

# SOMERSAULT

MAY 1998  
Vol 21, No 3

SIGNALLING RECORD SOCIETY OF VICTORIA INC



The Melbourne tramway network currently crosses the electrified suburban rail network on the level at four locations: Glenhuntly, Kooyong, Gardiner and Riversdale. Each of these four locations are controlled by signalboxes. The crossing at Kooyong is shown here looking south along Glenferrie Road. The Victorian Railways apparently considered that the problems of a 600V DC tramway crossing a 1500V DC suburban railway line to warrant special consideration, and more equipment was provided than where an electric tramway crossed a non electrified railway (e.g. Lydiard Street, Ballarat, and Cotham Road, Deepdene). Rail movements were protected by tramway catch points and a signal on the footpath. Kooyong is the last location where mechanical disks (N371) are used to protect the crossing. The southbound disc (shown here) is to design 1N371 and has a fluted cast iron post, possibly a gas light standard. The northbound disc is to design 2N371 and has a tubular steel mast. In this view, the catch points are open and the disc 'on' to protect the railway. Note that the face of the disc does not point straight down the road, but at about 45 degrees across the road so as to be clear to the driver of a tram standing at the catch point. The disc and catchpoint are worked by one lever, and escapement crank is provided in the rodding run under the footpath. The large square manhole covering the crank can just be seen behind the base of the signal. Photo: Andrew Waugh

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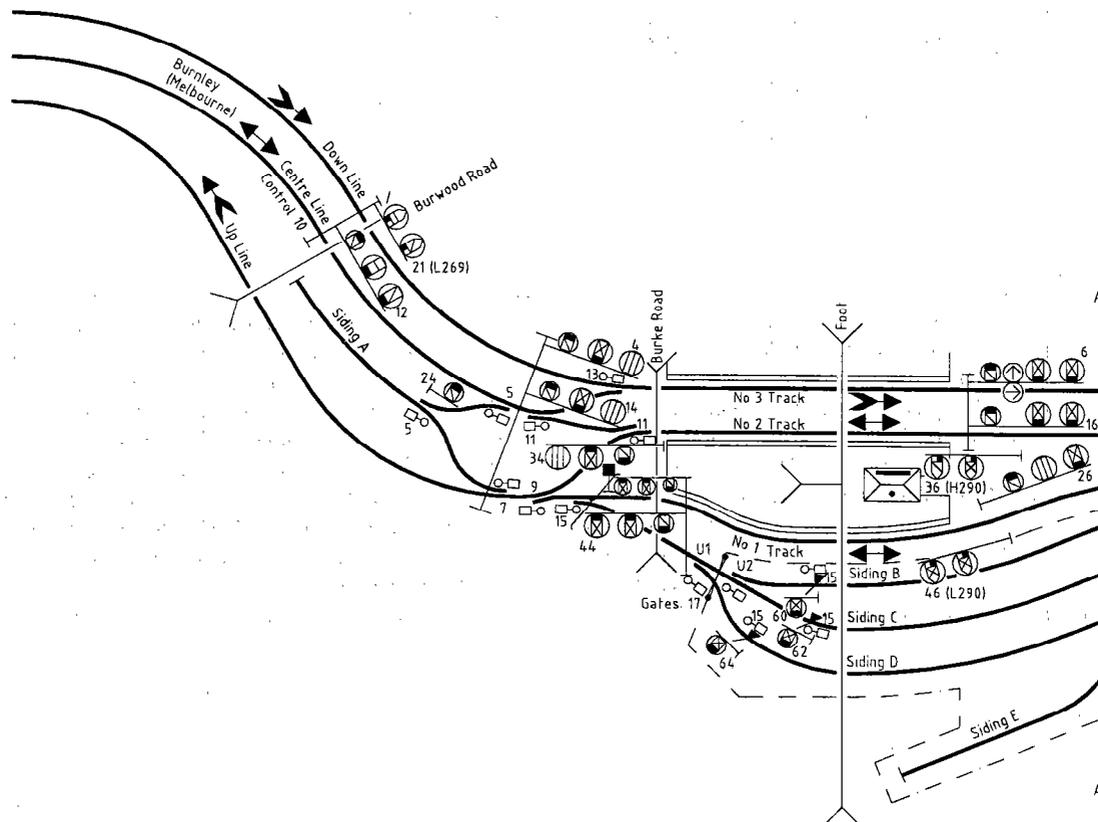
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## SIGNALLING ALTERATIONS

*The following alterations were published in WN 1/98 to WN 9/98. The alterations have been edited to conserve space. Dates in parenthesis are the dates of the Weekly Notice.*

- 23.09.1997 **Eltham**  
From Tuesday, 23.9.97, the Up Distant was permanently fixed at Caution. Lever 35 was sleeved normal. Amend Diagram 3/96. (SW 351/97, WN 5/98)
- 22.12.1997 **Camberwell**  
From Monday, 22.12, testing and commissioning of the Stabling Sidings took place. Diagram 95/97 replaced 63/97.  
Stabling Sidings B (171m), C (170m), D (156m), and E (152m) were provided. Three position Dwarfs 22, 60, 62, and 64 were provided for movements from the sidings. These Dwarfs will show 'Clear Low Speed' when the line is clear and the signal in advance is clear. Points 15 and 25 were provided to access the sidings and work in conjunction with Derails and Wheel Crowdors worked by electro hydraulic point



machines. Motorised gates are provided at the Up and Down ends of the Sidings and are worked by Levers 17 and 33 respectively.

Set back movements are not permitted from the Up line to No 3 Track. A train from Sidings B, C, or D to No 3 Track must be signalled into Siding A and then into No 3 Track.

The points within the sidings (U1, U2, D1, D2, and D3) are fitted with electro hydraulic point machines. These points are trailed through for departure movements. For arrival movements they are operated by the Driver by means of a control unit at each entrance to the siding. Each control unit is located on a mast at cab height and contains a push button for each route and a 'Points Free to Move' light in the centre of the panel. The Up end control unit is located adjacent to Points 15 and the Down end unit to Derail 25.

When a train is to enter the sidings, the Driver must bring it to a stand at the control unit. If the 'Points Free' light is illuminated, the Driver will press the button for the required siding for two seconds. The Driver may proceed when the button lights up. If the button fails to illuminate, the Driver must try a second time and then communicate with the Signaller. The Signaller must check that the siding has not been locked out by maintenance staff. If the route setting has failed, the Signaller must manually operate the points. Pump handles, secured by 5P padlocks, to manually operate the points are provided at each end of the siding. Once the points have been operated to the correct position, the Signaller must clip them and display a green hand signal to the Driver.

A Maintainers Control Unit is also provided on the Drivers Control Units at the Up and Down ends. The operation of the Maintainers Control Unit is identical to the Drivers Control Unit. In addition, the Maintainers Control Unit at the Down end is provided with four Disable switches. Operation of the switch to the 'Disable' position will operate the points at each end of the siding away from the siding and prevent that siding from being selected from a Control Unit. Each switch may be padlocked. Maintainers must advise the Signaller when sidings are disabled and enabled, and an appropriate note must be made in the TRB.

Should the gates fail, the Signal Maintenance Technician must operate the gates manually.

(SW 434/97, WN 2/98)

29.12.1997 **Nagambie**

A derailment on this date caused No 2 Track to be booked out of service.

(SW 455/97, WN 1/98)

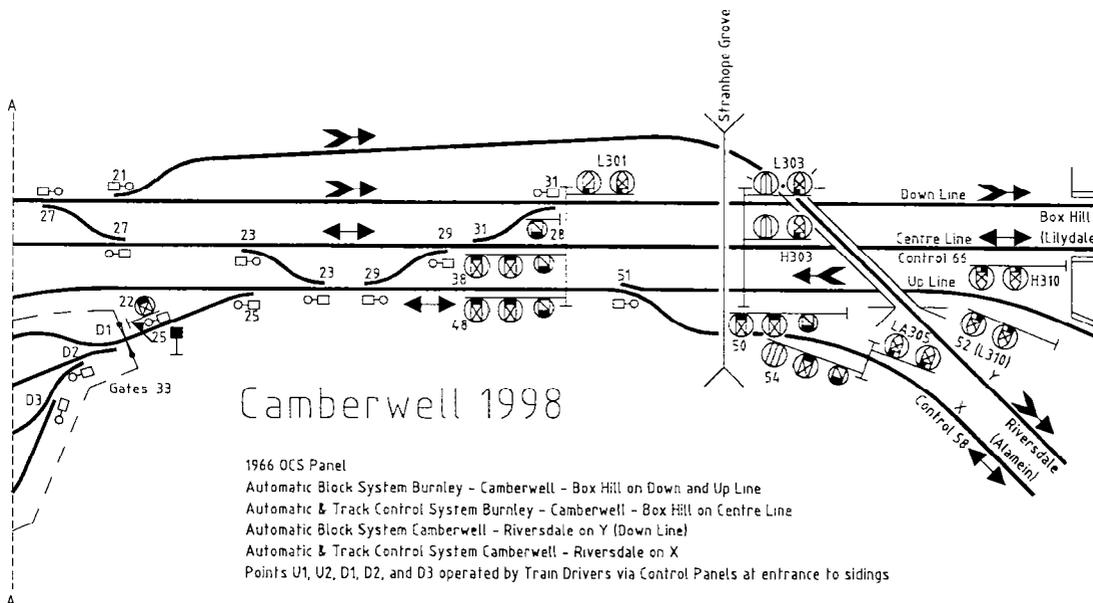
06.01.1998 **Flinders Street**

On Tuesday, 6.1, Caulfield Sidings 5 - 10 were booked out of service (Sidings 1 - 4 were previously booked out). Crossovers 249 and 641 were clipped normal.

(SW 1/98, WN 2/98)

(13.01.1998) **Flinders Street**

A co-acting signal has been provided for Home 316 (the Departure Home at the east end of Platform 2).



The co-acting signal is situated beneath the mirror and to the right of the CCTV monitor and is of the underground type.

The co-acting signal for Home 142 (West end of Platform 1) has been temporarily removed.

Amend Diagram 81/97.

(SW 447/97, WN 1/98)

(13.01.1998) **NRC Locomotive Provisioning Centre - Communications Procedures**

Drivers of locomotives proceeding from the Melbourne Freight Terminal (MFT) to the NRC Provisioning Centre (or vice versa) must contact the MFT Tower to request the movement. The MFT Tower will request the Signaller, West Tower, to set up the movement.

Drivers of locomotives proceeding from the Melbourne Operations Terminal (MOT) or the Main Lines to the Provisioning Centre (or vice versa) must directly contact the Signaller, West Tower, to set up the movement. Contact will be made via PTC Channel 1 for moves to the Centre, and by phone for moves from the Centre. Immediately upon departure from the Centre, the Train Crew must switch to Channel 1.

Before any move to the Centre, the NRC Provisioning Crew must be contacted to ensure that the Centre can accommodate the movement. All movements to or from the centre must be called by the Driver on the MFT Administrative Channel immediately prior to the movement taking place.

(SW 435/97, WN 1/98)

(13.01.1998) **Burnley Stabling Sidings- Failure of Signals**

The following procedures apply if the signals at the Burnley Stabling Sidings fail.

i) Burnley Stabling Sidings switched in

If a train is stopped at Down Home BLY 380 or Up Home BLY 381 (protecting the main line connections) and there is no train in advance of the signal, the Driver must contact the Signaller by the post phone. If the signal has failed *and the points are correctly detected for the move* (and the security gate, if applicable), the Signaller will issue a Signaller's Caution Order (Form 2377). The Driver must take down the particulars and repeat them back to the Signaller. If Crossover 280 or Points 285 are not detected normal, the Signaller will instruct the Driver to operate the Dual Control Point Machine to the normal position. The Caution Order will be issued once the Driver has confirmed that the points are normal. Note that the Driver is not to operate Points 285 if they are not detected reverse (i.e. for movements into the siding).

Failure of Down Home BLY 380 may cause Down Homes BLY 316 and BLY 336 (Departure Homes from Nos 3 & 4 Tracks) to fail. The Signaller may issue a Caution Order to pass these signals at Stop provided the points are correctly detected for the movement. If point detection has failed, a Caution Order cannot be issued until a Signal Maintenance Technician has secured the points for the movement.

If a train is stopped at Up Home BLY 383 (at Heyington) the Driver must contact the Signaller. The Signaller will verbally authorise the Driver to pass the signal at stop if the track ahead is clear and it is safe to do so. The Train Controller, Metrol, must be contacted if the Driver cannot contact the Signaller. The Train Controller will contact the Signaller and relay the verbal authority. If Burnley is switched out, the provisions of Rule 12b & 12c, Section 2, Book of Rules will apply.

If Dwarfs BLY 385, BLY 387, or BLY 389 (for movements from the sidings) have failed, the Signaller will verbally authorise the Driver to pass the signal at stop provided the points and security gate are correctly detected for the movement. If Crossover 280 is not detected reverse, the Signaller will instruct the Driver to operate the Dual Control Point Machine to the reverse position. The Caution Order will be issued once the Driver has confirmed that the points are reverse. Note that the Driver is not to operate Points 285 if they are not detected reverse (i.e. for movements from the siding).

ii) Burnley Stabling Sidings switched out

If a train is stopped at Down Home BLY 380 or Up Home BLY 381, there is no train in advance of the signal, and the illuminated letter 'A' is not displayed, the Driver must contact the Signaller. The Train Controller, Metrol, must be contacted if the Driver cannot contact the Signaller. The Train Controller will contact the Signaller and relay the verbal authority. If Burnley is switched out, the provisions of Rule 12b & 12c, Section 2, Book of Rules will apply.

These procedures are to be added to Section 34 of the Book of Rules, and conflicting instructions in SW 375/97 and SW 449/97 cancelled.

(SW 454/97, WN 1/98)

18.01.1998 **Flinders Street**

From Sunday, 18.1, the Caulfield Sidings were abolished. Points 223 (neck of No 1 & No 2 Sidings), 248 (neck of Nos 1 & 2 and Nos 3-10 Sidings), 249D (ahead of Dwarf 349), 256 (neck of No 3 & No 4-10 Siding), and 641D (ahead of Dwarf 741) were abolished. Points 249U (in Up Burnley Local) and Points 641U (in Down Caulfield Local) were secured normal. Dwarfs 323, 327, 337, 348, 349, and 741 were abolished.

Amend Diagram 81/97

(SW 4/98, WN 3/98)

19.01.1998 **Coburg**

From Monday, 19.1, Disc 40 on Post 42 (Down moves from the Up line to No 1 Platform) was returned to service. Levers 27 and 29 returned to service as Pilot Levers.

(SW 6/98, WN 4/98)

(20.01.1998) **Train Order System - Rule 26 (Arrival of Trains)**

Rule 26, Section 18, has been amended to require Drivers to advise the Train Controller when their train is passing through Block Points as well as Crossing Loops, or Stations.

(SW 353/97, WN 2/98)

- (20.01.1998) **Section Authority System - Rule 4d (Intermediate Stand Authorities)**  
Delete Rule 4d, Section 18 (Intermediate Stand Authorities) and renumber Rule 4e to be 4d.  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 5c (Failure of Acknowledge to return to workstation)**  
Rule 5c, Section 18 has been modified. In the event of a failure of 'Acknowledge' to return to the Workstation, the Train Controller must instruct the Driver to press the Acknowledge button again. If the failure persists, the Controller must contact the Manager, Rail Safety, and obtain a Superintendent's Code. After this code is entered into the Workstation, a window will be displayed that allows the state of the Authority to be altered to either current or acknowledged (as required).  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 10 (Failure of Locomotive Display Unit)**  
Rule 10, Section 18 has been modified. In the event of an Authority becoming corrupt while the train is in a section, the Driver must immediately advise the Train Controller and bring the train to a stop. If the Authority is outstanding, the Train Controller must immediately block the section. The Driver must then be instructed to clear the section.  
If a LSDU becomes defective and a second locomotive is available, arrangements must be made to reverse the locomotives at the next crossing station or loop. If it is not practicable to reverse the locomotives, the LSDUs may be swapped between locomotives. The Train Controller must obtain permission to swap the LSDUs from the Manager, Rail Safety, and arrangements must be made for a System Safety Officer to obtain the defective LSDU. If no replacement LSDU is available, the train must be worked under Electronic/Manual working.  
If the LSDU and the radio fails, the train must not proceed unless authorised by the Manager Rail Safety.  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 11 (Failure to confirm Status of Authorities in Workstation)**  
Rule 11, Section 18 has been modified. If status of the authorities cannot be confirmed, the Train Controller must obtain permission of the Manager Rail Safety to clear a section. The section can be cleared using a Superintendent's code obtained from the Manager Rail Safety.  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 19 (Restoration of the Workstation)**  
Rule 19, Section 18 has been modified. The Manager Rail Safety must be advised before restoring a Workstation to use. The Train Controller must then apply Blocking Commands to all section with outstanding Manual Authorities or Occupancies. Superintendent's codes must then be obtained for all Electronic Authorities that were destroyed and update the electronic train graph from the paper graph. All printed Authorities and Occupancies must then be checked. As Manual Authorities are fulfilled, the blocking commands for that section are to be lifted, but the paper train graph is to be maintained. Full electronic working may be resumed once all outstanding Manual Authorities are fulfilled. A System Safety Officer must be in attendance prior to restoration of the Workstation.  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 31 (Setting back a train to a station in the rear under full Manual Mishap working)**  
Rule 31, Section 18 has been modified. If a train is required to return to the Station or Loop in the rear, the train must be set back on a Manual Mishap Train Authority. The Train Controller must establish the Mishap Location on the paper train graph and confirm the location with the Driver. The Controller must dictate a Manual Mishap Authority to set back to the location in the rear. This must be repeated back by the Driver. A Cancellation of Manual Authority must then be issued for each outstanding Authority and these must be repeated back by the Driver. The Manual Mishap Authority is to be fulfilled when the train arrives at the location in the rear.  
A competent employee must ride on the leading vehicle when setting back.  
If the train is unable to clear the section, relief trains may be run to and from the mishap on both sides by Manual Mishap Authorities.  
(SW 1001/97, WN 2/98)
- (20.01.1998) **Section Authority System - Rule 41 (Track Machines)**  
Rule 41, Section 18 has been modified. The following vehicles are to be considered as trains and must be issued with an Authority when entering a section: EM100, Tampers, Ballast Regulators, Crib and Shoulder Compactors, Ballast Cleaners, and any other heavy duty machines.  
(a) When track machines are operating in convoy the track machines will operate under Electronic/Manual operation unless accompanied by a qualified employee with a portable LSDU and authorised by the Manager Rail Safety.  
The competent employee in charge of the convoy must obtain the Electronic Manual Authority. The number and type of the leading machine is to be included on the Authority. The employee in charge must ride on the leading machine. A second competent employee must ride on the last machine and must endorse the Authority. The employee in charge must carry the Authority and must not fulfill it until the last machine has arrived in clear of the section.  
(b) Individual track machines will operate in accordance with Section 30 of the Book of Rules.  
(SW 1001/97, WN 2/98)

20.01.1998

**Kerang**

On Tuesday, 20.1, an Up Distant (light) signal was commissioned and the Up Location Board was removed. The Distant is located 1070 metres on the Down side of the Home Arrival signal (Post J) and is automatically controlled by Post J. When the Up Distant displays 'Proceed' it only indicates that the line is clear to the Up Departure Home signal (Post P). (SW 1004/98, WN 3/98)

31.02.1998

**North Geelong C - Mildura, Robinvale & Kulwin**

From Saturday, 31.1, Master Keys 22-29, 31-44, & 81-82 were progressively withdrawn and new Master Keys 75-99 were issued. The new keys have ST21 Fortress type keys attached, are painted yellow, and are engraved 'NGC-MDA-ROB-KUL'.

All Broad Gauge trains operating over the North Geelong C - Mildura, Robinvale, or Kulwin lines must carry a Master Key for the entire journey. The Section Authority Workstation tracks Master Key movements and will automatically assign a Master Key to a train. The Signallers at North Geelong C, Ballarat, Maryborough, Donald, Ouyen, and Mildura must ascertain from the Train Controller the Master Key that is to be issued to the train. The Train Controller must obtain the number of the Master Key held by a train entering the Section Authority Territory at Dunolly from the Kulwin line.

The initial distribution of keys are: North Geelong C (10), Ballarat (2), Maryborough (2), Dunolly (1), Donald (1), Ouyen (6), Mildura (2), Bendigo (1).

It is not necessary to issue a Master Key to a Standard Gauge train operating between Maryborough and Dunolly. (SW 1010/98, WN 5/98)

02.02.1998

**NRC Locomotive Provisioning Centre**

From Monday, 2.2, the points leading to Nos 4, 5 & 6 tracks were unspiked and those roads are now available for use. (SW 1013/98, WN 5/98)

02.02.1998

**North Geelong C - Maroona**

From Monday, 2.2, Master Keys 83 and 84 were withdrawn and new Master Keys 70 and 71 were issued. The new keys have ST21 Fortress type keys attached, are painted yellow, and are engraved 'North Geelong C - Maroona'. The Signallers at North Geelong C and Maroona must ascertain from the Train Controller which Master Key is to be issued to a train. (SW 1011/98, WN 5/98)

(03.02.1998)

**Mooroolbark - Lilydale: Failure of Signals**

The section between Mooroolbark and Lilydale is worked under ATC. The panel at Lilydale controls both Mooroolbark and Lilydale. The Signaller, Lilydale, will carry out the duties specified by the Train Controller in so far as they apply, including the issuing of Caution Orders. Lilydale and Mooroolbark may be switched out and the interlockings will then operate automatically. Lilydale cannot be switched out unless Mooroolbark is switched out.

## a) Lilydale - Failure of Signals when switched in

The Signaller must comply with Rule 6b, Section 16, Book of Rules, if the Up Home Departure signals LIL 303, LIL 305, or Up Dwarf LIL 307 have failed. If the points are correctly detected for the movement, the Signaller must sleeve the opposing Home Departure Signals normal and complete an ATC Caution Order (2367) which must be handed to the Driver. The Driver must ensure that the boom barriers at Mooroodah Highway are down before entering the crossing. If the points are not correctly detected for the movement, the Signaller must arrange for the points to be manually operated to the required position and, for facing points, clipped.

## b) Lilydale - Failure of Signals when switched out

If the Up Home Departure LIL 305 fails to clear when the 5P keyswitch is operated, Lilydale and Mooroolbark must be switched in. The procedures in clause a) will then be applied.

## c) Mooroolbark - Failure of Signals when switched in

The Driver must contact the Signaller, when a train is stopped at Down Home MLK 300, or Up Homes MLK 301 or MLK 303 and there is no a train in the advance section. If the points are detected in the correct position for the movement, the Signaller must complete a Signaller's Caution Order (2377) and dictate it to the Driver who must take it down and repeat the order back. The Driver must ensure that boom barriers at Manchester Road are down before entering the crossing.

The Driver must contact the Signaller, when a train is stopped at Down Homes MLK 302 or MLK 304 and there is no sign of an approaching train. The Signaller must comply with Rule 6b, Section 16, Book of Rules. If the points are correctly detected for the movement, the Signaller must sleeve the opposing Home Departure Signals normal and complete an ATC Caution Order (2367). The Order must be dictated to the Driver who must take it down and repeat it back.

If the point detection has failed, but the points are in the correct position, a competent employee must secure the points with a point clip. If the points are not in the correct position and it is not possible to work around the failure, a competent employee must operate the points and issue Caution Orders under the directions of the Signaller.

## d) Mooroolbark - Failure of Signals when switched out

Should a train be stopped at MLK 300, MLK 301, MLK 303 and the illuminated letter 'A' is not displayed, or at MLK 302, the Driver must communicate with the Signaller. If the signal has failed, Mooroolbark must be switched in and the procedures in clause c) will be applied.

## e) Failure of Post Telephones

Should the post telephones fail, the Driver should inform the Train Controller who will advise the Signaller Lilydale. If a signal failure has occurred, a competent employee must attend the location to issue Caution Orders. (SW 8/98, WN 4/98)

07.02.1998

**Moorabbin**

On Saturday, 7.2, the fixed train stop at MRN 712 was replaced by a motorised train stop. (TS 14/98, WN 5/98)

08.02.1998

**Cheltenham**

On Saturday, 8.2, the fixed train stop at Down Home 14 was replaced by a motorised train stop. (TS 13/98, WN 5/98)

(10.02.1998)

**Donnybrook Loop - Wodonga Loop**

During the period that the resurfacing gang will be working between Donnybrook Loop and Wodonga Loop, the normal instructions will apply for the protection of work (see SW 289/97 in Somersault 20/6 page 96, except that a similar procedure will apply to track machines stabling in the loop where no Cripple Road exists). (SW 1012/98, WN 5/98)

(17.02.1998)

**Metrol**

Whenever a Computer System (A, B, or C) is down for any reason, the Signaller must check the panel logbook and restore all 'Point Sleeved' and 'Track Blocked' commands prior to routing trains. (SW 15/98, WN 6/98)

(17.02.1998)

**Burnley Stabling Sidings**

The instructions dealing with failures at Burnley Stabling Sidings (SW 454/97) have been altered. The main alteration concerns dealing with point failures. If the points at the Stabling Sidings are not correctly detected for the movement, the Signaller must arrange for a competent employee to attend and manually operate the points, derails, and gates, and issue Caution Orders under instructions of the Signaller.

To manually operate the gates, the Signaller must first place the gate lever in the position the gates are required to be in. The employee will then open the cabinet on the left hand side of the security gates and obtain the Release Key. This must be placed in the Key Switch on the exterior of the adjacent cabinet and placed to the 'Brake Release' position. The gates can then be pushed by hand. When the gates are opened they must be secured by the chains provided. Once the gates have been secured open with the lever in the reverse position, detection should be obtained and allow operation of the signals.

Should the post phones fail, the Signaller must arrange for a competent employee to attend the Stabling Sidings to act under the instructions of the Signaller.

If Home BLY 383 at Heyington fails and the Driver cannot contact either the Signaller (via the post phone) or Metrol (via radio), the Driver must use the Emergency Assistance Phone to communicate with the Train Controller via the Control Room Officer. (SW 12/98, WN 6/98)

(17.02.1998)

**Somerton - Upfield**

The Standard Gauge line from Somerton to the Ford Motor Company siding is not available for loco hauled traffic. (SW 1015/98, WN 6/98)

(17.02.1998)

**Corio - Elders IXL Siding**

The instructions for operation of this siding have been issued for insertion into the Book of Rules. They are the same as those in SW 379/97 (see Somersault 21/2 page 31), except as follows. When returning to North Geelong, the Standard Gauge Controller is no longer responsible for checking that a Broad Gauge path is available to return. After obtaining the Manual Authority to cross the Standard Gauge line, the Driver is responsible for obtaining permission to operate the Switch Lock. (SW 1014/98, WN 6/98)

22.02.1998

**Flinders Street - Oakleigh Stabling Sidings**

From Sunday, 22.2, circuit alterations allowed the removal of the Oakleigh Stabling Sidings. Points 634, 645, and 680 were clipped normal. (SW 19/98, WN 8/98)

22.02.1998

**Oakleigh**

From Sunday, 22.2, the signalbox is open from 0600 hours to 2000 hours Monday - Friday and closed on Saturday and Sunday. (SW 17/98, WN 7/98)

22.02.1998

**Springvale**

From Sunday, 22.2, the signalbox is open continuously. (SW 17/98, WN 7/98)

23.02.1998

**North Melbourne - Flemington Bridge**

Commencing Monday, 23.2, the line between North Melbourne and Flemington Bridge was reopened for traffic and will be worked under the rules for Automatic Block Signalling. The automatic termination facility at Flemington Bridge was abolished. Homes FBD 183 and FBD 202 and the facing crossover were abolished. Circuit alterations were made to Homes NME 523 and NME 529 to allow Normal and Medium Speed indications to be displayed. Circulars SW 83/97, 84/97, 98/97, 100/97 and 126/97 are cancelled. (SW 18/98, WN 8/98)

25.02.1998

**North Geelong C**

From Wednesday, 25.02, the Standard Gauge line through North Geelong C may work automatically. During automatic operation the approach of a Standard Gauge train will automatically clear the signals for the train. Whilst in automatic mode, no Broad Gauge train is permitted to operate outside North Geelong Yard or the Grain Loop, nor must a Section Authority be issued for a Broad Gauge train to depart from Gheringhap. North Geelong C must not be placed in automatic mode when a Signaller is rostered to be in attendance.

A 5P key switch is provided on the panel at North Geelong C to switch the Standard Gauge line between automatic and manual working.

The Signaller must ensure that all tracks are clear prior and obtain permission from the Train Controller prior to switching to 'automatic' mode. After permission has been obtained, the Signaller must place all points and signal levers to normal and turn the key switch to the 'automatic' position. After the yellow 'automatic' light illuminates, the Signaller must inform the Train Controller who will make a note on the Graph.

If a Standard Gauge train is stopped at a signal, the Driver must immediately contact the Signaller. If the Signaller fails to respond, the Driver must contact the Train Controller. If North Geelong C is operating automatically, the Train Controller will verbally authorise the Driver to pass the signal at Stop.

To prevent unnecessary operation of the level crossing equipment, trains must not wait line at North Geelong Block Point when North Geelong is operating automatically. For this reason, a Section Authority must not be issued for an Up or Down train to proceed to North Geelong unless a Section Authority is also issued for the next section.

The Signaller must obtain permission from the Train Controller before switching back to manual mode. After permission has been obtained, the Signaller must check that no train is on the approach tracks (including trains travelling away from North Geelong C) before switching the key switch to 'Local'. After the 'Local' indicating light is illuminated, the Signaller must inform the Train Controller who will make a note on the Graph.

Gauge selection of trains approaching from Gheringhap may be performed before the train occupies the approach track circuits. Once the train has occupied the approach tracks, gauge selection can be altered after the approach locking has expired. The gauge selection light will not be illuminated in automatic mode. (SW 1023/98 & 1026/98, WN 8/98 & 9/98)

25.02.1998

**General Motors**

From Wednesday, 25.2, Crossover 7 (in the main line) and Points 7 (to siding) were spiked and clipped normal. (SW 22/98, WN 9/98)

28.02.1998

**Flemington Racecourse**

From Saturday, 28.2, alterations were made to allow trains to be signalled from the Down line into B and No 3 Siding. Down Home 58 (Down Main Line to B to Post 70) was restored to the left hand doll of Post 63 below Home 59. A new Down Disc 57 (Down Main Line to No 3 Siding) was provided on the right hand side of Post 63 beneath the bracket. A new Down Disc 24 (B to No 2 Siding) was provided on the right hand side of Post 70 beneath the bracket. All new signals are electrically lit.

Plunger 21 was altered to lock Points 18D both ways. Plunger 48 was altered to lock Points 49 both ways. Levers 24, 57, and 58 were previously spare. Amend Diagram 29/97. (SW 20/98, WN 8/98)

01.03.1998

**Canterbury**

From Sunday, 1.3, the 50 core cable of L389, L384 and L381 was changed over. (TS 33/98, WN 9/98)

01.03.1998

**Pakenham**

From Sunday, 1.3, pedestrian gates were provided 12 metres on the Up side of No 1 platform to provide access to the island platform from the south side of the line. The gates will commence to operate when levers 6, 8, or 16 are reversed. Home 16 was relocated to a new position 1 metre on the Up side of No 1 Platform. Amend Diagram 9/95. (SW 24/98, WN 9/98)

(03.03.1998)

**North Melbourne - Macaulay**

Diagram 41/97 replaced 13/96. (SW 414/97, WN 8/98)

(03.03.1998)

**Glenbervie - Somerton**

Diagram 51/97 replaced 7/96. The principle alteration is the replacement of Post 26 at Broadmeadows by a three position light signal. (SW 421/97, WN 8/98)

(03.03.1998)

**Blackburn - Ringwood**

Diagram 85/97 replaced 11/92. The principle alterations are the renumbering of the platforms at Blackburn and Ringwood, the provision of pedestrian wicket gates at Springvale Road (Nunawading), and the addition of a note regarding the 5P key switch at Nunawading. (SW 5/98, WN 8/98)

## THE GLEN WAVERLEY LINE IN 1950

Andrew Waugh

### Preamble

The Glen Waverley line has always been purely a suburban line. The first section was passed as part of the 1884 Octopus Act and was intended to open up the valley of Gardiner's Creek to suburban development. As such, the line had a low priority and construction did not start until the late 1880s. The line was opened on 24 March 1890 and closely followed Gardiner's Creek from Burnley to the current site of East Malvern station where it joined the Outer Circle Railway to Oakleigh. Unfortunately, the line was opened after the great land boom of the 1880s had collapsed. The resulting depression meant that suburban development in the Gardiner's Creek valley was non-existent. The line beyond Darling was closed in 1895 and the remainder worked as a single Staff section.

Suburban development resumed in the new century which resulted, eventually, in an improvement in the train service and safeworking. In December 1911, Tooronga was reopened as a Staff station. Electric Staff was introduced in December 1912, and Tooronga was interlocked in June 1913. Suburban development encouraged other modes of transport and the Darling line was crossed by two electric tramways built by the Prahan and Malvern Tramway Trust. The Glenferrie Road (Kooyong) line was opened on 30 May 1913 and the Burke Road (Gardiner) line on 6 December 1917. Both crossings required the provision of an interlocked signalbox to control the tram traffic. In October 1920 Heyington was interlocked and opened as a staff station.

The Darling line was electrified on 17 December 1922.

In the late twenties further work was undertaken to serve the suburban development. The line was extended to Glen Waverley to open up fresh fields for subdivision and the inner section was improved to handle greater traffic. On 8 August 1926, the section between Burnley and Heyington was duplicated and the electric staff system replaced by three position automatic signalling. On 12 December 1926, the remaining electric staff sections were replaced by the lever locking and track control system with the sections Heyington - Tooronga - Glen Iris - Darling. The line was extended along the original route to a new station at Eastmalvern on 3 February 1929. The new section was worked by Lever Locking and Track Control, and Darling was interlocked on 1 February. This was a precursor to the extension of the line to Glen Waverley on 5 May 1930. Ironically, history repeated itself when the Great Depression and then the Second World War frustrated halted subdivision beyond Eastmalvern. The Glen Waverley line was operated by a shuttle from Eastmalvern, in a way very reminiscent of the Burnley - Darling section at the turn of the century.

In 1950 the Glen Waverley line was operated as two separate sections. The inner section between Burnley and Eastmalvern was operated as part of the suburban electrified network. Trains were primarily through routed to the Coburg line and ran fairly frequently: a

Dock Road at Eastmalvern and Glen Waverley. Most of the time, this local train was a single ABM (Double-ended motor) car, though a D (Driving Trailer) was available to make up a two car train. The shuttle ran infrequently; somewhere between half hourly and hourly. Only 23 return trips were made in 18 hours.

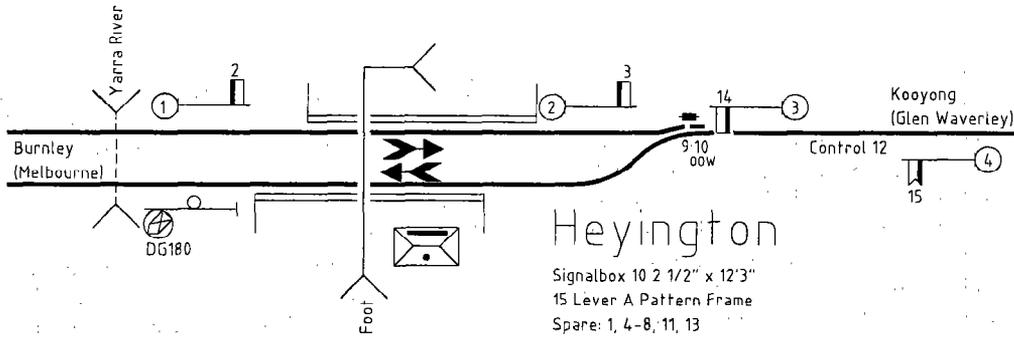
Goods services were equally interesting. Goods facilities were provided at Tooronga, Darling, Mount Waverley, and Glen Waverley. Tooronga and Darling were served by a twice weekly goods (Tuesdays and Thursdays) from Melbourne Yard. This was tabled to be run by an electric locomotive (later known as the E class) and ran in the morning during passenger traffic. The train was consequently limited to a maximum length of 25 vehicles (around 670 feet) to Tooronga and 17 vehicles to Darling (around 470 feet). Further, the goods had to be short enough to be refuged in the public siding at Tooronga. It was common in Melbourne to run suburban goods services after the passenger service had ceased, a Signalman travelling with the train to operate Signalboxes and Gates as required, but this was not done on the Darling line. The difference appears to be the Lever Locking and Track Control System. It would be easy enough for the Control levers in the Signalboxes to be left reverse for a train to run to Darling, but setting up the route for the return journey would have required a second Signalman to traverse the line a section ahead of the goods. Difficult in the days before the private car.

The goods service beyond Darling was provided by the ABM running as a mixed train. On Tuesdays and Thursdays, the ABM hauled the goods vehicles Glen Waverley to Eastmalvern where the passengers changed to the connecting Melbourne service. After the passengers had detrained, the ABM ran as a Goods to Darling where it connected with the Goods from Melbourne Yard. After swapping trucks, the ABM then returned to Eastmalvern as a Goods, collected its passengers, and ran to Glen Waverley as a Mixed. The ABM's maximum load, Up or Down, was 8 vehicles and 70 tons.

### Lever Locking and Track Control

This method of operation was first introduced in November 1924. Its goal was to avoid the delays inherent in electric staff operation on short intensively used sections. Entry to a single line section was solely by signal indication. The signals leading into the single line section (including Disc signals from sidings) were fitted with reversers and were controlled by track circuits and a Control lever in the signalbox at the other end of the section. Home signals leading into the single line section were also provided with train stops to trip any train starting against the signal. Disc signals leading into the section were not equipped with train stops as the normal derails fitted at the exit of the sidings were sufficient to prevent trains from leaving by mistake.

Each signalbox in a Lever Locking and Track Control section was provided with a Control lever to control the Departure signals at the other end of the section. The Control lever could only be reversed if the route was set



Control lever electrically released the departure signals at the other end of the section. The Control lever could be restored to the back lock position at any time (to prevent the departure signals at the other end of the section from being cleared), but could not be restored to the full normal position to allow an opposing move until the single line section was clear.

The rules allowed for intermediate Automatic signals in the single line section. This allowed trains to follow one another at short headway. It is not clear if the intermediate signalboxes at Kooyong and Gardiner performed the same function on the Glen Waverley line.

A Time Release was provided to release the Control lever when required and Pilot Staffs to operate traffic during failure of the system.

An October 1938 memo described the operation as follows. The Signaller sent "release control" (1 short, 1 long, 1 short) when he had a train he wished to despatch. The Signaller in advance reversed the control lever and acknowledged the signal by 3 short beats. When the release was given immediately, a note was to be made in the TRB of both Signalmen. If the release was delayed, the time of both the original request and the acknowledgement was entered in the TRB. When the train was leaving the signalbox, the bell code for the description of the train was sent and acknowledged. The time of arrival of trains at the station must also be shown in both TRBs. The columns of the TRB were to be used:

1. Name and description of train
2. Only used when "release control" is sent and there is a delay in releasing control
3. Time control is released
4. Time of exchanging description of train when leaving signalbox in rear
5. Time that train arrives and departs (and code description sent forward), with arrival time above departure time.

When a control lever was released for a shunting movement, an entry is to be across the figure line

### HEYINGTON

Heyington was the end of the short (1 1/4 mile) double line section from Burnley. The double line was opened in 1926 and was worked by Three Position Automatic Signalling. The section included the lengthy bridge over the Yarra River which, normally, would have made the section expensive to duplicate. However, a double track the late 1880s, and the second track was laid nearly forty

### Heyington Table of Interlocking

Lever	When	Locks
(1)		
2		
3		(9)
(4)		
(5)		
(6)		
(7)		
(8)		
9		10
10		
(11)		
12		(10)
(13)		
14		(10)
15		(14)

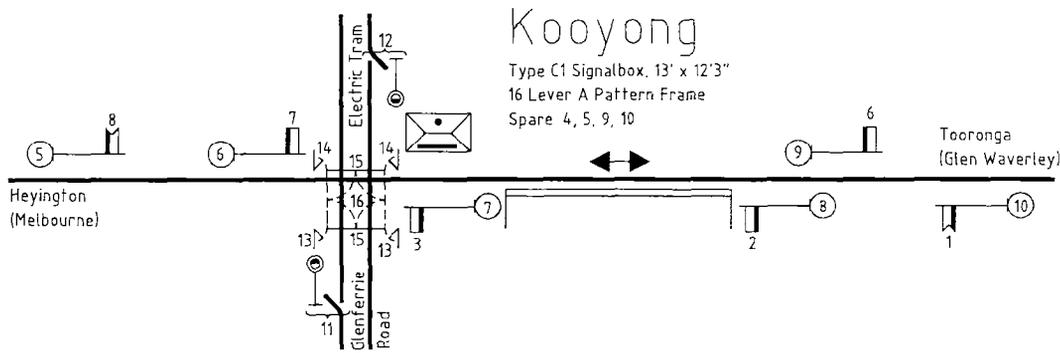
The 1 1/2 mile single line section (Heyington - Tooronga) was worked by Lever Locking and Track Control with an intermediate signalbox at Kooyong.

The signalbox was situated on the Up platform and was opened on the 4.10.1920 with a 15 lever frame. Postwar, there was only one man on duty at Heyington, who had to attend to safeworking duties and could not attend on the Down platform to despatch trains. Down trains were worked under NC conditions and despatched by Guards without the assistance of platform staff (Memo 8.9.49)

One interesting use of Heyington was by the locomotive of the local Burnley goods to run around its train when the number of the vehicles exceeded that which could be accommodated at Burnley. The train was placed on the Down Glen Waverley line at Burnley. The locomotive then ran to Heyington, crossed to the Up line and returned to Burnley. This occurred after the passenger service had ceased and the Signalmen at Heyington and Tooronga had ceased duty. The Operating Porter at Burnley travelled with the locomotive to operate the frame at Heyington. To allow Home 3 to be cleared, the Signaller, Tooronga, had to reverse the Control lever (4) before going off duty.

The Signaller at Heyington was provided with electric bell communication to the Gatekeeper at Madden Grove (near Burnley) and announced the departure of Up trains.

Kooyong was an intermediate signalbox in the



regulate the working of the electric tramway which crossed the line at this point.

The signalbox was opened on the 30 May 1913 with a 16 lever A pattern frame. The official opening of the tramway occurred on the same day.

Catch points and tramway discs were provided in the north and southbound tram lines. These were interlocked with the Up and Down Home signals; note that clearing Up Home 2 required the tramway catch points open and discs at Stop, but did not require the interlocked gates across the roadway. Switching power between the 600V DC tramway supply and 1500V DC railway supply was by operation of the gate stop lever 2. When the gate stop lever was normal (gates across the road) the overhead over the crossing was supplied from the railway supply. When the lever was fully reverse the crossing was connected to the tramway supply.

Kooyong announced Down trains to the gates at Toorak Road (between Kooyong and Toorong) by an electric bell. To avoid checks to Down trains, a memo was issued to the Signaller on 5 October 1945 to send the bell signal when the front of the train enters the crossing (the standard practice was to send the bell signal when a stopping train commences to depart from the station).

**TOORONGA**

Toorong was the first crossing station on the line. The single line sections were Heyington - Toorong (1½ miles) and Toorong - Glen Iris (1¼ miles). Both sections were worked by Lever Locking and Track Control and both had an intermediate signalbox: Kooyong in the Heyington section, and Gardiner in the Glen Iris section. Toorong was by far the busiest crossing station on the line. Of the 75 scheduled weekday crosses on the line in February 1950, nearly two thirds (47) occurred at Toorong. All off-peak and evening trains crossed at Toorong.

The signalbox at Toorong was opened on 30 November 1911 when the station was opened as a Staff and Ticket station. The signalbox was initially provided with a 21 lever frame, which was either replaced, or extended, to a 24 lever frame on 28 November 1926 in conjunction with the provision of Lever Locking and Track Control. Twenty four levers is a very unusual length for an A pattern frame. Almost all such frames are a multiple of five levers (or a multiple of five levers plus one).

Toorong was open for goods. Apart from the public

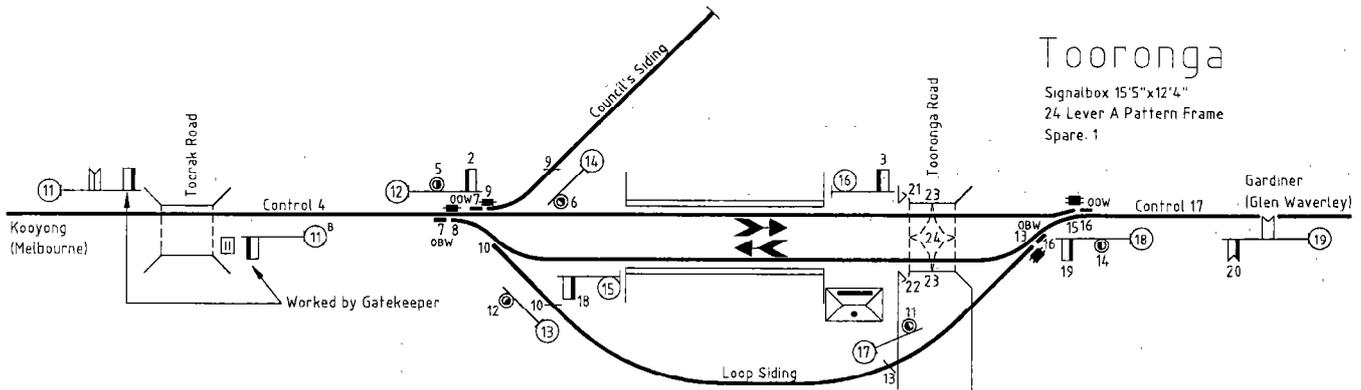
**Kooyong Table of Interlocking**

Lever	When	Locks
1		(2), (3)
2		7, 11, 12
3		7, 15
(4)		
(5)		
6		2, 3
7		15
8		(6), (7)
(9)		
(10)		
11		(15), (16)
12		(15), (16)
13		
14		
15		
16		(15)

private siding on the Down side of the line for the Malvern City Council. As movements out of these sidings required entering the single line sections, the disc signals (6, 11, and 12) were all fitted with reversers and were controlled by the Control levers at Heyington or Glen Iris.

It is interesting to plan the shunting operations of the Goods at Toorong. The February 1950 timetable allows both the Up and Down Goods 34 minutes to shunt, but during each of those periods two Up and two Down trains cross. Further restrictions are imposed by the locking. Goods trains had to arrive into the platform; they could not arrive direct into the sidings as reversal of the Control lever requires the points to be set and locked for the platform road, and the Control lever cannot be restored to normal until the section is clear (i.e. the Goods train had arrived into the platform). Discs 5 and 14 only applied to the sidings and could not be used for setback moves into the platforms. To shunting easier, the Down Goods was marshalled: Loco, loading for Darling, loading for beyond Darling loading, loading for Toorong public siding, loading for the Council's Siding, Van. Clearly, Toorong was shunted from the Up end of the yard.

The loop siding crossed Toorong Road outside the protection of the interlocked gates. During shunting operations the Guard on the shunter was required to be stationed at the crossing before it was fouled by a



**Tooronga Table of Interlocking**

Lever	When	Locks
(1)		
2		(7), 8, 9, 13
3		(15), 23
4		(7), 8, 9
5		(7)
	8	(9)
	(8)	(10), 14
6		7, (9)
7		8 (8), 9 (9)
8		9
9		
10		(8)
11		(13), 16
12		7, (10)
13		15
14		(13), (16)
15		
16		13 (13), 15
17		13, (16)
18		7, (8), 10
19		9, 10, 13, (16), 23
20		(18), (19)
21		
22		
23		
24		(23)

Tooronga announced Up trains to the gatekeeper at Toorak Road by electric bell.

**GARDINER**

Gardiner was an intermediate signalbox in the Tooronga - Glen Iris Lever Locking and Track Control section. As

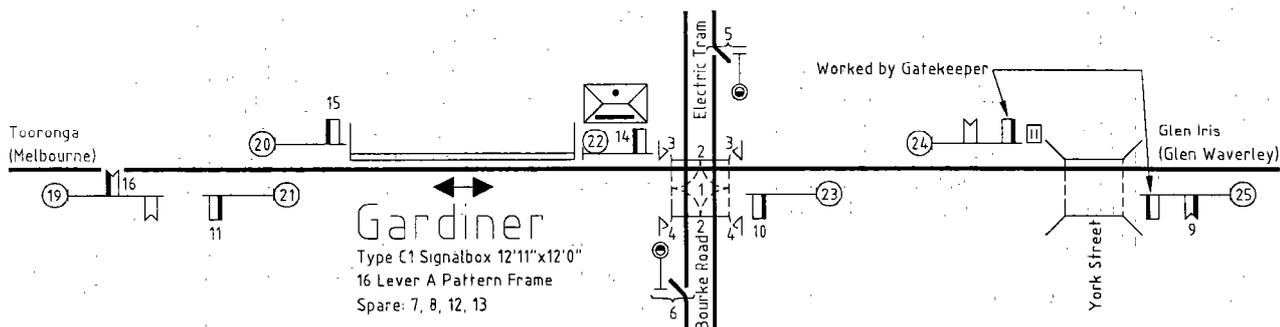
with Kooyong, the main function of the signalbox was to regulate the working of the electric tramway which crossed the line at this point.

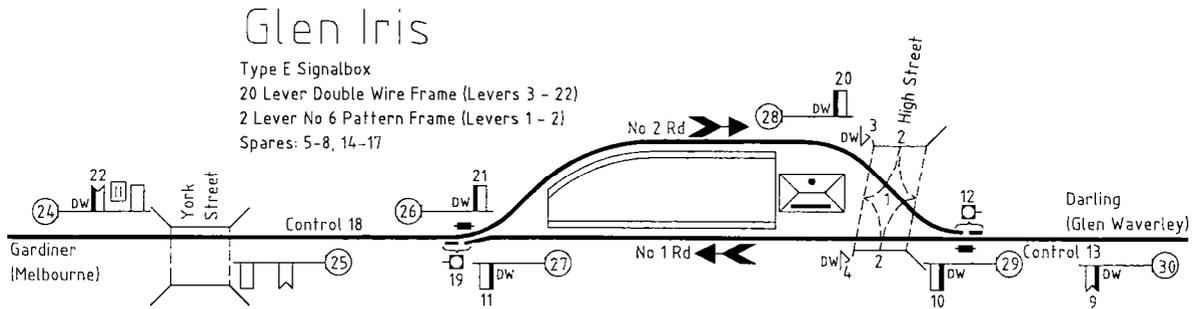
The signalbox was opened on the 5 December 1917 with a 16 lever A pattern frame. The official opening of the tramway occurred on the next day.

See Kooyong for details about working the tramway crossing. In 1935 a memo was sent to the Signalmen at Gardiner after it was noticed that the Tramway Disc for northbound trams was being operated backwards and forwards to signal 'move quickly over crossing'. This practice was prohibited. In 1940 a memo was sent to the Signalmen that complaints had been made that avoidable delays are being caused to tramway traffic due to lack of co-operation by Signalmen. The

**Gardiner Table of Interlocking**

Lever	When	Locks
1		(2)
2		
3		
4		
5		(1), (2)
6		(1), (2)
(7)		
(8)		
9		(10), (11)
10		2, 14, 15
11		14, 15
(12)		
(13)		
14		2
15		5, 6
16		(14), (15)





Signalmen were instructed to keep delays to a minimum possible, although it was acknowledged that some of these 'avoidable' (to tramway staff) delays would be caused by the interlocking of the Distant signals with the gates.

Gardiner announced Down trains to the gates at York Street (between Gardiner and Glen Iris) by an electric bell.

**GLEN IRIS**

Glen Iris was the second crossing loop on the line. The two single line sections were Tooronga - Glen Iris (1¼ miles) and Glen Iris - Darling (½ mile). Both sections were worked by Lever Locking and Track Control.

The signalbox was opened on 19 November 1926, but the full signalling was not brought into use until 12 December 1926 when the Lever Locking and Track Control system was brought into use and Glen Iris was opened as a crossing station.

The Glen Iris frame was unique in Victoria. It consisted of a 20 lever McKenzie and Holland Double Wire Frame which worked the points, signals, and wickets, and a 2 lever No 6 Pattern Frame which worked the interlocked gates. The gate frame was situated at the left hand end of the Double Wire frame. Interlocking between the two frames was achieved by the gate stop lever working a tappet in the Double Wire frame. The "locking room" of the signalbox contained the Double Wire compensators.

The use of the Double Wire frame could be regarded as experimental - even the wickets were worked by wire - as the layout could easily have been worked by a conventional frame. The experiment could also be considered as a failure as future Double Wire installations were only installed where conventional frames were not feasible.

The length of the crossing loops at Glen Iris limited Goods trains to 17 vehicles (about 470 feet) during passenger traffic.

Glen Iris announced the departure of Down trains to the Moira Road gates (at Darling) and Up trains to York Road gates using electric bells.

**DARLING**

Darling was the final crossing loop on the Glen Waverley line. The Lever Locking and Track Control sections were Glen Iris - Darling (½ mile) and Darling - Eastmalvern (¾ mile). Given these extremely short sections, it is probable that the only reason Darling was interlocked at all was the goods sidings. Darling, indeed, had the lowest number of scheduled crosses (7) of all crossing loops on the line. The Darling -

**Glen Iris Table of Interlocking**

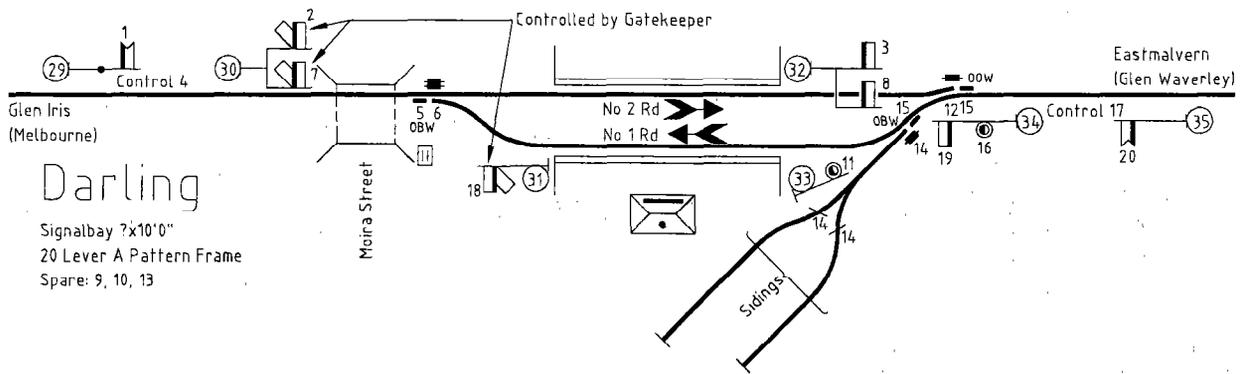
Lever	When	Locks
1		(2)
2		
3		
4		
(5)		
(6)		
(7)		
(8)		
9		(10), (11)
10		2, 12
11		(19)
12		13
13		
(14)		
(15)		
(16)		
(17)		
18		19
19		
20		2, (12)
21		19
22		(20), (21)

Eastmalvern section used a modified form of Lever Locking and Track Control as Eastmalvern had no Control lever; essentially the section was controlled by Darling.

Darling was interlocked on 1 February 1929 in conjunction with the extension of the line to East Malvern, opened two days later. The twenty lever A pattern frame was installed in a signalbay on the Up platform.

Unlike the other crossing loops on the line, Down trains could use either road at Darling. Presumably this was to all trains to terminate in the Up platform, however, by 1950 all trains ran through to Eastmalvern. A second possible use for the bi-directional signalling was to allow both Up and Down trains to use the Up platform outside peak hours, particularly when the Goods train was shunting at Darling.

The busiest time at Darling was Tuesday and Thursday mornings when the Goods shunted Darling. The Down Goods train arrived at 1122 and returned to Melbourne at 1158. During this time, the Goods not only had to shunt the sidings, but it also had to exchange trucks with the ABM car that ran the Mixed service to Glen Waverley. In addition, the Goods had to keep out of the way of two Up and two Down passenger trains that passed through. Shunting was simplified by the



marshalling instructions: the Darling loading was on the engine with loading for the ABM behind that. In addition, permission was granted for up to 10 vehicles to trail behind the Van from Tooronga to Darling or vice versa, but the speed was limited to 15 mph.

Darling announced the departure of Down trains to the Moira Road gates using electric bells.

**EASTMALVERN**

Eastmalvern was essentially two dead end stations. Melbourne trains terminated in the 'main line' platform, whilst the Glen Waverley shuttle operated from the dock platform. The only through trains between Melbourne and Glen Waverley were the three services on Sunday morning, and these undoubtedly only occurred because it was cheaper to use the Glen Waverley shuttle to run the services to Melbourne instead of standing idle at Eastmalvern.

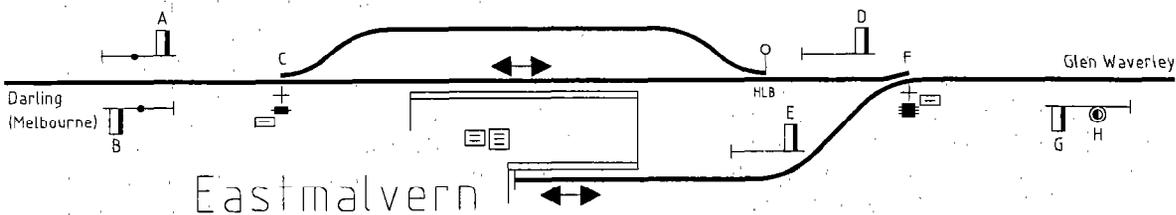
The loop siding opposite the platform was used to stable a 'main line' set. In 1952, one set went 'out' to the siding in the late afternoon (from 1739 to 1905) and it was also used to stable a set overnight (a second set was stabled overnight at the platform). A 1937 memo instructed that when taking trains out of running at Eastmalvern, the Driver and Guard would change ends and push to the Glen Waverley line beyond Points F once Home D was cleared. The Guard then checked that plunger locked points F were right for the move into the loop, operated the scotch block in the loop and reversed the hand locked points leading to the loop. After receiving a green hand signal from the Signalman, the Guard would signal the Driver into the loop and the scotch block was restored across the rails. Bringing trains on from the loop was performed in the same way. No Up movements to the loop or main line was to be

**Darling Table of Interlocking**

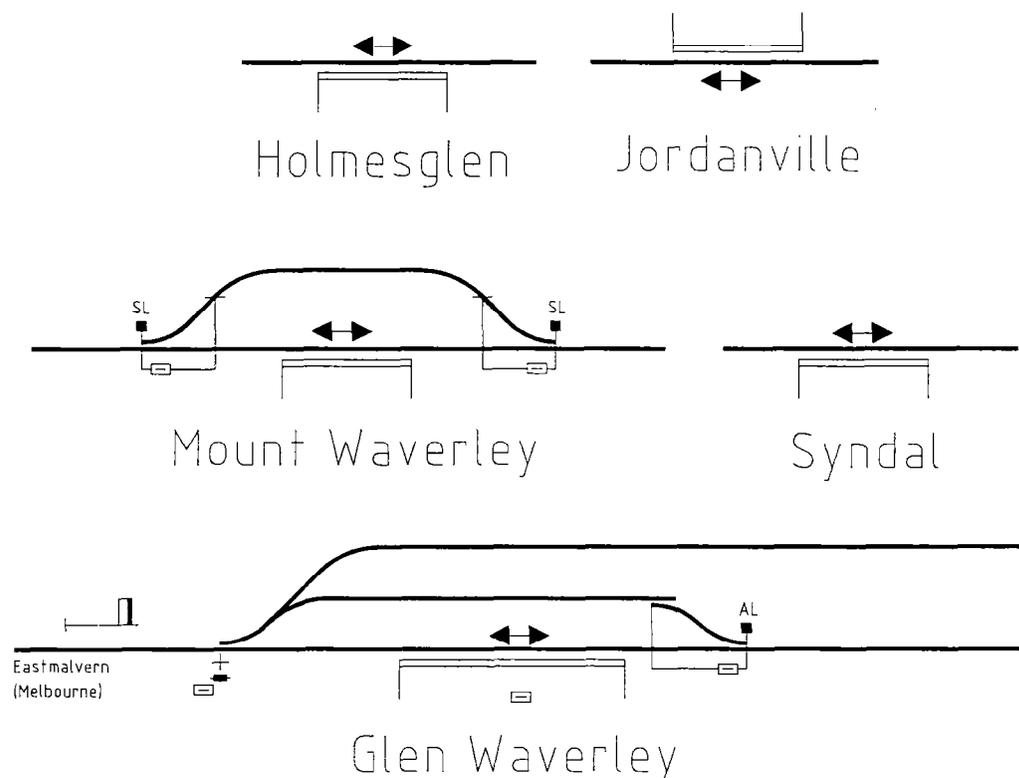
Lever	When	Locks
1		(2), (3)
2		(5), 6, 8, 14
	(12)	16
3		7, (12), 15
4		5
	(6)	17
5		6 (6)
6		
7		(5), (6), 14, 19
8		12, 14, 15, 18
(9)		
(10)		
11		(14), 15
12		14
(13)		
14		
15		12, 14 (14)
16		(14), (15)
17		14, (15)
18		5, (6)
19		14, (15)
20		(18), (19)

made without permission of the Signalman, and then only if Down Home A was at Stop. All shunting movements were to be conducted within the Up Home G. The memo implies that there had been some discussion as to duties at Eastmalvern as it concluded: "Guards must act under the direction of the person in charge and must carry out any duties assigned to them by that person provided they do not conflict with the safeworking regulations or instructions".

The Darling - Eastmalvern section (¾ mile) was operated under a modified form of Lever Locking and



- A defects Pts C normal & PL in when worked from platform
- D defects PL out
- G defects Pts F reverse & PL out when worked from platform
- H defects Pts F normal & PL in when worked from platform



Track Control. As Eastmalvern was a non-interlocked station, no Control lever for the section was provided. This essentially meant that the section was controlled by the Darling Signalman.

The remainder of the line was worked as a single Train Staff and Ticket section Eastmalvern - Glen Waverley (5 ¼ miles). Tickets could be issued, but the timetabled service in February 1950 only required one train. The Driver of the ABM car retained possession of the Staff and the Guard was responsible for carrying out the Train Staff and Ticket rules. When changing ends at Eastmalvern and Glen Waverley, the Driver took the Staff with him. The Staff was shown to the Signalman at Eastmalvern when changing ends.

#### HOLMESGLEN

Holmesglen was a simple NC platform on the Up side of the line only long enough for a four car train.

#### JORDANVILLE

Holmesglen was a simple NC platform on the Down side of the line only long enough for a four car train.

#### MOUNT WAVERLEY

Mount Waverley was a NC station. It had a short (450' clear) loop siding on the Down side of the line with a short platform on the Up side. The points at each end of the siding were rodded to derails and secured by Staff locks. The goods service was worked by the ABM car running as a Mixed. John Sinnatt noted that on the day that he rode the Mixed, it shunted Mount Waverley siding with all the passengers on board. None of the passengers seemed to find this at all unusual.

#### SYNDAL

Syndal was a simple NC platform on the Up side of the line only long enough for a four car train.

#### GLEN WAVERLEY

Glen Waverley was the terminus of the line. The Guard of the ABM which shuttled between Eastmalvern and Glen Waverley was technically responsible for signalling at Glen Waverley, however this was not an onerous task. The Driver retained possession of the Staff when changing ends, no entries were made in the TRB, and the Down Home was remained at Proceed the whole time (secured in that position by means of a bolt and padlock). The ABM stabled at Glen Waverley overnight, and the Staff was kept in the holder of the Ticket box until the train crew booked on next morning.

When a Down train was to be followed by another train, the Guard (or competent employee) on the first train took charge of the signalling. The Down Home signal was restored to Stop immediately upon arrival of the first train and not re-cleared until the train has been shunted clear of No 1 Road.

The crossover at the Down end of the platform was secured by an Annett lock, the key of which was normally kept in a duplicate lock on the platform quadrant.

A.1002/49 (issued 11 September 1949) granted permission to stand a "D" car (Driving Trailer) in No 2 Road. The car was available for attachment to the local train when required A handwritten annotation on a copy of the circular notes that the car was to be stabled at Glen Waverley until the signalling alterations at Eastmalvern were completed to allow car to be stabled in the Dock Road at East Malvern.

#### Postscript

With suburban development continuing beyond Eastmalvern, the facilities described above only lasted a short time. Commencing in 1954, a rapid series of improvements took place.

The first improvement was the interlocking of Eastmalvern on 5 September 1954. Mount Waverley was opened as a temporary Train Staff and Ticket station on 14 November 1955 and was interlocked using a Double Wire frame.

The first duplication was between Kooyong and Gardiner on 20 November 1955. The new double line was worked by Track Block with the sections Kooyong - Tooronga - Gardiner. The section between Glen Iris and Darling was duplicated on 18 March 1956 using automatic signalling. The duplication was extended from Darling to Eastmalvern on 24 June 1956, however Darling signalbox was retained to work goods sidings. Gardiner - Glen Iris was duplicated on 10 November 1957 and automatic signalling was introduced between Tooronga and Glen Iris on the same day. Heyington signalbox was abolished when the line between Heyington and Kooyong was duplicated on 15 December 1957. Automatic signalling was introduced on the same day between Kooyong and Tooronga.

At the end of this resignalling, Heyington was the only signalbox actually closed. Kooyong and Gardiner were retained to control the tramway crossings. Tooronga continued to work the interlocked gates and goods siding. Glen Iris continued to work the interlocked gates, and Darling continued to work the goods sidings.

Attention now turned to the outer end of the line. CTC was installed on the section between East Malvern and Glen Waverley on 7 September 1958 in conjunction with duplication between Mount Waverley and Syndal. The double wire frame at Mount Waverley was abolished at this time. The CTC panel was located at East Malvern. The line was duplicated between East Malvern and Mount Waverley on 28 June 1964 and the mechanical frame at East Malvern was abolished. The CTC panel remained until 29 November 1964 when the final section of line, Syndal to Glen Waverley, was duplicated. A panel was provided at Glen Waverley at this time to work the new yard there.

Tooronga signalbox was finally abolished on 29 May 1966 when the goods siding and interlocked gates were replaced by boom barriers. Glen Iris signalbox was similarly treated on 26 April 1970.

Today, the signalboxes at Kooyong and Gardiner continue to control the passage of trams across the

railway. Darling signalbay, converted to a signalbox when the station was rebuilt, also remains to control emergency terminating facilities. The panel at Glen Waverley is the only other interlocking on the line.

### Sources

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- Heyington*: Interlocking sketch A279 as in service 4.10.1920, amended to 17.11.1935. Signalling Diagram 9/26.
- Kooyong*: Interlocking sketch H72 as in service 15.12.1922, amended to 12.12.1926 and B1279. Signalling Diagram 22/26. 'Prahan and Malvern District Tramways III', P.W. Duckett, ARHS Bulletin, April 1945
- Tooronga*: Interlocking sketch H394 as in service 28.11.1926 amended to 4.4.1939. Signalling Diagram 21/26.
- Gardiner*: Interlocking sketch H413 as in service 26.1.27, amended to 14.5.81. Major alterations to locking took place on 20.11.1955 (Duplication at Up end), and 10.11.1957 (Duplication at Down end). Lever numbering for levers 9 to 16 has been reconstructed, while the locking is conjectural and is based on Kooyong. Signalling Diagram 23/26. 'Prahan and Malvern District Tramways IV', P.W. Duckett, ARHS Bulletin, May 1945
- Glen Iris*: Interlocking sketch B596 as in service 12.12.1926, amended to 18.3.1956. Major alteration was duplication at the Down end on 18.3.56: 9, 12 and 13 became spare; locking on these levers reconstructed. Signalling Diagram 24/26.
- Darling*: Interlocking sketch B693 as in service 01.02.1929, amended to 05.09.1954. Signalling Diagram 12/29.
- Eastmalvern*: Signalling Arrangements F2454 in service 03.02.1929 amended to 4.10.1949.

## SIGNALLING ALTERATIONS

(Continued from Page 44)

- 03.03.1998 **Section Authority System**  
Version 1Cii of the software will have operated fault free for 400 hours from 0700 hours, Tuesday, 3.3. From that time it will no longer be necessary to continuously roster a System Safety Officer at Centrol. (SW 1028/98, WN 9/98)
- 03.03.1998 **Flinders Street**  
From Tuesday, 3.3, Home 316 (Platform 2) was relocated 1 metre east, the Co-acting signal for Home 142 (No 1 West) was restored to service, and track circuitry works were undertaken around Platforms 6 and 7. (SW 27/98, WN 9/98)
- (10.03.1998) **Section Authority System**  
The Archive and Trip Expire activities will now be conducted on Tuesday, Thursday, and Saturdays. Amend Rule 43, Section 19. (SW 1027/98, WN 9/98)
- (10.03.1998) **Newport - Sunshine**  
Diagram 34/97 replaced 16/95. (SW 415/97, WN 9/98)

- (10.03.1998) **Batman - Upfield**  
Diagram 61/97 replaced 23/97. The main alterations were the abolition of signalling at Gowrie, and the relocation of Posts 66 and 67 at Fawkner to the right hand side of the line. (SW 420/97, WN 9/98)
- (10.03.1998) **Dennis - Macleod**  
Diagram 87/97 replaced 27/95. The main alterations are the provision of pedestrian gates at Lower Plenty Road, Rosanna, the spiking out of service of the APM Siding, Fairfield. (SW 11/98, WN 9/98)
- (10.03.1998) **Watsonia - Hurstbridge**  
Diagram 83/97 replaced 3/96. The main alterations are: provision of a co-acting signal at Greensborough for Post 14, provision of 'Siding' signs on Posts 2 and 11 at Eltham, and the provision of Platform 2 at Diamond Creek. (SW 423/97, WN 9/98)
- (10.03.1998) **Riversdale - Alamein**  
Diagram 93/97 replaced 13/77. The main alteration was the provision of Home U11 at Riversdale. (SW 439/97, WN 9/98)
- (10.03.1998) **Dandenong - Nyora**  
Train services have been suspended between Dandenong and Nyora. The line has been booked out of service and a baulk placed 150 metres on the Down side of Home CBE792 at Cranbourne. A SW circular will be issued by the Manager Rail Safety prior to the running of any train on this section (SW 1025/98, WN 9/98)



*The former Flinders Street B Box was demolished over the weekend of 25/26 April 1998 to make room for a pier for the new Federation Square. B Box was opened on 29 September 1901 as part of the massive rebuilding of Flinders Street. Originally containing a 100 lever Rocker frame, it was extended to 109 levers on 6 March 1910 (in conjunction with the provision of new Race and Special lines), to 114 levers on 24 January 1915 (alterations due to electrification) and to 149 levers on 16 June 1918 (additional sidings to Jolimont Workshops). The box worked the connections to the Sandringham, Special, and Race lines. Flinders Street was resignalled in the late 70s and early 80s as part of MURLA project. A panel was installed in B Box on 20 December 1981 and the Rocker frame was abolished on 27 March 1982. Subsequently Flinders Street C Box was demolished and the panel from that box was transferred to B Box on 4 July 1982. Control of the signalling was eventually transferred to Metrol, but the panels were retained for emergencies. In recent years the box has been used for office accommodation.*

