

(e) Sections of wrapper plates of combustion chambers outside of stayed areas may be repaired by welding provided the welded joints are stress-relieved by means of controlled heat and the joints are nondestructively tested.

### Subpart 59.15—Miscellaneous Boiler Repairs

#### § 59.15-1 Furnace repairs.

(a) Where corrugated or plain furnaces or flues are distorted by 1½ inches or more, they shall be repaired by either of the following methods:

(1) The furnace shall be forced back to a true circular shape, and the Officer in Charge, Marine Inspection, may require strongbacks or other acceptable means of support to hold the furnace from future collapse, if in his opinion such support is necessary; or,

(2) The furnace shall be adequately stayed as found necessary in the judgment of the Officer in Charge, Marine Inspection.

(b) Distortion means the difference between any single measured diameter of the furnace and the diameter of a true circle at the same location. The diameter of the true circle may be taken as the original furnace diameter or may be determined by a means acceptable to the Officer in Charge, Marine Inspection.

(c) Where the distortion does not exceed 1½ inches it will not be necessary

to force the furnace back to a true circle if the allowable pressure is reduced in the ratio of 1½ percent for each one-tenth of an inch of distortion. However, if the maximum distortion does not exceed 1 inch and the length of the distorted area is not more than three corrugations, or, if the maximum distortion does not exceed three-fourths inch for a length greater than three corrugations of distorted area, the repairs or reduction in pressure will not be required unless considered necessary by the marine inspector.

(d) When it becomes necessary to rivet a patch to a furnace or other part of the heating surface, the riveted patch shall be placed on the waterside of the plate in order not to form a pocket in which sediment may collect.

(e) Furnace crowns which have become distorted, not in excess of the limitations provided in paragraph (c) of this section, may be repaired by pumping back the distorted section to as nearly a true circle as possible and reinforcing the same by means of a ring, arc- or gas-welded to the distorted corrugation as shown in Figure 59.15-1, the welding to be done by welders and welding processors qualified in accordance with part 57 of this subchapter using acceptable welding electrodes in accordance with § 57.02-4 of this subchapter.

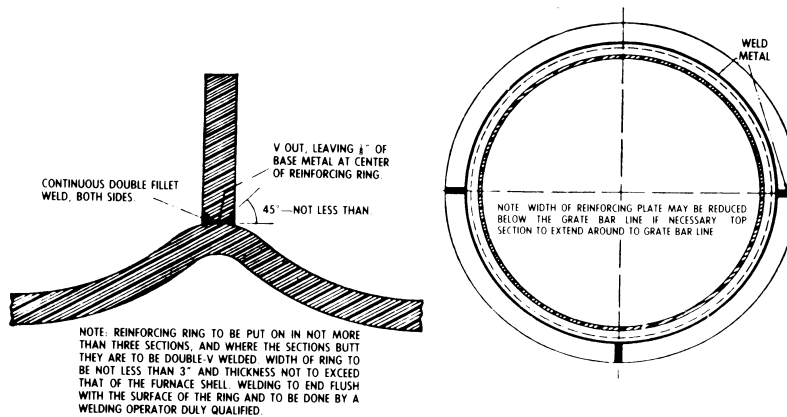


FIGURE 59.15-1—APPROVED METHOD OF REINFORCING FURNACES BY MEANS OF ARC OR GAS WELDING

**§ 59.15-5 Stayed furnaces and combustion chambers.**

(a) Where the plate forming the walls of stayed furnaces or combustion chambers become bulged between staybolts, repairs may be made by inserting an additional staybolt in the center of such space supported by the four staybolts.

(b) Where it is desired to rivet a patch to the wall of a stayed furnace or combustion chamber, the defective portion of the plate shall be cut away until solid material is reached, the patch shall be riveted on the waterside, and the staybolts renewed, and extended through the new plate.

**§ 59.15-10 Bagged or blistered shell plates.**

(a) When the shell plates of cylindrical boilers which are exposed to the radiant heat of the fire become bagged or blistered, it shall be the duty of the chief engineer in charge of the vessel to notify the Officer in Charge, Marine Inspection, for examination before raising steam on the boiler.

(b) Where the shell plate is bagged due to overheating, the Officer in Charge, Marine Inspection, may, if in his judgment it is practicable, permit the same to be driven back to its original position.

(c) Where the shell plate has blistered, bagged, or bulged to such an extent

that there is an appreciable thinning of the plate, the Officer in Charge, Marine Inspection, shall require the defective portion to be cut away and the shell repaired by fitting a patch of steel plate conforming to the requirements of § 52.01-90 of this subchapter in place of the defective portion. Care shall be taken that the riveting schedule of the patch is so arranged as to give the plate sufficient strength to withstand the stress placed on it in service.

**Subpart 59.20—Welding Repairs to Castings**

**§ 59.20-1 Carbon-steel or alloy-steel castings.**

Defects in carbon-steel or alloy-steel castings may be repaired by welding. The repairs shall be performed in accordance with the material specification to which the casting was originally supplied.

**PART 60 [RESERVED]**

**PART 61—PERIODIC TESTS AND INSPECTIONS**

**Subpart 61.01—General**

Sec.  
61.01-1 Scope.