

§ 230.53 Time of cleaning.

The spindles of all water glass valves and of all gauge cocks shall be removed and valves and cocks thoroughly cleaned of scale and sediment at every 31 service day inspection, and when testing indicates that the apparatus may be malfunctioning. In addition, the top and bottom passages of the water column shall be cleaned and inspected at each annual inspection.

§ 230.54 Testing and maintenance.

(a) *Testing.* All water glasses must be blown out, all gauge cocks must be tested, and all passages verified to be open at the beginning of each day the locomotive is used, and as often as necessary to ensure proper functioning.

(b) *Maintenance.* Gauge cocks, water column drain valves, and water glass valves must be maintained in such condition that they can easily be opened and closed by hand, without the aid of a wrench or other tool.

§ 230.55 Tubular type water and lubricator glasses and shields.

(a) *Water glasses.* Tubular type water glasses shall be renewed at each 92 service day inspection.

(b) *Shields.* All tubular water glasses and lubricator glasses must be equipped with a safe and suitable shield which will prevent the glass from flying in case of breakage. This shield shall be properly maintained.

(c) *Location and maintenance.* Water glasses and water glass shields shall be so located, constructed, and maintained that the engine crew can at all times have an unobstructed view of the water in the glass from their proper positions in the cab.

§ 230.56 Water glass lamps.

All water glasses must be supplied with a suitable lamp properly located to enable the engine crew to easily see the water in the glass.

INJECTORS, FEEDWATER PUMPS, AND
FLUE PLUGS

§ 230.57 Injectors and feedwater pumps.

(a) *Water delivery systems required.* Each steam locomotive must be equipped with at least two means of de-

livering water to the boiler, at least one of which is a live steam injector.

(b) *Maintenance and testing.* Injectors and feedwater pumps must be kept in good condition, free from scale, and must be tested at the beginning of each day the locomotive is used, and as often as conditions require, to ensure that they are delivering water to the boiler. Boiler checks, delivery pipes, feed water pipes, tank hose and tank valves must be kept in good condition, free from leaks and from foreign substances that would obstruct the flow of water.

(c) *Bracing.* Injectors, feedwater pumps, and all associated piping shall be securely braced so as to minimize vibration.

§ 230.58 Flue plugs.

(a) *When plugging is permitted.* Flues greater than 2¼ inches in outside diameter (OD) shall not be plugged. Flues 2¼ inches in outside diameter (OD) or smaller may be plugged following failure, provided only one flue is plugged at any one time. Plugs must be removed and proper repairs made no later than 30 days from the time the plug is applied.

(b) *Method of plugging.* When used, flue plugs must be made of steel. The flue must be plugged at both ends. Plugs must be tied together by means of a steel rod not less than ½ inch in diameter.

FUSIBLE PLUGS

§ 230.59 Fusible plugs.

If boilers are equipped with fusible plugs, the plugs shall be removed and cleaned of scale each time the boiler is washed but not less frequently than during every 31 service day inspection. Their removal shall be noted on the FRA Form No. 1 or FRA Form No. 3. (See appendix B of this part.)

WASHING BOILERS

§ 230.60 Time of washing.

(a) *Frequency of washing.* All boilers shall thoroughly be washed as often as the water conditions require, but not less frequently than at each 31 service day inspection. The date of the boiler wash shall be noted on the FRA Form