

CHAPTER 12 SADDLES AND FOUNDATIONS

12-1 GENERAL INFORMATION.

12-1.1 Modern boilers are supported and attached to a foundation by saddles on the water drum and lower headers. These saddles are designed to allow the boiler to expand and to withstand forces due to shock and vibration. A saddle with a baseplate rigidly attached to the foundation is said to have a stationary foot. The baseplates of some saddles permit the saddle to move with respect to the foundation for boiler expansion. These saddles are said to have sliding feet. A sliding foot, as in Figure 12-1, consists of a boiler saddle foundation baseplate, a chock, and a phosphorous bronze chock facing. The baseplate has bolt holes elongated in the same direction that the drum or header moves, grease grooves machined in the bottom surface that contacts the phosphorous bronze chock facing, and fitting(s) for providing grease to these grooves. The phosphorous bronze chock facing is attached to the chock by fasteners and resists corrosion between the sliding surfaces. The chock with phosphorous bronze facing has reamed bolt holes and is incorporated into the design to compensate for misalignment that occurred during initial boiler installation by machining the chock to the thickness required. The chock and foundation plate have reamed bolt holes into which foundation bolts are fitted. Collision chocks, if installed, prevent movement of the saddle if a ship collides, either with the pier or another ship.

NOTE

Collision chocks are installed on only some sliding-foot foundations. Consult ship installation drawings for any questions on chock requirements.

12-1.2 The movement in a sliding foot occurs between the saddle baseplate and the phosphorous bronze chock facing. These surfaces must be kept clean and lubricated to ensure movement. A sliding foot that cannot move is termed a "frozen foot" and causes high stresses on the foundation and ship structure because it restricts boiler expansion.

NOTE

Older construction sliding feet may have had steel liners instead of phosphorous bronze liners. Follow the repair and maintenance procedures specified in this chapter for servicing steel liners. See note 6 on Figure 12-1 for replacing steel liners.

12-1.3 The arrangement of a saddle with a stationary foot is similar to that with a sliding foot except that the chock of a stationary foot has no phosphorous bronze facing, and the saddle base plate and chock are welded to the foundation.

12-1.4 Procedures for lubricating, preserving, and repairing saddles and foundations are included in this chapter.

12-2 LUBRICATION OF SLIDING FOOT.

12-2.1 MECHANISM FOR LUBRICATION. All main boilers should provide for external lubrication of sliding feet in casings through stainless steel tubing or steel pipe installed between a zerk fitting at the outer casing and lube connection(s) at the sliding foot. Tubing or