

of the following defects shall be removed from service immediately and repaired :

- (1) Cut journals that cannot be made to run cool without turning;
- (2) Seams in axles causing journals to run hot;
- (3) Overheating, as evidenced by pronounced blue black discoloration;
- (4) Transverse seams in journals of iron or steel axles; or
- (5) Journal surfaces having any of the following:
  - (i) A circumferential score;
  - (ii) Corrugation;
  - (iii) Pitting;
  - (iv) Rust;
  - (v) Etching.

**§ 230.101 Steam locomotive driving journal boxes.**

- (a) *Driving journal boxes.* Driving journal boxes shall be maintained in a safe and suitable condition for service. Not more than one shim may be used between the box and bearing.
- (b) *Broken bearings.* Broken bearings shall be renewed.
- (c) *Loose bearings.* Loose bearings shall be repaired or renewed.

**§ 230.102 Tender plain bearing journal boxes.**

- Plain bearing journal boxes with the following defects shall be removed from service immediately and repaired:
- (a) A box that does not contain visible free oil;
  - (b) A box lid that is missing, broken, or open except to receive servicing;
  - (c) A box containing foreign matter, such as dirt, sand, or coal dust that can reasonably be expected to damage the bearing; or have a detrimental effect on the lubrication of the journal and bearing;
  - (d) A lubricating pad that:
    - (1) Is missing;
    - (2) Is not in contact with the journal;
    - (3) Has a tear extending half the length or width of the pad, or more, except by design;
    - (4) Shows evidence of having been scorched, burned, or glazed;
    - (5) Contains decaying or deteriorated fabric that impairs proper lubrication of the pad;

- (6) Has an exposed center core (except by design); or
- (7) Has metal parts contacting the journal;
  - (e) A plain bearing that:
    - (1) Is missing, cracked, broken;
    - (2) Has a bearing liner loose;
    - (3) Has a broken out piece; or
    - (4) Has indications of having been overheated, as evidenced by:
      - (i) Melted babbitt;
      - (ii) Smoke from hot oil; or
      - (iii) Journal surface damage; or
  - (f) A plain bearing wedge that:
    - (1) Is missing, cracked or broken; or
    - (2) Is not located in its design position.

**§ 230.103 Tender roller bearing journal boxes.**

Tender roller bearing journal boxes shall be maintained in a safe and suitable condition.

**§ 230.104 Driving box shoes and wedges.**

Driving box shoes and wedges shall be maintained in a safe and suitable condition for service.

**§ 230.105 Lateral motion.**

- (a) *Condemning limits.* The total lateral motion or play between the hubs of the wheels and the boxes on any pair of wheels shall not exceed the following limits:

|  | Inches |
|--|--------|
| Engine truck wheels (with swing centers) ..... | 1      |
| Engine truck wheels (with rigid centers) ..... | 1½     |
| Trailing truck wheels .....                    | 1      |
| Driving wheels .....                           | ¾      |

- (b) *Limits increased.* These limits may be increased on steam locomotives operating on track where the curvature exceeds 20 degrees when it can be shown that conditions require additional lateral motion.

- (c) *Non-interference with other parts.* The lateral motion shall in all cases be kept within such limits that the driving wheels, rods, or crank pins will not interfere with other parts of the steam locomotive.