GRADE SIGNAL CONTROLS

"How do you control operative grade signal markers with reference to track occupancy?" If practicable, please furnish simple circuit diagram.

Four Conditions

By W. K. WALTZ
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All of the grade signals we have in service are used as a part of the signal aspect, and consist of an illuminated letter "G" placed on the signal mast below the main operating unit. This grade signal is normally dark, and when such is the condition, the aspect of the main operative unit governs. When the grade signal is lit, the following conditions must be set up before the grade signal lights:

(1) Main operative unit must be red.

(2) Train must be on approach to grade signal.

(3) First track circuit ahead of signal must be unoccupied.

(4) Directional-stick relay must be energized (in A.P.B. system at intermediate signals).

With the increased length of trains and increased tonnage, the reduction of unnecessary stops becomes more important. We have found that grade signals circuited as set forth above do not reduce safety in any way. They do, however, reduce unnecessary train stops.

The length of the first track circuit is dependent upon the particular operating condition, taking into consideration the grade, curvature, terrain and general visibility. The average length of our first track circuits is 2,500 ft. The accompanying plan shows a typical location at an intermediate signal in an A.P.B. system. The 6TR relay is the ap-
THE simplified diagram herewith shows grade signal location S5226, between Bowie, Tex., and Saginaw, on our Wichita Falls division. When the main track through Alvord between signals S5226 and S5142, as well as track circuit 2-4T in advance of signal S5142, is occupied, the grade marker indicates a distinct type of signal as covered by our rules, and is used so as to not confuse enginem en with other types of signals, such as those with number boards, which are Stop-and-Proceed signals.

The grade marker on signal S5226 is connected to the circuit for the red lamp unit in the top “arm” of the signal, which is controlled over a back contact of the SHR relay. The SHR, in turn, breaks through every track relay up to signal S5142, as well as that for track section 2-4T in advance of signal S5142.

The COA “arm” on signal S5226 does not form part of the grade indication, but is a special unit provided for displaying a call-on aspect. It consists of a yellow light, normally dark, controlled by the operator at Alvord. When illuminated, with the top “arm” of the signal red, it indicates that a train may and its purpose is that when trains meet at that particular station, the operator can use the special indication to bring the train up the main line if necessary. This proves useful sometimes when the dispatcher, for some reason or other, changes his mind and decides to put out an order that a certain train will take siding.

Includes First TR In Advance of Signal

By W. M. WHITEHURST
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FOR ascending grade conditions on the Central of Georgia, an indication of red-over-staggered yellow (Proceed at Restricted Speed) is displayed when it is desired to provide for elimination of the stop at a signal that would otherwise display a Stop, then Proceed at Restricted Speed indication.

As shown in the sketch, the yellow light unit on such a signal is arranged to be illuminated only when the top unit of the signal displays red, traffic direction is in effect and the first track circuit in advance of the signal is unoccupied. Approach lighting is provided for power conservation. The track circuit in advance of the signal is included in the control on the basis that, if of the anchor, thereby throwing slack into the pole lead, which results in a failure when the lead is subjected to a storm or to over-tensioned line wires.

One means of determining the proper direction and pull of a guy is by the use of a “bisector.” Such an instrument is shown in the accompanying picture, the device being 8¾ in. long, 1¾ in. deep, ¾ in. wide, and weighing 5 oz. In using the bisector, the spiked tip at the left is driven lightly into the pole to be guyed, and the arms are aimed at other poles to the right and left in the line. The operator then

CORNER-POLE GUYS

"With reference to the installation of a guy on a corner pole in a pole line, what method do you employ to determine the proper direction and pull of the guy?"

Can Use “Bisector”

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CORRECTLY locating an anchor and guy is a case of “bisecting” the line of force to which the pole involved is subjected. If the anchor is placed to one side of the true angle of force, this results in the top of the pole giving toward the angle

pass the signal and proceed at restricted speed to the train order signal at Alvord. Some roads call this an operator’s advancing signal, the train ahead is within this distance of the signal, it is best that a stop be made at the signal, rather than pass it without stopping.

Adjusts the peep-sight barrel, shown at the top, over the center of each arm in turn until it is perfectly aligned with the right and the left

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