

BRITISH RAILWAYS

(WESTERN REGION)
(For the use of employees only.)

PADDINGTON TO HAYES MULTIPLE ASPECT SIGNALLING

WEST EALING SIGNAL BOX

DESCRIPTION AND METHOD OF OPERATION OF THE SIGNALLING CONTROL PANEL

PART I—DESCRIPTION

1. General.

The installation at West Ealing comprises:—

- (a) Mechanically operated points and shunt signals in the vicinity of the box operated from an orthodox mechanical lever frame.
- (b) Multi aspect colour light stop signals on all running lines and power operated points, together with shunt signals where necessary, at Ealing Broadway Station, in the vicinity of Longfield Avenue overbridge, at Hanwell Station and at Drayton Green Halt all operated from a control panel by the "Entrance-Exit" (NX) system, in the manner to be described.

2. Control Panel.

The Control Panel is suspended over the mechanical lever frame and depicts diagrammatically the running lines, points and signals in the area controlled by the box.

- (1) The extent of all track circuits concerned is marked thereon and their occupancy indicated by means of a lozenge shaped red light, one such indication being allocated to each track circuit at a suitable position on the track line representing the running line concerned. Two bulbs are provided in each track indicator to safeguard against failure of a bulb as the indicators are normally dark when the track circuits are clear. Track Circuit Indicators.
- (2) An indication that a power supply is available for the track circuit indicators is also provided on the panel. This consists of two green lights, normally alight when the power supply is available, placed in the middle of the panel and suitably lettered. One green light applies to the power supply for the Up and Down Main Line track circuit indicators, the other to the remaining track circuit indicators. Track Circuit Indicators
Power Supply.
- (3) On the Main and Relief Lines Train Approaching Indicators similar to track circuit indicators and as described in the T.C.B. Regulations (Notice L.K.245) are provided on the panel and lettered accordingly. More than one such indication has been provided where necessary and the numbers of the signals affected by the display of these indications as referred to in the Regulations have been engraved thereon. The momentary audible warning is also always in operation and is not suppressed when automatic working is in force. Train Approaching Indicators.
- (4) Mechanical points are depicted in their normal position in the orthodox manner as well as the profile of mechanically operated signals together with the number of the corresponding lever in the mechanical frame. Mechanical functions.

SIGNALLING RECORD SOCIETY

www.s-r-s.org.uk

DIGITAL ARCHIVE

This PDF Copy has been provided free of charge by David Allen in order to assist your research into UK signalling.

This file is one of a number scanned by David Allen using material from his own collection and from the collections of Peter Barlow, Phil Deaves, Robert Dey, David Ingham, Simon Lowe, Richard Maund, John McCrickard, John Midcalf, Richard Pulleyn, Roger Newman and Chris Wolstenholmes. Thank you one and all. Many of the original documents are now in the SRS Archive or at the National Railway Museum.

You may also like to provide copies of Signalling Notices and Weekly (and periodical) Operating Notices or other notices as scans or as originals. The SRS is always willing to accept donations of any signalling or signalling related material for inclusion in the Society's Archive. Please contact the [Archivist](#) in the first instance.

For a list of PDFs currently available visit the [Archives](#) pages of the SRS Web Site.

If you have benefited from this PDF copy, why not [join](#) the Signalling Record Society and receive support for your researches and access to the Society's Archives

Members receive "The Signalling Record" six times annually plus a newsletter and have the opportunity to purchase SRS [books](#) and other [publications](#) at a discount. They also have access to back issues of The Newsletter and The Signalling Record which are only available to members. These contain a wealth of information accumulated since 1970, much of which is not readily available anywhere else.

In addition, Members have the opportunity to join signalling related visits to locations on the UK national and London Underground systems; and to other UK Railways.

To join the Signalling Record Society visit

www.s-r-s.org.uk/membform.html

- (5) Certain of the mechanical points are electrically detected in which case two white lights for each set of points are provided in a row on the panel, one light labelled N and the other R together with the relevant number of the points, the appropriate light being illuminated when the points are detected in the corresponding position. In the case of facing points provided with a F.P. lock, no indication is given unless in addition they are properly bolted. Point Indicators (Mechanical Points).
- (6) Power operated points have two shaped white light indicators, one illuminated when the points are normal and the other when they are reverse, so arranged as to form a continuation of the track line on the diagram in the direction for which the points are set. As one or the other of these indicators can only be illuminated if the points are properly set and detected, there will be a dark break in the track lines at the place where points occur if this condition is not fulfilled. The indicators have the letter N and R engraved thereon visible at all times to distinguish which is the normal lie of the points and a number is placed alongside for reference purposes. The same number is affixed on the sleeper at the corresponding points on the ground together with an arrow which indicates the direction of movement of the point tongues required to place the points in the normal position. Point Indicators (Power Operated Points).
- (7) Adjacent to where power points occur on the diagram, free thumb switches are placed in a horizontal row, one such switch being provided for each set of points, to enable the points to be individually operated if and when required. The knob of the switch is shaped to form a pointer and the switch can be placed with the pointer vertically upwards or inclined either to the left or right. To individually normal or maintain normal a set of points the point switch is turned to the left and similarly to the right for the reverse position. The switch is otherwise left in the vertical or mid-position when automatic route setting is in operation. Above the N and R switch positions is a list of the position in which all other points, interlocking with the points in question, must lie before the points can respond to the switch. In addition a red light is caused to be illuminated in an aperture in the centre of the switch whenever the points are locked either by the occupation of track circuits or by reason of the interlocking with signals in which circumstances the points will not respond to the operation of the switch. The red light also appears immediately the point switch is placed to either the normal or reverse position and the points have correctly responded to indicate that the points will be held in that position until the switch is restored to the mid-position. Point Switches.
- (8) In the event of it being necessary to revert to hand operation of power operated points, hand cranks are provided, one for each group of points in the Hanwell, Drayton Green, Longfield Avenue and Ealing Broadway area respectively. These hand cranks are each of a different pattern and will only fit the point machines of the appropriate area. To expedite the introduction of hand crank working, or the resumption of normal working the hand cranks for the Hanwell, Longfield Avenue and Ealing Broadway areas are located adjacent to the points concerned in special instruments and may only be withdrawn on an electrical release being given from the signal box. To effect this rotary switches labelled "Hand Crank Release" are placed on the panel in the vicinity of where the corresponding points are shown diagrammatically and these switches must be rotated clockwise through 180° as indicated by an arrow from their normal position. The knobs of these switches are black with a white pip to indicate at a glance the position of the switch. The white pip rotates with the switch and appears uppermost when the switch is in the reverse position. A white light indication becomes illuminated in an aperture through the centre of the switch when the hand crank is free to be withdrawn from the instrument on the ground. Hand Crank Release.
- In the case of the power operated points at Drayton Green the crank handle is located in an instrument in the signal box which is normally pad-locked, the key being kept in a sealed glass-fronted case alongside. No electrical release is necessary in this case as the issue of the hand crank is directly under the responsibility of the Signaller.
- (9) Special provisions are made to safeguard against irregular operation of the points in the event of a false electric current becoming applied to the point motors other than through the appropriate controls. Point Fault Indicators.
- Should this occur a so-called "cross-protection" relay located adjacent to the point machine will operate to isolate the point motor and thus prevent it moving the points. A red light indication will appear in these circumstances, one such indication labelled "fault" being provided for each of the four groups of points above the respective row of point switches on the panel. An alarm will also sound which can be silenced by depressing downwards the key switch labelled "Fault Alarm" on the extreme right of the panel. As the particular point machine affected has been isolated by the operation of the cross protection relay it will remain in its last operated position and it will not be possible to re-operate it from the panel until the Lineman has reset the cross protection relay on the ground. When this has been done the fault

indication light will be extinguished and the alarm will sound once more. The alarm can then be silenced by restoring the fault key to its normal position.

- (10) For each power operated signal a free rotary switch is provided on the diagram track line in a position corresponding to the site of the signal, the knob of the switch being coloured red to correspond with the stop aspect of the signal. The signal switch can be turned through 90° and a white pip on the knob serves to indicate at a glance the position of the switch. To maintain or restore the signal to danger the switch must be turned so that the white pip lies along the track line (normal position) whilst as a preliminary to clearing the signal the switch must be turned so that the white pip is uppermost and off the track line (reverse position).

Signal
Switches.

The switches are arranged so that in the normal position the white pip is always on the side of the switch facing the approaching train hence switches controlling movements in the left to right direction on the panel are turned clockwise to the reverse position and those for movements in the opposite sense in a counter clockwise manner. An arrow is also engraved on the switch always pointing in the same direction as that of the traffic movement controlled by the signal.

- (11) Through the centre of each signal switch is an aperture capable of displaying either a red or green light according to whether the signal is in the "On" position (including any banner repeating signals working in conjunction therewith) or is displaying any one of the proceed aspects respectively. In the case of multi aspect signals failure of the signal lamp will cause the indication light in the signal switch to be extinguished.

Signal
Indicators.

- (12) All power operated signals are approach locked where necessary, i.e. the interlocking will be held even if the signal switch is restored normal should a train have reached a certain point on the approach side of the signal whilst a proceed aspect was being displayed. The interlocking will then be held until either the train passes the signal or an automatic time release has operated. The time release will not commence to operate until the signal is properly at danger and during the time the approach locking is effective the red indication light in the affected switch will be caused to flash in and out. The standard timing of the automatic release is two minutes in the case of stop signals and half a minute in the case of shunt signals in accordance with the General Appendix (p. 75).

Approach
Locking
Indication.

- (13) The point at which the approach locking to a multi aspect stop signal commences is shewn on the panel by the number of the signal being affixed in brackets alongside the appropriate track circuit joint symbol. This may extend more than one signal section to the rear in which case the approach locking becomes effective, of course, conditionally on the intervening signals also having been clear. Shunt signals on the other hand are approach locked only by the berth track circuit immediately in rear, or if no such track circuit exists immediately the shunt signal has been cleared.

Extent of
Approach
Locking.

- (14) Where a power operated signal reads over more than one route or more than one power operated signal converge to a common point or where a power operated signal interlocks with power operated points a push button is provided on the track line immediately in rear of the next signal in advance of such a signal. In these cases in addition to turning the signal switch to the reverse position the appropriate push button for the desired route must also be subsequently momentarily depressed in order to clear the signal.

Push-Buttons.

- (15) Normally power operated signals will be replaced to danger by the train and will not clear again until the appropriate signal switch has been restored normal and then re-operated together with the associated push button. To avoid the necessity of this for a number of trains all following in the same direction a row of key switches is provided on the panel each applying to a particular convenient group of signals as indicated. When a key is depressed downwards the signals concerned will then clear automatically in accordance with the track circuit conditions without further action by the Signaller provided the corresponding signal switches are left reverse.

Automatic
Working Keys.

- (16) Where "delayed yellow" facilities are available at a particular signal a star symbol has been affixed to denote this alongside the signal number on the panel. Where a signal applies to more than one route the facility is only available for a given route if the corresponding push button is also similarly qualified by a star.

Miscellaneous
Symbols.

The overlap point ahead of a signal is denoted on the panel by a dot being placed inside the green rectangle that appears in the track line to indicate a track circuit joint.

Where a track circuit is controlled by the next one ahead, i.e. the track circuit will not clear until the next one ahead has been cleared, a semi-circular arrow is placed over the track joint symbol to denote this.

- (17) The Up Greenford Loop Distant No. W.E.139 is fixed at caution and, therefore, no switch is provided for this signal. A profile of the signal is shown instead on the panel in its relative position and associated with it is a yellow light indicator normally alight, but which will become extinguished should a failure of the signal lamp occur. Miscellaneous Indication.

3. Other Equipment.

In addition to the control panel the following equipment is also provided on the instrument shelf or elsewhere in the box.

- (1) Train Describers for the Main and Relief Lines together with block bells working to Southall East Junction and Acton West Signal Boxes. Train Describers.
- (2) Block Instruments and Bells, Absolute for the Greenford Loop and Permissive for the Goods Lines to Acton West. The Down Greenford Loop Block release of the Starting Signal No. W.E.146 is effective for one train only, i.e. after the train has passed the signal the latter cannot be cleared again for a following movement until "Line Clear" has been pegged a second time by the box in advance. The Up Greenford Loop Block acceptance is similarly effective for one movement only, i.e. after "Line Clear" has been returned to the box in rear, the block cannot be pegged to "Line Clear" a second time until the first train has occupied and cleared the berth track circuit in rear of the Up Greenford Loop Home Signal No. W.E.141. In the event of the train for which "Line Clear" has been returned being cancelled, a hand operated time release is provided alongside the block instrument and must be operated before "Line Clear" can again be pegged for the next movement. Block Instruments.
- The Up Block will also be maintained at "Train on Line" whilst the berth track circuit at the Up Home Signal is occupied and if the block has not been placed to this position in response to the "Train entering Section" signal it will be so placed and maintained automatically on the occupation of the said track circuit. The usual block controls are also provided, i.e. "Line Clear" cannot be returned unless all the section track circuits are clear and the Up Distant and Home signals correctly displaying a caution and danger aspect respectively.
- (3) Arm and lamp repeaters of the needle pointer type for certain of the mechanical signals which cannot be readily observed from the box. The lamp repeaters indicate IN or OUT and when a lamp fails an alarm will sound which can be silenced by operating the switch placed alongside the indicator. When the lamp has been relighted the alarm will sound once more until the switch is restored to its former position. Arm and Lamp Repeaters.
- (4) Ringing keys to operate platform bells at Ealing Broadway, West Ealing and Hanwell Stations. Platform Bells.
- (5) Signal Post Telephone Concentrator, on which incoming calls can be dealt with from the multi aspect signals provided with telephones, also from the telephones provided in the vicinity of the power operated points. In the latter case provision is made for ringing out to call to attention anyone stationed at the points. Signal Post Telephones.
- (6) Overload Protection Switches protecting the various electricity supplies to the signalling equipment. These are mounted on the instrument shelf so that they may be readily reset by the Signaller in order to minimise delays in the event of a momentary fault occurring and should be attended to in accordance with the instructions in the General Appendix (p. 74). Overload Protection Switches.
- (7) Lever Collars for the mechanical frame and similar devices for the panel switches and push-buttons. In the latter case those provided for the switches can be slipped over the desired switch so that attention will be drawn thereto in the event of the Signaller attempting to operate the switch whilst those provided for the push-buttons when affixed will prevent the push-button being depressed. One or the other or both types may require to be affixed to ensure adequate protection is afforded against inadvertent operation of a particular signal or pair of points. Lever Collars.
- (8) Hand Crank Instrument for the power operated points at Drayton Green. See Part I—2 (8). Hand Crank.
- (9) A Signal Box Diagram of the conventional type but not illuminated and on a reduced scale giving the normal relevant information such as the profile of the signals, distances from box, etc. Signal Box Diagram.

PART II—METHOD OF OPERATION

I. Mechanical Points.

- (1) Mechanical points are operated in the normal manner from the lever frame, electric locks being provided as required to achieve the necessary interlocking with the power operated functions controlled from the panel. Operation.

The lineman must, however, be immediately advised so that the particular pair of points which have ceased to respond to operation from the panel may be restored to working order.

Attention is drawn to the importance of ascertaining that both facing and trailing points are correctly set before a train is authorised to pass over them other than by means of the fixed signals.

- (10) If it becomes necessary to revert to hand crank operation all the signals interlocking with all the points in the group affected must first be placed at danger. In the case of the hand cranks electrically released this is a necessary condition before the release can be effective and in all cases the withdrawal of the hand crank from the instrument in which it is kept will maintain such signals at danger. Hand Crank
Operation.

During the time of the failure it may, however, be feasible to properly signal movements other than over the defective points provided the hand crank is restored to the instrument and the release withdrawn. Before this is attempted the defective points must first be clipped in one of its proper positions. In no circumstances must movements be signalled by means of the fixed signals over points which are considered defective even although a correct indication of their position is being returned to the box until the defect has been rectified.

- (11) When a release for the hand crank is received from the signal box the words "LOCK FREE" will appear illuminated on an indicator on the face of the instrument and the hand crank may then be rotated clockwise as far as it will go when it may be withdrawn by pulling it away from the instrument. To replace the hand crank, it must be inserted in the aperture of the instrument, in the same manner as in a point machine, with the handle pointing downwards to the left. The hand crank must then be fully rotated counter-clockwise to its normal position, i.e. with the handle pointing downwards, but inclined to the right. Unless the hand crank is in its normal position in the instrument the necessary interlocking will be maintained in the signal box. Hand Crank
Release
Instruments.

The hinged door of the instrument must be kept securely fastened by means of the bolt fastening provided.

- (12) The point machines are of the General Railway Signal Company type and the relevant instructions in the General Appendix must be complied with in so far as they apply. Type of Point
Machine.
- (13) In the event of a failure occurring whereby the hand crank cannot be withdrawn from the instrument the points, if defective, may be disconnected from the point machine, but only if serious delay would accrue by waiting for the Lineman to clear the fault. Failure of Hand
Crank
Instrument.
- (14) The point switches must always be used to set and lock the points in the required position before a train is authorised to travel over them other than by means of the fixed signals. Hand-signalling
- (15) Switch collars must be affixed to the point switches whenever the occasion demands. Switch Collars.

3. Mechanical Signals.

- (1) Mechanical signals are operated in the normal manner from the frame, electric locks being provided as required to achieve the necessary interlocking with the power-operated functions controlled from the panel. Operation.
- (2) Before a signal may be lowered the signal switches of all conflicting power-operated signals must have been replaced to the normal position after the previous movement and in the case where no push-button is associated therewith the switch must be in the normal position. In addition the signals in question must be properly displaying the danger aspect and be also free of approach locking except that the last requirement is relaxed where the interlocking only serves to guard against cross-reading by Drivers or to avoid ambiguity such as where the signals are back to back, i.e. applying in opposite directions from the same line. Interlocking.
- (3) In some instances mechanical signals will interlock with power-operated points ahead of the next signal in advance, the latter signal being power-operated. These points must then be first placed in the correct position either individually by means of the point switches or alternatively the next signal in advance must first be cleared which will achieve the same effect through the automatic route setting. Setting of
Power Operated
Points.
- (4) Mechanical signals detect the appropriate points either mechanically or electrically as the case may be. Detection.

4. Power Operated Signals.

- (1) Power operated signals are operated by first placing reverse the appropriate signal switch and then where provided by momentarily depressing the push-button for the required route. Operation.

- (2) Before point levers can be moved the switches of all signals requiring the points in the position they lie in must have been replaced to the normal position after the previous movement and in the case of where no push-button is associated therewith the switch must be in the normal position. In addition, such signals must be properly displaying the danger aspect and be free of approach locking. Interlocking.
- (3) The points are also locked as appropriate by track circuits including those extending back to the signal governing movements over the points concerned. Where points are so locked advantage has been taken to facilitate traffic working by omitting the usual "both way" interlocking with the signal in advance. Track Circuit Locking.

2. Power Operated Points.

- (1) Power operated points are normally operated automatically to the required position as necessary whenever a signal switch and associated push-button have been operated to clear a desired signal provided the point switch is in its mid-position and the points are free of interlocking or track circuit control. The setting up of a route, as the process of reversing a signal switch and depressing the push-button is termed, calls the points to the required position and when they are properly set locks them in that position for as long as the signal switch remains reverse. Automatic Operation.
- (2) The points will continue to remain in the same position even after the signal switch is restored normal until called to a different position by the setting up of another route. Points Non-restored.
- (3) The points may also be operated individually if free by use of the point switch which, when the points have set properly, also locks them, i.e. they will not respond when a route is set up calling them to the opposite position until the point switch is replaced to its mid-position. Individual Operation.
- (4) The points, whether being set automatically or individually can only operate in the proper sequence as required by the point-to-point interlocking. Point-to-Point Interlocking.
- (5) The points will remain locked after being set for a route if the approach locking becomes effective until the time release has operated or if the train has passed the signal until all the relevant track circuits have been cleared, except that if the points are in the overlap for the signal a separate automatic time release will come into operation to free the points in order to cater for a train not proceeding beyond the signal next ahead immediately protecting the points. This time release is adjusted to ensure such a train has come to a stand at the signal in question. Track Circuit and Route Locking.
- (6) In the case of power-operated facing points less than approximately 100 yards in advance of the junction signal in addition to the above track circuit locking the points will also be held by the occupation of track circuits on the approach side of the junction signal for a predetermined time even if the signal is maintained at danger to ensure that they cannot be reached by a train under any circumstances whilst they are in motion under normal conditions. This track circuit locking is released by the operation of an automatic time release to permit the points being altered after the train has come to a stand at the junction signal. Approach Locking of Facing Points.
- (7) Facing points occurring in the overlap for the signal in rear of the junction signal are locked and detected by the former signal in whichever position they happen to be at the time the signal is cleared. Regard must, therefore, be paid to presetting them, if possible, for the direction required by the approaching train before such a signal is cleared, either by individual operation or by first clearing the junction signal, so that no unnecessary delay is occasioned to the train by virtue of the above locking. Special exemption is, however, allowed in respect of the facing points at Longfield Avenue in order to facilitate traffic working and the position of these points may be altered even if the signal next in rear of the junction signal is off as long as the approaching train has not passed this signal. Presetting of Facing Points in Overlap.
- (8) In the event of points ceasing to indicate either normal or reverse an attempt should be made to operate them to the required position by means of the point switch before treating them as defective. Should an obstruction unduly interfere with the free movement of the points an overload protection device will come into operation to disconnect the power supply and the points will be stopped in mid-stroke. This device will be automatically reset as soon as the point switch is operated to reverse the direction of motion of the points so that further attempts can be made to set the points to the required position. Failure of points to detect.
- (9) In the event of the fault indication becoming displayed, normal working may be maintained as long as a normal or reverse indication of the position of the points can be obtained. Cross Protection Fault.

- (2) For the signal to clear all conflicting mechanical signal and point levers must be in the correct position, also the signal switches for all conflicting power-operated signals must have been replaced to the normal position, and such signals have been returned properly to danger and freed of approach locking after the previous movement. Interlocking.
- To assist in correctly setting the mechanical points where these are involved those which must be placed reverse are listed on the panel in the vicinity of the signal switch concerned in the same manner as for mechanical levers.
- (3) Where power-operated points are involved these will be automatically set and locked in the required position if not already in that position provided they are free to be so set at the instant of turning the signal switch and depressing the push-button. Automatic Route Setting.
- Should a point switch not be in its mid-position but in a position holding the points other than as required, the point switch must first be placed to its mid-position before the signal switch and push-button are operated. Similarly if the power-operated points are locked by reason of the interlocking or track circuit occupancy the action of turning the signal switch and pressing the push button will not be effective.
- (4) Where power-operated points are involved, it follows, therefore, that a route cannot be preselected, i.e. stored up, since the operation of the push button is not effective unless at that instant all the power-operated points concerned are free to respond and be set in the required position. Preselection of a route.
- No provision is, however, made to prevent preselection in so far as mechanically-operated points or signals are concerned since these can only be moved individually by a conscious and separate action. In this latter case the action of turning the signal switch and depressing the push-button if provided will become effective either immediately if the points, etc., are in the required position or as soon as they are placed in that position.
- (5) If a route has been correctly set up as described the signal will clear either immediately or after the necessary delay where approach control is in force. Clearing of Signals.
- (6) Generally shunt signals are free of track circuit control, but interlock with points and other signals whether mechanically or power-operated up to the next signal in advance and beyond as necessary. They are, however, replaced by the track circuits and in the case of opposing shunt signals the intervening track circuits are proved clear. Track Circuit Locking.
- Stop signals which are all of the multi-aspect type, are similarly interlocked, but in addition are track circuit controlled up to the overlap point ahead of the next signal in advance. In some instances "delayed yellow" facilities are provided in which case the locking and track circuit control beyond the next signal in advance is modified to facilitate traffic working.
- (7) Under "delayed yellow" conditions and also in the case of junction indicator signals and miniature yellow signals leading to Goods Lines, etc., the signal will not clear after the route has been set up until the train has passed the signal in rear and has occupied, for a given time if necessary, the berth track circuit to the signal, so as to ensure the speed of the train has been suitably reduced. Approach Control.
- (8) Except in emergencies after a power-operated signal has been cleared for an approaching train, the signal switch must not be replaced if the train has passed the point at which the approach locking commences unless an intervening signal is already at danger. If a switch should be so restored more restrictive aspects would be caused to be displayed in the face of the approaching train. Restoring Signal Switches.
- After the passage of the train signal switches must be replaced in accordance with the Rules and the signal will not clear again until this has been done and the switch, together with push-button if provided, re-operated except when automatic working is in operation when the relevant T.C.B. Regulations will apply.

- (9) Signal switches should always be maintained in the normal position, except when required to operate a signal for a train, in the interest of orderliness and efficient operation of the panel. Normal Position of Switches.
- (10) Switch and push-button collars must be affixed whenever the circumstances demand this being done. Switch Collars.
- (11) It is essential that in setting up a route the push-button be depressed only after the switch has been placed to the reverse position, otherwise the associated relay will not operate and, therefore, the route will not be set up. The push button must also be fully and deliberately depressed as a mere flick may not allow sufficient time for the relay to operate. Push-Button Operation.
- (12) In the case of Signals Nos. D.M.7A, D.R.7A and also W.E.109, switches operating a slot control only are provided, for emergency purposes in the case of the former signals and for out of course stops at the platform in the case of the latter. The red indication in the switch will only be displayed if the signal is correctly at danger in response to the slot, whilst a white light indication will be displayed when the slot has been taken off correctly and the signal is working automatically irrespective as to whether the signal is at danger or not by reason of the track circuit conditions. Slot Switches.

5. Block Working to Greenford.

- (1) The release of the Down Starting Signal No. W.E.146 by the block indicator at "Line Clear" will not be effective unless the signal switch has been in the normal position whilst "Line Clear" is registered on the block indicator. Down Block.
- (2) Should an Up Train for which "Line Clear" has been returned to Greenford be cancelled, it will be necessary after the block indicator has been restored to normal and before "Line Clear" can again be returned, to operate the time release provided. To do so the handle must be rotated clockwise until the letter N displayed in an aperture of the release instrument has been made to disappear and reappear again. Care must be taken not to overshoot the normal position since "Line Clear" cannot be returned unless the letter N appears centrally and should this occur it will be necessary to re-operate the release through the full cycle. Up Block.

6. General Notes.

- (1) Attention is drawn to Rule 67(a) as to the necessity of ensuring catches being firmly down as the interlocking will not be free to operate unless levers are placed fully normal or reverse as the case may be.
- (2) In the event of a lamp failing in any indicator on the panel the Lineman must be advised so that the lamp may be replaced with the minimum of delay.
- (3) The various alarm bells provided in conjunction with oil lamp and point fault indicators should be periodically tested to ensure they are ready to sound by momentarily operating the associated switch.
- (6) In the case of signals applying to more than one route, the routes concerned are distinguished by the suffixes A, B, etc., placed after the signal number in alphabetical order commencing with the extreme left-hand route.

Paddington Station,
9th March, 1955.

N. H. BRIANT,
District Operating Superintendent.

The Receipt of this Notice must be acknowledged by First Train.

129.

.....Department.....Station.....1955

Received copy of Mr. Briant's Notice No. E.8, dated 9th March, in connection with Multiple Aspect Signalling—Description and Method of Operation of the Signalling Control Panel, West Ealing Signal Box.

District Operating Superintendent,
Paddington.

.....(Signature.)