MIL-STD-1689, PARAGRAPH 6 MIL-STD-2035, PARAGRAPH 6 T9074-AS-GIB-010/271, PARAGRAPH 4		NOT APPLICABLE			

* PARAGRAPH 3.9 Applies

TABLE 3
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (NON-COMBATANT) * **

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	*** (HY-80/100)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
1	WELDER QUALIFICATION	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
2	WELDING PROCEDURE	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
3	ELECTRODE	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
4	JOINT DESIGN	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
5	WELDING REQUIREMENTS	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
6	WORKMANSHIP REQUIREMENTS	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
7	VISUAL	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
8	RADIOGRAPHIC INSPECTION (RT)	ABS RULES, PART 2, CHAPTER 4, SECTION 1					

TABLE 3
WELDING, FABRICATION, AND INSPECTION OF SURFACE SHIP HULLS (NON-COMBATANT) * **

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS), ORDINARY STRENGTH STEEL(OS), AND HIGHER STRENGTH STEEL (HSS)	*** (HY-80/100)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE ALLOYS	SILICONE BRONZE ALUMINUM BRONZE
9	ULTRASONIC INSPECTION (UT)	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
10	LIQUID PENETRANT INSPECTION (PT)	ABS RULES, PART 2, CHAPTER 4, SECTION 1					
11	MAGNETIC PARTICLE INSPECTION (MT)	ABS RULES, PART 2, CHAPTER 4, SECTION 1		NOT APPLICABLE			

* - IDENTIFICATION OF "SURVEYOR" IN ABS RULES SIGNIFIES SUPERVISOR OF SHIPBUILDING (SUPERVISOR) ACTION. THE SUPERVISOR MAY USE MIL-STD-1689 FOR GUIDANCE WHERE ADDITIONAL DIRECTION IS NECESSARY. SUCH GUIDANCE MAY BE USED TO: ESTABLISH NDT REQUIREMENTS, ESTABLISH

WELDING/NDT PROCEDURE AND PERSONNEL QUALIFICATION REQUIREMENTS, OR TO DEFINE OTHER ATTRIBUTES LISTED IN THE "MATERIAL EVOLUTION" LINE OF TABLE 3.

** - THE SUPERVISOR MAY ALSO ALLOW THE SHIPBUILDER TO CHOOSE FROM THE FOLLOWING OPTIONS, PROVIDING:

- THE SHIPBUILDER'S UTILIZATION OF THE FOLLOWING OPTIONS MUST RESULT IN NO ADDITIONAL COST TO THE GOVERNMENT.
- THE SHIPBUILDER MUST UTILIZE THE FABRICATION DOCUMENT SELECTED FOR THE ENTIRE AVAILABILITY AND MUST NOT SWITCH BACK AND FORTH BETWEEN DOCUMENTS.
- THE SHIPBUILDER MUST NOTIFY THE SUPERVISOR OF WHICH FABRICATION DOCUMENT HAS BEEN SELECTED.

OPTIONS:

A) MIL-STD-1689 MAY BE UTILIZED BY THE SHIPBUILDER AT THE SHIPBUILDER'S DISCRETION. THE REQUIREMENTS OF TABLE 2 ABOVE WOULD THEN APPLY.

B) FOR DETERMINATION OF NDT METHOD(S) AND EXTENT OF NDT INSPECTION WHEN REPAIRS ARE TO BE ACCOMPLISHED, THE SHIPBUILDER MAY REQUEST TO UTILIZE THE SAME NDT REQUIREMENTS THAT WERE INVOKED IN CONSTRUCTION OF THE VESSEL. IN SUCH CASES, THE SHIPBUILDER MUST BE RESPONSIBLE TO DETERMINE THE ORIGINAL NDT REQUIREMENTS AND SUBMIT EVIDENCE SUCH AS DRAWINGS OR SPECIFICATIONS WHICH DETAIL THE REQUIREMENTS TO THE SUPERVISOR ALONG WITH A REQUEST FOR APPROVAL.

C) THE SHIPBUILDER MAY REQUEST TO UTILIZE PRE-ESTABLISHED WELDING AND/OR NDT PROCEDURES AND PERSONNEL QUALIFICATION PROGRAM(S) WHICH HAVE BEEN PREVIOUSLY UTILIZED IN THE PERFORMANCE OF SIMILAR ABS-ACCEPTED WORK. IN SUCH CASES, THE SHIPBUILDER MUST SUBMIT EVIDENCE OF SUCH ABS ACCEPTABILITY TO THE SUPERVISOR ALONG WITH DESCRIPTIVE DETAILS AND SUPPORTING DOCUMENTATION FOR THE PROPOSED PROGRAM(S). SUCH DOCUMENTATION MUST INCLUDE THE WELDING/NDT PROCEDURES AND METHODS OF WELDING/NDT PERSONNEL QUALIFICATION THAT WERE UTILIZED IN FORMER ABS-ACCEPTED WORK. THE SHIPBUILDER MUST ALSO SUBMIT OTHER SUPPORTING EVIDENCE THAT MAY BE REQUESTED BY THE SUPERVISOR TO

ESTABLISH THAT THE PROPOSED PROGRAMS HAVE BEEN PREVIOUSLY UTILIZED FOR SIMILAR ABS-ACCEPTED WORK.

*** - PARAGRAPH 3.8 APPLIES.

TABLE 4
WELDING, FABRICATION, AND INSPECTION OF
METAL BOAT AND CRAFT HULLS* ****

LINE	COLUMN	A	B	C	D	E	F
	MATERIAL EVOLUTION	CARBON STEEL (MS)	** (HY-80/100)	ALUMINUM ALLOY	CHROMIUM NICKEL STEEL (STAINLESS)	COPPER AND/OR NICKEL BASE	SILICON E BRONZE ALUMIN
1	WELDER QUALIFICATION	S9074-AQ-GIB-010/248, SECTION 5		TO300-AU-SPN-010. SECTION 3.3	S9074-AQ-GIB-010/248, SECTION 5		
2	WELDING PROCEDURE QUALIFICATION	S9074-AQ-GIB-010/248, SECTION 4		TO300-AU-SPN-010. SECTION 3.2	S9074-AQ-GIB-010/248, SECTION 4		
3	ELECTRODE/FILLER MATERIAL	0900-060-4010, SECTION 10, TABLE 10-1	0900-060-4010, SECTION 10, TABLES 10-2 AND 10-3	TO300-AU-SPN-010, TABLES I AND II***	0900-060-4010, SECTION 10, TABLE 10-4	0900-060-4010 SECTION 10, TABLES 10-5 AND 10-6	S9074-AR-GIB-010/278, TABLE II
4	JOINT DESIGN	MIL-STD-22 0900-060-4010, SECTION 11		TO300-AU-SPN-010, SECTION 8 AND APPENDIX A AND APPENDIX B	MIL-STD-22 0900-060-4010, SECTION 11		
5	WELDING REQUIREMENTS	0900-060-4010, SECTION 13		TO300-AU-SPN-010, SECTION 10	0900-060-4010, SECTION 13		
6	WORKMANSHIP REQUIREMENTS	0900-060-4010, SECTIONS 12 AND 14		TO300-AU-SPN-010, SECTION 11	0900-060-4010, SECTIONS 12 AND 14		
7	VISUAL	0900-060-4010, SECTIONS 6, 7, AND 8 T9074-AS-GIB-010/271, SECTION 8		TO300-AU-SPN-010, SECTIONS 3.5.2.1, 5.4.1, 6.2, AND 7.2	0900-060-4010, SECTIONS 6, 7, AND 8 T9074-AS-GIB-010/271, SECTION 8		
8	RADIOGRAPHIC INSPECTION (RT)	0900-060-4010, SECTION 6, TABLE 6-1 AND SECTIONS 7 AND 8 T9074-AS-GIB-010/271, SECTION 3		TO300-AU-SPN-010, SECTIONS 3.5.2.4, 5.4.3, 6.4, AND 7.4	0900-060-4010, SECTION 6, TABLE 6-1 AND SECTIONS 7 AND 8 T9074-AS-GIB-010/271, SECTION 3		

9	ULTRASONIC INSPECTION (UT)	T9074-AS-GIB-010/271, SECTION 6 T9074-AS-GIB-010/271, SECTION 6		
10	LIQUID PENETRANT INSPECTION (PT)	0900-060-4010, SECTIONS 6, 7, AND 8 T9074-AS-GIB-010/271, SECTION 5	TO300-AU-SPN-010 SECTIONS 3.5.2.2, 5.5.3.4, 6.3, AND 7.3	0900-060-4010, SECTIONS 6, 7, AND 8 T9074-AS-GIB-010/271, SECTION 5
11	MAGNETIC PARTICLE INSPECTION (MT)	0900-060-4010, SECTION 6 T9074-AS-GIB-010/271, SECTION 4	NOT APPLICABLE	

*- STRUCTURAL FABRICATION AND NON DESTRUCTIVE TESTING REQUIREMENTS FOR PATROL COASTAL (PC) CRAFT (PC-2 THRU PC-14) ARE ADDRESSED IN A SEPARATE TECHNICAL REPAIR STANDARD INVOKED IN STATEMENTS OF WORK (SOW) FOR PC REPAIRS AND MODIFICATIONS.

** PARAGRAPG 3.8 APPLIES.

***- SOME CRAFT ARE ORIGINALLY PROCURED WITH 6061 PLATING AND STRUCTURAL MEMBERS IN THE WELDED CONDITION. MODIFICATIONS TO SUBJECT CRAFT INVOLVE WELDING 5000 SERIES TO 6000 SERIES ALUMINUM AND ARE NOT ADDRESSED IN THE REFERENCED DOCUMENTS IN THIS NAVSEA STANDARD ITEM.

**** THE SUPERVISOR MAY ALSO ALLOW THE CONTRACTOR TO CHOOSE FROM THE FOLLOWING OPTIONS, PROVIDING; UTILIZATION OF THE FOLLOWING OPTIONS MUST RESULT IN NO ADDITIONAL COST TO THE GOVERNMENT, THE CONTRACTOR SHALL SELECT THE WELDING STANDARD SELECTED FOR THE ENTIRE AVAILABILITY AND MUST NOT SWITCH BACK AND FORTH BETWEEN DOCUMENTS. THE CONTRACTOR MUST NOTIFY THE SUPERVISOR OF WHICH WELDING STANDARD HAS BEEN SELECTED.

OPTION A) MIL-STD-1689 MAY BE UTILIZED AT THE CONTRACTORS DISCRETION. THE REQUIREMENTS OF TABLE 2 ABOVE WOULD THEN APPLY.

OPTION B) THE CONTRACTOR MAY REQUEST TO UTILIZE THE SAME WELDING & NDT REQUIREMENTS THAT WERE INVOKED IN CONSTRUCTION OF THE VESSEL. IN SUCH CASES, THE CONTRACTOR MUST BE RESPONSIBLE TO DETERMINE THE ORIGINAL NDT REQUIREMENTS AND SUBMIT EVIDENCE SUCH AS DRAWINGS OR SPECIFICATIONS WHICH DETAIL THE NEW REQUIREMENTS TO THE SUPERVISOR ALONG WITH A REQUEST FOR APPROVAL.

OPTION C) THE CONTRACTOR MAY REQUEST TO UTILIZE PRE-ESTABLISHED (I.E. ABS, AWS, ASME, ETC.) WELDING AND/OR NDT PROCEDURES AND PERSONNEL QUALIFICATION PROGRAM(S) WHICH HAVE BEEN PREVIOUSLY UTILIZED IN THE PERFORMANCE OF SIMILAR GOV-ACCEPTED WORK. IN SUCH CASES, THE CONTRACTOR MUST SUBMIT EVIDENCE OF SUCH GOV ACCEPTABILITY TO THE SUPERVISOR ALONG WITH DESCRIPTIVE DETAILS AND SUPPORTING DOCUMENTATION FOR THE PROPOSED PROGRAM(S). SUCH DOCUMENTATION MUST INCLUDE THE WELDING/NDT PROCEDURES AND METHODS OF WELDING/NDT PERSONNEL QUALIFICATION THAT WERE UTILIZED IN FORMER ACCEPTED WORK. THE CONTRACTOR MUST ALSO SUBMIT OTHER SUPPORTING EVIDENCE THAT

MAY BE REQUESTED BY THE SUPERVISOR TO ESTABLISH THAT THE PROPOSED PROGRAMS HAVE BEEN PREVIOUSLY UTILIZED FOR SIMILAR ACCEPTED WORK

COMBATANT SURFACE SHIPS		
WARSHIPS		
SHIP CLASS	SHIP TYPE	TABLE
CV	Aircraft Carrier	2
CVN	Aircraft Carrier (nuclear propulsion)	2
CG	Guided Missile Cruiser	2
DDG	Guided Missile Destroyer	2
FFG	Guided Missile Frigate	2
LCS	Littoral Combat Ship	2
AMPHIBIOUS WARFARE SHIPS		
SHIP CLASS	SHIP TYPE	TABLE
LCC	Amphibious Command Ship	2
LHA	Amphibious Assault Ship (general purpose)	2
LKA	Amphibious Cargo Ship	2
LPD	Amphibious Transport Dock	2
LSD	Dock Landing Ship	2
LHD	Amphibious Assault Ship (general purpose)	2
AUXILIARY SHIPS		
SHIP CLASS	SHIP TYPE	TABLE
AO	Oiler	2
AOE	Fast Combat Support Ship	2
MINE WAREFARE SHIPS		
SHIP CLASS	SHIP TYPE	TABLE
MCM	Mine Countermeasures Ship	2
NON-COMBATANT SURFACE SHIPS		
AUXILIARY SHIPS		
SHIP CLASS	SHIP TYPE	TABLE
ACS	Auxiliary Crane Ship	3
AGM	Missile Range Instrumentation Ship	3
AGOR	Oceanographic Research Ship	3
AGOS	Ocean Surveillance Ship	3
AGS	Surveying Ship	3
AH	Hospital Ship	3
AK	Cargo Ship	3
AKB	Auxiliary Cargo Barge/Lighter Ship	3
AKF	Auxiliary Cargo Float-On/Float-Off Ship	3
AOT	Transport Oiler	3
APL	Barracks Craft	3
ARC	Cable Repairing Ship	3
ARS	Salvage Ship	3
AS	Submarine Tender	3
ATF	Fleet Ocean Tug	3
AVB	Aviation Logistic Support Ship	3

NON-COMBATANT SURFACE SHIPS		
SERVICE CRAFT		
SHIP CLASS	SHIP TYPE	TABLE
AFDL	Small Auxiliary Floating Drydock (non-self-propelled)	4
APL	Barracks Craft (non-self-propelled)	4
ARDM	Medium Auxiliary Repair Drydock (non-self-propelled)	4
DSRV	Deep Submergence Rescue Vehicle (Self-Propelled)	4
DSV	Deep Submergence Vehicle (Self-Propelled)	4
FSF	Fast Sea Frame (Self-Propelled	4
IX	Unclassified Miscellaneous	4
NR	Submersible Research Vehicle (Self-Propelled)	4
SBX	Mobile Radar Platform (Self-Propelled)	4
SS	Unclassified Miscellaneous Submarine (Self-Propelled)	4
YC	Open Lighter (non-self-propelled)	4
YCV	Aircraft Transportation Lighter (non-self-propelled)	4
YD	Floating Crane (non-self-propelled)	4
YDT	Diving Tender (non-self-propelled)	4
YFB	Ferryboat or Launch (self-propelled)	4
YFN	Covered Lighter (non-self-propelled)	4
YFBN	Large Covered Lighter (non-self-propelled)	4
YON	Fuel Oil Barge (non-self-propelled)	4
YOS	Oil Storage Barge (non-self-propelled)	4
YP	Patrol Craft (self-propelled)	4
YR	Floating Workshop (non-self-propelled)	4
YRB	Repair and Berthing Barge (non-self-propelled)	4
YRBN	Repair, Berthing, and Messing Barge (non-self-propelled)	4
YRDH	Floating Drydock Workshop (Hull) (non-self-propelled)	4
YRDM	Floating Drydock Workshop (Machine) (non-self-propelled)	4
YSD	Seaplane Wrecking Derrick (self-propelled)	4
YT	Harbor Tug (self-propelled)	4
YTB	Large Harbor Tug (self-propelled)	4
YTL	Small Harbor Tug (self-propelled)	4
YTT	Torpedo Trials Craft (self-propelled)	4
YWN	Water Barge (non-self-propelled)	4
YWO	Waste Oil Barge (non-self-propelled)	4
ESB	Expeditionary Sea Base Vessel	3/2*
SEALIFT SUPPORT CRAFT		
SHIP CLASS	SHIP TYPE	TABLE
CFPM	Causeway Ferry Power Module, INLS	4
CM	Combination/Docking Module, INLS	4
IM	Intermediate Module, INLS	4
RM	Ramp Module, INLS	4
LWT	Light Warping Tug	4
WT	Amphibious Warping Tug	4

SLWT	Side Loading Warping Tug	4
NON-COMBATANT SURFACE SHIPS		
SEALIFT SUPPORT CRAFT (CONTINUED)		
SHIP CLASS	SHIP TYPE	TABLE
LARC V	Lighter, Amphibious Resupply, Cargo 5 Ton	4
OPDS UB	Offshore Petroleum Discharge System Utility Boat	4
MPFUB	Maritime Prepositioning Force Utility Boat	4
COMBATANT CRAFT		
SHIP CLASS	SHIP TYPE	TABLE
LCAC	Landing Craft, Air Cushion	4
LCM	Landing Craft, Mechanized	4
LCPL	Landing Craft, Personnel, Large	4
LCU	Landing Craft, Utility	4
CCA	Combatant Craft Assault	4
CCH	Combatant Craft Heavy	4
CCM	Combatant Craft Medium	4
SOC-R	Special Operations Craft-Riverine	4
SSC	Surface Support Craft	4
SDV	Seal Delivery Vehicle	4
SWCS	Shallow Water Combat Submersible	4
PB	Patrol Boat	4
RAB	Riverine Assault Boat	4
RCB	Riverine Command Boat	4
RPB	Riverine Patrol Boat	4
AT	Armored Troop Carrier	4
MERC	Multi-Use EOD Response Craft	4
BOATS		
SHIP CLASS	SHIP TYPE	TABLE
AC	Area Command Cutter	4
AP	Area Point Search	4
AR	Aircraft Rescue Boat	4
BB	Barrier Boat	4
BH	Boom Handling	4
BP	Boom Platform	4
BW	Boston Whaler	4
CA	Catamaran (Self-Propelled)	4
CC	Cabin Cruiser (Self-Propelled)	4
DS	Dive Support	4
DSB	Dive Support Boat	4
DW	Dive Workboat	4
HL	Hydrographic Survey Launch	4
HS	Force Protection (Harbor Security)	4
LB	Life Boat (Self-Propelled)	4
MC	Support Craft (High-value)	4

ML	Non-Standard (Self-Propelled)	4
NON-COMBATANT SURFACE SHIPS		
BOATS (CONTINUED)		
SHIP CLASS	SHIP TYPE	TABLE
MM	Marine Mammal Boat	4
MR	Missile Retriever Boat	4
NS	Non-Standard Boat	4
OP	Oil Pollution Skimmer Boat	4
PE	Personnel Boat	4
PL	Personnel, Light	4
PR	Plane Personnel Rescue Boat	4
PS	Parasail Training Boat	4
RB	Rigid Inflatable Boat	4
RIB RX	Non-Standard Rigid Inflatable Boat	4
SC	Support Craft	4
ST	Sail Training Craft	4
SX	Ships Non-Standard Boat	4
TL	Tender Life Boat	4
TR	Torpedo Retriever Boat	4
TWR	Torpedo Weapons Retriever	4
UB	Utility Boat	4
UC	Unmanned Craft	4
WB	Work Boat	4
WP	Work Platform Boat	4

* ESB structure is primarily maintained using commercial standards (table 3), but some limited structures are maintained to military standards (table 2). See COMNAVSURFOR/COMSCINST 3000.1A for more details.