

GE/RT8000 - S1
Rule Book

Module S1

Signals and indicators controlling train movements

Issue 1

June 2003

Comes into force 6 December 2003



Issue	Date	Comments	Comes into force
1	June 2003	Initial issue	6 December 2003



You will need this module to identify,
and understand the meaning of signals
and associated indicators.

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Definitions and identification of signals

The person responsible: all those concerned


In this module the phrase 'all those concerned' means **anyone** who needs to understand what signals look like and their meaning.

1.1 Definitions

Stop signals

A stop signal is a signal that can show a stop aspect or indication.

It also includes:

- position-light signals
- shunting signals
- limit of shunt signals or indicators
- stop boards
- possession limit boards
- marker boards at the entrance to and exit from a work site in a possession. 

Distant signals

A distant signal is a signal which cannot show a stop aspect or indication.


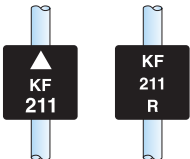



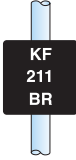


Some colour light distant signals are identified by the letters R or RR after the signal identity on the signal identification plate.



A marker board exit indicator is a flashing yellow light and must be treated as a stop signal. The authority of the person in charge of possession (PICOP) is needed to pass it.

1.2 Signal types - identification

The meanings of signal identification plates are as follows:

 <p>Controlled signal</p>	 <p>Distant signals</p>
 <p>Automatic signal</p>	 <p>Outer distant signal</p>
 <p>Semi-automatic signal</p>	 <p>Banner repeating signal</p>
 <p>Intermediate block signal</p>	 <p>Co-acting signal</p>

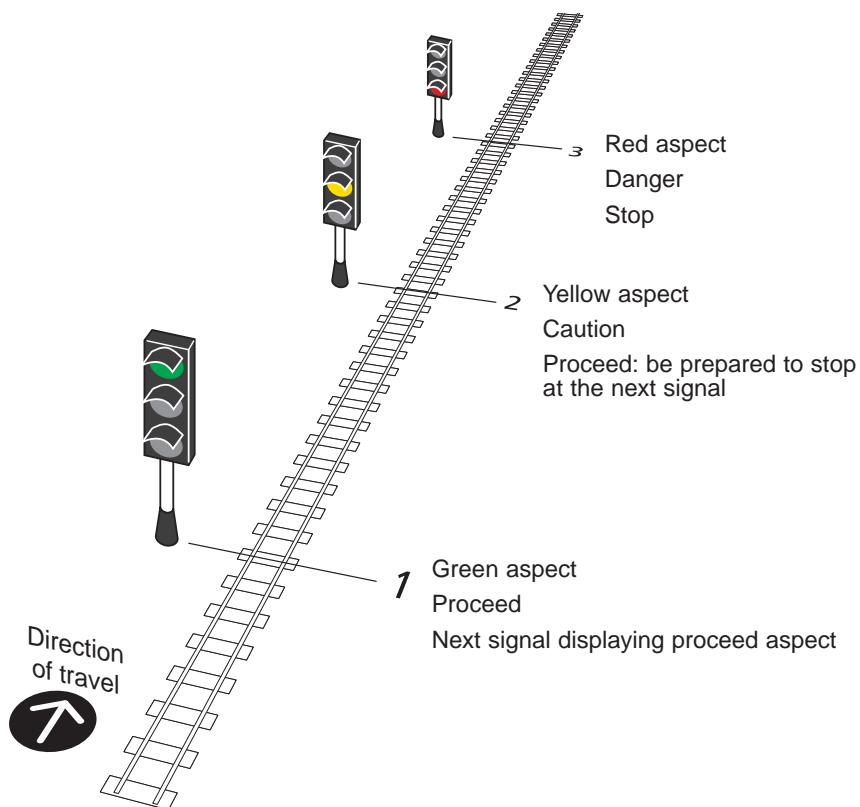
The letters and numbers identify the signal and the full identity must be used during any communication.

2 Colour light signals

The person responsible: all those concerned

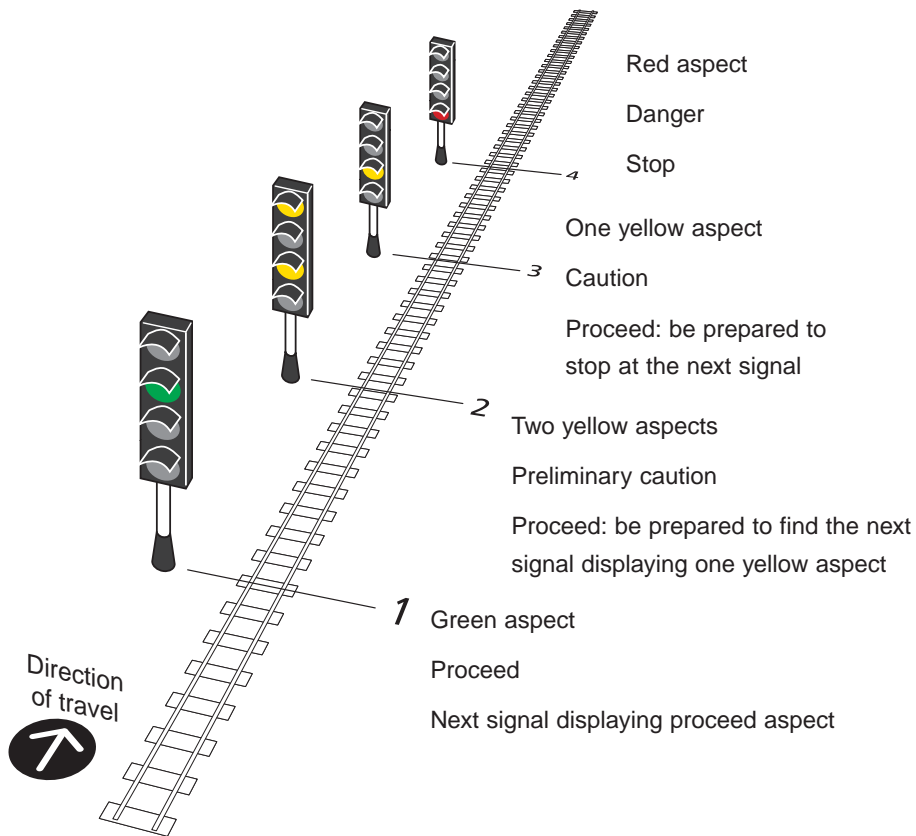
2.1 Three-aspect signalling - normal sequence

The normal sequence of three-aspect signalling is:



2.2 Four-aspect signalling - normal sequence

The normal sequence of four-aspect signalling is:



Signals and indicators controlling train movements

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2.3 Junction indicators



Junction indicators are provided to show that a train is being signalled to a route to the left or right of the straight route.

A junction indicator:

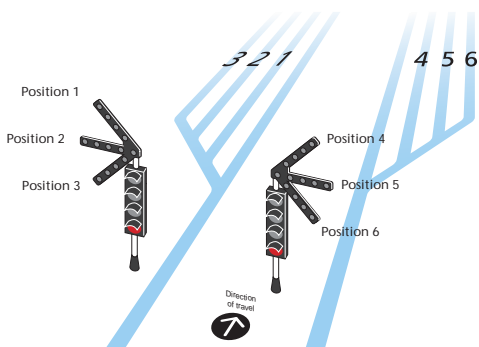
- is normally located above the signal, and
- will display a line of white lights when a proceed aspect is displayed.

When the straight route is obvious, there is no junction indicator provided for this route.

Where there is no obvious straight route, a junction indicator will be provided for all signalled routes.

Where the straight route is not the highest-speed route, the junction indicator will apply to the lower-speed route.

Where the diverging routes ahead are both of equal speed, a junction indicator will be provided for each route.



2.4 Route indicators

Route indicators are provided to show which route a train is being signalled towards.

The indicator will display either a letter or a number which relates to the route the train is being signalled onto.

Route indicators may also be associated with a junction indicator.



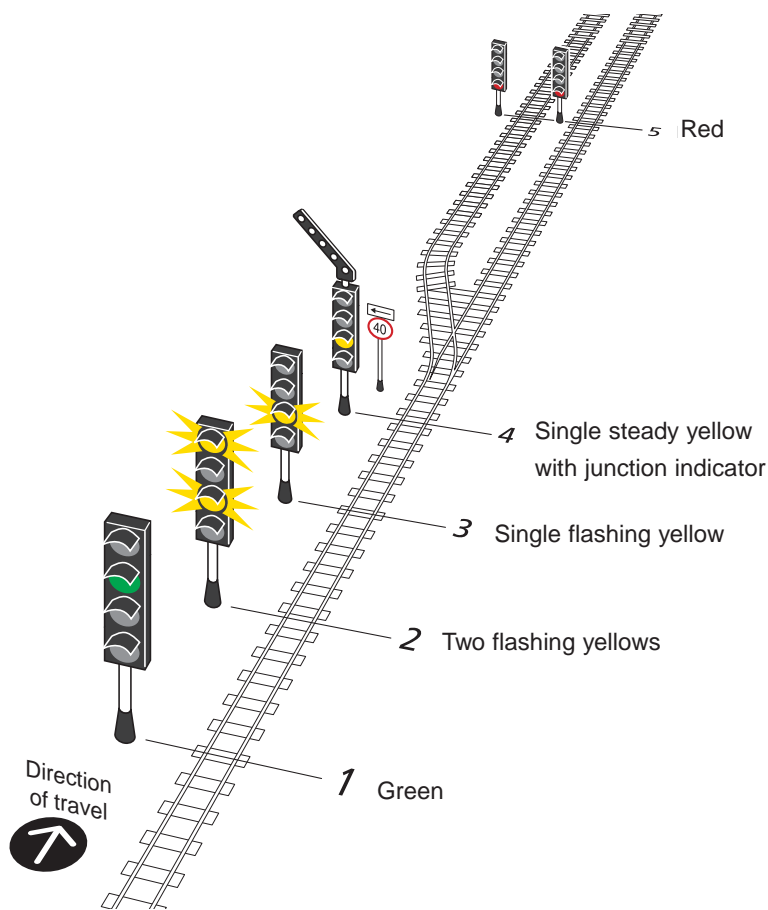
2.5 Four-aspect flashing yellow signalling

A flashing yellow aspect means that the facing points at a junction ahead are set for a diverging route, over which the speed of the train must be reduced.

Signals and indicators controlling train movements

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The normal sequence of four-aspect flashing yellow signalling is:



Note 1

When a caution (one yellow) aspect is displayed together with a junction indicator at signal 4, the driver must obey the caution aspect and be prepared to stop at signal 5. This applies even though a flashing aspect may have been displayed at signal 3.

Note 2

If the train is between signals 2 and 3 when signal 4 is cleared for the diverging route, signal 3 may then display one flashing yellow aspect. This applies even though a steady aspect has been displayed at signal 2.

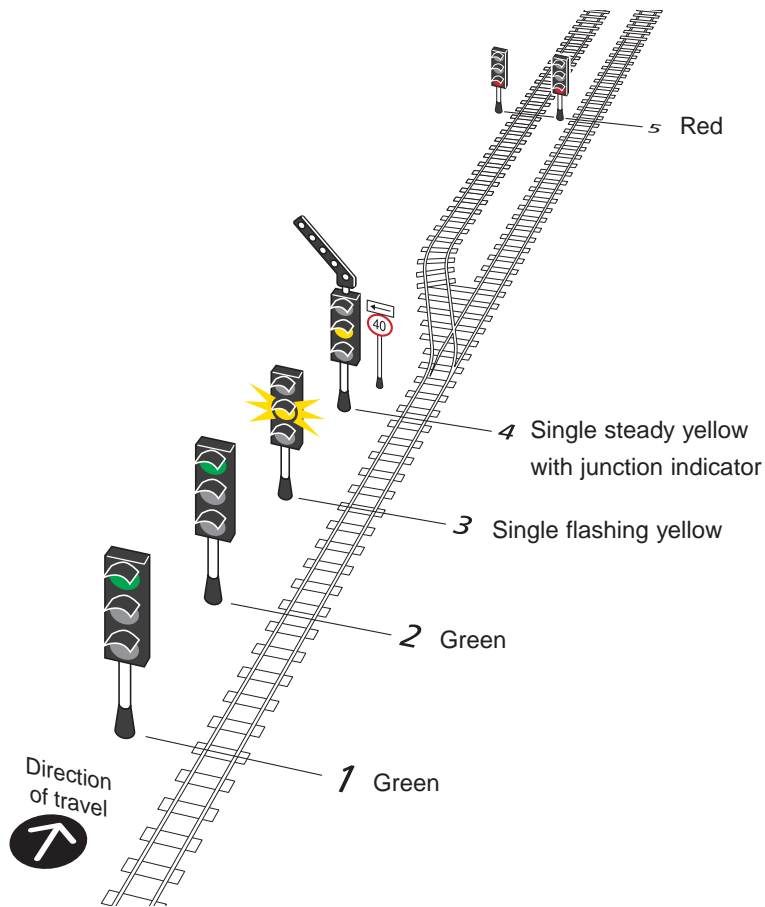
2.6 Three-aspect flashing yellow signalling

A flashing yellow aspect means facing points at a junction ahead are set for a diverging route and the speed of the train must be reduced.

Signals and indicators controlling train movements

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The normal sequence of three-aspect flashing yellow signalling is:



Note 1

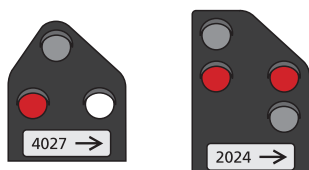
When a caution (one yellow) aspect is displayed together with a junction indicator at signal 4, the driver must obey the caution aspect and be prepared to stop at signal 5. This applies even though a flashing aspect may have been displayed at signal 3.

2.7 Position-light signals

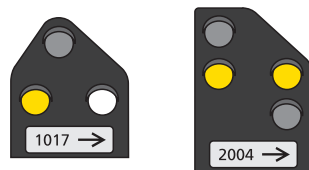
Position-light signals are normally positioned at ground level independent of a main aspect.

When proceeding on the authority of a main aspect, any position-light signals along the route between main running signals will show a proceed aspect.

The signal identification plate will also have a direction arrow showing the line to which the signal applies.



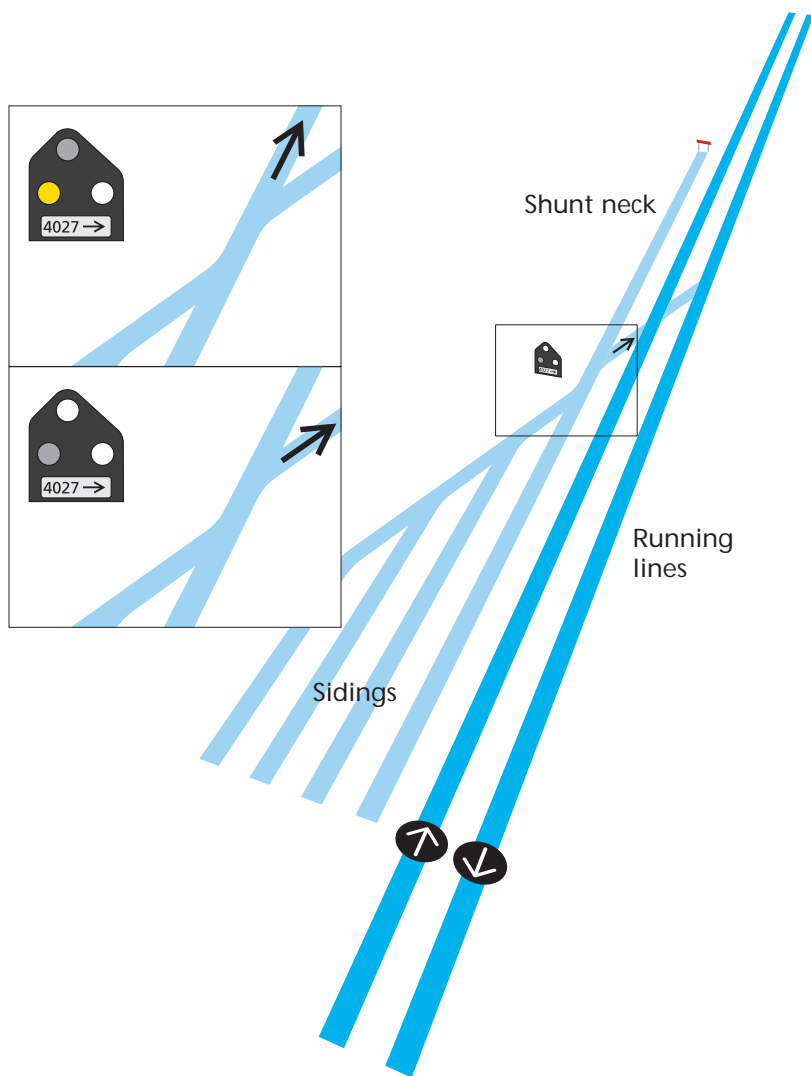
This indicates **stop**.



This indicates **stop**, if the points are set for a route that would take the movement onto a running line. Movements are allowed to pass the signal in the 'on' position when the movement is being made towards the shunt neck or siding (see diagram on page 14).

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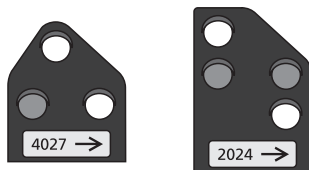


Yellow position-light signal

If the position-light signal displays two white lights at 45°, this authorises the driver to proceed at caution towards the next stop signal.

If there is no stop signal, it authorises the driver to proceed at caution towards a buffer stop.

The driver must be prepared to stop short of any train, vehicle or obstruction.



Some position-light signals are associated with a main aspect.

They will normally be positioned below the main aspect they are associated with, and often on the same signal post.

The normal aspect for a position-light signal is unlit. This means **obey the main signal**.

The train or movement can proceed past the signal when the position-light signal shows proceed. This applies even though the main aspect is at danger.

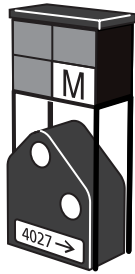


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Route indicators associated with position-light signals are of miniature design, and will display a letter or a number that shows the route onto which the train is being signalled.



2.8 Colour light signals not in use

When not in use, main and position-light signals will be covered up.

Main aspects may also have a large X displayed over the cover.

3 Semaphore signals

The person responsible: all those concerned

3.1 Distant signals

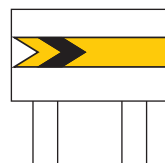
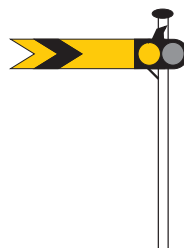
These signals show the following indications:

Caution

Indication by day: arm horizontal

Indication by night: yellow light or reflectorised indication

Meaning: be prepared to **stop** at the next stop signal, or other specified place to which the distant signal applies.

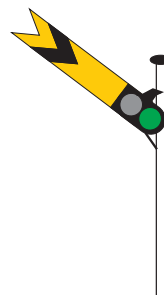


Clear

Indication by day: arm raised or lowered 45°

Indication by night: green light

Meaning: all associated stop signals worked from the same signal box are clear.



Signals and indicators controlling train movements

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3.2 Stop signals

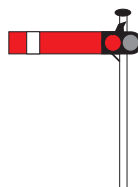
These signals show the following indications.

Danger

Indication by day: arm horizontal

Indication by night: red light

Meaning: stop.

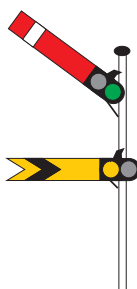
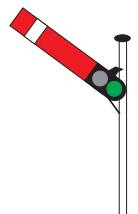


Clear

Indication by day: arm raised or lowered 45°

Indication by night: green light

Meaning: proceed.



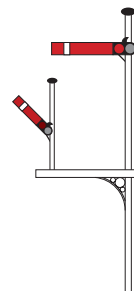
If there is a distant signal on the **same** post as a stop signal:

- the stop signal is worked by the signal box at that location, **and**
- the distant signal is worked by the signal box ahead.

If there is only one distant signal provided for a **diverging junction**, this signal applies to **all** trains that approach it.

The stop signal that controls movements into a loop, siding or no-block line may be a small semaphore arm.

When this signal clears, you must proceed at caution and be prepared to stop short of any train, vehicle or any obstruction.



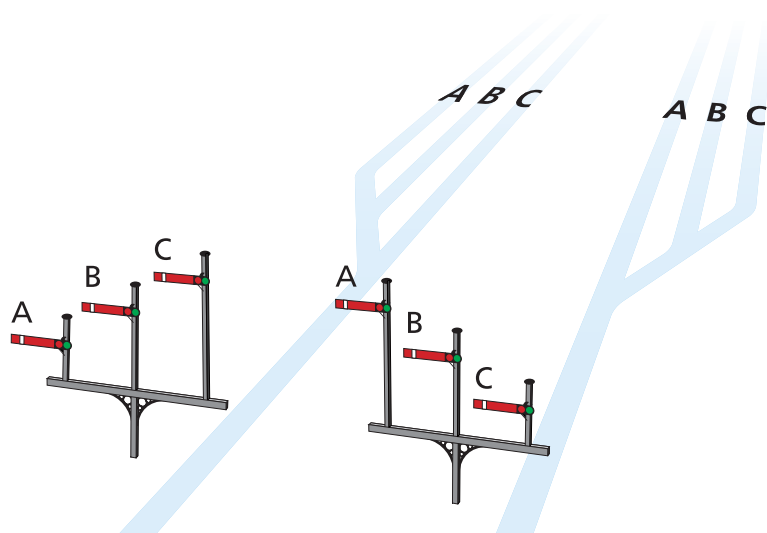
3.3 Route indications

Indications of route within semaphore-signalled areas may be given by one of the following methods:

- 'stepping'
- 'stacking'
- a route indicator.

The diagram shows the 'stepping' arrangement of signals. This arrangement is the normal method of route indication on running lines in semaphore areas.

Signal A applies to the route on the extreme left. Signals B and C apply to successive routes to the right.



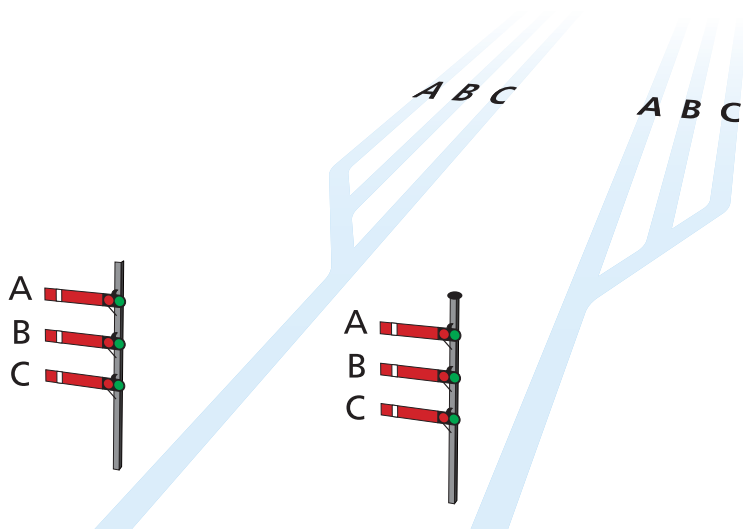
'Stepping'

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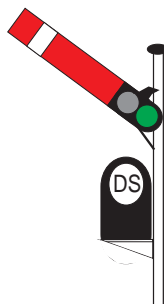
The diagram shows the 'stacking' arrangement. This arrangement is the normal method of route indication for shunting signals in yards and sidings, and also on running lines where there is little gantry space.

Signal A applies to the route on the extreme left. Signals B and C apply to successive routes to the right.



'Stacking'

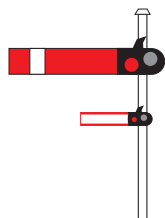
At some locations a route indicator is provided at the signal. The indicator will display a figure or letter to show the route onto which the movement is being signalled.



3.4 Semaphore subsidiary signals

Semaphore subsidiary signals are always associated with the main arm of a semaphore stop signal.

The subsidiary signal will always be positioned below the main semaphore arm with which it is associated, and on the same signal post.



Signals and indicators controlling train movements

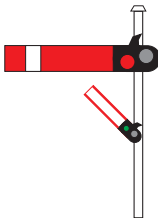
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When the subsidiary signal is in the 'normal' position, the driver must obey the main signal. The 'normal' indication is:

- the arm in the horizontal position, and
- a red, white or no light displayed.

The proceed indication is:

- the arm raised or lowered 45°, and
- a green light displayed.



When the signal is cleared, it authorises the driver to:

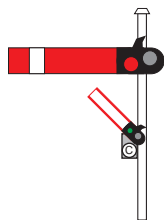
- pass the main aspect at danger, and
- proceed at caution towards the next train, signal or buffer stop, and be prepared to stop short of any obstruction.

At some locations, clearing the subsidiary signal will also show an indicator displaying either the letter 'C' or 'S'.

Calling-on

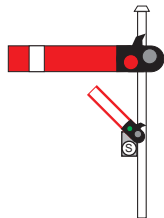
When this signal is cleared with the letter 'C' showing, it authorises the driver to proceed at caution towards the next stop signal. If there is no stop signal, it authorises the driver to proceed at caution towards a buffer stop.

The driver must be prepared to stop short of any train, vehicle or obstruction.



Shunt-ahead

When this signal is cleared with the letter 'S' showing, it authorises the driver to proceed for shunting purposes only.



Signals and indicators controlling train movements

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3.5 Semaphore shunting signals

a) Semaphore shunting signals that display a red aspect

Semaphore shunting signals that display a red aspect are stop signals.

There are two types of shunting signals:

- a shunting disc is a white disc with a red horizontal bar
- a small semaphore arm is a red arm with a vertical white stripe.

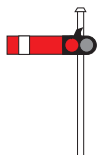
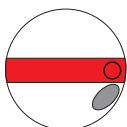
These signals show the following indications:

Normal

Indication by day: arm or bar horizontal

Indication by night: red light

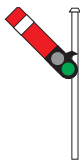
Meaning: stop

**Proceed**

Indication by day: disc turned 45° or arm raised or lowered 45°

Indication by night: green light

Meaning: proceed at caution as far as the line is clear.

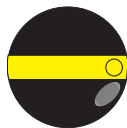


b) Semaphore shunting signals that display a yellow aspect

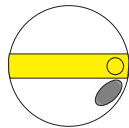
Semaphore shunting signals that display a yellow aspect are stop signals applying only to movements in the direction to which the signal can be cleared. Other movements can pass the signal without it being cleared.

They are not associated with a main semaphore arm.

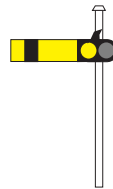
These signals may be:



a black disc with a yellow horizontal bar



a white disc with a yellow horizontal bar, or



a small yellow semaphore arm with a black vertical stripe.

These signals show the following indications:

Normal

Indication by day: bar or arm horizontal

Indication by night: yellow light

Meaning: stop. However, the driver may pass the signal in the normal position when the movement is being made towards the shunt neck or siding and not the running line.

Proceed

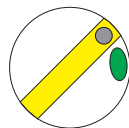
Indication by day: disc turned 45° or arm raised or lowered 45°

Indication by night: green light

Meaning: proceed at caution as far as the line is clear.

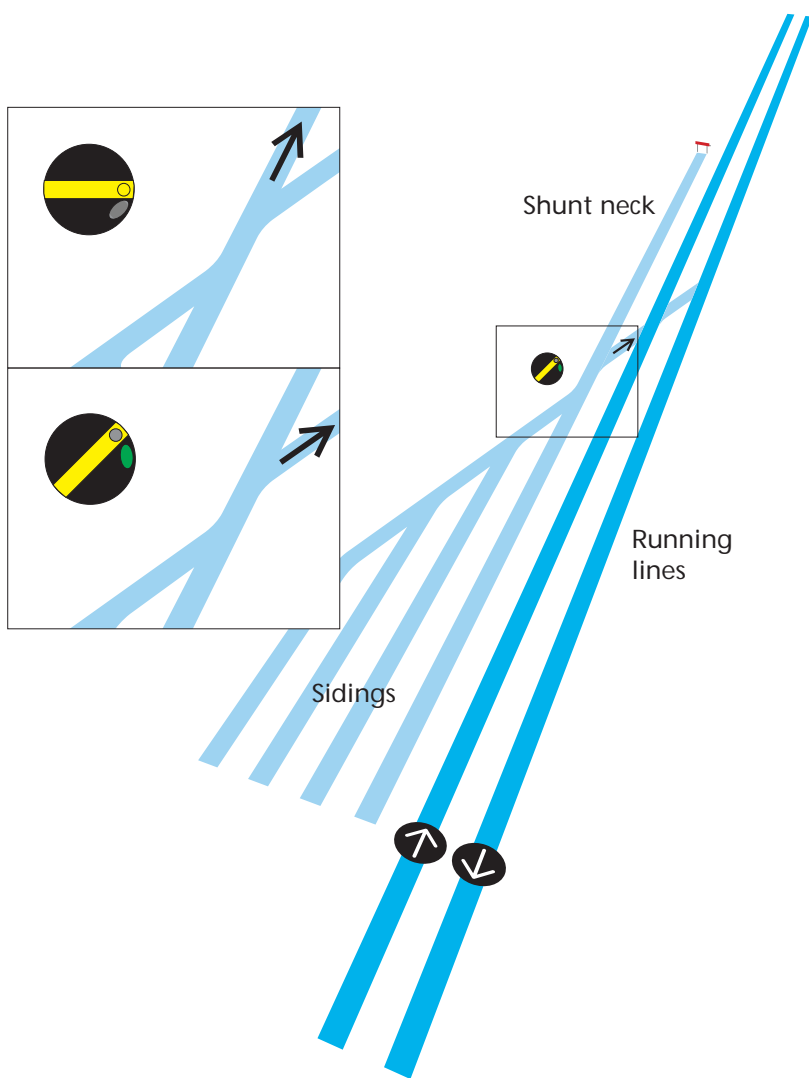


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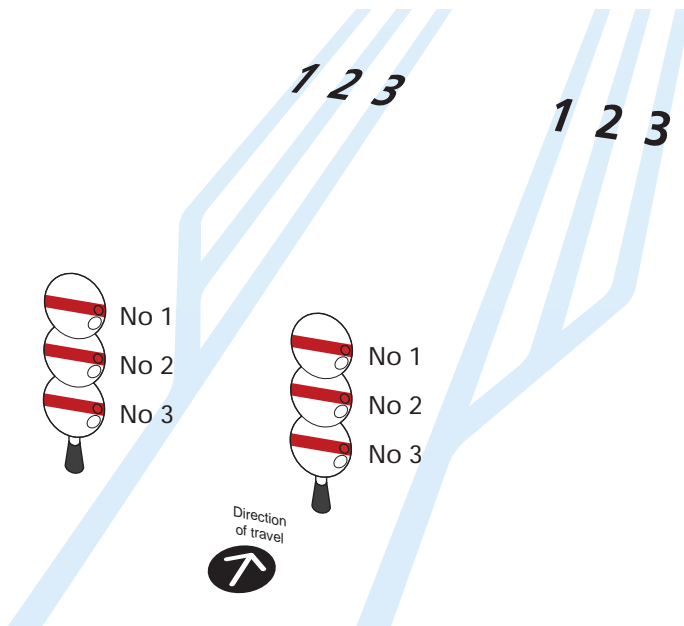
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Yellow shunt signal

3.6 Route indications by shunting signals

These signals show the following indications.



Signal 1 applies to the route on the extreme left. Signals 2 and 3 apply to successive routes to the right.

Signals and indicators controlling train movements

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section

3.7 Semaphore signals not in use

When semaphore signals are not in use, they have:

- a large X fixed on the signal arm, or
- the disc covered over.

4 Other signals and indicators

The person responsible: all those concerned

4.1 Limit of shunt signals or indicators

Limit of shunt signals or indicators are either:

- instructions on illuminated signs, or
- two red lights horizontally displayed.



No part of the train may pass a limit of shunt signal or indicator unless authorised by the signaller.

If a limit of shunt signal or indicator is passed without authority, it is a signal passed at danger.

Signals and indicators controlling train movements

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4.2 Stop boards

A stop board shows the word **Stop** and may also:

- show other instructions, and
- be illuminated.



The driver or person controlling the movement must stop the train at the stop board and may only proceed:

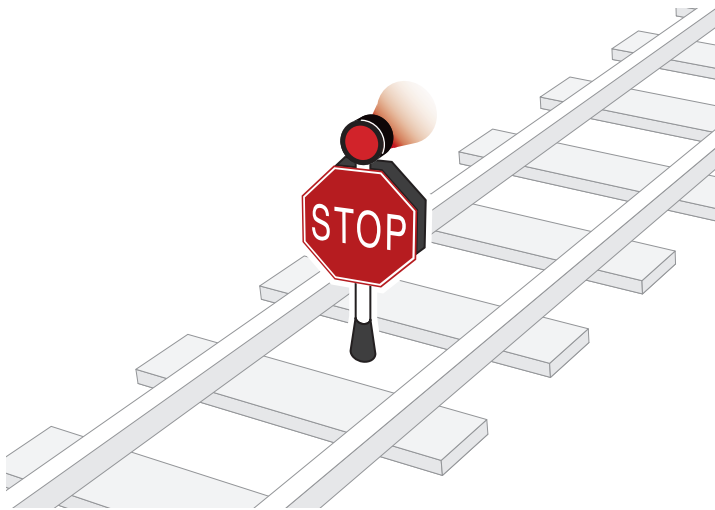
- when the instructions on the stop board have been carried out, or
- when given permission to do so by the authorised person.

If a stop board is passed without authority, it is a signal passed at danger.

4.3 Possession limit boards

A possession limit board identifies the boundary of a possession.

The sign is red, double-sided and is visible along the line in both directions. It will also have a steady or flashing red light visible along the line in both directions.



If a possession limit board is passed without authority, it is a signal passed at danger.

Signals and indicators controlling train movements

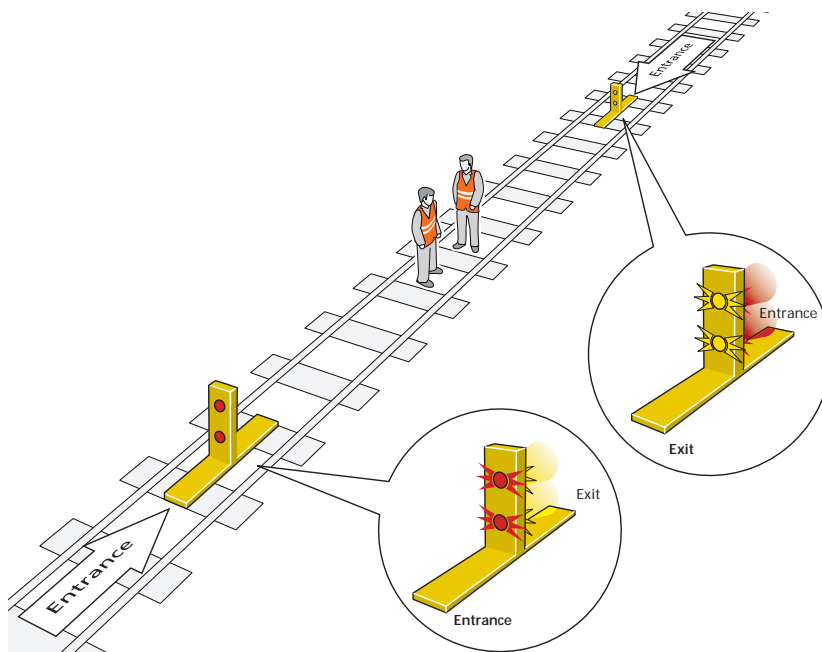
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4.4 Marker boards

Marker boards may be provided within a possession.

They:

- are coloured yellow
- are double-sided
- have two red flashing lights which indicate an entrance to a work site
- have two yellow flashing lights which indicate an exit from a work site.



If a marker board is passed without authority, it is a signal passed at danger.

4.5 Signal passed at danger (SPAD) indicator

Where provided, signal passed at danger (SPAD) indicators are normally positioned about 50 metres (55 yards) beyond certain signals.

The indicator has a three-aspect signal head which is fitted with a blue backplate.

It also has an automatic warning system (AWS) magnet on approach to it which:

- is suppressed for signalled movements, but
- will give an AWS warning indication to the driver if the indicator is activated.

Indications and meanings

The indicator is not normally lit. If a signal is passed at danger, the indicator will be activated. It will then display:

- a flashing red light in the top and bottom aspect, and
- a steady red light with the word STOP in the centre aspect.

When the indicator is activated, the driver or person in charge of any movement who sees the indicator must:

- stop immediately, and
- contact the signaller.



Signals and indicators controlling train movements

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4.6 Points indicators

A points indicator is associated with hydro-pneumatic points and is identified by a sign showing the words POINTS INDICATOR.

Indication:

A steady yellow light is displayed above the sign.

Meaning:

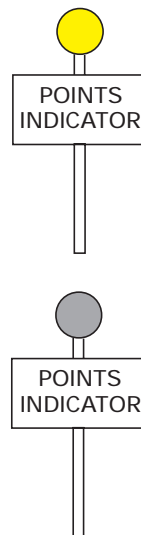
The points to which it applies are fitting correctly.

Indication:

No light is showing.

Meaning:

Stop at the points indicator and contact the signaller unless otherwise authorised.



If a points indicator is passed without authority, it is a signal passed at danger.

4.7 Banner repeating and co-acting signals

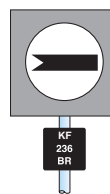
Banner repeating signals

Banner repeating signals are provided on the approach to certain signals which have restricted sighting (for example because of curvature of the line, buildings or tunnels), to give advance information of the signal aspect.

Position:

On

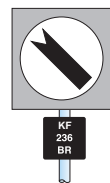
Meaning: distant signal to which it applies is at caution.



Position:

Off arm at 45°

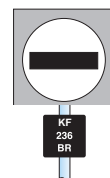
Meaning: distant signal to which it applies is showing clear.



Position:

On

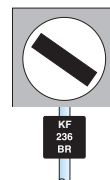
Meaning: the signal to which it applies is at danger.



Position:

Off arm at 45°

Meaning: the signal to which it applies is displaying a proceed aspect.



Signals and indicators controlling train movements

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Co-acting signals

Co-acting signals are provided for the same reason as banner repeating signals. However, a co-acting signal repeats the **exact** aspect or indication of the main signal. Co-acting signals are always the same type (colour light or semaphore) as the main signal.

4.8 Off indicators

If an Off indicator is provided at a platform, it will:

- show the word OFF when the signal to which it applies shows a proceed aspect
- allow a guard or person in charge of the platform to check the signal is clear before commencing the train despatch procedure
- show no indication when the signal to which it applies is at danger.



On a bi-directional platform line, the OFF indication may be accompanied by an UP or DN or other indication to show which route has been set.

On a platform line, the driver may, at certain locations, rely only upon the Off indicator showing the word OFF as an indication that the signal which it applies to is showing a proceed aspect.

In these circumstances, the driver must not assume the line ahead is clear for the train as the signal may have been cleared for a train ahead.

Indicators may be provided at locations other than platforms to show the driver that the signal to which they apply is displaying a proceed aspect.

4.9 Close-doors indicators

Close-doors indicators:

- display the letters CD when illuminated, and
- let the driver know that it is safe to close the power-operated doors on the train.



4.10 Right-away indicators

Right-away indicators display the letters R or RA.

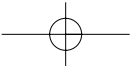
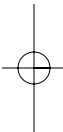
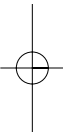
If this indicator is illuminated, it lets the driver know that:

- station duties are complete
- the train is secure
- it is safe to proceed as indicated by the signal aspect.

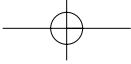
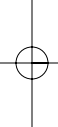
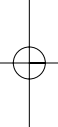
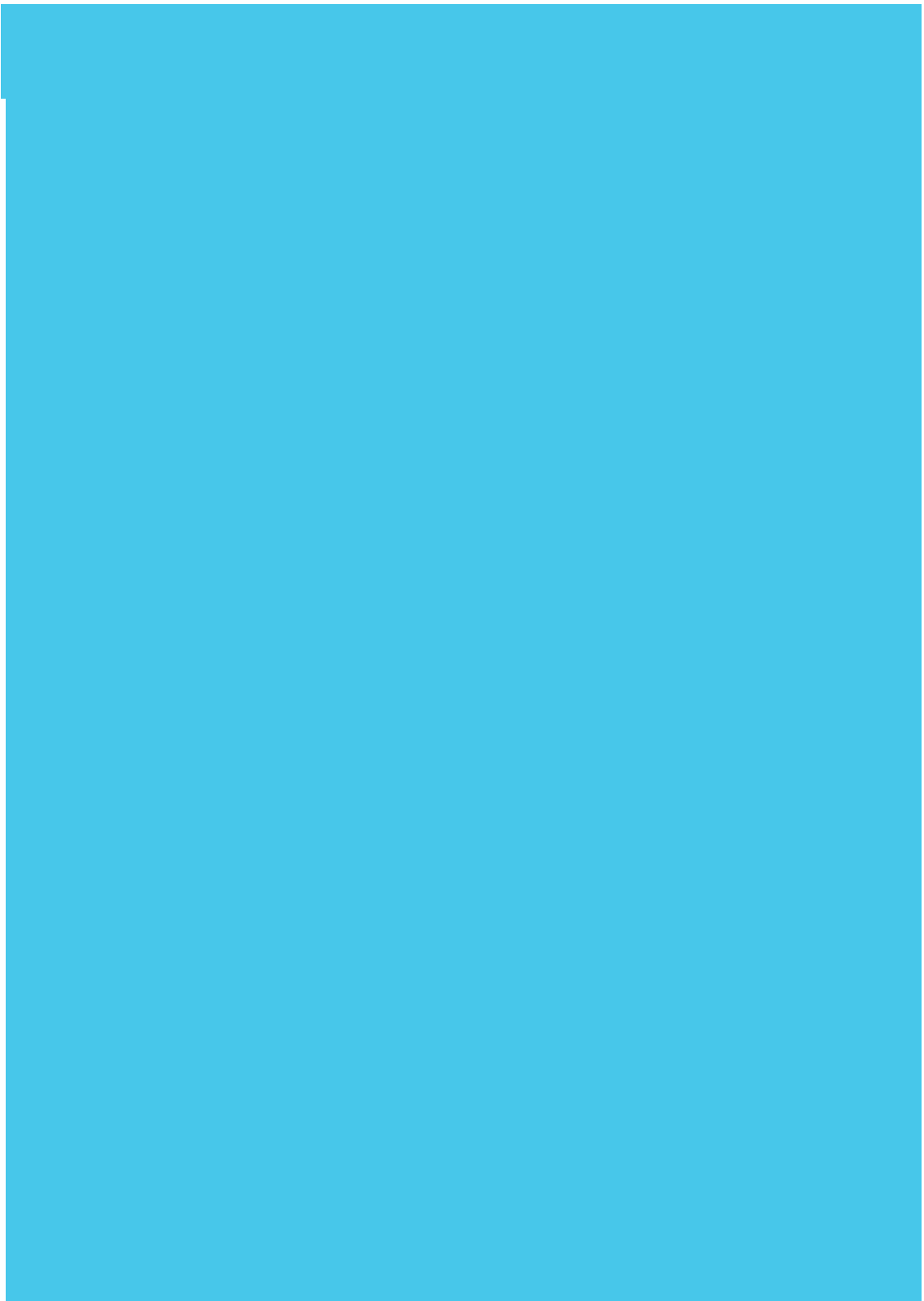


Glossary of terms and abbreviations

The term	Includes or means:
Aspect	The indication of a colour light signal that the driver sees.
Bi-directional line	A line on which the signalling allows trains to run in both directions.
Intermediate block section	The line between the section signal and the intermediate block home signal worked by the same signal box in the same direction of travel.
Main aspect	The following aspects of a colour light signal: <ul style="list-style-type: none"> • red • yellow • two yellows • flashing yellow • two flashing yellows • green.
No-block line	A line on which the signaller does not monitor the condition of the block section.
Power-operated doors	Doors on a train where the opening and closing are controlled by the driver or guard.
Running line	A line as shown in Table A of the <i>Sectional Appendix</i> .
Siding	A line on which vehicles are marshalled, stabled, loaded, unloaded or serviced clear of a running line.
Station	Terminal, depot, yard or halt.
Train	Light locomotive, self-propelled rail vehicle or road-rail vehicle in rail mode.



Notes





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