

## § 234.247

### INSPECTIONS AND TESTS

#### **§ 234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements.**

(a) The inspections and tests set forth in §§ 234.249 through 234.271 are required at highway-rail grade crossings located on in service railroad tracks and shall be made to determine if the warning system and its component parts are maintained in a condition to perform their intended function.

(b) If a railroad elects not to comply with the requirements of §§ 234.249 through 234.271 because all tracks over the grade crossing are out of service or the railroad suspends operations during a portion of the year, and the grade crossing warning system is also temporarily taken out of service, a full inspection and all required tests must be successfully completed before railroad operations over the grade crossing resume.

(c) Any electronic device, relay, or other electromagnetic device that fails to meet the requirements of tests required by this part shall be removed from service and shall not be restored to service until its operating characteristics are in accordance with the limits within which such device or relay is designed to operate.

[61 FR 31806, June 20, 1996, as amended at 66 FR 49560, Sept. 28, 2001]

#### **§ 234.249 Ground tests.**

A test for grounds on each energy bus furnishing power to circuits that affect the safety of warning system operation shall be made when such energy bus is placed in service and at least once each month thereafter.

#### **§ 234.251 Standby power.**

Standby power shall be tested at least once each month.

#### **§ 234.253 Flashing light units and lamp voltage.**

(a) Each flashing light unit shall be inspected when installed and at least once every twelve months for proper alignment and frequency of flashes in accordance with installation specifications.

## 49 CFR Ch. II (10-1-06 Edition)

(b) Lamp voltage shall be tested when installed and at least once every 12 months thereafter.

(c) Each flashing light unit shall be inspected for proper visibility, dirt and damage to roundels and reflectors at least once each month.

#### **§ 234.255 Gate arm and gate mechanism.**

(a) Each gate arm and gate mechanism shall be inspected at least once each month.

(b) Gate arm movement shall be observed for proper operation at least once each month.

(c) Hold-clear devices shall be tested for proper operation at least once every 12 months.

#### **§ 234.257 Warning system operation.**

(a) Each highway-rail crossing warning system shall be tested to determine that it functions as intended when it is placed in service. Thereafter, it shall be tested at least once each month and whenever modified or disarranged.

(b) Warning bells or other stationary audible warning devices shall be tested when installed to determine that they function as intended. Thereafter, they shall be tested at least once each month and whenever modified or disarranged.

#### **§ 234.259 Warning time.**

Each crossing warning system shall be tested for the prescribed warning time at least once every 12 months and when the warning system is modified because of a change in train speeds. Electronic devices that accurately determine actual warning time may be used in performing such tests.

#### **§ 234.261 Highway traffic signal pre-emption.**

Highway traffic signal pre-emption interconnections, for which a railroad has maintenance responsibility, shall be tested at least once each month.

#### **§ 234.263 Relays.**

(a) Except as stated in paragraph (b) of this section, each relay that affects the proper functioning of a crossing warning system shall be tested at least once every four years.

(b)(1) Alternating current vane type relays, direct current polar type relays, and relays with soft iron magnetic structure shall be tested at least once every two years.

(2) Alternating current centrifugal type relays shall be tested at least once every 12 months.

(c) Testing of relays requiring testing on four year intervals shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

(d) Testing of relays requiring testing on two year intervals shall be completed by the end of calendar year 1996.

**§ 234.265 Timing relays and timing devices.**

Each timing relay and timing device shall be tested at least once every twelve months. The timing shall be maintained at not less than 90 percent nor more than 110 percent of the 41 predetermined time interval. The predetermined time interval shall be shown on the plans or marked on the timing relay or timing device. Timing devices which perform internal functions associated with motion detectors, motion sensors, and grade crossing predictors are not subject to the requirements of this section.

**§ 234.267 Insulation resistance tests, wires in trunking and cables.**

(a) Insulation resistance tests shall be made when wires or cables are installed and at least once every ten years thereafter.

(b) Insulation resistance tests shall be made between all conductors and ground, between conductors in each multiple conductor cable, and between conductors in trunking. Insulation resistance tests shall be performed when wires, cables, and insulation are dry.

(c) Subject to paragraph (d) of this section, when insulation resistance of wire or cable is found to be less than 500,000 ohms, prompt action shall be taken to repair or replace the defective wire or cable. Until such defective wire

or cable is replaced, insulation resistance tests shall be made annually.

(d) A circuit with a conductor having an insulation resistance of less than 200,000 ohms shall not be used.

(e) Required insulation resistance testing that does not conform to the required testing schedule of this section shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

**§ 234.269 Cut-out circuits.**

Each cut-out circuit shall be tested at least once every three months to determine that the circuit functions as intended. For purposes of this section, a cut-out circuit is any circuit which overrides the operation of automatic warning systems. This includes both switch cut-out circuits and devices which enable personnel to manually override the operation of automatic warning systems.

**§ 234.271 Insulated rail joints, bond wires, and track connections.**

Insulated rail joints, bond wires, and track connections shall be inspected at least once every three months.

**§ 234.273 Results of inspections and tests.**

(a) Results of inspections and tests made in compliance with this part shall be recorded on forms provided by the railroad, or by electronic means, subject to approval by the Associate Administrator for Safety. Each record shall show the name of the railroad, AAR/DOT inventory number, place and date, equipment tested, results of tests, repairs, replacements, adjustments made, and condition in which the apparatus was left.

(b) Each record shall be signed or electronically coded by the employee making the test and shall be filed in the office of a supervisory official having jurisdiction. Records required to be kept shall be made available to FRA as provided by 49 U.S.C. 20107 (formerly § 208 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 437)).