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(b) Width of apron. The cab apron shall be of a sufficient width to prevent, when the drawbar is disconnected and the safety chains or the safety bars are taut, the apron from dropping between the steam locomotive and tender.

§ 230.82 Fire doors.

(a) General provisions. Each steam locomotive shall have a fire door which shall latch securely when closed and which shall be maintained in a safe and suitable condition for service. Fire doors on all oil-burning locomotives shall be latched securely with a pin or key.

(b) Mechanically operated fire doors. Mechanically operated fire doors shall be so constructed and maintained that they may be operated by pressure of the foot on a pedal, or other suitable appliance, located on the floor of the cab or tender at a suitable distance from the fire door, so that they may be conveniently operated by the person firing the steam locomotive.

(c) Hand-operated doors. Hand operated fire doors shall be so constructed and maintained that they may be conveniently operated by the person firing the steam locomotive.

§ 230.83 Cylinder cocks.

Each steam locomotive shall be equipped with cylinder cocks which can be operated from the cab of the steam locomotive. All cylinder cocks shall be maintained in a safe and suitable condition for service.

§ 230.84 Sanders.

Steam locomotives shall be equipped with operable sanders that deposit sand on the rail head in front of a set of driving wheels. Sanders shall be tested at the beginning of each day the locomotive is used.

§ 230.85 Audible warning device.

(a) General provisions. Each steam locomotive shall be equipped with an audible warning device that produces a minimum sound level of 96db(A) at 100 feet in front of the steam locomotive in its direction of travel. The device shall be arranged so that it may conveniently be operated by the engineer from his or her normal position in the cab.

(b) Method of measurement. Measurement of the sound level shall be made using a sound level meter conforming, at a minimum, to the requirements of ANSI S1.4–1971, Type 2, and set to an A-weighted slow response. While the steam locomotive is on level, tangent track, the microphone shall be positioned 4 feet above the ground at the center line of the track and shall be oriented with respect to the sound source in accordance with the microphone manufacturer’s recommendations.

§ 230.86 Required illumination.

(a) General provisions. Each steam locomotive used between sunset and sunrise shall be equipped with an operable headlight that provides illumination sufficient for a steam locomotive engineer in the cab to see, in a clear atmosphere, a dark object as large as a man of average size standing at least 800 feet ahead and in front of such headlight. If a steam locomotive is regularly required to run backward for any portion of its trip other than to pick up a detached portion of its train or to make terminal movements, it shall also be equipped on its rear end with an operable headlight that is capable of providing the illumination described in this paragraph (a).

(b) Dimming device. Such headlights shall be provided with a device whereby the light from same may be diminished in yards and at stations or when meeting trains.

(c) Where multiple locomotives utilized. When two or more locomotives are used in the same train, the leading locomotive only will be required to display a headlight.

§ 230.87 Cab lights.

Each steam locomotive shall have cab lights that sufficiently illuminate the control instruments, meters and gauges to allow the engine crew to make accurate readings from their usual and proper positions in the cab. These lights shall be so located and constructed that the light will shine only on those parts requiring illumination and does not interfere with the engine crew’s vision of the track and signals. Each steam locomotive shall also have a conveniently located additional
lamp that can be readily turned on and off by the persons operating the steam locomotive and that provides sufficient illumination to read train orders and timetables.

**THROTTLES AND REVERSING GEAR**

§ 230.88 Throttles.

Throttles shall be maintained in safe and suitable condition for service, and efficient means shall be provided to hold the throttle lever in any desired position.

§ 230.89 Reverse gear.

(a) General provisions. Reverse gear, reverse levers, and quadrants shall be maintained in a safe and suitable condition for service. Reverse lever latch shall be so arranged that it can be easily disengaged, and provided with a spring which will keep it firmly seated in quadrant. Proper counterbalance shall be provided for the valve gear.

(b) Air-operated power reverse gear. Steam locomotives that are equipped with air operated power reverse gear shall be equipped with a connection whereby such gear may be operated by steam or by an auxiliary supply of air in case of failure of the main reservoir air pressure. The operating valve handle for such connection shall be conveniently located in the cab of the locomotive and shall be plainly marked. If an independent air reservoir is used as the source of the auxiliary supply for the reverse gear, it shall be provided with means to automatically prevent loss of pressure in event of failure of the main reservoir air pressure.

(c) Power reverse gear reservoirs. Power reverse gear reservoirs, if provided, must be equipped with the means to automatically prevent the loss of pressure in the event of a failure of main air pressure and have storage capacity for not less than one complete operating cycle of control equipment.

**DRAW GEAR AND DRAFT SYSTEMS**

§ 230.90 Draw gear between steam locomotive and tender.

(a) Maintenance and testing. The draw gear between the steam locomotive and tender, together with the pins and fastenings, shall be maintained in safe and suitable condition for service. The pins and drawbar shall be removed and tested for defects using an appropriate NDE method at every annual inspection. Where visual inspection does not disclose any defects, an additional NDE testing method shall be employed. Suitable means for securing the drawbar pins in place shall be provided. Inverted drawbar pins shall be held in place by plate or stirrup.

(b) Safety bars and chains generally. One or more safety bar(s) or two or more safety chains shall be provided between the steam locomotive and tender. The combined strength of the safety chains or safety bar(s) and their fastenings shall be not less than 50 percent of the strength of the drawbar and its connections. These shall be maintained in safe and suitable condition for service, and inspected at the same time draw gear is inspected.

(c) Minimum length of safety chains or bars. Safety chains or safety bar(s) shall be of the minimum length consistent with the curvature of the railroad on which the steam locomotive is operated.

(d) Lost motion. Lost motion between steam locomotives and tenders not equipped with spring buffers shall be kept to a minimum and shall not exceed ½ inch.

(e) Spring buffers. When spring buffers are used between steam locomotives and tenders the spring shall be applied with not less than ¾ inch compression, and shall at all times be under sufficient compression to keep the chafing faces in contact.

§ 230.91 Chafing irons.

Chafing irons that permit proper curving shall be securely attached to the steam locomotive and tender, and shall be maintained to permit lateral and vertical movement.

§ 230.92 Draw gear and draft systems.

Couplers, draft gear and attachments on steam locomotives and tenders shall be securely fastened, and maintained in safe and suitable condition for service.