

CLEANING PANELS

"What methods do you employ to clean dirt and finger marks from the panels of C.T.C. control and panel-type interlocking machines?"

Commercial Cleaner and Pale Semaphore Oil

By L. W. Campbell
C.T.C. Maintainer
Western Pacific, Sacramento, Cal.

A rather satisfactory cleaning method used on the Western Pacific C.T.C. machines at Sacramento is as follows:

Ink spots, stains, etc., are first removed with a commercial cleaner, such as Vano, Soiloff, etc. Then the panels are wiped clean with a soft cloth barely damp with pale Semaphore oil. Following this, the machines are polished with a clean, dry, soft cloth.

This method has been found to be quicker and to require much less effort than other methods tried. Not only is there no danger of possibly harmful chemicals penetrating to switch contacts and electrical connections, but the oil seems to bring out the full richness of the color, especially on the track model. Also, the machines appear to stay clean longer.

SS PROTECTION

"Please explain the principal purposes of SS protection in signal circuits."

Prevent Clearing Signal Over Improperly Positioned or Locked Switch

By W. L. CHILDS
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Memphis, Tenn.

THE principal purpose of SS protection of signal circuits is to prevent a signal being cleared when a switch is not properly locked, or when any other part of the switch indication is not in proper position. The SS relay is controlled from a tap off the switch - indication wire through respective contact bands. The switch has to complete its stroke to close the contacts of the switch circuit controller before the lever can be put in its full normal or reverse position. The SS relay

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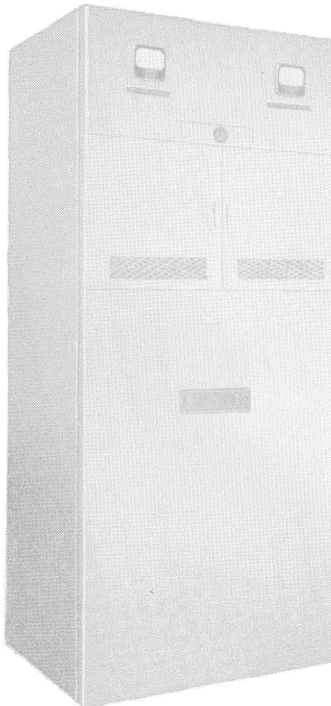
3 Big Reasons

why PECO Battery Chargers should be in your plant

They're built like a skyscraper to save valuable floor space.

They're completely self-contained, with no separate units to install.

They give you higher efficiency over a wide load range.



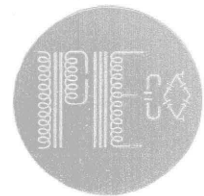
Because they are built like a skyscraper—compact and upright—the large PECO Battery Chargers save valuable floor space, actually occupy less than 1 sq. ft. per KW . . . Because they are completely self-contained, there's no need to install separate starter and control panels, no interconnection of power and control circuits . . . New improved selenium rectifier stacks, transformers and saturable reactors cut power loss to a minimum. Convection cooled, there are no fans, blowers or other moving parts; thus maintenance is minimized, stand-by power loss reduced to practically zero . . .

PECO Battery chargers are fully automatic; electronically or magnetically controlled and regulated; accurate floating voltage control within $\pm 1\%$. . . All control assemblies are readily accessible. Rectifier assemblies are on removable trays to facilitate inspection and service . . . Complete range of sizes up to 10 KW. Capacities may be increased by operation of two or more chargers in parallel . . . No special foundations are required . . . Write for all the facts.

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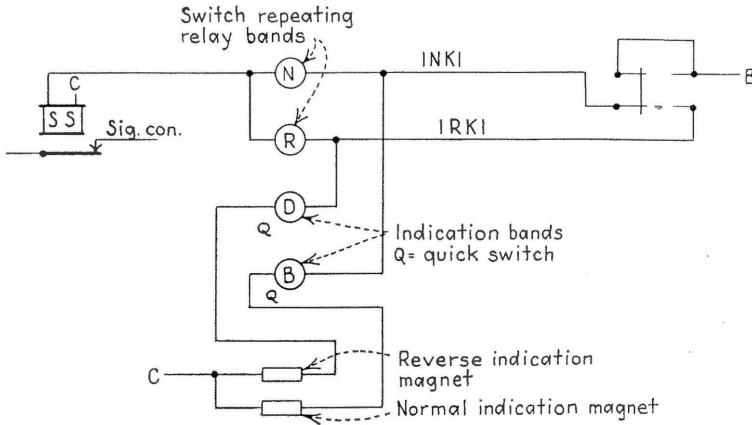
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will not pick up until the lever has passed its final indicating position, which indicates the switch is over and locked. If something should happen to a switch, like being thrown by hand, or there should be

ground. (Exceptions have been made to this arrangement on a few more recent installations, details of which, however, are not pertinent to this discussion.) With the switch levers all fully Normal or Reverse, the mechanical locking permits the signal lever to be positioned to clear

relays which were neutral d.c. devices. Contacts on these instruments were included in the signal circuits only. About the time the Model-14 type of power interlocking (both electro-pneumatic and electric) was introduced, a polarized scheme was used, which, in principle, set the pattern for the more-commonly recognized SS control arrangements. In the latter arrangements, while the mechanical locking still functions in the manner described above, a normally-energized polarized relay (SS or KR, now called WPR) is used for each switch to operate the Normal and Reverse indication magnets in conjunction with lever contacts, and to repeat the position of the switch points, thereby providing a continuous check on the position of the switch itself, as well as on its operating components, with virtually unlimited contact capacity and maximum safety circuit-wise. The signal circuits are, of course, carried over the proper contacts on this relay. It should be noted that all this was done by a device located in the tower which, although taken for granted today, was quite an innovation at the time of its inception.

Today, the modern equivalent of SS control is inherent in all modern interlocking and traffic control systems, these systems including circuits which are designed in accordance with the fundamental principle of checking and selecting the controls of signals by means of some form of continuously-controlled switch repeater relay located in the tower. Controls embodying this principle are now required on all interlockings by the new I.C.C. Rules, Standards and Instructions, which requirements are set forth in Rule 303.



SS relay control described by W. L. Childs of Memphis Union Station Company

any interruption of the current on the indication wire, the SS relay would open or drop away, in this manner opening the signal circuit over this or any route.

For Continuous Check Of All Switches Over Which Signals Govern

By J. E. McMAHON, Jr.
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SS CONTROL (also called KR control) is a trade name, which was applied to a circuit arrangement developed by the Union Switch & Signal Company, in connection with mechanically-locked power interlocking systems. The origin of the term is somewhat obscure, and the term is considered obsolete today. SS control, in effect, provides for the continuous check of the position of all switches in the control circuits of signals governing over the switches.

In mechanically-locked power interlockings it is necessary, when attempting to clear a signal by the movement of a signal lever, to place all switch levers in their proper positions. If this requires the movement of a switch lever, the full positioning of such lever cannot be made until the indication magnet is energized in response to energy received from the switch on the

the signal. The signal control circuits are carried over the required switch and signal lever contacts. While it was possible to carry the signal circuits over switch circuit controllers in the field, to obtain a positive check of the switches, this was practically never done, due to the limitation in the number of contacts available on such controllers, and to the resulting complexity of signal networks, particularly on extensive layouts. Vulnerability to circuit failures would be extreme under such an arrangement.

Originally, the principle of checking the position of the switches in the signal circuits was carried out by means of SS indicators and later, SS

TRACK CIRCUIT CONNECTIONS

"What is the safest, most reliable and satisfactory method of connecting tap wires from the rail to underground cable—inside or outside of the bootleg pedestals, and should these connections be made mechanically or soldered? Why?"

Outside and Mechanicaly

By A SIGNALMAN

AFTER years of experience and much interest on my part, this still appears to be a problem for a perfect solution. Many methods have been tried to determine which is the most satisfactory from the standpoints of safety, reliability and

avoidance of unnecessary failures. From the old method of using two No. 6 solid copper wires, we have advanced to the present method of installing the flexible plug-type bond, which is a vast improvement.

If connections are soldered, some people say dampness and corrosion sooner or later creep in to cause

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