CHAPTER 4

EQUIPMENT FOUNDATION PREPARATION

4-1. INSTALLATION.

The installing activity is provided with two drill fixtures and a telescope unit for accurately locating and drilling the equipment foundation mounting holes for the stand, loader, and lower hoist. The foundations for the lower accumulator and the control panels do not require a special drill fixture, but do require machining to obtain a flat mounting surface for each item within 0.005-inch total and a surface finish of 125 microinches (125 √). After machining, the thickness of mild steel mounting flanges on the ship foundations must be at least 1/2 inch thick for the power and control panels and at least 5/8 inch thick for the lower accumulator. The non-bearing surface in any 12-inch length for these ship foundations must not exceed 25 percent. In a 2-inch diameter circle around each holddown bolt for the lower accumulator, the bearing area must be at least 90 percent. In a 1-inch-diameter circle around each holddown bolt for the power and control panels, the bearing area must be at least 90 percent.

When preparing the equipment foundations, first do the necessary machining, mark the stand foundation for orientation, and then drill the mounting holes. Refer to the installation drawings included in Appendix A of this manual when using the fixtures to drill the foundation mounting holes.

4-2. MACHINING.

There are five types of machining to be done:

- Stand Foundation
- Loader Foundation
- Upper and Lower Hoists
- Hoist and Strikedown Tube Deck Seals
- Sprocket Housing Retainer Blocks

NOTE

For reinstallation, machining of the foundations is not necessary provided the alignment, parallelism, and bearing surface requirements are met.

4-2.1. Stand Foundation Machining. The stand foundation surface (DWG 7249085, Sheet 3 [with Shield MK 63 MOD 1] or Sheet 3A [with Shield MK 63 MOD 2]) must be parallel to the director foundation surface (in the Weapons Control System) within 3 minutes of angle with a surface finish of 125 microinches (125 √). Final surface condition, as determined by a test (blue-in or equivalent), must indicate at least a 75 percent bearing area. Non-bearing areas in any 60° sector shall be limited to a maximum of 5 percent of the foundation total bearing area.

4-2.2. Loader Foundation Machining. Machine the loader foundation surfaces (Figure 4-1) to obtain 107.937 (±0.060) inches between the loader and the stand foundation surfaces. These foundation surfaces must have a 125 √ finish and be parallel to the stand foundation surface within 0.002 inch in 12 inches. Final surface condition, as determined by a test (blue-in or equivalent), must indicate at least a 50 percent bearing area. Non-bearing areas in any 60° sector shall be limited to a maximum of 10 percent of the foundation total bearing area.

4-2.3. Upper and Lower Hoists Machining. For the upper and lower hoists, machine the upper hoist support foundation and lower hoist foundation surfaces to the same requirements as the loader foundation surface. The mounting surfaces for the loader, upper hoist support, and lower hoist must lie in the same plane to eliminate the possibility of cocking the loader drill fixture.

4-2.4. Hoist and Strikedown Tube Deck Seals Machining. Machine foundation surfaces for hoist and strikedown tube deck seals to obtain dimensions A and B (DWG 7249085, Sheet 14, Detail AM and Table VII). Surfaces must be flat within 0.031 inch (Sheet 8, Views S and X).

4-2.5. Sprocket Housing Retainer Blocks Machining. Machine sprocket housing retainer blocks foundation surfaces to obtain dimension A within 0.062 inch (Sheet 3, View B-B, and Sheet 14, Table V). Surfaces must be flat within 0.031 inch.

NOTE

For gun mounts without the lower hoist, machine the upper loading station support foundation to the same requirements as the loader foundation surface.

4-3. MARKING.

Scribe lines across the stand foundation surface where the fore-and-aft centerline of the gun mount crosses the stand foundation and parallel to the ship fore-and-aft centerline. Label the scribelines where they intersect the 100.125-inch stand diameter at points A and B.

Using a theodolite (Keuffel and Esser, type P-5087 or equivalent) mounted at point A, construct points C and D (Figure 4-2) on the 100.125-inch stand diameter 45° from the gun mount fore-and-aft centerline. Repeat this procedure at point B. Verify accuracy of points C and D as benchmarks for mounting the theodolite and check points A and B. Scribe lines C and D across the foundation. For future reference, draw an arrow at the fore-and-aft centerline to indicate the direction of the muzzle when the gun mount is in stowed position.

4-4. DRILLING.

NOTE

During reinstallation, drilling is not necessary unless the foundations have been reworked since the gun mount was removed.

Before installing stand drill fixture SA2828694, lower loader drill fixture SA2828693 to the loader room deck for later use. Then drill stand mounting and conduit holes, drill loader tube mounting plate holes, drill lower hoist mounting holes and remove loader drill fixture, remove telescope unit and stand drill fixture, locate tube clearance holes through lower decks for Lower Hoist MK 6 MODs 19, 21, 23, 24, 25, or 26 and drill access hole in ship foundation below lower hoist drive.

4-5. DRILL STAND MOUNTING AND CONDUIT HOLES.

Place the stand drill fixture (Figure 4-3), without telescope unit SA2828772, on the stand foundation surface, ensuring the muzzle-end stamp indicating the gun barrel muzzle stowed position (Figure 4-2) is at the muzzle end of the foundation as determined from DWG 7249085. Line up points A, B, C, and D on the foundation surface with the straight edges of the notches in the drill fixture. This positions the center hole for mounting the telescope in the drill fixture at the vertical centerline of the gun mount.

Using a 0.002-inch feeler gage, check the area between the fixture and foundation to ensure the two surfaces are in contact and that no objects are between them. When the stand drill fixture is correctly aligned and flush on the foundation, secure the fixture to the foundation with C-clamps.