

PUBLIC TRANSPORT AUTHORITY
SAFEWORKING RULES AND PROCEDURES

6005
FIXED SIGNALS

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1. PURPOSE

The purpose of this rule is to identify *Fixed Signals* and the process of *Authorising* and regulating the movement of *Rail Traffic* in the Public Transport Authority (PTA) *Network*.

2. GENERAL

Fixed Signals are used to:

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

Rail Traffic Crew 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 Crew* to see and respond in sufficient time to safely control *Rail Traffic* movements;
- where they provide a sufficient safe overlap; and
- as far as 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, 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:

<p>Clear indicated by a green light</p>	
<p>Caution indicated by a yellow light</p>	
<p>Stop indicated by a red light</p>	

Caution and *Clear* are *Signal Aspects* that give *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* on a running *Signal* shows that the *Block* ahead is unoccupied.

A *Proceed Aspect* on a *Shunting Signal* does not indicate that the *Block* ahead is unoccupied.



NOTE

A *Proceed Aspect* on a *Signal* proves *Route Integrity*.

4. TYPES OF FIXED SIGNALS

Fixed Signals are of two types:

- *Running Signal*; and
- *Shunting Signal*.

4.1. RUNNING SIGNALS

There are two categories of *Running Signals*:

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

4.2. CONTROLLED ABSOLUTE SIGNALS



WARNING

Absolute Signals must not be passed at Stop without the *Authority* of the *Train Controller*.

A *Controlled Absolute Signal* is:

- Controlled by the *Train Controller* and the passage of *Rail Traffic*; and
- identified by a white reflectorised marker plate located on the centre of the mast, or if there is 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*.

Some *Controlled Absolute Signals* may be fixed at Red.

4.2.1. Departure signals

Departure Signals are placed at the entrance to all *Single Line Sections* in *Automatic Signalling Sections* 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

Intermediate Signals are *Absolute Signals* used to divide the *Section* between *Controlled Locations* to facilitate the movement of following *Rail Traffic* and are:

- controlled only by the passage of *Rail Traffic*; and

- identified by a 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 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*.

These *Signals* are identified by a white reflectorised triangle 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 the Down *Signal* and "U" for the Up *Signal*.

The purpose of approach *Signals* is to provide an indication to *Rail Traffic Crew* that they are approaching a *Controlled Location*.

The normal indication of an Approach *Signal* is *Proceed (Caution)*.



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* Authorise a movement at *Restricted Speed* past that *Signal*.



WARNING

Shunting Signals can be cleared if the line beyond the *Signal* is occupied. *Rail Traffic Crew* 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*;
 - limit of the *Shunt* sign;
 - a set of non-interlocked *Points*;
 - a *Signal* for the direction of *Travel*; or
 - a shorter distance defined by the *Train Controller*.
-

5. CHANGING SIGNAL INDICATIONS

Under normal conditions, if *Rail Traffic* is standing at or approaching a *Signal*, the *Train 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.

Additionally, the *Train Controller* must not activate any *Points* or *Signals*, or engage in any activity that is likely to jeopardise the safety of the *Rail Traffic*.

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 *Train Controller* may change the indication of the *Signal* to a more restrictive *Aspect*.

The *Train 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 or *Route Indicator*; or
- it is not understood.

Competent Workers must report irregular *Signal* indications to the *Train Controller*.

The *Train Controller* must tell a *Signals Maintenance Representative* about irregular *Signal* indications.

The *Train Controller* must set affected *Controlled Signals* to Stop with *Blocking Facilities* applied, and:

- check that these *Signals* display a Stop indication;
- if the *Signals* do not display a Stop indication, issue *Rail Traffic* with a *Restraint Authority*; and
- *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 *Train 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.

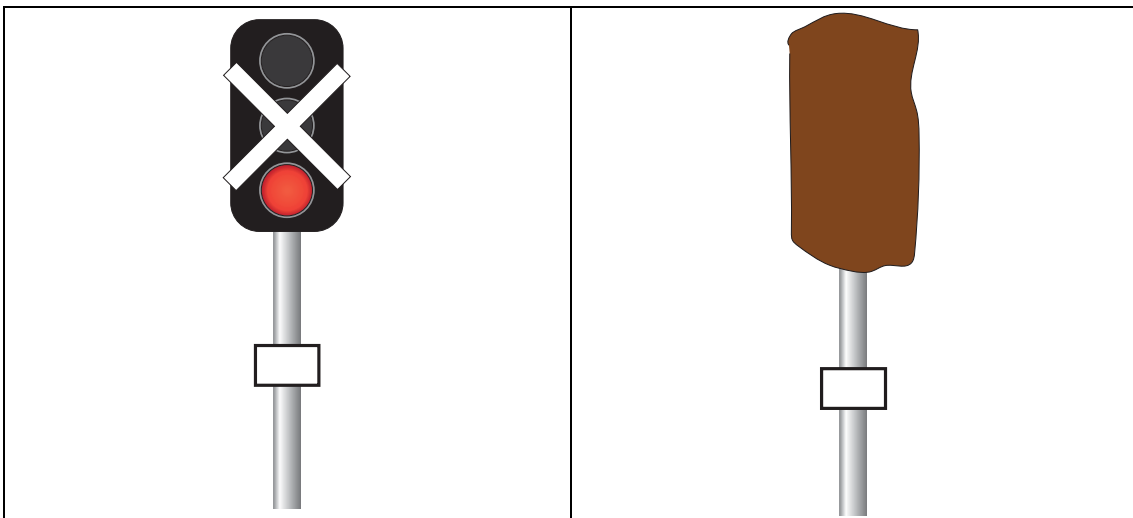


FIGURE: 7.1 Examples of out of service or non-commissioned *Signals*

8. TESTING SIGNALS

A *Signal* must not be tested if:




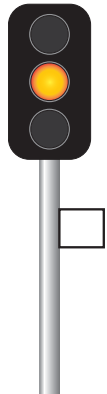
- *Rail Traffic* is *Closely Approaching*; and
- the testing could change the *Signal* indication.


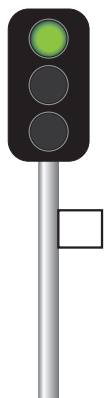
If *Rail Traffic* is standing at a *Signal* at *Stop*, the *Train Controller* must:



- before testing the *Signal*, tell the *Rail Traffic Crew* that *Signal* testing is about to commence and that their *Rail Traffic* movement 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 a *Proceed Authority*.



The *Train Controller* and *Competent Worker* must make a *Permanent Record* of the *Signal* test.

9. SIGNAL INDICATIONS AND THEIR MEANINGS

Signal			
Controlled Absolute	Absolute Intermediate	Meaning	Required Action
		The <i>Block</i> ahead of the <i>Signal</i> is occupied or for any reason that the <i>Rail Traffic</i> has to be stopped.	<i>Rail Traffic</i> must be stopped before reaching the <i>Signal</i> .
		The <i>Block</i> ahead of the <i>Signal</i> is <i>Clear</i> but the next <i>Signal</i> is at Stop.	<i>Rail Traffic</i> to proceed at <i>Normal Speed</i> for the <i>Section</i> and be prepared to stop at the next <i>Signal</i> .

Signal			
Controlled Absolute	Absolute Intermediate	Meaning	Required Action
		<p>The <i>Block</i> ahead of the signal is <i>Clear</i> and the next <i>Signal</i> is either at <i>Caution</i> or <i>Clear</i>.</p>	<p><i>Proceed at Normal Speed</i> for the <i>Section</i>.</p>

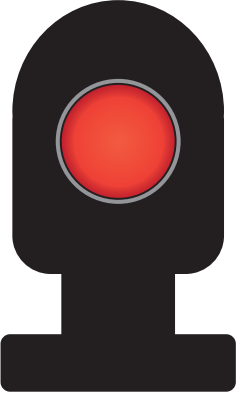
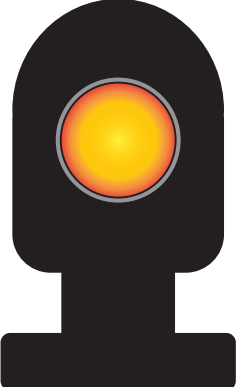
Signal		
Absolute Approach	Meaning	Required Action
	<p>The <i>Controlled Absolute Signal</i> ahead is at Stop.</p>	<p><i>Rail Traffic to Proceed and be prepared to Stop at the next Signal.</i></p>
	<p>The <i>Controlled Absolute Signal</i> ahead is at Caution or Clear.</p>	<p><i>Proceed at Normal Speed for the Section.</i></p>

Signal	Type of Signal	Meaning	Action Required
	<p><i>Controlled Absolute Signal with a Single Aspect Shunt Signal on the same mast.</i></p>	<p>The <i>Block</i> ahead of the <i>Signal</i> is occupied 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 <i>Signal</i>.</p>
	<p><i>Controlled Absolute Signal with a single Aspect Shunt Signal on the same mast.</i></p>	<p>The <i>Route</i> is set and the <i>Block</i> ahead of the <i>Signal</i> may be occupied and movements are to be at <i>Restricted Speed</i>.</p>	<p><i>Rail Traffic</i> to proceed with <i>Caution</i> and be prepared to Stop short of any obstruction.</p>



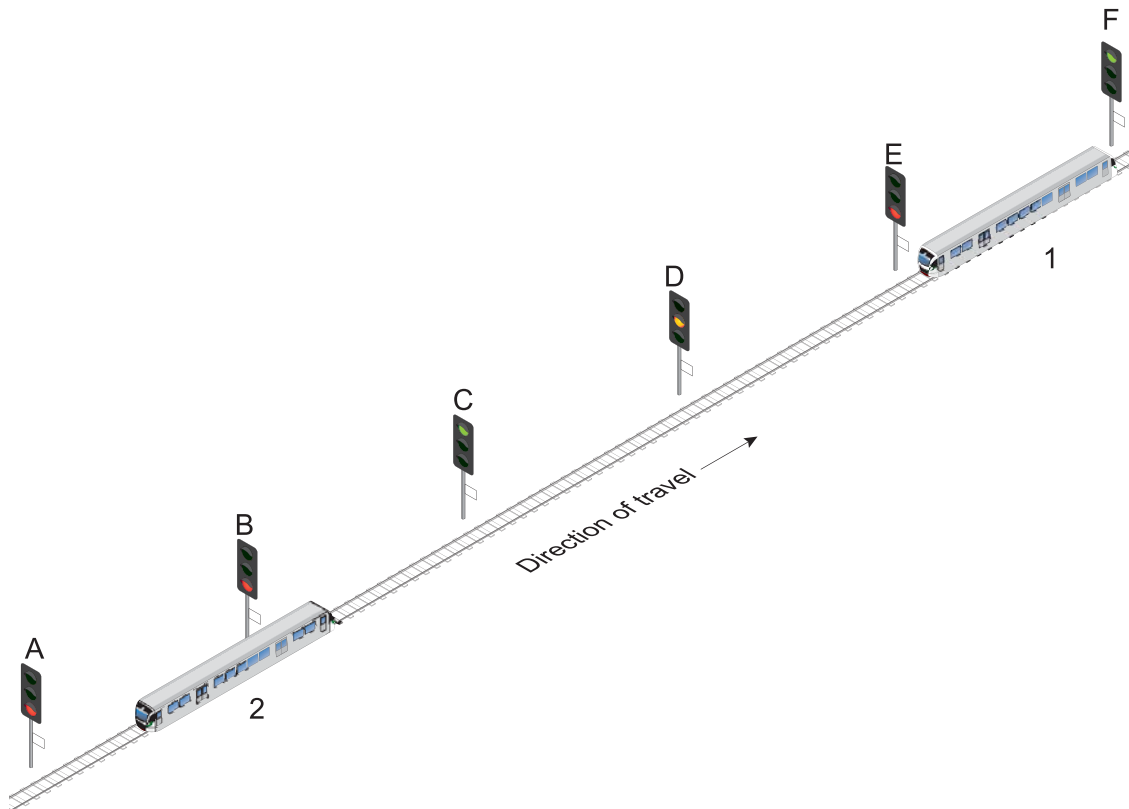
NOTE

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		
Two Aspect Ground Shunt Signal	Meaning	Action Required
	<p>The <i>Route</i> for the <i>Signal</i> is not set.</p>	<p><i>Rail Traffic</i> must be stopped before reaching the <i>Signal</i>.</p>
	<p>The <i>Points</i> are set correctly for the <i>Route</i>.</p>	<p><i>Rail Traffic</i> is to proceed at <i>Restricted Speed</i> but be prepared to Stop short of any obstruction.</p>

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 A will remain at “Stop” until Train No. 2 has passed *Clear* of the overlap of *Signal B*.

Signal B displays a “Stop” aspect as Train No. 2 is passing the *Signal*.

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

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

Signal E will be held at “Stop” by *Train No. 1* until has passed *Clear* of the overlap *Track* of *Signal F*.

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

11. REPEATER SIGNALS

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

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

12. REFERENCE

Rule 5023 Manual Block Working

Rule 6013 Passing Fixed Signals at Stop

13. EFFECTIVE DATE

| 19 February 2016

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