

**Southern California Railway**  
Centralized Traffic Control System  
Operator's Manual  
9/28/2012 M.J. Nile

The CTC machine controls from top to bottom:

**Track model board and occupancy indication lamps:** Located in the track diagram extending across the control machine above the control levers. A single stroke bell is provided for audibly announcing of train movements at each interlocking and sounding the approach to the CTC territory. The red colored lamps indicate occupancy over a turnout. When one of these lamps is lit, the corresponding turnout will not operate. The white colored lamps indicate occupancy on track between switches.

**Switch lever and position indication lamps:** This two position lever controls a turnout or crossover in the field. When aligned to the left the turnout will be set to the "normal" position. When aligned to the right, the turnout will be set to the "reverse" position. The indication lamps show the actual position of the turnout in the field. The green lamp is lit when the turnout is normal. The yellow lamp is lit when the turnout is reversed. While the switch is in motion, both indication lamps are dark.

**Signal control lever and indication lamps:** The signal control lever is a three-position (left, center, or right) lever that allows the dispatcher to initiate the control code to the field equipment to control the corresponding signals. The label on the control lever plate "L" and "R" stands for Left (west) and Right (east)

The left and right indication lamps indicate the state of the signal in the field. When a signal is cleared left (west) the green (L) lamp is lit. When a signal is cleared right (east) the yellow (R) lamp is lit. When the signal is displaying stop (RED) the center red lamp is lit.

**Signal logic:** In order to clear a signal, the following items are checked:

1. The signal lever determines direction of traffic.
2. All blocks until the next signal must be vacant. This logic can be overridden with "Call On". See "Recall button" below.
3. All unlocks until the next signal must be locked.
4. The next turnout must not be against us.
5. The next signal in the opposite direction must not be cleared towards this signal.  
In the case of a signal protecting a turnout or crossover, the opposing signal depends upon the position of the turnout.

**Unlock Toggle.** When this toggle is in the up position the dispatcher has released control of the specific turnout to the operators in the field. Mounted on the fascia near the turnout in the field is a control toggle and blue "unlock" lamp. When the turnout is unlocked, the blue "UNLOCK" lamp is lit, and the turnout will follow the position of the field toggle.

When a turnout is unlocked, the signals protecting that turnout will be set to stop and will not clear until after the unlock toggle is turned off by the dispatcher.

**Code Button:** The code button activates the settings for the Signal and Turnout levers directly above the code button. The code button must be pressed in and held briefly (About a quarter of a second.) for it to activate. If the button is pressed and released too quickly, the machine will ignore the button.

**Code Lamp:** The lamp directly below the code button will light indicating that the code is being sent to the field equipment. This provides positive indication to the dispatcher that the code button press has been recognized by the machine.

**Lock Toggles:** When this toggle is in the up position, an electrically locked switch in the field is unlocked to allow operators in the field to manually control the switch. The blue lamp on the fascia near the turnout will light and the turnout will follow the position of the toggle. When a turnout in the field is unlocked, all signals approaching the turnout will be set to stop and will not clear until the lock toggle is turned off.

**Reset button:** When this momentary button is pressed, and held in, the machine is in "lamp test" mode. There are 4 lamp test modes that test a particular row of lamps on the machine.

When the button is released, the machine is left in "unlock" or "manual" mode. All unlocks in the field are set to "unlock". To clear the unlocks, all code buttons can be pressed, or after the 4th time the reset button is pressed and released, the machine returns to "run" mode.

**Field Station Disconnect:** When this button is pulled out, the machine is in "Prototype" mode where the machine behaves more like a prototypical CTC system. In prototype mode, the machine applies delays to signal changes and turnout changes to simulate prototypical behavior.

When this button is pressed in the machine operates in "Model Railroad Mode". In Model mode, all unnecessary delays are eliminated. Normally the SCRy is run with the field station disconnect button pressed in.

**OS Bell Cutout Button:** When this button is pulled out, the OS Bell does not ring except when trains are approaching CTC Territory from the east or west end. When the button is pressed in, the bell will ring each time a train occupies a switch OS and causes a signal to drop from clear to stop.

**Recall Button:** This momentary button is used along with the code buttons to override occupancy and "Call On" a signal. To override occupancy logic and give a restricting (flashing red) signal, press and hold the recall button while pressing the appropriate Code button. This is typically used for "back to train" movements.

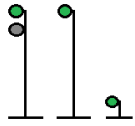
**Indication Lamp:** This lamp is lit on incoming indication code from field equipment

**Code Lamp:** This lamp is lit on transmission of control code to field equipment.

**Signal Test** (Unlock toggle 4 UP, and recall button pressed) . Put unlock toggle 4 in the up position and press the recall button to start the signal test sequence. Color sequence for the A signal of an a/b pair red,yellow,green,dark,dark,dark,dark,dark. Color sequence for the B signal of an a/b pair dark,dark,dark,red,yellow,green,dark,dark. Color sequence for a double head ab signal upper red,yellow,green,lower red,yellow,green,dark,dark. Color sequence for single head two color signal red,yellow,dark (signal 14r). To end the test sequence turn unlock toggle 4 off.

**Signal Aspects:**

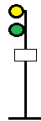
The signals aspects follow the 1964 Southern Pacific Book of Rules. The signals are not approach lit. The lower signal of a dual head signal will be dark unless it is displaying a diverging route, or stop.



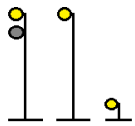
Green. Rule 281 Proceed



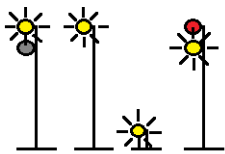
Red over Green. Rule 283 Proceed on Diverging Route



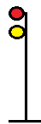
Yellow over Green. Rule 284 Reduce to medium speed and proceed. Next signal indicates proceed on diverging route



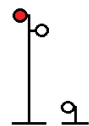
Yellow. Rule 285 Proceed not exceeding medium speed prepared to stop short of next signal



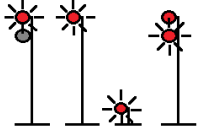
Flashing yellow. Rule 285-A Proceed prepared to pass next signal at not exceeding medium speed



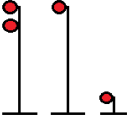
Red over yellow. Rule 288 Proceed on diverging route at restricted speed



Lunar. Rule 289 Proceed at restricted speed on other than main track



Restricting. Proceed at restricted speed prepared to stop prior to obstruction.



Red. Rule 290 Stop