

Section 27

Operating Procedures Working of Points and Signals - Procedures 1 to 33

Applicability

VIC

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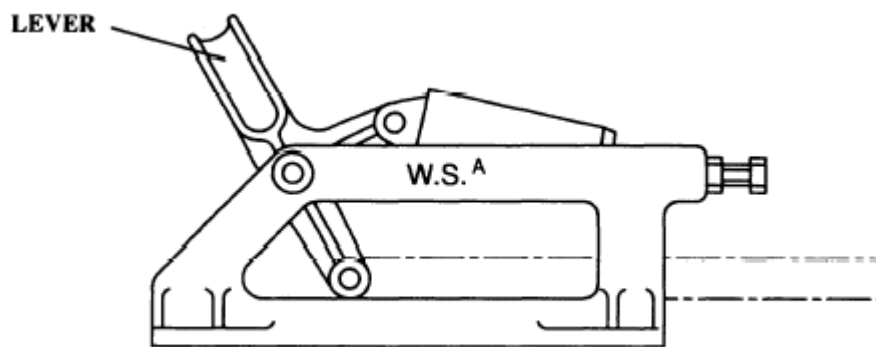
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1. Colours of Levers In Signalboxes

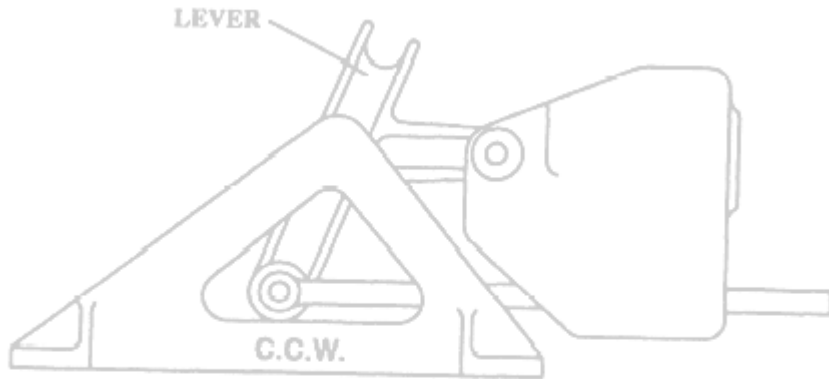
Levers and footplates of every interlocking apparatus must be properly painted, with standard colours as follows:

LEVERS	COLOUR
Levers working signals	Red
Levers working points or gates	Black
Levers working lockbars or lever locks	Light blue
Levers working cross locks	Top half, light blue; bottom half, black
Control levers	Word 'Control' in white letters on red
Levers working tramway signals and derails	Red with black bars
Pilot levers	Top half white, bottom half black
Spare levers	White
Footplate	Black

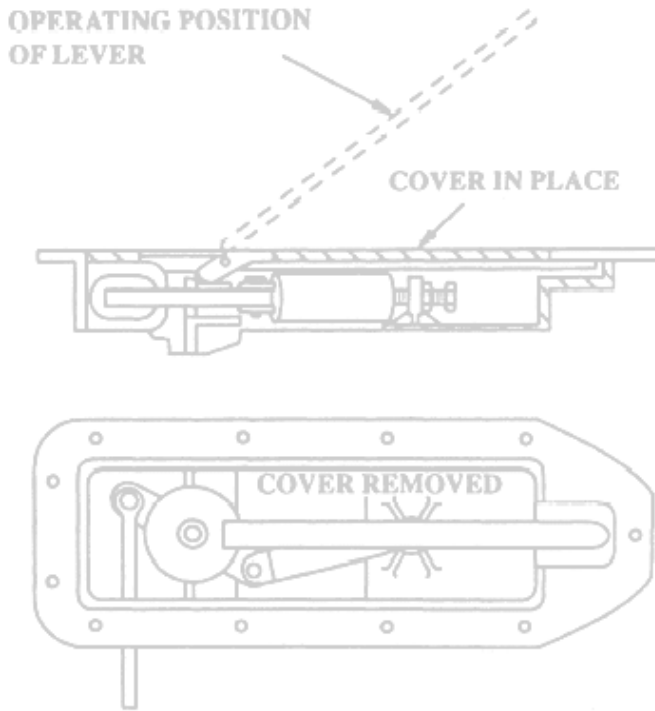
a. Types of Hand Point Levers in Use



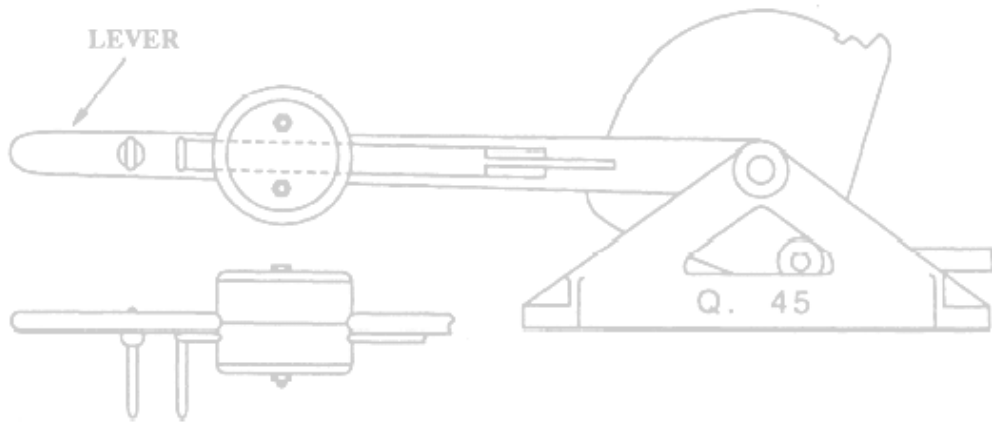
WSA Lever



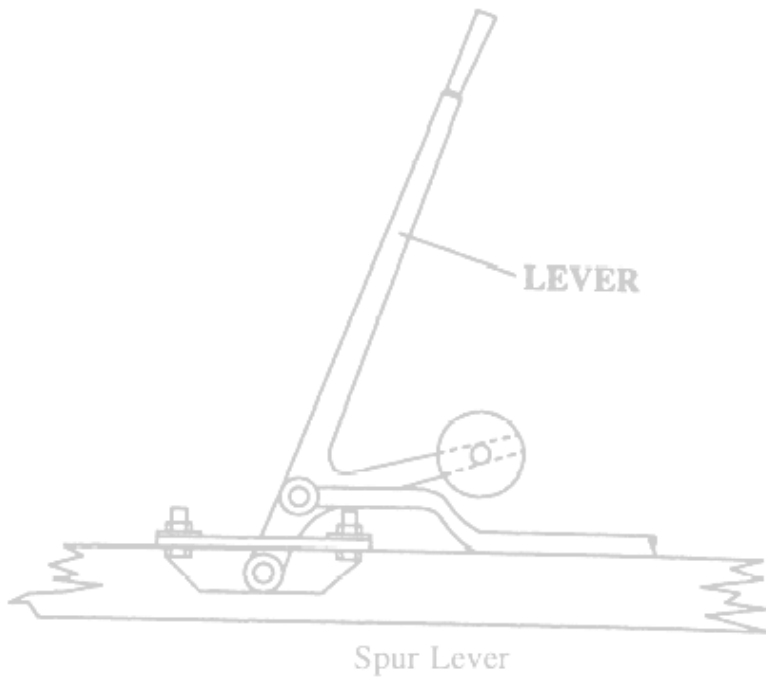
CCW Lever



Pier Spring Lever

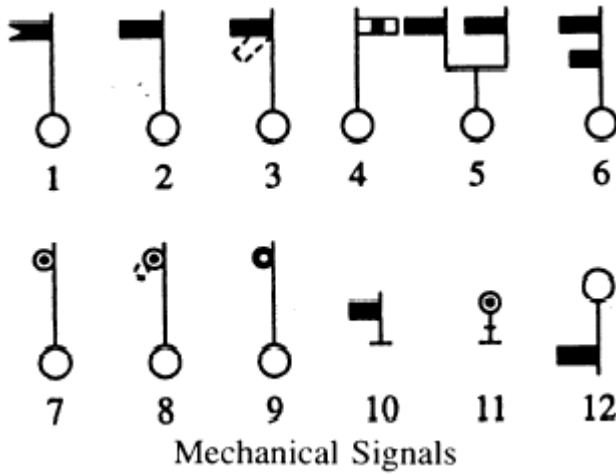


Q 45 lever

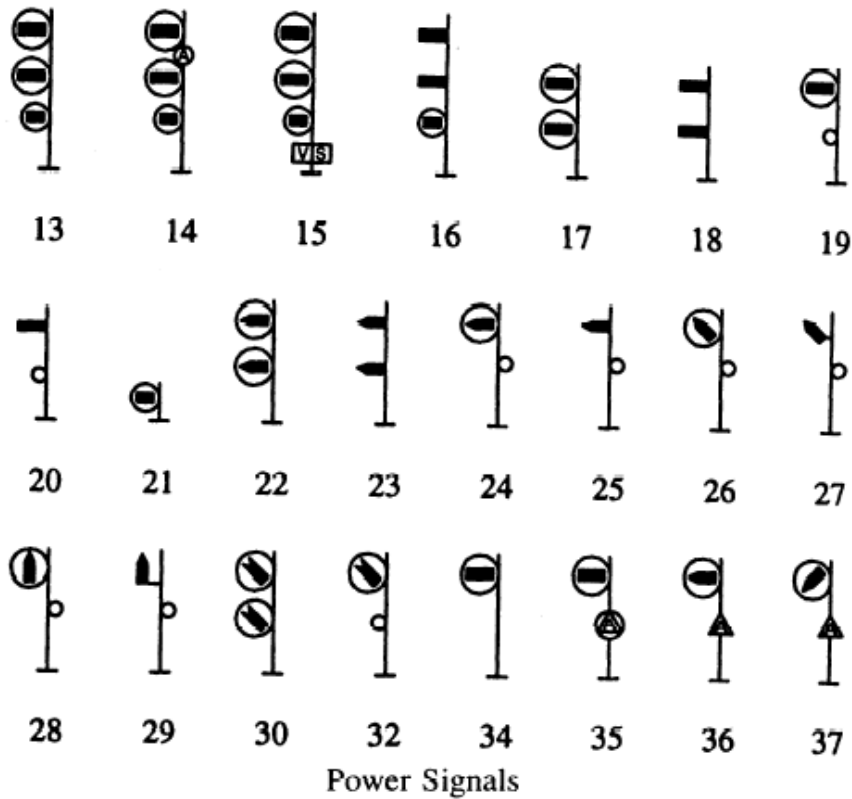


b. Symbols in Use on Signal Diagrams

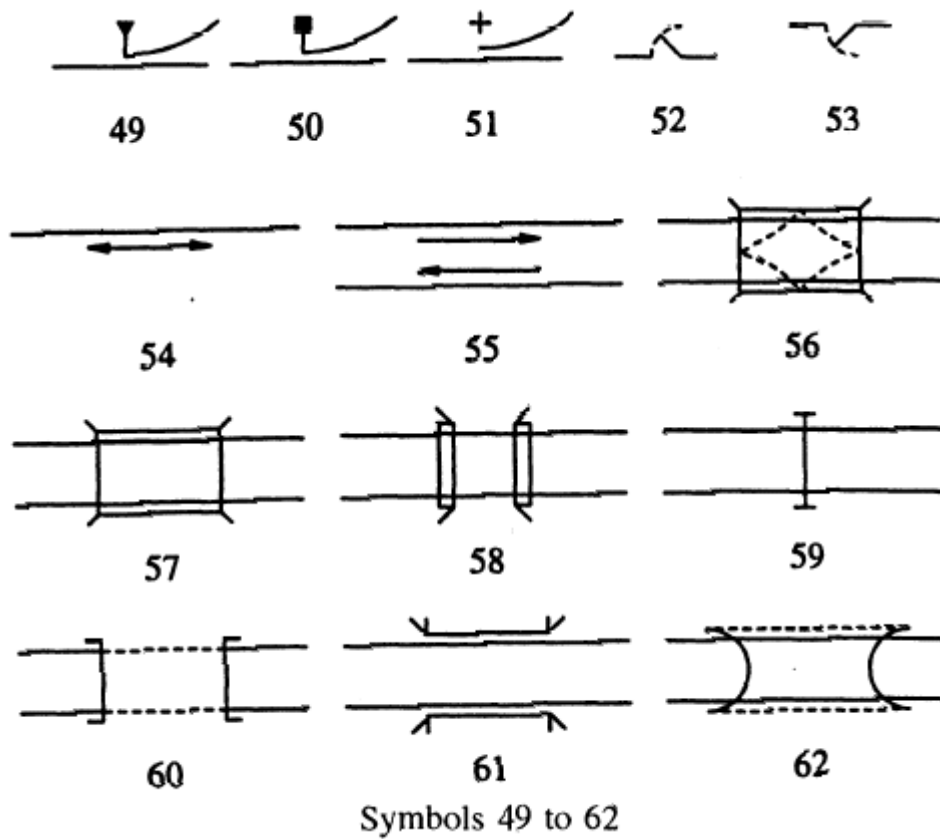
The following diagrams show the symbols used with the signal diagrams.



1. Distant Signal	7. Disc Signal
2. Home or Starting Signal	8. Disc Signal (Controlled)
3. Home or Starting Signal (Controlled)	9. Disc Signal (Back View)
4. Home or Starting Signal (Back View)	10. Dwarf Signal
5. Bracket Post	11. Ground Disc Signal
6. Home and Calling on Signals	12. Suspended Post

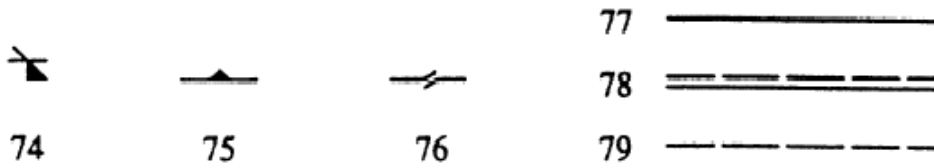
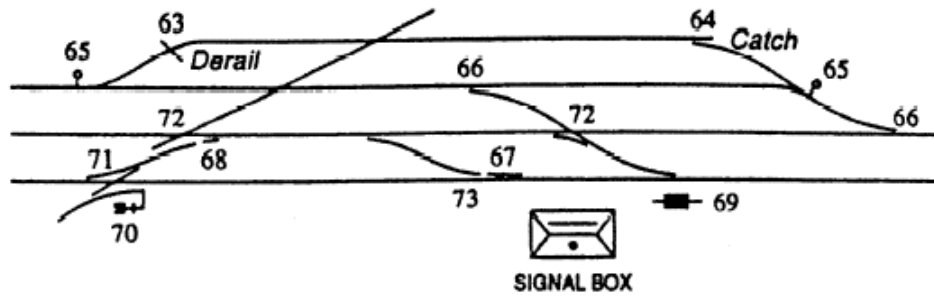


13.	Home Signal – Colour Light	25.	Automatic Signal – Semaphore
14.	Home Signal – fitted with Illuminated Letter 'A'	26.	Automatic Signal – Colour Light
15.	Home Signal – fitted with Junction Indicator	27.	Automatic Signal – Semaphore Light
16.	Home Signal – Semaphore	28.	Automatic Signal – Colour Light
17.	Home Signal – Colour Light	29.	Automatic Signal – Semaphore Light
18.	Home Signal – Semaphore	30.	Repeating Signal – Colour Light
19.	Home Signal – Colour Light	32.	Repeating Signal – Colour Light
20.	Home Signal – Semaphore	34.	Home Signal, Two Position – Colour Light
21.	Dwarf Signal – Colour Light	35.	Home Signal – fitted with Illuminated 'A'
22.	Automatic Signal – Colour Light	36.	Automatic Signal, Two Position – Colour Light
23.	Automatic Signal – Semaphore	37.	Automatic Signal, Two Position – Colour Light
24.	Automatic Signal – Colour Light		



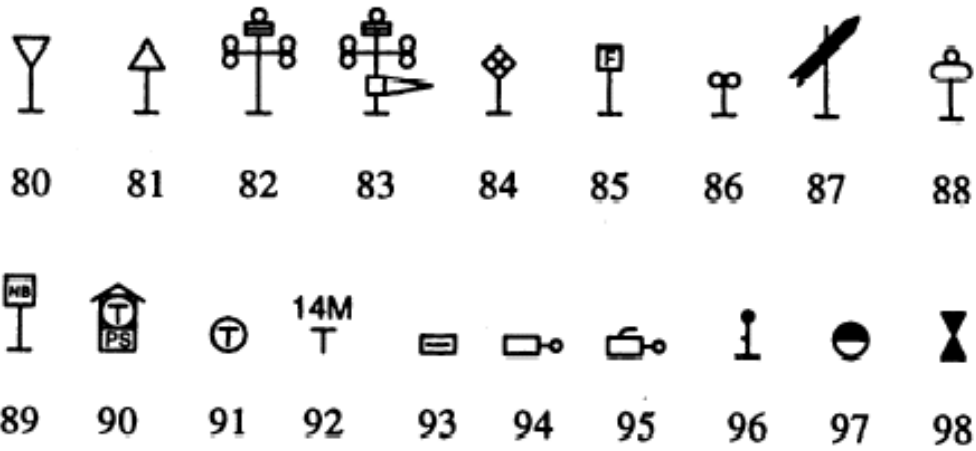
Symbols 49 to 62

49. Switch Lock	56. Level Crossing Interlocked Gates
50. Annett or Staff Lock	57. Non-interlocked Gates
51. Plunger Lock	58. Cattle Pits
52. Wicket Gate – Slamming Type	59. Signal Bridge
53. Wicket Gate – Normally Open Type	60. Overline Bridge
54. Direction of Traffic, Single Line	61. Underline Bridge
55. Direction of Traffic, Double Line	62. Tunnel



Symbols 63 to 79

63.	Derail	72.	Compound Crossing (Single)
64.	Catch Points	73.	Cross-over
65.	Hand Points	74.	Hayes Derail and Crowder
66.	Interlocked Points	75.	Scotch Block
67.	Plunger, with Lockbar	76.	Catch Point
68.	Plunger, without Lockbar	77.	Broad Gauge Line
69.	Point Detector	78.	Dual Gauge Line
70.	Point Indicator	79.	Standard Gauge Line
71.	Compound Crossing (Double)		



Symbols 80 to 98

80. Intermediate Location Board	90. Telephone and Pilot Staff Cabin
81. Location Board	91. Telephone on Post
82. Flashing Light Signal	92. Kilometre Post
83. Boom Barrier	93. Lever
84. Approach Section Indicator	94. Power Operated Point Machine
85. Fouling Point Indicator	95. Power Operated Point Machine, Dual Control
86. Switch Stand (Disc Type)	96. Automatic Staff Exchange Apparatus
87. Switch Stand (Fish Tailed Arm Type)	97. Radio Mast ('End of Train' Detection)
88. Switch Stand (Type used with Double Wire Control)	98. 'End of Train' Sensors
89. Notice Board	

2. Equipment at Interlocked Signalboxes

a. Equipment Kept at Signalboxes

The following equipment must be kept at signalboxes where levers are provided for the working of points and signals

A wire hook for releasing broken or damaged catch rods.

A suitable piece of wire (bridle) should also be kept in the signalbox to temporarily repair a broken signal wire.

Where points are provided, at least one point clip, or a suitable number to secure the facing points in the longest route.

When examining Signallers in the operation of the Signalbox, Examining Officers must instruct the candidate in the method of releasing a broken catch rod in order that the lever can be operated.

They are also responsible for instructing the candidate in the method of temporarily repairing a broken signal wire.

The Signaller must immediately report any of the above faults to the Signal Fault Centre (Metropolitan area), or the local Signal and Communications Technician.

b. Security of Gates Across Roadways

Chains and padlocks are provided for securing gates across roadways:

1. during stormy weather, and
2. when Signaller is off duty. This equipment is part of the signalbox equipment.

c. Damaged or Missing Equipment

Articles damaged, or missing equipment must be reported by the Signaller on duty without delay.

3. Point Indicators

a. Type in Use at Plunger Locked Points

This type of point indicator consists of a disc, which is connected to and operates in conjunction with the plunger.

The aspect of the disc when 'in' is a:

1. 'green enamelled face' for facing movements, and
2. 'white enamelled face' representing trailing movements.

When the plunger is withdrawn, the disc is turned off.

4. Testing, Cleaning and Adjusting Equipment at Intersection of Railway and Tramway Equipment

a. Overhead Electrical Equipment

Special discs are to be used for tram traffic when isolating the overhead electrical equipment.

Equipment is isolated to:

3. test, or
4. clean, and
5. adjust.

A representative of the Maintenance Department must position the discs as follows:

1. place on tramway signal posts, and
2. remove on completion of works. Discs are lettered 'Power Off'.

A full description of railway/tramway intersections provided with overhead electrical conductors is contained in rule 7, Section 9 Working of Level Crossings.

5. Point Detectors

a. Point Detectors

Point detectors are provided to ensure facing points are properly set at:

1. places where the levers working the points and signal are interlocked, and
2. stations on single lines where the points are fitted with plunger locking.

If the point rodding should break, or become disconnected, points may be improperly set. The detector will then prevent the signal from working.

The Signaller must:

1. examine the points, and
2. ensure points are properly positioned before any train or locomotive passes over them.

If points become defective, the safe working of traffic must be arranged in accordance with these rules and operating procedures until repaired.

b. Adjustment of Signal Wires

Signal wires between the lever and the detector and between the detector and the signal, must be kept properly adjusted.

This is achieved by the screws provided.

When the signal is in the 'Stop' position, the stop 'A' on the wheel will be hard up against the stop 'B' on the casting.

If the detectors are not set in these positions, the blades 'C' may be fouled by the snibs 'D', in which case it will not be possible to move the points. (Ref: Diagram on Page 27-13.)

NOTE: Special attention must be paid to the adjustment when changes of temperature occur.

c. Mechanical Detectors

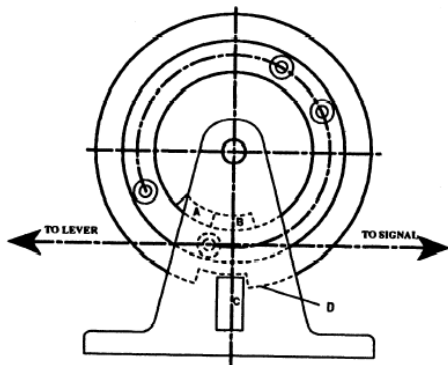
Interlocked points equipped with mechanical detectors should be:

1. reversed, and.
2. each signal tested.

Where a signal applies to more than one route the signal must be tested in each direction.

In addition to testing the wire by operation of the signal, the points must also be operated. This does not apply with electric detectors.

Signals should be adjusted daily at dusk, ensuring proper working during the night.



Rotary Point Detector

6. Cleaning and Graphiting Points

a. Directions

When cleaning and graphiting points the following steps should be followed:

1. remove dust and dirt from slide surfaces with wire brush,
2. brush a light coat of graphite lubricant on exposed surfaces,
3. reverse points and repeat (2) above,
4. operate points two or three times to ensure graphite is spread over entire surface, adding more graphite if required,
5. apply graphite in fine weather when points are dry,
6. take care not to place hands or feet between point blade and stock rail,
7. apply protective cream to the hands, and
8. wear gloves.

7. Defective Signal Repeater (Mechanical Signals)

If an electric signal repeater appears to be out of order, the Signaller is to adjust the signal wire if required. If the repeater is still out of order the Signal Maintenance Technician must be promptly advised.

8. Release Of Point Lever Controlling Motor Operated Points Or A Lever Electrically Locked By A Track Section

When it is necessary for the Signaller to request a Signal Maintenance Technician to release a point lever controlling motor operated points or any lever electrically locked by a track section, the following instructions must be observed:

a. Request to Signal Maintenance Technician

Before requesting the Signal Maintenance Technician to give a release, the Signaller must:

1. be assured that the lever to be released is not held by mechanical locking,
2. ensure all levers controlling signals leading into the affected area, are in the normal 'Stop' position,
3. ensure no train or vehicle is on a track section controlling the lever to be released, unless the release is required for a track section which is occupied,
4. inform the Signal Maintenance Technician of any intended train movement,
5. ensure any train is at a stand and clear of intended movement, and
6. if a train is occupying the track section, ensure the Driver clearly understands what movements are about to be performed.

b. Before Lever is Released

Before any lever is released, the Signaller must enter the following across the figure lines of the Train Register Book, with the time and date.

'Points released and locking disarranged on No lever, all signal levers affected sleeved in the normal position'.

The Signaller and Signal Maintenance Technician must both:

1. sign the entry, and
2. will be held equally responsible for seeing that all levers controlling signals affected are sleeved in the normal position before the release is given.

Before giving a release the Signal Maintenance Technician must:

1. examine the position of all levers having any mechanical or electrical connection with the lever to be released, and
2. ensure that no train or vehicle is on a track section controlling such lever, except as provided in Clause (b) above.

c. Permission for Train to Pass Over Points

The Signaller must obtain permission from the Signal Maintenance Technician who released the lever, before permitting any train to pass over the affected facing or trailing points.

Before granting permission the Signal Maintenance Technician must see that the points are secured in the proper position for the movement.

d. Ensuring Released Points Have Responded to Lever Operation

The Signaller must be informed by the Signal Maintenance Technician after the work is completed when:

1. it is confirmed that the released points have responded to the operation of the lever, and
2. the points are again on order for ordinary working.

The Signaller must make the following entry in the Train Register or other book:

'Locking In Order On No Lever', with the time and date.

The Signaller and Signal Maintenance Technician must both sign the entry.

9. Electrical Control of Signals at Stations And Junctions. Electrical Route-Locking

a. Arrangement and Operation

Electric route-locking consists of an arrangement of electrical interlocking, by which the interlocked lever of a signal becomes locked when the lever is in the pulled-over position.

When locked, the signal lever cannot be returned fully to normal, until the train has passed a predetermined distance in advance of the signal.

If the signal has displayed 'Proceed' and it becomes necessary to stop the train, the signal lever can be put back far enough to display 'stop'.

The position of the points cannot be altered, without the use of an emergency releasing instrument provided for each form of route-locking.

b. Responsibility of Signaller

The Signaller is responsible for working of fixed signals and points in accordance with the rules and principles governing the route-locking apparatus.

c. Emergency Release

Before making use of the emergency release, the signal must be put to the 'Stop' position.

The Signaller must:

1. take care that the Driver is aware of the signal being reversed, or
2. take effective steps to prevent the train from approaching the signal.

d. Route of Approaching Train Unclear

When the proper route of an approaching train is in doubt, the Signaller must keep the signal at the 'Stop' position.

The signal is kept at the 'Stop' position, until the required route is ascertained.

10. Electrical Control of Signals at Stations and Junctions. Approach Locking.

a. Signal Control Panel

The all-electric control panel has no mechanical locking between levers, and no electric lever locks on the levers.

Levers are free to be moved at any time, but must be operated in accordance with these instructions to be effective.

b. Indicating Lights

Indicating lights on the control panel correspond with the 'Normal' and 'Reverse' positions of the points as follows:

1. a green light indicates points are in full 'Normal' position, and
2. a yellow light indicates points are in full 'Reverse' position.

c. Absence of White Light

When the points are electrically free a white light is displayed for the respective point lever. Absence of the light indicates:

1. train on fouling track section,
2. point control lever not in position corresponding with light indication,
3. signal control lever not restored after previous movement,
4. approach locking in effect,
5. conflicting point or signal control levers have not been restored, or
6. failure of light or electrical apparatus.

NOTE: If the light is not exhibited after the above conditions have been checked and conditions are safe for the points to be operated, the point control lever may be moved. The indicating lights are observed. If the points do not operate, a failure of the apparatus can be assumed.

d. Route Proving Light

When a route has been properly set and the controlling signal lever has been operated, a white light (route proving light) will be exhibited for the signal control lever.

It indicates that:

1. the electrical locking apparatus has responded to the lever,
2. the route is correctly set and locked, and
3. conflicting points and signal control levers are in their correct position.

It does not indicate that the signal has responded to the lever. Absence of the light indicates:

1. signal control lever has not been reversed,
2. points in the route have not operated to correspond with the position of the point control levers,
3. conflicting point and signal control levers have not been restored, and
4. failure of the light or electrical apparatus.

e. Approach Locking

The track control of the points is applied directly to the point machine; not by means of an electric lock at the point control lever. Instead of electrical locks on the signal control levers, the approach locking is applied directly to the point machine.

Approach locking becomes effective on the reversing of a signal control lever and is normally released on the passage of the train.

If the train does not proceed over the points, restoring the signal control lever to 'Normal' will release the approach locking automatically, after the predetermined time interval.

When the approach locking is in effect, the red 'Normal' indication light will flash.

f. Arrangement of Approach Locking

With this arrangement of electric interlocking, the route-locking is applied by an approaching train. It is released when the train has passed a certain distance beyond the signal.

The signal lever does not become locked by being pulled over, unless a train has entered the track section to the rear, and is approaching the signal.

If the signal lever is reversed it will become locked in that position if:

1. a train enters the section approaching the signal, or
2. the signal lever is reversed whilst a train is in the section.

Approach-locking is provided for all three-position signals that govern facing or trailing points.

g. Emergency Release

The emergency release for approach-locking consists of a clock-work apparatus, known as the 'time release'.

This apparatus, which is under seal, may be arranged to run for a predetermined period. It is adjusted according to the time required for a train to travel from the entrance of a section to the signal.

As the route-locking cannot be released until the apparatus has run down, the signal lever remains locked in the reverse position. It remains in that position until the train has stopped at the signal, unless the train is stopped in the section.

h. Operation of Time Release

To operate the time release, the Signaller must turn the handle slightly anti-clockwise. This will release the clock-work apparatus. When the operation is completed, the route-locking will be released.

The apparatus automatically registers each case in which it is used.

After using the time release, the Signaller must reset the clock-work apparatus, otherwise the fixed signals will be held at the 'Stop' position.

11. Track-Locked Signals

a. Responsibility of Signaller

At stations where any signal is electrically secured at 'Stop', for the purpose of protecting a platform track or other portion of line against the possibility of a locomotive or train entering an occupied track, the Signaller must personally ensure if practicable that the track or other portion of the line is clear, before placing the fixed signal to the 'Proceed' position.

b. Emergency Release

An emergency release is provided to enable the Signaller to release the track-locked lever in the event of defect.

If the mechanism fails, the Signaller must ensure that there is no obstruction on the track before using the key to release the locking.

c. Recording and Reporting of Broken Paper Seal

Whenever the time release is operated or a paper is broken in order to permit the use of the emergency release in connection with the:

- track-locking apparatus,
- electric control of signals

the Signaller concerned must enter the details across the figure line of the Train Register Book.

If the release must be used whilst the paper seal is broken, reasons for doing so must also be entered in the Train Register Book.

The Signal Maintenance Technician concerned must be promptly advised regarding any broken seal.

d. Signaller to Inspect Paper Seals

Every Signaller, before taking charge of a signalbox where an emergency release is provided, must:

inspect the paper seals,

ensure that the any breakages are recorded in the Train Register Book,

make an entry showing the time and result of inspection in the Train Register book.

test the mechanism of the time release, and

reset time release before the operation registers.

12. 5P Key Switches At Stations

5P key switches are provided at some stations to prevent unnecessary operation of boom barriers and flashing lights. The 5P key switch has the signal number that it controls thereon.

a. Positions of the 5P Key Switch

The 5P key switch has two positions; 'Normal' position which is vertical and the 'Reverse' position which is slightly to the left of 'Normal' (10 o'clock position).

b. Key Turned to the 'Normal' Position

To prevent the operation of the boom barriers/flashing lights, the 5P key is inserted and turned to the 'Normal' position. This will restore or maintain the signal at the 'Stop' position and allow the boom barriers/flashing lights to be operated as required.

The boom barriers/flashing lights are designed to operate when a train has arrived at a predetermined point (approach to the level crossing). The operation of the 5P key switch cancels and prevents the boom barriers/flashing lights from operating. This is provided that a train has not entered the approach track circuit.

If the 5P key switch is placed to the 'Normal' position after a train has entered the level crossing 'Approach', the boom barriers/flashing lights will continue to operate for a preset time.

This is to ensure that the approaching train has stopped before the boom barriers/flashing lights stop working.

c. Key Turned to the 'Reverse' Position

When the train is ready to depart, the key is turned to the 'Reverse' position, to operate the boom barriers/flashing lights and for the signal to display the 'Proceed' position.

The key can now be removed and normal working can be resumed.

d. Circumstances when 5P Key Switches may be Operated

The 5P key switches may be operated when a train is delayed or held at a station for the following reasons:

1. defective train,
2. unruly passengers and Police attendance required,
3. line in advance obstructed by accident, defective train,
4. passenger on train incapacitated and cannot be moved,
5. track maintenance operations near a level crossing may cause the track circuits to operate the boom barriers/flashing lights, or
6. failure of the track circuit causes the boom barriers/flashing lights to operate.

NOTE: In the case of the failure of the track circuit, the operation of the 5P key switch may or may not prevent unnecessary operation of the boom barriers/flashing lights. This depends on the circumstances at that location.

The 5P key cannot be removed from the switch unless it has been returned to the 'Reverse' position.

13. Trailable Points At Unattended Crossing Station/Loops

a. Operation of Trailable Points

Trailable plunger locked facing points are locked mechanically for facing movements.

For trailing movements the points are automatically unlocked and thrown to the reverse position by the wheel flanges of the passing train.

After the train has passed, the mechanical switchman pulls the points back to normal and by means of a weight and crank system attached to the plunger, the points are automatically locked ready for the next facing or trailing movement.

Where trailable points are provided at single line crossing loops, the points at each end of the crossing loop normally lie for the left-hand track, applicable to trains approaching the facing points. At some locations however the points at each end may be set for the right-hand track.

b. Ground Lever for Shunting

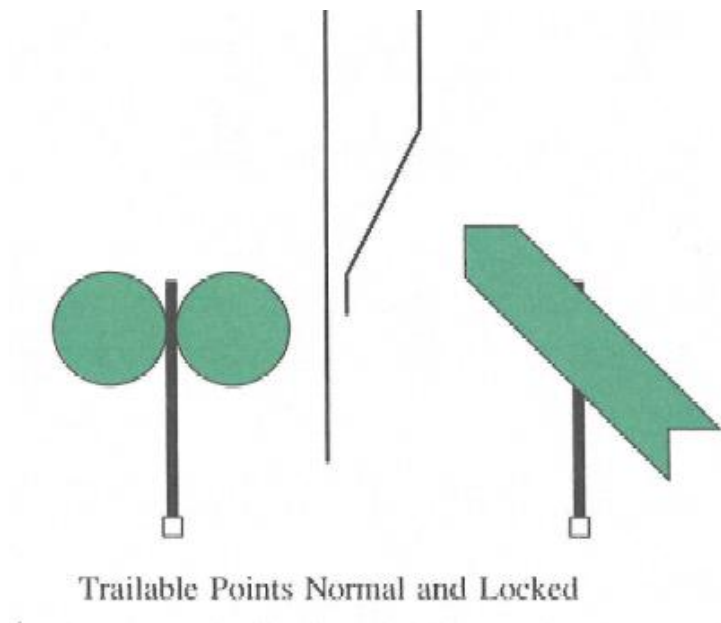
A ground lever is provided at each set of trailable points. The lever is secured with a V5PSW padlock and is used for the operation of the points during shunting movements.

A switch stand is fixed adjacent to the main line points to indicate to approaching train crews the position of points.

c. Straight Track

The indications displayed on the switch stand are as follows:

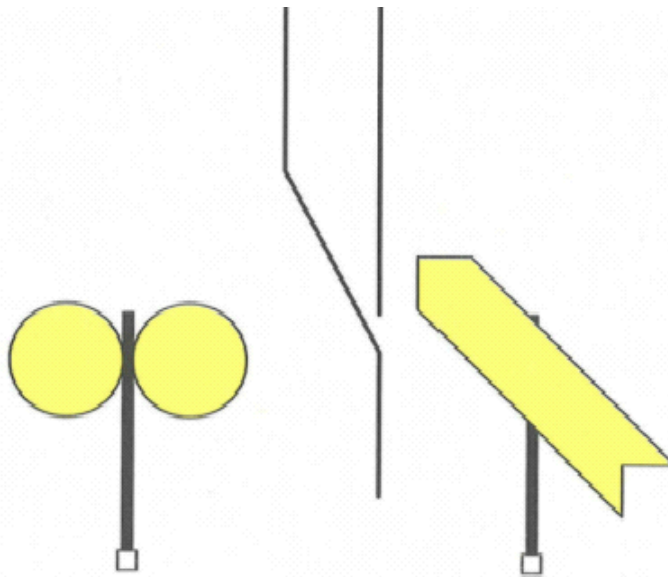
'For Arriving Trains'



When the left or right hand track is the straight track and the points are normal and locked: two reflective green discs, or a reflective green fishtailed arrow pointing in the direction in which the points are set.

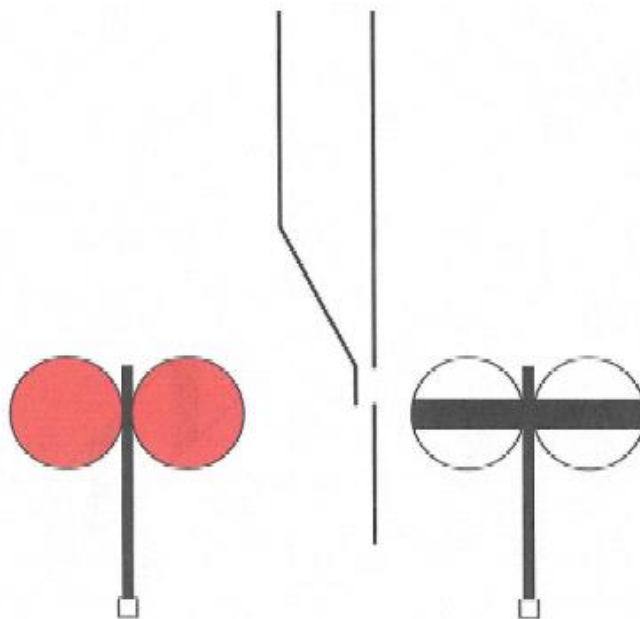
d. Diverging Track

When the left or right hand track is the diverging track and the points are normal and locked: two reflective yellow discs, or a reflective yellow fishtailed arrow pointing in the direction in which the points are set.



Trailable Points Diverging Track

When the points are not correctly locked: two reflective red discs.

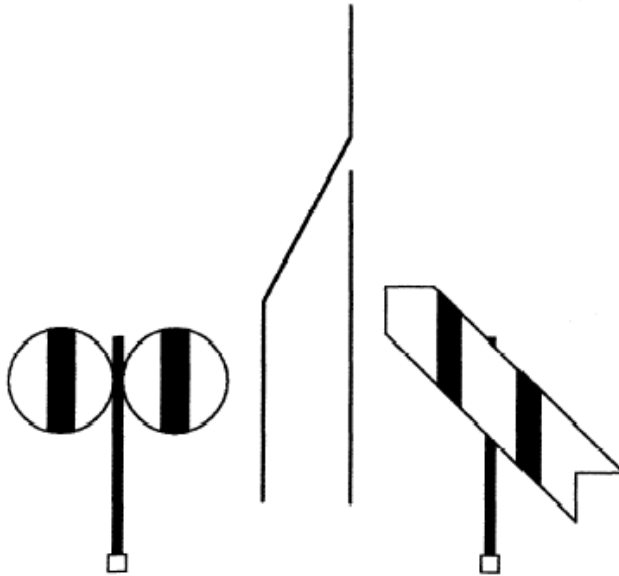


Facing

Trailing

Trailable Points Not Locked

'For trailing movements' - two white discs with vertical black bars, or a white fishtailed arrow with vertical black bars or two white discs with horizontal black bar.



Trailable Points Trailing Movements

e. Points Unset for Trailing Movement

If, when approaching the points in the trailing direction, the Driver observes two white discs with horizontal black bars displayed on the switch stand, the Driver may proceed through the trailing points; but must immediately advise the Train Controller by train to base radio.

The Train Controller, upon being advised by the Driver that the two white discs with horizontal black bars are displayed on the switch stand, must immediately advise the Signals and Communications Supervisor for the area.

f. Two Red Discs Displayed for Facing Movement

In the event of two red discs being displayed for an arriving train, the Driver must stop the train on the approach side of the points and examine the closed blade of the points for any obstruction.

The point lever must then be unlocked and the points reversed and further examination made for any stones, or other foreign material between the blade and the stock rail. The lever is then to be restored to 'Normal' and if the indicator still does not respond to the lever and the points are in the correct position, the lever should be locked and the train may proceed.

The Train Controller must be immediately informed of the defect. The Train Controller must then inform the Signals and Communications Supervisor for the area.

Where the Driver is accompanied by a competent employee, the competent employee will be responsible for examining the points.

NOTE:

The points may be run through in the trailing direction, but care must be taken to ensure that all vehicles are clear of the points before the direction of the movement is reversed.

However, if the ground lever is placed in the correct position for the intended facing movement prior to the vehicles engaging the points in the trailing movement, it will not be necessary for all vehicles to clear the points before setting back.

The operation of these points differ from that of CCW points in that the operation of the trailable points ground lever is not effective whilst vehicles are standing on the points.

The following amended Operating Procedure 13, Clause (g), Section 27, was published in SW1051/2001, of June 28, 2001.

g. Shunting Movements

For shunting movements, the points may be set for either track by means of the ground lever.

During the shunting operation, the Driver of the movement shall control the movement in accordance with the indication displayed on the Switch Stand.

The display of 2 Red Discs shall indicate to the Driver that the movement is proceeding over the facing points in the wrong direction and the speed of the movement shall be controlled as directed by the competent employee performing the shunt operations on the ground.

When the shunting is completed, the points shall be set in the `Normal' position and the lever locked with the V5PSW padlock. The Switch Stand shall also be inspected to ensure it is displaying the correct indication.

14. Disconnection of Main Line Trailable Points

When it is necessary to disconnect a set of trailable points at an unattended crossing loop, the following steps must be taken.

a. Signals and Communications Supervisor to Advise Train Controller

The Signals and Communications Supervisor/employee must immediately advise the Train Controller of the circumstances, and the necessity to spike the points out of use, as prescribed in Rule 11 (Working of Points and Signals).

The Train Controller before giving permission for the points to be spiked out of use, must ensure that permission has not been given for any train or track machine to:

1. approach,
2. cross, or
3. pass through that loop.

b. Signals and Communications Supervisor to Set, Spike and Clip Points at Both Ends of Loop

After receiving permission from the Train Controller, the Signals and Communications Supervisor/employee must:

1. set,
2. spike,
3. clip the points at each end of the crossing loop for the required track, and
4. place a point banner on the stand indicating which line the points are set and secured for.

The Train Controller must then be advised that the crossing loop is spiked out of use.

c. Driver to be Advised which Track the Train will Use

Trains may then be allowed to proceed towards the loop, but the Driver must be:

1. fully advised of the circumstances,
2. which track the train will pass through at that crossing loop, and
3. aware of any speed restriction that is imposed.

Whilst the points at the unattended crossing loop are spiked and clipped for the required track, the Train Controller must not arrange for trains to cross at that crossing loop.

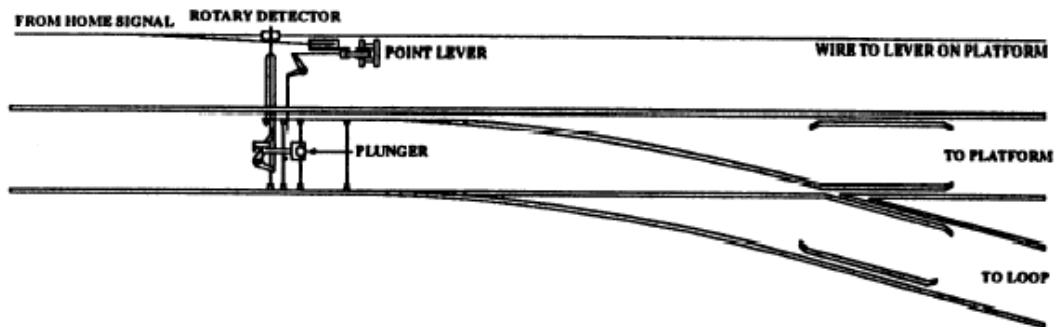
15. Plunger Locked Facing Points at Non-Interlocked Crossing and Terminal Stations on Single Lines

Except where otherwise arranged, at non-interlocked crossing and terminal stations the facing points in the main line are secured by means of a plunger lock working in conjunction with a point detector.

a. Equipment Provided

Equipment provided includes a:

1. lever to work the plunger, fixed at the points,
2. point detector which works in conjunction with the plunger lock,
3. quadrant lever on the platform,
4. ground lever to work the points, and
5. quadrant lever at the points.



Plunger Locking for Facing Points

The point detector prevents the fixed signal from being operated from the platform, unless the points are secured in the 'Normal' position by means of the plunger.

In addition, a quadrant lever is fixed near to the main line points. If a train requires to be turned on to any track other than the track for which the points normally lie, the fixed signal must be worked from the quadrant near the points.

b. Signal Lever to be Secured by Padlock

The signal lever at the points must be secured with a padlock when in the 'Normal' position. The key must be kept in a safe place in the station office.

The plunger when 'in', must be secured in that position by the catch in the plunger guide.

c. Admitting Train into Normal Track

When it is required to admit a train into the track for which the points normally lie, the signal must be worked from the ordinary quadrant on the platform.

When the signal is displayed to admit the train, the position of the plunger-locked points cannot be altered until the signal is replaced to the 'Stop' position.

d. Turning Train into Other Track

When it is intended to turn an approaching train directly into any track other than the track for which the points normally lie, the home signal must be kept at the 'Stop' position until the train is brought almost to a stand.

Before the signal is exhibited to admit the train, the plunger must be withdrawn and the points tested.

The catch in the plunger guide will prevent the plunger from being accidentally replaced.

If the points are in working order, the signal may be operated from the quadrant at the points, and the points held for the track required.

A green hand signal must in addition be exhibited to the Driver of the approaching train.

NOTE:

The Driver must not allow the locomotive or train to foul the exit at the opposite end unless verbally authorised to do so by the Signaller. Before giving such instructions the competent employee must see that the plunger has been withdrawn from the main line points at that end, as directed in the above instructions.

The speed of any train when passing over facing points held by hand must not exceed 25 km/h.

e. Certification for Operation of Plunger Locked Facing Points

The Stationmaster must not allow an employee to work the signal lever situated at the main line facing points, unless such employee holds a certificate for:

1. Electric Staff System,
2. Train Staff and Ticket System,
3. Train Order System,
4. Section Authority System, or
5. guard's or-second person's certificate.

The employee will also require to have a knowledge of the special instructions applying to that station.

The Stationmaster in charge will be responsible for:

1. seeing that the home signal is replaced to the 'Stop' position,
2. the signal lever at the main line points is secured in its 'Normal' position by means of the padlock and key, except when it is required to signal a train in accordance with para (d) above, and
3. the safe custody of the key of the padlock securing the signal lever.

Employees should not use unnecessary force to open padlocks used for securing facing points and scotch blocks.

Keys can only be withdrawn after correctly clasping the bow of the lock shut.

f. Plunger Withdrawn for Trailing Movements

Before permission is given for a train or any vehicle to pass over the plunger locked points in the trailing direction from any track other than that for which the points normally lie, the competent employee in charge of the operation must see that the:

1. plunger is withdrawn to release the points,
2. catch in the plunger guide is locking the plunger lever in the withdrawn position, preventing the plunger being accidentally replaced, and
3. lever at the points is locked in its 'Normal' position.

The Driver must not pass over plunger locked points in the trailing direction from any track other than that for which the points normally lie unless instructed to do so by the:

1. Signaller, or
2. other competent employee in charge of the shunting movement.

g. Stations Where No Person is in Charge

Where plunger locking is provided at any station where there is no person in charge, the competent employee assisting each train must:

1. place the home signal to 'Stop' and withdraw the plunger as required for locomotive movements or shunting operations, and
2. replace and secure the plunger when the work is completed.

The signal must be kept at the 'Stop' position until the train is ready to proceed.

h. Track Vehicles Passing Through Plunger Locked Points

When the position of any plunger locked points require to be altered to allow a track vehicle or machine to pass through, the points must not be moved until obtaining permission from the Signaller.

The Signaller, when giving permission, must instruct the person in charge of the track vehicle or machine whether the plunger must be left 'in' or 'out'.

If the home signal becomes defective, the facing points must be tested and held by a competent employee or secured by a point clip for the passage of all trains.

i. Detector Defective

A defect in the plunger locking or detector may prevent the signal being worked from the platform.

If the signal can be worked from the quadrant at the points, the home signal may be worked from this quadrant.

The signal must be kept at 'Stop' until the train has been brought to a stand.

Before the signal is exhibited to admit the train, the points must be:

1. tested, and
2. held by a competent employee or secured by a point clip for the passage of the train.

If practicable the plunger must be used to secure the points and secured 'in' by means of the catch in the plunger guide.

j. Maintenance on Plunger Locking

Should it be necessary for the Signalling and Communications Supervisor/employee to conduct maintenance on plunger locking at an unattended station, the permission of the Train Controller must be obtained.

The Train Controller must ascertain if there is sufficient time between trains for the repair work to be effected.

k. Sufficient Time for Repair Work to be Carried Out

If there is sufficient time for the work to be carried out, the Train Controller must instruct the Signalling and Communications Supervisor/employee to place the fixed signals to the 'Stop' position for the protection of the work required.

The Train Controller must give the Signalling and Communications Supervisor/employee an allotted period of time for the work requirements to be completed. The work must be completed 10 minutes prior to the arrival of the first train.

I. Insufficient Time for Repair Work to be Carried Out

If there is insufficient time between trains for the maintenance work to be carried out, the Train Controller must arrange for the location to be attended.

Once the location is attended, the Signalling and Communications Supervisor/employee must confer with the Signaller and give a description of the maintenance required.

The Train Controller's authority must then be obtained to place the fixed signals to the 'Stop' position.

The Signalling and Communications Supervisor/employee must then book the points out in accordance with instructions contained in Rule 11 (Working of Points and Signals).

16. Instructions for Manual Operation of Electro-Hydraulic Point Machine

Controls for the manual operation of the point machine are under a hinged metal lid secured by a padlock.

The key is obtained from the employee in charge of signalling at the station or signalbox.

a. Instructions in the Event of Point Failure

In the event of a point failure, the Stationmaster, Signaller or other competent employee must:

1. obtain the emergency pump handle, and
2. operate the electro-hydraulic point machine manually.

Special instructions for certain locations will apply to these rules.

Underneath the lid there is a:

1. 'Power-Manual' switch,
2. pump handle socket, and
3. a 'Red' directional control lever.

When the 'Power-Manual' switch is turned to the 'Manual' position, fixed signals, controlling movements over the points, are held at 'Stop'.

The 'Red' directional control lever, must be moved to the required position, 'Normal' or 'Reverse', and held in position whilst operating the pump handle.

After placing the 'Power-Manual' switch in the 'Manual' position, the pump handle must be inserted into the pump handle socket.

Whilst holding the directional control lever in the required position, the pump handle must be operated until the points are fully home and locked.

When the points have been placed in the required position, they must be secured with a hand locking bar or point clip for any 'facing' train movement.

The points may be moved manually as required, but must, on each occasion, be secured as above.

After the points have been operated manually the pump handle must be:

1. moved to the vertical position,
2. pushed back into the point machine, and
3. the hinged lid closed and secured by padlock.

The 'POWER-MANUAL' switch must not be restored to the 'POWER' position, except by the Signal Maintenance Technician.

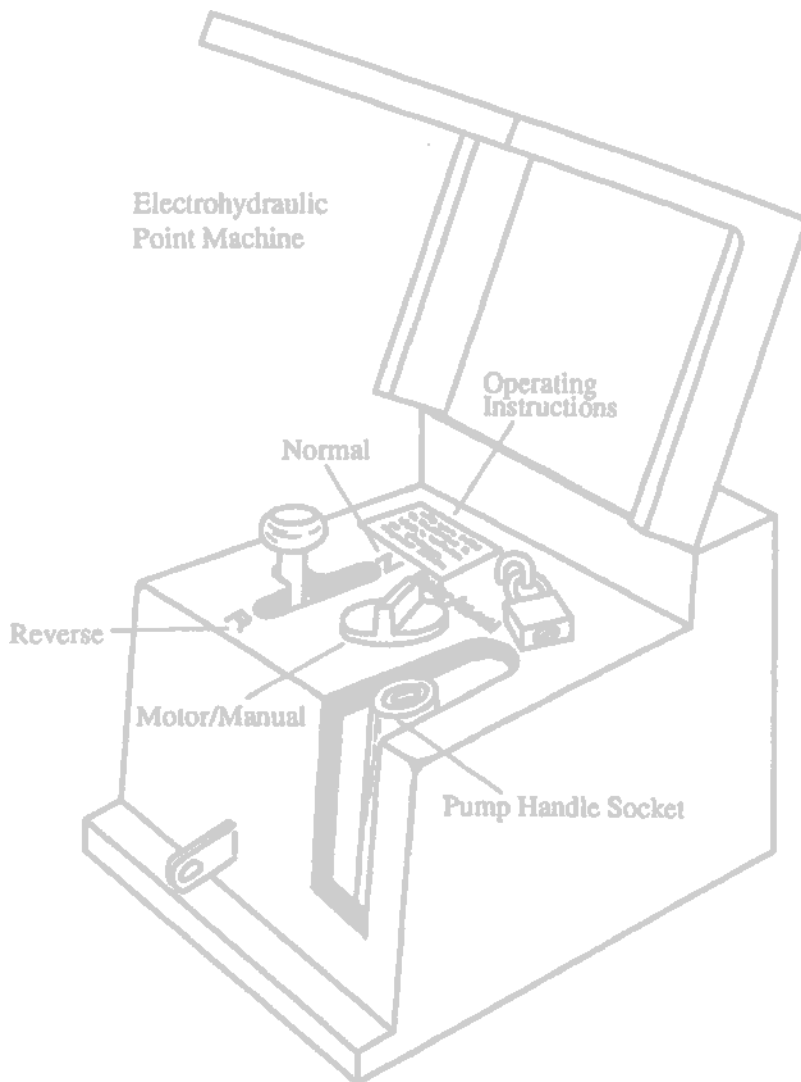
The hand locking bar or point clip must also remain in place until removed by the Signal Maintenance Technician.

NOTE:

The above paragraph shall only apply within the area controlled by Metrol.

Instructions for 'MANUAL' operation of the electro-hydraulic point machine are displayed under the hinged lid of the point machine.

At certain places the pump handle will be located in a position specified in the special instructions for the area/location.



Electro-hydraulic Point Machine

17. Dual Control Point Machines

a. Dual Control Point Machine

The machine has two levers.

The levers normally rest on stops where they are secured by padlocks.

Similar stops are provided for the levers when they are in the reverse position.

The levers are known as 'selector' and 'hand throw'.

The former is the smaller lever of the two and after it is placed from the motor operating position to the hand operating position, the points can be worked by hand.

b. Selector and Hand Throw Lever

The function of the selector lever is to determine whether points are connected for motor operation or for hand operation.

In the normal position the lettering 'motor' appears on the upper side, indicating that the lever is in position for motor operation.

When unlocked and moved to the reverse position, the lettering 'hand' appears on the upper side indicating that the points are ready for hand operation.

With the hand throw lever the points may be operated as ordinary hand points, providing the selector lever has first been operated to its reverse position. The lettering 'hand throw lever N' appears when it is in the normal position and 'hand throw lever R' when in reverse.

Immediately the selector lever is moved from the motor position to the hand position, the control from the control station will be rendered ineffective.

The signals governing movements over the points will then be held at 'Stop'.

c. Operation of Points During Failure

In the event of a point failure and it is necessary for the points to be operated by hand, the employee concerned must unlock the selector lever and move it to the hand operating position.

If the points are normal, moving of the hand throw lever will unlock and reverse the points and lock them in that position.

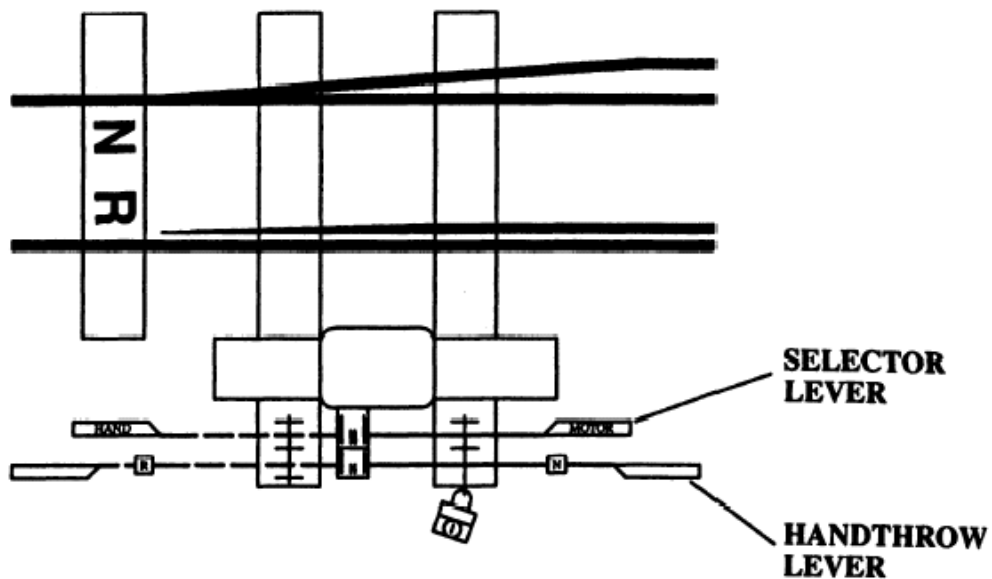
If the points are in the reverse position when the selector lever is moved to the hand position, the hand throw lever must then be operated to reverse, when the points may be operated as required.

If the points have failed in an intermediate position the selector lever must be moved to the hand position and the points then operated by the hand throw lever.

d. Points Not Moving to Full Normal or Reverse Positions

If the points move to the full 'Normal' or 'Reverse' position by the operation of the hand throw lever, but the lever will not travel on to its stop, the points are unlocked.

In these circumstances, arrangements must be made for the points to be secured with a point clip before a train is permitted to pass over the points.



Dual Control Point Machine

18. Working of Sidings Controlled by Staff/Annett/Master Key Locks

Except at specified locations, the points in the running line at intermediate sidings and stations where there is no employee in charge, are ordinarily connected by rodding to:

1. safety points,
2. catch points, or
3. derails in the sidings.

The points are secured with special locks.

These are so constructed that the key cannot be removed until the points have been placed in their 'Normal' position for the running line, and securely locked.

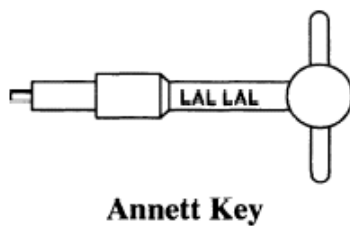
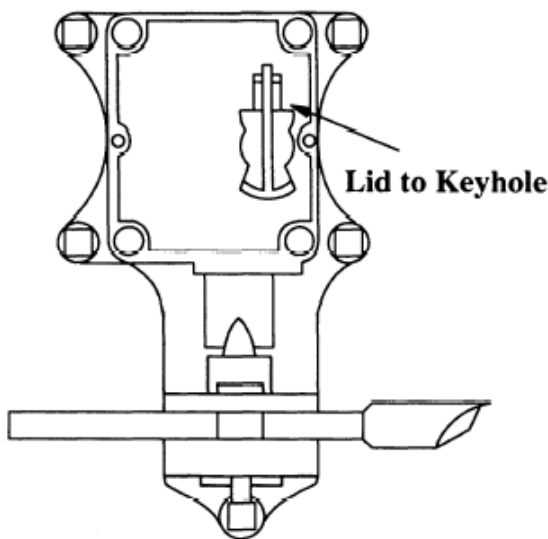
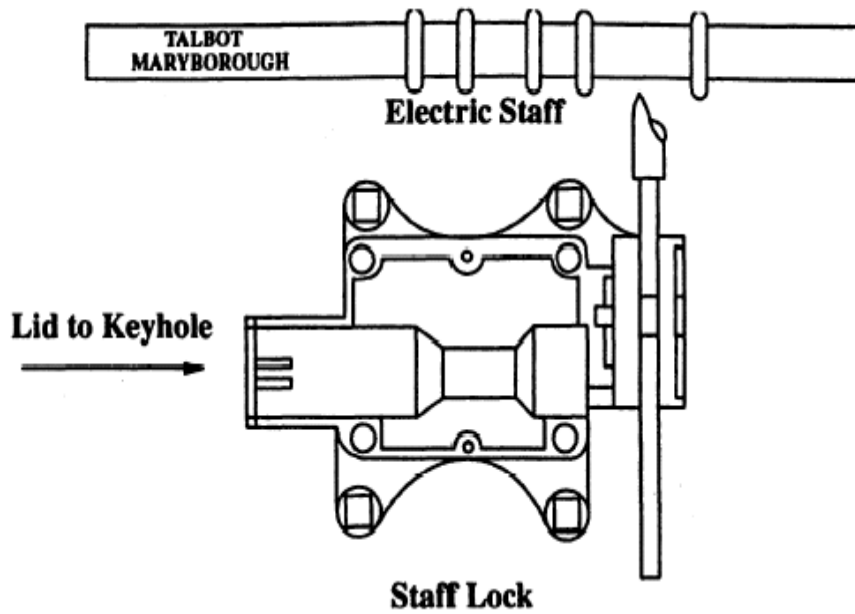
If the lock or key is defective, it must be immediately reported.

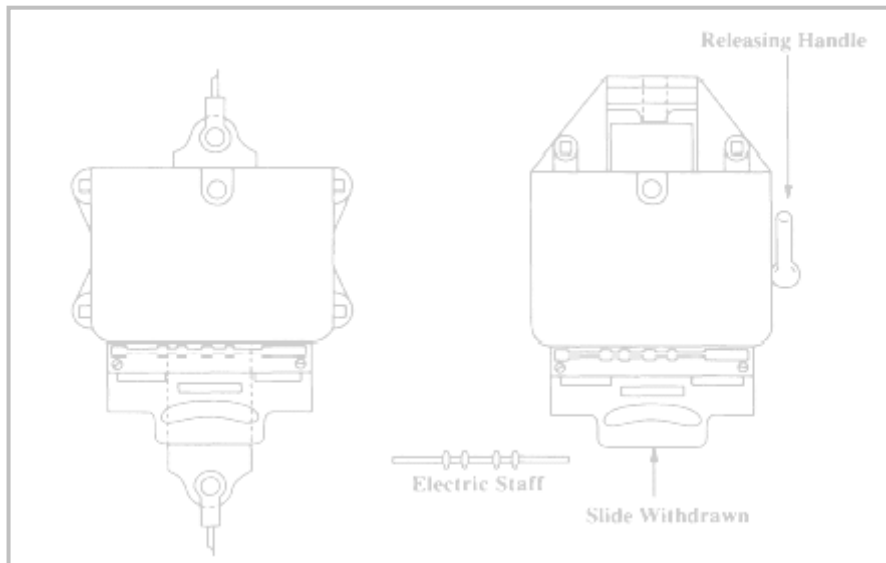
a. Special Lock

The competent employee assisting the train that requires to work at a siding on a single line where the points are secured with a special lock, must strictly adhere to the following instructions.

For the purpose of this instruction, the term 'key' will refer to the:

1. train staff,
2. ordinary type electric staff,
3. miniature type electric staff,
4. large type Annett key,
5. miniature fortress type Annett key,
6. large type master key, and
7. miniature fortress type master key.





b. Ordinary Type Staff Lock

The competent employee must:

1. obtain the key from the Driver to unlock the points.
2. insert the ringed end of the key in the lock with the name of the section uppermost,
3. press home, and
4. turn to the right.

This action will withdraw the bolt and enable the points to be reversed.

To withdraw the key, it must be turned to the left with the name uppermost.

If it can be withdrawn in any other position, the lock or key is defective.

c. Miniature Staff Lock

The competent employee must:

1. obtain the key from the Driver,
2. withdraw the slide lock,
3. insert the key, and
4. push the slide well home. The points can then be reversed.

Some miniature staff locks are fitted with small handles at the side of the lock.

To release the points:

1. withdraw the slide,
2. insert the key,
3. push home the slide, and
4. withdraw the plunger by means of the operating handle at the side of the lock.

The points can then be moved.

When shunting has been completed, the employee working the point lever must:

1. reset the points for the running line,
2. replace the plunger by reversing the operating handle where provided,
3. withdraw the slide,
4. remove the key,
5. test the points, and
6. return the key to the employee from whom it was obtained.

The miniature staff can more easily be withdrawn from the slide by pushing the staff up from below.

When an electric staff is required for operating a staff lock, the Signaller must take care to select one that is in good order.

The staff used for this purpose should be straight. The feather in the key end of an ordinary electric staff, should be clean, and not burred.

d. Annett Lock

The key must be inserted and turned in the lock, to unlock the points, after which the point lever may be operated.

e. Key Retained in Duplicate Lock

At places where the key is kept in a duplicate lock on the interlocking frame, and when shunting operations are completed, the competent employee who obtains the key will be responsible for:

1. unlocking, locking, testing of points,
2. the prompt return of the key to the Signaller, and
3. securing the key according to the special instructions,

f. Security of Annett key in station building

When the home signal levers are situated on the platform and one or more sets of points are secured by an Annett lock with a duplicate lock on the home signal levers, the Annett key must, when not required for shunting operations, or for working the signals:

be kept in a safe place in the station office, and

its location known to those concerned.

It must be used only by the Signaller for the working of the signals, but may be handed to the competent employee to enable shunting operations to be conducted.

After shunting operations have been completed, the Signaller must not allow the train to proceed until being in possession of the key.

The Stationmaster will be held responsible for the safe custody of the key.

g. Miniature Fortress Type Master Key, Annett Key

The key must be inserted and turned in the lock to unlock the points, after which the point lever may be operated.

h. Large Type Master Key

The large type master key is used in the same manner as the ordinary type staff lock.

Where necessary, Signal Maintenance Technicians are supplied with an inspection key for the purpose of examining the locks and connections in their district.

The key is not to be used for traffic purposes, except as provided in this Code of Practice.

In certain areas where both large and miniature type master key locks exist on a portion of line, a miniature type master key is permanently attached to the large type master key by a short length of cable.

i. Shunting Completed

After shunting operations have been completed, and the key has been withdrawn from the lock, the points must be tested by the employee who worked them.

The employee must test the lever to see whether the points have been securely locked for the running line, and that no movement is possible to or from the running line and the siding.

After the test has been made, care must be taken to see that the catch of the points is firmly down in the notch of the lever plate.

The employee must operate the lever by one prompt movement. Otherwise the points may not be properly set, even though the spring catch of the lever is notched.

NOTE:

At some places the points in the main line only are connected to the point lever, and a scotch block is provided in the siding in lieu of a catch blade or derail block.

Before giving the usual hand signal for shunting to proceed, the employee working the lever must see that the points, which will become 'facing' for the proposed shunting operation are properly set for the required track.

j. Derail Blocks, Safety or Catch Points

The competent employee assisting the shunting movement must see that:

1. vehicles are not moved into or out of the siding before the derail block, safety points or the catch points are properly set, and
2. when altering the points, no portion of the locomotive or train is on the points, but that all vehicles are clear of the points or derail block.

The employee operating the points will be responsible for:

1. the foregoing duties, and
2. seeing that the spring catch of the lever is properly notched before shunting to or from the siding.

Under no circumstances must the key be removed from the lock whilst a vehicle is standing between the points in the main line, and catch points, derail block, or scotch block in a siding.

The key cannot be withdrawn from the lock until:

1. the point blade is close up level with the stock rail, and
2. locked in that position.

Care must be taken to see that no dirt, stones, or other obstacles are between the point blade and the stock rail.

When shunting has been completed and the points are to be re-set for the running line, the locomotive or nearest vehicle should be kept well clear of the points.

This is to avoid the locking being affected by a variation in the level of the point blade and the rails in the vicinity of the lock.

The lid of the key-way must be closed immediately after the key is withdrawn to prevent the lock being choked with sand or dust.

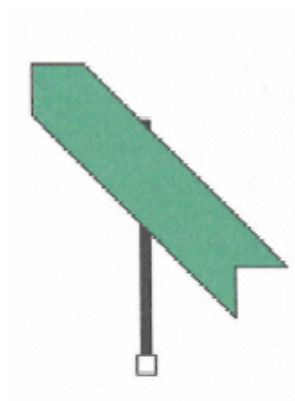
The following amended Operating Procedure 18, Clause (k), Section 27, was published in SW1051/2001, of June 28, 2001.

k. Point Stand Indications on Main Line Points at Intermediate Sidings

Certain main line points at intermediate sidings are provided with a Point Stand to indicate the position of the points, as described below -:

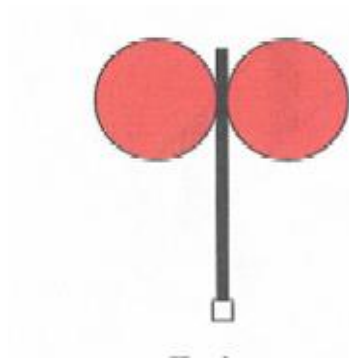
1. Points Set for Main Line

A green arrow displayed to the Driver in both directions. (see diagram)



2. (Intentionally Left Blank)

3. Points set for goods siding- a Red Dumbbell (Two Red Discs) displayed to the Driver in both directions.



4. Drivers shall observe the status of the Point Stand when approaching points and ensure that the correct indication is displayed for the movement.
5. Should the Driver of a movement observe the Point Stand displaying an incorrect indication, the movement shall be brought to a stand at the points and the Train Controller advised.

The Driver of the movement shall inspect the points and confirm that they are correctly set and secured for the passage of the movement prior to passing over them.

6. For shunting movements, the points may be set for either track by means of the ground lever.

During the shunting operation, the Driver of the movement shall control the movement in accordance with the indication displayed on the Point Stand.

The display of 2 Red Discs shall indicate to the Driver that the movement is proceeding over points into or from the siding. The speed of the movement shall be controlled as directed by the competent employee performing the shunt operations on the ground.

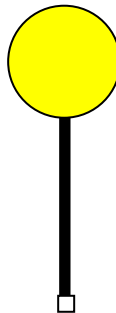
When the shunting is completed, the points shall be set in the Normal position and the lever locked. The point stand shall also be inspected to ensure it is displaying the correct indication.

I. Point Stand Indications on Crossing Loops at Goods Loops and Yards

At certain locations the points leading from or to the Crossing Loop track to or from Goods Loops and Yards are provided with a Point Stand to indicate the position of the points, as described below -:

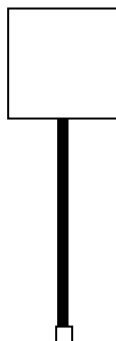
1. Points set for the Crossing Loop (number 2 track) or yard points set for the straight track:

Yellow circle displayed to the Driver in both directions



2. Points set the Goods Loop or yard points set for the diverging track:

A White square displayed to the Driver in both directions



19. Defective Point Locking

a. Facing Points Locked; staff withdrawn

If any defect is discovered or should it be possible to withdraw the key from the lock and the facing points remain unlocked, the competent employee must inform the Driver.

If a track maintenance employee is not present, both the competent employee and the Driver will be responsible for securing the facing points to make them safe for traffic. The Train Controller must be advised of the circumstances.

If a track maintenance employee is present, they must:

1. be informed, and
2. see that the points are properly secured.

If a track maintenance employee is not present, but one is available before the train reaches the first station in advance where there is a Stationmaster:

1. the train must be stopped, and
2. the track maintenance employee advised of the circumstances.

The track maintenance employee must:

1. then proceed to the points,
2. ensure their security, and
3. see that they are maintained until such time as the Signal Adjuster arrives.

b. Point Blade Will Not Return Level with Stock Rail

If, after shunting operations are completed, the point blade connected with the lock cannot be put close up to the stock rail by ordinary means, a bar must be used to jam the points home to the stock rail.

This will permit the lock being operated and the key being withdrawn.

The circumstances must be reported to the:

1. Train Controller Operations Manager, or
2. Stationmaster next in advance.

The Signal Maintenance Technician must be promptly notified to attend to the defect.

20. Lost or Damaged Master Key

a. Issuing Replacement Master Key

Should a master key for the section, or multiple sections, be lost or damaged after it has been issued to the Driver, and prevents the working at an intermediate locked siding, the Driver must inform the Train Controller of the circumstances.

The Train Controller will, if necessary, arrange for a competent employee to proceed with a replacement master key by the most convenient way to the intermediate siding.

The Signaller, before issuing the replacement master key to the competent employee must:

1. advise the Train Controller of the replacement master key number, and
2. record the replacement master key number, and destination location in the Train Register Book.

The Train Register Book must be countersigned by the competent employee.

b. On Arrival at Intermediate Siding

On arrival at the intermediate siding, the competent employee must:

1. hand the replacement master key to the Driver,
2. in the case of a damaged master key, exchange master keys with the Driver, and
3. return the damaged master key to the station from which the replacement master key was obtained.

The Signaller receiving the damaged master key, must advise the Train Controller:

1. the number of the damaged master key, and
2. that it has been secured under lock and key.

The Train Controller must be advised that the damaged Master Key has been locked away and the location.

c. Records in Train Register Book

The Signaller must record the damaged master key number and time received in the Train Register Book.

The Train Register Book must be countersigned by the competent employee.

The Signals and Communication Supervisor for the area must be advised.

d. Driver Unable to Produce Master Key

Should the Driver be unable to produce the master key on arrival at a station, or becomes aware that the master key has been lost, the Train Controller must be advised immediately.

All safety precautions must be taken before another train is allowed to follow or proceed in the contrary direction.

e. If Train has Shunted

If that train has shunted at an intermediate siding, the Train Controller must advise the Driver of every train passing over the single line section in which the shunt was performed, not to pass over any facing or trailing points where the points are locked by master key, until ensuring that the points are set in the proper position.

This instruction is to be issued to every train passing over that single line section, until:

1. the master key is recovered, or
2. special instructions are issued.

f. Issuing of Circular

The Superintendent Safeworking and Manager, Signals and Communication Operations must be advised of the circumstances.

On receipt of the advice, a circular will be issued giving full particulars of, and cancelling the missing master key.

g. Missing Master Key Found

Should the missing master key be found, the Signaller must inform the Train Controller, who must then:

1. inform the Superintendent Safeworking and Manager, Signal and Communication Operations, and
2. secure it under lock and key.

h. Signal Maintenance Technician

The Signal and Communication Supervisor for the area must:

1. be advised, and
2. arrange for the Signal Maintenance Technician to take possession of the damaged master key for repairs.

The Signal Maintenance Technician, before taking possession of the damaged master key, must give the Signaller a receipt stating its number and the area to which it belongs.

The Signaller after receiving the receipt for the damaged master key, must advise the Train Controller.

After the master key has been repaired and replaced into service at the station which it was withdrawn from, the Signal Maintenance Technician must collect the receipt and forward it to the Manager, Signal and Communication Operations. The Signaller must advise the Train Controller the number of the master key returned to service.

During the time that the master key is withdrawn for repairs, and a spare master key is not available, arrangements may be made for the Signal Maintenance Technician to accompany a train requiring to shunt and use the inspection key to unlock the points at the siding.

Both the Signal Maintenance Technician and the competent employee assisting the shunting operation will be responsible for the security of the points after the shunting has been completed.

i. Damaged Master Key Form

The damaged master key form must:

1. remain with the Signaller until the master key has been returned, and
2. then sent to the Manager, Signal and Communications Operations by the Signal Maintenance Technician.

AUSTRALIAN RAIL TRACK CORPORATION

DAMAGED MASTER KEY

To: Signaller

Master Key No

For the sections and
is damaged and
 now withdrawn for repairs.

.....
 Signal Maintenance Technician

.....
 Signaller

Deletion of Operating Procedure 21, Section 27, was published by SW102/2000 of June 20, 2000.

21. Movements Of Master Keys

DELETED.

22. Staff Annett Key Exchange Apparatus

a. Objective of Exchange Apparatus

Where an intermediate siding is near to a level crossing provided with flashing lights or boom barriers, the points may be secured by an Annett lock, with a staff/Annett key exchange apparatus being provided adjacent to the points.

The object of the exchange apparatus is to prevent unnecessary operation of the flashing lights or boom barriers when a train is working at the siding.

b. Train Required to Shunt

If train is required to shunt at the siding, the staff must be inserted in the exchange apparatus and the Annett key withdrawn. The Annett key must then be used to unlock the points.

When the shunting is completed, the Annett key must be replaced and the staff withdrawn.

c. Removal of Annett Key

Removal of the Annett key from the staff Annett key exchange apparatus will render the flashing lights or boom barriers inoperative. It will permit the train to work the siding without the flashing lights or boom barriers operating.

The flashing lights or boom barriers will operate until the exchange is made.

After working the siding, the points must be placed to normal and the Annett key must be exchanged for the staff.

The flashing lights or boom barriers will commence operating.

23. Electric Switch Locks - Intermediate Sidings

a. Three Position Automatic Signalling Areas

The points leading to an intermediate siding are:

1. rodded to catch points in the siding,
2. worked by a lever in a frame, and
3. secured by an electric switch lock.

The switch lock is constructed so that the switch is locked, whenever the track section is occupied by a locomotive or train.

This does not occur when a train is stationary on the release track.

For a movement to or from a siding, a 'release' is to be given by the Train Controller. This is applicable to the north eastern standard gauge lines only.

NOTE:

On the north western Ararat-Wolseley line, a 'release' does not have to be obtained from the Train Controller.

However, the Train Controller's permission must be obtained for a movement from the siding.

At switch lock sidings located at loops the release must be requested from the Train Controller.

The switch lock is contained in a box, located near the facing points. The door of the box is secured by a V5PSW padlock.

Inside the box is a:

1. finger trigger,
2. releasing handle, and
3. semaphore indicator.

b. Procedure for Working

When a train requires to work at the siding, the locomotive or portion of the train must be stopped clear of, but within 18 metres of the facing points, in order to effect a release.

c. Example of a Procedure for Working

If train in the trailing direction has to put off or pick up vehicles in the siding, the Driver must:

1. stop the locomotive opposite the catch points in the siding,
2. have the locomotive or vehicles detached and run ahead, and
3. stop with rear vehicle not more than 18 metres ahead of the points.

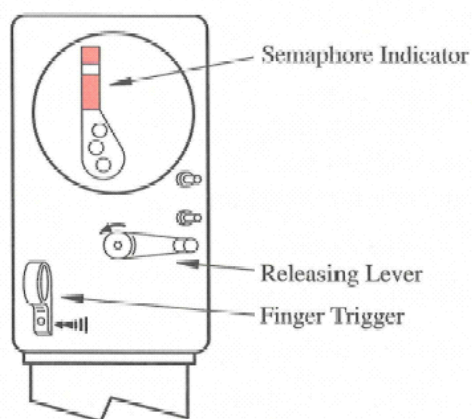
If the whole of the train is to enter the siding, the train must be stopped with the rear vehicle not more than 18 metres ahead of points.

If a locomotive or train requires to enter a siding in a facing direction, the locomotive is -to be stopped within 18 metres of points.

When the locomotive or portion of the train has stopped as instructed above, the competent employee assisting the shunting must:

1. open the door of the switchbox,
2. hold the finger trigger with the left hand, and draw it outwards,
3. continue holding it outwards until the semaphore indicator assumes the 'clear' position, and
4. with the trigger still held outwards, the releasing handle must be moved from right to left.

The points may then be operated from the lever.



Electric Switch Lock

d. Siding Points not to be Returned to Normal Until Locomotive Returns to Main Line

NOTE:

When a portion of a train is standing on the main line while a switch locked siding is being worked, the points must not be placed to normal. They must remain set for the siding until the locomotive has returned to the main line. Otherwise the switch will become locked until a vehicle is again placed on the releasing rail within 18 metres ahead of the points.

e. Whole of Train has Entered the Siding

If the whole of the train is to enter the siding, and when clear of the catch points, the competent employee must:

1. immediately restore the points to normal,
2. move the releasing handle in the switchbox to its normal position on the right, and
3. close and lock the switchbox door.

f. Train Ready to Depart From Switch Locked Siding

When a train or locomotive which has been completely side tracked to a switch locked siding is ready to proceed, the competent employee must:

1. obtain permission from the Train Controller by telephone to enter the main line,
2. when permission has been obtained, open the door of the switchbox,
3. if the semaphore indicator shows 'clear', act as laid down in para (c) above, but do not operate the finger trigger, and
4. when the train or locomotive is clear of the points on the main line, the points must be closed and locked as set out in para (e) above.

g. Semaphore Indicator Showing Stop

If, after a competent employee receives permission from the Train Controller to depart from a switch locked siding, finds the semaphore indicator showing 'Stop', (i.e. 'arm horizontal'), the mechanism must not be manipulated. Communication must be made with the Train Controller.

If intending to shunt at an intermediate switch locked siding and return to the crossing loop in the rear, the train must completely lock away at the switch locked siding before returning to the crossing loop in the rear.

It is most important that, after the work has been completed and the whole of the train has entered the siding, or has returned to the main line that:

1. the points are returned to normal, and
2. the switchbox door is closed and locked.

Otherwise the signals applying to the section will be held at the 'Stop' position.

h. Cripple Tracks at Standard Gauge Crossing Loops

The points leading to cripple tracks at crossing loops are secured with an electric switch lock as described in the paragraphs above. However, the operation of the points differ.

Subject to the main line points being in the reverse position, the Train Controller, by pressing the applicable points button, releases the switch lock points to a cripple track.

This operation causes the semaphore arm in the electric switchbox to assume the 'Clear' position.

It indicates to the person concerned, that the points are free to be moved.

The competent employee must then move the releasing handle from right to left and operate the points from the lever.

The use of the finger trigger is not necessary.

The electric circuits are arranged so that, when the Train Controller has given a release of the switch lock, the signals controlling the entrance of trains to the single line section, at the opposite end, are secured at the 'Stop' position.

i. **Controlled Automatic Signals on Ararat - Wolseley Line**

Where switch locked sidings are located near level crossings equipped with flashing light signals, the automatic signals placed close to these level crossings are controlled by the Train Controller.

When a train is to shunt at the switch locked siding, the Train Controller may place the automatic signal to the 'Stop' position. This will avoid unnecessary operation of the flashing lights.

Key switches for local control of the automatic signal and flashing light signals are located in the telephone cabin near the points.

To control the flashing lights, a stop/start 1P/5P key labelled 'flashing lights' is provided.

To place the automatic signal to 'Proceed', the 5P key switch labelled with automatic signal number must be turned to the 'Clear' position.

To cancel, the 5P switch must be turned to the, 'Cancel' position.

To withdraw the 5P key, the switch must be turned to the 'Central' position.

The competent employee assisting the train intending to work the siding must operate the appropriate key switch to place the automatic signal to 'Proceed' or to operate the flashing lights as required.

Under normal operation the Train Controller will place the automatic signal to the 'Stop' position as prescribed in the above.

24. Failure of Electric Switch Lock

a. Arrangements for Signal Maintenance Technician to Release Locking

In the event of the switch lock failing to release when required, arrangements may be made for the Signal Maintenance Technician to release the locking.

Prior to giving permission for the Signal Maintenance Technician to release the locking, the Train Controller and competent employee must have a good understanding.

The Train Controller must:

1. ensure that the correct procedure has been followed for the proper release of the switch lock,
2. ensure that the single line section is clear of trains and track machines,
3. ensure that the home departure signals at each end of the single line section are at the 'Stop' position,
4. ensure that the 'blocking command' has been applied to the signals,
5. should a train be approaching a crossing loop under these conditions, ensure that the train has arrived at the crossing loop, and
6. arrange for the Driver to place the selector lever of the dual control point machine at the points ahead of the departure signal for the affected section to the 'hand operating position'.

b. Points Placed Into Hand Operating Position

After giving permission to the Signal Maintenance Technician to release a defective switch lock, no other train must be permitted to enter the single line section until the section is clear.

Should the 'blocking command' already be applied, the Train Controller must not permit the Signal Maintenance Technician to release the switch lock.

When the movement for which the 'blocking command' has been applied is completed, the Signal Maintenance Technician will be permitted to release the switch lock.

25. Telephone and Telephone Cabins

a. Telephone and Telephone Cabins in ATC and CTC Territory

In ATC and CTC territory, telephones connected to the Train Controller are provided in cabins at:

1. each end of an unattended crossing station,
2. at switch locked sidings, and
3. fixed signals protecting grade crossings in CTC territory.

b. Telephones Cabins at Unattended Crossing Stations

Telephone cabins at unattended crossing stations are equipped with a Caution Order Book, a Train Authority Book and a supply of forms for use in case of failure of an arrival signal.

If the telephone rings at an unattended station or a switch locked siding, the Driver must immediately answer the phone and speak to the Train Controller.

c. Telephones Cabins at Block Point Locations

Telephone cabins at block point locations in Train Order Territory are provided with a book of Train Orders.

NOTE:

Each control telephone bears a plate lettered 'Train Controller'. A card of instructions is posted in the cabin.

26. Electronic End of Train Detection

a. Activation of Electronic End of Train Detectors

At selected locations, electronic end of train detectors are provided.

Electronic end of train detection can only be activated by a modified end of train marker.

The equipment at each location will transmit, by local radio, a voice message to inform the Driver that the train is complete.

b. Sequence of Message Transmitted

The message will take the following sequence:

1. alert tone, rising up the scale for 'up' direction, and falling down the scale for the 'down' direction,
2. loop name,
3. direction of travel, and
4. message that train is complete.

Typical messages transmitted to the Driver are:

1. 'Lismore loop, up arrival complete', or
2. 'Sulky loop, down departure complete'.

The message will be repeated via local radio to ensure that the message has been heard by the Driver.

Messages will only be heard by a train in close proximity to the loops, as the power output from the radio is kept intentionally low.

c. Train Battery Low

If a train arrives at a crossing loop where electronic end of train detectors are provided, and the batteries are low in the end of train marker, the message will take the following sequence:

1. an alert tone, rising up the scale for 'up' direction, and falling down the scale for the 'down' direction,
2. loop name,
3. direction of travel,
4. message that train complete, and
5. train battery low.

Upon receipt of the information that the train is complete and 'train battery low', the Driver must immediately advise the Train Controller.

The Train Controller will then advise the:

1. Driver as to the course of action to take, and
2. appropriate personnel.

d. Electronic Fault in Radio Mast

If a train arrives at a crossing loop where electronic end of train detectors are provided and there is an electronic fault in the radio mast, the message will take the following sequence:

1. an alert tone, rising up the scale for 'up' direction and falling Down the scale for the 'down' direction,
2. loop name,
3. direction of travel,
4. message that train complete, and
5. wayside faulty.

The above may occur if the message is scrambled due to an electronic fault.

In the event of a 'wayside faulty' message being received, the Driver must immediately advise the Train Controller, who must then advise the Signals and Communications Supervisor for the area.

e. Station Battery in Radio Mast Low

If a train arrives at a crossing loop where electronic end of train detectors are provided and the station battery in the radio mast is low, the message will take the following sequence:

1. an alert tone, rising up the scale for 'up' direction, and falling Down the scale for the 'down' direction,
2. loop name,
3. direction of travel,
4. message that train complete, and
5. station battery low.

Upon receipt of the information that the train is complete and 'station battery low', the Driver must immediately advise the Train Controller, who must then advise the Signals and Communications Supervisor for the area.

27. Bi-Directional Electronic End of Train Detection

a. Provision of Bi-directional Electronic End of Train Detection

At selected locations, bi-directional electronic end of train detectors are provided.

b. Voice Message Transmitted

The equipment at each location will transmit, by local radio frequency, a voice message to inform the Driver that the train is complete.

Messages sent from bi-directional end of train detectors are the same as for those sent from standard end of train detectors.

Bi-directional end of train detectors are provided at block point locations to allow follow-on movements to take place.

28. Double Wire Control of Points In Main Line and Home Signals at Single Line Crossing Stations

a. Interlocking Apparatus

Where this system of signalling is in use, the points in the main line leading to No. 2 track, and the arrival home signal are controlled from an interlocking apparatus.

The points at one end of the crossing station are wire operated from the lever frame.

The points at the opposite end of the crossing station are plunger locked with an additional Annett lock attached to the point lever.

The key to the Annett lock, when not in use, is kept in a duplicate lock on the interlocking frame.

b. Fouling Point Indicator

No. 2 track is the loop track.

A fouling point indicator displaying the letter 'F' is provided between Nos. 1 and 2 tracks, at or near the fouling points of these tracks.

c. Track and Point Indication

A short section of track from the points in the main line to the fouling point in Nos. 1 and 2 tracks is track circuited.

It is indicated to the signalbox by means of a track indicator, which also indicates the position of the points.

The indicator consists of a rotating arrow head operated by press button, and has three positions as follows:

1. 'occupied',
2. 'normal clear', and
3. 'reverse clear'. The normal position of the indicator is 'occupied'.

When the button is pressed, the indications may be displayed as shown in the table below.

INDICATION	MEANING
'Occupied'	Fouling track section occupied.
'Normal clear'	Points normal, fouling track section clear.
'Reverse clear'	Points reverse, fouling track section clear.

d. Switch Stand

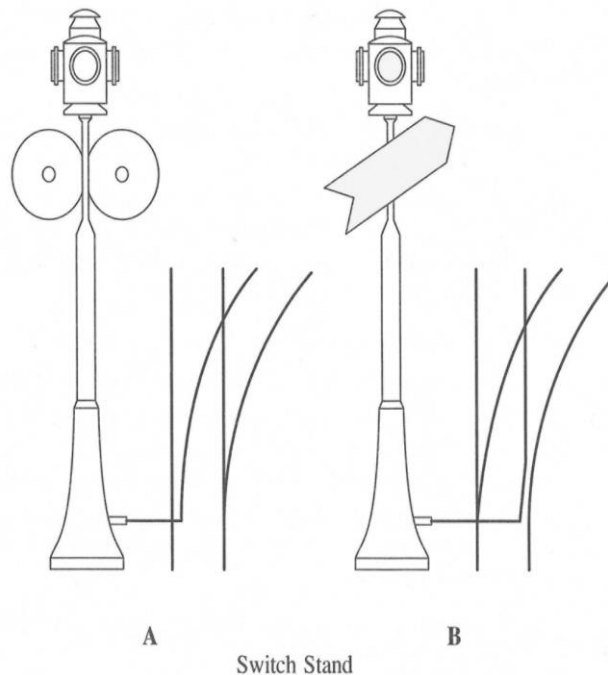
A switch stand, which indicates to the Driver the route set up, is fixed on the left-hand side in a facing direction at the main line points.

The indications are displayed in both directions, as follows:

1. when points are set for No. 1 track - two white discs by day, and a white light by night or inclement weather, and
2. when points are set for No. 2 track - yellow arm by day, and a yellow light by night or inclement weather.

The switch stand is about 2 metres in height.

The indications are displayed as shown in the illustration below.



e. Instructions for Working

The arrival home signal will apply to either No. 1 or No. 2 track.

When it is intended to turn an arriving train to a track diverging from the straight, the home signal must not be placed at 'proceed', until the train has been checked.

Drivers receiving the home signal at 'Proceed', must also look for the indication displayed at the switch stand. They must regulate the speed of trains over the points in accordance with the permissible speed for the route set up.

Except where local conditions, such as level crossings, make it necessary to stop sooner, the Driver of a train arriving on either No. 1 or 2 track must stop clear of the fouling point indicator.

This is unless the Driver:

1. is in possession of the staff for the section ahead, or
2. has the necessary authority from the Signaller.

Before passing over the points in a trailing direction the Driver must:

1. see that the switch stand indicates that the points are in the proper position, and
2. that any train or vehicle standing on the adjoining track is not foul of the track from which the train is to depart.

When a train has arrived on either No. 1 or No. 2 track, and a cross is to be effected, the Signaller must:

1. personally observe, that the train is complete,
2. ensure the train is within the fouling point indicator,
3. exhibit the signals for the opposing train to proceed through, and
4. observe the indication displayed on the track indicator.

In the event of the track indicator failing, the Signaller must personally observe that the line is clear before permitting an opposing movement.

Double wire control of points and home signals is provided at:

1. Meredith, and
2. Lal Lal.

29. Crossing Trains at Stations not Provided with Fixed Signals

Should a station not be provided with fixed signals, precautions during daylight, night or inclement weather must be taken when it is necessary for trains to cross

a. Trains Crossing During Daylight

Prior to the departure of a train from the station in the rear towards the station where the cross is to be effected:

1. two audible track warning signals, 10 metres apart, must be placed upon the line at a distance of 100 metres from the outer facing points on each side of the station, and
2. three audible track warning signals, 10 metres apart, must be placed at a distance of 400 metres from the outer facing points on each side of the station.

The explosion of the outer audible track warning signals will indicate to the Driver of an approaching train that the facing points are 400 metres in advance.

The Driver must:

1. proceed cautiously to where the inner audible track warning signals are fixed, and
2. await a hand signal from the Signaller.

Should the Superintendent Safeworking consider that further precautions are advisable to ensure safety, arrangements must be made to provide hand signallers to act, as prescribed in the following paragraphs.

b. Trains Crossing at Night or During Inclement Weather

A hand signaller must be appointed for each end of the station, and they must:

1. place two audible track warning signals 10 metres apart, at a distance of 100 metres from the outer facing points, and
2. three audible track warning signals 10 metres apart, at a distance of 400 metres from the outer facing points.

Each Hand Signaller must:

1. be placed just within where the inner audible track warning signals are fixed, enabling them to see any hand signal that may be given by the Signaller,
2. exhibit a 'red' hand signal to stop the train that is approaching on the side on which they are employed, until it is signalled forward by the Signaller, and
3. be at their post at least 30 minutes before the first train is due.

The explosion of the outer audible track warning signals will indicate to the Driver of an approaching train that the facing points are 400 metres in advance.

The Driver must:

1. then proceed cautiously, and
2. act upon the hand signal displayed by the hand signaller, stationed just within where the audible track warning signals are placed.

The exhibition of the 'all right' signal by the Signaller to indicate that the train may draw forward to the station, must always be:

1. green for 'up' trains, and
2. white for 'down' trains. At night, the white light must be moved slowly up and down.

The Driver of a train which arrives first, must ensure that their train is properly protected in front, in accordance with the above, by inquiring from the Signaller.

The Driver of the second train to arrive, must ensure that the points are in the proper position, for the train to draw ahead.

If there is only one other track in addition to No. 1 track at the station, and vehicles are in No. 2 track, the first train to arrive must be admitted into No. 1 track.

After the platform work is completed this train must be set back and turned into No. 2 track.

The Driver is to be verbally cautioned as to the state of the track.

At stations referred to in the preceding paragraphs where a derail block or catch points are provided at each end of No. 2 track and such track is clear of vehicles, a train may be turned direct into No. 2 track.

The train must:

1. be first brought to a stand at the facing points, and
2. the Driver informed that there are catch points or a derail block, at the far end of No. 2 track.

At night or during inclement weather a red light must be placed 1 metre clear of such catch points or derail block before the train is admitted to No. 2 track.

30. Procedure for Carrying out Maintenance on Staff, Annett or Master Key Locked Points at Intermediate Sidings, Stations and Loops Where There Is No Employee In Charge.

Applicable to the portions of line where the following systems are in force:

- Train Order System
- Electric Staff System
- Train Staff and Ticket System
- Section Authority System

Whenever it is necessary for the Works Leader (Signal Adjuster) to carry out maintenance on Annett, Staff or Master Key locked points at an intermediate siding/station or loop where there is no employee in charge, the following instructions must be observed:

The Works Leader must inform the Train Controller of the requirement for maintenance work. The following details must be given to the Train Controller:

- The location of work
- The position of the points (ie: Up or Down end)
- The period of time required to effect the maintenance

If there is sufficient time between trains for the maintenance to be carried out, the Train Controller must give the Works Leader an allotted period of time for the requirements to be completed. The description of work and the allotted period of time must be graphed in on the Train Controller's Graph.

Where the **Electric Staff** or **Train Staff and Ticket System** is in force, the Train Controller must first confer with the Signallers at each end of the affected section and ensure that the section is clear, and permission has not been granted for a train or track machine to enter the section. The Train Staff for the section must be locked away and a notation made in the Train Register Book.

If an **Electric Staff** is out of the staff instruments at the time; the Signaller concerned must if practicable restore the staff to the instrument. The Train Controller must then establish with the Signallers a suitable time period for the maintenance to be carried out. Each Signaller must note the particulars of the time granted in their respective Train Register Book.

The Train Controller must ensure that the period of time is such that the maintenance will be completed 10 (Ten) minutes prior to the arrival of a train at either end of the affected section.

Once the time has been allotted, the Train Controller must not give permission for a train or track machine/vehicle to enter the affected section until advice is received from the Works Leader that the work is completed. In the case of maintenance being carried out on a set of Master Key locked points at a Trailable Point Loop, the Train Controller must not permit a train or track machine to approach the loop until the above advice is received.

On completion of the maintenance, the Works Leader must inform the Train Controller that the work has been completed. The Train Controller must record this information on the graph.

On the **Electric Staff and Train Staff and Ticket Systems**, the Train Controller must on receiving the above advice, inform the Signallers at each end of the affected section. The advice received from the Train Controller must be noted in the Train Register Books at both locations by the Signallers concerned.

31. Driver Initiated Control Equipment

a. Driver Initiated Control Equipment

Driver Initiated Control Equipment is a process by which motorised Dual Control Point Machines and Signals at Unattended Crossing Stations, Loops or Junction Stations are able to be operated remotely from the locomotive cab using the D.I.C.E. facility on the Locomotive Safeworking Display Unit.

All D.I.C.E. locations will have allocated D.I.C.E. codes for Local and Through movements.

The D.I.C.E. function can be operated whilst travelling at normal line speed, or when the locomotive is stationary.

Except where otherwise provided, the normal position of the fixed signals at a D.I.C.E. location is the 'Stop' position.

At D.I.C.E. locations, Approach Zone Boards are provided to indicate the point at which the track circuited area commences, for operation of the D.I.C.E. function.

Subsidiary/Local D.I.C.E. boards are provided at Home Arrival or Home Departure Signals, to display the route setting code or codes for the location.

These will be provided at:

- Unattended Crossing Stations which are equipped with motorised point machines;
- Unattended Crossing Loops, at the fouling point indicators at both the Up and Down ends of the Loop Road;
- Junction Stations;
- Non Interlocked locations where the D.I.C.E. function applies only to the operation of the Fixed Signals.

b. V5PSW Emergency Key Switch

A V5PSW Emergency Key Switch facility is provided adjacent to the signal for manual operation when the remote control/Local Radio system has failed. The Key Switch may also be used to cancel a previously activated D.I.C.E. command when required.

The Key Switch has two positions: 'Cancel' & 'Clear'. Whilst the Key Switch is in either of these positions, the key is not able to be removed.

A notice board is provided above the Key Switch reading 'TRAIN CREWS MUST OBTAIN PERMISSION FROM THE TRAIN CONTROLLER PRIOR TO THE OPERATION OF THE V5PSW KEY SWITCH'.

At selected locations a Remote/Local Key Switch will be provided. This must be operated by the Signaller in accordance with published instructions, and after confirmation with the Train Controller.

The D.I.C.E. Code will consists of: **Code Number & Loop/Main.**

c. Operating Procedure

To activate the D.I.C.E. Code command, the train must be on the track circuit approach (i.e.: between the Approach Zone Board and the applicable signal or signals).

To enter the D.I.C.E. route setting code, the D.I.C.E. button must be pressed and the code then entered.

The route code entry will appear on the second line of the Next Authority screen. The route code entry will temporarily replace any message which may have been displayed on the Next Authority screen.

To fully activate the D.I.C.E. function, the D.I.C.E. button must be pressed again within ten seconds.

The Driver will receive an acknowledgement tone over the local radio which will signify that the ground equipment has received the route setting command.

The applicable signal will then display a 'Proceed' indication provided that:

- a conflicting route setting command has not been received by the ground equipment, and
- the points have been detected in the correct position.

The signal or signals will be returned to the normal position by the passage of the train.

NOTE: It must be clearly understood that the operation of D.I.C.E. does in no way absolve the driver from observing and obeying the indications displayed on signals.

d. Authority to Foul the Single Line Section

When it is necessary to foul the single line beyond the Home Departure Signal at a D.I.C.E. location, the Driver must be in possession of the authority for that section.

e. Defective L.S.D.U./Local Radio Facility

When a defect exists in the L.S.D.U. or Local Radio facilities, the D.I.C.E. remote control functions from that locomotive will not operate.

A remote control system failure is a breakdown in communication between the locomotive equipment and the ground control equipment. Permission to operate the V5PSW Key Switch in this instance will be given by the Train Controller.

Permission to operate the V5PSW Key Switch for a Home Departure Signal must not be given by the Train Controller unless the Driver is in possession of the authority for the section in advance.

f. Failure of a Home Signal at a D.I.C.E. Location

When it has been established that the D.I.C.E. route setting code and/or the V5PSW Key Switch has failed to operate the applicable Home Signal, the Train Controller must instruct the Driver to place the Selector lever of the Dual Control Point Machine to the 'Hand' position. The points must then be set for the required route.

Once the Dual Control Point Machine has been operated, the Train Controller may then verbally instruct the Driver to pass the Home Signal at the 'Stop' position.

The Train Controller and Driver must exchange names and corporate numbers for record purposes.

The Dual Control Point Machine may be left in the 'Hand' operating mode after the train has departed. The Train Controller must instruct the Driver of the next train accordingly.

g. Mechanical Points Protected by the Home Signal

If the Home Signal protects a set of mechanically operated points, the Train Controller must instruct the Driver to examine the points to ensure they are in the correct position.

If the points are set and secured in the correct position, the Train Controller may then verbally instruct the Driver to pass the Home Signal at the 'Stop' position.

The Train Controller and Driver must exchange names and corporate numbers for record purposes.

If the Home Signal governs movements into the Single Line Section in advance, the Driver must be in possession of the authority for the section ahead, prior to passing the Home Signal.

h. Maintenance on Signals and Points

If it is necessary for maintenance work to be carried out on any signalling or pointwork at a D.I.C.E. location, the Signal and Communications Supervisor must first confer with the Train Controller, and give advice of the proposed maintenance.

The Train Controller may then give authority for the D.I.C.E. Local/Remote Key Switch to be placed to the `Local' position, whilst the maintenance is carried out.

At the completion of the maintenance work, the Signal and Communications Supervisor must return the D.I.C.E. Local/Remote Key Switch to the `Remote' position, and advise the Train Controller accordingly.

If arrangements have been made for a Signaller to be in attendance during the period when the maintenance is to be effected, the Signaller will be responsible for placing the D.I.C.E. Local/Remote Key Switch to the required position.

The provisions of Operating Procedure 15 Clauses 'K' and 'L' must then be observed.

32. Route Indicators

Route Indicators are provided on certain Home Signals at junctions, generally where the same speed indication applies to more than one route.

There are three types of Route Indicators in use; namely the 'Letter' type, 'Feather' type and the 'Arrow' type.

The 'Letter' type Route Indicator displays its indications by means of an illuminated white or blue letter, which is displayed when the applicable route is set and the Signal is at 'Proceed'. An example of the 'Letter' type Route Indicator is shown in figure 1.

The 'Feather' type Route Indicator displays its indications by means of a series of consecutive white lights pointing in the direction in which the route is set when the Signal is at 'Proceed'. An example of the 'Feather' type Route Indicator is shown in figure 2.

The angle of the light arrangement may vary depending on the geographic layout of the location.

The 'Arrow' type Route Indicator displays its indications by means of an illuminated white or blue arrow pointing in the direction in which the route is set which the Signal is at 'Proceed'. An example of the 'Arrow' type Route Indicator is shown in figure 3.

Route Indicators may be placed either below or above the head of the signal.

Failure of the Route Indicator

Train Stationary at or near the Signal

Should the Driver observe a Signal which is displaying a 'Proceed' indication, and the Route Indicator is not illuminated, the Driver must confer with the controlling Signaller and ascertain if the intended route is set. If the intended route is set, the train may proceed in the usual manner.

Train in Motion

If the train is in motion when the Driver observes the Route Indicator has failed to illuminate, an attempt must not be made to stop the train if there is insufficient distance to stop safely.

Where there is insufficient distance to stop the train safely, the Driver must proceed in the usual manner. If the train has been incorrectly routed, the train must not be set back without the correct authority being obtained.

FIGURE 1

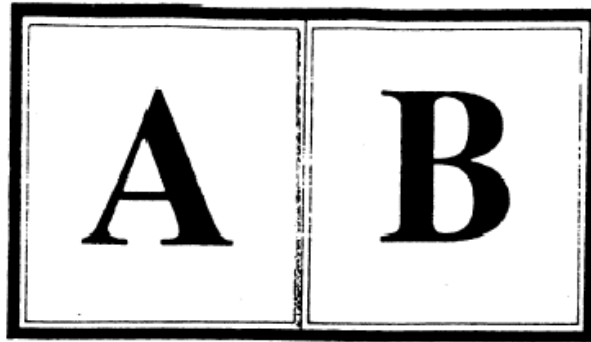


FIGURE 2

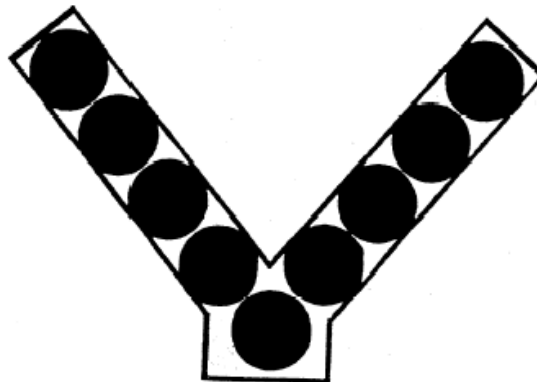
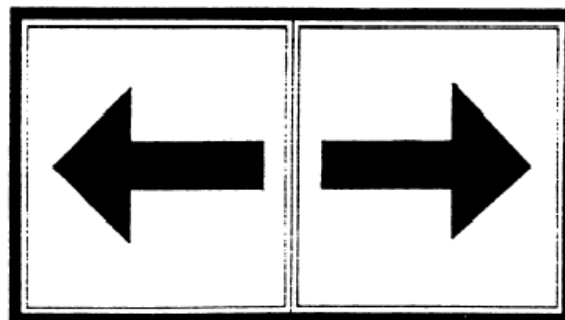


FIGURE 3



33. Hand Operated Flag Derail

The 'Hayes' Hand operated Flag Derail consists of a hinged Derail, attached to a reflective disc (flag). The flag may be red or white, with the word '**DERAIL**' painted thereon in both instances.

The flag operates in conjunction with the operation of the Derail, and has two positions. When the Derail is placed over the rail, the flag is elevated to the vertical position. Whilst the Derail is placed 'off' the rail, the flag lowers to the horizontal position between the rails.

It is only necessary for the Flag Derail to be placed on the rail and locked on when vehicles are to be stabled in the road concerned. When not in use, the Flag Derail must be locked off the rail.

