



An open forum for the discussion of maintenance and construction problems encountered in the signaling field. *Railway Signaling* solicits the cooperation of its readers both in submitting and answering any questions of interest.

To be answered next month

(1) *Is it better to pour concrete signal foundations in place or to use pre-cast foundations made at a central point? What are the advantages of each system?*

(2) *What is the longest track circuit operated successfully in automatic signaling—(1) direct current, (2) alternating current?*

(3) *What are the advantages and disadvantages of sealing wires in trunking with pitch?*

Proper Lamps for Semaphore Night Lighting

"What voltage and wattage is recommended for electric lighting semaphore signal lamps, where primary or storage batteries are used as a source of energy?"

First Answer

IN THE majority of cases where primary batteries are used to electrically light semaphore lamps an independent lighting battery of four primary cells connected in series is used for the lighting battery. When using four cells to light the lamp it is customary to use the 3.5-volt .3-ampere lamp having a C-2 filament with S-11 bulb and either single or double contact candelabra bayonet base. This lamp is designated by A. R. A. drawing No. 15441.

As the specifications indicate this 4 cell 3.5-volt lamp takes .3 amperes when actually burning at 3.5 volts. The wattage at this time is obviously $3.5 \times .3$ or 1.05 (watts). In actual service the voltage of the four cell battery remains fairly constant at 2.6 volts and at this voltage the lamp takes one quarter of an ampere. The wattage taken by the 3.5-volt lamp in service is therefore more nearly 2.6 times .25 or (.65 watts). The lamp is designed to give an excellent signal indication when burned at 2.6 volts, the normal voltage of the four cell lighting battery.

When a better light is desired than that obtainable with the 3.5-volt .3-ampere lamp or when for some reason it is desirable to use the entire 16-cell semaphore battery for lighting the semaphore lamp it is customary to use the 13.5-volt .25-ampere lamp having

a C-3 filament with S-11 bulb and either single or double contact candelabra bayonet base. This lamp is designated by A. R. A. drawing No. 15442.

At 13.5 volts and .25 amperes the wattage taken by this 16-cell lamp is 13.5 times .25 or 3.375 watts. In actual service the 16-cell battery remains fairly constant at 10.4 volts and at this voltage the lamp takes only .2 ampere. The wattage taken by the 13.5 volt lamp in service is therefore more nearly 10.4 times .2 or 2.08 watts.

This latter lamp is also made for storage battery operation in voltages of 8, 10 and 12.

Bloomfield, N. J.

F. S. STALLKNECHT,

Sales Engineer, Primary Battery Division, Thomas A. Edison, Inc.

Second Answer

ON the basis that the above inquiry refers specifically to semaphore night lighting, the following information will, I trust, answer it in an essentially complete manner, although it is entirely possible to go into a longer discussion of this matter. The Signal section, A. R. A., has standardized a list of five lamps recommended for semaphore night lighting.

Where the source of energy is four cells of primary battery a 3.5-volt, 0.3-ampere, S-11 bulb, C-2 filament construction Mazda-B signal lamp should be used.

Where 16 cells of primary battery are used, a 13.5-volt, 0.25-ampere, S-11 bulb, C-3 filament construction Mazda-B signal lamp should be used.

Where storage batteries are the source of power, the voltage of the lamp will depend on the number of cells used. Where four cells of battery are used, the 8-volt, 0.25-ampere, S-11 bulb Mazda-B signal lamp should be used. Where five cells of battery are used, 10-volt lamps should be used.

Chicago.

C. R. STOVER,

Sales Department, Sunbeam Incandescent Lamp Div., National Lamp Works.

Third Answer

WHERE primary battery is used for lighting semaphore lamps, 4 cells are generally used which give about a 3-volt maximum and a 2.4 volt minimum range in lamp voltage. On these circuits 3.5-volt, 1.05-watt (rating) bulbs are used.

Using storage batteries in a. c. floating territory, the general practice on the Louisville & Nashville is to employ 4 lead cells giving about 8.6 volts under charging conditions. For these circuits 10-volt, 2.5-watt bulbs are used.

It is commonly recognized that longer lamp life is

obtained by using voltages of 1 to 1.5 under the rated lamp voltage. Because of the decided economy thus possible, we believe that the adoption of just the two bulb sizes mentioned, one for primary battery territories, the other for a. c. floating installations, as a lamp standard for semaphore lighting is a good arrangement.

Louisville, Ky.

B. H. AYERS,

General Signal Inspector, Louisville & Nashville.

Marker Lights on Single Track

"Are marker lights necessary for single track automatic block signals? Are you using them in new construction? Why?"

Answer

AS I see it, the question of the use of marker lights is one which is determined by a decision as to whether it is necessary to distinguish between absolute and permissive signals. When using semaphore signals it has always been standard practice to distinguish between these two types of signals by a difference in the character of the blade. This has been standard practice for many years and seems to answer the question that in the minds of signal men it is absolutely necessary to visually differentiate between these two types of signals. The difference referred to above is, however, only of value during the daylight hours and if the necessity for this difference is established as it seems to be, then it would seem absurd to have a visual difference by day and none by night. It would seem therefore that marker lights are of value and should be used. In the case of semaphore signals, however, it may be argued that the use of marker lights is superfluous, since we have already made a difference by the character of the blade used and it may be further argued that at night the locomotive headlight would sufficiently illuminate the signal to enable the engineer to differentiate by this means, and thus look and decide as to the character of signal he is approaching.

In the case of color-light signals, a different situation is presented in that there is no difference between the appearance of the permissive or an absolute signal and there should be some means of distinguishing between these two signals in the same manner that we now differentiate between semaphore signals by their appearance. The best means of doing this is by the use of a marker light and the question there resolves itself into whether a marker light should be used on both absolute and permissive signals or only on one of these to identify it from the other. I do not believe there is any necessity for the use of a marker light on both permissive and absolute signals, as a marker light on one of these would distinguish it from the other. The question is then which type of signal should be equipped with the marker light?

It is, I believe, a fundamental principle of railway signaling practice that in the event of the failure of any piece of apparatus, the resultant condition should be the safest condition that can be obtained under the circumstances. If we place marker lights on the absolute signals only, then the signal is distinguished by the presence of the marker light as being an absolute signal and in the event of the failure of the marker light, it would be possible for this signal to be mistaken for a permissive signal; in other words in this case, the failure of the apparatus converts the signal in the mind of one looking at it from a higher to a lower class which is contrary to this fundamental principle. On the other hand if we place the marker light on the permissive signal, then failure of this marker light will convert it from a lower class to a higher class signal from the standpoint of its appearance.

Atlanta, Ga.

R. T. HINDS

Signal Supervisor, Southern

Sudden Ravings

OUR stage and daily papers
Are full of strenuous capers
With this dance they call "The Charleston"
(Which St. Vitus did invent).
All our Shebas and their misters,
Their cousins, aunts and sisters,
Bung their feet all up with blisters
In each contest and event.

But as near as I can figger,
There's a dance a whole lot bigger;
It lasts a darn sight longer
(And we all participate).
'Tis a perpetual syncopation
That knock-knees our cock-eyed nation
And which, without equivocation,
Catches all who navigate.

For a partner, Fate has given
Us "High Cost of Livin'"
She is some eccentric spinster
(Who struts about the floor).
In the dark we want to croak her;
In the light we'd like to choke her,
Or in both optics poke her—
For our "dogs" are getting sore.

She cares not how much we're making,
Or how bad our shanks are aching;
She demands we keep on dancing
(Though our shoes are full of gore).
If we get some dimes and nickels,
Through our fingers then it trickles,
For shoes and booze and pickles,
And she whispers "get some more."

You can scan romantic pages,
On the vamps of all the ages,
And some of them were Dicky-Birds
(If all we read is true).
But their work which we think shady
Was above board and parody
When compared to this wild lady
Who is wished on me and you.

The butchers and the bakers,
Radio and flivver makers
In the jazz-band now are sitting
(With an ever-watchful eye).
Installment plans are gander dancing
To their music most entrancing
And our thoughts are on financing
Something more we want to buy.

So these cunning Charleston capers
On our stage and in our papers
Have been outclassed quite often
(In a million homes perchance).
When this jaded Jane besotted
Threw a mean hoof as she trotted,
Swung her arms and kicked and squatted—
Through her dance.

But perhaps we have been giving
Hell to "High Cost of Living,"
Hung the onus on this lady
(This erratic dancing dame)
When with Jim and Mike and Abie
Living High—perhaps and maybe—
Was the vamping, doll-faced baby
We should blame.

W. H. F.