ANSG 600

Running Signals

Applicability

NSW
SMS

Publication Requirement

External Only

Document Status

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3.0	11 October 2015

Purpose

To describe the types of *running signals* used in the *Australian Rail Track Corporation (ARTC)* NSW Network.

Principle

Running signals are used to *authorise through-movements* from one running signal to the next.

Running signals *may* be passed only in accordance with:

- Rule *ANSG 606 Responding to signals and signs*, and
- Rule *ANSG 608 Passing signals at STOP*.

The Figures in this Rule show examples of the running signals used in the ARTC Network.

Route signalling

In the ARTC Network, running signals provide information about the *route* for which a signal is cleared.

Colour light running signals

In colour light signalled territory, a cleared signal indicates the route immediately beyond the signal by:

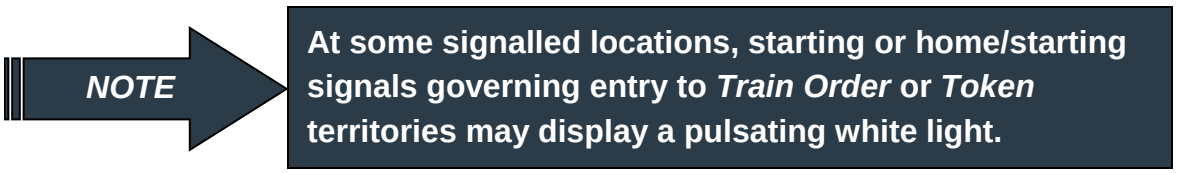
- the combination of lights displayed
- a route indicator
- a lower turnout unit.

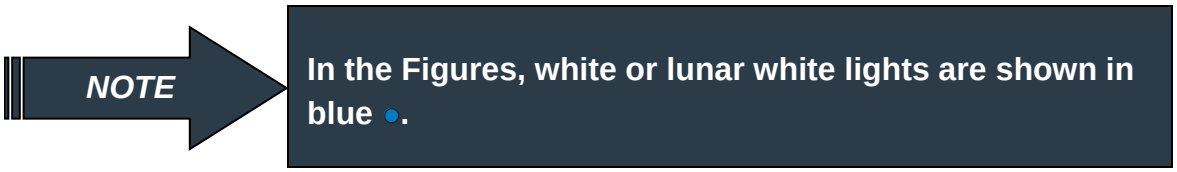
Semaphore running signals

In semaphore signalled territory, there may be a separate semaphore signal to indicate each route.

Colour light signals

Colour light signals display singly or in combinations of red, yellow, green and white.





Semaphore signals

The front face of a semaphore running signal arm is red, with a transverse (across the arm) white stripe. The back face is white with a transverse black stripe. Fishtail arms have chevrons instead of stripes.

The signal arm of fixed STOP semaphore signals may be reflective.

Semaphore signals that can be cleared have arms with red and green glass panels that are lit from behind at night.

Banner-style semaphore signals are lit at night.

Lower quadrant semaphore signals

Lower quadrant semaphore running signals have:

- large arms to control *main line* movements, or
- medium arms to control *diverging* movements.

Lower quadrant semaphore running signals have a back light to show that the lamp is lit and the signal is set at NORMAL.

Lower quadrant semaphore signals with square-ended arms are home, outer home, starting, or home/starting signals.

Lower quadrant semaphore signals with fishtail arms are distant signals.

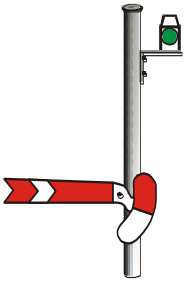
Lower quadrant distant signals have an upper lamp case that displays a green light.

A lower quadrant semaphore signal can have a square-ended arm above and a fishtail arm below.

Figure ANSG 600-1

Front and back views of a lower quadrant semaphore signal

Figure ANSG 600-2



Lower quadrant semaphore signal with fishtail arm

Upper quadrant semaphore signals

Upper quadrant semaphore signals are:

- *controlled signals*, or
- *automatic signals*, if an A sign is fitted.

An upper or lower lamp case displays a red or green light.

Upper quadrant semaphore distant signals that cannot display a STOP indication have an upper lamp case that displays a fixed green light.

Figure ANSG 600-3

Front and back views of an upper quadrant semaphore signal

Bracket-mounted signals

Semaphore signals may be placed on bracketed posts.

The highest semaphore signal is usually for the main line.

Figure ANSG 600-4

Full and half bracket-mounted semaphore signals

Signal designations

Running signals, except for distant signals that cannot show STOP, are used to protect the *block* ahead.

Running signals are designated according to their purposes.

Operation	Designation	Description
Controlled	Outer home or accept	A controlled signal used to control entry to the block ahead, but not otherwise protect points or other identified risks.
	Home	Used to protect points and other identified risks. NOTE: Some home signals are kept permanently at STOP.
	Starting	Used to authorise departure from a controlled area.
	Home/starting	Functions as home and starting signal.
	Distant	Usually shows only CLEAR or CAUTION and cannot be used to protect the portion of line to the next signal. Some controlled distant signals can show STOP and can be used to protect the portion of line to the next signal.
Automatic	Automatic	Protects the block ahead. Displays a PROCEED indication only if the block ahead is unoccupied.
	Distant	Usually shows only CLEAR or CAUTION and does not protect the portion of line to the next signal. Some automatic distant signals can show STOP and can be used to protect the portion of line to the next signal.

Running signal operation

Controlled signals

Controlled signals, other than distant signals, can be set and kept at STOP.

Controlled signals are operated by:

- signalling equipment controlled by *Signallers*, or
- a combination of *track-circuits*, or *axle counters*, and signalling equipment controlled by Signallers.

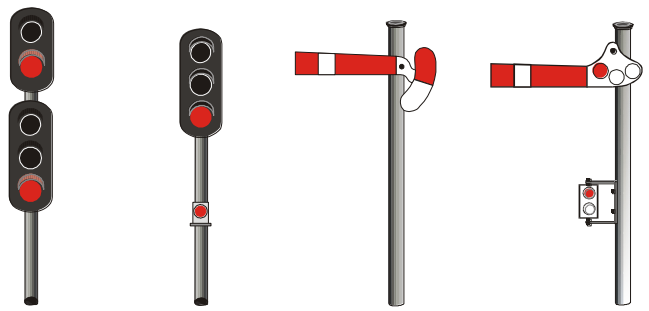
Controlled signals can display a PROCEED indication only if:

- points in the route are in the correct position, and
- there are no conflicting routes set, and
- in *Rail Vehicle Detection territory*, the block ahead is unoccupied.

Controlled signals at *attended locations* are *absolute signals*.

Type	Controlled operation status identified by
Double light colour light signal	Vertical lights. If an A sign or illuminated A light is on or near the signal, the operation mode is automatic.
Single light colour light signal	Marker light vertically below main signal lights. If an A sign or illuminated A light is on or near the signal, the operation mode is automatic.
Lower quadrant semaphore signal	NOTE: Lower quadrant signals are controlled signals.
Upper quadrant semaphore signal	Neither an A sign nor an illuminated A light on or near the signal.

Figure ANSG 600-5



Controlled signals

Automatic signals

Automatic signals are controlled exclusively by the operation of track-circuits.

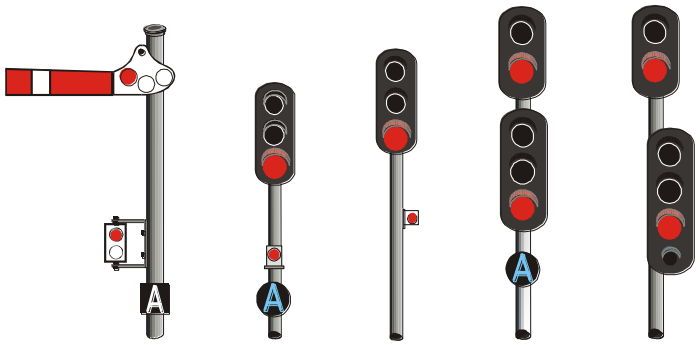
An automatic signal displays a PROCEED indication only if the line is unoccupied as far as the overlap point beyond the next signal.

Automatic signals are *permissive signals*. They can become absolute signals if they:

- are so designated by an *instruction sign*, or
- are interlocked with *trackside monitoring equipment* that sets them at STOP, or
- can be switched between automatic and controlled operation.

Type	Automatic operation status identified by
Double light colour light signal	Staggered lights, or vertical lights with an A sign or illuminated A light on or near the signal.
Single light colour light signal	Marker light staggered below main signal lights; marker light vertically below main signal lights with an A sign or illuminated A light on or near the signal.
Lower quadrant semaphore signal	NOTE: There are no lower quadrant automatic signals.
Upper quadrant semaphore signal	An A sign or illuminated A light on or near the signal.

Figure ANSG 600-6



Automatic signals

A lights and A signs

In Rail Vehicle Detection territory only, some signals may be fitted with an A light or an A sign.

An A light can be fitted:

- on the post below a signal, or
- on or near a tunnel type signal.

If an A light is not lit, the signal is a controlled signal.

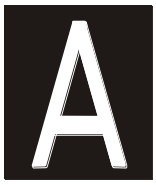
If the A light is lit, or the signal has an A sign on or near the signal, the signal:

- operates automatically, and
- is designated as an automatic signal.

Figure ANSG 600-7a

Three types of A light

Figure ANSG 600-7b



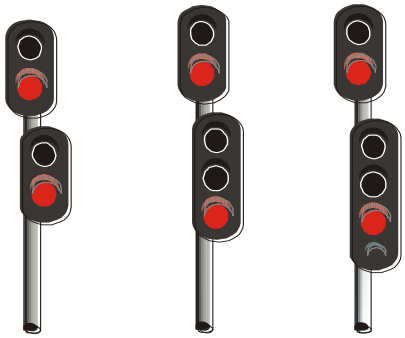
Example of an A sign

Double light colour light signals with staggered lights

Double light colour light signals with staggered lamp cases are:

- automatic signals, or
- distant signals.

Figure ANSG 600-8



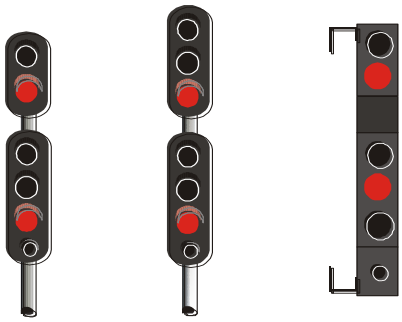
Staggered colour light forms

Double light colour light signals with vertical lights

Double light colour light signals with vertical in-line lamp cases are:

- controlled signals, or
- automatic signals, if an A sign is fitted or an A light is lit.

Figure ANSG 600-9



Standard and tunnel type vertical colour light forms

Single light colour light signals with staggered marker light

Single light colour light signals with a staggered marker light are:

- automatic signals, or
- distant signals.

Automatic signals

Automatic single light colour light signals have a red marker light.

The marker light is lit if:

- the signal is at STOP, or
- the main light fails.

Distant signals

Single light colour light distant signals that cannot indicate STOP have a yellow marker light that is lit if the main light fails.

Some distant signals indicate STOP if:

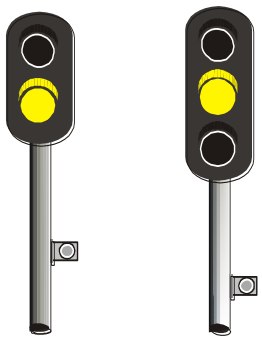
- the line between the distant signal and the next signal is occupied, or
- the distant signal fails.

Distant signals that can indicate STOP have a red marker light that is lit if:

- the signal is at STOP
- the main light fails.

Distant signals may have a signal identification sign with the same signal identification as the signal ahead. The identification sign includes the word DISTANT.

Figure ANSG 600-10



Distant signals at CAUTION

Single light colour light signals with in-line marker light

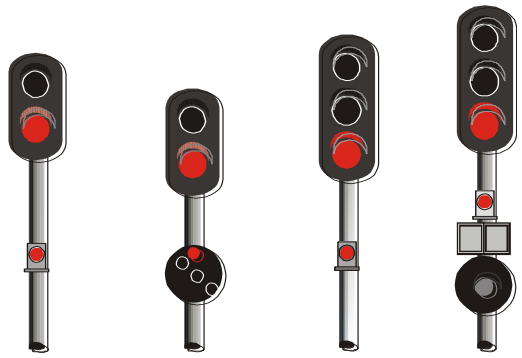
Single light colour light signals with an in-line red marker light are:

- controlled signals, or
- automatic signals, if an A sign or an A light is lit.

The marker light is lit if:

- the signal is at STOP, or
- the main light fails.

Figure ANSG 600-11



Single head signal forms

Lower turnout units

A PROCEED indication for a turnout route is displayed by a diagonal row of yellow lights on the turnout unit.

The row of lights is angled up towards the turnout route.

Figure ANSG 600-12

Single colour light signal indicating PROCEED for a left turnout route

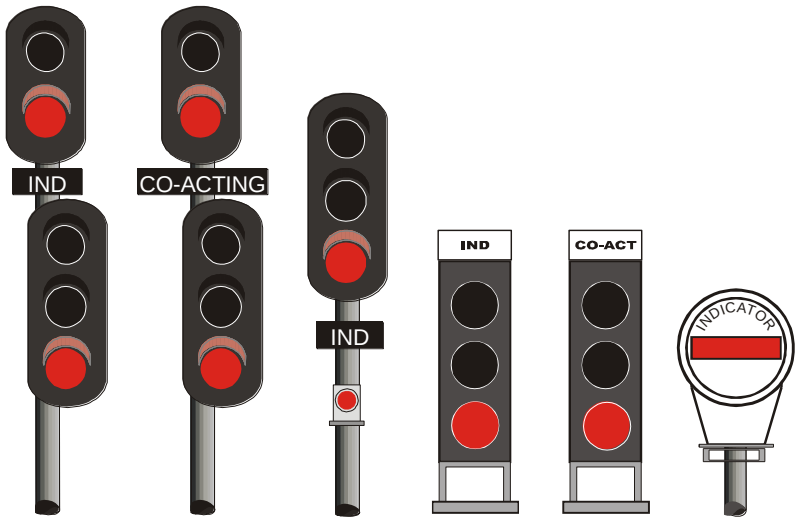
Co-acting signals

If it is possible for a running signal to be obscured from a *Driver's* or *track vehicle operator's* view, a *co-acting signal* may be used to provide information about the running signal indication.

Co-acting signals may have:

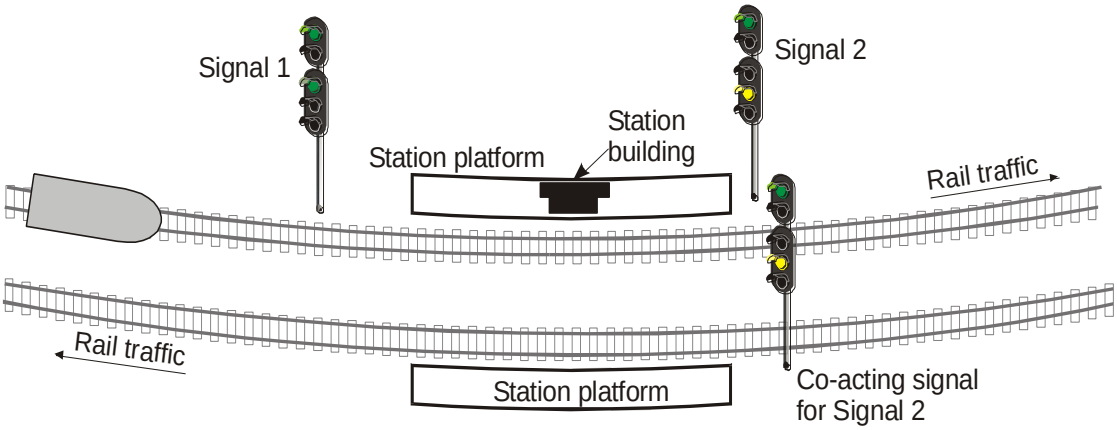
- a sign showing CO-ACTING, INDICATOR, or an abbreviation
- a signal identification sign with the same details as those on the primary signal.

Figure ANSG 600-13



Typical co-acting signals

Figure ANSG 600-14



Example of co-acting signal placement where the Driver's view of Signal 2 is obstructed by the station building and the track curvature. The Driver will see the co-acting signal for Signal 2.

Repeater signals

An *intermediate* signal, known as a *repeater signal*, may be provided at some *locations* to give a Driver or track vehicle operator better information about the indication of the next signal.

Repeater signals may or may not be of the same appearance as the ordinary signals, or display the same types of indications.

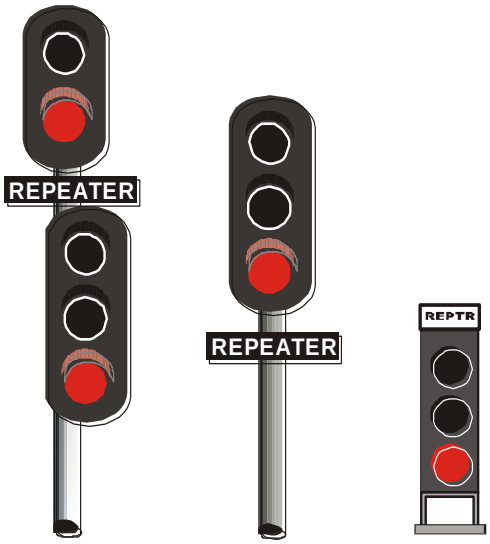
A repeater signal may have a sign with the word REPEATER or some abbreviation. The repeater signal may display the same identification number as the next signal.

Colour light repeater signals display STOP if the line between the repeater signal and the next signal is occupied.

WARNING

A repeater signal will not necessarily display the actual indication of the next signal, as its purpose is to give early information about that indication.

Figure ANSG 600-15

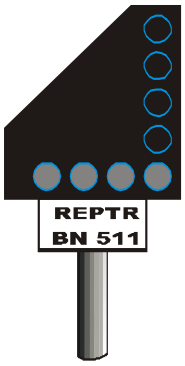


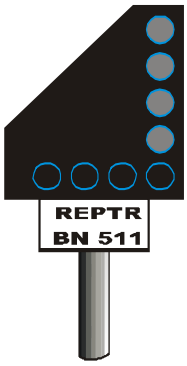
Colour light repeater signals

LED repeater signals

Light-emitting diode (LED) repeater signals display four white lights.

Figure ANSG 600-16





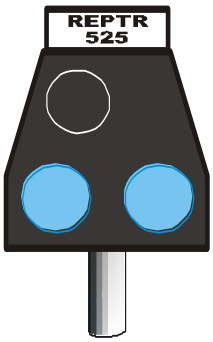
Next signal shows STOP	Next signal shows PROCEED

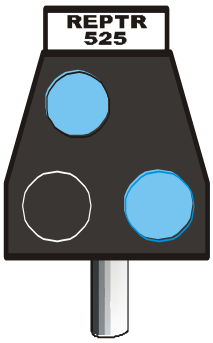
LED repeater signal indications

Position light repeater signals

Position light repeater signals display two white lights.

Figure ANSG 600-17





Next signal shows STOP	Next signal shows PROCEED

Position light repeater signals

Banner repeater signals

Banner repeater signals display a fishtail bar.

Figure ANSG 600-18

Next signal shows STOP	Next signal shows PROCEED

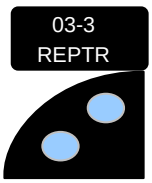
Banner repeater signals

Low speed repeater signal

Low speed repeater signals display two inclined white lights when the next signal shows a Low Speed PROCEED indication.

Low speed repeater signals display no lights when the next signal does not show a Low Speed PROCEED indication.

Figure ANSG 600-19



Next signal does not show a Low Speed PROCEED indication	Next signal shows low speed PROCEED

Example Low speed repeater signals

Related ARTC Network Procedures

NIL

Effective Date

11 October 2015