

CHAPTER 10

ROAD CROSSINGS

10-1. Drainage.

a. Adequate drainage is essential for satisfactory long-term performance of the track and road crossing.

b. Water shall not be allowed to pond on or near the track at a road crossing.

c. Catch-basins, gutters, ditches, subdrains, and culverts should be properly installed and kept free of debris.

10-2. Flangeways.

a. *Flangeway width.* For normal operations, flangeway width in a road crossing shall not be less than 2½ (2.50) inches nor greater than 3 (3.00) inches.

(1) If the flangeway width is less than 1¾ (1.75) inches, operations through the crossing shall not exceed 10 mph.

(2) No operations shall be permitted through any crossing where the flangeway width is 1½ (1.50) inches or less.

b. *Flangeway depth.* For normal operations, the flangeway depth in a road crossing shall not be less than 2 (2.00) inches.

(1) If the flangeway depth is less than 1½ (1.50) inches, operations through the crossing shall not exceed 10 mph.

(2) No operations shall be permitted through any crossing where the flangeway depth is 1" (1.375) inches or less.

c. *Debris.* Flangeways shall be kept clear of debris. Any obstructions, including ice and packed snow, shall be removed immediately.

10-3. Track.

a. *Ties, tie plates, and spikes.* When crossings are rebuilt, all ties within the crossing limits and for at least 20 feet beyond each end of the crossing shall be replaced, fully tie plated, and spiked with eight rail-holding spikes on each tie. (See fig 10-1) For road crossings carrying large volumes of traffic and/or heavy loads, the use of hardwood ties is recommended.

b. *Tie pads.* When crossings are rebuilt, it is recommended that rubber tie pads be installed between the tie and tie plate on all ties within the crossing area and for at least 20 feet beyond each end of the crossing.

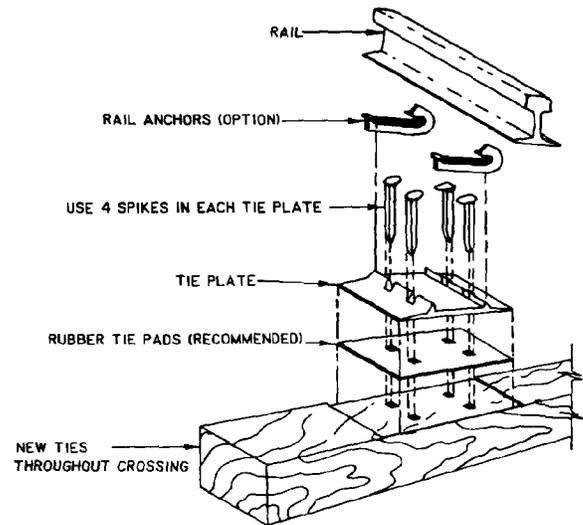


Figure 10-1. Track construction for road crossing.

c. *Joints.* Bolted rail joints are not desirable in road crossings. When crossings are rebuilt, it is recommended that all joints within the crossing and up to 20 feet outside the crossing be welded.

d. *Rail anchors.* Where the track on either side of the crossing is anchored, it is recommended that the anchoring pattern be continued through the crossing.

10-4. Crossing surfaces and materials.

a. It is essential that the crossing surface be maintained to provide a smooth crossing for vehicles and to prevent vehicle tires from striking the rails. The crossing surface shall be maintained at an elevation level with or slightly (not more than ¼ inch) above the top of the rails. Additionally, there shall be a smooth transition between the crossing surface and the adjoining pavement.

b. During routine track inspections the inspector should take note of the general condition of the crossing materials and report any damage or condition requiring repair or replacement. Any condition observed in a road crossing which would cause a hazard to motor vehicles using the crossing should be corrected immediately.

10-5. Crossing protection.

a. Signs and signals. During routine track inspections the inspector should observe the condition of all whistle posts, highway warning signs, and signals. Signs and signals should be easily legible and clearly visible.

(1) Signs and signals shall conform to the requirements of the *Manual On Uniform Traffic Control Devices* (MUTCD), part VIII, "Traffic Control Systems for Railroad-Highway Grade Crossings".

b. Electric/electromechanical signals. Inspection and maintenance of electric and/or electromechanical signals should conform to manufacturer's recommendations, state/local requirements, and the minimum requirements given below.

(1) Inspection of electric/electromechanical signals shall be performed at the same frequency as track inspections (para 2-2.a.); however, inspections of signals shall be performed not less than once per quarter (at approximately 3-month intervals).

(2) Minimum inspection procedures for electric/electromechanical signals are as follows:

(a) Open case.

(b) Turn on signal with switch.

(c) Make sure signal is working properly and all bulbs are burning.

(d) Check to make sure lenses are clean. Clean lenses if needed.

(e) Check power source for obvious problems.

(f) Check charge on standby batteries.

(g) Note date, time condition (ok, existing problem, repaired, etc), and inspectors initials in a small note book that is to be kept in the signal case.

(3) At least once per quarter a detailed inspection of the signal shall be performed. The detailed inspection shall include all of the requirements of 10-5b(2) plus the following:

(a) Check all rail bonds.

(b) Check all connections.

(c) Measure and record voltages at critical locations (relays).

c. Any deficiency or defect in road crossing warning signs or signals shall be repaired immediately.