

**Federal Railroad Administration, DOT**

**§ 229.111**

- (b) Throw solder excessively.
- (c) Show evidence of coming apart.
- (d) Have an overheated support bearing.
- (e) Have an excessive accumulation of oil.

**INTERNAL COMBUSTION EQUIPMENT**

**§ 229.93 Safety cut-off device.**

The fuel line shall have a safety cut-off device that—

- (a) Is located adjacent to the fuel supply tank or in another safe location;
- (b) Closes automatically when tripped and can be reset without hazard; and
- (c) Can be hand operated from clearly marked locations, one inside the cab and one on each exterior side of the locomotive.

**§ 229.95 Venting.**

Fuel tank vent pipes may not discharge on the roof nor on or between the rails.

**§ 229.97 Grounding fuel tanks.**

Fuel tanks and related piping shall be electrically grounded.

**§ 229.99 Safety hangers.**

Drive shafts shall have safety hangers.

**§ 229.101 Engines.**

- (a) The temperature and pressure alarms, controls and related switches of internal combustion engines shall function properly.
- (b) Whenever an engine has been shut down due to mechanical or other problems, a distinctive warning notice giving reason for the shut-down shall be conspicuously attached near the engine starting control until repairs have been made.
- (c) Wheel slip/slide protection shall be provided on a locomotive with an engine displaying a warning notice whenever required by § 229.115(b).

**STEAM GENERATORS**

**§ 229.103 Safe working pressure; factor of safety.**

The safe working pressure for each steam generator shall be fixed by the

chief mechanical officer of the carrier. The minimum factor of safety shall be four. The fixed safe working pressure shall be indicated on FRA Form F 6180-49A.

**§ 229.105 Steam generator number.**

An identification number shall be marked on the steam generator's separator and that number entered on FRA Form F 6180-49A.

**§ 229.107 Pressure gauge.**

(a) Each steam generator shall have an illuminated steam gauge that correctly indicates the pressure. The steam pressure gauge shall be graduated to not less than one and one-half times the allowed working pressure of the steam generator.

(b) Each steam pressure gauge on a steam generator shall have a siphon that prevents steam from entering the gauge. The pipe connection shall directly enter the separator and shall be steam tight between the separator and the gauge.

**§ 229.109 Safety valves.**

Every steam generator shall be equipped with at least two safety valves that have a combined capacity to prevent an accumulation of pressure of more than five pounds per square inch above the allowed working pressure. The safety valves shall be independently connected to the separator and located as closely to the separator as possible without discharging inside of the generator compartment. The ends of the safety valve discharge lines shall be located or protected so that discharged steam does not create a hazard.

**§ 229.111 Water-flow indicator.**

- (a) Steam generators shall be equipped with an illuminated visual return water-flow indicator.
- (b) Steam generators shall be equipped with an operable test valve or other means of determining whether the steam generator is filled with water. The fill test valve may not discharge steam or hot water into the steam generator compartment.