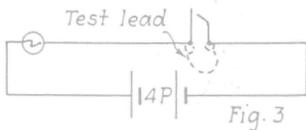
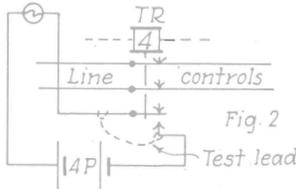
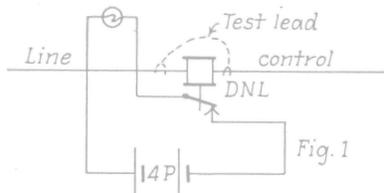


this work I have used the following methods, and find them very convenient.

For use in testing I always carry several test leads made of flexible wire, with clips on both ends for making temporary connections. These can be used in testing signal lamps as illustrated. In Fig. 1, the lamp is controlled by a series-connected line DNL relay. The relay coils are shunted as shown, testing the operation of the relay and the lamp; the shunt wire remains connected while the lamp is being observed. In Fig. 2, the lamp is controlled through a back contact of the track relay in the approach section. This is also easily tested as shown.

In Fig. 3, the lamp is controlled through a circuit breaker on a signal



Test leads are used in temporarily lighting the light for checking filament

mechanism. This lamp is tested in the same way by bridging the circuit breaker with the test lead and observing the lamp. These leads are very handy for this purpose, especially where it is necessary to climb up on the semaphore signals to see the lamp burning.

Ammeter Usually Employed

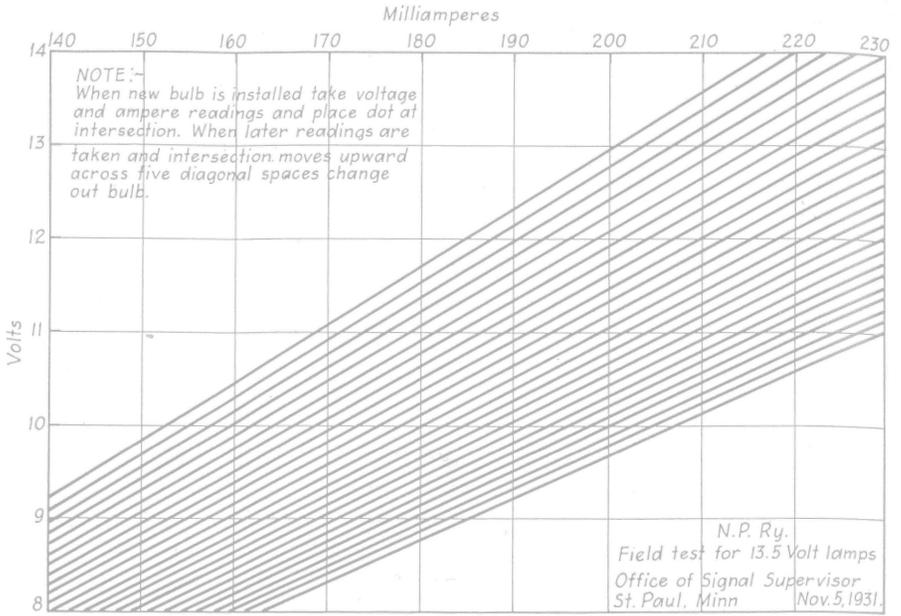
A. G. Nutting

Supervisor of Signals, Northern Pacific, St. Paul, Minn.

Under the conditions mentioned in the question we usually take readings with an ammeter which, in nearly all cases, can be applied to the back-contact terminals of the relay which lights the lamp. This of course, does not require any disconnections in circuits. This test checks against high-resistance lamp filaments and also against sagging filaments. A high-resistance filament would indicate a very old

lamp or something that was developing in the filament, which would lead to a failure. The sagging filaments

failures. And then again, by installing a new lamp at the time the battery is renewed, the peak voltage would burn



This diagram can be used in establishing lamp life

usually have several turns of the filament wire shorted out, resulting in a higher current consumption and the remaining portion of the filament burning at a higher candle-power, which shortens the life of the lamp.

In addition to checking lamps as above, we have a practice in semaphore signal territory, where the 16-cell motor battery energizes the motor, hold-clear coil and line circuits, to change out the lamp with every second battery renewal. At other locations, where separate line battery or a separate hold-clear battery is used, the lamp is changed out with every renewal of the motor battery.

The volts vs. amperes diagram, which I worked out at one time, held good for a certain manufacturer's type of lamp, but in later years, owing to different types of lamps being furnished and different processes of manufacture, I discontinued the use of it. However, I found this test to be very interesting. The principle in mind was that the longer the lamp was in service the less current the filament would take, which was caused by the filament decreasing in size as a result of its use.

Lamps can also be inspected in daytime by placing a piece of white paper behind them. The amount of filament burned off, being deposited on the inside of the glass, darkens it. The darker the glass shows up on the white background, the older the lamp.

I would consider the best practice to be to change out the lamps at some time less than the average rated life, which eliminates most of the lamp

out any defective lamps at the time. After this peak voltage is off the battery there are very few lamp failures.

Flashing Aspects

“What types of practical devices are available for use in flashing a signal lamp to provide a different aspect from a steadily-burning lamp of the same color?”

Flasher Relay on Order Board

P. M. Gault

Signal Engineer, Missouri Pacific
St. Louis, Mo.

The only flashing device with which we have had any experience is the so-called flashing relay, which we use in all of our flashing-light crossing signals and in a great many of our train-order signals to distinguish them from interlocking or automatic signals located nearby.

Flashing Plug Utilized

R. D. Moore

Signal Engineer, Southern Pacific
San Francisco, Cal.

Where we use a flashing-light unit to provide a different aspect from a steadily-burning unit of the same color, we are using a General Electric Wynn-A-Lyte flashing plug. These have proved to be satisfactory for our purposes.

(Continued on page 604)