

LOCOMOTIVE CORRESPONDENCE COURSE : ENGINEDRIVERS

LESSON 20

Page 1 of 4 pages

The purpose of the following lesson is to give the candidate for this examination an insight into some of the changes in our signalling system and to direct him to a better understanding of the rules that apply to them; also the type of question that will be asked.

SIGNALLING AND INTERLOCKING

To enable a better understanding of signalling and interlocking circulars this lesson will cover the Standard Symbols as set out in the attached Technical Information Circular No. 538.

The automatic running signals shown on S. & I. circulars are indicated by a banner to represent the colour indication of the signal. These will be found on page 139 of the Rules and Regulations and explains them fully.

Sheet No. 2 Signalling and Interlocking Circular No. 1267 Kenepuru-Porirua gives a typical example of advancement in our system, to this extent, that an electric unit train may reverse at Porirua, its terminating station as shown in the Working Timetable, when the station is switched out and return to Wellington.

This has been arranged by providing a central panel on the station building locked with a padlock and before any attempt is made to reverse a train standing on the Up main line, a check must be made of this panel to see that the "Down, Train Approaching" indication is not illuminated. If all is clear on the opposite running line, by the operation of the control for the cross over signal 21A Down Starting and Home Signal No. 22 will be placed at Stop, the "A" light extinguished then No. 12 points will reverse.

The point to note is that Automatic Signalling Regulation 5 (b) applies, in that should a through train arrive at the Home signal at Stop, it is the Enginedriver's duty to check to see if the station is switched in or out and in the case of stations so fitted in this area that a train is not reversing while the staff is not on duty.

A further advancement with "A" lights. At some stations the circuits are so arranged and coupled to the facing points, which means at stations that have been modified the illuminated "A" light will be an indication that the facing points are correctly set and secure.

One further point that requires to be classified is that in respect to "A" lights. These refer to the Signal Box or the modern aspect - the Local Control Panel in the station.

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Often members quote cases where the "A" lights are showing on Home signals but the station staff are in attendance. Therefore "A" lights indicate that the Signal Box or Panel is switched out or in the case of a switch locked siding that the switch lock door is closed.

At some stations where owing to the length of trains an additional indicator has been fitted to face the enginedriver, sometimes on a post by itself, sometimes on an existing signal post; this is an "R" light and is fitted because the enginedriver cannot see the station when a long train is attached to his locomotive and because he has pulled right up to enable station work to be carried out. In a suitable position an "R" indicator has been fitted to indicate to the enginedriver when illuminated that station work is completed and the train may proceed.

Sheet No. 2 Signalling and Interlocking Circular No. 1163 for Ohakune indicates the position of Approach Signals ASRA and ASRBAB. This circular is to enable members to clearly understand what Approach Signals are, where they are provided and how they operate.

Once again, as Approach signals are fitted at many stations, your attention is drawn to the necessity to study all S & I circulars to ensure a full understanding of any particular automatic signalling layout.

Approach signals are Stop and Stay signals, as also are Outer Home or Starting Signals. The main difference is that the former are operated by a pre-arranged time delay which, when expired will cause the signal to give a Proceed normal speed indication, provided the route is clear between this signal and the next signal in advance to which it refers. It is not a repeater: the only time it gives the same indication as a Home or Departure signal is when they also are showing a Proceed indication.

Further, in some areas, to facilitate shunting moves when Approach signals are placed within station yards they are fitted with Low Speed lights for the purpose of passing the Approach signal at Stop (for shunting movements).

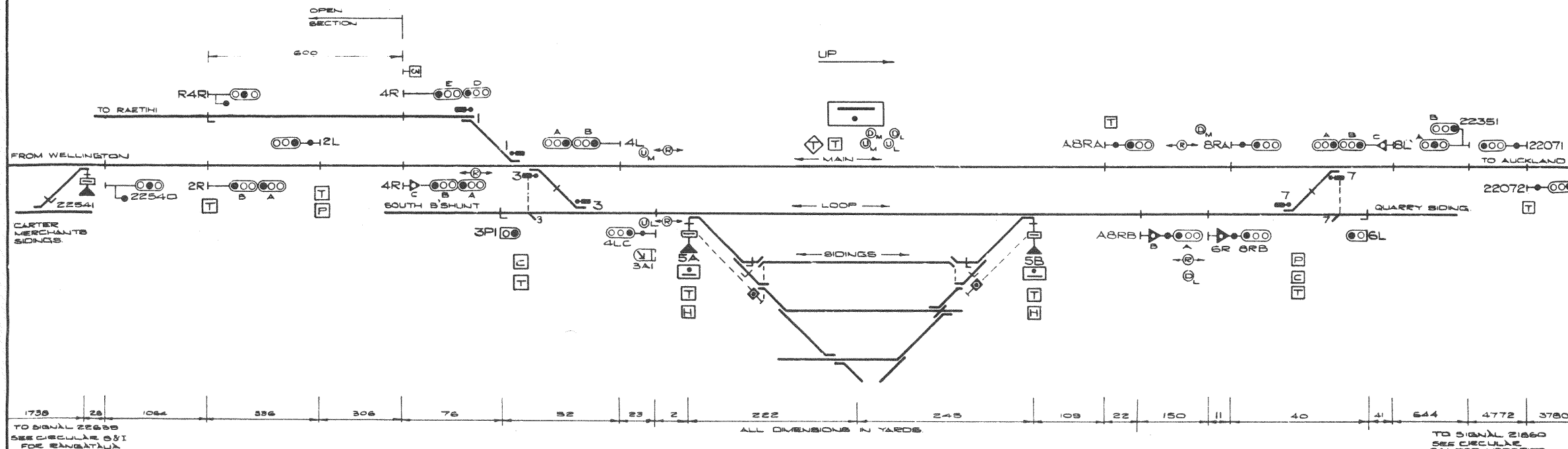
1. (a) What is the purpose of an "R" light?
(b) What does it indicate when illuminated?
2. Indicate the following symbols using a small drawing of each -
 - (1) A Tablet Exchanger
 - (2) A Control Panel
 - (3) A Local Control Panel
 - (4) Tablet Locked Points
 - (5) Stop Block
 - (6) "All Trains Stop" Board
 - (7) "Shunting Limit" Board
 - (8) "Whistle for Signal" Board
 - (9) "Guards Right Away" Lights
3. On an S & I Circular state how you would know if a signal was at Clear Proceed, Caution Proceed or at Stop.
Page 139 Rule Book
4. Give the definitions of the following:-
 - (a) Station Limits
 - (b) Open Section.R.2
5. What are the Enginedrivers duties regarding the use of the whistle when approaching level crossings?
R.12.
6. (a) When should a tail lamp be used on a locomotive?
(b) When should the head lamp be on "FULL" and when on "DIM"? R.16.
7. Where no Low Speed Signal is provided, how will trains proceed past a Home Signal at "Stop" when the road is occupied? R.32
8. (a) When the Home Signal is placed at "Proceed" for a non stopping train, what does it indicate?
(b) For a train timed to stop, what does it indicate? R.33
9. When a train running in a Two Position Signalling Area is not timed to stop, how should it be signalled to stop at the station, and how should the E.D. proceed?
R.34.
10. When a train is scheduled to stop at a station "if required" and there is no necessity for it to stop, how may the train proceed without stopping -
 - (a) If at an Attended station?
 - (b) If the station is not attended?R.35.

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11. What procedure must be adopted when a train is detained outside a Home Signal? R.36
12. When a train is detained on the main line or any other line within station limits whose duty is it to advise the Signaller of the situation -
(a) In the case of a light locomotive?
(b) In the case of a train? R.37
13. What procedure must be adopted when a train is detained at a Starting Signal? R.43.
14. Where shunting movements outside station limits require lines to be fouled, what precautions must be taken and what permission must be received -
(a) On Open Sections?
(b) Tablet Areas?
(c) Single Line Automatic Signalling Areas?
R.56. Tab.Reg.9.Auto Sig.
Reg.26.
15. When trains are running in an "Open Section" without being signalled -
(a) Who will authorise their departure?
(b) Describe the authority the E.D. must receive before he proceeds. R.65.
16. When due to any condition, signal indications cannot be readily seen, what precautions must the E.D. take? R.68
17. (a) What first two duties must be performed immediately an accident or obstruction occurs on any part of the line?
(b) What undertaking will be issued if the train is disabled?
(c) On arrival of the relief locomotive at the disabled train, what must be received before the E.D. clears the section?
R.73. Auto Sig Reg.30.
18. When a train is stopped in an "Open Section" area due to accident or obstruction for a long time -
(a) In which direction must protection be placed?
(b) If the train is running without specific instructions as to the crossing of other trains, how must the train be protected? R.74.
19. When a train has been authorised to pass a defective Departure Signal at "Stop" and then becomes disabled in the block section, how should it be protected in an Automatic Signalling Area? R.74
20. When a train is divided on a double line and the locomotive takes it forward in two parts, what is the procedure? R.75 - 76.
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OHAKUNE

SIGNALLING AND INTERLOCKING ARRANGEMENTS. CTC TERRITORY



- POINTS MOTOR
- ⌢ FRAME LEVER & SWITCHLOCK
WITH FACING POINTS LOCK.
- ⌢ CRANK HANDLE.
- ⌢ TELEPHONE (TRAIN CONTROL)
- ⌢ FLOT KEY.
- ⌢ LOCAL CONTROL PANEL.

- ⌢ ENTERING 3 POSITION SIGNALLING AREA.
- ⌢ PUSH BUTTON CONTROLLING GUARDS
U-UP RIGHT-AWAY LIGHTS
D-DOWN FOR MAIN & LOOP
- ⌢ GUARDS RIGHT-AWAY LIGHT
(ARROW SHOWING IN DIRECTION OF LIGHT)

- ⌢ TELEPHONE (DISTRICT LINE)
- ⌢ WANTED ON TELEPHONE HOOPER

DESCRIPTION OF SIGNALS & LEVERS.

- 2RAB UP OUTER HOME
- 2L DOWN DEPARTURE
- 4RABC UP HOME { N.S. TO MAIN.
N.S. TO LOOP
L.S. TO MAIN, LOOP OR SIDINGS.
- 4RDE UP HOME FROM BRANCH - M.S. TO MAIN OR LOOP
- 4LAB DOWN STARTING FROM MAIN { N.S. TO MAIN.
N.S. TO BRANCH.
- 4LC DOWN STARTING FROM LOOP - TO MAIN OR BRANCH.
- B LOCAL CONTROL CHANGEOVER.
- 6L SHUNT FROM QUARRY SIDINGS - L.S. TO LOOP OR SIDINGS.
- 6E SHUNT FROM LOOP - L.S. TO QUARRY SIDINGS.
- 6LABC DOWN HOME { N.S. TO MAIN.
N.S. TO LOOP
L.S. TO MAIN, LOOP OR SIDINGS.
- 6RA UP DEPARTURE FROM MAIN.
- 6RB UP DEPARTURE FROM LOOP
N.S. - NORMAL SPEED
M.S. - MEDIUM SPEED.
L.S. - LOW SPEED

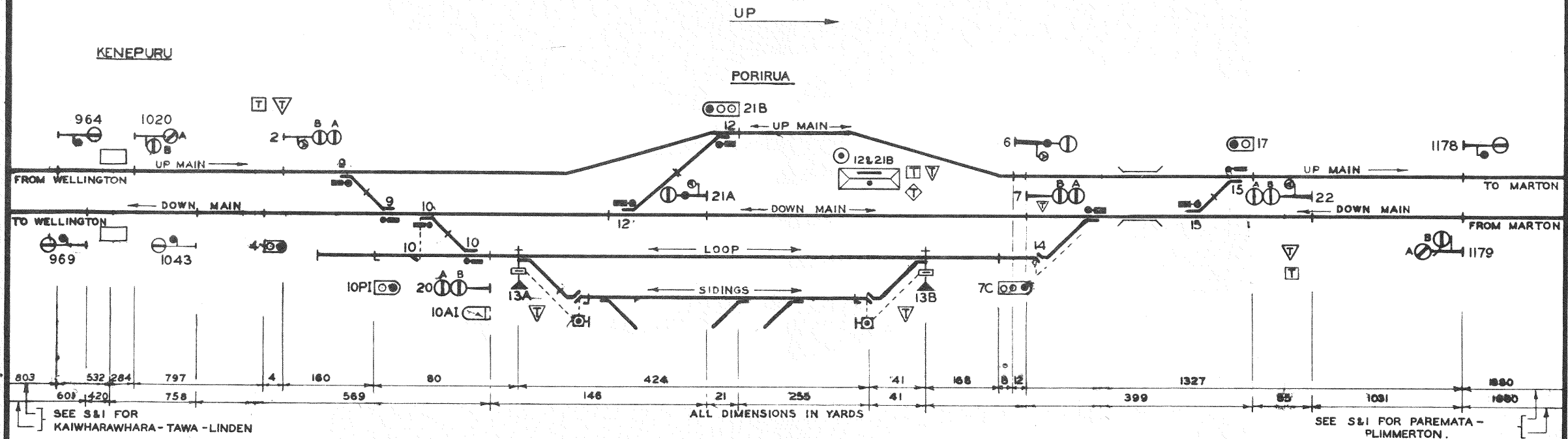
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VAN

KENEPURU - PORIRUA

SIGNALLING & INTERLOCKING ARRANGEMENTS.

CIRCULAR S. & I. N° 1267
SHEET N° 2.
N° OF SHEETS 2.



DESCRIPTION OF SIGNALS & LEVERS.

- | | |
|---|--|
| 1 - SWITCHOUT CONTROL LEVER. | - UP MAIN. |
| 2AB - UP HOME. | - N.S. TO UP MAIN. |
| | - M.S. TO DOWN MAIN OR LOOP. |
| | - L.S. TO UP MAIN, DOWN MAIN, LOOP OR SIDINGS. |
| 4 - SHUNT FROM DOWN MAIN. | |
| 6 - UP STARTING FROM UP MAIN. | - M.S. TO UP MAIN. |
| 7AB - UP STARTING FROM DOWN MAIN. | - L.S. TO UP MAIN. |
| 7C - SHUNT & UP STARTING FROM LOOP | |
| 13 - SWITCHLOCK PERMISSION LEVER | - L.S. TO UP MAIN, DOWN MAIN, LOOP OR SIDINGS. |
| 17 - SHUNT FROM UP MAIN | - M.S. TO DOWN MAIN. |
| 20AB - DOWN STARTING FROM LOOP. | - N.S. TO DOWN MAIN. |
| 21A - DOWN STARTING FROM DOWN MAIN. | - L.S. TO DOWN MAIN. |
| 21B - SHUNT & DOWN STARTING FROM UP MAIN. | - N.S. TO DOWN MAIN. |
| 22AB - DOWN HOME | - M.S. TO LOOP. |
| | - DOWN MAIN. |
| 23 - SWITCHOUT CONTROL LEVER | |

N.S.-NORMAL SPEED.
M.S.-MEDIUM SPEED.
L.S.-LOW SPEED.

J.D. Stevenson
SUPERINTENDING ENGINEER
SIGNALS & COMMUNICATIONS

- POINTS MOTOR
- ▽ FRAME LEVER POINTS FITTED WITH SWITCHLOCK & FACING POINTS LOCK.
- T TELEPHONE (TRAIN CONTROL)
- ◇ TELEPHONE (AUTO)
- ▽ TELEPHONE (TO SIGNAL MAN)
- CONTROL FOR 12 CROSSOVER & 21B SIGNAL WHEN STATION IS SWITCHED OUT