§ 230.39 Boiler, the steam locomotive owner and/or operator shall submit a written request for approval to the FRA Regional Administrator. If approval is granted, the steam locomotive owner and/or operator shall perform any riveting to unstayed portions of the boiler in accordance with established railroad practices or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

(b) Repairs to unstayed portions of the boiler. The steam locomotive owner and/or operator shall perform any riveted repairs to unstayed portions of the boiler in accordance with established railroad practices, or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

(c) Repairs to stayed portions of the boiler. The steam locomotive owner and/or operator shall perform riveted repairs or alterations on stayed portions of the boiler in accordance with established railroad practices or an accepted national standard for boiler repairs. The steam locomotive owner and/or operator shall satisfy reporting requirements in § 230.20 at this time.

Pressure testing required by these rules shall be conducted at 25 percent above the MAWP.

(c) Internal inspection. An internal inspection of the boiler shall be conducted following any hydrostatic test where the pressure exceeds MAWP.

§ 230.37 Steam test following repairs or alterations.

Upon completion of any repair or alteration, the locomotive owner and/or operator shall conduct a steam test of the boiler with steam pressure raised to between 95 percent and 100 percent of the MAWP. At this time, the boiler shall be inspected to ensure that it is in a safe and suitable condition for service.

Staybolts

§ 230.38 Telltale holes.

(a) Staybolts less than 8 inches long. All staybolts shorter than 8 inches, except flexible bolts, shall have telltale holes 3/16 inch to 7/32 inch diameter and at least 1 1/4 inches deep in the outer end.

(b) Reduced body staybolts. On reduced body staybolts, the telltale hole shall extend beyond the fillet and into the reduced section of the staybolt. Staybolts may have through telltale holes.

(c) Telltale holes kept open. All telltale holes, except as provided for in § 230.41, must be kept open at all times.

§ 230.39 Broken staybolts.

(a) Maximum allowable number of broken staybolts. No boiler shall be allowed to remain in service with two broken staybolts located within 24 inches of each other, as measured inside the firebox or combustion chamber on a straight line. No boiler shall be allowed to remain in service with more than 4 broken staybolts inside the entire firebox and combustion chamber, combined.

(b) Staybolt replacement. Broken staybolts must be replaced during the 31 service day inspection, if detected at that time. Broken staybolts detected in between 31 service day inspections...
§ 230.40  
must be replaced no later than 30 calendar days from the time of detection. When staybolts 8 inches or less in length are replaced, they shall be replaced with bolts that have telltale holes \( \frac{3}{16} \) inch to \( \frac{7}{32} \) inch in diameter and at least 1\( \frac{1}{4} \) inches deep at each end, or that have telltale holes \( \frac{3}{16} \) inch to \( \frac{7}{32} \) inch in diameter their entire length. At the time of replacement of broken staybolts, adjacent staybolts shall be inspected.

(c)  
Assessment of broken staybolts. Telltale holes leaking, plugged, or missing shall be counted as broken staybolts.

(d)  
Prohibited methods of closing telltale holes. Welding, forging, or riveting broken staybolt ends is prohibited as a method of closing telltale holes.

§ 230.41  
Flexible staybolts with caps.

(a)  
General. Flexible staybolts with caps shall have their caps removed during every 5th annual inspection for the purpose of inspecting the bolts for breakage, except as provided in paragraph (b) of this section.

(b)  
Drilled flexible staybolts. For flexible staybolts that have telltale holes between \( \frac{3}{16} \) inch and \( \frac{7}{32} \) inch in diameter, and which extend the entire length of the bolt and into the head not less than one third of the diameter of the head, the steam locomotive owner and/or operator need not remove the staybolt caps if it can be established, by an electrical or other suitable method, that the telltale holes are open their entire length. Any leakage from these telltale holes during the hydrostatic test indicates that the bolt is broken and must be replaced. Before the steam locomotive is placed in service, the inner ends of all telltale holes shall be closed with a fireproof porous material that will keep the telltale holes free of foreign matter and permit steam or water to exit the telltale hole when the bolt is broken or fractured.

(c)  
Recordkeeping. The removal of flexible staybolt caps and other tests shall be reported on FRA Form No. 3. (See appendix B of this part.)

(d)  
Testing at request of FRA inspector. Staybolt caps also shall be removed, or any of the tests in this section made, whenever the FRA inspector or the steam locomotive owner and/or operator considers it necessary due to identifiable safety concerns about the condition of staybolts, staybolt caps or staybolt sleeves.

STEAM GAUGES

§ 230.42  
Location of gauges.

Every boiler shall have at least one steam gauge which will correctly indicate the working pressure. The gauge shall be positioned so that it will be kept reasonably cool and can conveniently be read by the engine crew.

§ 230.43  
Gauge siphon.

The steam gauge supply pipe shall have a siphon on it of ample capacity