Appendix B to Part 230—Diagrams and Drawings

BOILER: STAYED AND UNSTAYED SURFACES

Section Through Locomotive Boiler

BOILER STAYED SURFACES
- Front Flue Sheet
- Rear Flue Sheet
- Wrapper Sheet
- Door Sheet
- Side Sheets
- Crown Sheet
- Throat Sheet
- Back Head
- Stayed Section of Thermic Syphons

BOILER UNSTAYED SURFACES
- Boiler Barrel
- Steam Dome
- Arch Tubes
- Thermic Syphon Neck
- Firebox Circulators
- Knuckle Section of Flanged Sheet
RIVET IN SINGLE SHEAR

RIVET IN DOUBLE SHEAR
RIVETED BUTT SEAM

Reference 230.34(b)
Drawing 4
RIVETED BOILER PATCH

Diagonal Riveted Patch

Circular Riveted Patch

Typical Riveted Patch Installation

Patch may be installed on Boiler Shell Interior or Exterior
RIVETED LAP SEAM

Reference 230.30
Drawing 6

RIVETED LAP SEAM WITH REINFORCING PLATE

Reference 230.30
Drawing 7
WELD BUILDUP REPAIR OF WASTED UNSTAYED BOILER SHEET

Reference 230.33(c)
Drawing 8

Wasted Section of Sheet (Edge View)

Thickness of Unstayed Boiler Shell

Minimum Required Thickness as Calculated Per Section 230.2-1

60% of Minimum Required Thickness

Weld Buildup Repair Not Permitted When Sheet Thickness is Reduced Below 60% of Minimum Required Thickness
FLUSH PATCHES ON UNSTAYED SECTION OF BOILER SHELL

Rectangular Flush Patch
Circular Flush Patch
Boiler Shell

Typical Flush Patch Installation

Flush Patch
Boiler Shell
Full Penetration Welds
ARRANGEMENT OF TELLTALE HOLE
IN REDUCED-BODY STAYBOLT

Reference 230.38(b)
Drawing 10

ARRANGEMENT OF TELLTALE HOLE
IN HOLLOW FLEXIBLE STAYBOLT

Reference 230.41(b)
Drawing 11

Minimum Telltale Hole Depth into Bolt Head
To Equal 1/3 of Bolt Head Diameter (1/3 D)
GENERAL ARRANGEMENT OF WATER GLASS AND WATER COLUMN VALVES (Typical)

- Top Water Glass Valve (Water Column)
- Water Column
- Water Glass
- Bottom Water Glass Valve
- Column Drain
- Piping arranged without short bends, sags or traps and to be free draining.
- Highest Point of Crown Sheet
- 3 inch Minimum
- Lowest Reading of Water Glasses
- NOTE: No shut-off valves on water column.
- Crown Sheet
- Water Column Gauge Gages
INSTALLATION OF FLUE PLUG

Through Hole in Flue Plug

Steel Flue Plug

Boiler Flue 2-1/4" or Less in Outside Diameter

Nut & Washer

Rear Flue Sheet

Front Flue Sheet

Threaded Steel Rod 5/8" Diameter or Larger
ORIFICE

For Diameter of Orifices

NOTE: Edges of Hole to be Sharp

1/16"
WHEEL DEFECT GAUGE

This gauge to be used in determining flat spots, worn flanges, and broken rims.

Reference 230.113
Drawing 17

WHEEL DEFECT GAUGE

Method of gauging worn Flanges.

Reference 230.113
Drawing 18
WHEEL DEFECT GAUGE
Method of gauging worn flanges.

Reference 230.113
Drawing 19

Method of gauging shelled and flat spots.

Reference 230.113
Drawing 20

Method of gauging broken rims.

Reference 230.113
Drawing 21
STEEL TIRE

Retaining ring type fastening. Driving and trailing wheels.

For Locomotives Used in Road Service—A = 5/16"
For Locomotives Used in Switching Service—A = 3/8"

Shrinkage fastening with shoulder and retaining segments. Driving and trailing wheels.

For Locomotives Used in Road Service—A = 5/16"
For Locomotives Used in Switching Service—A = 3/8"

Shrinkage fastening. Driving and trailing wheels.

For Locomotives Used in Road Service—A = 5/16"
For Locomotives Used in Switching Service—A = 3/8"
STEEL TIRE


Shrinkage fastening only. Minimum thickness for steel tires. Engine and tender.

STEEL WHEELS
Minimum thickness of rim. Engine and tender truck wheels.

SEAMS IN AXLES

Reference 230.113(j)
Drawing 28

Reference 230.98
Drawing 29
FILLING BLOCK FOR DIVIDED-RIM WHEEL CENTER

- Divided Rim Wheel Center
- Filling Block Designed to Fit Wheel Rim Dimensions
- Filling Block Installed and Secured in Wheel Rim

Reference 230.114(a)
Drawing 30
Reference 230.114(c)
Drawing 31

BANDED WHEEL HUB

Steel Band Applied to Repair
Cracked Wheel Hub