

Network Safeworking Rules and Procedures

Fixed Signals

Rule Number: 6005



Brookfield
Rail

Fixed Signals

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Glossary for this Rule

<i>Absolute Signal</i>	An automatic fixed signal that is controlled by the passage of Rail Traffic (i.e. they are not operated by a Network Controller) and must not be passed at STOP without the authority of the Network Controller.
<i>Active Control Level Crossing</i>	A road or pedestrian level crossing where warning equipment warns road users and pedestrians about approaching rail traffic by devices such as flashing lights or barriers.
<i>Adjacent</i>	Near to, close to, parallel to.
<i>Aspect</i>	The displayed pattern or position of lights used to give a signal indication.
<i>Authority</i>	Formal name for a written Authority (e.g. Local Possession Authority, Alternative Proceed Authority).
<i>Automatic Signalling Territory</i>	See Centralised Traffic Control (CTC)
<i>Blocking Facility</i>	A facility used by a Network Controller to prevent either the unintended issue of an Occupancy Authority, or the operation of points or signalling equipment.
<i>Catch Points</i>	Single or double bladed points used to derail rail traffic that might enter or foul an adjacent running line.
<i>Centralised Traffic Control (CTC) Territory</i>	The portions of line where the Centralised Traffic Control system of Safeworking is used.
<i>Centralised Traffic Control (CTC)</i>	A system where points and signals at a number of locations are remotely controlled from a centralised control room or other locations along the route.
<i>Certified</i>	Infrastructure or rolling stock that is fit for purpose.
<i>Clear</i>	A proceed indication displayed by a signal. In reference to a track circuit, block, section or signal route, the absence of rail traffic. In reference to track workers being clear of track.
<i>Competent Worker</i>	A worker certified as competent to carry out a relevant task.
<i>Condition Affecting the Network (CAN)</i>	A situation or condition that affects or has potential to affect the safety of the Network.
<i>Controlled Absolute Signal</i>	A signal that is controlled or operated by a Network Controller. The signal must not be passed at STOP without authority.
<i>Controlled Location</i>	A location where a Network Controller controls the signalling and Safeworking operations remotely.
<i>Departure Signal</i>	A Controlled Absolute signal controlling the entrance to a Single line section in CTC territory.

<i>Derail Device</i>	A device intended to guide the wheels of rail traffic off the rails to protect a running line.
<i>Fixed Signal</i>	A signal that is located permanently near the line.
<i>Intermediate Signal</i>	An intermediate signal is an automatic fixed signal (absolute signal) used to divide a section to facilitate the movement of following rail traffic.
<i>Issue</i>	To provide or send copies of authorities, warnings, notices and Network publications to affected Competent Workers by voice, hand delivery or electronic means.
<i>Location</i>	A place in the Network with a designated name, identification number, or signalling reference.
<i>Network Controller</i>	A Competent Worker who authorises and issues Occupancy Authorities, and works points, signals and other signalling equipment to manage routes for safe and efficient transit of rail traffic in the Network.
<i>Normal Speed</i>	A speed that does not exceed the speed limit currently in effect for the location and type of rail traffic.
<i>Occupancy</i>	Presence of rail traffic or track workers on track.
<i>Permanent Record</i>	A record made in writing or in an electronic system, and kept for reference and audit.
<i>Points</i>	A track component consisting of paired pieces of tapered rail (blades) that can be moved and set to allow tracks to diverge or converge.
<i>Propel</i>	To push rail traffic away from the controlling locomotive or motive power unit.
<i>Rail Traffic</i>	Trains and track vehicle or vehicles travelling on the network.
<i>Rail Traffic Crew</i>	Competent Workers responsible for the operation of the Motive Power Unit.
<i>Restraint Authority</i>	The Restraint Authority directs rail traffic not to depart the location irrespective of any available Proceed Authority.
<i>Restricted Speed</i>	Restricted speed is a speed that allows rail traffic to stop short of an obstruction within half the distance of clear track that is visible ahead. Restricted speed must not exceed 25 km/h.
<i>Route</i>	The rail traffic path from one limit of authority to the next in the direction of travel.
<i>Running Signal</i>	A fixed signal placed near a running line to authorise and control running movements.

<i>Section</i>	The line between the departure end station limit of one location and the arrival end station limit of another location. A section consists of one or more blocks.
<i>Shunt</i>	To move rail traffic, rakes of vehicles, or vehicles on lines for purposes other than through movement.
<i>Signals Maintenance Representative</i>	A qualified and authorised signals maintenance worker.
<i>Single Line Working</i>	Rail traffic working in both directions over a single line where multiple line unidirectional operation normally applies.
<i>Track</i>	The combination of rails, rail connectors, sleepers, ballast, points and crossings.
<i>Train</i>	A locomotive or self-propelled vehicle, alone or coupled to one or more vehicles. Rail Traffic.
<i>Travel</i>	Planned or purposeful movement from one location to another.

1. Purpose

The purpose of this Rule is to outline the protocols for using *Fixed Signals* to authorise and regulate the movement of *Rail Traffic*.

2. General

Fixed Signals are used to:

- separate and regulate *Rail Traffic*;
- indicate to *Rail Traffic Crews* and other *Competent Workers* the status of the line ahead; and
- show which *Route* is set.

Rail Traffic Crews and *Competent Workers* directing *Shunting* and *Propelling* movements must obey the indications and instructions displayed by signals.

Fixed Signals must be located:

- where they enable *Rail Traffic Crews* to see and respond in sufficient time, in order to safely control *Rail Traffic* movements;
- where they provide a sufficient safe overlap; and
- as far as is practicable:
 - on the left hand side *Adjacent* to; or
 - directly over the *Track* to which they apply.



NOTE: Only in circumstances where it is not safe, or not practical, to place signals on the left hand side or above the *Track* to which they apply, the signals may be placed on the right hand side.

Fixed Signal indications are displayed by coloured lights.

Fixed Signals may be fitted with marker plates for identification

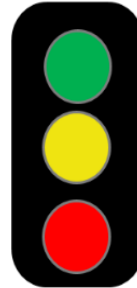
3. Indications of Fixed Signals

The indications of *Fixed Signals* are:

CLEAR indicated by a green light

CAUTION indicated by a yellow light

STOP indicated by a red light



CAUTION and CLEAR are PROCEED Aspects and give the *Rail Traffic Crew* the authority to Proceed.

3.1 STOP

Rail Traffic must stop before a signal displaying a STOP Aspect.

Signals may be passed at STOP only in accordance with Rule 6013 Passing Fixed Signals at STOP.

3.2 PROCEED

A PROCEED Aspect shows that:

- interlocked *Points* protected by the signal are set in the correct position for the movement;
- no conflicting *Route* has been set; and
- where interlocked, *Active Control Level Crossing* equipment is operational.

A PROCEED Aspect by a *Running Signal* and a CLEAR Aspect on a *Shunt* signal shows that the block ahead is unoccupied.

A CAUTION Aspect by a *Shunting* signal does **not** indicate that the block ahead is unoccupied.



NOTE: PROCEED Aspects on signals prove *Route integrity*.

4. Types of Fixed Signals

Fixed Signals are of two types:

- *Running*, and
- *Shunting*.

4.1 Running Signals

There are two categories of *Running Signals*:

- *Controlled Absolute*; and
- *Absolute*.

4.2 Controlled Absolute Signals



WARNING: *Absolute Signals* must not be passed at STOP without the authority of the *Network Controller*.

A *Controlled Absolute Signal* is:

- Controlled by the *Network Controller* and the passage of *Rail Traffic*; and
- identified by a white reflectorised marker plate located on the centre of the mast, or more than one signal on the same mast, showing a signal number as shown on the diagram of signalling.

The normal indication of a *Controlled Absolute Signal* is STOP; A *Controlled Absolute Signal* must be maintained at STOP until it is necessary to place it to PROCEED.

4.2.1 Departure Signals

Departure Signals are placed at the entrance to all single line block *Sections* in *Automatic Signalling Territory* to facilitate *Single Line Working*, and to prevent *Rail Traffic* from meeting head on in a *Section*.

Departure Signals at each end of a single line *Automatic Signalling Section* work in conjunction with each other to ensure only one *Departure Signal* can display a PROCEED Aspect at the same time. The opposing *Departure Signal* will not show a PROCEED Aspect until *Rail Traffic* has passed out of the *Section*.

4.3 Absolute Signals

4.3.1 Intermediate Signals

An *Intermediate Signal* is used to divide the *Section* between *Controlled Locations* to facilitate the movement of following *Rail Traffic* and is:

- controlled only by the passage of *Rail Traffic*; and
- identified by a square white reflectorised marker plate located diagonally below and to the right of the signal head. It displays the signal number based on the kilometreage preceded by the letter "D" for down signal and "U" for up signal.

The normal indication of an *Intermediate Signal* is Proceed (Caution or *Clear*).

4.3.2 Approach Signals

Approach Signals are *Absolute Signals* that do not divide the *Section*.

Approach Signals are identified by a triangular white reflectorised marker plate located diagonally below and to the right of the signal head and displays the signal number based on the kilometreage preceded by the letter "D" for Down signal and "U" for Up signal.

The purpose of Approach signals is to provide an indication to *Rail Traffic Crews* that they are approaching a *Controlled Location*.



NOTE: Not all *Controlled Locations* have Approach Signals.

4.4 Shunting Signals



WARNING: A *Shunting* signal must not be used as the authority for *Rail Traffic* to pass through a *Section*.

A *Shunting* Signal authorises a movement at *Restricted Speed* past that signal.



WARNING: *Shunting* signals can be *Cleared* if the line beyond the signal is occupied. *Rail Traffic Crews* must Proceed as if the line is *Occupied*.

A PROCEED *Aspect* by a *Shunting* signal is an authority to Proceed up to, and not beyond, the first of the following limits reached:

- as far as the line ahead is *Clear*;
- a Limit of *Shunt* sign;
- a set of non-interlocked *Points*;
- an indicator showing that *Points* are not set;
- open *Catch Points*;
- a *Derailing Device* on the rail;
- a signal for the direction of *Travel*; or
- a shorter distance defined by the *Network Controller*.

5. Changing Signal Indications

Under normal conditions, if *Rail Traffic* is standing at or approaching a signal, the *Network Controller* must not change the indication of that signal to a more restrictive *Aspect* unless the *Rail Traffic Crew*:

- has been told; and
- is able to respond to the altered indication.

5.1 Responding to a Condition Affecting the Network

If there is a *Condition Affecting the Network (CAN)* and *Rail Traffic* is standing at or *Closely Approaching* a signal, the *Network Controller* may change the indication of the signal to a more restrictive *Aspect*.

The *Network Controller* must tell the *Rail Traffic Crew* about the altered signal *Aspect*:

- prior to altering the signal; or
- as soon as possible after altering the signal.

6. Irregular Signal Indications

A *Fixed Signal* indication must be treated as STOP if:

- it is an illegal signal indication;
- there is no indication;
- there is no indication other than the Junction indicator; or
- it is not understood.

Competent Workers must report irregular signal indications to the *Network Controller*.

The *Network Controller* must tell a *Signals Maintenance Representative* about irregular signal indications.

The *Network Controller* must set affected controlled signals to STOP with *Blocking Facilities* applied, and if the signals do not display a STOP indication, *Issue* the *Rail Traffic* with a *Restraint Authority*.

The *Network Controller* must then authorise signals to be passed at STOP only in accordance with Rule 6013 Passing Fixed Signals at STOP.

If *Absolute Signals* maintain a STOP indication, these signals may be passed at STOP only in accordance with Rule 6013 Passing Fixed Signals at STOP.

If affected *Absolute Signals* maintain a *Clear* indication, the *Network Controller* must implement Rule 5023 Manual Block Working.

Affected signals must not be used to provide PROCEED indications before they have been *Certified* back into use.

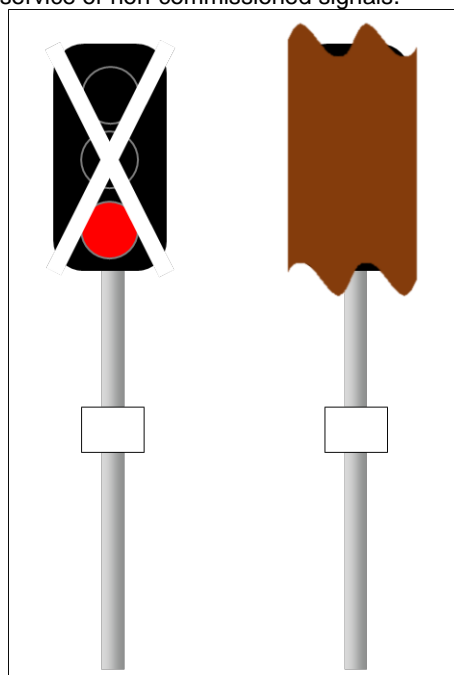
7. Out of Service or Non-Commissioned Signals

Signals may be put in place prior to commissioning, or may remain in place after being taken out of service.

These are identified by:

- an obscuring cover over the signal;
- a white cross affixed to the front of the signal; or
- where next to a functioning signal, having the signal head covered or turned away from the line.

Figure 6005-1 Examples of out of service or non-commissioned signals.



8. Testing Signals

A signal must not be tested if:


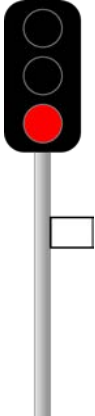

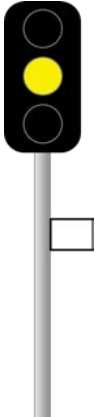

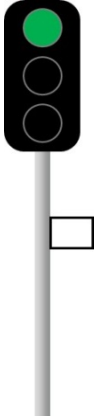
- *Rail Traffic* is *Closely Approaching*; and
- the testing could change the signal indication.


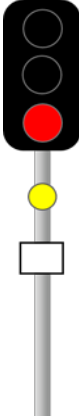
If *Rail Traffic* is standing at a signal at STOP, the *Network Controller* must:

- before testing the signal, tell the *Rail Traffic Crew* that signal testing is about to commence, and that their *Rail Traffic* must not move unless instructed to do so; and
- after testing the signal, tell the *Rail Traffic Crew* that the testing has been completed, and if required, give an *Authority to Proceed*.

The *Network Controller* and *Competent Worker* must make a *Permanent Record* of the signal test.



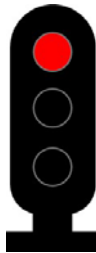


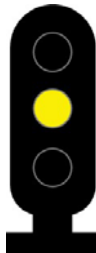


9. Signal Indications and their Meanings

Signal		Meaning	Required Action
Controlled Absolute	Absolute		
		The block ahead of the signal is <i>Occupied</i> or for any reason that the <i>Rail Traffic</i> has to be stopped.	<i>Rail Traffic</i> must be stopped before reaching the signal.
		The block ahead of the signal is <i>Clear</i> but the next signal is at STOP.	<i>Rail Traffic</i> is to Proceed at <i>Normal Speed</i> for the <i>Section</i> but be prepared to stop at the next signal.
		The block ahead of the signal is <i>Clear</i> and the next signal is either at CAUTION or <i>CLEAR</i> .	<i>Rail Traffic</i> is to Proceed at <i>Normal Speed</i> for the <i>Section</i> .

Signal	Type of Signal	Meaning	Action Required
	<p><i>Controlled Absolute Signal with a Single Aspect Shunt</i> signal on the same mast.</p>	<p>The block ahead of the signal is <i>Occupied</i> or for any reason the <i>Rail Traffic</i> has to be stopped.</p>	<p><i>Rail Traffic</i> must be stopped before reaching the signal</p>
	<p><i>Controlled Absolute Signal with a Single Aspect Shunt</i> signal on the same mast set at Proceed.</p>	<p>The <i>Route</i> is set but the block ahead of the signal may be <i>Occupied</i> and movements are to be at <i>Restricted Speed</i>.</p>	<p><i>Rail Traffic</i> is to Proceed with caution but be prepared to stop short of any obstruction.</p>

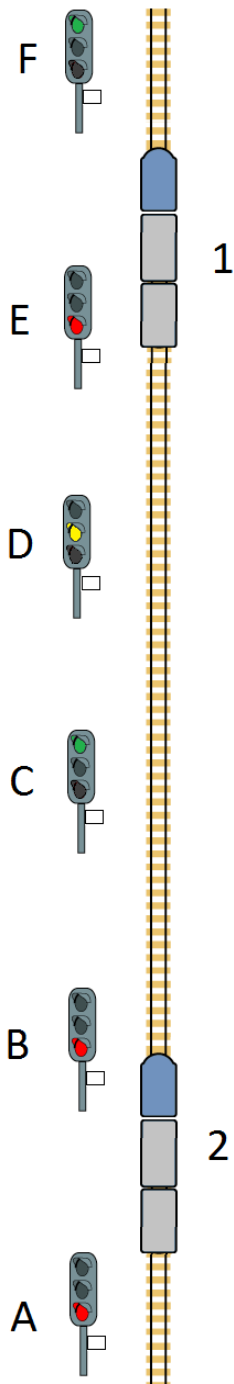


NOTE: At some *Locations*, *Running Signals* will be at a reduced height due to there being insufficient room to fit a signal at its normal height.

Ground Shunt Signals				
Single Aspect	Two Aspect	Three Aspect	Meaning	Action Required
			The <i>Route</i> for the signal is not set.	<i>Rail Traffic</i> must be stopped before reaching the signal
			The <i>Points</i> are set correctly for the <i>Route</i> .	<i>Rail Traffic</i> is to Proceed at <i>Restricted Speed</i> but be prepared to stop short of any obstruction
	Not applicable		The <i>Points</i> are set correctly and the line is <i>Clear</i> to the next signal, which is showing caution, or <i>Clear</i> .	<i>Rail Traffic</i> is to Proceed to the next signal, which is showing caution, or <i>Clear</i> .

10. Three Colour Light Signalling Operation

This diagram represents a series of blocks and how the signals operate as *Trains* move along the *Track*



Signal F displays a “Clear” (green) *Aspect* as there is no *Train* in the block in advance of the signal.

Train No. 1 will hold Signal E at “STOP” until it has passed *Clear* of the overlap *Track* of signal F.

Signal D displays a “Caution” (yellow) *Aspect* indicating that the next signal, signal E is at STOP.

Signal C displays a “Clear” (green) *Aspect* indicating that the next signal is displaying a “Proceed” *Aspect*.

Signal B displays a “STOP” *Aspect* as *Train* No. 2 is passing the signal.

Signal A will remain at “STOP” until *Train* No. 2 has cleared the overlap passed signal B.

11. Repeater Signals

Repeater signals are provided to give *Rail Traffic Crew* advanced information of the indications of the main *Fixed Signal*.

Repeaters are used where the *Fixed Signal* that is to be repeated is located in a position where *Rail Traffic Crews* cannot respond in sufficient time to control *Rail Traffic*.

12. References

5023 Manual Block Working

6013 Passing Fixed Signals at STOP

13. Effective Date

4 May 2016