

Signalling Record Society (Victoria) - SOMERSAULT
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Deadline for January 1989 issue is 31 December 1988.
NEXT MEETING: Friday, 18 November 1988.
VENUE: A.R.H.S. Library Room, Windsor Rly Station.

MINUTES OF SEPTEMBER 1988 MEETING

HELD AT: A.R.H.S. Library Room, Windsor Railway Station.

HELD ON: Friday, 16 September 1988.

MEETING COMMENCED: at 2021 hours.

PRESENT: J. McLean, S. McLean, J. Brough, W. Brook, R. Jeffries,
A. Jungwirth, K. Lambert, D. Langley, A. McLean, C. Rutledge,
J. Sinnatt, R. Weiss and B. Wooding.

MINUTES OF PREVIOUS MEETING: adopted as read. (Rutledge/Wooding)

CORRESPONDENCE: Nil.

TOURS: Show Day tour will be to Ararat-Ballarat via Jacksons Loop.
Travel to Ararat by 0755 down Dimboola and return from
Ballarat via 1850 up Ballarat pass.

GENERAL BUSINESS: 1. The signalling alterations at Frankston and Bunyip-
Longwarry were discussed.
2. Questions - is it still normal practice for metric signal
numbers to be black on white?
- is there a practical limit to the length of an
electric staff section? So far a section of 180km has been
tried. A new type of generator is needed.

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3. Sunday, 2 October - absolute occupation at Richmond Junction with Dandenong and Frankston trains working two lots of single line Richmond-Caulfield.
4. Plans for Winchelsea include a crossing loop not opposite the platform (trailable points). In Train Order territory, miniature electric staff locks will be used on other points and all locos will carry a Master Key.
5. Rob Weiss visited BCR in Vancouver.
 - LIC has now been abandoned; computer-aided Manual Block is now being worked on,
 - All Train Orders are sent by radio,
 - He was impressed with Shytrain, a driverless suburban railway.
6. Wilfrid Brook described the computerised printing of Train Orders at Townsville.
7. Tenders from three firms have been received for C.A.B.S.
8. An end-of-train detection device has been tested (unsuccessfully) at Inverleigh.
9. In Somersault, p.88, Figure 1.1, signal C258 should have a circle added to make it a light signal.
10. A French to English translation of a Chinese Rule Book was tabled.

MEETING CLOSED: at 2136 hours.

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SIGNALLING ALTERATIONS

- X 18.8.1988 FLINDERS STREET. New signalling diagram No 33'88 became effective and diagram No 25'85 was cancelled.
1. Baulks were provided at the west end of Nos 10 and 13 roads.
2. Signals Nos 930, 940, 941, 942, 944, 946, 951, 953 and 958 were taken out of service.
3. Points Nos 830, 844 and 851 were disabled and will be removed at a later date.
4. No 831 points were secured in the normal position. (O 2437/88)
- X WN 34/1988 FLEMINGTON BRIDGE-COBURG. New signalling diagram No 29'88 became effective and diagram No 49'86 is cancelled. This diagram has been issued showing the current arrangements at Moreland. (O 2457/88)
- X WN 34/1988 GHERINGHAP. Hayes derails have been provided at both end of Siding "B". (O 728/88)
- WN 34/1988 NORTH SHORE. Due to track upgrading works, the following curves have been raised from 70km/h to 90km/h. West Line - curve between 67.047km and 67.510km, and East Line - curve between 66.967km and 67.510km. (O 717/88)
- WN 34/1988 BANK BOX. The 105km/h speed restriction on the curve at 69.466km was lifted and the speed boards removed. (O 715/88)

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- 17.8.1988 WILLIAMSTOWN. The up end annett lock points were secured for the main line, and the annett key and lock were abolished. Signal post 79 was abolished. A baulk was placed at the down end of the platform road. Amend diagram No 24'65. (O 2436/88)
- 21.8.1988 CARRUM. The up end catch points in Siding "B" were abolished and replaced by a Hayes derail and wheel crowder. (O 2458/88)
- 29.8.1988 WARRAGUL - Block Hours.
 Mondays to Fridays - 0550 until 2215 hours.
 Saturdays - 0550 until 1030 hours.
 Sundays - Switched out.
- 31.8.1988 PLATFORM MARKINGS. Test markings were painted on the up and down platforms at Windsor. The purpose of these markings is to indicate to Guards operating from the centre van of a six car train that the entire train is within the platform limits. The markings comprise two triangles pointing towards each other. (O 2498/88)
- 1.9.1988 BAIRNSDALE. Flashing lights were brought into operation at Bosworth Road level crossing. (O 753/88)
- 1.9.1988 MERBEIN. The up and down home signals, plunger locking and signal quadrants were abolished. The main line points were provided with WSA levers and are secured by hand locking bars, pins and padlocks. (O 745/88)
- 3.9.1988 ALBION JUNCTION. The junction points in the up line were moved 14.6 metres in the down direction. (O 2505/88)
- 3.9.1988 PAISLEY-B.P. SIDING. The switch lock was relocated 1.5 metres in the up direction. (O 2506/88)
- 4.9.1988 SUNSHINE. Points No 16 main line to siding "C" were taken out of use. Levers Nos 7, 15, 16 and 27 previously taken out of use will remain out of service and were sleeved normal. (O 2499/88)
- 4.9.1988 PAKENHAM-OFFICER. up automatic signal D1632 was abolished, together with the 5P key switch. Up signal D1648 was converted to an automatic signal. The push button on the Pakenham panel for No 10 signal was abolished. (O 2480/88)
- 5.9.1988 WALLAN - Block Hours.
 From 0530 Mondays until clearance of 9365 the following Saturday morning and from 1615 Saturday until clearance of 8337 same day. (O 730/88)
- 5.9.1988 KILMORE EAST - Block Hours.
 From 0530 Mondays until clearance of 9308 the following Saturday morning, from 0650 Saturdays until clearance of 9318 same day, and from 1800 Saturdays until clearance of 8337 same day. (O 730/88)
- 7.9.1988 MURCHISON EAST. Up home signal "L" was relocated 218 metres in the down direction account extension of the crossing lane. (O 737/88)

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- WN 35/1988 McINTYRE LOOP-LYSAGHT'S SIDING. Signals MCT/V4 and MCT/12 apply to and from Lysaght's Siding and No 3 road, MCT/V4 also applies to the main line from No 3 road. The move above is set by the Train Controller but the signals will not clear until the shunter has removed the Hayes Derail and pressed the Start button located in the telephone cabinet adjacent to MCT/U4 signal. The red indication will then change to green. A white light is also provided and presumably indicates when the Train Controller has called for the movement. When the shunting movement has been completed, the Stop button must be pressed to enable the Train Controller to set the route from No 3 to the main line. (D 731/88)
- WN 35/1988 SULKY LOOP - Speed Limits. (D 756/88)
Down trains - 40km/h arriving in No 2 and departing from No 2 until train is clear of the points.
Up trains - 65km/h until locomotive clears trailing points.
- xx.xx.198x BERWICK. Nos 2 and 3 roads were taken out of service. Points Nos 9 and 27 were secured for the main line. Signal levers Nos 12 and 26, and point levers Nos 9 and 27 were sleeved normal. (D xxxx/88)
- WN 36/1988 WARRAGUL - Block Hours (D 714/88)
Mon-Fri: 0500 until 2215 hours.
Sat: 0550 until 1030 hours.
Sun: Switched out.
- WN 36/1988 KILMORE EAST - Block Hours (D 780/88)
From 1715 hours Sunday until the clearance of 9308 the following Saturday.
Saturday: From 0650 until clearance of 9318 the same day.
From 1800 until clearance of 8337 the same day.
- 6.9.1988 FLEMINGTON RACECOURSE LINE - ASCOT VALE ROAD SIGNAL BOX. The annett locked points leading from the down line to the cattle siding were removed. The duplicate lock on lever 6 was removed. Lever 7 was sleeved normal. (D 2511/88)
- 7.9.1988 CAMPERDOWN. The following alterations were effected:-
1. The down end plunger locked points leading to No 2 road were abolished.
2. No 2 and 4 roads were abolished.
3. The Mobil and Shell Oil Company siding and associated "B" pattern annett lock was abolished.
4. The former loco sidings and "A" pattern annett lock and two lever ground frame were abolished.
5. Down home signal post 3 and up disc post 4 were abolished.
6. Nos 3, 4 and 6 roads were renumbered 2, 3 and 4. (D 783/88)
- 11.9.1988 MELBOURNE-ALBURY (STANDARD GAUGE). The passenger trains on the standard gauge will be operated by a Conductor only, a passenger guard will not be rostered. The relief expresses will also be operated by a Conductor only when they are running. (D 721/88)

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- 11.9.1988 SEYMOUR. The following alterations took place:-
 1. No 58 points "X" to down line were abolished.
 2. Disc signals Nos 46 and 68 were abolished.
 Amend signalling diagram No 8'87. (D 807/88)
- 13.9.1988 MURCHISON EAST. The down end plunger locked points were relocated 288 metres further out. (D 798/88)
- 14.9.1988 BEAUFORT was disestablished as an electric staff station, the new section becoming Trawalla-Buangor. All points, signals and the signalbox were taken out of use and abolished. The points will be removed at a later date. The level crossings were altered to level crossing predictors and healthy state lights were also provided. (D 784/88)
- 14.9.1988 NOWINGI. The up end staff locked points with rodded catch and the down end points, leading to the Millewa South line were abolished owing to closure of the line. (D 795/88)
- WN 37/1988 WODDONGA COAL SIDINGS BOGIE EXCHANGE SIDINGS. Warning devices have been provided to ensure safety of employees whilst shunting movements are taking place. The points leading to the exchange sidings are secured by hand locking bars and special padlocks. The key to the padlocks is secured in the warning device switch box and cannot be removed until the warning devices have been switched ON. The warning device consequently cannot be switched OFF again until the key has been returned and the key cannot be withdrawn from the padlocks until the points are again locked. (D 782/88)
- 14.9.1988 BAYSWATER. The goods sidings were placed out of use. Points Nos 203, 204, 212 and 214 were spiked normal and will be removed later. They are also secured by 8P padlocks. Signals Nos 303, 305, 312, 314 and 315 were secured normal and will be removed at a later date. Insert a reference on diagram No. 21'88. (D 2526/88)
- WN 38/1988 HEATHMONT-BELGRAVE. New signalling diagram No 21'88 became effective and diagram No 39'85 is cancelled. This diagram incorporates the alterations at Upper Ferntree Gully. (D 2525/88)
- WN 38/1988 SPENCER STREET PASSENGER YARD. When two locomotives are to run the Sydney Express or Intercapital Daylight, the train engines are to be hauled to Spencer Street with the cars by a suitable pilot engine. The empty cars must stop short of the engine release crossover and the pilot detached via No 1B road. The platform supervisor must then arrange for all personnel in the carriages must be detrained and when that has been done, he must inform the Stationmaster of the circumstances. When advised, the Stationmaster must then advise the Assistant Yard Master accordingly, after which he, or the Regional Movements Inspector, must arrange for the LEADING shunter to be in position to place the motorail wagons for loading. After signal No 177 has been placed proceed, the Leading Shunter must signal the train slowly back towards the buffer stops. NOTE: The carriages must not be set back until all personnel have been detrained. (D 830/88)

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- X WN 38/1988 PRAHRAN-SANDRINGHAM. New signalling diagram No 27'88 became effective and diagram No 55'87 is cancelled. This diagram incorporates the alterations at Sandringham. (D 2524/88)
- X WN 38/1988 FLEMINGTON RACECOURSE LINE. New signalling diagram No 39'88 became effective and diagram No 4'86 is cancelled. Signal R219 was relocated to a ground mast. (D 2427/88)
- 18.9.1988 LEONGATHA LINE. All Leongatha line passenger trains will not have a Passenger Guard. (D 746/88)
- X 19.9.1988 PORTLAND. The main line was realigned onto the bypass road at a point clear of Nos 21 and 22 points, and the bypass road became the main line. The former leads at the up and down ends of Portland towards the bypass road remain as short dead end spurs. Main line points Nos 20 and 23 remain for detection purposes, and when either is set reverse, lead to the dead end spur siding. The portion of the main line between the slew was abolished. (D 820/88)
- X 20.9.1988 STRATFORD JUNCTION. The intermediate electric staff instrument was abolished and the Maffra line is now worked as a siding. The Train Staff and Ticket system together with the home signal have been abolished. The junction points are secured by a staff lock and an "A" pattern annett lock has been provided on the point lever. After the points have been unlocked and reversed, the annett key is withdrawn from the lock, securing the point lever reverse, and is handed to the driver. Trains must not proceed to Maffra unless in possession of the annett key. (D 796/88)
- X 21.9.1988 FAIRFIELD. The goods siding was taken out of use. The main line points and siding catch points were spiked normal. Levers Nos 16, 17, 18, 28, 29 and 32 were sleeved normal. (D 2553/88)
- 25.9.1988 GEELONG LINE. Further passenger trains will not have a Passenger Guard. (D 832/88)

Sunday	
0935 down Geelong	0800 up Geelong
1135 down Geelong	1000 up Geelong
1410 down Geelong	1200 up Geelong
1605 down Geelong	1400 up Geelong
Monday-Friday	
0654 down South Geelong	0520 up Geelong
0800 down South Geelong	0825 up South Geelong
1200 down Geelong	0935 up South Geelong
Saturday	
0700 down Geelong	0530 up Geelong
1000 down Geelong	0830 up Geelong
1800 down Geelong	1630 up Geelong
2130 down Geelong	2000 up Geelong

(continued on page 120.)

LEVEL CROSSING PROTECTION

by John Sinnatt

2. INTERLOCKED GATES

2.1 HISTORICAL

Gates worked mechanically from an interlocking frame are known in Victoria as Interlocked Gates. These were introduced on a large scale during the 1880s and early 1890s, at the same time as interlocking itself, and as the Block Telegraph system was replacing Time Interval on double-tracked lines. Thus their application does not seem to be related to the density of road traffic; rather, if gates were then considered necessary at every crossing, as stated in Part 1, and if a signalman was now also required to work the new block instruments, it would probably be economic, or at least convenient, for him to work the gates as well, notwithstanding the installation cost. By 1899 more than 50 crossings in the suburban area had been provided with interlocked gates.

The first interlocked gates in Victoria were installed in 1873 at Swan Street, Richmond, by the Hobsons Bay Company. The frame was replaced and re-sited by the Government Railways in 1884 to allow for grade separation in the following year. The first new crossing equipped by the Victorian Railways was at Melbourne Road, Newport, in 1879 (1 Jul). Table 2.1 shows the locations of all VR interlocked gates, past or present, in the Melbourne suburban area (certain locations on the outskirts are included in Table 2.2), their years of installation and replacement, and the type of replacement facility. Latter-day names for signal boxes (North Fitzroy and Clifton Hill) and stations have been used to aid recognition, but old names for the lines or services. The prefix "18" or "19" is omitted from the years. At a few places the year of connection of the gates is uncertain, and may be later than shown.

From the Table, it will be seen that between 1883 and 1892 interlocked gates were installed in the inner suburban area at nearly all crossings at intermediate stations on the Williamstown, Essendon, Coburg, Clifton Hill via North Fitzroy (part single), Box Hill, Oakleigh, Brighton, St Kilda, and Port Melbourne lines, along with some others. The lines named were all double track except where shown. Crossings in between stations retained their hand gates unless a box was needed for special reasons, e.g. at Clifton Hill C (cable tram crossing), and at Ferrars Street (Block Post). At Jewell, Brunswick and Moreland the gates were worked by hand during the period 1903 - 1911.

The opening of new electric tramways from 1913 led to the provision of new signal boxes with interlocked gates to control crossings at Kooyong, North Carlton (Lygon Street), Riversdale, Gardiner, and Footscray D (Nicholson Street). New crossings were also worked by existing boxes at Malvern, Glenferrie, Elsternwick, Glenhuntly (1913); Camberwell (1917); and North Fitzroy B (St Georges Road) (converted cable line, 1930). No fixed protection was provided at Deepdene (1916), but both trains and trams had to stop before crossing. The first electric tramway crossing was actually at Epsom Road, Showgrounds (1906), but here the hand gates were retained. A potential crossing at Armadale (1910) was avoided by advancing part of the major regrading project on the Caulfield line. A late comer was the East Brunswick tram (1956), but North Fitzroy C (Nicholson Street) already had interlocked gates.

In the early 1920s the Railways set up a special committee to make recommendations on the additional precautions that should be taken against accidents occurring at level crossings. As a result, apart from other improvements, additional interlocked gates were installed, signal protection at hand gates was

extended, Wig-Wag signals were introduced, and grade separation projects were undertaken, particularly at two tramway crossings already referred to, Queens Parade and Epsom Road. No fewer than five other bodies agreed to contribute to the cost of the last project: the Tramways Board, the Victoria Racing Club, the Royal Agricultural Society, and the Melbourne and Essendon City Councils. The Railways had also considered abolishing the crossings at Heidelberg Road (Clifton Hill B) and Pascoe Vale Road (North Essendon, now Strathmore), but decided against the former because they would have to pay while the road users gained all the benefits, and deferred the latter (hand gates) owing to shortage of funds. (Annual Reports 1922/23 - 1928/9).

With regard to additional interlocked gates during the 1920s, the Frankston line gained 12 sets, leaving only Bonbeach (hand gates) and Carrum (open crossing) without. The station crossings north of Mentone previously had hand gates, while south of Mordialloc they were open; Parkdale was probably open also. Mechanical boom gates were provided at McKinnon as an experiment - it was expected that installation and maintenance costs would be less than those of swing gates, but there was need to test the efficiency of this type as a safety device (Annual Report 1926/27). No further mechanical boom gates were in fact installed in Victoria, but the ones at McKinnon remained until replaced by electrical boom barriers in 1974.

Apart from the 12 sets on the Frankston line, a further 18 or so sets were installed in the 1920s, distributed over nine other lines. Nearly all would have replaced hand gates, but at North Fitzroy C the restored gates were installed at an open crossing with Warning Bell. At Merri one interlocked crossing replaced two hand-gated ones. At Brighton Beach a new power frame was supplemented by a mechanical frame to work the gates. Only two further crossings in the suburban area were fitted with interlocked gates in the 1930s, at Batman (single track) and Tottenham. Carrum evidently had to wait for a new building on the Up side to be completed, which was not until 1947. A new crossing at the Melbourne end of the platforms replaced the open crossing some distance towards the river, and the gates were finally commissioned on 2 April 1947, the last in Victoria.

Nine boxes in the suburban area worked two full sets of gates over the same roadway: Footscray C, Sunshine, Essendon, Arden Street, Macaulay, Burnley, Box Hill, Dandenong A, and Graham; and two worked one and a half sets: Yarraville B and Mordialloc. Three boxes worked gates on different roadways: North Fitzroy A (Rae Street and Brunswick Street), North Fitzroy B (the predecessor of the latter-day box at St Georges Road, the other roadway being Park Street on the Fitzroy line); and Swan Street, working also Madden Grove on the Glen Iris line. The latter crossing has since been moved twice in the Down direction.

By the late 1920s there were nine boxes whose only function was to work interlocked gates and protecting Automatic signals: Footscray B, Moonee Ponds, East Richmond, Canterbury, Prahran, Ripponlea, Middle Brighton, Hampton, and Albert Park. The Elliot "Report on Transport in Victoria" (1949) was critical of the costs of operating such boxes. Those named were all abolished by 1969. Non-Block boxes such as Anstey and Bridge Street should also be mentioned.

The Table shows that a total of 113 crossings were fitted with interlocked gates, but not all existed at the same time. The first abolitions, in the the 1891-1906 period, were on account of light traffic or else grade separations (six in 1898!). Then there were the Caulfield line regrading, the Camberwell line regrading, the Clifton Hill C project, the provision of Goods Lines in from Tottenham Yard, and the Dandenong power signal box project, which in all led to 14 abolitions. (The year given for a grade separation is generally that of completion of the project; the gates may have been abolished some time earlier.) The Ferrars Street closure had facilitated construction of the Montague Shipping Sheds. No further abolitions occurred until 1957 excepting one at Barker.

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TABLE 2.1: INTERLOCKED GATES (SUBURBAN) (January 1988)

WILLIAMSTOWN			HEIDELBERG			MORDIALLOC		
	A	B		A	B		A	B
Footscray B	89	G58	Clifton Hill A	01		Glenhuntly	11	86
Yarraville A	12	G70		B	88 G57	Ormond	23	68
			Clifton Hill C	90	G25	McKinnon	28	74
Spotswood	90		Westgarth	12	68	Bentleigh	24	74
Newport A	79	G60	Fairfield	13	69	Moorabbin	24	G58
Newport B	85	77	Alphington	27	66	Highett	24	85
North W'town	86	67	Ivanhoe	27	60	Cheltenham	24	72
						Mentone	14	59
BRAYBROOK JUNCTION			BOX HILL			Parkdale	24	86
Footscray D	21	G27	East Richmond	89	X65	Mordialloc	11	87
			Burnley	90	G66	Aspendale	24	77
West Footscray	22	G27	Swan Street	96	G98	Edithvale	24	78
Tottenham	37	G82	Barker (HawGr)	95	H55	Chelsea	24	78
Sunshine	08	G61	(BarRd)	95	C57	Carrum	47	77
Albion	28	G61	Glenferrie	83	G18	Seaford	28	76
St Albans	26	86	Auburn	89	G18	Frankston	22	84
			Camberwell	90	G19			
ESSENDON			Riversdale A	90?	H93?	BRIGHTON		
			B	16	63	Prahran	87	62
Kensington	87	65	Canterbury	90	G68	Windsor	86	83
Moonee Ponds	89	69	Surrey Hills	90	62	Ripponlea	12	60
Essendon	85	69	Box Hill	91	68	Elsternwick	83	G60
Pascoe Vale	29	65				North Brighton	89	63
			GLEN IRIS			Middle Brighton	89	63
COBURG			Swan Street	96	H98	Dendy Street	13	64
Arden Street	28	72	Kooyong	13	85	Brighton Beach	26	68
Macaulay	90	72	Tooronga	12	66	Hampton	17	66
Royal Park	90	71	Gardiner	17	86	Sandringham	15	67
Jewell	92		Glen Iris	26	70			
Brunswick	90		Waverley Road	90	H91	ST KILDA/PORT MELBOURNE		
Anstey	27					City Road	96	G98
Moreland	92	86	OAKLEIGH			York Street	88	G98
Coburg	28	83	Dunn Street	96	G98	Albert Park	98	60
Batman	35		Balmain Street	96	G98	Kerferd Road	88	G98
			Hawksburn	89	G15	Ferrars Street	88	X16
PRESTON			Toorak	89	G15	Inglis Street	12	69
North Carlton	16	O65	Armadales	86	G10	Bridge Street	13	61
North Fitzroy C	88	P07	Malvern	88	G15	Graham	83	G70
Nich St	23	O65	Caulfield B	89	G15			
Rae/Brunns A	88/97	O65	Carnegie	90	67	Column Headings:		
St Geo Rd B	96	C65	Murrumbeena	90	79	A: Year Installed		
Park St B	88	H06	Oakleigh A	92	G68	B: Later Replacement		
Scotch St D	88	H95	Huntingdale	27	G72	and Year		
Merril	25	86	Clayton	23	71	(For codes in Column B		
Northcote	25	87	Springvale	12	64	see Table 2.2)		
Thornbury	26		Dandenong A	91	X28			
Bell	14	69	B	91	G28			

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Of the 86 interlocked crossings left in the suburban area at 1956, a total of 57 were replaced by boom barriers, 14 were grade separated (mostly by road overpasses), 3 were downgraded to open crossings, at 3 the line was closed (counting both at Barker), and at one the road was closed. Thus only eight remained in service at 1 January 1988: Yarraville B, Spotswood, Jewell, Brunswick, Anstey, Batman, Thornbury, and Clifton Hill A.

TABLE 2.2: INTERLOCKED GATES (COUNTRY) (January 1988)

	A	B		A	B		A	B
Maitland Street	17	G82	Maryborough A	93	69	Craigieburn	22	G61
Geelong A	84	X79	B	93	G67	Tallarook	85?	G61
B	84	G17				Seymour A	86	61
			Sydenham	26	87	B	89	X61
Ballarat East	86		Diggers Rest	28	82	Violet Town	38	61
Ballarat B	85		Kyneton	91		Benalla A	90	61
C	86		Castlemaine B	89		Wodonga B	98	61
D	90		Bendigo C	90				
Ararat B	91	G15	D	86		Narre Warren	29	62
Stawell B	89	78	Korong Vale A	15	H83	Sale	90	C83

Column Headings:

A: Year Installed
B: Later Replacement
and Year

Column B Codes:

: Boom Barriers
C: Line Closed
F: Flashing Lights
G: Grade Separation
H: Hand Gates
O: Open Crossing
P: Open Xng with Bell
X: Crossing Closed

Table 2.2 gives similar information about all 27 existing or former interlocked crossings in the country, including four on the outskirts of the suburban area. Apart from these four, and three others, all the crossings listed date from the 1884-1898 period. Nineteen of the 20 were installed in the larger provincial cities or in towns important to railway operations; the other was at Tallarook, where the Sydney Road crossed. Four of the crossings had two sets of gates: Maitland Street, Geelong B, Ballarat East, and Korong Vale A; those at Maitland Street were altered later to one set covering the outer two of the four tracks only, leaving a gap when the gates were open for road traffic.

With regard to subsequent abolitions of interlocked gates, the grade separations at Ararat B and Geelong B enabled the yards at those places to be extended; the works effected in 1961 on the North-Eastern line were associated with the Standard Gauge project, as were the ones at Sunshine and Albion; and those at Maryborough enabled both mechanical boxes to be replaced by a "cheap" Control Panel installation with three-position signals reading over hand-worked points. The new road overpass which allowed Maitland Street crossing and box to be closed also replaced the crossing at Geelong A box.

The Table shows that at 1 January 1988 eight boxes in the country still worked interlocked gates, four in the Ballarat area, and four on the Bendigo line.

(Most of the years in Column A and some in Column B of the Tables were obtained from extracts from VR Interlocking Registers prepared by certain members of the SRSV. The writer is grateful to member Alan Jungwirth for supplying extracts from 1899 onwards, and also other information, and to Alan and Keith Lambert for checking the dates given in the first draft of the Tables.)

2.2 MECHANISM

The rotary motion of the gate wheel is converted to that of a lever (slightly thicker than the other levers) through gears and a toothed quadrant. This thicker lever is fitted under the signal box with two opposed cranks. One of two different methods is used for transmitting the movement to the gates. The earlier, McKenzie & Holland, system uses circular rodding with chains for turns, and with sector plates (flanged quadrants) mounted under the cast iron gate posts; the equipment is mostly below ground. The later, Cottew, system uses channel section point rodding and cranks; this equipment is mostly above ground.

Consider an interlocked crossing ABCD, with A being the gate post nearest the signal box. In the McK & H system, a rod/chain leaves one of the opposed cranks on the lever under the box, runs around a pulley mounted on the gate shaft under A, and returns to the other lever crank. Two sectors are also mounted on this shaft and on the shafts under B, C and D. A rod/chain starts from a sector at A, runs under the road and terminates on a sector under B. A new rod/chain runs under the track from the other sector at B and terminates on a sector under C. Similarly, rods/chains connect C-D and D-A. As adjacent gates swing in opposite directions, the rod must cross the centre line when running from one post to the next. In the Cottew system, the point rodding again starts from one lever crank, and returns to the other after running around the square, with branch rods connecting to cranks on the gates. In this system, excavations are required only under the roads, whereas with McK & H they are required also under the tracks, and four pits must also be dug.

All the gates listed in Tables 2.1 and 2.2 up to the year 1893 were worked by McK & H apparatus. Table 2.3 lists the gates, with type of gear used, in chronological order from 1895, when Cottew was first applied. The earliest were the two at Barker, the short-lived one over the Glen Iris line at Swan Street box, and the gates over Brunswick Street at North Fitzroy. It is known that the gates at Hawthorn Grove, Barker, at least, were connected to the wheel by one rod only, so that this had to push the gates in one direction, and some buckling could have been possible. In 1906 it was proposed to replace the Cottew gates with McK & H owing to their being considered unsatisfactory and expensive to maintain. However the next gates to be installed after 1901, those over the main line at Sunshine in 1908, used Cottew, so perhaps working with two rods started from then. But the British can apparently work gates successfully with only one rodded connection, as diagrams of various crossing layouts of this type are given in IRSE Green Booklet No 25, "Level Crossing Protection" (1961).

After Sunshine, nearly all gates installed until 1917 used the Cottew system. During this period also early McK & H gates were replaced by Cottew, probably in conjunction with other work, at Castlemaine B, Royal Park, Burnley (both sets), and Box Hill (back roads). But McK & H returned in the 1920s, particularly for sharp-angled crossings and ones covering more than two tracks. Some of the recovered gear shown in the right hand column could have been re-used for this purpose. Interestingly, of the 16 crossings mentioned earlier as still existing, four using the McK & H system are over 100 years old: Ballarat East, B, and C, and Bendigo D; and that only three use the Cottew system: Thornbury (1926) [since replaced by booms], Batman (1935), and Castlemaine B.

The movable gate stops are controlled by the lever in the frame next to the gate lever, and when both are Normal the gates are set and locked across the roadway. But the usual position of the gates is across the track, with the gate lever Reverse and the stops lever either Reverse (if electrical contacts are worked as will be explained later) or in the Special Notch position, 5 inches (127 mm) away from Normal. In this latter position the gate stops are coupled to the gate mechanism when the gates are nearly open for a train.

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To open the gates the signalman therefore first puts the stops lever back to the Special Notch, if not there already, and throws out a pawl from the wheel; the pawl helps retain the gates across the track as movable stops are not used in this position. (Exceptionally, rail stops were provided on the west side of St Georges Road, North Fitzroy.) He then swings, and as the gates approach the end of their travel the stops rise up from the road surface; slotted shoes hinged to the lower ends of the gates hit and drop down over the stops with a characteristic clash and prevent further movement. The signalman then puts the stops lever fully Normal; this disconnects the stops from the gate mechanism and locks them in the raised position. The signal levers are also then released.

TABLE 2.3: INTERLOCKED GATE MECHANISMS 1895 - 1947
(M - McKenzie & Holland; C - Cottew)

INSTALLATIONS					RECOVERIES			
95	Barker (HG)	C	21	Footscray D	C	91	Waverley Road	M
	(BR)	C	22	West Footscray	M	93	Riversdale A?	M
96	Nth Fitzroy C 2	M		Frankston	M	95	Scotchmer St	M
	Swan St (BoxH1)	M		Craigieburn	M	98	Swan Street	M/C
	(GlenI)	C	23	Nth Fitzroy C	C		Dunn Street	M
	Dunn Street	M		Clayton	M		Balmain Street	M
	Balmain Street	M		Ormond	C		City Road	M
	City Road	M		Macaulay 2	C		York Street	M
97	Nth Fitzroy B 2	C	24	Bentleigh	C		Kerferd Road	M
98	Wodonga B	M		Moorabbin	M			
	Albert Park	M		Highett	M	06	Park Street	M
01	Clifton Hill A	M		Cheltenham	M		Nicholson St	M
				Parkdale	C			
08	Sunshine 1	C		Aspendale	C	10	Armadaale	M
11	Glenhuntly	C		Edithvale	C			
	Mordialloc 1/2	C		Chelsea	C	15	Hawksburn	M
12	Yarraville A	C	25	Merri	C		Toorak	M
	Westgarth	C		Northcote	M		Malvern	M
	Tooronga	C	26	St Albans	M		Caulfield B	M
	Springvale	C		Thornbury	C		Ararat B	M
	Ripponlea	M		Glen Iris	M	16	Ferrars Street	M
	Inglis Street	C		Sydenham	C	17	Geelong B 1/2	M
	Dandenong A 2			Brighton Beach	C	18	Glenferrie	M
13	Fairfield	C	27	Anstey	M		Auburn	M
	Kooyong	C		Alphington	C	19	Camberwell	M
	Dendy Street	C		Ivanhoe	M			
	Bridge Street	C		Huntingdale	C	25	Clifton Hill C	M
14	Sunshine 2	C	28	Diggers Rest	M	26	Footscray C 1/2	M
	Bell	C		Albion	M	27	Footscray D	M
	Mentone	C		Arden St 1/2	C		West Footscray	M
15	KorongValeA 1/2	C		Coburg	M	28	Dandenong A 1/2	M/
	Sandringham	C		Seaford	C		Dandenong B	M
	Graham 2	C	29	Narre Warren	C			
16	North Carlton	C		Pascoe Vale	C			
	Riversdale B	C	35	Batman	C			
17	Maitland St 1/2	C	37	Tottenham	C			
	Gardiner	C	38	Violet Town	C			
	Hampton	M	47	Carrum	C			

Note. The figures 1, 2, and 1/2 refer to the the 1st and 2nd gates over the same roadway.

Note. The figures 1, 2, and 1/2 refer to the 1st and 2nd gates over the same roadway.

After the train passes, the signal levers are restored and the stops lever is pulled to Reverse to drop the stops and allow the gates to be swung back across the track; excessive movement is prevented by the fixed stop blocks and by restoring the locking pawl. If appropriate, the stops lever is then put back to the Special Notch position. Interlocking between the gate and stops levers uses a "two-faced quadrant" with kicking crank.

The gate stops did not always work as just described. Originally, separate front and back stops were provided in the roadway as in British practice, with no attachments on the gates themselves. The stops lever was usually kept Reverse, and the stops, which had no connection with the gate mechanism, rose immediately the lever was put back to the Special Notch before the gates were swung. The front stops were counterbalanced, being forced down by the ends of the gates passing over them, and then rising again. These were the Type A stops referred to in the General Appendixes for 1928 and 1936.

Increasingly-frequent damage caused to these gate stops by road vehicles led to a patent being granted in 1921 to two Signalling Engineers from the Victorian Railways, J A Malan and G H Wion, for a "transfer element" which enabled the Type A stops to be connected to the gate movement when required, and their action to be delayed. It might be described as an assembly of three sliding motion plates, with the outer ones connected to the levers and the inner one to the stops. The device was intended to be interposed in the existing movement; this was first done at Clifton Hill C box in 1920, and greatly reduced the damage. An improved version of the Type A front-and-back stop, known as Type M, was installed along with the transfer element at a number of crossings during the 1920s. The present type with back stop only, Type C, is understood to have been introduced around 1927, but the origin of the design is not known.

Pedestrian gates are usually of the wooden wicket type, weighted to slam behind the opener. One lever is provided for locking the gates (one or two) on the Up side of the line, and one for the Down side. Signal levers were interlocked with the wicket gate levers only at East Richmond, Burnley, and Elsternwick. The new type of tubular-steel gate mentioned in 1.1, which was both opened and closed by a lever, was installed also at some interlocked crossings. For example, a set of four was provided at Thornbury (1963) and a set of six at Batman (1959), where access to the island platform is from one of the foot crossings. A separate lever is required for each gate of this type.

2.3 SPECIAL FEATURES

At some interlocked crossings the operating procedures may be affected by the presence of additional features or facilities. These include tramways, flashing (rotating) red lights, and co-ordinated traffic lights. A common factor is that the gate stops lever at these crossings must be kept at the full Reverse position until the gates are to be swung.

Electric trams approaching a crossing have always been considered a greater potential hazard or obstruction to trains than ordinary road vehicles. So, from the first hand-gated crossing at Epsom Road (1906) catch points have been provided in the tram lines for each direction of traffic. Disc (or Light) signals mounted on the footpath operate in conjunction with the catches, each catch/disc combination being worked by its own lever. The usual position of these levers is Reverse, and at interlocked crossings these must be put Normal to set the catches to derail before the gates can be swung.

When the railways which the trams crossed were electrified (1919-1924) additional precautions were required. The correct railway or tramway power, 1500 volts or 600 volts, had to be connected to the overhead "tramway square" before the train or tram could be allowed to proceed, and then it had to be proved that

the train or tram had passed clear of the crossing before the alternative power could be connected. Switching of power is controlled by the gate stops lever; railway or tramway power is applied according to whether the lever is Normal or Reverse. A train is proved clear of the crossing by the use of a Clearance Bar or or by track-locking of the gate stops lever; a tram is proved clear by successful swinging of the gates behind it.

Clearance Bars were provided at the tramway crossings at Kooyong and Gardiner (1922-1926) and Riversdale (1924-1955), all single track, and perhaps elsewhere, from the time of railway electrification until the line was track-circuited in the normal course of events. A clearance bar is similar to a points lock bar in that wheel flanges of a vehicle prevent the bar from moving up, and thus the lever from completing its stroke and any necessary interlocking from being released. After swinging the gates for a train the signalman pulls over the clearance bar lever before the signal lever. He checks visually that the departing train is well clear of the crossing, and then puts back the signal lever and then the clearance bar lever; if the latter action is successful it means that the train actually is clear and that the interlocking on the gate stops lever is released. This lever can then be pulled over and the gates swung again for a tram. On two-way tracks the bars required on each side of the crossing are worked by the one lever. The clearance bar at Riversdale also acted as the lock bar for the former Camberwell City Council siding.

Now as a change from descriptions of mechanical systems and operating procedures, the writer will become a little technical and try to explain how a rail/tram crossing can be effectively track-circuited, even though complete circuiting is not generally attempted because of the difficulty of insulating the rails while maintaining a mechanically sound structure. In practice, two separate track circuits are provided, one on each side, with insulated joints near the edge of the roadway, leaving the centre section dead.

Consider three sections A,B,C, where A and C are the track circuits each side of the tramway crossing on a single-line railway, and B is the dead section in the centre. The track relays for A and C are of the stick type and do not pick up again until a third stick relay S has picked up. Relay S picks up after both A and C have dropped and stays up while either A or C is down. For the lock on the gate stops lever to be free, the three relays must be in their normal positions, A and C up, and S down. Assume that the train is a 4-wheeled Inspection Car, heavy enough to shunt the track relays but short enough to fit wholly within the dead section.

Now suppose that the car runs through A and stops within B. Relay A drops but does not pick up again when the car clears because S is still down, so the car is protected. The car starts again and enters C. Relay C drops so S picks up and stays up, and A can now pick up, its section being clear; the car is still protected because C is down. When the car leaves C, relay C picks up because S is still up. But with A and C now both up, S drops out and the system is back to normal, so the stops lever is now free.

The arrangement described was in service at Gardiner during the Lever Locking and Track Control period, and may still exist. Being symmetrical, it caters for two-way running including wrong line movements on a one-way track. A real train would of course be long enough for part to be in either A or C, but a short vehicle on the end which became detached and stopped in B while the front part of the train proceeded would not be protected, except by the signalman's vigilance (The same problem as with Lock and Block). So an automatic crossing would probably need axle counters.

Flashing (rotating) Red Lights with associated "Stop on Red Signal" notices were provided at a number of interlocked crossings from 1975 onwards, starting with Kooyong and Gardiner. These warn oncoming motorists that the gates are about to be swung against them. The Lights are controlled by contacts on both the gate stops and gate levers; they start when the stops lever is moved from Reverse to the Special Notch, and stop when the gates are again almost fully open for road traffic.

Co-ordination of the movement of gates with the aspects displayed by road traffic lights at an adjacent intersection was introduced at Tottenham (Ashley Street) in 1977, and later applied at Kooyong (Pedestrian lights), Frankston, and other places. The gate stops lever is kept in the Reverse position between trains and is secured by an electric lock. The signalman pushes a button to place a call with the traffic light controller; the lights then cycle round to a "favourable railway phase" i.e. showing Red over the crossing, or if already in that position, remain so. The lock is then released and the stops lever can be put to the Special Notch and the gates swung. After the train has passed and the lever has been placed Reverse, a release signal is sent to the traffic lights controller as the gates are being swung back; the lights then change through Red plus Amber to Green, and the stops lever is again locked.

If the lights do not cycle to a railway phase after about 30 seconds, the signalman can break a paper seal and release the electric lock by hand. This action forces the traffic lights to show Flashing Amber, the emergency aspect. After two minutes in this aspect (or if the lights are switched off) the lock is released electrically until the lights are re-set by a serviceman from the Road Traffic Authority.

A difficulty has been noticed where there is room for only two or three motor cars between the railway and the road intersection, because they can be trapped at a Red light, after crossing the line, until the train goes through behind them and the release signal has been sent.

2.4 SIGNALLING ARRANGEMENTS

In general, signalling arrangements are little different with interlocked gates than without, although signals for shunting movements are more likely to be provided. Signals reading over the crossing would usually be fairly close in. However, at some facing junctions worked from boxes established in the period up to 1890, the splitting signals are situated immediately on the far side of the crossing, perhaps to be as close as possible to the facing points they protect. A good example is the former wooden signal bridge at Newport, with its four Home arms along the top and a Set-back signal on the Up side support. The disadvantage of the bridge being in this position was that at an already-busy crossing the gates had to be swung for a Down train before it could pass the arrival Home and enter the platform, or for the Altona local to dock. Other examples, still existing at the time of writing, are Down bracket posts at Ballarat C (North Ballarat) and D (Linton Junction) boxes, and an Up Home at Castlemaine B box. Examples at Ballarat B and Geelong A are or were less obviously unusual.

Three-position signals which protect interlocked gates are Automatics unless Homes are required because of points or tramway or other crossings. The Automatics are non-stick and not approach locked. But at certain boxes where the signal was some distance back from the crossing (Moonee Ponds, Ripponlea, Hampton, Highett, and perhaps others), a hooter would sound if an attempt was made to swing the gates against a train after it had passed the signal. It is understood that this is achieved through a contact made when the catch handle of the gate stops lever is grasped.

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For a tramway crossing, consider a generalised layout with double or single track, the crossing in the centre, a station immediately to the right, and four signals: No 1 Down Distant or Automatic; No 2 Down Home near the gates; No 3 Up Home right at the gates; and No 4 Up Home or Automatic. Nos 2 and 3, being interlocked with the gates, will require the catch points open. No 4 also generally requires the catch points open (but not the gates themselves), to guard against over-running No 3 at Stop with possible drastic consequences. So if No 4 is an Automatic it will be controlled by a lever interlocked with the catches. No 1 is not normally made an outer Home for the sake of requiring the catch points open; exceptions are noted below. But if No 1 is an Automatic then it is controlled and interlocked with the catches unless No 2 can be set far enough back for this control to be deemed unnecessary. The decision would take into account the speed limit imposed over the crossing.

The above description covers sufficiently well the reasons for the controls at Elsternwick (from 1924), Glenhuntly, Kooyong and Gardiner (to 1975), and, by extension, North Carlton (Lygon Street), and Riversdale. The exceptions were at North Fitzroy B and C boxes. At B box (St Georges Road), which was in between stations, outer Homes were provided specially in each direction on both the Country and Suburban lines (1932). Calling-on arms were also provided under the outer Homes on the Country line; these did not require the catch points open and allowed a Goods to draw forward while a tram was crossing. Calling-on arms were similarly provided under the Homes at A box from the Country and Suburban lines when the tramway crossing was installed at C box (Nicholson Street) (1956). These Homes, and also the Starting signal from Lygon Street, were then controlled by C box as outer Homes.

To reduce delays to tram and motor traffic on account of more frequent peak rail services, the signals at Kooyong (DG232) and Gardiner (DG283) corresponding to No 4 in the above layout were de-controlled in 1975. This was done by setting No 3 about one carriage length back on to the platform, to give at least a low speed overlap, and providing a time-delayed intermediate train stop. If No 3 was at Stop, the intermediate stop lowered 20 sec/30 sec after the train passed DG232/DG283, forcing reduction to low speed if it was not to be tripped.

(The writer is indebted to the members already mentioned, and also particularly to Colin Rutledge and Andrew Waugh for information on places where the McKenzie & Holland and Cottew gate gear was installed, and to Andrew for making available results of his research at the Public Records Office.)

(End of Part 2)

BUNYIP - LONGWARRY

AUTOMATIC OPERATION

(these notes have been adapted from circular D 660/88)

The introduction of the automatic operation system between Bunyip and Longwarry, which is scheduled for 24 August 1988. The system is set up so as to provide preference for up trains, hence, the up approach track circuit is located 6850 metres out from No 24 Up Home signal at Longwarry but the down approach track circuit is only 3244 metres out from No 6 Down Home signal at Bunyip. Therefore if a down train is detected just before and up train, the down train should clear the single line section before the up comes to a stand at Longwarry, although the up train may have sighted adverse aspects on the signals and will be approaching cautiously.

When a train enters the approach section, a call is sent to the relay equipment from the automatic operation equipment setting up the correct route and clearing the necessary signals. For example, a down train would cause a comlead to be sent to No 7 points at Bunyip to run to the reverse position, if not already in that position, and to No 9 points at Longwarry to run to normal. When the points were detected set correctly and locked, No 6 signal at Bunyip and No 16 signal at Longwarry would be cleared. Once a call is placed by an approaching train, the automatic operation is locked until that movement has cleared the single line section. If during the passage of a train a second train is detected, the automatic operation equipment will only set up for the second train when the first has cleared, regardless of direction.

FAILURE OF AUTOMATIC OPERATION

If the automatic operation fails, train movements can still take place by the use of the SP key switches which are located adjacent to all signals. Additionally there are a second set of SP key switches will enable the train crews to de-activate the automatic operation.

If a down train arrives at No 6 signal at Bunyip and finds the signal at the Stop position, he must communicate with the Train Controller and if it be determined that the signal has failed, the Train Controller will instruct the Driver to operate the Automatic Operation SP key switch to the manual position to de-activate the automatic operation. The key is then turned to centre and removed. The Driver then observes the Block Available indication which, if illuminated, indicates that the single line section to Longwarry is clear. He can then operate the other SP key switch for No 6 signal which will set the route to No 16 signal at Longwarry and clear No 6 signal at Bunyip. NOTE:- The automatic operation provides only initial locking, all vital locking between functions is carried out by conventional signalling circuits, hence this is NOT a Solid State Interlocking even though some solid state equipment is used.

When the train arrives at No 16 signal Longwarry, the Driver must repeat the procedure of de-activating the automatic operation and then clearing the signal under the Train Controller's instructions.

FAILURE OF THE SP KEY SWITCHES

If the SP key switches fail to operate indicating a failure in the signalling circuits rather than a failure of the automatic operation, a competent employee must be appointed to take charge of the single line section, although on a Sunday morning I do not know where he will come from as the adjacent manned signal boxes will be Dandenong and Moe both quite a distance away.

The Train Controller will instruct the employee to remove the Pilot Keys from both ends of the section (the Pilot Keys are located in the telephone cabins adjacent to No 6 signal at Bunyip and No 24 at Longwarry) and then issued Caution Orders for the trains to pass home signals Nos 6 and 14 at Bunyip, and Nos 16 and 24 at Longwarry, using Form 2360 (Special Caution Order form) as required. Prior to giving the Caution Order to the Driver, the employee must ensure that the points are set correctly. Unfortunately the instructions indicate that a lot of running around will take place as the employee must ensure that the points at both ends are correctly set and locked in the hand position before issuing the Caution Order.

In order to minimise delays to trains before the competent employee is in attendance, the Train Controller is permitted to issue a Special Caution Order to the Secondman of a locomotive hauled train or the DRIVER of a suburban electric train to pass the Home Departure signal, however, prior to that, the Secondman of the locomotive hauled train or the GUARD of the suburban electric train must place the selector lever of the points at THAT end in the hand position. The Train Controller must also advise the Driver of any opposing train via the Train to Control Radio of the circumstances and instruct him to Stop at the Home Arrival signal and if practicable the Secondman or Guard must place the selector lever of the points in the hand position. The Controller must also be satisfied that the single line section is clear prior to issuing the Caution Order.

When the train arrives at the other end of the section the selector lever must be placed in the motor position. If the Home Arrival signal does not clear and the SP key switch does not work, the selector lever must be placed in the hand position again and a Special Caution Order issued to permit the train to pass the failed signal. When the train clears the single line section, the Driver must inform the Train Controller.

Train Controller must not issue a Caution Order for a following train to enter the single line section until the first train has cleared the single line section. In addition, the Train Controller must not issue a Caution Order for a train to leave the single line section until the preceding train has passed the next signal in advance - D247B for up trains or D2951 for down trains. (It is not known how the Train Controller will know this in the case of a suburban electric train as they do not have Train to Control Radio and telephones are not provided.)

DISABLED TRAIN

If a train becomes disabled between Bunyip and Longwarry the following steps must be taken:-

1. The Driver must advise the Train Controller of the circumstances and location of the train via the Train to Control Radio (which suburban trains do not have), complete a Driver's Relief Order (DRO), read the particulars to the Train Controller and then instruct the Secondman to protect the train as per Regulation 239 OR in the case of a suburban electric train, hand the DRO to the Guard.

2. The Secondman of a locomotive hauled train must protect the train as instructed, proceed to the end of the section as directed and accompany the relief train or locomotive to the disabled train.

3. The Guard of a suburban electric train must take the DRO to the nearest telephone, give the details of the DRO to the Train Controller, protect the train as directed in Regulation 239 and accompany the relief train or locomotive to the disabled train.

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4. The Train Controller on receiving advice that the train is disabled must repeat the particulars of the DRD back to the Driver or Guard as the case may be, make arrangements to obtain a relief train or locomotive and issue a Train Order (Form 2368) as the authority for a relief train or locomotive to assist the disabled train.

5. The Driver of the relief train or locomotive BEFORE entering the section must proceed cautiously to the disabled train, obtain the DRD and cancel it, remove the disabled train to the end of the section to where it was proceeding and, if necessary, arrange for the Secondman to restore the selector lever to the motor operating position.

SINGLE LINE WORKING OVER A DOUBLE LINE

When it is necessary to conduct single line working between Pakenham or Nar Nar Goon and Longwarry, or between Bunyip and Warragul, a competent employee must be placed in charge at Bunyip and Longwarry to act under direction of the Train Controller.

TRACK MAINTENANCE MACHINES AND VEHICLES

When it is necessary for a Track Maintenance Machine or Vehicle to operate over the section between Bunyip and Longwarry, a competent employee must be appointed to operate the selector lever on the dual control point machines to give protection to these machines/vehicles whilst travelling over this section.

--oDo--

MESSAGE TO S.R.S.V. MEMBERS

Like all organisations that have mailing lists, we have our problems with reaching all members who should be reached. Members are reminded that in the event of a suspected non arrival of a mailout (provided that you think that you are financial), it is the members duty to contact the society (in writing please) in case your name has been removed accidentally from the lists. Please allow a little time before writing as delays can occur. Whilst it is always aimed to have 'SOMERSAULT' out prior to a meeting night, sometimes this is not possible and so you are asked to bear with us. It is not a guaranteed way of rectifying the situation by just mentioning it to me in the street as my memory will probably let me (and you) down before something has been done.

--oDo--

THE SIGNALLING RECORD SOCIETY (VICTORIA)
WISHES ALL ITS MEMBERS AND THEIR FAMILIES
A CHRISTMAS FULL OF JOY AND HAPPINESS
AND A NEW YEAR FULL OF GOOD FORTUNE.

--oDo--

SIGNALLING ALTERATIONS
(continued from page 106.)

- X 28.9.1988 DUNOLLY. The down home signal was relocated to the left hand side of the main line and moved 40 metres in the down direction. (O 834/88)
- ✓ 28.9.1988 LILYDALE. A duplicate 5P key switch for signal No 305 was provided on the signal control panel. The provision of this key will enable Lilydale to switch out whilst a train is standing in No 2 road. (O 2566/88)
- WN 39/1988 SECURITY OF END OF TRAIN MARKERS. Commencing forthwith, End of Train markers will be secured by long shanked 13P padlocks on the autocouplers rather than by the "R" clip as presently in use. (O 839/88)
- WN 39/1988 REGULATION 51.
Regulation 51 is amended by the insertion of new clause (C), page 9, Book of Rules and Regulations (1987).
"When a Two-position Dwarf signal is displayed by lights only, and is placed on the same post as a Two-position (Light) signal, the light in the Dwarf signal is obscured when the Dwarf signal is in the normal position. When the proceed indication is displayed on the Dwarf signal, it will be by the exhibition of a yellow light. NOTE:- A board lettered "SIDING" will be affixed adjacent to the Two-position Dwarf (Light) signal unit. (O 843/88)
- WN 40/1988 DONALD - FREEZING COY'S SIDING. The siding has been abolished and the main line points and rodded derails removed. The flashing lights on the siding have also been removed. Amend diagram No 10'83. (O 863/88)
- X 4.10.1988 DUNOLLY. The WSA lever operating the points from No 2 to No 3 road at the down end, and the scotch blocks in Nos 3 and 4 roads, were abolished. A non-trailable point machine rodded to derails and wheel crowders was provided inlieu. An indicator displays a large green (reflectorised) diamond when the points are set for No 2 road and two red reflectorised discs are displayed when set for No 3 road. (O 855/88)
- 4.10.1988 PINNAROO. The down home signal was replaced by a STOP board. The STOP board is lettered:- "STOP. END OF V/LINE SAFEWORKING SYSTEM. TRAINS MUST NOT PASS THIS BOARD WITHOUT PERMISSION OF ANR TRAIN CONTROLLER". A telephone connected to the Train Controller is provided at the STOP board. A location board lettered:- "PINNAROO" is provided 400 metres in the rear of the STOP board. Staff tickets will not be issued for the section COWANGIE-PINNAROO. (O 856/88)
- X xx.xx.198x BALLAN. No 3 road was abolished. Disc signals Nos 6 and 24 were removed. Points Nos 1, 13 and 20 were spiked normal. Catch points No 18 were abolished. Lever 10 became a Pilot Lever. Levers Nos 6, 11, 13, 18, 20 and 24 have been sleeved normal. Amend diagram No 20'87. (O 864/88)

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