

Section 17

Centralised Traffic Control System - Rules 1 to 17

Applicability

VIC

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1. Object of the System

a. System Objective

The object of the system is:

1. to prevent more than one train proceeding in the same direction in a track section at the same time, and
2. to prevent one or more trains proceeding in opposite directions on the single line section between two crossing loops at the same time.

The object is achieved by:

1. in the case of trains proceeding in the same direction, electrically securing the fixed signals in the 'Stop' position for trains proceeding in the same direction, unless the track section ahead of the signal is clear,
2. when trains are to proceed in opposite directions - by the signals being electrically controlled by the track and the position of the departure signal at the opposite end of the section, so that it is not possible for the signals controlling the entrance to the Single Line Section at opposite ends to simultaneously exhibit a signal to proceed.

2. Definitions

1. Single Line Section - the entire section of track extending between adjoining crossing stations or loops.
2. Track Section - any division of single line section, the entrance to which is controlled by a fixed signal.
3. Unattended Crossing Loop - a loop used for crossing or side-tracking trains at which the points and signals are remotely controlled.
4. Grade Crossing - the intersection of the Victorian Gauge Line with the standard gauge line by means of a 'diamond' crossing.

3. Fixed Signals

All signals in Centralised Traffic Control territory are three position light signals. Intermediate signals between crossing loops are automatic signals. Signals protecting grade crossings are home signals.

a. Fixed Signals Prevented from Displaying 'Proceed'

Fixed signals will be prevented from displaying 'Proceed' if:

1. conducting substances are placed across the rails,
2. there are broken or displaced rails,
3. there are broken rail-connecting wires,
4. the door of a switch box at a switch locked siding is left open, or
5. the selector lever of a dual control point machine is not in the 'Motor' position.

b. Home Departure Signals

Home departure signals control the entrance of trains to the single line section. A train may only pass these signals displaying 'Stop' when:

1. a relief train is required to enter the section to assist a disabled train, or
2. the signal is defective and a Caution Order has been issued to pass the signal.

NOTE:

If a dwarf signal controls the entrance of trains to the single line section, the above exceptions also apply.

When a train is to depart from a crossing station or loop under the speed indication of clear medium speed or clear low speed, the speed restriction applies only until the train has cleared the points protected by the signal.

c. Home Arrival Signals

Home arrival signals control the arrival of a train to a crossing loop or from a single line section to a double line. Home arrival signals must not be passed when displaying 'Stop', except when the signal is defective.

4. Points at Crossing Loops

The points at crossing loops in the Centralised Traffic Control territory are worked by dual control point machines.

a. Electric Switch Locks

The points leading to intermediate sidings and cripple tracks are worked by a lever in a frame and secured by an electric switch lock.

If it is necessary 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 siding before returning.

5. Telephone and Telephone Cabins

Telephones connected to the Train Controller are provided in cabins and are located at:

1. both ends of each crossing loop,
2. switch locked sidings, and
3. fixed signals protecting grade crossings.

6. Blocking Commands

Blocking commands are provided and perform the same function as the sleeving of levers.

7. Failure of Signals

a. Arrival Signal

The Train Controller must ensure that:

1. no train is entering the crossing loop at the opposite end,
2. the opposing arrival signal is at the 'Stop' position, and
3. the control panel shows the points are in the correct position.

The Train Controller may then authorise the Driver by telephone or radio to pass the signal displaying 'Stop'.

The Driver must record the details of the instruction on the official message form shown:

CTC Arrival Message	
<p>The Driver of Train No at Crossing Loop. The Home Arrival Signal, Post Nohaving failed, * I authorise you to pass it at the 'Stop' position after satisfying yourself that the points are set for Notrack, acting in accordance with Rule 1, Section 3 or * I authorise you to pass it at the 'Stop' position and proceed to the points, stop the train and satisfy yourself that the points are set for No..... track.</p>	
Name.	Name.....
Train Controller	Driver
Note: * Delete item not used.	

If the points have failed, the Train Controller may authorise the Driver to proceed past the Home Arrival signal displaying 'Stop' before the Driver has placed the points in the 'hand operating position'.

Where the Driver is authorised to proceed past the Home Arrival signal displaying 'Stop' and before placing the points in the 'hand operating position', the Train Controller must instruct the Driver to stop the train before the points.

If the Driver considers that difficulty may be encountered in stopping the train before the points, arrangements must be made for the points to be placed in the required position prior to the train passing the arrival signal displaying 'Stop'.

The Train Controller must:

1. instruct the Driver to unlock the selector lever of the dual control point machine, and
2. instruct the Driver to place and lock the selector lever in the 'hand operating' position.

If required, the hand throw lever must be placed and locked in the required position. Both the selector lever and hand throw lever, if operated, must be left in the 'reverse' position when the train has passed over the points.

The Train Controller must instruct the Driver of the next train to operate the selector and hand throw levers (if required).

b. Departure Signal

If a home departure signal fails, the Train Controller must immediately check the following:

1. whether the last train signalled has:
 - cleared the Single Line Section, or
 - where there are two or more track sections within the Single Line Section and at least one movement in the same running-direction will follow, the Train Controller must confirm with the Driver of the preceding train, that the train is clear and complete beyond the second signal in advance of the home departure signal.
2. if the home departure signal protects a grade crossing, whether the grade crossing is clear, and permission has not been given for a Victorian gauge movement over the crossing.
3. if a shunting movement is being performed outside the opposing home departure signal.

If the Train Controller is satisfied that the signal has failed and that the section is clear, the opposing departure signal must be secured at the 'Stop' position, as follows:

1. Signal Failure.
 - Operation of the blocking command.
2. Failure of Centralised Traffic Control Apparatus.

The Train Controller must instruct the Driver of a train waiting at the crossing loop at the opposite end of the section to unlock and place the selector lever in the 'hand operating' position.

If the light on the diagram indicates that the points are in the correct position, the Train Controller may issue a Caution Order to the Driver as authority to pass the signal at 'Stop'. The Driver must repeat the details of the Caution Order back to the Train Controller as confirmation and sign the form as for the Signaller.

Where subsequent train movements will occur, the Train Controller issuing the Caution Order must tell the Driver of the preceding train movement that a following train movement will occur.

The Train Controller must tell the Driver of the following train movement that there is a preceding train in the Single Line Section and has reported clear and complete beyond the second signal in advance of the home departure signal.

NOTE

If the Centralised Traffic Control System has failed for the complete Single Line Section, the Train Controller must not issue a Caution Order to follow another train until the Single Line Section is clear.

3. If the points have failed, the Train Controller may authorise the Driver to proceed past the Departure signal displaying 'Stop' after issuing a Caution Order to the Driver and before the Driver has placed the points in the 'hand operating position'.

Where the Driver is authorised to proceed past the Departure signal displaying 'Stop' and before placing the points in the 'hand operating position', the Train Controller must instruct the Driver to stop the train before the points.

If the Driver considers that difficulty may be encountered in stopping the train before the points, arrangements must be made for the points to be placed in the required position prior to the train passing the departure signal displaying 'Stop'.

The Train Controller must:

1. instruct the Driver to unlock the selector lever of the dual control point machine, and
2. instruct the Driver to place and lock the selector lever in the 'hand operating' position.

If required, the hand throw lever must be placed and locked in the required position. Both the selector lever and hand throw lever, if operated, must be left in position when the train has passed over the points.

The Train Controller must instruct the Driver of the next train to operate the selector and hand throw levers (if required).

Where a Caution Order has been issued and there are no following movements, the Driver must cancel the Caution Order on arrival, clear and complete of the Single Line Section.

Where following movements are permitted, the Driver of the preceding train must cancel the Caution Order after the train has passed clear and complete of the second signal in advance of the home departure signal.

When cancelling the Caution Order, the Driver must write the word 'cancelled' including the time and date across the face of the order.

The Driver must tell the Train Controller the Caution Order has been cancelled.

The cancelled order must be handed in at the Drivers depot.

4. Failure at a Crossing Loop.

A Signaller may be appointed to take charge at the crossing loop, receiving the Caution Order from the Train Controller and delivering it to the Driver.

This Signaller will also be responsible for the operation of the selector and hand throw levers as required.

c. **Failure of Home Signals Protecting Grade Crossings**

Grade crossings are protected by either a home departure signal at a crossing loop or by intermediate home signals.

If a home signal protecting a grade crossing is at the 'Stop' position, the Driver must stop the train at the signal and communicate with the Train Controller.

An intermediate home signal displaying 'Stop' must not be passed unless authorised by the Train Controller.

The Train Controller must ensure that a safe passage over the grade crossing exists before the Driver is authorised to pass the signal. The Train Controller's name must be given to the Driver.

If an intermediate siding secured by an electric switch lock is in the track section ahead of the home departure signal passed at 'Stop', the Driver must stop and check the points are correctly set.

d. Automatic Signals

Automatic signals in Centralised Traffic Control territory which become defective are to be treated in accordance with the Rules and Operating Procedures.

If, on the track section ahead of an automatic signal passed at the 'Stop' position, there is an intermediate siding secured by an electric switch lock, the Driver must stop and check the points and door of the switch lock box before continuing.

If either the door to the switch box is open or the points are not in the 'normal' position, the Driver must close the switch box door or place the points to 'normal'. The Train Controller must be immediately informed.

8. Emergency Automatic Mode

If the remote control system fails, all signals will be automatically restored to 'Stop' with the normal approach locking applying and the crossing loop will operate automatically allowing trains to enter either No. 1 or No. 2 track in the following sequence:

a. First Train Approaching Loop

The first train in the approach section will be automatically signalled into the No. 2 track if unoccupied. The usual speed proving and approach operation applying on the home arrival signal. A second train in the approach section from the opposing direction will be automatically signalled into the No. 1 track.

These movements are permitted to occur simultaneously when the system is in the automatic mode.

b. Second Train Approaching Loop

A second train travelling in the same direction as the first will not be automatically signalled passed the home arrival signal whilst the first train is in the No. 2 track. Automatic mode will not permit one train to overtake another; an arrival message will have to be obtained if this is necessary.

c. 5P Emergency Key Switch

The home departure signals will not operate automatically. Manual control is provided with the 5P key switch for these signals and is located in the telephone cabins.

Key switches must not be operated without verbal consent from the Train Controller. The following notice appears above the key switches:

'Train crews must obtain permission from the Train Controller prior to the operation of these 5P key switches'.

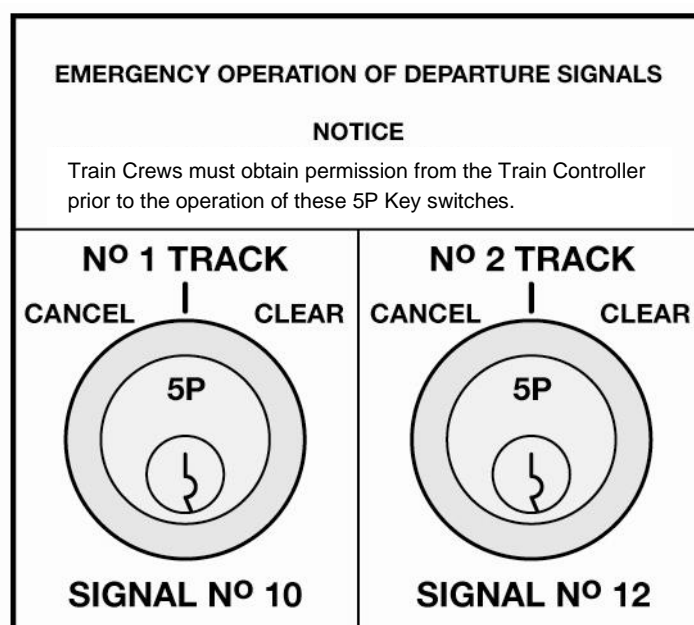
The 5P emergency key switch is normally in the central position. When it is turned to the right, a call is placed on the points to run to the track applicable to the key switch. This call is only effective if there is no opposing movement in the single line section.

If the single line section is clear, the points will run; when detected in their correct position and locked, the home departure signal will display a 'Proceed' aspect.

The 'Proceed' aspect on the home departure signal will be cancelled by:

1. the passage of the train, or
2. turning the 5P emergency key switch left to the '**CANCEL**' position.

The 5P key can only be withdrawn when the key switch is in the centre position.



EMERGENCY KEY SWITCHES

9. Emergency Control Panels

a. Local Operation.

Facilities are provided at crossing loops on the North Western Line for local operation with an emergency control panel. This panel is portable and is located centrally for easy access.

When it is necessary to transport a panel to a location, it is plugged into the system in the relay room to enable the signalling maintenance diagram to be utilised as the track indication diagram.

b. Operation of the Emergency Control Panel.

The panel will be ineffective until it is switched 'in' with the 4D key switch. Once the panel is switched 'in', all signals will be automatically restored to 'Stop' and all commands from the Train Controller's console rendered ineffective.

The security of the key will be arranged by the Train Transit Manager.

NOTE:

When using the emergency control panels, the Signaller must obtain permission from the Train Controller before operating a home departure signal.

10. Switching in a Station For Local Operation

a. North Western Line

Some stations may switch 'in' for local operation or for branch line movements. The Signaller will control the home departure signals permitting entry to the single line sections from the local panel.

b. Obtaining a Release

Before the Signaller places the home departure signals to the 'Proceed' position, a release must be obtained from the Train Controller for each train.

If the Signaller is unable to switch 'in' after receiving the release, the Signaller may initiate a release by operating the 5P release switch on the control panel.

However, before taking this action, the Signaller must obtain permission from the Train Controller.

If the home departure signals fail at an attended crossing loop or at a station when switched 'in', the Signaller must:

1. examine the points,
2. receive the caution order from the Train Controller, and
3. deliver the caution order to the Driver.

11. Train an Unusually Long Time In Section

If a train is in a section for an unusually long time, the Train Controller must endeavour to find out the cause, and advise any relevant Signaller.

12. Shunting Outside Home Departure Signal for Local Movements

A train must not pass the home departure signal or dwarf signal at the entrance to the single line section unless the signal is in the Proceed' position or the shunting movement is to be performed from the cripple track.

A Caution Order, suitably amended, must be issued to the Driver if the home departure signal or dwarf signal is defective in order to shunt outside the signal.

13. Failure of Grade Crossing Pilot Lever

If the broad gauge pilot lever fails to release when required, the Signal Maintenance Technician is permitted to release the locking. However, before undertaking this task, the following steps must be taken:

1. The Signaller in charge of the broad gauge signalbox and the Train Controller must fully understand what is to be undertaken.
2. The Train Controller must ensure that no standard gauge train or track machine is approaching the grade crossing.
3. The Train Controller must ensure that all home signals protecting the grade crossing are displaying 'Stop' and the 'blocking command' is applied to the signals.

Once the pilot lever is released, the Train Controller must not permit a standard gauge train to proceed past the home signals protecting the crossing until being informed by the Signaller:

1. that the grade crossing is clear, and
2. all applicable levers are in the normal position.

14. Section Obstructed by Accident or Disabled Train

a. Duties of the Driver of the Disabled Train and Train Controller

If a train becomes disabled in the section and a relief train is required, the Driver must:

1. complete a Driver's Relief Authority, and
2. transmit the particulars by radio to the Train Controller.

The Train Controller must:

3. repeat the details of the Driver's Relief Authority back to the Driver,
4. inform the Driver from which direction the relief train will arrive, and
5. issue a Train Authority by telephone to the Driver of the relief train if there is no other train between the crossing loop and the disabled train.

If a telephone is unavailable, the train radio may be used for this purpose.

If the relief train is to arrive from the rear, the Driver must return for 500 metres or to the next fixed signal if it is nearer. If the train is to arrive from the advance, the Driver must go forward for 500 metres or to the next fixed signal if it is nearer.

The Driver must inform the Train Controller when the train is protected.

NOTE:

The normal provisions regarding a relief train entering an occupied section will apply.

b. Authority to Remove Disabled Train

The Driver of the disabled train must not allow the train to be moved until the relief train arrives, unless arrangements have been made to cancel the arrangements made for a relief train.

Before authorising the train to move, the Train Controller must cancel the Driver's Relief Authority and Train Authority if issued. The authority of the Train Controller must be obtained before the disabled train is moved.

c. Action on Arrival at Crossing Loop

When the relief train arrives at the disabled train, the Driver of the relief train must collect and cancel the Driver's Relief Authority.

The relief train must move the disabled train to the end of the section to which it was previously proceeding.

On arrival at the crossing loop in advance, and the whole section is clear and after ascertaining the combined trains have arrived complete, the Train Authority must be cancelled by writing the word 'cancelled' and the time date and signature across the face of the form.

d. Departure signal at 'Stop' Position

The Train Authority must state if the relief train is to return to the crossing loop in the rear after assistance has been provided. The Train Controller must secure the departure signal at the 'Stop' position by applying the blocking command before issuing the Train Authority.

On a single line section where there are two or more track sections and it is known that a following train has entered the single line section in which the train is disabled, arrangements may be made for assistance to be provided by the second train. The Driver must inform the Train Controller of the disabled train by train radio.

In these circumstances, the Driver of the disabled train may instruct the Driver of the following train to draw cautiously forward in accordance with Rule 1(e) Section 3.

15. Working of Trains to and from Obstruction in Section

a. Actions by Driver of Obstructed Train

If an accident or obstruction should occur, the Driver must:

1. advise the Train Controller by radio, and
2. dictate a Driver's Relief Authority to the Train Controller if the train is unable to run forward.

b. Train Controller to Issue Train Authorities

The Train Controller will issue train authorities for the working of trains up to and from the point of obstruction on one or both sides.

Arrangements must be made for the obstructed train to be protected in accordance with Rule 1, Section 13, prior to any relief train entering the section.

The Train Controller must secure the home departure signal at the 'Stop' position by applying the block command. Arrangements must be made for the crossing loops at both ends of the affected section to be attended by a competent employee.

c. Duties of the Driver of the Relief Train

Where there is a Signaller in attendance at one or both ends of the affected section, the Train Controller must transmit the Train Authority to the Signaller.

The Signaller must deliver the Train Authority to the Driver of the relief train, obtaining the Driver's signature on the butt of the form in the book held by the Signaller.

The Driver of the first relief train to enter the section must be instructed to collect the Driver's Relief Authority on arrival at the obstructed train and cancel it accordingly.

d. Obstruction of an Adjoining Line

If a derailment has caused the obstruction of any adjoining lines, immediate steps must be taken to protect all obstructed lines.

Where the adjoining line has fixed signals controlled by track circuits, the Driver must immediately attach the emergency track circuit jumper cable to each rail of the line to secure the signals at 'Stop' for protection of the obstruction.

CAUTION:

Attachment of the emergency track circuit jumper cable does not obviate the necessity for protection of all obstructed lines.

16. Train Not to Return to Loop in Rear Except as Authorised

A train in a single line section is not permitted to return to the crossing station in the rear unless:

1. as provided in these rules,
2. the train is returning from an intermediate siding after locking away, or
3. permission is granted by the Service Delivery Manager. *Superintendent Safeworking.*

a. Issue of a Train Authority

The Train Controller must complete a Train Authority and dictate the details to the Driver. Arrangements must be made for a competent employee to ride in the leading vehicle when setting back.

Before issuing the Train Authority, the Train Controller must secure the departure signal at the 'Stop' position by applying the block command.

17. Trains Crossing at Unattended Stations

The Driver of a train waiting at an unattended crossing station must conduct a Roll by Inspection of all passing trains.