

GOODRICH FIELD SERVICE SHIPYARD SUPPORT REQUIREMENTS SDRW REPAIRS and/or REPLACEMENT

1.0 SCOPE

- 1.1 This document covers the facilities preparation that a shipyard must perform for Sonar Dome Rubber Window (SDRW) repairs. Generally, these facility requirements should be accomplished **prior** to the arrival of the **Goodrich** Technical Representatives.

2.0 THE SHELTER

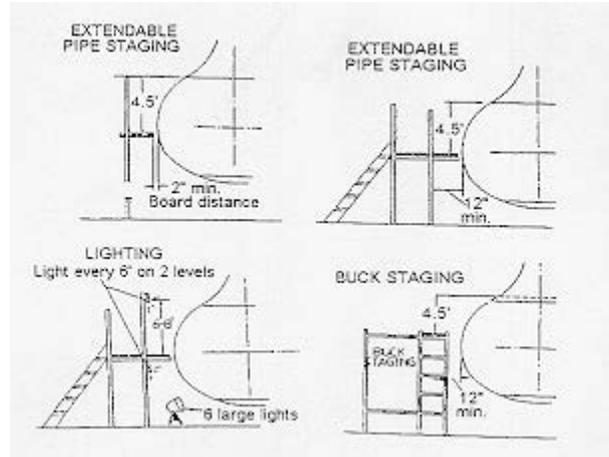
- 2.1 Because the materials used in sonar dome repair work cure at temperatures above 65 degrees F (18.3 degrees C), the sonar dome rubber surface should not be exposed to direct sunlight, the solvents and cements used in the repair process are sensitive to high humidity. A shelter covering the sonar dome and bow of the ship is necessary. Shelter types vary considerably, climate being the principle-governing factor. For small rubber repair jobs a tarpaulin, canvas or preferably white Herculite (allows better visibility) are adequate in warm climates and during the summer months in the north. For repair jobs during the winter, a sturdy plywood shelter is the preferred construction. Constructions using a plywood roof with Herculite covered stud walls have been used successfully during northern springs and falls and warm climate rainy seasons, however, high winds can be severely damaging to this type construction.
- 2.2 The shelter roof must be a minimum of five feet (1.5m) above the upper SDRW marriage line. Sealing the shelter against the hull of the ship is always critical. Water (rain or unskuffered ship water discharges) running over the sonar dome will shut down rubber repair work, the roof, therefore, must be water tight because water will ruin the adhesive properties of the repair materials.

3.0 STAGING

- 3.1 For all SDRW repair work an upper level of staging is required. The top staging level should be approximately at the minus 4 1/2 foot (1.37m) water line (This is approx. 4' down [1.2m] from the steel/rubber marriage line or 4 1/2 foot (1.37m) down from the baseline flat). The staging should go around the entire peripheral of the rubber surface of the sonar dome (See Illustrations 2 and 3). A lower level of staging is required when the minus 4 foot waterline is more than 7 feet (2.1m) above the dock floor.

3.2 For extendable staging, staging posts should be 22-26 inches (55-66cm) away from the SDRW surface. For non-extendable staging, the posts should be a minimum of 8 –12 inches (20-30 cm) away from the rubber surface. This space is necessary to allow a pneumatic grinder to pass between the staging posts and the rubber surface.

3.3 For both safety and convenience a stairway to the top level of staging is necessary. In some respects, laying rubber plies is similar to laying wallpaper. Imagine climbing the sides of staging or a ladder carrying wet wallpaper.



3.4 For safety, there should be a safety rail around the top levels of staging.

4.0 LIGHTING

4.1 Good visibility is critical for rubber repair work. As a rule of thumb, you should be able to read by the lighting. Lighting of 90 candles, per a photometer, is required. Painting the interior of the shelter white or using white Herculite for wall of the shelters enhances the lighting.

4.2 On rubber repair work, soft, diffused lighting (stringers incandescent or neon) is preferable to bright lighting (i.e. mercury vapor).

4.3 Technically we have specified that 90 candles (per a photometer) of lighting should be provided at the rubber surface. As a "rule of thumb", you should be able to read by the lighting.

4.4 Provide 115-volt AC electricity with a minimum of four outlets

SAFETY NOTE: The solvents and cements used in this process are flammable. All electrical equipment and lighting shall be explosion/spark proof.

5. 0 HEATING AND HUMIDITY

5.1 When seasonal temperatures fall below 60 degrees F (15.5 C) the shelter will require heating to maintain a minimum temperature of 70 degrees F (21 C).

5.2 During wet weather and periods at high humidity, dehumidification must keep the temperature at 5 degrees F (2.8 C) points above the dew point temperature

SAFETY NOTE: The solvents and cements used in this process are flammable. All electrical equipment and lighting shall be explosion/spark proof.

6.0 VENTILATION

- 6.1 The shelter must be designed to insure a minimum of four (4) air changes per hour during the grinding and buffing process.

SAFETY NOTE: The solvents and cements used in this process are flammable. All electrical equipment and lighting shall be explosion/spark proof.

7.0 AIR SUPPLY

- 7.1 The tools used for the rubber repair work are pneumatic tools. The shipyard must supply a manifold with a minimum of four hook-ups. The manifold should be located inside the shelter and under the centers of the dome banjo. Four individual 50 ft.(15m) long X 3/4-inch (20mm) airlines are required for general repairs and final finishes. Two 50 ft.(15m) and two 75 ft. (25m) air lines are required for splice repairs. These air lines are to be equipped with 8 ft. (2m) by 3/8 inch (10mm) lead/whip hoses. The air supply must have a minimum volume of 45 cubic feet (1.3 cubic meters) per minute, a minimum pressure 100 psi (6.8 bar), and quality (water and oil free) to run four air tool at the same time. Fittings for the air tools (3/8" NPT female threaded tools) will be needed to hook into the air lines.

8.0 TOOLS, EQUIPMENT, AND SUPPLIES REQUIRED

- 8.1 The shipyard **must** supply the following tools, equipment, and supplies for final finishes and general repairs per Table 1.

DESCRIPTION	QUANTITY
4' x 8' (1m X 2m) Work Tables *	1
16" X 16" Mixing Board	2
1/4" x 1/4" x 36" Wooden (6mm X 6mm X 1m)	4
Gang Boxes	1
Flammable Solvent Container	1
Weighing Scale (1,000 – 3,000 grams)	1
Waste Container for Scrap Solvents	1 – 55 gallon drum
Waste Container for Scrap Solids	1 – 55 gallon drum

* Work tables can be fabricated from 8' X 4' 3/4" (1m X 2m X 20mm) plywood and 3' (1m) saw horses

