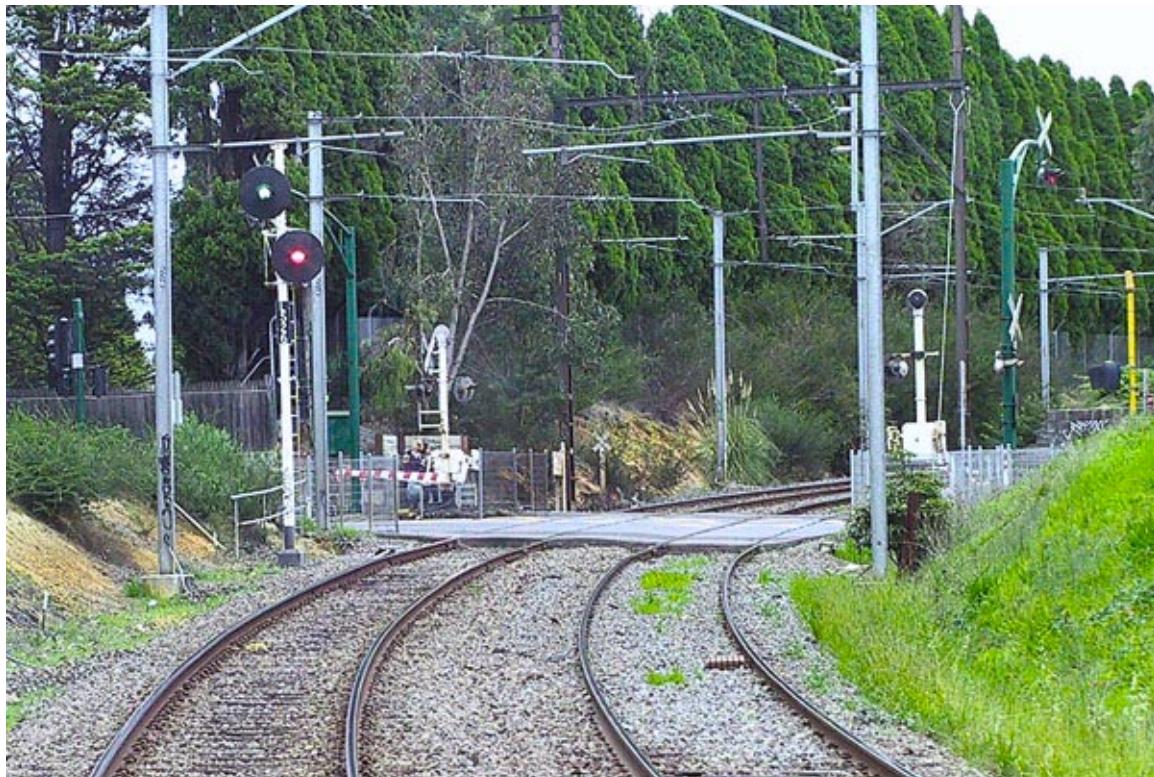


SOMERSAULT

MARCH 2007
Vol 30, No 2

SIGNALLING RECORD SOCIETY OF VICTORIA INC



The major work reported in this issue is the abolition of the level crossing at Middleborough Road between Box Hill and Laburnum, seen here from the Down side. The level crossing was closed on 1 January 2007 when the line between Box Hill and Blackburn was taken out of use to allow construction of the grade separation. The boom barriers were provided on 13 July 1958 when the hand operated gates were abolished in conjunction with the provision of three position signalling between Box Hill and Blackburn. The signalling between Box Hill and Blackburn was altered on 19 October 1980 to improve the headways when Blackburn replaced Box Hill as a terminating point during reconstruction of Box Hill station. Like many Melbourne level crossings, the signalling associated with the boom barriers at Middleborough Road was complex to reduce the time the crossing was closed to road traffic while not reducing safety. The conditions under which the booms will (or will not operate) are shown in a diagram on page 26.

Photo Rod Williams

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MINUTES OF MEETING HELD FRIDAY FEBRUARY 16, 2007, AT THE SURREY HILLS NEIGHBOURHOOD CENTRE, 1 BEDFORD AVENUE, SURREY HILLS

Present: - W. Brook, B. Cleak, R. Cropley, G. Cumming, V. Findlay, C. Gordon, Judy Gordon, C. Guy, D. Harrison, A. Kociuba, K. Lambert, A. McLean, J.D. McLean, B. Sherry, P. Silva, R. Smith, A. Wheatland, R. Whitehead & R. Williams.

Apologies: - K. Ashman, W. Johnston, D. Langley, T. Murray, G. O'Flynn & A. Waugh.

Visitors: - Jim Gordon.

The Secretary, Mr. Glenn Cumming, took the chair & opened the meeting @ approximately 19:00 hours, and welcomed everybody to the Racecourse Junction Signal Box.

General Business: - The February 2007 meeting consisted entirely of a visit to the Racecourse Junction Signal Box at the home of Chris and Vera Guy in Montmorency.

Members enjoyed a tour of inspection of the signalling facilities at the Racecourse Junction Signal Box and the opportunity to work some the equipment on display including the interlocked gates.

No other business was transacted during the meeting.

At the conclusion of the visit, the Secretary thanked Chris and Vera Guy hospitality on the evening.

Meeting closed at approximately 22:00 hours.

The next meeting will be on Friday 16 March, 2007 at the Surrey Hills Neighbourhood Centre, Bedford Avenue, Surrey Hill, commencing at 20:00 hours (8.00pm).

MINUTES OF ANNUAL GENERAL MEETING HELD FRIDAY MARCH 17, 2006, AT THE SURREY HILLS NEIGHBOURHOOD CENTRE, 1 BEDFORD AVENUE, SURREY HILLS

Present: - J. Black, W. Brook, B. Cleak, G. Cleak, C. Gordon, J. Gordon, C. Guy, G. Dunn, W. Johnston, K. Lambert, D. Langley, T. Murray, L. Savage, B. Sherry, P. Silva & R. Whitehead.

Apologies: - J. Churchward, G. Cumming, S. Malpass, J.D. McLean, G. O'Flynn & A. Waugh.

Visitor: - V. Findlay.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:10 hours.

Minutes of the 2005 Annual General Meeting: - Not available.

Business Arising: - Nil.

The President advised the meeting that due to the absence of the Secretary and much of the documentation necessary to complete this Annual General Meeting, it was prosed to adjourn the AGM to the next SRSV meeting night.

Meeting adjourned @ 20:15 hrs.

The 2006 Annual General Meeting will be resumed on Friday 19th May 2006.

**MINUTES OF THE RESUMED ANNUAL GENERAL MEETING HELD FRIDAY MARCH 17, 2006,
AT THE SURREY HILLS NEIGHBOURHOOD CENTRE, 1 BEDFORD AVENUE, SURREY HILLS**

Present: - J.Black, W.Brook, B.Cleak, G.Cleak, G.Cumming, V.Findlay, C.Gordon, J.Gordon, A.Gostling, C.Guy, W.Johnston, K.Lambert, D.Langley, S.Malpass, B.McCurry, A.McLean, L.Savage, B.Sherry, P.Silva, F.Strik, A.Wheatland, R.Whitehead & R.Williams.

Apologies: - J.Churchward, J.McLean, G.O'Flynn, T.Murray, T.Penn & S.Turnbull.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:09 hours.

Minutes of the 2005 Annual General Meeting: - Accepted as read. W. Johnston / S.Malpass. Carried.

Business Arising: -

Nil.

President's Report: - The President, David Langley, presented the President's Report to the meeting.

Another year has passed, another round of signalling alterations have occurred, and another six meetings of the SRS in Australia have been held. Continued good attendances at these meetings are encouraging to the committee and a good attendance generates a lot of discussion which makes the meetings a pleasure to attend - or at least I hope you see it the way I see it.

Apart from the AGM meeting and November meeting, screened images were the syllabus items at the remaining four - our Secretary showed a selection of digital images taken in the early-mid 1980's, Keith Lambert extracted yet another 20 odd slides for testing our knowledge, Bob Taaffe showed a selection of slides taken on his recent trip to Thailand, Russia and Europe, and I bored you all with some more slides from New Zealand.

"Somersault" continues to be published six times per year and Andrew has managed to provide us with six very entertaining issues which with the previous issues is now building into a very valuable historical collection of information. We are indebted to Andrew for his continuing work and again the usual plea for new authors and articles is made.

The annual tour was again a great success with a visit to the Geelong and Ballarat areas, areas that have undergone great changes in very recent times. Unfortunately no mini tours were able to be arranged mainly due to work commitments of the chief organiser. It has been suggested that a visit to Spencer Street No 1 Box, prior to its demise, would be a good idea but as yet nothing has been done.

The Archives continues to move slowly although a recent committee meeting on site sorted out some directions to be taken and hopefully this year will see some action.

As always society's like ours do not run themselves, the SRSV is lucky to have a small team of enthusiastic office bearers. Glenn, our Secretary, has again worked miracles considering his work commitments in keeping the societies affairs in order and the tour organised. Peter, our Treasurer, has kept the accounts in order hopefully to the satisfaction of the Auditor and has continued to keep our money working hard for the society rather than for anybody else. Bill, our Vice-President, has taken the chair on one occasion when I was unavailable and additionally has taken on the task of organising the syllabus items for each meeting. If you have any ideas for syllabus entertainment just see Bill, we don't even mind if you merely provide some slides - I'm sure they will be some we haven't seen before. We will even entertain the idea if the screening of digital images although the problem of a digital projector will need to be addressed. Jack and Wilfrid again filled the other positions on the committee and thank you gents for adding your "twenty cents worth" during any discussion that the committee conducted via the SRSV yahoo list. I would like to add here that Jack recently celebrated his 85th birthday and a small group of mainly SRS members gathered in Chatham for afternoon tea.

Finally, I wish to thank the members for their support of the society during 2005, for attending the meetings and tours, and for providing all the snippets of information on meeting nights. But it does not matter how competent the committee appear to be, all that is for nothing without the support of its members, I thank you all.

I move this report.

David Langley, President., D. Langley / L.Savage. Carried.

Treasurer's Report: - At the request of the Treasurer, Peter Silva, the presentation of the Treasurer's Report was held over.

Auditor's Report: - In the absence of The Auditor, Jon Churchward, the presentation of the Auditor's Report was held over.

Tours Report: - The Tours Officer, Glenn Cumming, reported on the tour conducted during the year.

One signal box tour was conducted during the year 2005.

The tour for the year was the annual Showday Tour / Cupday Tour etc, this year held on Monday 19th September 2005.

This date was chosen after consultation with the members in order to visit signal boxes that are only manned during normal weekdays. The locations visited this year were Marshall, Geelong, Meredith, Ballarat, Ballan, Bacchus Marsh and Melton.

As was to be expected, this tour was well attended and this justified moving the day of the tour away

from the normal Public Holiday / Weekend format.

A mini bus was hired to allow the tour party to travel between locations as a group. All locations were successfully inspected within their normal opening hours

Organisation of SRSV tours is not a one man job and thanks must go to the following people for their assistance in organising this year's tour: - to David Langley and Andrew Waugh for their advice & comments and especially for reminding me of all the tasks I had forgotten to do and to Andrew Waugh for yet again producing a set of excellent tour notes & diagrams. Special thanks to Bill Johnston who managed arrangements on the day in my absence.

My thanks to all members & friends who participated & helped to ensure the success of the tour.

Special thanks must go to the officers of the various railway operating & engineering companies who allow the SRSV to visit areas not normally open to the general public. Their assistance is very much appreciated. Without their co - operation, SRSV tours would not occur. This year, the SRSV appreciated the David Ward at Pacific National. Once again David Kerry from Pacific National supervised our inspections. My thanks to both gentlemen.

The Tours Officer always welcomes suggestions & comments regarding the conduct of SRSV tours, especially ideas for future tours.

Glenn Cumming, Tours Officer. G. Cumming / R. Williams. Carried.

Membership Report: - The Membership Officer, Glenn Cumming, tabled the Membership Report.

Type	2005	2004	Movement
V	64	63	+1
K	36	34	+2
N	1	1	-
KL	3	3	-
VH	5	5	-
Total	109	106	+3

Analysis of Movement

Additions: - L.Adams (K), R.Layton (K), G.Dunn (V), R.Gomerski (V)

Deletions: - E.Smith (V)

Transfers: - Nil

Glenn Cumming Membership Officer. G. Cumming / R.Whitehead. Carried.

Editorial Report: - In the absence of the Editor, Andrew Waugh, Glenn Cumming read the Editorial Report to the meeting.

Six issues of "Somersault" have been published last year, together with a set of notes for the tour. Please continue to send in any material for publication in "Somersault" to ensure continued timely publication.

Andrew Waugh Editor. G. Cumming / A. Wheatland. Carried.

David Langley commented favourably on the high quality of each issue of "Somersault".

Archives Report: - The Archivist, Bob Whitehead, presented the Archives Report.

Work continues on the archives, however progress is slow. There were two attempted break ins during year and the damage was repaired by Victrack. A white ant attack has been fixed. More shelving is to be acquired. Offers of assistance with the archives collection is always welcome.

R.Whitehead Archivist. R. Whitehead / P. Silva. Carried.

Market Street Report: - Peter Silva presented the Market Street Report.

The main truss has not yet been moved but all signal dolls have been stripped. All signalling gear from the bridge has now been secured.

Currently waiting on covered space at Newport Workshops before commencing restoration.

Three signal reversers have been restored by Mike Saunders.

W. Johnston Market Street Sub - Committee

Bob Whitehead asked Bill Johnston about the condition of the main truss and an answer was given concerning the current assessment of the main truss.

W. Johnston / A. Wheatland. Carried.

Elections: - The meeting invited Bill Johnston to chair the meeting for the election of the new Committee.

No written nominations were received.

The following verbal nominations were received at the meeting: -

President: - D. Langley, nominated by L. Savage and seconded by R. Whitehead.

Vice President: - W.Johnston, nominated by A. Wheatland and seconded by F. Strik.

Secretary: - G.Cumming, nominated by W. Brook and seconded by R. Williams.

Treasurer: - P. Silva, nominated by A. Wheatland and seconded by F. Strik.

Committeeman: - W.Brook nominated by R. Whitehead and seconded by F. Strik.

Committeeman: - S. Malpass nominated by G. Cumming and seconded by R. Whitehead.

There being no further nominations, all nominees were declared duly elected to the position.

David Langley advised the meeting that Jack McLean had retired from the Committee of the SRSV after 31 years of continuous service.

Auditor: - The election of the Auditor for the coming year was held over.

General Business: - Bob Whitehead asked for Members of the SRSV to consider the future of the SRSV Archives. Bob advised the meeting that the SRSV would need to find a replacement Archivist at some stage in the future.

Meeting adjourned @ 20:31 hrs.

The May 2006 Annual General Meeting was followed by the May 2006 Ordinary Meeting.

MINUTES OF THE RESUMED ANNUAL GENERAL MEETING HELD FRIDAY JULY 21, 2006, AT THE SURREY HILLS NEIGHBOURHOOD CENTRE, 1 BEDFORD AVENUE, SURREY HILLS

Present: - W.Brook, G.Cleak, G.Cumming, G.Dunn, V.Findlay, J.Gordon, A.Gostling, W.Johnston, K.Lambert, D.Langley, S.Malpass, B.McCurry, L.Savage, B.Sherry, P.Silva, A.Wheatland & R.Whitehead.

Apologies: - J.Churchward, B.Cleak, C.Gordon, J.McLean, G.O'Flynn, T.Murray, C.Rutledge, S.Turnbull & A.Waugh.

Visitors: - D.Thomas.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:09 hours.

Treasurer's Report: - The Treasurer, Peter Silva, presented the Treasurer's Report, the Profit & Loss Statement and the Balance Sheet for the year ended 31st December 2005.

The Society had another successful year financially with a surplus of \$858.99. This is a reduction from last year that included the proceeds of the dissolution of the SRS - NSW and is a return to a figure more typical of recent years.

The primary component of the surplus is interest from the JB Were Cash Trust account that we are using for our banking. From a financial management perspective, interest should be re-invested and not used to cover operational expenses. Thus the interest we earn becomes the base of our surplus and this year accounts for 60% of the total. With a sound surplus, we have been able to hold membership rates unchanged again this year.

The Society continues to use a JB Were Cash Trust account. This account has a restriction in that, despite the name, deposits of cash cannot be accepted. Although cash does not represent a large part of our financial transactions, it would be an inconvenience for some members if we were to insist on cheque transactions only. To solve the impediment of banking any cash received, the Committee has continued a practice endorsed by the members at the Annual General Meeting for the last two years.

Cash received by the Society is generally received by the Secretary in either his membership or tours roles. The Secretary holds any cash received as a "float" and then uses that cash for any Society payments. As the value of the payments usually exceeds the value of cash received, the Secretary pays the balance on the Society's behalf and then claims for those payments. The timing of the claims is at the Secretary's discretion and the claims are paid promptly when received. In terms of accountability and audit trail, this practice is no different to the practice it has replaced and allows the Society to avoid unnecessary bank fees on additional accounts.

Peter Silva Treasurer

Motion: That the Treasurer's report is received and adopted and, noting the observations of the Auditor, that the members endorse the practice of the Secretary's Float as an acceptable method of handling the Society's cash transactions. P. Silva / R. Whitehead. Carried.

Bob Whitehead asked if the Committee had looked at other options for handling cash. Peter Silva gave an explanation of what we do and why we do it. Other options have been investigated.

Steve Malpass asked if the SRSV needed another bank account. Peter Silva provided an answer and this led to a detailed discussion on the subject.

Steve Malpass and Brian Sherry both remarked that they believed that this had been discussed and resolved at the previous AGM.

Andrew Wheatland asked if all SRSV money was banked in the name of the SRSV. Glenn Cumming stated that all SRSV money was banked in the name of the SRSV.

Auditor's Report: - In the absence of The Auditor, Jon Churchward, the Auditor's Report was tabled.

Considerable discussion took place concerning the content of the Auditor's Report.

Glenn Cumming stated that all SRSV money was banked in the name of the SRSV and that no SRSV money was banked into his own bank account.

Glenn Cumming objected to the wording in the Auditor's Report that suggested that SRSV money had been banked into a personal bank account.

Motion: That the Auditor's Report is accepted noting the statement from Glenn Cumming rejecting the Auditor's observations regarding the banking of money into a non SRSV account.

R. Whitehead / G. Dunn. Carried.

Bob Whitehead asked if the Auditor was appointed by the Committee or by the AGM. Glenn Cumming answered that the appointment of the current Auditor was a standing appointment from a previous AGM some years

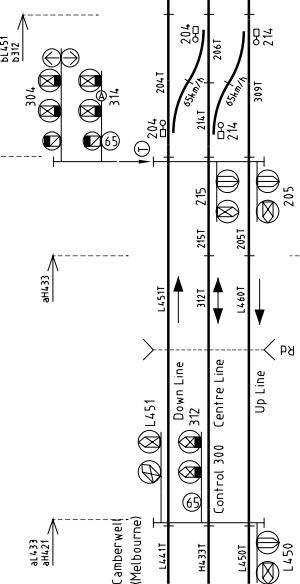
SIGNALLING ALTERATIONS

The following alterations were published in WN 1/07 to WN 7/07 and ETRB A circulars. The alterations have been edited to conserve space. Dates in parenthesis are the dates of publication, which may not be the date of the alteration.

- (19.12.2006) **Bentleigh** (SW 323/06, WN 50)
 A new type of emergency exit gate is being trialled at the pedestrian crossing at Centre Road. The gates slam shut and lock to prevent access to the crossing via the emergency gate. To open the gate a foot latch needs to be pressed.
- 21.12.2006 **West Tower** (SW 332/06, WN 50)
 On Thursday, 21.12., the Up Engine Track between Dwarf 188 and South Dynon Diesel Depot was resignalised for bi-directional running to allow Down light engine and empty car movements to access the diesel sidings, diesel shops, and broad gauge turntable. The TR point was relocated from Dwarf 188 to Dwarf 190.
 Dwarf 284 (at the exit of the Flyover track) was replaced by a new signal fitted with a route indicator. This will show an arrow pointing to 12 o'clock for moves to the reversing loop, an arrow pointing to 1.30 for moves to the Up Engine track towards Dwarf 184, and an arrow pointing to 3 o'clock for moves to the Down Engine track. Dwarf 184 (Up Engine track to South Dynon Diesel Depot) and Dwarf 190 (Up Engine track to Dwarf 188) were provided. All three new Dwarfs are LED and will display a purple light for Stop. A notice board was provided on the Up Engine track on the Up side of the Moonee Ponds Ck bridge. It is applicable to Up movements and reads 'Trains proceeding to 190 are to obtain permission from the Signaller West Tower'. Dwarf 136 was abolished Operating Procedure 132 was amended. Diagram 80/06 (Melbourne Yard) and 78/06 (South Dynon) replaced 30/01 and 14/00.
- 21.12.2006 **Pakenham** (SW 334/06, WN 1)
 On Thursday, 21.12., an update of the Westrace data was performed to resolve express and stopping route setting issues.
- 01.01.2007 **Box Hill - Blackburn** (SW 328/06 & 4/07, SWP 1/07, WN 1 & 2)
 On Monday, 1.1., the section of line between Box Hill and Blackburn was closed to allow construction of the grade separation at Middleborough Rd. All signalling between Box Hill and Blackburn was removed, including the boom barriers and pedestrian gates at Middleborough Rd, and the Cemetery Access pedestrian crossing.
 At Box Hill the tracks on the Down side of the platforms was taken out of service. Buffer stops were provided at the Down end of Nos 2 and 3 Tracks and a baulk at the Down end of No 4 Track. Two speed proving train stops were provided in each of Nos 2 and 3 Tracks. 'Warning' and 'Caution' boards were provided to restrict arriving Down trains to 15 km/h. Home BOX306 was fixed at Stop, and Home BOX304 was prevented from routing to Home BOX306. Home BOX316 was prevented from clearing for a movement to No 4 Track. Homes BOX304, BOX316, BOX326 are approach operated and time cleared. Automatic BOX312 and Home BOX314 are approach operated, but only if the signal in advance is being held at Stop for reasons other than being approach operated. Home BOX314 will not clear towards Home BOX326 if both Tracks 2 and 3 are occupied. Homes BOX301, BOX308, BOX318, and BOX328, and Automatics BOX 303 and BOX313 were taken out of use.
 At Blackburn the existing relay interlocking was replaced by a Westcad computer based interlocking. The tracks on the Up side of the platforms was taken out of service. A baulk was provided in No 1 Track 100 metres on the Up side of Home BBN303, and buffers were provided at the Up end of Nos 2 and 3 Tracks. Two speed proving train stops were provided in each of No 2 and 3 Tracks. 'Warning' and 'Caution' boards were provided to restrict arriving Down trains to 25 km/h. Home BBN303 was fixed at Stop. At the Down end Crossovers 215 and 217 were provided. These are equipped with dual control point machines. Up Automatic L578 was converted to a Home and renumbered BBN313. Down Home BBN312 was provided at the Down end of No 1 Platform. Home BBN308 was renumbered BBN310. New Operating Procedure 38A was issued to cover the failure of signals at Blackburn.
 Temporary diagrams were issued in the Weekly Notice.
- 17.01.2007 **Alauda Siding** (SW 8/07, WN 3)
 On Wednesday, 17.1., the Broad gauge switch locked points were booked out of service and secured normal.
- 19.01.2007 **Winchelsea - Colac** (SW 9/07, WN 4)
 On Friday 19.1., VicRoads active warning signs will be provided at Princes Highway (139.906 km). These will flash yellow for road users.
- 21.01.2007 **Richmond Junction** (SW 5/07, WN 3)
 On Sunday, 21.1., the point machine on Points 675D (Up Caulfield Local) was replaced by an M3A machine.
- 21.01.2007 **West Tower** (SW 80/06 & 10/07, WN 4)
 On Sunday, 21.1., the Coburg Goods Lines were booked out of service behind North Melbourne platform 6 between Points 153 and 197, and Points 153 to 193. The area will be used as a works compound for the reconstruction of North Melbourne station.
 Points 113U, 193D and 197D were secured reverse. Points 153 were disabled. Signals 114, 176, 178, and 182

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aH4.33

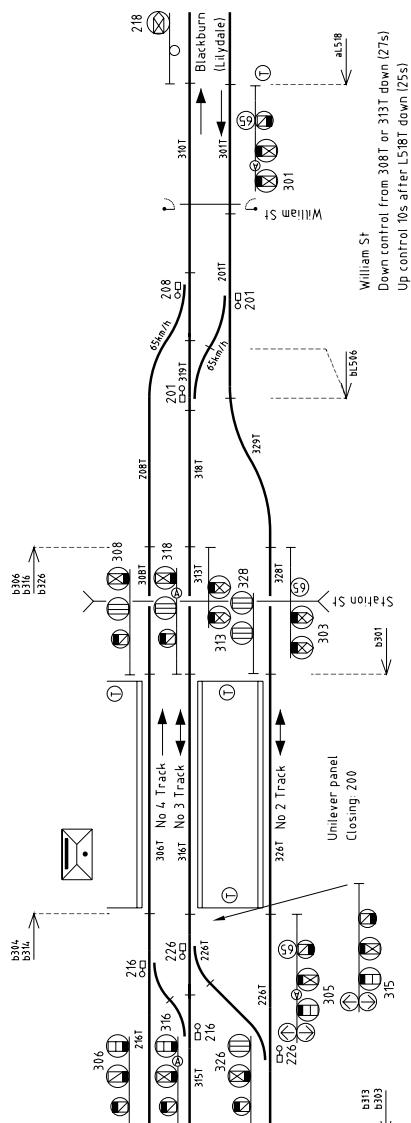
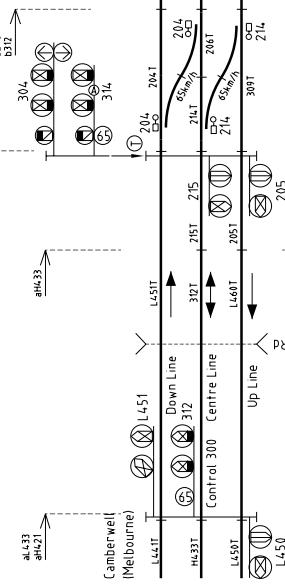
Based on Signalling Arrangement S25688/83 amended to 25/5/04



Box 312 approach operated to medium warning when 316T occupied with Points 226 reverse or 326T occupied with Points 226 normal and 312T occupied for 20 seconds or 312/25T occupied for 33 seconds

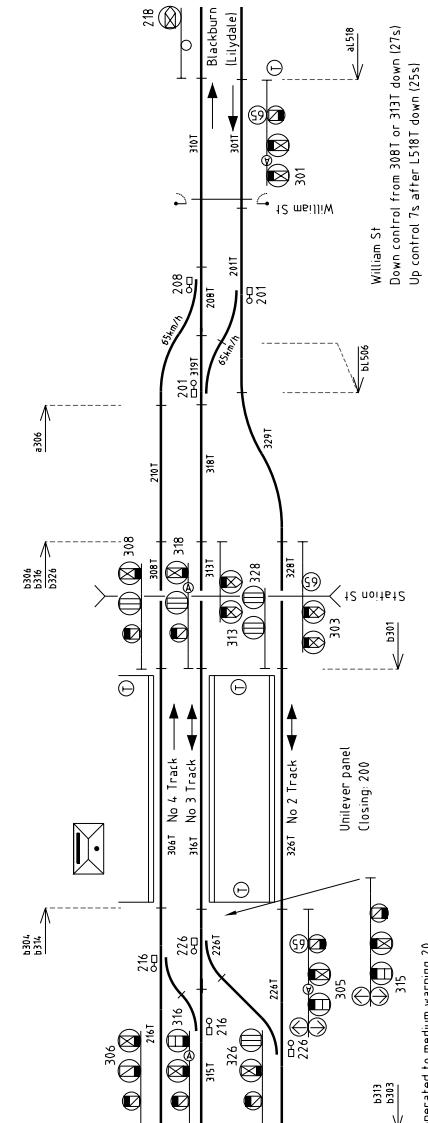
Box Hill 2007

Based on Signalling Arrangement BN-0036-F02



Box 312 approach operated to medium warning when 316T occupied with Points 226 reverse or 326T occupied with Points 226 normal and 312T occupied for 20 seconds or 312/25T occupied for 33 seconds

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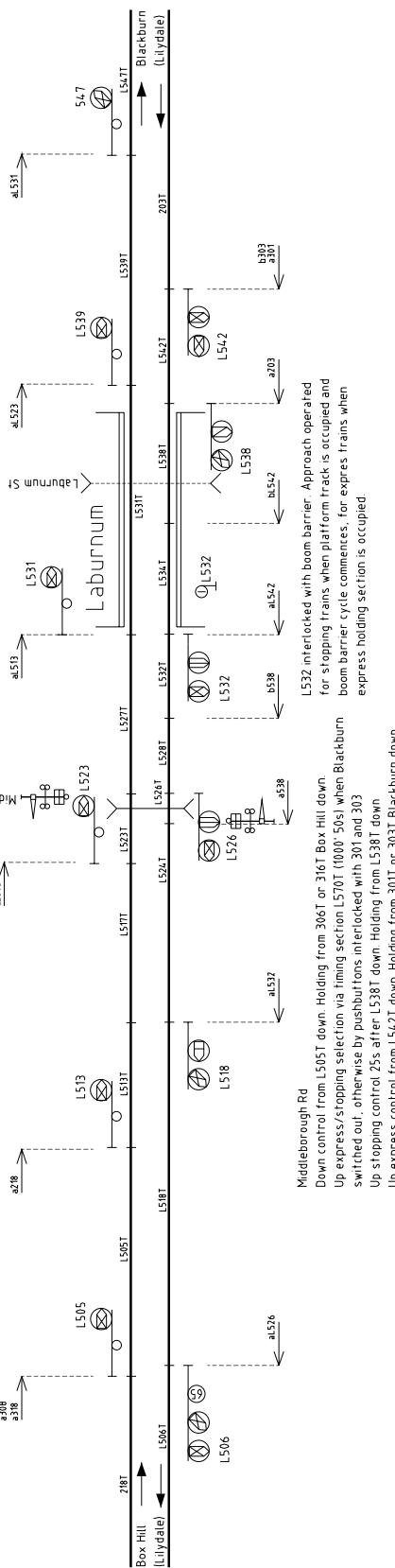


i) 306 T is occupied with Points 214 normal and
points 216 reverse
ii) 316 T is occupied with Points 214 normal and
points 216 normal

Laburnum 2006

Based on Signalling Arrangement S25688/83 amended to 25/5/04

L523 interlocked with boom barrier when Down Control or Holding occupied and L5277 or L5311 are occupied. When this occurs the booms will open provided they are not required for Up trains until L539T is occupied throughout the procedure.

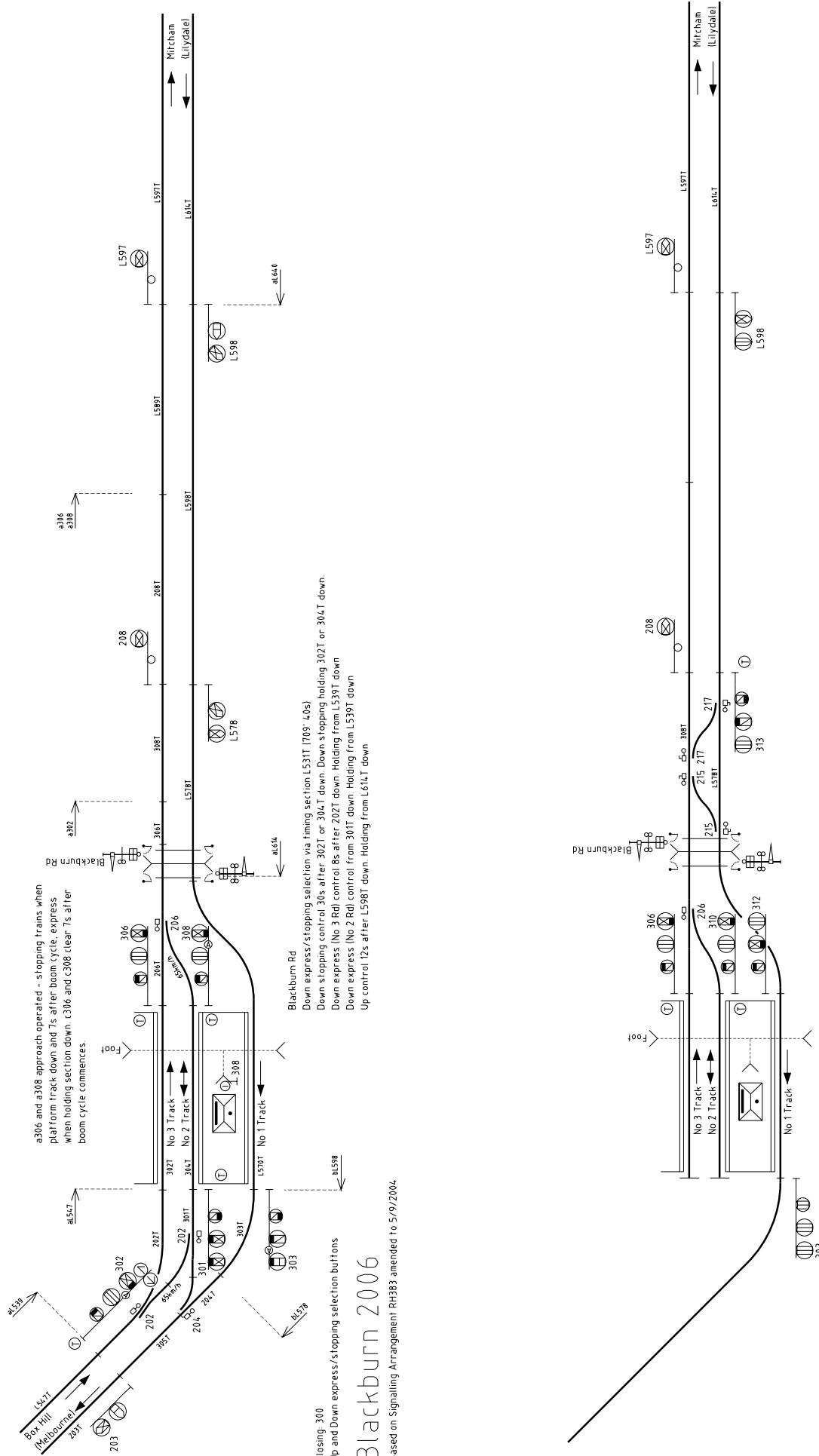


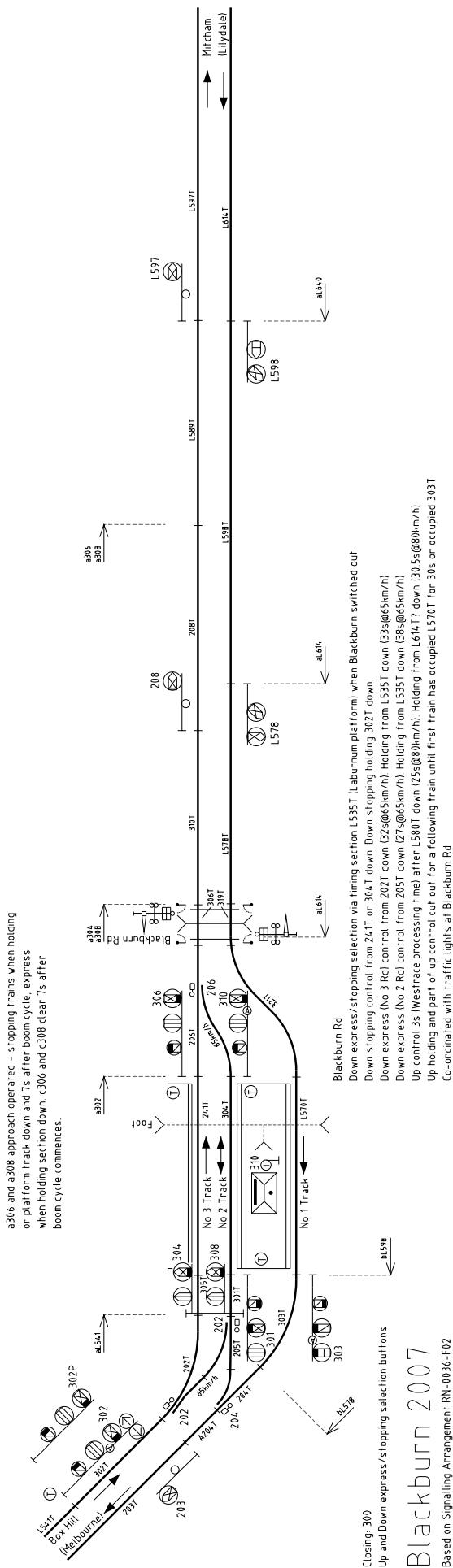
Middleborough Rd
Down control from L505T down. Holding from 306T or 316T Box Hill down.
Up express/stopping selection via timing section L570T (1000' 50s) when Blatburn switched out otherwise by pushbuttons interlocked with 301 and 303 Up stopping control 25s after L538T down. Holding from L538T down

L532 interlocked with boom barrier. Approach operated for stopping trains when platform track is occupied and boom barrier cycle commences, for express trains when express holding section is occupied.

Laburnum 2007

Based on Signalling Arrangement RN-0036-F02





were prevented from setting towards the works area.

The panel at West Tower was temporarily altered. Amend Diagram 80/06.

Box Hill - Blackburn (SW 11/07, WN 4)

On Sunday, 28.1., the line between Box Hill and Blackburn was restored to use and the temporary terminating arrangements at Box Hill and Blackburn were cancelled. Automatics BOX218 and BBN203 were restored to service and new Automatics L505, L506, L513, L518, L534, L540 (with co-acting signal L540P) and L541 were provided. All new signals are LEDs.

At Blackburn, Controlled Automatics BBN304 and BBN308 were provided. Down Home BBN302 was relocated 113 metres in the Up direction and provided with a co-acting signal on a separate mast. Up Home BBN313 was (re-)converted to an Automatic and renumbered L578. Crossovers 215 and 217 were removed. Home BBN312 was removed. The speed proving train stops in Nos 2 and 3 Tracks were removed.

Portland (SW 12/07, WN 4)
Due to a power supply fault at Kennedy Street (402.843 km), the flashing light equipment will be operated as per SW 76/06. The points leading to the Portland Depot Siidng are to be secured normal. Two weeks notice is to be given prior to traffic to the freightgate.

Broadmeadows (SW 17/02, WN 5)
On Wednesday, 31.1., Sidings C and D were booked out of service to permit overhead works and track slewing. It is anticipated that the Sidings will be restored to use from 1800 hours on Monday 26.2.

Winchelsea (SW 17/07, WN 5)
Between 1.2 and 3.3., Winchelsea will be booked in and operated between 0700 and 1900 for the running of ballast trains and track machines.

Pakenham (SW 20/07, WN 5)
On Sunday, 4.2., Up Home 12 and Up Home 14
were converted to LED.

Newport (SWP 2/07, WN 5)
Operating procedure 16 covering the telephone connection to the Altona Petrochemical Group was re-issued

Maryborough (SW 20/07, WN 5)
Permission is granted for the issue of a Through Train Order through Maryborough for Train 9141 when a Signaller is not in attendance. A through Train Order must not be issued if Train 9141 is required to shunt at Maryborough. Permission is also granted for Trains 9140 and 9141 to be issued with a Master Key at Ballarat for travel between Ballarat and Maryborough. SW 163/05 is cancelled.

Blackburn (SWP 3/07, WN 5)
Operating procedure 38A was re-issued. SWP
1/07 is cancelled.

Benalla (SW 24/07, WN 6)
At 1600 hours, 7.2., Home 2 was secured at Stop
and the WestCad panel at Control was booked.

(Continued on Page 36)

BOX HILL - BLACKBURN BEFORE RESIGNALLING



(Above) Looking in the Up direction towards Box Hill station which is underneath a shopping centre. Home BOX301 is almost hidden behind the overhead stanchion at left with the William St pedestrian gates are immediately behind. In the distance, just before the Station St overbridge can be seen Automatics BOX 303 and BOX 313. (Below) Looking in the opposite direction away from Box Hill with the Williams St crossing in the foreground, with BOX301 on the right and Down Automatic BOX218 on the left. Both photos Rod Williams





(Above) Looking in the Down direction between Box Hill and Blackburn past Automatic L505 with the top of the grade just beyond the signal. The grade leading to this summit was 1 in 40, that beyond was initially 1 in 45, easing to 1 in 96 for a short distance before steepening to 1 in 40. Up automatic L506 is on the right. The whistle post for Middleborough Road is immediately in front of the signal. (Below) Down Automatic L523 was located on a 1 in 40 falling grade at the start of a 20 chain righthand curve. The Middleborough Road level crossing can just be seen around the curve. The sighting of trains at Middleborough Road was very bad. Both photos Rod Williams.





(Above) The old Laburnum station was located on a 1 in 40 grade and a reverse curve. The first half of the platform was located on a 20 chain left hand curve, then followed a short straight, before a 20 chain right hand curve commenced. Down Automatic L531 was located at the start of the platforms. (Below) The Up end of Blackburn. The route is set for the train to arrive into No 2 Platform, as can be seen from the illuminated arrow below homes. On the right is Up Automatic 203. Both photos Rod Williams.



GLENHUNTLY TRAMWAY CIRCUITS

Colin Rutledge has very kindly forwarded a portion of RB174 which details the circuits at Glenhuntly as at 19 December 1945. This answers the questions about the purpose of the limit of shunt board on the Up line in the rear of Post 4. I visited Glenhuntly just before it was resignalled and took a photograph of the board, hanging underneath the verandah of the Up platform. However, it was only when I commenced to write up the signalling history of Glenhuntly that it occurred to me to wonder why it was provided. The board prevents shunting trains, travelling in the right direction on the Up line, from approaching Post 4 at the Up end of the platform. It was speculated that it had to do with the tramway crossing.

The diagram opposite shows the circuits relevant to the tramway square. The purpose of the circuits was to ensure that the correct voltage was switched to the tramway square - 1500V DC for the trains and 600V DC for the trams. The circuits are an elaboration for those provided at Elsternwick upon electrification and described in a supplement to the 'Australian Mining and Industrial Standard' in 1919 (this description was reprinted in Somersault Vol 15 No 3, page 54-55). The main difference was the provision of a lever lock on the gatestop lever to prevent it being moved from normal while a train was still crossing the square, and to prevent it from being placed fully normal or reverse while either power supplies was switched to the square.

Switching of the overhead power was controlled by two relays in a switch house near the level crossing. These, in turn, were controlled by the position of the gate wheel and gatestop lever. When the gates were open for road traffic (with the gate wheel and gate stop lever fully reverse) the tramway square was energised at 600V. When the gates were locked across the road (gate wheel and gate stop lever fully normal), the tramway square was energised at 1500V.

Operation of the switching was simplicity itself. Starting with the tramway catches closed, the first move was to restore the tramway levers (10 and 11) to open the catches and place the tram discs to stop. This allowed the gate stop lever to be moved from reverse to the back stop position. The 600V supply was cut as soon as the gate stop lever was moved from the fully reverse position. The gates were then wound across the road. When the gates were normal the mechanical interlocking allowed the gate stop lever to be put fully normal. This connected the 1500V supply to the tramway square. To restore the tramway supply the gatestop lever was reversed and the gates wound across the railway. When both the gates and the gate stop lever were fully reversed, the 600V supply was energised.

The circuits in the diagram served two functions. The first set of circuits locked the gatestop lever normal while a train was approaching or crossing the level crossing. The second set of circuits energised the 500V and 1500V supply relays, and ensured that the relays were open before altering the supply.

Detecting the passage of the train

Originally the railway lines were track circuited through the level crossing. This would have required a substantial number of insulated joints embedded in the roadway, and the consequent maintenance probably lead to the provision of the trap track circuits on 10 October 1945. Instead of a single track circuit through the level crossing, two short track circuits were provided on each side of the level crossing. The circuits were arranged such that when a train passed over one of these track circuits when approaching the level

crossing, the track circuit stayed down until the train was detected as leaving the level crossing on the other side.

It is convenient to consider the Up line first, as this is slightly simpler than the Down line. The track circuit on the approach side of the level crossing is B10T, and that on the departure side is A10T. The occupancy of both these track circuits is detected by B10TSR and A10TSR (Track Stick Relay) respectively.

Both A10TSR and B10TSR are vane relays. A vane relay has two sets of coils known as the track (R) and local (Q) coils. Current for the track coil comes from the track circuit, while that for the local coil comes direct from the bus bar in the signal location. Both coils have to be energised before the relay will pick up. Vane relays have the desirable characteristic that they can only be operated by an AC current of the correct frequency and relative polarity. Further they have the clever feature that most of the energy required to operate the relay is supplied by the local coils which means that only a small current is required through the track circuit itself. (Polyphase relays have similar characteristics, but vane relays were preferred due to slightly better operating characteristics, and a better physical form.) Here the two coils were also used to provide a stick function. In this, when the track circuit was occupied the relay would drop. It would remain down, even though the train had cleared the track circuit, until some other condition had been fulfilled.

Relay B10TSR would drop when a train occupies track circuit B10T and short circuited the line coil B10TSR. This cut power to the local coil B10TSQ as the front contact B10TSR opened. The relay will now stay down even if the train moved off track circuit B10T. The relay will remain down until the train occupied track circuit A10T on the departure side of the level crossing. This caused A10TSR to drop which fed power to B10TSQ over the back contact of A10TSR. With B10TSQ energised, the relay would pick up again as soon as track circuit B10T was unoccupied.

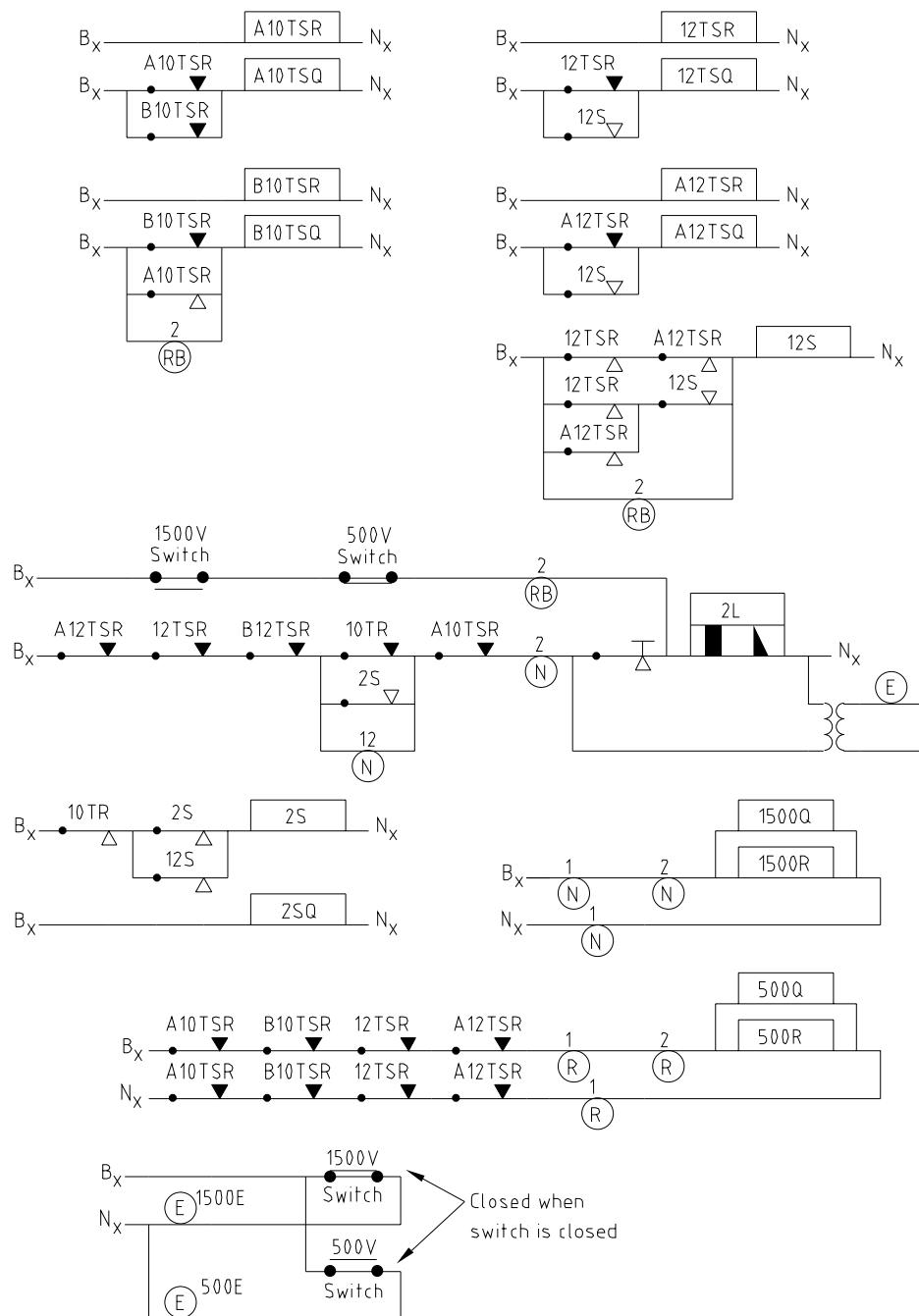
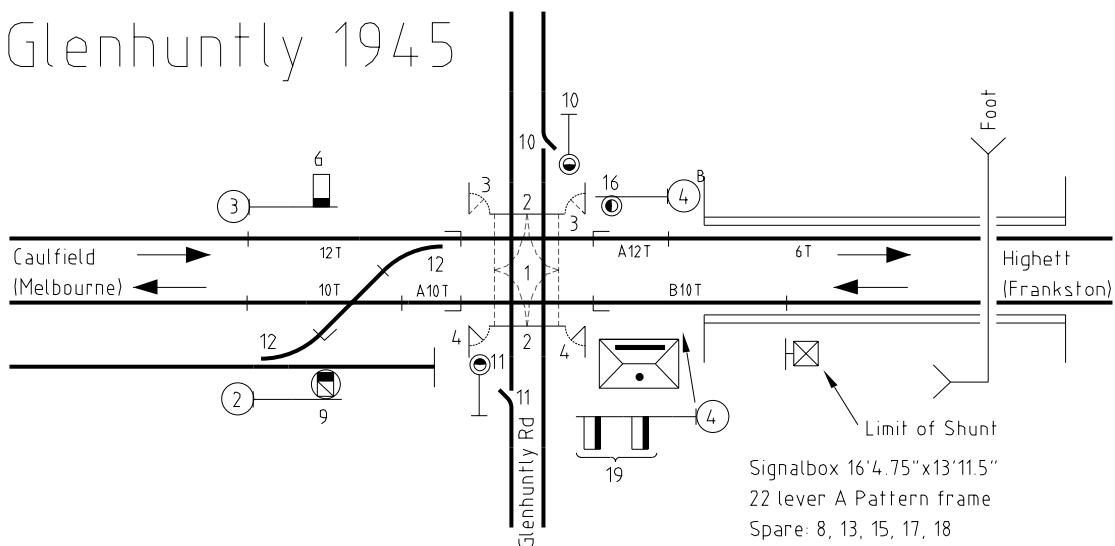
The circuit for A10TSR was similar, except that A10TSR would pick up via B10TSR. Provided the track circuit was unoccupied A10T picked up and stuck irrespective of B10TSR. It dropped again when power was removed when a train occupied the track circuit.

In operation, consider a parcels coach travelling from right to left on the Up line. The parcels coach is short enough not to span A10T, the level crossing, and B10T at once.

When the coach first occupied B10T, relay B10TSR dropped and this cut power to B10TSQ as already explained. Because of this, the relay remained down when the coach moved onto the level crossing and cleared B10T. As the coach left the level crossing it occupied A10T. This dropped relay A10TSR. This restored power to B10TSQ, and, as B10T was unoccupied, relay B10TSR picked up again. This restored power to A10TSQ, and relay A10TSR would pick up again as soon as the parcels coach cleared track circuit A10T. The operation of the circuits when a longer train, say a 7 car Tait, is involved is left to the reader, however the effect is the same, either or both A10TSR or B10TSR was down from the time a train entered B10T until it cleared A10T.

The RB lever contact on gate stop lever 2 in the circuit for B10TSQ is provided to ensure that a momentary dropping of B10T track will not lock up the level crossing. The contact cut out the stick feature unless it was actually needed for a train movement. When the gatestop lever was reverse, or on the back stop (or anywhere between), current was continuously fed to B10TSQ irrespective of whether track B10T was occupied or not. This cut out the stick function. If B10TSR dropped in this situation it would consequently pick up im-

Glenhuntly 1945



mediately the track circuit cleared. No similar contact is required on A10TSQ as A10TSR will pick up immediately whenever B10TSR is up.

The equivalent circuits for the Down line are similar, but required an extra relay, 12 S (Stick), because there were signalled moves over the level crossing in both directions and the circuits consequently had to be symmetrical.

The circuits for both 12TSR and A12TSR were equivalent and so only one needs to be considered.

Relay 12TSR would drop when the track circuit was occupied, and de-energised coil 12TSQ. The relay would then stay down until relay 12S picked up and restored current to 12TSQ.

Normally, 12S was de-energised and would pick up in the following fashion. 12S was said to 'pick' when both 12T and A12T were down (the top branch of the circuit). This is known as the 'pick' path and occurred when the train has occupied the track circuit on the approach side of the crossing, passed over the crossing, and occupied the track circuit on the departure side. As the train vacated the track circuit on the approach of the level crossing, the task of energising 12S fell to the second branch of the circuit. Relay 12S stuck up whilst either track remained down (i.e. if any one of the tracks picked, 12S remains up). This is known as the 'stick' path. This condition occurred when the train had cleared the first track circuit (on the approach side of the level crossing), but still occupied the second (on the departure side of the crossing). When both tracks pick, 12S was released. The final branch of the circuit is an RB contact on gatestop lever 2. Like the equivalent contact on B10TSQ, this ensured that 12S was always energised when the gates were across the railway or being swung across the road. In turn, this meant that if either 12T or A12T dropped with the gates not open for train traffic, the relay would pick up immediately the track circuit cleared.

The gatestop electric lock

The circuit for the control of the electric lock on the gatestop lever (2L) is shown next. The electric lock locked lever 2 in the normal, normal indication, and reverse indication position. It did not lock the gatestop lever in the reverse position (i.e. across the railway). Two separate energising circuits were provided. The bottom circuit energised the lever lock when the lever was in the normal position (i.e. gates locked across the road). The upper circuit energised the lever lock when the gate stop lever was either the normal indication or reverse indication positions.

To reverse the lever from the normal position (the bottom circuit), the lock was energised when the stick track circuits on each side of the level crossing (12T, A12T, A10T and B10T) were up (i.e. no train on the crossing) and 10T was up (the purpose of this contact will be considered in a below). A normal contact on lever 2 was included in the circuit (making the bottom branch of the circuit effective only when the gatestop lever was normal), and a push button (possibly a floor contact) to prevent energisation of the lever lock unless it was necessary to reverse lever 2. The push button was provided to prevent lengthy energisation of the lever lock and prevent permanent magnetisation of the lever lock. In reality, the contact band would have been set NX to ensure that the lever lock would remain energised until the lever had imparted sufficient motion to the cam to ensure the quadrant of the lever lock moved past the lock face. It was important to ensure that the NX band was open before the RB band made to prevent possible incorrect lock energisation. An illuminated indicator was provided to show the signalman when the track circuits were clear and the lever lock would operate. This indicator was an afterthought

and was not initially provided.

The contact for 10TR was included in the circuit to prevent the signalman from reversing gatestop lever 2 when a train was travelling from the siding, past Dwarf 9, to the Down line. The contact was cut out of the circuit whenever 2S was up or crossover 12 was normal. These conditions would hold when 10T was occupied by an Up movement, either along the Up line, or a shunt move from the Down line to the siding. When crossover 12 was normal, 10T track must have been occupied by a movement along the Up line, and hence could be ignored in the control of 2L. Relay 2S was normally down. It was energised when 12S was up (i.e. a move across the level crossing on the Down line was in progress) and 10T was occupied. It would then stick up after the movement cleared the level crossing, cutting out the 10TR contact in the 2L circuit until 10T was cleared. Note that 2S would also pick up for moves from the siding to the Down line, but would not do so until 12S had picked up. This would not occur until both 12T and A12T had been occupied, in which case 2L could not be energised.

Before considering the other circuit for energising 2L, it is worth noting why it was so important to prevent the gatestop lever from being moved out of the normal position. This circuit was a major difference to the 1919 Elsternwick circuit referred to earlier. The reason was to prevent the gatestop lever from being moved towards reverse before a train was clear of the crossing. If the lever made it to the reverse position and picked up 500R, the tramway square would be energised at 600V, not 1500V. This was a nuisance for trains, but as the pantographs momentarily bridged the air gaps in the overhead, the tramway square would be connected to both the railway and tramway power supply. In his early days, Colin was told of a case where, due to a defect in the relays, the tram overhead was connected to the railway system. The claim was that the tram took off like a rocket and could not be controlled because the higher voltage and current maintained an arc across the open drum controller contacts in the tram controller until the whole tram suffered burnt out wiring.

The second circuit for energising lock 2L was far simpler than the first circuit. The lock was energised when the gatestop lever was between the B and D (normal and reverse indication) positions provided both the 1500V and 500V supply relays were open. This ensured that the lever could not be placed fully normal or fully reverse if one of the relays had stuck closed. It is interesting that this circuit did not go through the push button, or light the indication lamp. In practice the push button was not required to prevent lengthy energisation of the lever lock, as the lever would not be placed between the B and D positions for long periods of time (because of the tramway square, the gatestop lever could only be left normal or reverse, not on the 5" notch like at most interlocked gates). The illuminated rail/tram indicator effectively provided an indicator to show when this branch of the circuit would energise the lock. An absence of either indication indicated that both supply relays were down and that the lever was free. However, I wonder how many signalmen at Glenhuntly were even really aware of the B and D locks?

Switching the power

The power was switched to the tramway square via two relays located in the switch house. These relays were named 1500R (railway supply) and 500R (tramway supply). The names are clearly derived from the voltage supplied by the relay, but why the tramway voltage was considered 500V instead of the actual 600V is not known.

The circuits energising the supply relays were relatively

straightforward. To energise 1500R and connect the railway supply to the tramway square, the gate wheel (lever 1) and gate stop (lever 2) had to be normal (i.e. the gates locked across the road). A redundant contact for lever 1 was included in the circuit to ensure that 1500R was not energised if the contact on lever 1 sticks, or if a false feed occurred. To energise 500R and connect the tramway supply to the tramway square, the four track circuits on either side of the level crossing had to be up (i.e. tracks unoccupied and the any movement completed), and the gate wheel and gate stop levers had to be reverse. Again the contacts for the track circuits and the gate wheel were duplicated in the return to the common for safety.

The final circuit shown was for the 'Tram' and 'Rail' indicators. These simply operated off contacts on the 1500V and 500V relays. The indicator lit if the appropriate switch was closed.

The 'Limit of Shunt' board

Having discussed the circuits at Glenhuntly, we can now answer the question as to why the 'Limit of Shunt' board

was provided on the Up line in the rear of Post 4.

The board marks the start of B10 track. It was primarily provided to prevent a train shunting over the Down end crossover from approaching Post 4. If the shunting train occupied B10 track, tramway power to the square would be cut as 500R dropped.

Tramway power would also be cut if a through Up train occupied B10 track with the gates across the line. This was handled by the mechanical interlocking. In 1945, before lever 20 could be reversed to admit an Up train to the platform, the gatestop lever 2 had to be normal (i.e. gates across the road and with power supply switched to 1500V). On 8 July 1947 this interlocking was altered. Instead of locking lever 2 normal, lever 20 subsequently locked the tramway catches 10 and 11 normal. So an Up train could approach Post 4 with the gates across the railway (and hence cut the tramway power supply), but the tramway catches would be open preventing trams from crossing the railway.

I would like to thank Colin Rutledge for supplying the circuits on which this article has been based, and for commenting on the draft.

CORRECTION

In the last issue an error crept into the article on Glenhuntly.

The extension from Mordialloc to Frankston was officially opened on 31 July 1882, and services commenced on 1 August 1882 (instead of 1 October 1882). While we are on

the topic, the section from Caulfield to Mordialloc was officially opened on 19 December 1881 and public services commenced the next day.

BOOK REVIEW

Victorian Signalling: by accident or design? : an illustrated historic narrative on semaphore signalling with special reference to Victoria, Australia, Peter Fischer, ARHS (Victorian Division), 2007, ISBN 978 1 92089 250 0

This book traces the development of the semaphore signal in Victoria, with particular reference to its appearance. It is divided into two sections. The first part of the book, roughly the first third, traces the history of the semaphore in the UK, with references to US practice, and links this with developments in Victoria. The second part of the book traces in more detail the history of the semaphore in Victoria, focussing on the period up to the introduction of speed signalling. The book is not a general history of Victorian signalling or safeworking.

Much of the information in the first part of the book should be largely familiar to anyone who has any of the standard British signalling histories. However, not all. The information on US practices will not be found in the British books, still less the linkages with Victorian practice. The author has also found interesting information that is not commonly known. For example, the timing of the naval versus railway use of coloured lights is not found in British books on signalling.

One of the strengths of the second part of the book is the author's careful examination of a large number of old photographs. A wonderful selection of enlargements is reproduced in the book and they certainly illustrate that the early Victorian semaphores were not standardised. Careful detective work has been carried out by the author to date the photographs. He has used this research to make some suggestions as early slotted post semaphores. The author quotes extensively from the published literature, and brings the information together into a history of the semaphore in Victoria.

The weakness of the book, however, is in this reliance on secondary sources. There is a lot of unpublished information available in the records of the early Victorian Railways, particularly in the Engineer of Existing Lines correspondence registers held at PROV. A substantial amount of work has been done on these records. Use of this information would have answered many of the questions raised by the book, and added very substantially to its definitiveness.

Careful proofreading would have picked up the errors in the text and captions. For example, the name of the 1865 private company is the Melbourne and Hobson's Bay United Railway Company, not, as stated on page 39, the Hobsons Bay & United Railway Company. A more signalling example is plate 36 of the Down Distant at Glenroy is not a picture of a 19th century cast iron multisecton post. It is an example of a B614 type post introduced around 1926. Such errors are unfortunate in a book that will be quoted as the definitive history.

For readers interested in Victorian signalling, the photographs, and the work the author has carried out on them, are worth the price of the book. The text does not add much to our knowledge of early Victorian signalling, but it does bring together the published information in a useful narrative. It is a great pity that the author was not able to take advantage of the knowledge of unpublished sources available in the community researching Victorian railway history to add to the quality and stature of the book. It is also a great pity that the book was not more carefully proofread.

SIGNALLING ALTERATIONS

(continued from page 28)

	out of use due to a technical malfunction. A signaller will be in attendance to issue a Caution Order to pass the Home at Stop and operate the Nunn St level crossing.	
10.02.2007	Colac	(SW 26/07, WN 6)
	On Sunday, 10.2, the Up end of No 3 Track was booked back into service for track machines and ballast trains. A baulk was provided at the Down end of the track and the Up end points were fitted with an independent padlock.	
11.02.2007	Hartwell	(SW 27/07, WN 6)
	On Sunday, 11.2., automatic pedestrian gates were provided at the Bright St pedestrian crossing (13.681 km).	
11.02.2007	Pakenham	(SW 26/07, WN 6)
	On Sunday, 11.2., Up Home PKM16 and Up Controlled Automatic PKM10 were converted to LED.	
13.02.2007	Terang	(SW 23/07, WN 6)
	On Tuesday, 13.2., the Down end points were straight railed. The Up end points are rodded to a Hayes Derail and wheel crowder. A clear standing room of 50 metres exists within the siding. The siding is only available for the stabling of track machines and vehicles.	
18.02.2007	Officer - Pakenham	(SW 30/07, WN 7)
	On Sunday, 18.2., Automatics D1721, D1722, D1800, and PKM4 were converted to LED.	
(20.02.2007)	Newport, Kensington, North Melbourne - Upfield, Glenhuntly	(SW 31/07, WN 7)
	Due to incidents of overruns of the Siemens fleet, all Up trains approaching Aviation Rd (Aircraft) Macaulay Rd (Kensington) and Glenhuntly Rd (Glenhuntly) are to be signalled as express trains. All trains on the Upfield line are to be signalled as express trains.	
(20.02.2007)	South Kensington - Werribee	(SW 33/07, WN 7)
	Diagrams 119/06 (South Kensington), 1/07 (Footscray - Spotswood), 123/06 (Altona Junction - Laverton via the main line), and 139/06 (Aircraft - Werribee) replaced 77/97 (South Kensington), 37/06 (Footscray - Spotswood) and 66/05 (Altona Junction - Werribee) as in service.	
(20.02.2007)	Ruthven - Epping	(SW 35/07, WN 7)
	Diagram 135/06 (Ruthven - Epping) replaced 33/01 as in service.	
(20.02.2007)	Dandenong - Pakenham	(SW 34/07, WN 7)
	Diagrams 121/06 (Dandenong - Hallam) and 141/06 (Narre Warren - Pakenham) replaced 01/02 and 70/06 respectively as in service.	
(20.02.2007)	Bairnsdale	(SW 28/07, WN 7)
	The instructions for Driver-in-charge working have been re-issued.	
(20.02.2007)	Glenhuntly - Frankston	(SW 32/07, WN 7)
	Diagrams 3/07 (Glenhuntly - Highett), 5/07 (Cheltenham - Chelsea) and 7/07 (Bonbeach - Frankston) replaced 19/05 and 19/04 as in service.	
(20.02.2007)	Dandenong - Cranbourne	(SW 34/07, WN 7)
	Diagram 9/07 (Lyndbrook Loop - Cranbourne) replaced 1/04 as in service.	
24.02.2007	Broadmeadows	(SW 41/07, WN 8)
	On Saturday, 24.2., Siding B was abolished. Points 402 were removed and Dwarf BDS502 was abolished. The Westrace interlocking was upgraded. Amend Diagram 24/00.	
25.02.2007	Beaconsfield - Officer	(SW 39/07, WN 8)
	On Sunday, 25.2., Automatics D1577, D1578, D1645, and D1648 were converted to LED.	
01.03.2007	Benalla	(SW 41/07, WN 9)
	From 1900 hours on Thursday, 1.3., Home BEN 2 and the WestCAD system will be restored to use. SW 24/07 is cancelled.	
02.03.2007	Dandenong	(SW 45/07, WN 9)
	On Friday, 2.3., the Up end of the Through Siding was restored to use. The siding had been booked out of use due to rusty rails. The Down end of the siding remains out of use. Baulks were provided at the Approach Section Indicator at Greens Road and Points 677D will be secured normal.	
03.03.2007	Broadmeadows	(SW 44/07, WN 9)
	On Saturday, 3.3., Down Home BMS513 was relocated 41 metres in the Down direction. Amend Diagram 24/00 (Glenbervie - Somerton).	
04.03.2007	Beaconsfield - Officer	(SW 43/07, WN 9)
	On Sunday, 4.3., Automatics D1410, D1497 and D1524 were converted to LED.	
(06.03.2007)	Sherwood Park	(SW 39/07, WN 9)
	Operating Procedure 64A was issued to cover protection of Sherwood Entrance level crossing when a train is delayed for an extended period at the platform. The Train Controller is to inform the police and the contracted local traffic management organisation. SW 87/06 is cancelled.	