DCA-08-MR-009
Metrolink – UP Collision
Chatsworth, CA
September 12, 2008

ATTACHMENT 16

49CFR 236 Rules, Standards and Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances

§236.2 Grounds.
Each circuit, the functioning of which affects the safety of train operations, shall be kept free of any ground or combination of grounds which will permit a flow of current equal to or in excess of 75 percent of the release value of any relay or other electromagnetic device in the circuit, except circuits which include any track rail and except the common return wires of single-wire, single-break, signal control circuits using a grounded common, and alternating current power distribution circuits which are grounded in the interest of safety.

§236.56 Shunting sensitivity.
Each track circuit controlling home signal or approach locking shall be so maintained that track relay is in deenergized position, or device that functions as a track relay shall be in its most restrictive state if, when track circuit is dry, a shunt of 0.06 ohm resistance is connected across the track rails of the circuit, including fouling sections of turnouts.

§236.108 Insulation resistance tests, wires in trunking and cables.
(a) Insulation resistance of wires and cables, except wires connected directly to track rails, shall be tested when wires, cables, and insulation are dry. Insulation resistance tests shall be made between all conductors and ground, and between conductors in each multiple conductor cable, and between conductors in trunking, when wires or cables are installed and at least once every ten years thereafter.
(b) Then 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 and until such defective wire or cable is replaced, insulation resistance test shall be made annually.
(c) In no case shall a circuit be permitted to function on a conductor having an insulation resistance to ground or between conductors of less than 200,000 ohms during the period required for repair or replacement.

§236.305 Approach or time locking.
Approach or time locking shall be provided in connection with signals displaying aspects with indications more favorable than "proceed at restricted speed."

§236.309 Loss of shunt protection; where required.
(a) A loss of shunt of 5 seconds or less shall not permit an established route to be changed at an automatic interlocking.
(b) A loss of shunt of 5 seconds or less shall not permit the release of the route locking circuit of each power-operated switch hereafter installed.

§236.334 Point detector.
Point detector shall be maintained so that when switch mechanism is locked in normal or reverse position, contacts cannot be opened by manually applying force at the closed switch point. Point detector circuit controller shall be maintained so that the contacts will not assume the position corresponding to switch point closure if the switch point is prevented by an obstruction, from closing to within one-fourth inch where latch-out device is not used, and to within three-eighths inch where latch-out device is used.

§236.377 Approach locking.
Approach locking shall be tested when placed in service and thereafter when modified, disarranged, or at least once every two years, whichever shall occur first.

§236.378 Time locking.
Time locking shall be tested when placed in service and thereafter when modified, disarranged, or at least once every two years, whichever shall occur first.

§236.379 Route locking.
Route locking or other type of switch locking shall be tested when placed in service and thereafter when modified, disarranged, or at least once every two years, whichever shall occur first.

§236.380 Indication locking.
Indication locking shall be tested when placed in service and thereafter when modified, disarranged, or at least once every two years, whichever shall occur first.

§236.382 Switch obstruction test.
Switch obstruction test of lock rod of each power-operated switch and lock rod of each hand-operated switch equipped with switch-and-lock-movement shall be made when lock rod is placed in service or changed out, but not less than once each month.