§ 229.29 Biennial tests.

(a) Except for the valves and valve portions on non-MU locomotives that are cleaned, repaired, and tested as prescribed in §229.27(a), all valves, valve portions, MU locomotive brake cylinders and electric-pneumatic master controllers in the air brake system (including related dirt collectors and filters) shall be cleaned, repaired, and tested at intervals that do not exceed 736 calendar days. The date and place of the cleaning, repairing, and testing shall be recorded on Form FRA F 6180–49A, and the person performing the work and that person’s supervisor shall sign the form. A record of the parts of the air brake system that are cleaned, repaired, and tested shall be kept in the carrier’s files or in the cab of the locomotive.

(b) At its option, a carrier may fragment the work required by this section. In that event, a separate air record shall be maintained under a transparent cover in the cab. The air record shall include the locomotive number, a list of the air brake components, and the date and place of the inspection and test of each component. The signature of the person performing the work and the signature of that person’s supervisor shall be included for each component. A duplicate record shall be maintained in the carrier’s files.

§ 229.31 Main reservoir tests.

(a) Before it is placed in service, each main reservoir other than an aluminum reservoir shall be subjected to a pneumatic or hydrostatic pressure of at least 25 percent more than the maximum working pressure fixed by the chief mechanical officer. The test date, place, and pressure shall be recorded on Form FRA F 6180–49A, block eighteen. Except as provided in paragraph (c) of this section, at intervals that do not exceed 736 calendar days, each main reservoir other than an aluminum reservoir shall be subjected to a hydrostatic pressure of at least 25 percent more than the maximum working pressure fixed by the chief mechanical officer. The test date, place, and pressure shall be recorded on Form FRA F 6180–49A, and the person performing the test and that person’s supervisor shall sign the form.

(b) Except as provided in paragraph (c) of this section, each main reservoir other than an aluminum reservoir shall be hammer tested over its entire surface while the reservoir is empty at intervals that do not exceed 736 calendar days. The test date and place shall be recorded on Form FRA F 6180–49A, and the person performing the test and that person’s supervisor shall sign the form.

(c) Each welded main reservoir originally constructed to withstand at least five times the maximum working pressure fixed by the chief mechanical officer may be drilled over its entire surface with telltale holes that are three-sixteenths of an inch in diameter. The holes shall be spaced not more than 12 inches apart, measured both longitudinally and circumferentially, and drilled from the outer surface to an extreme depth determined by the formula:

\[ D = (.6PR/S-0.6P) \]

Where:
- \( D \) = extreme depth of telltale holes in inches but in no case less than one-sixteenth inch;
- \( P \) = certified working pressure in pounds per square inch;
- \( S \) = one-fifth of the minimum specified tensile strength of the material in pounds per square inch; and
- \( R \) = inside radius of the reservoir in inches.

One row of holes shall be drilled lengthwise of the reservoir on a line intersecting the drain opening. A reservoir so drilled does not have to meet the requirements of paragraphs (a) and (b) of this section, except the requirement for a pneumatic or hydrostatic test before it is placed in use. Whenever any such telltale hole shall have
penetrated the interior of any reservoir, the reservoir shall be permanently withdrawn from service. A reservoir now in use may be drilled in lieu of the tests provided for by paragraphs (a) and (b) of this section, but shall receive a hydrostatic test before it is returned to use or may receive a pneumatic test if conducted by the manufacturer in an appropriately safe environment.

(d) Each aluminum main reservoir before being placed in use and at intervals that do not exceed 736 calendar days thereafter, shall be—

(1) Cleaned and given a thorough visual inspection of all internal and external surfaces for evidence of defects or deterioration; and

(2) Subjected to a hydrostatic pressure at least twice the maximum working pressure fixed by the chief mechanical officer, but not less than 250 p.s.i. The test date, place, and pressure shall be recorded on Form FRA F 6180–49A, and the person conducting the test and that person's supervisor shall sign the form.

§ 229.33 Out-of-use credit.

When a locomotive is out of use for 30 or more consecutive days or is out of use when it is due for any test or inspection required by § 229.23, 229.25, 229.27, 229.29, or 229.31, an out-of-use notation showing the number of out-of-use days shall be made on an inspection line on Form FRA F 6180–49A. A supervisory employee of the carrier who is responsible for the locomotive shall attest to the notation. If the locomotive is out of use for one or more periods of at least 30 consecutive days each, the interval prescribed for any test or inspection under this part may be extended by the number of days in each period the locomotive is out of use since the last test or inspection in question. A movement made in accordance with § 229.9 is not a use for purposes of determining the period of the out-of-use credit.

§ 229.46 Brakes: General.

The carrier shall know before each trip that the locomotive brakes and devices for regulating all pressures, including but not limited to the automatic and independent brake valves,