

## CWR Specifications

### General Information:

The RAILROAD shall have the right to make any subsequent changes in the nature of the Scope of Work for this Project, either before or after it commences, and such changes shall in no way affect or negate the obligations of this Contract. If such changes appreciably affect the cost of material to the SUPPLIER, it shall so notify the RAILROAD in writing before proceeding with the transportation of materials, and the cost shall be equitably adjusted by the RAILROAD.

The Contractor(s) are responsible to work with Rail Signal Contractor (CDL) to provide adequate coverage for any signal disruption, as well as replacing bond wires, or placing signals out/in service. Any additional cost associated with CDL work, will be bore by the Contractor(s).

The Contractor(s) is required to conduct a follow-up inspection of the quality of work at the end of each day. Contractor(s) will be responsible for immediate repairs to the following: broken joint bars, kinked rail, broken bond wires, down ties, broken rail, high spikes, etc.)

Refer to Watco's CWR Policy for additional information regarding CWR Installation and its Procedures.

SKOL Railroad CWR Procedures (Installation, in part):

### Chapter 1 CWR Installation Procedures:

Rail length that exceeds 400 feet is considered CWR. Rail installed as CWR remains CWR, regardless of whether a joint or plug is installed into the rail at a later time.


#### 1.1 Desired Rail Neutral Temperature

Rail neutral temperature is the temperature at which a rail is neither in tension nor compression. Designated rail laying temperatures have been established to provide a high rail neutral temperature to prevent track buckling. When laying or adjusting CWR use the rail laying temperatures shown in Table 7- J. (Refer to Watco CWR Policy & Procedures) Per the SKOL Railroads requirements, all rail is to be heated to a minimum of 105°F before installation may begin. Per Watco's CWR Policy, at MP 23 the Rail Neutral Temperature shall be heated to a minimum of 110°F.

#### 1.2 Temperature Differential

The difference between the designated rail laying temperature and the actual rail temperature taken at the time of installation is called the temperature differential. CWR laying and adjusting procedures have been established to compensate for this temperature difference.

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### 1.3 Installing CWR

Follow these general requirements when installing CWR:

Take the rail temperature and calculate the expansion required before making adjustments using the following formula: length (in feet) X temp. differential X 0.000078 or length (in inches) X temp. differential X 0.0000067.

Record the rail laying temperature, location and date on approved forms. These records may be retained in an electronic format per 213.241. (Refer to Record of Heat Control.)

Rail does not need to be adjusted when the actual rail temperature exceeds the designated rail laying temperature.

Use rail heaters or rail expanders to adjust the rail to the correct length when the actual rail temperature is less than the designated rail laying temperature. Heat the rail evenly and uniformly so that the rail expansion occurs evenly and uniformly throughout its length. If rail is laid at a temperature more than 40° F below the designated rail laying temperature, rail must be adjusted, or a speed restriction of 25 mph must be placed prior to rail temperature above designated rail laying temperature. When tight rail conditions exist, be governed by Chapter 7.1.

### Chapter 2 Rail Anchoring Requirements:

Where the anchoring function is otherwise provided, rail anchors may be omitted. Anchors may not be applied where they will interfere with signal or other track appliances, where they are inaccessible for adjustment or inspection or on rail opposite a joint. Anchor pattern may be varied as reasonable to avoid placing anchors against deteriorated ties.

#### Installation:

The following anchoring requirements apply to CWR installation on all main tracks and sidings. These anchoring requirements also apply to all tracks other than main tracks or sidings operating at speeds above Class 1 which contain CWR.

#### 2.1 Standard Box Pattern

When installing CWR, box anchor every other tie except as outlined in Section 2.2.

#### 2.2 Solid Box Pattern

When installing CWR, box anchor every effective tie at specific locations listed below to provide additional restraint against rail movement.

For these conditions: Turnouts, Rail crossings and joints where CWR abuts jointed rail – anchor every tie for 195' in each direction.

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Drive spike stubs.

Place plates on ties in proper location with cant in proper direction. Double-shoulder tie plates should be used for all CWR laid. Every fourth tie should be drilled and a gage plug inserted to hold plate to gage. (Use of machine(s) recommended.) The rail should be laid at 56-1/2 inches gage unless specifically changed by railroad.

The welded rail should be placed onto the plates by use of machine with a threader or tongs. When laying CWR, the rail ends should be laid without expansion gap.

NOTE: Where it is necessary to move strings longitudinally, they should be pulled into position to maintain rail in a state of tension. Bumping CWR into position is not recommended.

Final location of field welds shall be within the tie-crib area. Ties may require relocation and spacing to accommodate the welds.

Upon the conclusion of the CWR Installation, the welds shall be ultrasonically tested, by an independent contractor for internal defects and written results provided to a SKOL Manager before they are accepted. Defective welds found shall be removed and another weld installed, tested and written results provided at the Contractors expense.

To provide effective anchoring to resist temperature induced stresses and longitudinal stresses due to train movement in CWR territory, every other tie should be box anchored throughout the full length of the welded rail string. Whenever any discontinuity in the CWR is encountered such as rail joints, turnouts, grade crossings, and railroad crossings, all ties should be box anchored for 195 feet in both directions. On those railroads that consider a field weld without safety straps to be a discontinuity, all such ties should be similarly box anchored for 195 feet in each direction.

Where CWR joins conventional jointed rail, all ties except those supporting the rail joint should be box anchored for 195 feet in each direction.


On curves, additional rail anchors may be required.

When Unloading Rail:

Rail shall be unloaded opposite the locations in which they are to be placed in the track, with suitable gaps being allowed for short lengths. Rails shall be placed so that the joints in each line of rail shall be not more than 30 inches from the centers of the opposite rails and preferably not more than 18 inches. Locations of joints can be best determined with a steel tape.

Proper lengths of rail for road crossings, station platforms, bridges and other special locations shall be unloaded in a safe and convenient location, where they will not constitute an obstruction.

To minimize the cutting of new full-length rails, short rails shall also be distributed in proper places to provide for proper spacing at insulated joints and for connections to switches.

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