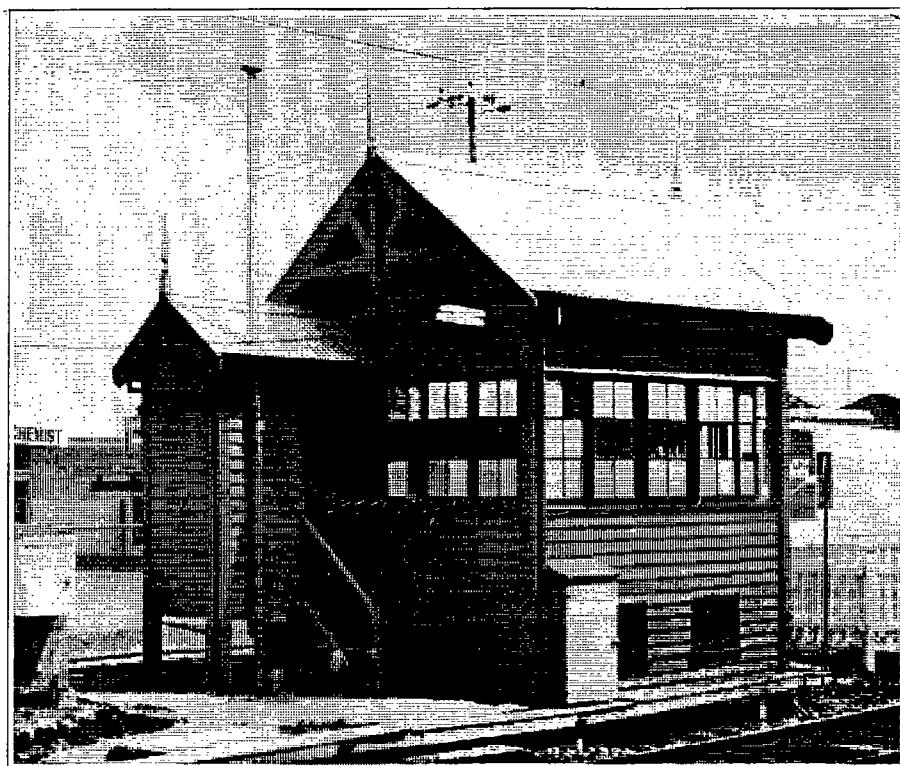


SOMERSAULT

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SIGNALLING RECORD SOCIETY OF VICTORIA INC



The signalbox at Spotswood was brought into service on the 23.05.1890. Tenders for its erection had closed the previous year on 23.09.1889. The contract was won by W. Bennett who bid £173/16/0, but the actual construction cost was only £165/13/9. It is believed that this style of signalbox was introduced in late 1886 and continued to be constructed until around the First World War. The major decorative feature of this design was the tall wooden finials and elaborate bracing on the gable ends. The lower ends of the barge boards are also finished as circles. The finial and round ends are echoed in the gable of the toilet. Spotswood is unusually in retaining all three finials, although some of the cross bracing at the other end has been removed.

Photo: Andrew Waugh

SOCIETY CONTACT INFORMATION:

EDITOR: Andrew Waugh, c/o CSIRO, 723 Swanston St, Carlton, 3053.
Phone (03) 457 3795 (AH), (03) 282 2615 (BH) Fax (03) 282 2600

MANAGING EDITOR: David Langley, P.O. Box 8, Avenel, 3664,
Phone (057) 96 2337 (AH), (057) 92 3288 (BH)

PRESIDENT: Alan Jungwirth,
29 Clements St, East Bentleigh, 3165, Phone (03) 563 7287 (AH)

SECRETARY: Glenn Cumming, 19 Peace St, Glen Iris, 3146.
Phone (03) 885 8546 (AH), (03) 623 3611 (BH),
Fax (03) 623 2911, urgent messages only please.

MEMBERSHIP OFFICER: Colin Rutledge,
P.O. Box 103, Seymour, 3660, Phone: (057) 99-1277.

NSW GROUP LEADER: Neil Curryer,
20 Cooksey Close, Waratah West, 2298, Phone: (049) 67 6960

NSW GROUP SECRETARY: Bob Taaffe,
12 Western Crescent, Westleigh, 2120, Phone: (02) 481 9994.

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Deadline for September 1994 issue is 24 July

MINUTES OF MEETING HELD FRIDAY SEPTEMBER 16, 1994

Present:- A.Jungwirth, N.Bamford, W.Brook, J.Churchward, G.Cumming, A.Gostling, W.Johnston, D.Langley, J.McLean, R.Murray, & L.Tyrell.

Apologies:- K.Lambert, P.Silva & A.Waugh.

The President, Mr. Alan Jungwirth, took the chair and opened the meeting @ 2019 hrs.

The President welcomed visitors Vance Findlay & Alby Tyrell to the meeting.

Minutes of the July Meeting:- Accepted as published. J.McLean/D.Langley.

Matters Arising:- Nil.

Correspondence:- A letter was received from the S.R.S.U.K. responding to our comments on the first volume of "Selections From Somersault".

A letter was received from Debenham Tewson International acting on behalf of the P.T.C. with the lease documents for the former train control room at Seymour. To be discussed in General Business. J.McLean/G.Cumming.

General Business:- Discussion took place on the lease of the former train control room at Seymour by the S.R.S.V. Inc.

Moved David Langley, seconded Jack McLean, that the lease of the former train control room at Seymour be referred to the committee. Carried.

Alan Jungwirth asked about the current status of North Melbourne Junction Signal Box following remote control from Metrol. It is believed that the control panel remains in the building but that it is now out of use.

David Langley reported that the relaying of rail on the standard gauge line has reached Kilmore East. Alan Jungwirth reported on alterations at Newport made as a result of standard gauge track works.

David Langley described the alterations at Gheringhap in preparation for standard gauge track works.

Jack McLean spoke about the impending closure of the Cressy line for conversion to standard gauge and the need to run all traffic via Bacchus Marsh.

Bill Johnston spoke about the work at Tottenham 'B' Box for the new grade crossing and that Post 5G at Tottenham 'B' Box had the spectacle for the signal mounted upside down.

Syllabus Item:- The President introduced member David Langley who, at very short notice, presented a selection of slides from his collection. The slides that were shown featured signalling in New South Wales and South Australia.

At the conclusion of the Syllabus Item, the Chairman thanked David for the entertainment and this was followed by acclamation from those present.

Meeting closed @ 2254 hrs.

The next meeting will be on Friday November 18, 1994 at the McLean residence at 60 Kemnare Street, Box Hill North.

Please note the change in venue for the November 1994 meeting only.

SIGNALLING ALTERATIONS

The following alterations were published in WN 30/94 to WN 38/94. The alterations have been edited to conserve space. Dates in parenthesis are the dates of the Weekly Notice.

- 03.08.1994 **West Tower**
On Wednesday, 3.8.94, Crossover 115 was abolished. Amend Diagram 14/89. (SW 202/94, WN 30/94)
- 03.08.1994 **Gheringhap**
On Wednesday, 3.8.94, Points 10 (leading from the Main Line to Siding C) was disconnected from the interlocking frame and secured for the main line until further notice. (SW 211/94, WN 30/94)
- 08.08.1994 **Gheringhap**
On Monday, 8.8.94, Crossover 13 (leading from the Main Line to Siding A) was disconnected from the interlocking frame and a small point lever was provided to operate the crossover. The main line points are locked and detected for main line movements by a one way Plunger Lock. Disc 19 on Post 3 was abolished. Plunger 12 became a Pilot Lever. (SW 211/94, WN 30/94)
- 08.08.1994 **Carisbrook**
On Monday, 8.8.94, the Loop Sidings and associated points were abolished. (SW 262/94, WN 36/94)
- 10.08.1994 **Morwell**
On Wednesday, 10.8.94, Calling-on light signals were provided on Posts 4 and 5, operated by Levers 44 and 46 respectively. The controls for the Home signals on Posts 4 and 5 have been altered to prevent these signals showing proceed unless the next signal (on Post 38 or 40) is at Proceed. The Calling-on signals on Posts 4 and 5 cannot be cleared unless the track circuit approaching the signal is occupied and the push button is operated by the Signaller.
The control panel has been altered. (SW 214/94, WN 30/94)
- 11.08.1994 **West Tower**
On Thursday, 11.8.94, the catch points and CCW lever at the Up end of the Fruit and Vegetable Market Siding were replaced by a hinged Hayes type derail. A Notice Board lettered 'DERAIL' was provided. The Derail must be locked on after shunting in the siding has been completed. (SW 213/94, WN 31/94)
- 11.08.1994 **Gheringhap**
On Thursday, 11.8.94, Crossover 9 (leading from the Main Line to the Maroona line) was disconnected from the interlocking frame and a small point lever was provided to operate the crossover. The Up end of the crossover is locked and detected for main line movements by a two way Plunger Lock, while the Down end points are similarly secured by a one way Plunger lock. Disc 6 on Post 5 and Disc 14 on Post 4 were abolished. Levers 7, 8, and 9 became a Pilot Levers. (SW 211/94, WN 30/94)
- 14.08.1994 **Frankston**
Commencing Sunday, 14.8.94, Frankston box will be open on Sundays from 0710 hours until 0045 hours Monday. (O.865/94, WN 30/94)
- (16.08.1994) **West Tower**
Further to Circular SW 163/94, two Notice Boards are provided at the junction in the Reversing Loop and Canal Area, and are lettered as follows:
Notice Board No 1 (from Reversing Loop): "Stop - Check Points, obtain permission from Signalman West Tower to enter Canal Area"
Notice Board No 2 (from Canal Area): "Stop - Check Points, obtain permission from Signalman West Tower to enter Reversing Loop" (SW 212/94, WN 30/94)
- (16.08.1994) **Metrol - Failure of Home Signals**
If a train has stopped at a Home Signal in the Metrol Controlled Area and the illuminated letter 'A' is not displayed the Driver must contact the Signaller, Metrol, by means of the Post telephone or the train radio. The Driver must give the train number, the originating station and destination of the train, and the post number of the Home Signal at which the train has stopped.
The Signaller must ascertain whether the signal has failed at 'Stop' by checking the VDU. The information on the VDU must be updated by applying the VDR and RQP commands to the relevant screens. The Signaller must check if the correct route line is set for the train to run.
If the signal has failed and:

a) Track Route Line Displayed

The Signaller must complete and dictate a Signaller's Caution Order (Form 2377) to the Driver by telephone or train radio. The Driver must repeat back the train describer number and the Post number. The Signaller and Driver must exchange names for record purposes.

b) Track Route Line Not Displayed (South Kensington and Clifton Hill excepted)

The points must be considered unlocked if the track route line is not displayed or displayed incorrectly. The Signaller, Metrol, must instruct the Driver to inspect the points and, if they are in the correct position for the passage of the train, to apply the hand locking bar to secure the points. After the points have been secured, the Signaller will authorise the Driver to pass the Signal at Stop as described in clause a). If the Points are not set for the required movement, arrangements must be made for a Signal Maintenance Technician to attend and place the points in the required position. NOTE: Even though the Hand Lock Bars have been applied for a previous train, the Drivers of subsequent trains required to pass the signal at Stop must be instructed to check that the Hand Locking Bars have been applied before a Caution Order is issued.

c) Track Route Line Not Displayed (South Kensington and Clifton Hill)

The points must be considered unlocked if the track route line is not displayed. The Signaller, Metrol, must arrange for a competent employee to operate and secure all points in the affected route. The points may be set manually to the Normal or Reverse position as directed by the Signaller, Metrol. The points must be secured by means of the hand locking bar or point clip (Note: all points are worked by electro-hydraulic point machines.) After setting and securing the points for the intended route, the competent employee must advise the Signaller Metrol by a signal post telephone or by the maintenance plug-in telephone at the points.

The Signaller, Metrol, must ensure that the line ahead of the defective signal is clear to the next fixed signal prior to the issue of a Caution Order. If this is unable to be ascertained, a competent employee must inspect the line ahead. If the line is found to be clear, the competent employee must inform the Signaller, Metrol, and the Caution Order can be issued.

If no competent employee is available then the Driver will be instructed to carry out the duties listed above.

Insert on page 35-8 of the Book of Rules

(SW 207/94, WN 30/94)

21.08.1994

Gheringhap

On Sunday 21.8.94, Points 10 were removed. On the same date, the new Down end points for the proposed Gypsum Siding were installed at 83.400 km (within the yard) and will be commissioned at a later date. Amend Diagram 52/90.

(SW 229/94, WN 32/94)

22.08.1994

Castlemaine

Commencing Monday, 22.8.94, the Signalbox hours will be:

Monday.....	0545 hours until 0040 hours Tuesday
Tuesdays to Fridays.....	0840 hours until 0040 hours the following day
Saturdays & Sundays.....	Switched out

Amend page 56 MTP General Instructions

(O.876/94, WN 31/94)

22.08.1994

Ballarat, Bunge's Siding

Commencing Monday, 22.8.94, the Rail Tractor at Bunge's Siding, Ballarat, will be operated by qualified personnel of Bunge to shunt wagon consignments for their company. The area of operation for the Rail Tractor will be the Siding Tracks at Bunge's within the confines of the Derail Blocks. Under no circumstances must the Rail Tractor operate outside the Derail Blocks or foul any part of the West Sidings line, nor must the Tractor operate with a locomotive under power in any part of Bunge's Siding.

A folding board is provided at the entrance to Bunge's Siding, which, when displayed, reads "NO ENTRY INTO SIDING - TRACTOR SHUNTING IN PLACE". Prior to Tractor Shunting operations commencing, the employee-in-charge of the shunting must ensure from personal observation, that no train movements are taking place in the Sidings. The employee-in-charge must then unlock the folding board so that the sign is displayed. Shunting operations may then commence. The provisions of Rule 3, Section 8, Book of Rules, must be strictly adhered to during shunting. When the "NO ENTRY" sign is displayed trains or locomotives must not enter the Siding until arrangements are made with the employee-in-charge to cease operations. When Tractor shunting operations have ceased and the Tractor and wagons are secure, the employee-in-charge must obscure and lock the "NO ENTRY" sign.

The Derail Blocks are locked with V5PSW padlocks and must be locked on by PTC employees after shunting operations. Bunge employees must not have access to the Derail Blocks.

(SW 228/94, WN 32/94)

(23.08.1994)

Maintenance of Points secured by Special Locks

The procedure for carrying out maintenance on Staff, Annett, or Master Key Locked Points at intermediate sidings, stations, and loops where there is no employee in charge is as follows. These procedures are applicable where the Train Order, Electric Staff, Train Staff and Ticket, or Section Authority Systems are in force.

The Works Leader (Signal Adjustor) must inform the Train Controller of the requirement to carry out maintenance work. The following details must be given to the Train Controller: the location of the work; the position of the points (i.e. Up or Down end); and the period of time required to perform the maintenance. The Train Controller must ensure that the period of time is such that the maintenance will be completed 10 minutes prior to the arrival of a train at either end of the affected section.

If there is sufficient time between trains for the maintenance to be carried out, the Train Controller must give the Works Leader an period of time during which the maintenance must be carried out. The description of the work and allotted period of time must be graphed onto the Train Controller's graph.

Where the Electric Staff or Train Staff and Ticket System is in force the Train Controller must first confer with the Signallers at each end of the affected section and ensure that the section is clear, and permission has not been granted for a train or track machine to enter the section. The Train Staff for the section must be locked away and a notation made in the Train Register Book. If an Electric Staff is out of the staff instruments at the time, the Signaller concerned must, if practicable, restore the Staff to the instruments. The Train Controller must then establish with the Signallers a suitable time period for the maintenance to be carried out. Each Signaller must note the particulars of the time granted in their respective Train Register Books.

Once the time has been allotted the Train Controller must not give permission for a train, track machine or vehicle to enter the affected section until advice is received from the Works Leader that the work has been completed. In the case of maintenance being carried out on a set of Master Key locked points at a Trailable Point Loop, the Train Controller must not permit a train or track machine to approach the loop until the above advice is received.

On completion of the maintenance work the Works Leader must inform the Train Controller. The Controller must record this information on the graph. Under the Electric Staff or Train Staff and Ticket Systems, the Train Controller must inform the Signallers at each end of the affected section. This advice must be noted in the Train Register Books at both locations.

Insert this as a new Rule, 30, on page 27-67, 1994 Book of Rules.

(SW 204/94, WN 31/94)

(23.08.1994) Keon Park - Lalor - Epping

The method of working between Keon Park and Lalor will be Automatic and Track Control (Section 16, 1994 Book of Rules). The section of line between Lalor and Epping is worked as part of Epping station, due to the provision of Low Speed aspects on Home signals EPP.123, LAL.104 and LAL.106. The Signaller at Epping will act as the Train Controller in the routing of trains and the authorising and issuing of System and other Caution Orders between Keon Park and Epping. (WN 31/94)

(23.08.1994) Mooroolbark - Lilydale

The method of working between Mooroolbark and Lilydale will be Automatic and Track Control (Section 16, 1994 Book of Rules). The Signaller at Lilydale will act as the Train Controller in the routing of trains and the authorising and issuing of System and other Caution Orders between Mooroolbark and Lilydale. (SW 223/94, WN 31/94)

(23.08.1994) Ferntree Gully - Upper Ferntree Gully - Upwey - Belgrave

The method of working between Ferntree Gully and Belgrave will be Automatic and Track Control (Section 16, 1994 Book of Rules). The Signaller at Upper Ferntree Gully will act as the Train Controller in the routing of trains and the authorising and issuing of System and other Caution Orders between Ferntree Gully and Belgrave. (SW 221/94, WN 31/94)

(30.08.1994) Dandenong - Cranbourne

Special instructions for the issue of a "Permit to Foul the Line" were issued. Augmented instructions were issued in the next Weekly Notice. (WN 32/94)

02.09.1994 Sunshine

On Friday 2.9.94, Pedestrian Gates were commissioned at Anderson Road (13.258 km). Amend Metro WTT, Page A12, and MTP, page 56. (SW 233/94, WN 34/94)

02.09.1994 Newport

From Friday 2.9.94 until 0300 hours Monday 5.9.94, the following alterations were performed:

1. The former East line became the new Stablings Sidings No 1.
2. Dwarf 46 was relocated in the Up direction to a new position on the new Stablings Sidings No 1.
3. A hand operated Hayes derail, normally locked "off", has been provided in the new Stablings Siding No 1. It will not be necessary to place the derail to the "on" position unless a train is stabled in Siding No 1 without a Driver. In the final arrangement this derail will be replaced by a motor operated derail.
4. Points 45, leading to Stablings Sidings 1 and 2 were spiked Normal.
5. A new set of Points (49A) was provided at the junction of the East and West Lines. These points are spiked to lie for the East line. A dual control point machine is provided and will be operated by Lever 49.

The West line will remain baulked, and the Signaller at Brooklyn must comply with the instructions in SW 226/94 issued 18.08.1994. (SW 244/94, WN 34/94)

(06.09.1994) **Dandenong - Cranbourne**

Special instructions to be followed for the issue of a "Permit To Foul The Line" in conjunction with Absolute Occupation.

The following instructions must be observed whenever Absolute Occupation is required between Dandenong and ABB Siding, or between ABB Siding and Cranbourne, by the Project Manager, Cranbourne Electrification Project.

When an Absolute Occupation Order is issued for one or both of these Sections, the order is to be received by the appointed Project Co-ordinator or Delegated Representative. Once the Absolute Occupation Order has been received and, where applicable, repeated back correctly, the Project Co-ordinator or Delegated Representative must:

- i) Ensure Flagmen are in position to protect the area of Absolute Occupation.
- ii) Write a "Permit to Foul the Line" (in duplicate) specifying the exact location over which the work for which the Permit is required will foul the Absolute Occupation area.
- iii) Sign the "Permit to Foul the Line". The Permit must be read by the Clerk of Works or Ganger-In-Charge. The Permit must be signed by the later to show that they understand the information in the Permit.
- iv) The original of the Permit is to be given to the Clerk of Works or Ganger-In-Charge. The duplicate copy is to be retained by the Project Co-ordinator or Delegated Representative.

Once the "Permit to Foul the Line" has been handed to the Clerk of Works or Ganger-in-Charge, the later is responsible for ensuring that all Contractors fully understand the boundaries of the work area and that under no circumstances are they permitted to work outside these boundaries.

When it is necessary to return the "Permit to Foul the Line", the Clerk of Works or Ganger-in-Charge must:

- i) Ensure all Contractors under his control have cleared the line and that no equipment is fouling any part of the line and that the track is fit for normal traffic.
- ii) Ensure that the Contractors are aware that they are not permitted to again foul the line.
- iii) Take the "Permit to Foul the Line" to the Project Co-ordinator or Delegated Representative and, in his presence, cancel the Permit by writing the word "Cancelled" across the face of the form, together with the time, date, and signature.

The cancelled Permits must be attached to the Absolute Occupation Order and forwarded to the Superintendent Safeworking.

Machines operating near the line which may, during the course of their operation, foul the line must be issued with a "Permit to Foul the Line". A Permit is not required for Road/Rail Vehicles that travel through or into the area of Absolute Occupation, but the vehicle must be accompanied by the Project Co-ordinator or Delegated Representative and he is responsible for advising those working within the area of occupation of the Road/Rail Vehicle journey.

This instruction supersedes SW 48/94.

(WN 33/94)

08.09.1994 **Gheringhap**

On Thursday 8.9.94, a set of points were installed at 83.160 km at the Up end of Gheringhap for the Gypsum Siding. The points will be secured for the Main Line. (SW 248/94, WN 35/94)

11.09.1994 **ABB Transportation Siding**

On Sunday 11.9.94, the following alterations took place:

1. The Staff Locked crossover which connected the ABB Transportation Siding with the Main Line, was relocated 205 metres in the Down direction. It now provides a connection between the Main Line and the new Through Siding. The entrance to the ABB Transportation Siding is via the Through Siding.
2. The portion of line between the existing Main Line connection to ABB and the new connection is electrified, as is the Through Siding. The electric overhead was commissioned for use.
3. The Safeworking Cabin was relocated within the 'V' between the ABB Transportation Siding and the Kimerley Clark Siding.
4. The Train Staff and Ticket System was extended to commence from a point clear of the relocated crossover. Train Order Working also commences from this point. The Train Order Working Territory boards were relocated accordingly.

Amend Diagram 29/90.

(SW 253/94, WN 35/94)

(13.09.1994) **Book of Rules**

Amendments to the 1994 Book of Rules and Operating Procedures are being distributed. A number of amendments to the amendments are to be made:

- i) Rule 44, clause (a), Section 10, page 27, has been omitted from the reprint page. The clause is to be cut out of the original page and pasted on the reprint page.
- ii) Rule 32, clauses f.3 and g, Section 19, page 23, have been omitted:
 - 3) Cancel the Driver's Relief Authority and Train Order held by the Driver of the disabled train
- g) Change of Leading Locomotive

When a train is waiting to cross at a crossing station/loop and the leading locomotive has been changed on a disabled train, the Train Controller must cancel the existing Train Order by issuing a cancelling (fresh) Train Order to the Driver.

- iii) Rule 1, Section 20, Page 1, Replace the Code of Bell Signals with the following:

See Rule	Signal	Beats on Bell	How to Be Given
3	CALL ATTENTION	1	1
5, 6, 24	IS LINE CLEAR FOR TRAIN TO ENTER THE SECTION?	4	4 CONSECUTIVELY
5	TRAIN DEPARTURE	2	2 CONSECUTIVELY
9	TRAIN ARRIVAL OR OBSTRUCTION REMOVED	3	3 CONSECUTIVELY
11, 19, 20	OBSTRUCTION DANGER	6	6 CONSECUTIVELY
8, 14	SECTION CLEAR BUT STATION OR JUNCTION BLOCKED	6	1 PAUSE 5
15,18	STOP AND EXAMINE TRAIN	7	7 CONSECUTIVELY
16	REPEAT SIGNAL	4	2 PAUSE 2
17	CANCELLING "IS LINE CLEAR?" SIGNAL	8	3 PAUSE 5
25	TELEPHONE SIGNAL	3	2 PAUSE 1
26	BLOCKING BACK	6	2 PAUSE 4

(SW 243/94, WN 34/94)

13.09.1994 Berwick

On Tuesday, 13.9.94, cantilever flashing light masts replaced the existing flashing light protection.
Amend diagram 5/91.

(SW 254/94, WN 35/94)

13.09.1994 Gheringhap

On Tuesday 13.9.94, a set of points were installed at 83.450 km at the Up end of Gheringhap for the proposed crossing loop. The points will be secured for the Main Line. (SW 250/94, WN 35/94)

15.09.1994 Benalla B

On Thursday, 15.9.94, the following signalling alterations were made:

- 1) Post 29B (Up Home from Yarrawonga line) was relocated 213 metres further out. A repeater for the Home signal was provided in the Signalbox.
- 2) Post 30 (Up Distant from Yarrawonga line) was abolished.
- 3) A Location Board was provided 1000 metres in the rear of Post 29B.
- 4) The hand operated points connecting the Down end of Siding K to the Yarrawonga line were fitted with a plunger lock. When a train is to arrive from the Yarrawonga line direct into Siding K, the Home signal on Post 29B will be operated from the quadrant adjacent to the points. When the points are set and secured for the main line, the signal may be operated from the signalbox.

Amend Diagram 4/92 and page 236, Book of Signals.

(SW 251/94, WN 35/94)

16.09.1994 Wodonga 'A'

On Friday 16.9.94, the Down Distant signal was converted from a fixed arm to a working signal. The distant is not controlled by a lever and will automatically assume the 'Proceed' position when:

- 1) The Home signals on Posts 2 and 5 are at Proceed; and
- 2) Either of the Home signals on Post 10 or 10B is at Proceed; and
- 3) There is no obstruction between the Down Distant Signal and Posts 84 and 86.

The Down Distant signal applies to either No 1 or No 2 Road. When the Proceed aspect is exhibited on the Distant Signal, it indicates that the line is only clear as far as Post 84 (No 1 Road) or Post 86 (No 2 Road), depending on the route set.

Insert on Diagram 32/90 and page 35-8, Book of Rules.

(SW 255/94, WN 36/94)

17.09.1994 Newport

Commencing Saturday 17.9.94 and until Monday 19.9.94, the following alterations took place:

- 1) Post 34 was abolished and the Home signal was placed on Post 33. The top 'arm' (Home 56) applies to the West Line, while the bottom 'arm' (Home 54) applies to the East Line. Each signal has a reflectorised sign immediately beneath the light unit lettered 'WEST LINE' and 'EAST LINE' respectively.
2. Homes 38 and 42 were relocated to a Signal Bridge 100 metres further out.
3. Points 49A at the new junction of the East and West lines were unspiked. The point motor can, at this stage, only be hand operated. Detection is provided in both the Normal and Reverse positions. Both the Selector and Hand Throw levers must be locked in the required position. For operational expediency, it is advisable that the Points be left lying for the East Line.

4. The connection to the West Line was brought into service and the Baulk and 'Limit of Shunt' Board was removed.
5. Points 45 and 49 will remain spiked out of service.
6. Signals 30, 38, 42, 44, 54, 56, 58, and 60 will be made fully operational. (SW 249/94, WN 35/94)

18.09.1994

Gheringhap

On Sunday 18.9.94, a set of Points were installed at the Down end of Gheringhap yard at 84.450 km. The points were secured for the Main Line. The points are for the proposed Crossing Loop.

(SW 260/94, WN 36/94)

19.09.1994

Moulamein

Commencing Monday 19.9.94, the following instructions became effective:

A hand operated Hayes Derail Block was provided on the main line 165 metres on the Up side of the hand points leading into No 2 Road. The Derail is secured by a V5PSW padlock and chain. A notice board lettered "STOP DERAIL BLOCK AHEAD" is provided 150 metres on the Up side of the derail. A sign was fixed to the base of the existing Location Board worded "WARNING STOP SIGN AHEAD". The Location Board is 1070 metres from the Derail Block.

When a Down train is approaching Moulamein, the train must be stopped at the Stop board. Once the Driver is satisfied that the line is clear and the derail block has been removed, normal shunting may commence. If a load in excess of 9 bogie vehicles is to be left for loading, the vehicles may be left secured on the main line within the protection of the derail block. The WSa points at the Up end may be left unlocked to allow the operator access into No 2 road for the purpose of placing the vehicles for loading.

Insert on page 35-8 of the Book of Rules.

(SW 258/94, WN 36/94)

(20.09.1994)

1994 Book of Rules and Operating Procedures

The following amendment is to be made to Section 16-20 (Automatic and Track Control System), Rule 15 (Train not to Return to the Station in the Rear, except as Authorised). The following clauses are to be substituted for clauses (b) and (c):

- (b) Set Back Movement to Unattended Station.

If the station in the rear is an unattended station, the Train Controller must:

- (1) Arrange for the Signaller at the attended crossing station to sleeve the applicable Home Departure Signal lever in the "Stop" position until the set back movement has been completed.

Having received confirmation that this has been done, the Train Controller must issue a Train Authority to the Driver as authority to set the train back.

On a train with a driving cab at both ends, the Driver must change ends and then drive from the leading cab. Where this is not possible, the services of a competent employee must be obtained to ride the leading vehicle when setting back to the unattended station.

- (c) Train Arrived at Unattended Station

When the train arrives at the unattended crossing station, the Train Controller must be informed. The Train Controller will then inform the Signaller at the attended crossing station. The Driver must then cancel the Train Authority after being satisfied that the train has arrived complete.

(SW 252/94, WN 35/94)

24.09.1994

West Tower

On Saturday 24.9.94, Points 111 (at the entrance to the East Yard) and Crossover 115 (in the Main Goods Line) were abolished. Amend diagram 14/89.

(SW 268/94, WN 37/94)

26.09.1994

Warrenheip

On Monday 26.9.1994, the Up Distant signal was replaced by a new 6.5 metre post. The Up Co-acting Distant Signal was abolished.

Amend Page 148, Book of Signals, and Diagram 2/94.

(SW 267/94, WN 37/94)

26.09.1994

Moolort

On Monday 26.9.94, a new Ballast siding was commissioned. The siding is situated opposite the existing siding at 162.483 km. The points at both ends of the siding are worked by WSa levers and secured by Staff locks. Hand operated Hayes derails are provided at both ends of the siding. The clear length of the siding is 411 metres. Insert on page 47, MTP.

(SW 263/94, WN 37/94)

26.09.1994

Automatic Staff Exchangers

Commencing forthwith, all ground and locomotive Automatic Exchange equipment will be progressively removed.

Delete Rule 38, Section 22, pages 39 to 42, Book of Rules, and the speed limit for Automatic Exchanging in Rule 40, Page 43. Delete speed limits for automatic exchange on Page 11, WTT General Instructions, and the instructions on Pages 29 and 43.

(SW 271/94, WN 37/94)

Delete the instructions commencing at the top of the page and extending down to Operating Procedure 4.

- ii) Section 19: page 19-1 'Section Authority Working'
In addition to the current definition of an 'Open/Close Location' in Clause 13, add the following to the end: 'Certain locations when closed will become a Block Point Location'

(SW 261/94, WN 36/94)

(27.09.1994) Yarragon - Maryvale

Diagram 6/94 replaced 8/93. The diagram shows the Calling-on signals on Posts 4 and 5, Morwell.

(SW 241/94, WN 36/94)

02.10.1994 Newport

On Sunday 2.10.94, Sidings A and B were removed. Dwarfs 146 and 150 and Points 145 and 149 were abolished. Amend Diagram 21/86.

(SW 278/94, WN 38/94)

(04.10.1994) Frankston

Before placing any Fixed signal which control train movements over the Beach Street Pedestrian Crossing to Proceed (other than Signals 71, 72, 73 or 74), the Signaller must first activate the Pedestrian barriers by placing Lever 77 normal.

To prevent excessive operation of the Pedestrian Boom Barriers, Drivers of trains involved in shunting movements over the crossing must notify the Signaller at Frankston signalbox when their train is ready to shunt or dock. The Stationmaster, Frankston, must notify the Signaller if any Up departing train will be delayed beyond its scheduled departure time.

(SW 269/94, WN 37/94)

07.10.1994 Tottenham

On Friday 7.10.94, Signal MGS 352 was temporarily relocated to the opposite side of the line 39 metres in the Down direction from its former position. This arrangement will apply until the Tottenham Standard Gauge loop is commissioned. Amend Diagram 15/94.

(SW 279/94, WN 38/94)

07.10.1994 West Tower

On Friday 7.10.94, No 2 Icing Track was abolished. All trackwork up to Dwarf 118 was removed and Points 127 were secured to lie in the Reverse position. Amend Diagram 14/89. (SW 281/94, WN 38/94)

(11.10.1994) Operation of Signal Control Panels

Signallers operating Unilever type Signal Control Panels such as Burnley, Newport, Seymour, Ballarat, Box Hill, Bendigo, etc., must not operate any Point Lever unless the "Points Available" light is displayed. Signallers must observe Indication lights prior to operating Signal Levers.

The practice of storing movements on this type of Signal Control Panel is operationally irregular, and is not approved by the Signals and Communications Department. This method of operation could result in Points "run through" and damaged, derailments, wrong routing and even collisions.

(SW 272/94, WN 38/94)

16.10.1994 West Tower

Commencing Sunday 16.10.94, West Tower Signalbox will be open continuously. Amend page A10A of the Metro WTT.

(O 1120/94, WN 38/94)

INSTRUCTIONS TO SIGNALMEN

MELBOURNE YARD

CIRCA 1920

1. The Signalman must satisfy himself that the Block Recorder is performing his duties in a proper manner.

The chief duties of a Block Recorder are to make the necessary entries, accurately and neatly, in the Train Register Book, and to attend to the telephone; and the Signalman must not require him to undertake other work which would cause him to neglect these duties. During the slack portion of the day, and while the Recorder is attending to his recording duties, the Signalman should, whenever practicable, personally attend to the telephones.

2. As soon as practicable, after the hand-signal lamps used in connection with Fog-signalling are returned to a Signalbox, the Signalman must clean, trim, and fill them so that they will be in readiness when next required.

3. The Signalman in each box must satisfy himself that all Semaphore lamps are lit at the proper time, and that there is no undue delay in extinguishing them. Any irregularity in connexion with these duties must be reported by him to the Superintendent of Melbourne Yards.

4. In the event of a window of a Signal-box being broken the senior Signalman on duty must report the matter at once to the Superintendent of Melbourne Yards, stating the cause of the damage.

5. Any telegram or message received at the Signal-box for the Electrical Fitters must be delivered to them, or if this be impracticable, repeated to the Signalman at North Melbourne Junction, and at "B" Box, Flinders-street who must take whatever steps are necessary to have the communication delivered.

6. Every Signalman must endeavour to prevent delays to Suburban Passenger trains, and must in every case satisfy himself, before permitting a Goods train to enter a section between Passenger trains, that it is not likely to cause delay to the latter.

7. In any instance in which Suburban Passenger traffic is delayed by the slow movement of an engine from one road to another, or its failure to take a signal promptly, or by its being an unduly long time in taking water, the Signalman must promptly report the facts to the Superintendent of Melbourne Yards, stating the number of the engine concerned. If the delay takes place at Flinders-street or Princes'-bridge, the Locomotive Officer at such place must be promptly notified.

8. If there is reason to suspect that the points or signals have been interfered with by unauthorized persons, the Superintendent of Melbourne Yards, or if the Yard Office is not open, the Stationmaster, the Block and Signal Inspector, and the Signal Adjustor must be immediately advised.

9. In any case in which a derailment occurs at Interlocked Points, the Superintendent of Melbourne Yards, the Block and Signal Inspector, and the Signal Adjustor must immediately be notified by telephone, and a full report of the circumstances afterwards submitted to the Superintendent of Melbourne Yards by memorandum.

10. The doors leading to the ground floor and intermediate floors of Signal-boxes must be kept locked and the keys retained under the supervision of the

Signalman in charge. They must not be given to any one other than a duly authorized officer or employee, who must be warned against smoking, and also in respect to the careful use of any lights he may find it necessary to use. He must also be informed that no unauthorized person must be allowed to accompany him, or gain access to the building during the time he retains the use of the keys, which must be promptly returned to the Signalman in charge on completion of the work.

Signalman in charge must inspect the ground and intermediate floors as often as practicable, and see that no accumulations of rubbish, waste paper, &c, takes place, so that they are clean and in order.

11. Signalmen, in addition to carrying out the provisions of Regulation 248, and Appendixes IV, and V, must immediately report by telephone as well as memorandum to the Superintendent of Melbourne Yards, every instance in which a train has entered a section without authority.

12. Every signal exchanged on the Block Instruments must be distinctly called out by the Signalman for the Block Recorder to register.

Flinders-street and Jolimont

13. In any instance in which an Up Goods train has trucks to put off in the Jolimont Yard, and the Guard fails to comply with the instructions in the General Appendix, page 519, thus necessitating the breaking of an Electric Locking paper, the Signalman must at once notify the Superintendent of Melbourne Yards, the Block and Signal Inspector, and the Signal Adjustor of the facts, stating the name of the train.

14. Whenever it is necessary to work an engine or train through the Car Sidings, which are situated between the East Melbourne Cricket Ground and the Down Country Lines, the Shunter in charge must so inform the Yard Foreman, who must then arrange with the Signalmen at "D" and "E" Boxes, and with the Shunter in charge of train operations in regard to the movements to be carried out. An engine or train must not exceed a speed of 5 miles per hour whilst travelling through the Sidings.

15. When it is desired to couple two or more engines together, the coupling should be done in the Yard, but if this be impracticable, the engines must be allowed to go single. Light engines must not be permitted to follow from the Yard to the Starting Signals on the Viaduct (No 8 Post), or to the Starting Signal to Port Melbourne (No 51 Post) for the purpose of coupling there.

16. Whenever time can be saved thereby, trains for the Camberwell line should be despatched from No. 3 Road, via the Country line.

17. When Williamstown or Coburg trains are running out of order, the Signalman at "C" Box must so advise the Assistant Superintendent of Melbourne Yards, Yard Foreman, or Shunter in charge, and must keep in touch with the employee notified, in order that the best arrangements may be made to re-adjust the running.

18. Before turning an engine into No 14 Road for the purpose of picking up a train, the Signalman at "A" Box

must notify the Yard Foreman of the intended movement and the latter must then arrange for a Shunter to be in readiness to turn the engine from No. 14 to No 15 Road.

19. Newspaper trains must be turned into No. 8 Road for the purpose of picking up the newspapers. The Watchmen at Flinders-street will advise the Signalman at "C" Box when the loading is completed. Each of the trains mentioned must have a "Z" van attached to it on leaving Melbourne.

20. In respect of each Goods train for Port Melbourne or for Spencer-street, the Signalman at "B" Box must record, in the Train Register Book, the time he received advice that it was ready to start, the actual time of departure, and the cause of any delay after the receipt of the advice.

21. During passenger traffic, Goods trains for the Caulfield line must, as far as practicable, be turned into the special lines, from where they must be dealt with by "E" Signalbox as opportunity offers.

Dudley-street

22. As far as practicable, Race and Special engines are to be grouped and coupled together before being worked to the Passenger Yard or across the Viaduct to Flinders-street. Strict attention must be paid to Note 6, on page 237 of the General Appendix. The Signalman at Dudley-street must suitably place the engines, and arrange with the Yard Staff to have them coupled.

23. Engines for the pit must be given prompt despatch; passenger engines being worked to the North Side and Goods engines to the South Side of the coal stage when practicable.

The Driver in charge of an engine going over the pit must accept the signal for the North or South side.

In all cases where the Driver refuses to accept the signal lowered, the Signalman must report the matter, giving the number of the engine, date, and time of occurrence.

24. A clear road must be kept by the Signalman at Dudley-street for the passage of the Northern and South-Western Newspaper trains, and shunting movements, if avoidable must not be carried out in the vicinity of Dudley-street Box within three (3) minutes of the departure times of these trains. Clear roads must also be kept as far as practicable for the departure of the 12.50 p.m. North-East, 2.35 p.m. Northern, 4.25 p.m. (3.50 p.m. Saturday) South-Western trains.

25. All incoming trains should be promptly and suitably placed by train engines. The Signalman at Dudley-street will require to ascertain the class of loading on each Up train approaching this junction. (See Instructions to Guards, Clauses 18 and 19), and ascertain from the Yard Foreman or Leading Shunter on the Gravitation, upon which section of the Yard it is to be placed, and, if practicable give it a clear run. If, however, the class of loading can not be ascertained before arrival at the Junction, the train must be stopped at the Home Signal, and the information obtained from the Shunter in charge of the Footbridge Cabin.

26. When permission cannot be obtained to allow a train to pull into the Yard, within five (5) minutes after the arrival at the Home Signal, and it is known that a suitable road at the Gravitation is free to receive same, the Signalman at Dudley-street must communicate with the Signal-Shunter in charge of the Gravitation Signal-box,

and request him to inform the Assistant Superintendent, Yard Foreman, or Leading Shunter.

27. In the event of their being no clear road on the Gravitation, and a likelihood of Passenger trains being blocked at North Melbourne Junction by Goods trains waiting to get into the Yard, the Yard Foreman and the Yard Office must immediately be communicated with, so that steps may be taken to get the roads cleared, but if no action be taken, the Signalman must turn the Goods trains into the West Yard, Shed Roads, East Yard, Shipping Sidings, West Yard Car Sidings, or Viaduct Goods lines. If any doubt exists as to the road being clear to any of these places the Assistant Signalman must be sent down to instruct the Driver and warn him to exercise care. Before such action is taken, however, the Signalman must ascertain from the Signalman at North Melbourne Junction, whether any Passenger trains are likely to be blocked.

28. A return on the prescribed form T.N. 29, showing all Up goods trains detained at Dudley-street Signal-box must be handed in to the Yard Office at 8.30 a.m. daily. In the case of Goods trains arriving over the Viaduct, the following information must be shown:-

Time arrival at Dudley-street Home Signal (coming over the Viaduct, if there be a train ahead, four minutes must be allowed from the time it passes the Viaduct Junction for it to come slowly up to such train). The arrival time on the Shed Roads must then be shown, one minute being allowed after engine passes the box when setting back.

29. In the event of an Up Goods train being blocked at Dudley-street by trains departing from the New Yard, the particulars must be shown in the "Remarks" column on T.N. 29.

30. In any instance in which South-Eastern, Eastern, or Stony Point line trains arrive at Dudley-street on the Viaduct Roads and there is no road available, the Signalman must immediately so advise the Gravitation Cabin, by telephone, or, if this be impracticable, the Yard Foreman's Office. The employee who receives the message must at once take steps to advise the Assistant Superintendent of Melbourne Yards, the Yard Foreman, or the Assistant Yard Foreman, who must promptly make arrangements to clear a Shed Road to receive the train.

31. The Signalman at Dudley-street must notify the Assistant Superintendent of Melbourne Yards on duty when [any ##] extra loading has been placed on top of loading already standing on the north end of the Gravitation.

32. Switching engines with trucks attached must not be turned to the loco. roads (situated between the north end of the coal stage and the engine shed). All such engines must, if practicable, go towards the Wash-out siding, North Melbourne Sidings, or the two departure roads.

32. Light engines going to Essendon to run Suburban trains (Broadmeadows) must be sent via the Goods line to North Melbourne Junction or Kensington, provided there is no engine or train in front of them or between Dudley-street Box and either Junction. If both Junctions be blocked the light engine must be despatched via No. 1 Box, Spencer Street.

34. The Signalman at Dudley-street must keep a record from whom he receives authority for the despatch of light engines from Melbourne.

**Kensington, South Kensington, North
Melbourne Junction, Weighbridge Junction
and Dudley-street**

35. Heavy Main Line Goods trains must not be allowed to leave South Kensington Junction between 4.30 p.m. and 4.50 p.m. Express trains. When the 5.8 p.m. Down North Western Passenger train is running, the main line Goods train must not leave until after its departure.

36. A train conveying live stock from Newmarket to the Goods Yard, and the Up section Kensington - Weighbridge Junction, Weighbridge Junction - Dudley-street, being blocked, it is to be despatched via North Melbourne Junction to the Goods Yard, provided North Melbourne Junction can receive it without causing detention to the Passenger traffic. If North Melbourne Junction is unable to take the train owing to the block section being occupied, the Signalmen at Kensington and Weighbridge Junction are to confer, and, in the case of No 8 Road being clear between Dudley-street and Weighbridge Junction, the train is to be worked via No. 8 Road.

37. In the event of the Goods lines via the Weighbridge Junction being occupied, light engines from South Kensington and Kensington are to be despatched to the Melbourne Yard during Passenger traffic via North Melbourne Junction, and via Franklin-street and No. 1 Box during the duration of Passenger traffic.

38. North-East Goods trains must not be allowed to leave Kensington between the hours of 5 a.m. and 8.15 a.m.

39. In any instance in which a Flag-signalman is required at North Melbourne Junction, the Signalman must apply to the Stationmaster, North Melbourne. An Assistant Signalman must not be utilized as a Flagman except in any case in which serious delay would be caused by waiting for the Stationmaster to supply a man.

No. 1 and Dudley-street Boxes

40. The Sydney Express train, when proceeding to and from the Passenger Yard via the Loop, must be given precedence over all Goods trains, Goods engines, or Goods Yard movements.

South Kensington

41. Minifie and Company's employees are not permitted to shunt trucks past the notice board erected inside of Disc Signal No. 33, in the outwards direction, without the authority of the Signalman on duty. The Signalman is to afford every facility, consistent with safety, to enable them to carry out shunting operations.

42. Before permitting a pilot for Angliss' Siding to proceed to Footscray, the Signalman at South Kensington must ascertain from the Signalman at Footscray whether the pilot can be accommodated without causing delay to the passenger traffic.

Weighbridge Junction

43. The Signalman at Weighbridge Junction must ascertain full particulars of train and the engine number of any train stalling between South Kensington and Weighbridge Junction Signal-box, and transmit the information to the Signalman at South Kensington and to the Superintendent of Melbourne Yards Office.

Viaduct and No. 1. Boxes

44. In the event of the door of a vehicle being open on a train leaving the Island Platform, Spencer Street, the Signalman at either No. 1 Box, or Viaduct Junction, must immediately so advise the Station-master, Spencer-street by telephone.

45. Engines ex Flinders-street which, after being put over the pit, and are required to return to that station to run a Passenger train, if at all practicable, are to be sent over the pit via the Passenger lines, if a Goods train is occupying the Goods lines.

46. Permission must be obtained from "A" Box, Flinders-street before a Goods train is sent across the Viaduct in busy periods of the day.

Viaduct Junction and "A" Box Flinders-street

47. When a train approaching from Flinders-street via the North Viaduct Line will not clear in time to avoid delaying an Up Essendon train, the latter may be sent via the North Line, and thus clear the Up Line at No. 1 Box as soon as possible.

THE END OF AUTOMATIC STAFF EXCHANGING

SW 271/94 notified that "commencing forthwith all Automatic Staff Exchange equipment, both ground and locomotive apparatus, will be progressively removed." The end of automatic staff exchanging in Victoria means the end of this practice in Australia. Informed sources suggest that Victoria could have been the last place in the world to use Automatic Token Exchange equipment.

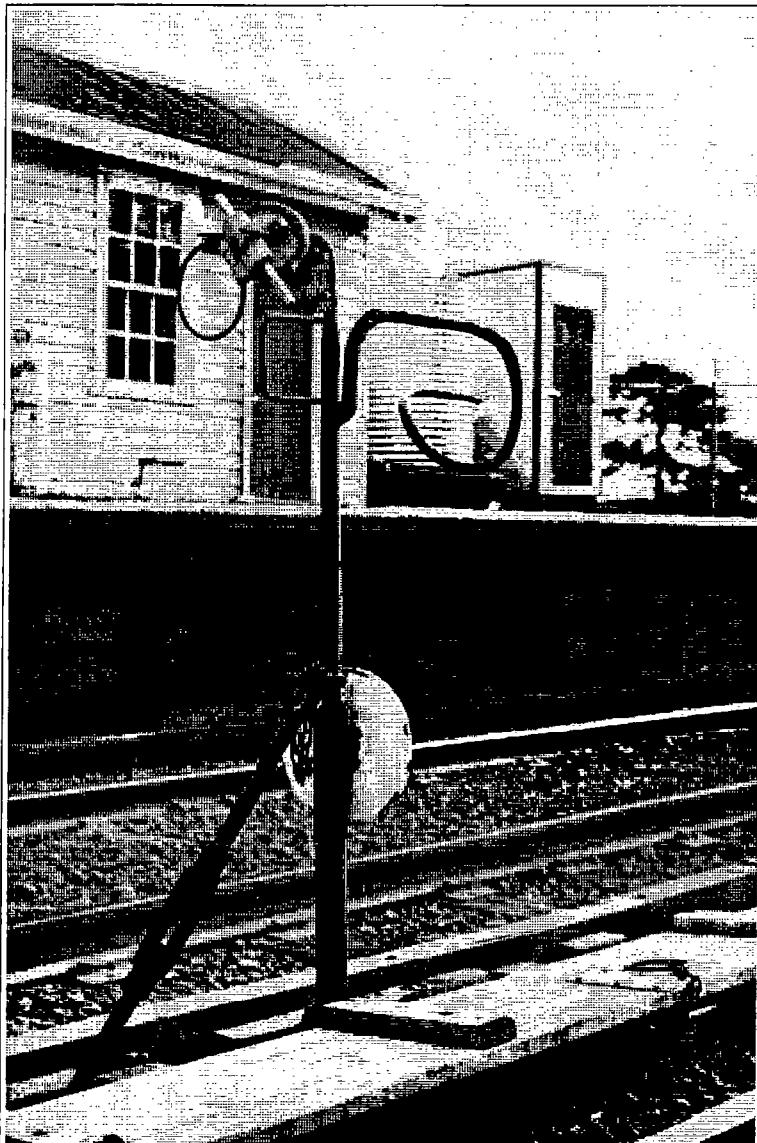
The principle of using the curved rams head to pick up the staff was invented by William Clark, a Steam Shed Inspector at Goulburn, NSW. It was in use on the NSW railways by 1910. The apparatus was described in the British 'Railway Gazette' of 09.12.1910. The only major difference between the apparatus described in 1910 and that abolished in Victoria in 1994 was that the curled 'ram's horn' was only provided on the locomotive apparatus; the ground exchanger had a short straight spike.

South Australia also used this pattern of Staff Exchanger between November 1937 and August 1981 because of union safety concerns ('Line Clear', Reece Jennings). The last auto exchange in New South Wales occurred in June 1986 at Fairy Hill (Railway Digest, September 1987).

Automatic Staff Exchanging was introduced into Victoria in the middle twenties. The first reference I have is A.2166/26 dated 6 September 1926:

MES Automatic Exchanging Apparatus at Stations between Newport and North Geelong.

Commencing Monday 13th inst the MES Automatic Exchanging Apparatus which has been provided at all staff stations between Newport and North Geelong, including Newport South Junction and North Geelong A Signal Box, as set out hereunder will be in use by the following Melbourne and Geelong trains, i.e. No 13



The Up Auto set up at Trawalla on the 22.09.1988

Down Exp (Mon only), No 33 Down Exp (Daily), No 17 Down Flier (Daily), No 31 Down Fast Goods (Daily), No 17 Up Exp (Daily), No 24 Up Flier (Daily), or any other train that may be notified by special instruction and must be working in accordance with Weekly Notice 32/26 clause 11.

It will be the duty of the Stationmaster at Flinders St, Spencer St, or the Superintendent of Melbourne Yards for the Down trains referred to, which start from the area which they have control, and for the Stationmaster, Geelong, for Up trains, to satisfy themselves that an engine fitted with the Exchanging Apparatus is on the train before the train departs and when the train is being run by an engine not fitted with the exchanger they will be held responsible for advising all concerned using the code word "AKLA". See Weekly

Notice 17/26 for its meaning.

The position of the apparatus is as follows:

Station	Position	Road
Newport Sth	318' Up side Box	Dn Main Line
Laverton	289' Up side Box	No 1 Road
Werribee	292' Up side Box	No 1 Road
Manor	318' Up side Box	No 1 Road
Little River	288' Up side Box	No 1 Road
Lara	400' Up side Box	No 1 Road
Corio	350' Up side Box	No 1 Road
Nth Geelong A	25' Up side Box	Dn Main Line
Up		
Nth Geelong A	Opposite Box	Up Main Line
Corio	12' Up side Box	No 1 Road
Lara	20' Up side Box	No 1 Road
Little River	12' Down side Box	No 1 Road
Manor	23' Up side Box	No 1 Road
Werribee	10' Down side Box	No 1 Road
Laverton	12' Down side Box	No 1 Road
Newport Sth	18' Down side Box	Up Main Line

VICTORIAN SIGNAL BOX CONTRACTS

1886 - 1901

Andrew Waugh

This article is an examination of the contracts let to erect signalboxes in Victoria between 1886 and 1901. Some of the chronology and analysis presented in this article is speculative, and the author would welcome further research and information on the development of signalbox design in Victoria.

Before 1886, no reference to the construction of signalboxes can be found in either the Government Gazette or the annual Commissioners' Reports. It is believed that McKenzie and Holland were responsible for the construction of the signalboxes as part of their general signalling contracts. It is quite possible, however, that the actual erection was carried out by builders acting as subcontractors to McKenzie and Holland.

Most of the boxes erected by McKenzie and Holland during this period seem to fall into two categories. The first (probably the older) was a plain wooden hipped roof box. This was similar to the British McKenzie and Holland Type 2 box (see p89-91, 'The Signal Box', by the Signalling Study Group, OPC). In Britain this style was constructed for a short period in 1875. The last remaining example in Victoria was at St Kilda, which lasted until the line closed.

The second style was a slightly more ornate gable roofed box. This was similar to the British McKenzie and Holland Type 3 box which was constructed in Britain from 1875 until 1921. The Victorian version was erected from around 1883 to the end of 1886. The most distinguishing feature of the Victorian boxes were the barge boards which were shaped into a fancy scalloped pattern. Although apparently only erected for around three years, such was the number of boxes erected during that time that a fairly large number survive. Examples include: Moreland; Newport "A"; Warrenheip; Ballarat East; Ballarat "B"; and Ballarat "C".

Towards the end of 1886 the Victorian Railways became directly responsible for the construction of new signalboxes. Construction of the boxes was, however, undertaken by private builders. The normal procedure was for tenders to be invited for a specific project by an advertisement in the Victorian Government Gazette. Details of the successful tender were also published in the Gazette after the contract had been signed; this was an important control on Government malpractice and collusion in the awarding of tenders. Until 1892 a list of contracts in progress during the year was published in the annual Commissioners' Report. This list included the actual cost of the contract; usually this was less than the contracted cost.

The design of most of the new boxes was apparently based on the second (gable roofed) McKenzie and Holland design. The major change was in the decorative treatment of the ends of the gable roof. The scalloped barge boards were replaced by plain barge boards with a tall wooden finial and elaborate cross bracing. This can be seen in Figure 1, the drawings for the original box at Yarraville. This design was constructed in large numbers until 1892. New capital works then virtually ceased due to the depression. The design was dusted off in the new century

and examples continued to be erected until around the first world war. A number of these boxes remain today, though many have lost their decorative finials and cross bracing. Surviving examples include: Spotswood; Jewell; Brunswick; Clifton Hill "A" and "B".

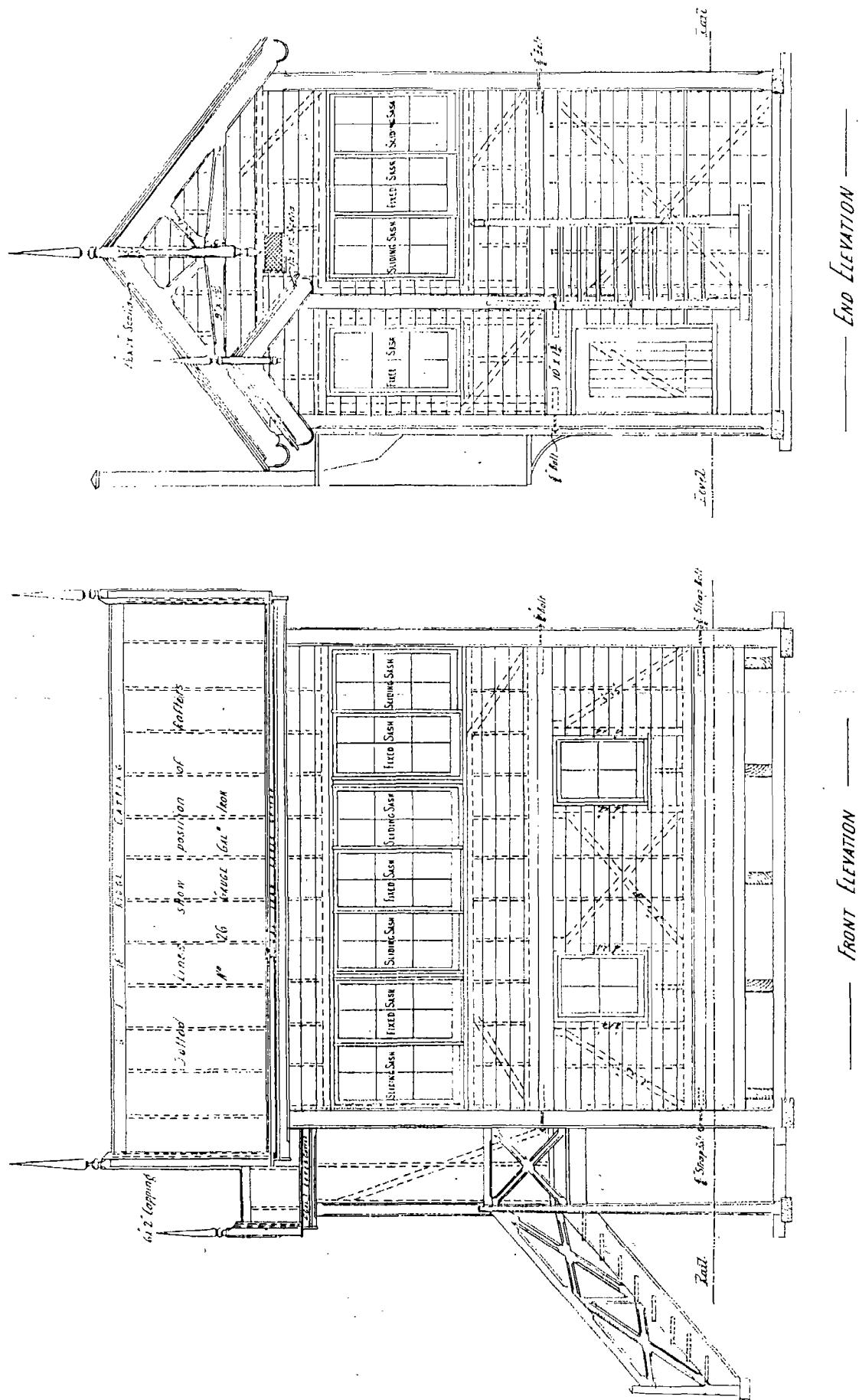
One major problem with this design was that it was not suited to the Australian climate. The large glazed area, totally unprotected by eaves or sun hoods, must have made the boxes unpleasant to work in. Many boxes subsequently gained sunhoods over the windows. Around the First World War, a new design of box was prepared. This had a hipped roof with deep eaves all around the box (the first examples had deep eaves only at the front). This became the subsequent standard and many were built. Examples include Sunshine, Frankston, and Fairfield.

In addition to these wooden boxes a small number of brick boxes were also erected between 1886 and 1900. Two early examples were Kensington and Brown's Hill (South Kensington) late in 1886. These boxes were roughly twice as expensive as an equivalent wooden box, so it is not surprising that the design was not perpetuated. The box at Kensington survives and shows that one reason for this high cost was the elaborate decorative treatment. Given its high cost, it is likely that South Yarra box (1886) was also brick. Further brick boxes were erected in the new century at Dudley Street, and Flinders Street. These were also expensive, but this was no doubt justified by the importance of these boxes.

The construction of signalboxes by outside contractors appears to have ceased in 1901. Subsequent boxes were presumably erected by the Victorian Railways.

A fairly large number of frames erected between 1886 and 1900 did not have an associated contract for the erection of the signalbox. There are four possible reasons for this:

- 1) The frame was placed in the open. This was very likely for the smaller frames such as Sunbury, Middle Northcote, and Waverley Road (station). An alternative would be the provision of a very simple hut.
- 2) The frame was placed in a signal bay incorporated in the main station building. A few contracts specifically referred to the erection of "combined signalboxes and booking offices". The first such contracts occurred in the middle 1889 at Gerang Gerung, Tarranginnie, and Leeor. A fourth was erected at Salisbury in late 1889. No further contracts are so labelled, but it is very likely that other small stations on the Western line were provided with signalbays when they were interlocked. Examples probably included Ingliston and Kiata. Incidentally, the station building at Leeor was relocated to Melton in 1899 and, although modified, it appears that the signalbay is original.
- 3) An existing box was reused. The Victorian Railways was growing so rapidly that many boxes were superseded by larger boxes after only a few



years. The old box, being wooden and fairly new, was suitable for transportation to a new site. Two examples survive on the Coburg line. Relocation of boxes was probably common in the 1890s due to the depression.

- 4) The signalbox was erected as part of the rest of the station.

For each box subject to a contract, the table lists:

- 1) The name of the box. This is generally the name used in the Interlocking Register, but a more modern name is used where this is clearer.
- 2) The Engineer's Contract Number
- 3) The date tenders closed. The Gazette does not include the details for a few boxes. These fields are blank.
- 4) The date of the Gazette which included the details of the contract. This date is the same as that recorded as the contract date in the Commissioner's Reports.
- 5) The agreed contract price
- 6) The actual price, as given in the annual Commissioner's Report
- 7) The name of the successful tenderer
- 8) The date the signalbox was opened.

The sources of the information in the table are the Government Gazette; the annual Commissioners' Report; and the Interlocking Register.

The cost of the signalboxes included in the table is of interest. First, the actual cost, as recorded in the Commissioners' Report is always different to the contracted cost. Usually the actual cost is less than the contracted cost, occasionally more. This suggests that the

boxes were constructed under a 'cost plus' contract, where the contractors were paid the actual cost of the box plus a fixed profit margin. The second interesting feature is the relatively small cost distribution. An examination of the actual costs of the 91 wooden boxes in the table shows that nearly 60% were between £120 and £200. Only two boxes were cheaper than this; the cheapest box (Ballarat Cattle Yards, 1887) being just over £114. A further 14% of boxes cost between £280 and £320, marking a second cost peak. The most expensive wooden box was Kyneton at £384.

Another interesting feature was the delay between the Gazetting of contract and the opening the boxes (as recorded in the Interlocking Register). The shortest delay was only two months. At the other end of the scale, some of the boxes were apparently erected and not commissioned for years. Many of the boxes on the Western line, for example, were contracted for in the first half of 1887, but most did not open until around the middle of the following year. The extreme seems to be the two boxes at Warragul (not brought into use for nearly six years after the contract was signed), but Wodonga "B" (over four years); Serviceton (three years) and Benalla (two years) were all unused for long periods.

A few boxes were planned but not built. One box at Oakleigh was tendered for in 1888 but no contract was ever let. The site of this box was probably at the actual divergence of the Outer Circle line, and Oakleigh A box (1889) was subsequently substituted. The contract for Grampians Junction (1887) got as far as being let, but was eventually cancelled.

Box	Engr's Contract Number	Date Tenders Closed	Contract Gazetted	Contract Price	Actual Price	Successful Tenderer	Box Opened
Bendigo D	2569	26.07.86	03.09.86	£234/6/0	£220/11/6	Scott Brothers	02.12.86
Sth Yarra	2612	?	01.10.86	£571/19/10	£568/12/4	J.H. Brewer	19.12.86
Kensington ¹	2689	06.12.86	24.12.86	£442/8/0	£408/15/10	A.T. Taylor	01.05.87
South Kensington ²	2677	06.12.86	24.12.86	£450/4/6	£403/9/9	W.J. Brewer	27.04.87
Murtoa	2757	31.01.87	18.02.87	£271/12/5	£235/19/8	Quayle & Williams	08.09.87
Windermere ³	2775	21.02.87	22.04.87	£190/0/0	£171/13/2	P.G. Grut	28.02.88
Great Western ⁴	2776	21.02.87	15.04.87	£195/5/11	£174/8/10	Carroll Brothers	17.07.88
Warranook ⁵	2777	21.02.87	25.03.87	£149/17/6	£135/10/4	P.G. Grut	18.07.88
Lubeck	2778	21.02.87	25.03.87	£149/17/6	£140/2/9	P.G. Grut	18.07.88
Jung Jung	2779	21.02.87	25.03.87	£149/17/6	£140/2/9	P.G. Grut	01.03.88
Dooen	2780	21.02.87	25.03.87	£149/17/6	£139/8/9	P.G. Grut	19.07.88
Pimpinio	2781	21.02.87	25.03.87	£149/17/6	£138/19/5	P.G. Grut	13.12.88
Wail	2782	21.02.87	25.03.87	£149/17/6	£138/10/1	P.G. Grut	13.12.88
Horsham ⁶	2786	28.02.87	22.04.87	£379/2/4	£316/5/1	Trent & Kennedy	25.09.88
Beaufort	2785	28.02.87	25.03.87	£297/7/8	£264/18/9	G. Buchanan	13.03.88
Wangaratta	2787	28.02.87	01.04.87	£342/2/0	£304/7/7	Scott Brothers	21.03.88
Kew Junction	2793	07.03.87	25.03.87	£205/17/1	£182/13/4	J. Brown	19.12.87
Stawell A & B ⁷	2806	14.03.87	29.04.87	£680/18/4	£598/10/7	Scott Brothers	07.03.89

¹ Brick Box

² Brick Box. Opened as 'Browns Hill Junction'

³ Fresh tenders closed 07.03.87

⁴ Fresh tenders closed 07.03.87

⁵ Wal Wal?

⁶ Fresh tenders closed 21.03.87

⁷ Contract was for both boxes

Box	Engr's Contract Number	Date Tenders Closed	Contract Gazetted	Contract Price	Actual Price	Successful Tenderer	Box Opened
Serviceton East & West ⁸	2805	14.03.87	22.04.87	£741/11/0	£646/9/2	J. Paterson	15.05.90
Glenorchy	2807	14.03.87	20.05.87	£340/10/6	£300/1/6	Carroll Brothers	06.03.89
Burrumbet	2813	21.03.87	22.04.87	£163/0/0	£150/9/6	P.G. Grut	28.02.88
Trawalla	2814	21.03.87	06.05.87	£147/5/5	£126/0/2	B. Oulton	16.05.88
Middle Creek	2815	21.03.87	06.05.87	£147/5/5	£139/19/8	B. Oulton	16.05.88
Dobies	2816	21.03.87	06.05.87	£147/5/5	£123/15/4	B. Oulton	16.07.88
Ballarat Cattle Yards ⁹	2811	21.03.87	13.05.87	£130/14/10	£114/10/4	Quayle & Williams	05.10.87
Grampians Junction ¹⁰	2812	21.03.87	06.05.87	£134/10/11	£7/10/0	B. Oulton	
Sandhurst A & C ¹¹	2843	18.04.87	17.06.87	£445/2/7	£388/9/0	W. Bennett	11.01.88 & 08.02.88
Winton	2887	23.05.87	10.06.87	£141/9/10	£156/2/11	W. Bennett	09.12.87
Daylesford Junction	2921	27.06.87	15.07.87	£141/9/10	£123/3/6	F. Bennett	09.09.87
Buangor	2935	11.07.87	12.08.87	£189/19/11	£135/2/3	Parker & Vickers	04.07.88
Armstrong	2949	08.08.87	09.09.87	£157/4/5	£137/2/0	W.J. Chaffer Jnr.	16.07.88
Ballarat Racecourse Junction	3046	07.11.87	02.12.87	£189/17/10	£167/19/3	Bruce, Meaney & Co	17.05.88
Ferrars Street	3074	14.11.87	02.12.87	£159/5/0	£141/1/1	P.G. Grut	17.07.88
York Street	3070	14.11.87	02.12.87	£159/5/0	£140/2/3	P.G. Grut	17.08.88
Kerford Road	3071	14.11.87	02.12.87	£159/5/0	£138/4/8	P.G. Grut	19.07.88
Rae Street	3058	?	25.11.87	£179/7/4	£128/8/4	W. Bennett	08.05.88
Heidelberg Road ¹²	3059	?	25.11.87	£179/7/4	£181/2/6	W. Bennett	08.05.88
Scotchmer Street	3073	07.11.87	02.12.87	£166/14/0	£139/1/2	J.H. Brewer	08.05.88
Nicholson Street	3072	07.11.87	02.12.87	£166/14/0	£140/4/4	J.H. Brewer	08.05.88
St. Georges Road ¹³	3100	21.11.87	09.12.87	£306/15/10	£281/13/7	J.H. Brewer	08.05.88
Stratford Junction	3098	21.11.87	09.12.87	£179/15/8	£160/2/3	Mather & Bryan	08.05.88
Sale	3144	09.01.88	03.02.88	£248/2/10	£226/12/4	W. Bennett	10.08.88
Camberwell	3243	12.03.88	13.04.88	£243/2/9	£218/15/5	A. Meldrum	24.02.89
Castlemaine B	3241	12.03.88	20.04.88	£233/18/8	£219/4/4	T.W. Sutherland	26.05.89
Redesdale Junction	3244	12.03.88	13.04.88	£209/12/10	£188/5/2	W. Bennett	18.07.89
Benalla A	3242	19.03.88	13.04.88	£250/16/0	£237/9/9	T. Bennett	08.09.90
Castlemaine A	3309	23.04.88	18.05.88	£399/6/0	£373/10/1	W. Bennett	26.05.89
Avenel	3355	21.05.88	15.06.88	£197/11/6	£168/11/8	G. Weeks	
Benalla B		02.07.88	20.07.88	£312/15/9		W. Bennett	08.09.90
Kilmore Junction	3427	16.07.88	03.08.88	£239/14/2	£206/1/11	W. Bennett	01.10.88
Coleraine Junction	3426	16.07.88	10.08.88	£224/14/4	£202/4/2	H. Kohn	20.11.88
Burnley ¹⁴	3425	16.07.88	03.08.88	£329/3/3	£264/0/5	W. Bennett	09.04.89
Somerton Junction	3453	23.07.88	17.08.88	£413/18/7	£358/13/2	W. Bennett	08.10.89
Dandenong B	3455	23.07.88	17.08.88	£353/18/6	£294/15/8	J. Brown	23.12.89
Oakleigh ¹⁵		23.07.88					
Deep Lead	3572	15.10.88	16.11.88	£206/2/10	£116/12/2	J. Barnes	05.06.89
Oakleigh A	3570	15.10.88	16.11.88	£367/12/0	£307/3/10	J. Brown	22.03.90
North Brighton	3592	29.10.88	23.11.88	£199/16/10	£179/18/3	T. Bennett	19.07.89
Middle Brighton	3591	29.10.88	23.11.88	£199/16/10	£180/7/6	T. Bennett	24.06.89
Auburn	3590	29.10.88	23.11.88	£209/12/8	£188/9/7	T. Bennett	08.03.89
East Richmond	3589	29.10.88	23.11.88	£197/14/11	£128/3/7	T. Thackray	04.04.89
Ashen's Siding	3669	28.12.88	08.02.89	£213/0/11	£173/16/6	J. Barnes	
Sandhurst B	3679	21.01.89	08.02.89	£323/17/10	£298/1/9	W. Bennett	28.09.90
Middle Footscray ¹⁶	3716	21.01.89	08.02.89	£198/0/0	£193/19/0	W. Bennett	10.06.89

⁸ Contract was for both boxes⁹ Fresh tenders closed 06.04.87¹⁰ Fresh tenders closed 06.04.87. Contract cancelled by 30.06.89¹¹ Contract was for both boxes¹² Clifton Hill¹³ Opened as Parkside Junction¹⁴ Location in tender was Richmond, at Stawell Street.¹⁵ Location in tender was 'Glen Iris and Outer Circle Line Junction. Tender withdrawn 20.07.88¹⁶ Location in tender was 'Footscray West' at Geelong Road.

Box	Engr's Contract Number	Date Tenders Closed	Contract Gazetted	Contract Price	Actual Price	Successful Tenderer	Box Opened
Ballarat East Junction ¹⁷	3836	11.03.89	12.04.89	£237/3/9	£209/5/9	W. Bennett	12.08.89
Sandringham	3862	25.03.89	03.05.89	£193/19/6	£177/11/2	J. Glencross	28.10.89
Hawthorn & Toorak ¹⁸	3936	06.05.89	23.05.89	£312/14/4	£288/4/10	J. Campbell	20.08.89 & 30.10.89
Camberwell B	3942	13.05.89	07.06.89	£269/15/9	£246/15/7	F. Bennett	19.02.90
Moonee Ponds	3970		28.06.89	£173/4/0	£155/0/4	J. Brown	03.10.89
Dimboola	3976	24.06.89	12.07.89	£323/11/10	£299/7/4	T. Bennett, snr	13.05.90
Macaulay Road	3996	?	02.08.89	£221/15/10	£184/18/0	J. Brown	29.10.90
Brunswick	4050	12.08.89	06.09.89	£157/15/7	£146/5/0	H. Honour	16.01.90
Nhill	4048	12.08.89	20.09.89	£215/4/9	£185/7/3	Oulton & Bulte	29.01.90
Rosstown & Murrumbeena ¹⁹	4081	02.09.89	20.09.89	£340/11/0	£312/13/7	J Brown	26.03.90
Yarraville	4094	09.09.89	27.09.89	£212/6/0	£194/7/1	W. Bennett	17.02.90
Box Hill	4092	09.09.89	27.09.89	£215/8/9	£194/12/1	E.W. Stanes	20.12.91
Scarsdale Junction	4084	16.09.89	04.10.89	£219/8/9	£195/9/0	C.J. Mills	09.03.90
Spotswood	4126	23.09.89	11.10.89	£173/16/0	£165/13/9	W. Bennett	23.05.90
Waverley Road	4125	30.09.89	18.10.89	£181/4/9	£152/11/11	W. Thwaite	22.03.90
Wodonga B	4133	07.10.89	25.10.89	£259/12/0	£279/5/6	W. Bennett	23.02.94
Canterbury	4166	11.11.89	25.11.89	£202/19/10	£179/13/11	J. Brown	04.08.90
Dandenong A	4179	11.11.89	06.12.89	£217/7/3	£181/9/3	E. Powis	29.07.91
Ararat B	4231	09.12.89	27.12.89	£243/3/4	£216/11/1	T. Bennett	26.10.91
Baddaginnie	4230	09.12.89	17.01.90	£147/19/0	£132/12/3	F. Bennett	07.05.90
Kyneton	4255	23.12.89	07.02.90	£404/0/7	£384/0/4	T. Bennett	20.01.91
Ararat A	4282	03.02.90	21.02.90	£399/1/7	£350/9/6	T. Bennett	26.10.91
Bacchus Marsh	4263	17.02.90	07.03.90	£383/7/0	£358/16/11	J. Brown	07.08.90
Oakleigh B	4384	22.04.90	16.05.90	£201/4/4	£176/11/10	Lloyd & Hall	15.12.91
Woodend	4370	?	30.05.90	£233/5/0	£204/0/10	J.J. Smith	18.06.91
Royal Park	4520	01.09.90	19.09.90	£143/15/8	£138/5/3	T. Bennett	24.12.90
Ballan	4521	01.09.90	19.09.90	£205/14/0	£189/12/3	T. Bennett	22.01.91
Warragul	4529	15.09.90	03.10.90	£292/3/3	£258/3/5	A.W. Clapham	27.08.96
Canterbury Road Junction ²⁰	4557	27.10.90	21.11.90	£200/17/3	£183/6/6	A.W. Clapham	
Canterbury Junction ²¹	4584	17.11.90	05.12.90	£174/8/1	£167/0/6	T. Bennett	15.03.92
Flinders Street ²²	?	16.02.94	£441/1/10			C. Langford	28.10.94
Dudley Street		27.08.00	28.09.00	£716/19/11		Bulte & Macpherson	02.08.03
Flinders Street B		26.11.00	07.12.00	£685/8/0		F.E. Shillabeer	29.09.01
Flinders Street E		26.11.00	21.12.00	£728/13/8		G.V. Coate	06.10.01
Flinders Street A		01.04.01	26.04.01	£1603/16/9		Wilson & Heath	17.09.05
Clifton Hill 'A'		22.04.01	24.05.01	£216/12/7		T. Wood	21.10.01
Clifton Hill 'B'		29.04.01	24.05.01	£239/14/3		W. Barry	21.10.01
Victoria Park		17.06.01	05.07.01	£212/11/6		D. Spencer	21.10.01

¹⁷ At original junction of Buninyong line¹⁸ Contract for both boxes¹⁹ Contract for both boxes²⁰ On Outer Circle. Box never opened.²¹ At junction of Lilydale line and Outer Circle Railway²² Probably for both East and West boxes