

Section 9

Working of Level Crossings - Rules 1 to 11

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1. Working of Level Crossings

a. Flashing Light Signals at Level Crossings

When a train enters the control track circuits, alternately flashing red lights and the ringing of a bell warns the public that a train is approaching.

When the train clears the level crossing, the lights and bell will cease operating.

White or red side lights in conjunction with the flashing light signals are provided to indicate to the Driver that the apparatus is working.

b. Boom Barriers at Level Crossings

Where level crossings are equipped with boom barriers and flashing light signals, trains entering the control track circuits will;

1. cause the 'red' flashing lights to operate,
2. the bell rings, and
3. after five to seven seconds, the barriers will descend with the lights on the barriers flashing.

The light at the tip of each barrier is a steady 'red' light. The barriers will be horizontal, blocking the approach of half the road before the arrival of the train at the crossing.

If there is not another train approaching the approach track circuit section, the bells will stop and the barriers will lift when the last vehicle of the train clears the crossing.

The barriers are programmed to remain vertical for a minimum time of thirty seconds before a further operation can commence.

c. Test Switch for Boom Barrier

A test switch is situated at level crossings fitted with flashing lights and boom barriers. The Ganger in charge of that section must ensure the employee patrolling that length of line tests the serviceability of the warning devices at each level crossing.

d. Testing Flashing Lights, Bells and Boom Barriers

The employee carrying out the test must ensure that the lights and bells and barriers are operating correctly. If the lights, bells or barriers fail to function, the apparatus is to be considered as defective.

The ringing bell alone is not an acceptable demonstration that the apparatus is functioning correctly.

e. Defective Flashing Lights and Boom Barriers

If the flashing lights or boom barriers are found to be defective, it is the responsibility of the Officer in charge at the nearest station to arrange for an employee to be stationed at the crossing to warn road users of any approaching train.

A 'red' hand signal flag for use during the day is provided at each crossing and is kept in the test switch box. This box is secured by means of a standard pattern padlock.

At night the employee must be provided with a hand signal lamp.

f. Boom Barriers Remain in Lowered Position

If the barriers remain in the lowered position across the road, the employee appointed to warn road users must:

1. arrange for the barriers to be raised by hand to the vertical position,
2. arrange for the barriers to be secured in position by the latch and lock provided,
3. remain at the crossing to warn road users of each approaching train, and
4. remain at the crossing until the apparatus has been repaired.

g. Communication Available at Level Crossing

If the warning signal has failed and communication is available, the employee conducting the test on the system must communicate the result to the Train Controller or Officer in charge at the nearest station. If there is no other employee available to protect the crossing, the employee conducting the test must undertake this duty.

h. Communication Not available at Level Crossing

If the warning signal has failed and there is no communication available, and the employee conducting the test on the system has insufficient time to report the failure before the next train is due at the crossing, the employee must remain at the crossing to warn road users.

When the employee has sufficient time between trains, the employee must go to the nearest station to report the failure.

i. Drivers to Report Failures

Drivers who observe irregularities in the working of flashing lights and boom barriers must report the matter to the Train Controller or, on failing this, the Officer in charge at the nearest station.

j. Signal Maintenance Technician to be Advised

The Train Controller or Officer in charge must immediately advise the Signal Maintenance Technician of the failure of the flashing lights and boom barriers.

k. Boom Barriers/Flashing Light Signals: Single Line Working

When the traffic of a double line of rails is being worked over a single line, boom barriers or flashing light signals will not operate for the train running in the wrong direction over the single line, until the leading wheels of the first vehicle on the train are within approximately 3 metres of the crossing.

The Driver must:

1. stop the train when it is close to the level crossing,
2. then proceed cautiously until the approach circuits are engaged; the boom barriers or flashing light signals will be automatically operated by the train, and
3. frequently use the train whistle.

I. Competent Employee at the Level Crossing

When the traffic of a double line rail is to be worked over a single line, the person applying to suspend the double line system must arrange for a competent employee to be positioned as soon as possible, at each level crossing where boom barriers or flashing light signals are provided.

The competent employee at the level crossing must;

1. be on alert for trains approaching from the wrong direction, and operate the test switch to lower the boom barriers or operate the flashing lights before the train arrives at the level crossing, and
2. stand in plain view of the approaching train and exhibit an 'All Right' hand signal. This signal will indicate to the Driver that the boom barriers are in the lowered position or that the flashing lights are operating, but does not indicate that the line ahead is clear.

The train whilst passing over the level crossing in the wrong direction must not exceed 15km/h.

The following amendment to Clause (m), Rule 1, Section 9, was published by Standing Notice number 4635 of 29 August 2011.

m. Level Crossing Predictors

Some level crossings are fitted with predictors at the start of the 'Up' and 'Down' approaches to the crossing.

These predictor boards (a black diagonal cross inside a black circle on a white background) provide constant warning times for the flashing light operation.

On reaching the predictor board, Drivers must not increase speed until the train has entered the level crossing.

Should the train stop on the approach to the level crossing when the level crossing warning equipment has commenced operation the level crossing warning equipment may stop operating after a period of time.

When the train again proceeds towards the level crossing, the level crossing warning equipment will begin operation.

Drivers must:

1. not exceed 25km/h until the leading vehicle of the train has passed over the level crossing, and
2. check whether the warning equipment is operating correctly, and
3. proceed over the level crossing only if it is safe to do so.

n. Level Crossing Power Failure Warning

Some level crossing signal installations are equipped with a device to provide early warning of a power supply failure. The device sounds an audible but unobtrusive tone into the station service telephone line when an irregularity is detected.

A warning notice is attached at or near telephones of a station service line to which the early warning device is connected. The notice reads 'A beep like tone on this telephone indicates power has failed at a level crossing signal location and the Signal Maintenance Technician should be notified immediately'.

o. Healthy State Indications

Some level crossings have been equipped with healthy state indications. 'Yellow whistle posts' are provided to indicate the crossing is fitted with healthy state indication.

The indication is a 'white flashing light on the top of a prominent mast and indicates to the Driver that the system is functioning.

p. Defective Healthy State Indicator

If the healthy state indicator is not operating, the Driver must inform the Train Controller who must advise the Signal Maintenance Technician for the area.

q. Approach Section Indicator Board

Where necessary, an approach section indicator board is provided to indicate to the Driver the point at which the track circuit for the flashing light signal commences. The indicator is on a white post and consists of a black diagonal cross with a white background on a diamond shaped board.

r. Shunting Operations on Track Circuited Crossings

Drivers and competent employees in charge of shunting movements must, as far as possible, avoid occupying the track section between the approach indicator and the level crossing.

If it cannot be avoided to occupy the track circuited section, the employee in charge of the shunting operations must clear the track circuited section as quickly as possible, avoiding unnecessary operation of flashing lights and boom barriers.

s. Intermediate Sidings Close to Crossings

Where a siding is near a level crossing with flashing lights and boom barriers, the points may be secured by an Annett lock and a Staff/Annett Master Key exchange apparatus provided near the points. The exchange apparatus is to prevent unnecessary operation of the flashing light signals when a train is working at the siding.

2. Defective Signalling at Level Crossings

a. Defective Home Signals and Automatic Signals

If a train is stopped by a defective home signal at an active level crossing which has boom barriers, flashing lights or bell signals, the Driver is not to proceed until receiving proper authority.

If the fault is for an automatic signal, the Driver must wait for 30 seconds.

The Driver can then move cautiously forward using the train whistle frequently until the boom barriers or flashing lights and bell signals are operated by the train.

b. Whistle Posts

Whistle posts are positioned three metres from the line, at a distance of 400 metres on the approach side of level crossings.

A diagonal cross is mounted on a post with the front of the cross painted white and the back of the cross painted black.

The Driver must sound the train whistle when passing the whistle post towards the level crossing. When near the level crossing, the Driver must again sound the whistle.

c. Two Trains Approaching Level Crossing

When two trains approach a level crossing at about the same time, each Driver must sound the whistle continuously until both trains have reached the crossing.

d. Sound of Whistle

The sound of the whistle should be distinct, with intensity, duration or repetition appropriate to the distance at which the warning is required to be heard.

e. Shunting Operations

Drivers must make use of the whistle during shunting operations at level crossings.

f. Starting Trains Near Open Level Crossings

When starting a train near an open crossing ahead, the Driver must sound the starting whistle and again sound the whistle when approaching the crossing.

g. Level Crossing Near Station

If a crossing is near a station, the Driver must always sound the whistle.

3. Working of Level Crossing Gates**a. Gate Lamps**

Gate lamps for level crossings are supplied by the Signal Maintenance Supervisor for the Area or Region. The gate lamps must be illuminated at dusk and during bad visibility.

Any defective gate lamp must be reported immediately.

b. Position of Gate Lamps

Brackets for the use of the red lamps are fixed on the gates. The bracket positions must not be altered without authority.

c. Hand Gates Controlled by Levers

Where pedestrian gates are controlled by levers, the Signaller or Gatekeeper on duty must:

1. lock the hand gates on the approach of a train, and
2. not unlock the hand gates until the whole of the train has passed over the crossing.

d. Unauthorised Operation of Gates

Hand gates must always be operated by the employee appointed to attend them. Care must be taken to ensure that no pedestrian, animal or vehicle is trapped between the gates.

e. Security of Interlocked Gates

At level crossings where there are interlocked gates, chains and padlocks are provided for securing the gates across the line during inclement weather or when the Signaller is off duty.

The Signaller must ensure the gates are secured to allow for road traffic before closing the signalbox.

f. Fixed Signals at Hand Operated Level Crossing Gates

The normal position of the fixed signals at level crossing gates is 'Stop' where the gates are not at block posts and the signals and gates are not interlocked.

The signals must not be placed to 'Proceed' until the gates are locked across the roadway to prevent pedestrians and vehicles crossing.

At a level crossing which is not a block signalbox, fixed signals must only be used for the protection of the crossing, or for a train stopped for an extended time when within the protection of the signal.

g. Signals Interlocked with Level Crossing Gates

Where the signals and gates are interlocked, the signals must be kept at 'Stop' unless a train has to pass or alternative instructions are issued.

h. Testing of Fixed Signals at Level Crossing

The employee in charge must test the working of fixed signals by day and night, if provided at level crossings.

Employees in charge of gates, signals or points must immediately advise the nearest Stationmaster, Track Supervisor, Ganger or other employee in charge of repairs if any repairs are required.

i. Three Position Signals at Level Crossings

Where three position signals are controlled by the Signaller or Gatekeeper at level crossings, the gates must be closed so there is sufficient time for clear passage for the train.

j. Employees to Monitor Passage of Trains

The employee in charge of the level crossing must observe the train as it passes the level crossing and must notify the nearest Signaller and Train Controller if any abnormality is noticed.

k. Overloaded Road Vehicles on Level Crossings

Stationmasters, Signallers and employees in charge of level crossings, must close the gates to prevent a vehicle with a load or projection which appears to be over 4 metres in height from passing on to level crossings.

Proper precautions can then be taken so the vehicle can cross the level crossing without touching any wires or structures.

4. Heavy Loads Passing Over Level Crossings

a. Notification of Heavy Loads

The Officer-in-Charge must advise the Track Supervisor of the details when notice is received of the intended crossing of a vehicle with exceptional mass, height or width.

b. Level Crossing Protected by Fixed Signals

Where the crossing is within the Fixed signals, these signals must be used by the Officer in Charge to protect the load whilst crossing the line.

c. Level Crossing Not Protected by Fixed Signals

Where the crossing is not protected by Fixed signals, the Track Supervisor must arrange for competent employees, with Hand signals and Audible Track Warning signals, to act in accordance with Rules 3 to 6 of Section 15, until the line is clear and safe for train movements.

d. Overhead Wires at Level Crossings

Only road vehicles which clear the train overhead power lines and structures by at least 460 mm may use the crossing.

If the load exceeds the minimum clearance, the employee in charge of the crossing must advise the Overhead Engineer who will arrange for a competent employee to supervise the passage of the load over the crossing.

If there is a bridge within a reasonable distance of the level crossing, the driver of the road vehicle must be directed to use a nearby bridge.

Pedestrians carrying long articles must be warned not to allow the article to touch any overhead wires or structures.

e. Road Vehicles Losing Goods at Level Crossings

Signallers and employees in charge of level crossings must monitor loaded vehicles passing over level crossings.

If any goods fall on the running line, the Signallers and employees in charge of level crossings must protect the crossing in accordance with this Code of Practice until the obstruction is removed.

f. Gates Damaged by Road Vehicles

Whenever gates are damaged by a road vehicle, where possible the name and address of the person driving, the owner of the vehicle and the registration number must be obtained.

A report of events must immediately be forwarded through the Supervising Officer to the Area or Regional Manager detailing whether or not the gates were open, if the incident occurred at night and whether the gate lamps were lit.

g. Access of Emergency Service Vehicles

Employees in charge of level crossings must not allow any unnecessary delay to the Fire Brigade, Ambulance, Police or any other emergency vehicles which are required to cross the lines.

h. Failure of Apparatus at Level Crossings

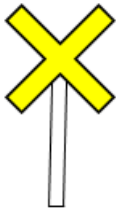
If road traffic is likely to be stopped at a level crossing for an extended time due to failure of apparatus, the Train Controller must immediately be advised so Police assistance can be requested at the crossing.

5. Trackside Boards

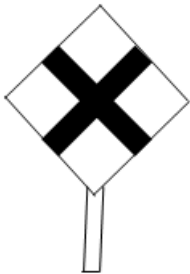
Whistle board: white diagonal cross - white post.



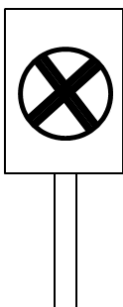
Whistle board: yellow diagonal cross - white post (where healthy state indicators are provided).



Approach section indicator board.



Level crossing predictor board.



6. Level Crossings at Which Tramway Traffic is Regulated by Fixed Signals

a. Fixed Signals to Regulate Tramway Traffic

At Level Crossings where Fixed Signals are provided to regulate tramway traffic over the crossing, the Signals work in conjunction with Catch points in the tramway, clear of the level Crossing. The tramway signal consists of either an illuminated 'T' Light, an illuminated Red or Green light, or a standard railway Disc Signal.

b. Normal Position of Tramway Signals

The normal position of the tramway signal is the 'Stop' position. The Signaller must not operate the Signal for a tram to pass over the Level Crossing until the tram Driver sounds the gong to alert the Signaller that the tram is waiting to cross.

If the Signaller is satisfied that delay will not be caused to a Train, the Signaller must place the tramway signal to the 'Proceed' position. Upon the tramway signal assuming the 'Proceed' position, the tram Driver will again sound the gong as an acknowledgment of the 'Proceed' indication. When it is safe to do so, the tram must then proceed with caution.

c. Trams Following Close Together

When trams are closely following each other and the tramway signal is at the 'Proceed' position, only the first tram is permitted to pass over the Level Crossing. The Driver of the second tram must remain at the Compulsory Stop Mark until the first tram is clear of the crossing. Each tram must only move forward upon the tramway signal being placed to the 'Proceed' position.

d. Testing of Tramway Signals

The Signaller must test and closely monitor the working of the tramway signals to ensure correct functioning. The Signaller must monitor the working of the Catch points. Maintenance of the Catch points is the responsibility of the Tramway Infrastructure Department.

e. Signalbox Closed or Unattended

When the Signalbox is closed or the Signaller is required to leave the Signalbox, the tramway signals must be placed at the 'Proceed' position.

f. Signaller to Avoid Delays to Traffic

The Signaller must avoid any unnecessary delays to the tramway and other road traffic over the level Crossing, in accordance with the Rules and Operating Procedures. The Signaller must not reverse a Signal against an approaching tram except in the case of extreme emergency.

If it is necessary to revert a tramway signal to the 'Stop' position, the Signaller must, where practicable, first communicate with the Tram Driver, and advise of the intention to alter the position of the tramway signal. The tram Driver must remain at the tramway signal until further advised by the Signaller.

g. Tram Derailed or Accident at Level Crossing

If an accident or derailment occurs at a Level Crossing involving a tram, the Signaller must obtain the tram Driver's name, the tram number, the time of the tram trip and full particulars of any injuries or damage. A written report must be forwarded to the manager for the area.

7. Railway/Tramway Electrical Conductors**a. Railways and Tramways Overhead Power Lines**

Both the railways and tramways are equipped with Overhead power lines. The contact wires over the level crossing are interconnected. The supply of power to these wires from the respective systems is controlled by a two way switch installed near the crossing.

At Gardiner, Kooyong and Glenhuntly, the interlocked lever which controls the operation of the Boom Barriers also opens and closes the two way switch.

At Riversdale, two separate levers are provided for this purpose.

b. Operation of the 1500 V and 600 V (Direct Current Systems)

When the Boom Barriers are fully lowered and the operating lever is in the Normal position, the contact wires over the crossing are supplied with 1500 volts for the Rail system.

When the Boom Barriers are in the vertical position, and the operating lever is in the Reverse position, the contact wires over the crossing are supplied with 600 volts for the Tram system.

c. Lever Lock

At Gardiner and Kooyong the Boom Barrier operating lever is track circuited and equipped with a Lever Lock, controlled in the Normal position through the controlling track circuits. The lever lock is controlled in the Normal and Reverse indicating positions through the auxiliary contacts of the two way switch.

At Riversdale a separate Overhead power selection lever is provided. This lever interlocks the Boom Lever in the Normal position, and is provided with a separate Lever Lock.

d. Failure of Lever Lock

If the Lever Lock fails, the paper seal provided in the cover of the lock must be broken and the armature of the lock held in the lifted position until the lever is operated. If a failure occurs in either of the indicating positions, the Signaller must ensure the correct indication is displayed. Before operating the lever, the Signaller must ensure that Trains or Trams are clear of the level Crossing section insulators.

e. Railway/Tramway Indicator

An illuminated indicator in the Signalbox advises the Signaller which system of current is active. The indicator displays 'Rail' for Railway power supply and 'Tram' for Tramway power supply.

Each indication is governed by the two way switch.

f. Incorrect Railway/Tramway Indication Displayed

If the incorrect indication is shown or no indication is displayed, the Signaller must make local arrangements for Trains and Trams to coast over the Level Crossing with pantographs and trolleys poles lowered.

g. Operation of Boom Barrier

When the Boom Barrier operating lever is reversed to permit a Tram to pass over the Level Crossing, the lever must remain in the Reverse position until the Tram has passed clear of the crossing, and the pantograph or trolley pole is clear of the section insulator.

h. Passing the Home Signal at the 'Stop' Position

If a Train is required to pass the Home Signal protecting the Level Crossing at the 'Stop' position, the Signaller must ensure the Boom Barriers are lowered, the Boom/Overhead Lever is in the full Normal position, and the Rail/Tram indicator indicates 'Rail'. The Signaller must then complete a Signaller's Caution Order (Form 2377) and hand it to the Driver as authority to pass the Home Signal at the 'Stop' position.

The Boom/Overhead lever must remain in the full Normal position until the last vehicle of the Train has cleared the Level Crossing.

The lever of the Home Signal must be operated in order to obtain the security of the interlocking.

Where a Train is required to pass a defective Home Signal, and the level crossing protection equipment has not operated after the Signal Lever has been reversed, the Signaller must operate the emergency 5P Key Switch to activate the equipment. The Key Switch must be operated prior to authorising the Train to pass the defective Home Signal. The 5P Key Switch has two positions (i.e. 10 o'clock & 2 o'clock) and the 5P Key is only able to be withdrawn whilst the Switch is in the 10 o'clock position. The Key Switch is labelled 'Emergency 5P Key Switch'. To activate the crossing equipment, the Key Switch must be placed to the 2 o'clock position.

When it is necessary for the Key Switch to be operated, the Driver must be additionally instructed to coast over the level crossing with pantographs lowered. The provision of Rule 7L must be observed in this instance.

THE EMERGENCY KEY SWITCH MUST ONLY BE OPERATED UNDER THE ABOVE CIRCUMSTANCES.

i. Fittings or Wires Hanging Down

If there are any obstructions, wires or fittings hanging down, the Signaller must lower the Boom Barriers against Tram and Vehicular traffic. The Signaller must secure the Home Signals protecting the Level Crossing at the 'Stop' position in order to prevent any train from entering onto the crossing.

The Signaller must advise the overhead Fault Centre on 16498 / 16499 / 16465 at the first available opportunity.

In the case of a loss of overhead power, Electrol must be advised on 55222 or 55999.

In all cases the Train Controller must be advised.

j. Signaller to promptly Report Faults

The Signaller must promptly advise the Train Controller, Overhead Engineer and Signal maintenance Technician of any failure of the electrical apparatus.

Additionally, the Signaller must promptly advise the Overhead Engineer if the following occurs:

1. any excessive or unusual sparking or flashing at a pantograph or trolley pole;
2. a trolley pole leaving the contact wire near the crossing, or
3. any disarrangement of the overhead equipment.

k. Fixed Signals for Tramway traffic

Fixed Signals for regulating traffic are provided at Gardiner (Burke Road), Glenhuntly (Glenhuntly Road), Kooyong (Glenferrie Road) and Riversdale (Riversdale Road).

l. Coasting Over Tramway Crossings

When it is necessary for a Suburban Train to coast over a Level Crossing with pantographs lowered due to an overhead fault, the Signaller must inform the Driver of the need to do so.

Prior to passing over the Level Crossing, with pantographs lowered, the Driver must conduct a pantograph test from the leading cab.

Upon approaching the Level Crossing, the Driver must lower all pantographs electrically. The pantographs must not be raised until the whole Train has passed clear of the equipment mast on the advance side of the level Crossing. During the above procedure, the Driver must not power beyond the 'series' position.

If the Train does not maintain sufficient momentum to completely clear the Level Crossing, the leading pantograph may be raised provided it is clear of the Overhead equipment mast on the advance side of the crossing. The remaining portion of the Train may then be hauled through the crossing using only the leading pantograph to collect current.

All pantographs may then be raised once the Train is completely clear of the overhead equipment mast on the advance side of the level Crossing.

8. Kooyong Operation of Tramway Square

a. Description of Equipment

- Illuminated Rail/Tram Indicator;
- White Availability light for the operation of Nos. 11 & 12 Tramway Disc Signals;
- White Availability light to indicate when No. 15 Boom/Overhead Lever is free to be operated;
- Co-ordinated Traffic Light Control Unit;
- Two Lever Locks for No. 15 Boom/Overhead Lever;
- A separate Lever Lock for Nos. 11 & 12 Tramway Signal Levers;
- Up and Down Annunciators.

b. Method of Operation

Upon the approach of an Up or Down Train, the Signaller must ensure that Nos. 11 and 12 Tramway Signals are at the 'Stop' position. The Signaller must then push the 'Push to Call' button on the Co-ordinated Traffic Light Control Unit, which will cause the Red 'Call Acknowledge' light to illuminate. The Traffic Lights will then revert to the 'Stop' cycle.

When the Traffic Lights have reverted to the 'Stop' cycle, the Green Stop Lever Free' light and the White Availability light for No. 15 Boom/Overhead lever will illuminate. The Lever Lock applicable to No. 15 Boom/Overhead Lever will then be energised.

The Signaller must then press the foot release for the Lever Lock on No. 15 Boom/Overhead Lever, and operate the lever to the 'Special Notch' position. This operation will cause the Level Crossing protection equipment to operate. When the Boom Barriers have been detected in the horizontal position, the Lever Lock on No. 15 Boom/Overhead Lever will again be energised, allowing the Signaller to place the lever to the Normal position.

The operation of No. 15 Boom/Overhead Lever to the Normal position will lock the Booms in the horizontal position, and switch the Overhead Power from Tram to Rail. The Rail/Tram Indicator will then show that Rail Power is applied over the crossing.

The Signaller must then close Nos 13 and 14 Wicket Gates, and ensure the indicator is showing Rail Power prior to operating the relevant Fixed Signals.

When the last vehicle of the train has cleared the section insulator, the Lever Lock on No. 15 Boom/Overhead Lever will be energised, allowing the lever to be placed to the Reverse position. The reversing of the lever will cause the Level Crossing protection equipment to cease operation, and will switch the overhead Power for Tram operation over the crossing.

The Signaller must ensure that the indicator is showing that the Overhead Power is switched for Tram operation, prior to operating the relevant Tramway Signals.

c. Failure of Lever Lock on No. 15 Boom/Overhead Lever**(i.) Failure of the Boom/Overhead Lever in the Reverse position.**

Should the Lever Lock on No. 15 Boom/Overhead Lever fail to energise whilst the lever is in the Reverse position, and the Co-ordinated Traffic Light Control Unit has correctly responded, the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures must be observed. The Lever Lock closest to No. 15 Boom/Overhead Lever must be operated in this instance.

(ii.) Failure of the Boom/Overhead Lever in the Special Notch' position.

Should the Lever Lock on No. 15 Boom/Overhead Lever fail to energise whilst the lever is in the 'Special Notch' position, the provisions of Rule 7d (Section 9) of the Rules and Operating Procedures must be observed. The Lever Lock *furthest* from No. 15 Boom/Overhead Lever must be operated in this instance.

(iii.) Failure of the Boom/Overhead Lever in the Normal position.

Should the Lever lock on No. 15 Boom/Overhead Lever fail to energise whilst the lever is in the Normal position, the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures must be observed. The Lever Lock *closest* to No. 15 Boom/Overhead Lever must be operated in this instance.

d. Failure of the Lever Lock on Tramway Signal Levers Nos. 11 & 12.

Should Tramway Signal lever No. 11 and/or 12 fail to release in the Normal position, the paper seal provided on the cover of the Lever Lock must be broken, and the armature of the lock held in the raised position until the lever is operated. Before operating the lever, the Signaller must ensure that Trains and Trams are clear of the Level Crossing section insulators.

e. Failure of the Co-ordinated Traffic Light Control Unit.**(i.) Failure of the Co-ordinated Traffic Light Control Unit.**

If after the 'Push for Call' button has been operated, the 'Call Acknowledge' light does not illuminate, the Signaller must wait for a period of thirty (30) seconds. If at the expiration of the thirty seconds, the 'Gate Stop Lever Free' light does not illuminate, the paper seal provided in the cover of the Lever Lock closest to No. 15 Boom/Overhead Lever must be broken and the armature of the lock held in the lifted position until No. 15 lever is operated. Before operating No. 15 Boom/Overhead Lever, the Signaller must ensure trains and trams are clear of the Level Crossing section insulators.

If the Traffic Light system loses power, or is in the 'flashing amber' cycle, and automatic two (2) minute release will activate. This will illuminate the 'Gate Stop Lever Free' indication, and will release the Lever Lock closest to No. 15 Lever. The 'Gate Stop lever Free' indication will remain illuminated, and the Lever Lock will remain released. The Lever Lock closest to No. 15 Boom/Overhead Lever must be used in the event of a failure of:

- The 'Push for Call' button;

The Automatic two minute timing release, or

- If the Traffic Lights do not cycle to the railway phase.

Note: When No. 15 Boom/Overhead Lever is manually released, it will force the Traffic Lights into the 'flashing amber' cycle.

(ii.) 'Push for Call' Button accidentally operated.

If the 'Push for Call' Button is accidentally operated after the 'Gate Stop Lever Free' light is displayed, the Signaller must operate the Emergency Release Button. This will cancel the call and release the Traffic Lights for normal use.

If the 'Gate Stop Lever Free' indication remains illuminated owing to a failure of the Traffic Lights (which have reverted to the emergency mode, or for any other reason), the Signaller must advise the Signal Fault Centre in order for the Traffic Light failure to be reported.

(iii.) Manual Operation of Level Crossing Boom Barriers

In the event of the Level Crossing Boom Barriers remaining in the horizontal position when they should be in the raised position (i.e. during a loss of the crossing power supply), the Signaller must prior to verbally authorising a Tram to pass No. 11 and/or 12 Tramway Signal, ensure the Overhead is switched for Tram power, the Booms are raised, the Catch points are set for the movement and that all other conditions are safe for the passage of the Tram.

If the fault exists with the Overhead switching so that power cannot be switched for Tram operation, the Tram Driver must be instructed to coast over the lever Crossing with the trolley pole/pantograph lowered.

The same course must be followed if the power is unable to be switched for Rail operation, with the Train Driver being instructed to coast over the Level Crossing with pantographs lowered. The provisions of Rule 71 (Section 9) of the Rules and Operating Procedures must be observed in this instance.

9. Riversdale Operation of Tramway Square

a. Description of Equipment

- Illuminated Rail/Tram Indicator;
- Overhead Switching Lever No. 2;
- One Lever Lock for No. 4 Boom Lever;
- White Availability light to indicate when No. 2 Overhead Switching Lever is free to operate (released by placing No. 4 Boom Lever to the Normal position);
- One Lever Lock for No. 2 Switching Lever;
- One Lever Lock each for Nos. 5 & 6 Tramway Signal Levers;
- Up and Down Annunciators.

b. Method of Operation

Upon the approach of an Up or Down Train, the Signaller must ensure that Nos. 5 and 6 Tramway Signals are at the 'Stop' position.

The Signaller must then place No. 4 Boom Lever to the 'Special Notch' position. This operation will cause the Lever Crossing Protection equipment to commence operation. When the Boom Barriers are detected in the horizontal position, a buzzer will sound, indicating that No. 4 Boom Lever is available to be placed to the Normal position.

The White Availability light for No. 2 Switching Lever will then illuminate, and the foot release for the Lever Lock can then be operated. The operation of the Lever Lock releases No. 2 Switching Lever, which can now be placed to the Normal position. By placing No. 2 Lever to the Normal position, overhead power is Switched from Tram to Rail. No. 2 Lever in the Normal position interlocks No. 4 Lever in the Normal position.

The illuminated Rail/Tram indicator will then indicate Rail power is applied. The Signaller must ensure that the indicator is displaying 'Rail' prior to operating the relevant Fixed Signals.

When the last vehicle of the train has cleared the section insulator, the Lever Lock on No. 2 Switching Lever will be energised, allowing the lever to be placed to the Reverse position. This action switches the Overhead Power from Rail to Tram. The reversing of No. 2 Switching lever also releases No. 4 Boom Lever. When No. 4 Boom Lever is reversed, the Level Crossing Protection equipment will cease operation.

The Signaller must ensure that the indicator is showing that the overhead power is switched for Tram operation, prior to operating the Tramway Signals.

c. Failure of the Lever Lock on No. 2 Switching Lever and/or No. 4 Boom Lever**(i.) Failure of No. 2 Switching Lever in the Reverse position.**

Should the Lever Lock on No. 2 Switching Lever fail to energise whilst the lever is in the Reverse position, the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures must be observed.

(ii.) Failure of No. 2 Switching Lever in the Normal position.

Should the Lever Lock on No. 2 Switching Lever fail to energise whilst the lever is in the Normal position, the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures must be observed.

(iii.) Failure of No. 4 Boom Lever in the 'Special Notch' position

Should the Lever Lock on No. 4 Boom Lever fail to energise after the Booms are horizontal (to allow No. 4 Lever to be placed to the Normal position), the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures must be observed.

d. Failure of the Lever Lock on Tramway Signal Levers Nos. 5 & 6.

Should Tramway Signal Lever No. 5 and/or 6 fail in the Normal position, the paper seal provided in the cover of the Lever Lock must be broken, and the armature of the lock held in the raised position until the lever is operated. Before operating the lever, the Signaller must ensure that Trains and Trams are clear of the Level Crossing section insulators.

e. Manual Operation of the Level Crossing Boom Barriers

In the event of the Level Crossing Boom Barriers remaining in the horizontal position when they should be in the raised position (i.e. during a loss of the crossing power supply), the Signaller must prior to verbally authorising the Tram Driver to pass No. 5 and/or no. 6 Tramway Signal, ensure the overhead is switched for Tram power, the Boom barriers are in the raised position, and that all other conditions are safe for the passage of the Tram.

If the fault exists with the Overhead Switching so that power cannot be switched for Tram operation, the Tram Driver must be instructed to coast over the Level Crossing with the trolley pole/pantograph lowered.

The same course must be followed if the power is unable to be switched for Rail operation, with the Train Driver being instructed to coast over the Level Crossing with pantographs lowered. The provisions of Rule 71 (Section 9) of the Book of Rules and Operating Procedures must be observed in this instance.

10. Gardiner Operation of Tramway Square

a. Description of Equipment

- Illuminated Rail/Tram Indicator;
- Co-ordinated Traffic Light Control Unit;
- 5P Key Switches for emergency operation of Nos 5 & 6 Tramway Catch Points;
- Normal and Reverse indications for Nos 5 & 6 Tramway Catch Points;
- Power Indicating Lights for Nos 5 & 6 Tramway Catch Points (white light);
- Tram Points Isolation Switch;
- One Lever Lock for No. 2 Boom/Overhead Lever;
- A separate Lever Lock for Nos. 5 & 6 Tramway Signal Levers;
- Signal Repeaters for Nos. 5 & 6 Tramway Signals;
- Up and Down Annunciators;
- Annunciator for Tram approach to No. 5 Tramway Signal.

b. Method of Operation

Upon the approach of an Up or Down Train, the Signaller must ensure that Nos. 5 and 6 Tramway Signals are at the 'Stop' position. The Signaller must then push the 'Push for Call' button on the Co-ordinated Traffic Light Control Unit, which will cause the Red 'Call Acknowledge' light to illuminate.

This will cause the Traffic Lights to revert to the 'Stop' cycle. When the Traffic Lights have reverted to the 'Stop' cycle, the Green 'Gate Stop Lever Free' light will illuminate, and the White Availability Light for No. 2 Boom/Overhead Lever will illuminate. The lever Lock applicable to No. 2 Boom/Overhead Lever will then be energised.

The Signaller must then press the foot release for the Lever Lock on No. 2 Boom/Overhead Lever, and operate the lever to the 'Special Notch' position. This operation will cause the level crossing protection equipment to commence operation. When the Boom Barriers have been detected in the horizontal position, the Lever Lock on No. 2 Boom/Overhead Lever will again be energised, allowing the Signaller to place the lever to the Normal position.

The operation of No. 2 Boom/Overhead Lever to the Normal position will lock the boom Barriers in the horizontal position, and switch the overhead power from Tram to Rail. The Rail/Tram Indicator will then indicate that Rail power is applied. The Signaller must ensure that the indicator is showing Rail power to operating the relevant Fixed Signals.

When the last vehicle of the train has cleared the section insulator, the Lever Lock applicable to No. 2 Boom/Overhead Lever will be energised. This is indicated by the exhibition of the White Indicating Light above the lever. The lever must then be placed to the reverse position. The reversing of No. 2 Boom/Overhead Lever will cause the level crossing protection equipment to cease operation, and the overhead power will be switched for Tram operation. The Signaller must ensure that the indicator is showing that overhead power is switched for Tram operation, prior to operating the relevant Tramway Signals.

c. Failure of Lever Lock on No. 2 Boom/Overhead Lever**(i.) Failure of the Boom/Overhead Lever in the Reverse position**

Should the Boom/Overhead Lever Lock fail to energise whilst No. 2 lever is in the Reverse position, and the Traffic Light Co-ordination Unit has correctly responded, the provisions of Rule 7d (Section 9) of the Rules and Operating Procedures must be observed.

(ii.) Failure of the Boom/Overhead lever in the 'Special Notch' position

Should the Boom/Overhead Lever Lock fail to energise whilst No. 2 lever is in the 'Special notch' position, and the Traffic Light Co-ordination Unit has correctly responded, the provisions of Rule 7d (Section 9) of the Rules and Operating Procedures must be observed.

(iii.) Failure of the Boom/Overhead Lever in the Normal position

Should the Boom/Overhead lever Lock fail to energise whilst No. 2 lever is in the Normal position, the provisions of Rule 7d (Section 9) of the Book of Rules and Operating Procedures, must be observed.

d. Failure of Lever Lock on Tramway Signal Levers Nos. 5 & 6.

Should Tramway Signal lever No. 5 and/or 6 fail in the Normal position, the paper seal provided in the cover of the Lever Lock must be broken, and the armature of the lock held in the lifted position until the lever is operated. Before operating the lever, the Signaller must ensure that Trains and Trams are clear of the level crossing section insulators.

e. Failure of the Co-ordinated Traffic Light Control Unit**(i.) Failure of the Co-ordinated Traffic Light Control Unit**

If after the 'Push for Call' button has been operated, the 'Call Acknowledge' Light does not illuminate, the Signaller must wait for a period of thirty (30) seconds. If at the expiration of the thirty (30) seconds, the 'Gate Stop Lever Free' light does not illuminate, the paper seal provided in the cover of the lock must be broken, and the armature of the lock held in the lifted position until No. 2 lever is operated. Before operating No. 2 lever, the

Signaller must ensure that Trains and Trams are clear of the level crossing section insulators.

If the traffic light system loses power, or is in the 'flashing amber' cycle, an automatic two (2) minute release will activate, which illuminates the 'Gate Stop Lever Free' indication, and releases the Lever Lock on No. 2 Boom/Overhead Lever. At the expiration of the two (2) minutes, the 'Gate Stop Lever Free' indication will remain illuminated, and the lever Lock will remain released. The Lever Lock is to be used in the event of a failure of:

- The 'Push for Call' button;

The Automatic two minute timing release, or

- If the Traffic Lights do not cycle to the railway phase.

Note: When No. 2 Boom/Overhead Lever is manually released, it will force the Traffic lights into the 'flashing amber' cycle.

(ii.) 'Push for Call' Button accidentally operated

If the 'Push for Call' button is accidentally operated after the 'Gate Stop lever free' light is displayed, the Signaller must operate the Cancel button. This will cancel the call and release the Traffic Lights for normal use. If the 'Gate Stop Lever Free' indication remains illuminated owing to a failure of the traffic Lights (which have reverted to the emergency mode, or for any other reason), the Signaller must advise the Signal Fault Centre in order for the Traffic-Light failure to be reported.

f. Emergency Operation of Nos. 5 & 6 Tramway Catch Points

The presence of a Tram is detected by Overhead Tramway `Skates' attached to the Tramway contact wire. The trolley pole or pantograph coming into contact with the Skate initiates the detection.

Normal and Reverse indications are provided for Nos. 5 & 6 Tramway Catch points. When a Tram is approaching the Catch Points, and the point lever is in the Reverse position, the power to the Catch points is automatically removed.

When an approaching Tram has passed the first Overhead Tramway Skate, the relevant Tramway Catch points will be automatically prevented from operating to the Normal (Derail) position. The Signaller must ensure that the Tram has not yet passed the Tramway Signal. If this is the case, the Signaller must then operate the relevant 5P Key Switch to restore power for the operation of the Catch points.

g. Operation of Power/Hand Switch for Tramway Catch Point Power

The Power/Hand Switch for Tramway Catch point power isolation is only to be placed to the Manual position when the Catch points do not obey the lever, or for emergency release. The Power/Hand Switch is to be operated by the Signaller only in the presence of an Authorised Tramway Official.

The points are then to be operated manually by the Tramway Official. The Tramway official and Signaller must keep in contact so that the Catch points may be placed in the required position for traffic movements. The Tramway Official is to remain in attendance at the location until the fault is rectified.

h. Manual Operation of Level Crossing Boom Barriers & Tramway Booms

In the event of the Level Crossing Boom Barriers remaining in the horizontal position when they should be in the raised position (during a loss of railway power supply) the Signaller must:

1. In addition to manually operating the roadway Boom Barriers as required, arrange through the Train Controller for the Tram Control Centre to be advised that a Tramway Official is required to attend the crossing to manually operate the Tramway Boom Barriers under the directions of the Signaller.
2. Prior to authorising the Driver of a Tram to pass a Tramway Signal at the 'Stop' position, the Signaller must ensure the overhead is Switched for Tram power, the Boom barriers are raised, and that all other conditions are safe for the passage of the Tram.

If a fault exists with the overhead switching, the Tram Driver must be instructed to coast over the level crossing with the trolley pole/pantograph lowered. The Signaller must then give verbal instructions to the Driver of each Tram to pass the Tramway Signal at the 'Stop' position.

The same course must be followed if the power is unable to be switched for Rail operation, with the Train Driver being instructed to coast over the level crossing with pantographs lowered. The provisions of Rule 71 (Section 9) of the Book of Rules and Operating Procedures must be observed in this instance.

11. Glenhuntly Operation of Tramway Square

a. Description of Equipment

- 5P key Switches for emergency operation of nos. 9 & 10 Tramway Catch points; Yellow Indicating Lights provided to indicate the system is functioning normally;
- Normal and Reverse indications for Nos 9 & 10 Tramway Catch points;
- Power Indicating Lights for Nos. 9 & 10 Tramway Catch points;
- Tramway Catch Power/Manual Switch;
- Signal Repeaters for Tramway Signals Nos. 9 & 10 (on Signal Control Panel);
- 5P key Switch for emergency release of traction power —Yellow Indicating lights show when the system is functioning normally;
- Rail/Tram Actuator Switch provided in cabinet. The door is secured by a 5P padlock. Inside an 11P key is provided in a Key Switch with the emergency winding handle attached to the key by a short length of chain. The Key switch has two positions; i.e. Normal Position (12 o'clock), Reverse position (2 o'clock);
- Emergency Tram/Rail overhead Switching Device, provided in cabin adjacent to the Down Main Line.

b. Method of Operation

Upon the approach of an Up or Down Train, the Signaller must ensure that Nos. 9 & 10 Tramway Signals are at the 'Stop' position. The Signaller must then operate No. 7 Boom/Overhead Lever to the Normal position, and operate Nos. 11 and/or 12 Pedestrian Gate Levers as required.

When the Boom Barriers have been detected in the horizontal position (indicated by a Green Light on No. 7 Boom/Overhead lever), the Rail/Tram Indicator will indicate that overhead power is applied for Rail operation. The Signaller must then operate the appropriate Fixed Signal(s). The Signaller must ensure the indicator is showing that rail power is applied prior to the operation of the relevant Fixed Signal(s).

When the last vehicle of the Train has cleared the section insulators, the electrical locking will be released on No. 7 Boom/Overhead lever, in turn allowing the lever to be placed to the Reverse position. The reversing of the lever causes the Level Crossing Protection equipment to cease operation, and the overhead power will be switched for Tram operation. The Signaller must ensure that the indicator is showing that the overhead power is switched for Tram operation, prior to operating the Tramway Signals.

c. Emergency Operation of Nos. 9 & 10 Tramway Catch Points

The presence of a Tram is detected by Overhead Tramway 'Skates' attached to the contact wire. The trolley pole or pantograph coming into contact with the Skate initiates the detection.

If a Tram is on the approach to either No. 9 or 10 Tramway Signal, and the lever is then placed to the Normal position, the Tramway Signal will be restored to the 'Stop' position, and additionally electrical power is removed from the Catch points.

The Signaller must ensure that the Tram has not yet passed the Tramway Signal. If this is the case, the Signaller must then operate the relevant 5P Key Switch to restore power for the operation of the Catch points. The Signaller must then place the 5P Key into the emergency release for either No. 9 or No. 10 key Switch, turn the key to the Release position, and hold the key in this position for one second. This will cause power to be restored to the Catch points. The Catch points will then run to the Normal (Derail) position.

d. Operation of Power/Manual Switch for Tramway Catch Point Power

The Power/Manual Switch for Tramway Catch point power is only to be placed to the Manual position when the Catch points do not obey the lever, and the 5P emergency release has failed to operate. The Power/Manual Switch is to be operated by the Signaller only in the presence of an authorised Tramway Official. The Tramway Official and Signaller must keep in contact in order for the Catch points to be placed to the required position for traffic movements.

The Tramway Official must remain in attendance at the location until the fault is rectified.

e. Emergency Operation of the Traction Power

An emergency release is provided for instances where the Tramway Catch points fail to fully operate to the Normal (Derail) position. If the Tramway Catch points fail to fully operate to the Normal position the availability will not be given to No. 7 Lever, and in turn the booms will not operate. Additionally, the Overhead will not be able to be Switched for Rail power.

In this instance, the Signaller must place the 5P key in the emergency release, and hold in that position for one second. The operation of the Key Switch gives availability to No. 7 lever. No. 7 lever is then able to be operated in the usual manner for Boom/Overhead operation.

f. Use of 11P Key and Emergency Winding Handle for Rail/Tram Actuator Switch

An 11P activating key is provided to manually operate the Traction Power Switch. The 11P Key is secured in a cabinet in the Signalbox, with the door being locked by a 5P padlock. The Rail Tram Actuator Switch is located in a cabinet adjacent to the Down Main Line. (The Key Switch has two positions, i.e. Normal position 2 o'clock, Reverse position 12 o'clock.) To operate the mechanism, the Signaller must remove the 11P Key from the emergency release key switch, by placing the Switch to the reverse (2 o'clock) position. A small winding handle is attached to the 11P key. The winding handle is to be placed in the Actuator Switch. the handle must then be rotated, which causes the switching mechanism to operate to the required position (i.e. Rail or Tram). The handle must continue to be rotated until the correct traction power indication is shown. A Tram/Rail indicator is provided in the cabinet adjacent to the winding mechanism.

g. Manual Operation of the Level Crossing Boom Barriers

In the event of the Level Crossing Boom Barriers remaining in the horizontal position when they should be in the raised position (during a loss of railway power supply), the Signaller must:

1. Manually operated the Boom Barriers as required.
2. Prior to authorising the Driver of a Tram to pass a Tramway Signal at the 'Stop' position, the Signaller must ensure the Overhead is switched for Tram power, the Boom barriers are raised, the Catch points are in the correct position and that all other conditions are safe for the passage of the Tram. If the Tramway Catch points are set for the derail position, the provisions of Clause 'd' of these instructions must be observed. A Tramway Official must be in attendance as indicate in Clause `d'.
3. The Signaller must then give Verbal Instructions to the Driver of each Tram to pass the Tramway Signal at the `Stop' position.

If the Boom Barriers fail to operate for the passage of a Train, the Signaller must ensure that Nos. 9 & 10 Tramway Signals are at the 'Stop' position, and that overhead power is set for Rail operation.

The Signaller must complete a signallers Caution order and hand it to the Driver as authority to pass the defective Home Signal. The Signaller must further advise the Driver to proceed cautiously, as the level crossing protection equipment will not commence to operate until the leading wheels of the train have passed the Home Signal.

If the overhead power is unable to be set for Rail operation, the Signaller must instruct the Train Driver to coast over the level crossing. The provisions of rule 71 (Section 9) of the Book of Rules and operating Procedures must be observed in this instance.

The same course must be followed if the traction power is unable to be set for Tram operation. Each Tram Driver must be instructed to coast over the level crossing with the trolley pole/pantograph lowered.