By having the maintainers make the weekly and monthly checks, we have been reasonably successful in preventing complete lamp failures. Without a doubt, our worst enemy as far as lamp failures are concerned, are power surges on the a.c. transmission lines and lightning. In many instances when lightning has struck, it will not only burn out the filaments in the lamp, but it will also shatter the bulb itself. Normally, this type of failure occurs in Nevada and Utah only. In California more difficulty is experienced with a.c. power surges.

NP Change-out Program

By A. J. Hendry
Signal Engineer
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There are approximately 4,000 operating signal arms on this property. Approximately 300 are of the colorlight type, 300 are of the searchlight type and the balance are semaphores. Approximately 90 per cent of our signals are approach lighted, the choice being made upon the basis of overall economy. At semaphore signals where primary battery is used for operation, we employ a 13.5-volt, 0.25-amp. lamp as covered by Item No. 47 of Part 91 of the Signal Section Manual. In our searchlight and colorlight signals, all of which are lighted from commercial power sources with standby storage battery, we employ an 11.3-volt, 13.3-watt lamp as covered by Item 83 of the Signal Section Manual. These lamps are all rated by the manufacturer at 1,000 hr. of service life.

Our instructions for the replacement of lamps is as follows:

(1) At signals where 16 cells of primary battery energizes the motor, hold clear, line and electric light, change out the lamp with every second renewal of the operating battery.

(2) At signals where 16 cells of primary battery energizes the motor, hold clear, and electric light, change out the lamp with every renewal of the operating battery.

(3) At signals where 16 cells of primary battery energizes the motor and electric light, change out the lamp with each renewal of the operating battery.

(4) At signals where storage battery serves as the operating battery and the signal is approach lighted, replace the lamp every two years.

(5) At signals where the light is illuminated continuously, change the lamp every 60 days.

The above change out schedule is based on our past experience with these types of signal lamps. We are experiencing very few overtime calls for the replacement of lamps and we believe, through the use of this schedule, we are obtaining very nearly the full service life from the lamps. In all instances, we endeavor to maintain the voltage applied to the lamp at approximately 90 per cent of rated value.

KINK: Automatic Control for Waiting Room

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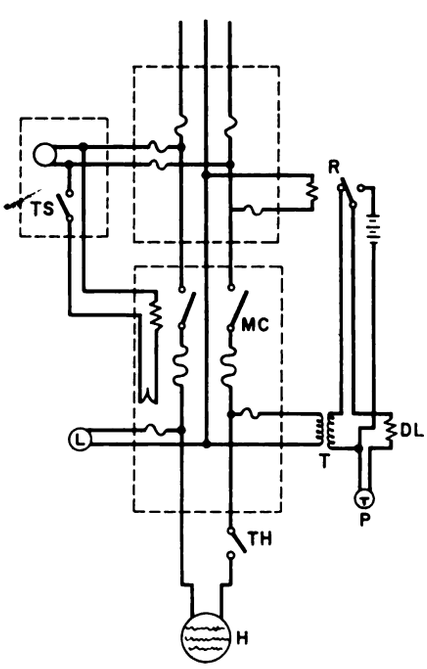
When discontinuing the former passenger station and agency at Round Lake, N. Y., the Public Service Commission ordered the Delaware & Hudson Railroad to provide a heated shelter for waiting passengers. The specifications of the P.S.C.'s order were fulfilled by the erection of an Armco steel building approximately 6 ft by 8 ft, well insulated, placed on a suitable concrete slab and electrically heated and lighted.

The building is kept locked at all times, but patrons may gain entrance to it by pushing a button, located near the door latch, which unlocks the door. A sign mounted near the button explains the operation. The lock is time-controlled, and the door may be opened only during the period embracing one-half hour before train arrival and one-half hour after train departure.

Maintenance personnel may, of course, enter the building at any time with a key. The door may be opened at any time from within regardless of the automatic feature. Inasmuch as there is no longer an agent at this station, the heat and light are also automatically controlled through the electric time switch. The accompanying schematic diagram and following explanation describes the operation of the installation.



The service is 115V-230V with a solid neutral brought into a fuse panel. From here a 230-volt circuit is connected to a time switch TS and a 110V circuit to a single-pole relay R with one normally open contact. The magnetic contactor MC, which is operated through the time switch TS, furnishes current to the 50-watt light L, the transformer T and a 230-volt, 2000-watt, fan-type heater H. The electric door lock DL can be operated on a.c. or d.c. through the push button P.

The time switch and relay R are connected to the circuit ahead of the magnetic contactor, thereby being constantly energized. At the predetermined time, the time switch will operate the magnetic contactor, which in turn will apply energy to the light, the transformer and the electric heater. The heater will operate only when the thermostat TH calls for heat.

While the relay R is energized and the magnetic contactor is closed, current from the secondary of the transformer is available to operate the door lock. In case of a power failure the relay becomes de-energized, then a circuit is set up through the back contact of the relay and a battery, making standby direct-current available to operate the door lock. The secondary of the transformer is brought through the front contact of the relay for the purpose of opening the transformer circuit when the battery is used for operating the door lock.

All the units in the installation are stock items readily obtainable and/or replaceable at a reasonable cost.