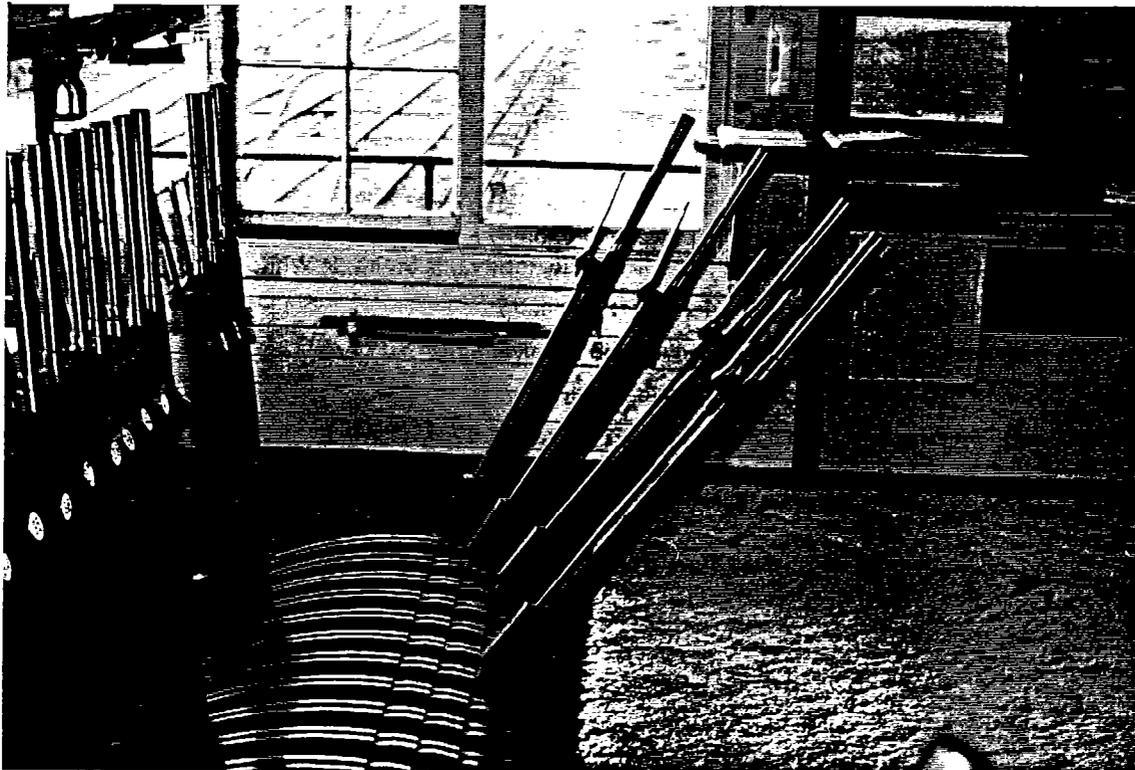


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SIGNALLING RECORD SOCIETY OF VICTORIA INC



One of the clever design features of the McKenzie and Holland frames was the provision of three reverse notches for signal levers. This provides a quick and easy method for the Signaller to vary the travel of the lever tail and hence the amount of slack taken in as the lever is reversed. The lever moved 29 degrees from the normal position to the first notch which gave a travel of 13 7/8 inches at the 28 inch pin hole. The third notch gave a further 11 degrees of lever movement and 5 5/8 inches in travel. This feature was copied in the standard 'A' pattern cam and tappet frames. This photograph of the Up end of the frame at North Geelong 'B' box, a cam and tappet frame, shows the levers pulled for a Down passenger train. It just so happens that the last three levers pull to the first second and third notches. Lever 50 works the Down distant. At 1066 metres from the signalbox, the distant is motor operated as it is too far to work mechanically. The lever consequently only works to the first notch. Lever 49 is the first Down Home and is 567 metres from the signalbox. This lever works to the second notch, but draft gear beneath the floor doubles the travel and the lever effectively works to a 'fourth' notch. The use of the draft gear halves the distance the lever moves, but the laws of physics give nothing for free and the Signaller has to exert twice the effort. Lever 48, the second Down Home is 164 metres from the box and only requires a long pull to the third notch. Lever 44 works the Down Home to Geelong and is 254 metres from the box and so also works to the third notch.

Photo: Andrew Waugh

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MINUTES OF MEETING HELD FRIDAY SEPTEMBER 22, 1995.

Present:- A.Jungwirth, W.Brook, J.Churchward, R.Cropley, G.Cumming, A.Gostling, K.Lambert, B.McCurry, J.McLean, T.Murray, L.Savage, P.Silva, R.Smith, R.Whitehead & D.Ward.

Apologies:- M.Guiney, D.Langley, C.Rutledge & A.Waugh.

The President, Mr. Alan Jungwirth, took the chair and opened the meeting @ 2013 hrs.

The Chairman welcomed visitor Hugo Van Der Berghe to the meeting.

Minutes of the July 1995 Meeting:- Accepted as published. P.Silva/J.McLean. Carried.

Matters Arising:- Nil.

Correspondence:- A reply was received from the Ballarat East Rail Development Committee.

Jack McLean has received a letter from Peter Kay in the U.K. advising that a copy of the 1901 Western Australian General Appendix has been located in the library at Newton Abbot.

G.Cumming/J.McLean. Carried.

General Business:- The Secretary reported on arrangements for the annual tour of regional signal boxes.

Bob Whitehead reported on progress at the archives in Seymour.

Discussion took place regarding recent derailments of passenger trains at Warrnambool & Werribee and an incident where a journal screwed off a bogie under a passenger train approaching Violet Town.

Signals provided at the new crossing loops on the Western S.G. Line will be operated by D.I.C.E. in the future. Section Authority Working will replace Train Staff & Ticket on the Western S.G. Line in the future. Signalmen are required at the new crossing loops on the Western S.G. Line to confirm that each train has arrived complete.

All V/Line locos & some AN locos are fitted with display units for S.A.W.

S.A.W. is now in use between North Geelong C Box - Ballarat - Maryborough and Maroona - Portland. The Western S.G. Line will be the next to receive S.A.W. followed by the North East B.G. Lines.

Bob Whitehead reported that the use of the name Boralma for the new crossing loop has run into some opposition. The new loop at Violet Town will probably be called Violet Town. All other locations on the North East B.G. will be removed. Granites Block Point near Korong Vale is believed to have been named after a local homestead.

Bob Whitehead revealed that following on from a suggestion, in September 1945 the gates at Brunswick Road were painted black with white stripes. After an inspection by the Commissioners, the gates were repainted white. The total cost of the exercise was £9/-/-.

Bound issues of the Weekly Notice have been deposited in the library at the Public Records Office at Laverton.

Syllabus Item:- The Chairman introduced member David Ward (also from the P.T.C. Safeworking Office) who gave a entertaining presentation on the 1994 Book Of Rules And Operating Procedures. At the conclusion of his presentation, David answered questions from the floor.

At the end of the syllabus item, the Chairman thanked David for his informative presentation and this was followed by acclamation from those present.

Meeting closed @ 2154 hrs.

The next meeting will be on Friday November 17, 1995 at the Uniting Church Hall, Hotham Street, Mont Albert.

SIGNALLING ALTERATIONS

The following alterations were published in WN 29/95 to WN 42/95. The alterations have been edited to conserve space. Dates in parenthesis are the dates of the Weekly Notice.

01.06.1995 Safeworking Qualifications.

As from 1.6.95 a new Safeworking Qualification was introduced. The new certificate is known as 'Automatic Block Signalling' and will be the base qualification for all personnel required to work in any signalling position. It will no longer be necessary for employees to qualify in Double Line Block and Electric Staff to be appointed as a Signaller. However, it will be necessary for Signaller to be qualified in a particular Safeworking system prior to being transferred to a location which uses that system.

The subjects covered by the new certificate consist of:

- | | |
|--|--|
| 1. Fixed Signals (two and three position) Light | 24. Operation of Boom Barriers and Flashing signals during Single Line working |
| 2. Defective Signals | 25. Track Machines or Vehicles in Train Order Territory |
| 3. Hand Signals | 26. Track Machines travelling in convoy |
| 4. Radio Protocol and Procedures, including shunting with radios | 27. Train Authority Working during emergencies |
| 5. Train Signals | 28. Disabled trains and obstructions. Protection procedures and obtaining relief |
| 6. Use of Headlights | 29. Overhead equipment and switches |
| 7. Fixing, removing, altering or repairing Fixed Signals or equipment used for the working of points and signals | 30. Trains overtime in section; duties of Signallers and Train Controllers |
| 8. Point Detectors and Plunger Locking | 31. Working on trains. |
| 9. Manual operation of Electro Hydraulic point machines | 32. The Train Control system |
| 10. Dual Control Point Machines | 33. Tail Signals |
| 11. Failure of Home Signals at switched out locations | 34. Propelling trains on running lines. |
| 12. Point Indicators | 35. Security of loads on trains |
| 13. Trailable Points at unattended crossing stations or loops | 36. Reporting of faults and irregularities |
| 14. Detention at Automatic Signals | 37. Working of level crossings |
| 15. Detention at Home and Starting Signals | 38. Vehicle on a train on fire |
| 16. Use of lever sleeves and blocking commands | 39. Trackside boards |
| 17. Automatic train stops | 40. Level crossings at which Tramway traffic is controlled by Fixed Signals. |
| 18. Permanent Way Warning and Caution Boards | 41. Control and working at stations |
| 19. Track Maintenance Machines, Rules governing their use and protection required depending on type of machine and nature of work. | 42. Competency of Signallers |
| 20. Operating Rules for the use and protection of Hi-Rails and Track Inspection Vehicles | 43. Shunting vehicles into sidings |
| 21. Ballast and Plant Trains | 44. Defective vehicles on trains. |
| 22. Mechanised track maintenance operations | 45. Supervision of Signallers and Signalboxes |
| 23. Operation of On Track Maintenance Machines in and out of Master Key locked Sidings | 46. Audible Track Warning Signals. |
| | 47. Shunting Operations |
| | 48. Bunyip - Longwarry automatic operation |
| | 49. Animals on the line |
| | 50. Working the traffic of a Double Line over a single line during repairs or obstruction. |

Safeworking System Examinations

Oral safeworking examinations may only be conducted by Officers who have qualified by written examination as Safeworking Inspectors. Written examinations may be supervised and corrected by an employee who has been certified by the Superintendent, Safeworking. The examination paper must be available to the Superintendent, Safeworking, for audit.

All safeworking training material and written examination material must be approved by the Superintendent, Safeworking, who will certify and sign off the documents.

Where safeworking personnel are continually working a particular safeworking system, they must be re-qualified every three years (see PTC Safeworking Policy and Australian Standard AS 4292.1 - 1995). Where a person has not worked a specific safeworking system in the last six months, the person must be requalified in that system before being permitted to operate a location where that system is in force.

Interlocking and Control Panel Examinations

Interlocked Signal Frame or Signal Control Panel examinations may be conducted by Officers who have either qualified by written examination as Safeworking Inspectors or been certified by the Superintendent, Safeworking, as competent to conduct such examinations. Officers so certified will have completed a course conducted by the Safeworking Department in advanced Safeworking principles. In addition, such Officers must qualify and demonstrate by practical application, competency in the operation of Signalboxes specified by the Superintendent, Safeworking, in consultation with the relevant Group Manager. Examinations conducted by certified Officers must be documented on the special form for Interlocked Frame and Signal Control Panel examinations.

Learning Signalboxes

A person learning their first Signalbox must be allowed a minimum of five days, or the allotted time if the allotted time is longer than five days.

At any Signalbox which is not switched in continuously, arrangements must be made for the signalbox to be switched in and attended continuously for the allotted learning period when any person is learning.

The list details the qualifications required at each safeworking location and, for signalboxes, the learning times (in days) required. Abbreviations are: A: Automatic Block Signalling; DLB: Double Line Block; ES: Electric Staff; IES: Intermediate Electric Staff; TST: Train Staff and Ticket; ATC: Automatic and Track Control; CTC: Centralised Traffic Control; TO: Train Orders; SAS: Section Authority System.

Location	Qualification	Time	Location	Qualification	Time
Spencer Street No 1	A	30	Korong Vale	TO, A	
Metrol	A		Melton	ATC, A	1
West Tower	TST, CTC, A	35	Bacchus Marsh	ATC, A	5
Tottenham 'B'	CTC, ES, A	4	Ballan	ATC, A	1
Brooklyn	ES, A	2	Buangor	?	1
Yarraville	A	1	Trawalla	?	1
Spotswood	A	3	West Footscray	CTC, A	4
Newport	DLB, ES, ATC, TST, A	30	Sunshine	CTC, ATC, ES, A	20
Newport Shops	A		St Albans	DLB, A	4
Williamstown	DLB, A	1	Sydenham	DLB, A	1
Werribee	ATC, A	5	Diggers Rest	DLB, A	1
Manor Loop	TST, A		Sunbury	DLB, A	1
Lara	ATC, A	2	Clarkefield	DLB, A	1
Corio	ATC, A	2	Gisborne	DLB, A	1
North Geelong A	ATC, A	4	Woodend	DLB, A	1
North Geelong B	ES, A	6	Kyneton	DLB, A	4
Geelong 'A'	A	20	Castlemaine	DLB, TST, A	
South Geelong	TO, A	1	Bendigo	DLB, TO, A	4
Winchelsea	TO, A		Echuca	TO, A	1
Colac	TO, A		Kerang	TO, A	
Camperdown	TO, A		Swan Hill	TO, A	
Warrnambool	TO, A		Kensington	A	5
North Geelong C	ES, SAW, TST, A	5	Essendon	A	2
Gheringhap	SAW, TST, A	1	Broadmeadows	DLB, CTC, A	5
Berrybank Loop	TST, A		Somerton	DLB, CTC, ES, IES, A	4
Vite Vite	TST, A		Donnybrook	DLB, CTC, A	1
Maroona	TST, TO, A		Wallan	DLB, CTC, A	1
Pyrenees Loop	TST, CTC, A		Kilmore East	DLB, CTC, A	3
Murtoa	CTC, TO, A	2	Broadford	DLB, CTC, A	2
Horsham	CTC, A	2	Seymour	DLB, CTC, TO, A	4
Dimboola	CTC, TO, A	2	Avenel	CTC, TO, A	1
Portland	TO, A		Violet Town	CTC, TO, A	2
Meredith	SAW, A	1	Benalla A	CTC, TO, A	4
Lal Lal	SAW, A	1	Benalla B	CTC, TO, A	10
Ballarat	ATC, SAW, ES, A	4	Wangaratta	CTC, TO, A	5
Ballarat B (Gates)	?	1	Springhurst	CTC, TO, A	2
Maryborough	TST, TO, SAW, A	1	Wodonga A	TO, CTC, ATC, A	10
Dunolly	TO, A		Wodonga Coal Sidings	ATC, ES*, A	4
Donald	TO, A		Albury	ATC, A	
Ouyen	TO, TST, A	2	Ascot Vale Road	A	1
Mildura	TST, A	1	Epson Road	A	1

Location	Qualification	Time	Location	Qualification	Time
Showgrounds	A	2	Kooyong	A	1
Flemington Racecourse	A	4	Gardiner	A	1
Nagambie	TO, A		Darling	A	1
Murchison East	TO, A		Glen Waverley	A	2
Shepparton	TO, A	1	Riversdale	ATC, A	2
Numurkah	TO, A	1	Ashburton	A	1
Strathmerton	TO, A		Caulfield	A	15
Cobram	TO, A		Oakleigh	A	4
Jewell	DLB, A	2	Springvale	A	4
Brunswick	DLB, A	1	Dandenong	ATC, TO, A	20
Anstey	?	1	General Motors	A	1
Moreland	DLB, A	2	Berwick	A	1
Coburg	DLB, A	3	Pakenham	A	3
Batman	DLB, A	1	Nar Nar Goon	A	1
Fawkner	DLB, TST, A	2	Warragul	A	1
Gowrie	TST, A	1	Trafalgar	A	2
Upfield	TST, ES, IES, A		Moe	ATC, A	
Bell	A	1	Morwell	ATC, ES, IES, A	
Keon Park	ATC, A	1	Traralgon	ES, IES, TO, A	
Lalor	ATC, A	1	Sale	TO, A	
Epping	ATC, A	20	Stratford	TO, A	
Fairfield	A	2	Bairnsdale	TO, A	
Heidelberg	A	4	Glenhuntly	A	2
Macleod	A	2	Cheltenham	A	2
Greensborough	ES, A	2	Mordialloc	A	4
Diamond Creek	TST, A		Chelsea	A	
Eltham	ES, TST, A	4	Carrum	A	2
Hurstbridge	TST, A		Seaford	A	1
Burnley	ATC, A	10	Frankston	ES, A	9
Camberwell	ATC, A	6	Somerville	ES, IES, A	
Box Hill	ATC, A	4	Hastings	ES, IES, TST, A	
Blackburn	A	2	Crib Point	TST, A	
Mitcham	A	1	Stony Point	TST, A	
Ringwood	A	8	Elsternwick	A	
Bayswater	A	1	Brighton Beach	A	2
Upper Fern Tree Gully	ATC, A	6	Sandringham	A	2
Lilydale	ATC, A	4			

Train Control

Before taking up any duties as a Train Controller, the employee must qualify in the following safeworking systems:

Metro: Automatic Block Signalling, Double Line Block, Electric Staff, Train Staff and Ticket, Automatic and Track Control

Centrol: Automatic Block Signalling, Double Line Block, Electric Staff, Intermediate Electric Staff, Train Staff and Ticket, Train Orders, Section Authority System, Automatic and Track Control, Composite Staff Working (WN 31/95)

16.07.1995

Box Hill

From Sunday, 16.7.95, the signalbox hours will be

- Monday - Friday.....0450 hours to 2100 hours
- Saturdays.....1100 hours to 1900 hours
- Sundays.....Closed

Amend page A10, Metro WTT Appendix

(O 833/95, WN 29/95)

17.07.1995

Sunshine

On Monday, 17.7.95, the following alterations were made

1. Crossover 36 was spiked normal and Plunger 37 secured normal.
2. Points 47 were spiked reverse. Plunger 48 was disconnected.
3. Disc signals 34 (Post 40), 41 (Post 37), 46 (Post 34), and 49 (post 35) were removed from service.
4. Levers 31, 36, 37, 41, 46, and 49 were sleeved normal
5. Levers 47 and 48 became pilot levers.

Amend Diagram 15/94.

(SW 381/95, WN 29/95)

17.07.1995

Brooklyn

Between Monday, 17.7.95, and Wednesday, 19.7.95, two Dual Control Point Machines were provided on the Main Line points at Brooklyn. They were installed on the points leading to the West Line and the points leading to Sunshine. The points will only be able to operated in the Hand Operating Position.

The instructions in SW 354/95 are consequently modified. It will not be necessary to clip these points as long as the Signaller, Brooklyn, ensures that the Selector Lever is in the Hand Operating Position, the points are set for the intended movement, and the Hand Throw Lever is locked on its stop.

(SW 379/95, WN 30/95)

17.07.1995 **Frankston - Somerville - Long Island Junction - Hastings**

Commencing Monday, 17.7.95, permission is granted to use the Staff Exchange Box at Somerville for Trains 9555 (Mon - Thur), 9552 (Tues - Sat) and 9551 (Sat). Permission is also granted for the staffs used for Train 9555 (Mon - Thur) to be also used for Train 9552 (Tues - Fri) and for the staffs used for Train 9551 (Sat) to be used for Train 9552 (Sat). On arrival at Long Island Junction, the Drivers of Trains 9555 and 9551 must not place the staff in the instrument but must retain the staff for the Up journey. On arrival at Frankston, the Signaller must retain the staff in the pocket of the instrument until the Signaller, Somerville, reports for duty when the staff must be inserted under the "Cancelling" signal.

This supersedes SW 315/95.

(SW 280/95, WN 29/95)

20.07.1995 **Lyndhurst**

On Thursday, 20.7.95, the miniature Annett Lock was relocated from the point lever to ground level adjacent to the points. SW 133/95 was replaced.

(SW 389/95, WN 31/95)

(25.07.1995) **Newport Yard Stabling Sidings**

Automatic Security Gates have been installed at the entrance to the new Stabling Sidings at Newport Workshops. The gates will be operated by the Workshops Shunters whilst they are on duty (0800 to 1545 Monday to Fridays). At other times the gates will be operated by Drivers in the following manner.

Trains arriving into the Stabling Siding whilst Shunters are not on duty

A 29P Key Switch is located at cab height 250 metres on the Down side of Post 3. A Notice Board lettered 'Drivers are to operate gates before entering yard' is located adjacent to the Key Switch. The Driver of an approaching train must stop at the Notice Board and operate the key switch. Once the gates have fully opened the train may enter the yard. The gates will automatically close after the passage of the train. After stabling the train, the Driver must exit the Stabling Yard by the Personnel Gate and walk to Newport station on the pathway. Note: V/Line train crews must obtain a 29P key from Newport to operate the gates. The key must be returned when the train is stabled.

Trains departing the Stabling Sidings whilst Shunters are not on duty

The Driver must first ensure that the points are set for the train to depart to the Up line. Permission must then be obtained from the Signaller, Newport 'A', for the train to depart (see SW 330/94). The Driver must then operate the 29P key switch. Once the gates are fully opened the train may depart.

Insert on page 34-5 of the Book of Rules after SW 330/95.

(SW 378/95, WN 29/95)

31.07.1995 **Merbein**

On Monday, 31.7.95, a new siding was commissioned at Merbein. The siding is located at 583.850 km on the Down side of the station. The points at both ends of the loop siding are fitted with a WSA lever, hand locking bar, pin and padlock. Hand operated Hayes derail blocks are provided at both ends. The clear length of the siding is 280 metres. Amend page 44 MTP General Instructions.

(SW 396/95, WN 31/95)

(01.08.1995) **Book Of Rules, Exchanging Staffs by Hand**

A train must be brought to a stand to exchange Staffs by hand where there is no competent employee to assist the Driver and there is no platform for the station staff on the Driver's side. Under no circumstances must the Driver leave the controls for the purpose of exchanging Staffs whilst the train is in motion.

Insert as an addition to Rule 22, Section 21 and Rule 11, Section 24.

(SW 382/95, WN 30/95)

(01.08.1995) **Book Of Rules, Granting Permission for Track Machine or Road/Rail Vehicle**

The following additional instruction is to be added to clause 1, Rule 8, Section 30.10 and 30.11 of the Book of Rules:

5. The time that advice is received that the vehicle has been removed from the track.

(SW 384/95, WN 30/95)

(01.08.1995) **Shepparton - Tocumwal - Echuca**

ETMs are to be used in the following manner for the altered train working shown in S 95/5369.

1. Train 9376 will operate with a standard ETM on the rear of the train from Echuca to Toolamba. A modified ETM is to be carried on the locomotive. After reversing at Toolamba the modified ETM is to replace the standard ETM on the rear of the train. On arrival at Shepparton, the modified ETM is to be stowed on the locomotive for the return journey.
2. Train 9352 will operate between Tocumwal and Shepparton with an ETM as per existing arrangements. Between Shepparton and Toolamba the rear portion of 9352 will be made up of Train 9375 with the locomotive at the rear. It will not be necessary to use an ETM for this section as the locomotive tail disc and tail lights will indicate the end of train and the Echuca crew operating the rear locomotive will be available to confirm that the train is complete. On arrival at Toolamba,

05.08.1995

Flinders Street

On Saturday, 5.8.95, the Burnley Sidings were abolished and Collingwood Sidings Nos 1 to 3 were returned to service. A connection from the Through Siding to Collingwood Siding No 3 was provided. Diagram 19/95 replaced 13/94. Note: this diagram does not show the motor operated points brought into service the next day. (SW 406/95, WN 35/95)

06.08.1995

Flinders Street

On Sunday, 6.8.95, control panels were brought into use to operate points within the Camberwell, Caulfield, Oakleigh, Frankston, Sandringham, and Goods Yard Sidings. The existing panel for the Oakleigh Sidings located in the Centre Cabin was removed and SW 108/94 was cancelled. No provision has been made for the remote operation of points within the Collingwood Sidings.

Train Operation

All communication between the Driver and the Senior Fleet Controller (or Controller's representative) will be via radio. When the train is ready to proceed towards the TR point, the Driver must stop the train at the fouling point of that particular siding. The Driver must then obtain permission from the Senior Fleet Controller's office via radio to move towards the Dwarf signal governing movements from the siding.

Panel Descriptions

The main control panel is located in the Senior Fleet Controller's Office (i.e. Yardmaster's Office). This panel can control all the motor operated points within the Sidings. In addition, there are two subsidiary panels located in the Centre Cabin. These panels are released from the main control panel in the Senior Fleet Controller's Office. The Centre Cabin East Panel may control the points in the Camberwell and Caulfield Sidings. The Centre Cabin West Panel may control the points within the Camberwell, Caulfield, Oakleigh and Frankston Sidings.

Each control panel is of the Unit lever type. The diagrams show the layout of the panels. The lights above each point lever are: normal indication (green), points free (yellow), reverse indication (yellow). The lights above each switchout lever are: switched in (green); switched out (yellow). The normal and reverse indication lights on the track diagram are yellow. The fault light is flashes red when a fault occurs. The light switch operates a fluorescent light fitted to the panel.

Transferring Control between the Panels

When it is required to transfer control of a siding group from the Senior Fleet Controller's office to the Centre Cabin, the following procedure takes place.

The Senior Fleet Controller must confer with the local panel operator and ensure that all point levers have been placed to the centre (switched out) position. The switch out lever can then be placed to 'out'. The indicating lights will then be extinguished, except for the yellow 'out' light above the switch out lever.

Once the panel in the Senior Fleet Controller's office has been switched out, the indicating lights above the switch out lever on the panel in the Centre Cabin will begin to flash. When the switch out lever is moved to the 'in' position, the green 'in' light will become steady. The operator must check to ensure that all point detection lights are illuminated.

To restore control to the Senior Fleet Controller's panel, the operator at the Centre Cabin must first contact the Senior Fleet Controller and advise of the intention to transfer control. The point levers on the Centre Cabin panel must then be placed in the centre position and the switch out lever moved to the 'out' position. All indications will be extinguished and the yellow and green lights above the switch out lever will begin to flash.

The yellow and green lights above the switch out lever in the Fleet Controller's office will also begin to flash. The Senior Fleet Controller may then move the switch out lever to the 'in' position. The green 'in' light will then become steady. The yellow 'out' light on the switched out Centre Cabin panel will also become steady.

Point Operation

Each set of points may be trailed through. It is only necessary for the position of the points to be altered for facing movements. When a train trails through the points, the indicating light representing the actual position of the points will be illuminated and, if this is the opposite lay to the position of the point lever, the opposing indication light will flash.

The point levers should only be operated whilst the 'points available' light is lit. The design of the circuitry prevents pre-setting of the points. Each set of points is approach locked and will remain locked until the train has cleared the points.

The 'N' and 'R' lights will flash while the points are not in correspondence with the point lever. If the lights continue to flash after 10 seconds the point lever should be reversed. If the light continues to flash an inspection of the points must be conducted to see if there is an obstruction of the point blades. Any obstruction found must be removed and the points again operated. If the indicating lights continue to flash, the points are considered to have failed and the Signal Fault Centre notified.

If it is necessary to alter the position of the points during while the points have failed, the following instructions must be observed.

1. The operator must sleeve the point lever and then obtain the emergency point hand from the Senior Fleet Controller's office. A separate 5P key is provided for each set of points. Each key is suitably marked with the number of the points to which the key applies. A record must be kept of each occasion where it is necessary for a key to be issued and the name of the employee to which the key was issued. During a failure, should an employee find a 5P key in the key switch, the employee must immediately confer with the Senior Fleet Controller. The employee must not remove the key without first obtaining the authority of the Senior Fleet Controller.
2. At the points, the 5P Key Switch on the point machine must be moved from the 'Power' position to the 'Hand' position. The collar of the emergency point handle must then be placed on the lever butt and the points operated to the required position. The point handle must not be fitted or removed from the lever butt unless the switch is in the 'Hand' position.
3. To restore power operation, the emergency point lever must be removed and the key switch returned to the 'Power' position. The points will automatically run to the match the position of the point lever on the switched in panel. The 5P key can only be removed from the key switch when it is in the 'Power' position. If a crossover has failed, the operator must ensure that both ends of the crossover are placed in the same lie prior to the key switch being replaced to the 'Power' position. This is to ensure that the point correspondence between the point lever and point machine is maintained. The point handle must be returned to the Senior Fleet Controller's office immediately after use, and the operator may then unsleeve the point lever.

Note: it is only necessary for the points to be hand worked if a facing movement is to be carried out and the position of the points altered.

Fault Light Indication

Each Siding Control Panel is provided with a red Fault Light. The light will flash when there is a fault in the electronic system. The fault light will flash on all panels for that siding group. The Signal Fault Centre must be immediately advised when a fault occurs and the points manually worked for facing movements. When the fault is rectified the operator must place the point levers in the position corresponding to the new lie of the points. Normal point operation may then be carried out.

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

(SW 377/95 & SW 404/95, WN 32/95)

06.08.1995 **Glen Waverley**

On Sunday, 6.8.95, the panel was relocated to allow to allow building works for the station upgrade to be carried out.

(SW 400/95, WN 32/95)

(15.08.1995) **Book of Rules - Tram Crossings**

Level Crossings at which Tramway Traffic is Regulated by Fixed Signals

L. Coasting over Tramway Crossings

When it is necessary for a suburban train to coast over a level crossing with pantographs lowered due to an overhead fault, the Signaller must inform the Driver of the need to do so.

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

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

If the train does not maintain sufficient momentum to completely clear the level crossing, the leading pantograph may be raised provided it is clear of the overhead equipment mast on the advance side of the crossing. The remaining portion of the train may then be hauled through the crossing using only the leading pantograph to collect current. All pantographs may then be raised once the train is completely clear of the overhead equipment mast on the advance side of the level crossing.

In the above as a new clause on page 9-14 of the Book of Rules.

(SW 393/95, WN 32/95)

(15.08.1995) **Book of Rules - Failure of a Home Signal**

Failure of a Home Signal at an Intermediate Station in a Double Line Block Section.
(Applicable at Williamstown Beach and North Williamstown only)

Rule 27

- A. In the event of a train arriving at a Home Signal at an Intermediate Station within a Double Line Block section, and the Signal is at Stop and a Hand Signaller is not in attendance, the Driver must communicate with the Train Controller, Metrol.
- B. The Train Controller, Metrol, must contact the Signaller's on both sides of the Intermediate Station and ascertain if the Station is attended. If the station is unattended, the Train Controller may authorise the Driver to pass the Signal at Stop. The Driver and Train Controller must exchange names for record purposes. The train may then proceed into the platform with extreme caution.
- C. When the train arrives at the station, the Driver must inspect the signal lever, and if it is not reversed the Home Signal must be placed to Proceed. The Train Controller, Metrol, must then be informed that the Signal has been returned to Proceed. The Driver must also inform the Signaller at the next attended Signalbox.

- D. If the Driver is unable to make contact with the Train Controller, Metrol, and it has been ascertained that the platform road is clear, the train may proceed into the platform with extreme caution. Clause C must then be complied with.

Insert as a new Rule 27 in Section 20 of the Book of Rules

(SW 399/95, WN 32/95)

(15.08.1995) **Book of Rules - Foot Patrols of Melbourne Underground Loops**

26. Procedures for Patrolling Melbourne Underground Loop Tunnels

a) General

1. Except in emergencies, foot patrols of the tunnels should not be undertaken whilst trains are scheduled to run.
2. Permission to patrol shall only be granted for journeys between adjacent stations.

b) Actions of Patrolman prior to Patrol. Prior to entering a tunnel, the Patrolman must:

1. check to ensure his watch is correct
2. ascertain whether train running has ceased for the day and whether any special trains are scheduled
3. advise the Signaller, Metrol, of the destination and the time required to complete the journey.
4. obtain permission from the Signaller to proceed.
5. enter the permission and any train information in the Train Information and Permission Book.
6. repeat back the particulars as received from the Signaller, whose name must also be recorded.

c) Actions of Signaller. Prior to granting permission, the Signaller must

1. obtain information of any special train movements from the Train Controller
2. Pass the details onto the Patrolman
3. Apply the blocking command at the entrance signals at each end of the tunnel for which permission has been granted.
4. The blocking command is not to be removed until after the Patrolman has informed the Signaller that the patrol has been completed and that the Patrolman has cleared both the track and the tunnel, or until arrangements have been made between the Signaller and the Patrolman for the patrol to be suspended.

d) Actions of the Patrolman during and after the patrol. The Patrolman must

1. Contact the Signaller upon arrival at each station.
2. Inform the Signaller when the patrol has been completed and that the Patrolman is clear of both the track and the tunnel.
3. In the event of communication failure, endeavour to contact the Signaller at the first available opportunity.

Insert as a new clause 26, Section 30.29, Book of Rules.

(SW 398/95, WN 32/95)

(15.08.1995) **Tottenham to Pyrenees Loop**

Circulars SW 220/95, 306/95, 353/95, 354/95, 366/95, 373/95 and 379/95 have been replaced by a new circular. There is no change in the actual operating procedures.

(SW 395/95, WN 32/95)

(15.08.1995) **Nar Nar Goon**

The clear standing room in Nos 2 and 3 tracks at Nar Nar Goon is 522 metres, not 964 metres as shown on page 95, MTP General Instructions.

(O 928/95, WN 32/95)

18.08.1995 **North Dynon Agents Area, F Shed**

On Friday, 18.8.95, baulks were placed on the sidings at the entrance to the Up end of the Fruit Shed. The Up end broad gauge entrance to these sidings has been booked out of service and the hand points spiked for the straight road.

(SW 426/95, WN 35/95)

18.08.1995 **Bacchus Marsh**

On Friday, 18.8.95, the track and signal alterations previously announced as taking place on 26.6.95 (SW 330/95) took place. The only difference from SW 330/95 was that Points 36 and Post 7 were only relocated 50 metres in the Up direction. Diagram 22/95 was issued.

Amend pages 144 & 145 of the Book of Signals

(SW 405/95, WN 37/95)

20.08.1995 **Spencer Street**

On Sunday, 20.8.95, the lights forming Home 718 were relocated to the opposite side of the post to improve sighting. The Co-acting signal on Auto 716 was removed.

(SW 418/95, WN 34/95)

(22.08.1995) **Caulfield - Moorabbin**

Commencing forthwith, authority is granted for the issue of Caution Orders via the post telephones at Caulfield and Moorabbin. All messages transmitted via the post telephones connected to Caulfield Signalbox are recorded.

In the event of a failure of a Home Signal at these two stations, the following procedures must be observed:

1. The Driver must immediately contact the Signaller, Caulfield, using the post telephone. The Driver must state his/her name and grade, the post number, the train number, and its originating station and destination.

2. The Signaller must ensure that the points are properly set and locked for the movement by checking the indications on the control panel. If the point indications are correct, the Signaller will instruct the Driver to examine the points. The Driver must examine the points and report to the Signaller.
3. The Signaller must complete a Signaller's Caution Order (form TR 18B/2377) and dictate the particulars to the Driver. The Driver must be given the Signaller's name. It will not be necessary for the Driver to take down any of the particulars.

Completed Caution Orders must be retained in the Caution Order Book until the book is completed. The completed book must be forwarded to the Superintendent, Safeworking.

Failure of Points at Caulfield

Should the points fail at Caulfield and detection has been lost, the Signaller must ensure that the points are secured in the correct position prior to any movement being permitted. The Signaller must *deliver* a Caution Order to the Driver.

Failure of Points at Moorabbin

It will only be necessary to place the points at Moorabbin into the 'Manual' position if the points have failed and detection has been lost. In this case the Signaller must instruct the Driver to operate the Electro-Hydraulic points to the required position. The pump handle for the operation of the point machine is secured with a chain and 5P padlock to the sleeper adjacent to the point machine. The Driver must ensure that the point handle is left locked in position on the sleeper after use. The points may be left in the 'Manual' position for the next train.

Should a Signal failure occur at Moorabbin whilst the local signal control panel is switched in, the Signaller, Moorabbin, is responsible for the issue of Caution Orders. The post telephones must not be used for the transmission of Caution Orders, instead orders must be *delivered* to the Driver.

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

(SW 414/95, WN 33/95)

(22.08.1995) **Woodend**

The signalbox hours will be

Monday - Friday.....From 0625 hours until Train 8026 clears

Saturdays, Sundays.....Switched out

Amend page 56, MTP General Instructions

(SW 413/95, WN 33/95)

(22.08.1995) **Seymour**

Dysart - Seymour

The signalling of the single line section between Dysart and Seymour is controlled from the panel at Seymour. Should a train arrive at Posts 4, 6, 12, 14 or 16 while the signal is at stop and there is no sign of a train approaching, the Driver must contact the Signaller, Seymour, via radio.

If the signal has failed, the Signaller must instruct the Driver to examine the points to ensure that they are in the correct position. It will only be necessary to place the points to the 'hand' operating position if the points have failed. In this case, the Signaller will instruct the Driver to operate the points as required. The points may be left in the 'hand' operating position for the next train.

The Signaller must sleeve the levers leading to the single line at the opposite end of the section normal and then dictate a Signaller's Caution Order to the Driver. The Driver must take down the Caution Order and repeat the details back to the Signaller. A supply of Caution Orders is kept in the telephone boxes located at both ends of the single line section.

Dwarf 16 controls movements from No 2A Road to the single line. A Caution Order must be issued should this signal become defective.

Failure of the Standard Gauge Grade Crossing Pilot Lever

The points leading to the Locomotive Depot are operated by Dual Control point machines. The Selector and Hand Throw levers on these machines are secured by special padlocks. The key to these padlocks is kept in the Signal Control Room and must not be removed without the express authority of the Train Controller.

Should the Broad Gauge Pilot Lever fail to release when required, the Signal Maintenance Technician must be advised. If it is necessary for a Broad Gauge train to cross the Standard Gauge during the failure the following procedure must be adopted.

1. The Signaller, Seymour, must come to a complete understanding as to what movements are required.
2. Before granting permission for the movement to take place, the Train Controller must ensure that no Standard Gauge train or track machine is approaching the Grade Crossing and apply a blocking command to Signals SGC/2, SEY/4 and SEY/U4. A Standard Gauge train or track machine must not be allowed to approach the Grade Crossing after permission has been granted for the movement until the Signaller, Seymour, advises that the crossing is clear and the levers are normal.
3. After obtaining permission, the Signaller must unlock the Selector and Hand Throw levers and reverse the points. The Signaller must then return to the Control Room and operate the appropriate signal levers to obtain the security of the interlocking. The movement may then taken place.

4. When all movements have been completed the points must be restored to Normal and the Selector and Hand Throw levers relocked. The Train Controller must then be advised. The Blocking Commands can then be removed and normal working resumed.
5. The Train Register must be endorsed on each occasion that it is necessary for a train to proceed over the crossing during a failure.

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

(SW 410/95, WN 33/95)

(22.08.1995) **Section Authority Working and ETAS**

The End of Train Air System (ETAS) monitors the train brake pipe pressure on the trailing vehicle of a train and transmits the current pressure to a digital receiver in the locomotive cab. During normal running with the brake released the train pipe pressure shown by the ETAS monitor will constantly fluctuate between two values. This indicates that the train is complete and that the ETAS is functioning correctly. The values between which the pressure fluctuates is known as the 'Fluctuation Consistency'. The actual high and low points for a given train must be redetermined any time the train pipe has been broken (e.g. for shunting). During a brake application the ETAS display will show a value lower than the Fluctuation Consistency. If the ETAS signal is lost (which might occur in a tunnel or some cuttings) the display will display a constant value.

The ETAS will be used to prove that the train is complete in the Section Authority System.

Returning a Section Authority at a Crossing Location

When the train is clear of the arrival track circuit, the fouling point detection system will broadcast a voice message via the local radio (e.g. 'Vite Vite Loop. Up end clear'). Provided the train brake pipe pressure shown by the ETAS is within the current Fluctuation Consistency, the Driver can then return the Current Authority (for the section just left) to the Section Authority System Workstation.

If the Driver has made a brake application prior to coming to a stand, the ETAS brake pressure will be less than the Fluctuation Consistency. The Driver must not return the Current Authority until the brake has been released and the ETAS pressure is within the Fluctuation Consistency.

Should the ETAS unit fail, or the ETAS pressure reading continue to remain below the Fluctuation Consistency, the Driver must not return the Current Authority until a positive end of train sighting has been received.

Returning a Section Authority at a Block Point

Where the ETAS is operating there will be no 'tails flash' on the Block Point sign. A location clearance sign will be provided 2000 metres from the Block Point sign in both the Up and Down directions.

The train may pass the Block Point sign if the Driver is in possession of a 'next' authority to proceed into the forward section. When passing the Block Point sign, the Driver must check the pressure shown on the ETAS unit. If this reading is within the Fluctuation Consistency, and remains so until passing the departure clearance point 2000 metres from the Block Point, the Driver may return the Current authority for the section in the rear.

If the ETAS pressure is less than the Fluctuation Consistency because the Driver has made a brake application, the Current Authority must not be returned until the brakes have been released and the ETAS pressure is within the Fluctuation Consistency.

Should the ETAS unit fail, or the ETAS pressure reading continue to remain below the Fluctuation Consistency, the authority for the section in the rear may be returned after advising the Train Controller of the circumstances. The Train Controller must apply the 'section foul' blocking command to the section in the rear. This must remain in place until a positive end of train sighting has been received by the Driver.

(SW 376/95, WN 33/95)

23.08.1995 **Maroona - Portland**

At 1000 hours on Wednesday, 23.8.95, the Section Authority System testing and acceptance was completed. The Section Authority System formally replaced the Train Order System of Signalling. The sections are Maroona - Glen Thompson Loop - Grampians Loop - Chrome Loop - Heywood Loop - Portland. The Train Order System was abolished. Circular SW 361/95 is cancelled and amend page 33 MTP General Instructions.

(SW 423/95, WN 35/95)

27.08.1995 **Sydenham**

On Sunday, 27.8.95, the main line crossover was abolished together with the disc signals on Posts 4 and 7. Levers 3, 6, 7, 8, and 10 were sleeved normal.

Amend Diagram 30/90 and page 107 of the Book of Signals.

(SW 434/95, WN 36/95)

28.08.1985 **Gheringhap**

On Monday, 28.8.95, the standard gauge Down Home arrival signals were renumbered from GHS 1 and GHS 4 to GHS U1 and GHS U4.

(SW 429/95 WN 36/95)

28.08.1995 **Korong Vale**

On Monday, 28.8.95, the fixed signals were removed. The junction points remain worked by a WSA lever,

from either the Robinvale and Kulwin lines will trail through the points. The maximum speed when passing through the junction points (facing or trailing) is 25 km/h. Location Boards were provided 1000 metres from the Down end of Korong Vale Loop on both the Kulwin and Robinvale lines. Both the Kulwin and Robinvale lines are considered to be Primary Corridors.

If a passenger train is run on either the Kulwin or Robinvale line, a competent employee must attend to the junction points and ensure that they are securely held for the passage of the train.

Issue of Train Orders

Down Trains

If a Down train divides at Korong Vale Loop to form separate trains to the Kulwin and Robinvale lines, the second train may depart once the first train has cleared the fouling point of the junction and the Driver has been issued with a Train Order. A second train may not follow on either line until the Driver of the first train has advised that it has departed the next Block Point complete.

Up Trains

The Train Controller must not permit two Up trains to approach Korong Vale simultaneously. A second Up train must not be permitted to depart from Mysia or Granites Block Point until the first train has departed Korong Vale Loop and is complete in the next section. If a Down train has departed from Korong Vale Loop, an Up train must not be advanced until the Driver of the Down train has reported departure from Mysia or Granites Block Point. (SW 422/95, WN 35/95)

28.08.1995 Mysia Block Point

On Monday, 28.8.95, a new Block Point was established at 291 km on the Robinvale Line. Location Boards were provided 1000 metres from the Block Point and Departure Clearance Point boards 1000 metres in advance of the Block Point Boards. Bi-directional End of Train Detection is *not* provided. All trains operating on the Robinvale line are required to carry an ETAS unit.

Train Order working is in force between Dunolly - Arnold Block Point (236.000 km) - Inglewood - Korong Vale Loop - Mysia Block Point (291.000 km) - Quambatook Block Point (344.000 km) - Ultima Block Point (396.000 km) - Manangatang Block Point (457.280 km) - Robinvale. All locations except Mysia Block Point are fitted with Bi-directional End of Train Detection. Distances are via Ballarat.

Amend page 49 of the MTP General Instructions. (SW 422/95, WN 35/95)

28.08.1995 Granites Block Point

On Monday, 28.8.95, a new Block Point was established at 287 km on the Kulwin Line. Location Boards were provided 1000 metres from the Block Point and Departure Clearance Point boards 1000 metres in advance of the Block Point Boards. Bi-directional End of Train Detection is *not* provided. All trains operating on the Kulwin line are required to carry an ETAS unit.

Train Order working is in force between Korong Vale Loop - Granites Block Point (287.000 km) - Wycheproof Block Point (347.620 km) - Sea Lake Block Point (419.000 km) - Kulwin. All locations except Granites Block Point are fitted with Bi-directional End of Train Detection. Distances are via Ballarat.

Amend page 50 of the MTP General Instructions. (SW 422/95, WN 35/95)

30.08.1995 Lal Lal

On Wednesday, 30.8.95, Points 6 were booked out of service. The siding is only accessible from the Up end. Levers 5 and 6 were sleeved normal. (SW 435/95, WN 36/95)

30.08.1995 Ballarat - Ararat

Commencing Wednesday, 30.8.95, this line was reopened as a Construction Siding for infrastructure trains. The Electric Staff system has been abolished and every train operating over the line must be accompanied by an infrastructure supervisor.

The fixed signals at Trawalla and Buangor have been temporarily placed out of service and black crosses fixed to the signal arms. The main line points have been secured for the straight road.

The Driver of every train must be prepared to stop at every level crossing. If the crossing is equipped with protection equipment which fails to operate automatically, then the equipment must be operated using the test switch. The level crossing equipment at Langi Kal Kal Road (Trawalla) and High Street (Buangor) will not operate on the approach of the train and will always require to be operated via the test switch. At crossings not equipped with protection equipment, Drivers must ensure road traffic is aware of the train before proceeding. (SW 433/95, WN 36/95)

30.08.1995 Somerton

On Wednesday, 30.8.95, the following alterations took place:

1. The derail at the entrance to Martin & Brights Siding was relocated to a new position 20 metres on the eastern side of the diamond crossing.
2. The derail block adjacent to Post 8 was abolished.
3. The derail block on the standard gauge Steel Main's Pty Ltd Siding (Tubemaker's Siding) inside the company gates was abolished.

The derail block at the Up end of No 3A road had been removed earlier.

Amend diagram 9/91. (SW 425/95, WN 35/95)

- 03.09.1995 **Werribee**
On Sunday, 3.9.95, Posts 6 and 18 were relocated onto ground masts located on the site of the demolished signal gantry. Post 6 is located on the Down side of the line and Post 18 on the Up side of the line.
(SW 439/95, WN 36/95)
- 04.09.1995 **West Tower - Sims Street Junction**
On Monday, 4.9.95, a Notice Board was provided on the Down dual gauge track at Sims Street Junction adjacent to Home 158. The Notice Board is lettered 'Clearance Point for setback Movement' and is provided to indicate the Track Circuit clearance point from which any set back movement should commence. Prior to setting back, the Driver must obtain authority from the Signaller, West Tower. The Signaller, No 1 Box, must confer with the Signaller, West Tower, before signalling a standard gauge locomotive or train towards Post 122.
(SW 430/95, WN 36/95)
- 04.09.1995 **North Geelong 'C' - Ballarat**
Commencing Monday, 4.9.95, all Sprinter Rail Cars operating between North Geelong 'C' and Ballarat must carry a modified 'End of Train' Marker. Fitting the marker will be the responsibility of the Signaller at Ballarat and the Shunters at Spencer Street. The Driver must ensure that the marker has been fitted prior to departure.
(SW 438/95, WN 36/95)
- 11.09.1995 **Coburg**
On Monday, 11.9.95, the new passenger platform became available for use. The platform is 160 metres in length and is situated on No 2 Road. Amend Diagram 29/88.
(SW 443/95, WN 37/95)
- 13.09.1995 **Sunshine**
From 13.9.95, it will no longer be necessary to work lever 13. SW 300/95 is cancelled.
(SW 451/95, WN 38/95)
- 14.09.1995 **Inverleigh**
On Thursday, 14.9.95, a staff locked siding was brought into use. Large staff locks are provided on the main line points.
(SW 449/95, WN 38/95)
- 14.09.1995 **Lethbridge and Lal Lal**
On Thursday, 14.9.95, signs were placed on the rear of the location boards at both locations for ETAS trialling purposes. The signs are placed in the lower left of the triangle and are applicable to trains approaching the rear of the location board. Four different combinations are used:
1. Blue disc on black background (on rear of Lal Lal Down Location Board)
2. Yellow disc on black background (on rear of Lal Lal Up Location Board)
3. Blue disc on silver background (on rear of Lethbridge Down Location Board)
4. Yellow disc on silver background (on rear of Lethbridge Up Location Board)
(SW 444/95, WN 38/95)
- (26.09.1995) **Fairfield**
The following instructions must be followed when terminating Up trains at Fairfield in conjunction with the Absolute Occupation of the Up and Down lines between Westgarth and Fairfield (O.1104/95).
A Hand Signaller will be appointed at Post 39 and a competent employee appointed to the Station Street level crossing to operate the level crossing protection equipment for Up trains.
When an Up train has come to a stand at Post 39, the Hand Signaller must communicate with the Signaller via the Post Telephone. The Signaller must reverse Points 31 and lock them with Plunger 30. The employee at Station Street must then be instructed to operate the boom barriers. The Hand Signaller may then be instructed to signal the Up train to the Down platform.
(SW 450/95, WN 38/95)
- 01.10.1995 **Wingeel & Tatyoon**
From Sunday, 1.10.95, Wingeel and Tatyoon will be opened as Staff stations. The Train Staff and Ticket sections will then be: Gheringhap - Wingeel - Berrybank - Vite Vite - Tatyoon - Maroona - Pyrnees Loop. The crossing loops at both locations are 1600 metres in clear. The arrangements are otherwise identical to the other crossing loops on this line. At Wingeel the safeworking cabin is located at the Up end of the crossing loop, whilst at Tatyoon it is located at the down end.
(SW 455/95, WN 40/95)
- 02.10.1995 **Macedon**
From Monday, 2.10.95, the Victoria Street level crossing was closed. Amend page 57 MTP.
(O.1180/95, WN 40/95)
- 04.10.1995 **Newport - Altona Junction**
On Wednesday, 4.10.95, the lights on Auto G 456 were altered to the reverse stagger. Amend Diagram 3/95.
(SW 456/95, WN 40/95)
- 05.10.1995 **Wodonga**
From 5.10.95, passenger cars may be stabled on the running lines during the following periods.
- | Days | Cars off | Hours | Track |
|------------------|----------|-----------|-------|
| Monday to Friday | 8321 | 2115-0200 | 1 |
| Saturday | 8305 | 1200-1500 | 1 |
| Sunday | 8339 | 1330-1615 | 2 |

Sunday 8343 2320-0200 1

A qualified Signaller must be on duty whilst cars are stabled on Nos 1 or 2 tracks and no other passenger train can be scheduled to run through Wodonga when this occurs. (SW 467/95, WN 47/95)

10.10.1995

Bungaree Loop - Ballarat

Commencing 10.10.95 the following procedures must be adopted when signalling trains within the Ballarat station area and Bungaree Loop.

Bungaree Loop

The restriction on crossing trains at Bungaree Loop is cancelled, however running crosses are not permitted. The authority of the Superintendent Safeworking must be obtained before a Caution Order can be issued for either of the Down Home Departure Signals at Bungaree Loop.

Ballarat

All Up and Down trains operating between Lydiard Street and the overbridge at Queen Street (to the east of the loco depot) must be checked at each signal. All signals for the route must be cleared simultaneously. Parallel signalled moves are not permitted to occur between Signals 50 and 52 at Ballarat East and Signals 16, 18, and 20 at Ballarat.

These arrangements are necessary until circuit alterations are implemented between Ballarat and Bungaree Loop. (SW 475/95, WN 42/95)

15.10.1995

Tottenham 'B'

From Sunday, 15.10.95, Tottenham 'B' box will be open continuously. Amend page 17 MTP General Instructions and page A9 of the Metro WTT Appendix. (O 1200/95, WN 41/95)

17.10.1995

Box Hill

The signalbox hours will be

Monday to SaturdayFrom 0450 hours Monday to 0050 hours Sunday
Sundays0750 hours to 0005 hours Monday

Amend page A10 Metro WTT Appendix. (O 1199/95, WN 41/95)

20.10.1995

Ferntree Gully

On Friday, 20.10.95, traffic light co-ordination was commissioned at Alpine Street. (SW 473/95, WN 42/95)

20.10.1995

Somerville

On Friday, 20.10.95, the Up Home Signal (E) was electrically lit. (SW 470/95, WN 42/95)

SAFEWORKING ON THE ZIG ZAG RAILWAY

David Donald

As a result of the requirements of the *Rail Safety Act*, and especially the need to become accredited under the provisions of the Act, the Zig Zag Railway came to the realisation that there were many new obligations that it now faced. These included the formalisation and documentation of many policies, practices, and procedures which the Railway had hitherto used in what could be regarded as an ad hoc way. One of these practices and procedures was the system of safeworking used on the Railway.

The Zig Zag Railway (ZZR) is a tourist railway operating over some seven and a half kilometres of the former "Great Lithgow Zig Railway" a few kilometres to the east of Lithgow in New South Wales. The Lithgow Zig Zag was built and operated by the NSW railways for over forty years until it was replaced by the "ten tunnels" deviation in 1910. The Zig Zag Railway commenced operations over a section of the Lithgow Zig Zag in the mid-1970's, and today operates from a station at Clarence over the former Top and Middle Roads of "the Great Zig Zag" to "Bottom Points" where the locomotive depot, maintenance facility, members' facilities and quarters are located. The former Bottom Road is still in use by State Rail and an interchange is located at the Bottom Points. The line includes the Clarence Tunnel and a turnback facility at what is called "Top Points". Unlike its "big brother" which operates on standard gauge (1435 mm), the ZZR operates on narrow gauge (1067 mm). As a result, the rolling stock in use by the ZZR tends to come from Queensland, Tasmania, and the former narrow gauge sections of SAR, with equipment (locomotives and carriages) from Queensland tending to dominate. There is also some equipment from New Zealand, and certain narrow gauge segments operated by BHP.

I have been involved in the operational side of the ZZR for the last three years or so, and it has always been the ZZR's practice to use a modification of the NSW "Ordinary Train Staff & Ticket" system of safeworking. With the introduction of the *Rail Safety Act*, and the need for all railway owners and operators to be accredited under the provisions of the Act, the ZZR has found it necessary to formalise all the practices and procedures that had hitherto been used successfully. This not only included the pure safeworking and operational side of its activities, but extended right throughout all facets of the railway, its activities and operations. All these practices and procedures have been embodied in a document called the "Operations Manual" which is issued to all operational personnel. The manual contains information, rules, regulations, and procedures relating to operational matters, including training and qualifications of operational personnel, safeworking procedures, duties of the various types of operational personnel, and incident reporting, and discipline. It should be noted that all operational personnel (and that includes such people as locomotive drivers, firemen, guards, signalmen, station masters, station assistants, shunters, worksite supervisors, and those qualified to drive other types of track vehicles) must be qualified in safeworking; their degree of competency and knowledge being dependent

upon the position(s) they occupy. These qualifications need to be "regained" or "refreshed" about every two years, in accordance with the dictates of the "Manual". In this article, I want to look primarily at the safeworking rules and regulations, and at the incident reporting procedures.

As I said above, the ZZR uses a modification of the NSW "Ordinary Train Staff & Ticket" system of safeworking. There are currently only two staff sections on the ZZR, being Bottom Points to Top Points and Top Points to Clarence (with an intermediate siding at Edgecombe in this latter section). Naturally, the whole purpose of any safeworking system, including OTS&T, is to "prevent any possibility of opposing train or track vehicle movements while allowing one or more following movements in the same direction". All the normal requirements arise, with the Driver of the train or track vehicle needing to be in the possession of either the Ordinary Train Staff for the section, a Train Staff Ticket for the section, or a special authority, before entering the section. On the ZZR, the section from Bottom Points to Top Points is under the control of a Round OTS, with red Tickets and red Staff box (with a round-shaped medallion on the front of the box), whilst the section from Top Points to Clarence is under the control of a Heart OTS, with green Tickets, and green box (with heart-shaped medallion on the front of the box). The staff equipment in use is virtually identical to that used by State Rail, except that the Tickets are specifically printed to indicate not only the section to which they apply but the direction of travel within that section. For example, the Tickets at Bottom Points will indicate to the crew that they can travel from Bottom Points to Top Points, whilst those at Top Points (for the section back to Bottom Points) are printed to apply to travel from Top Points to Bottom Points. Under normal operations (such as the standard weekend train services), it is permissible for the locomotive to carry both Ordinary Train Staffs for the complete day, unless there is an intention to have other movements sometime during the day. The ZZR does have two-way radios, and its own licensed frequency, but it is not normal for these devices to be used. This is mainly due to the terrain through which the ZZR operates, but also because of the perceived lack of necessity for such additional protection. The radios are used when deemed appropriate (such as during track maintenance activities or when there are special trains operating which require additional communications to be maintained).

The Ordinary Train Staff & Ticket working is similar to the State Rail system and so I will not describe it in detail, but the ZZR does differ in several ways, these including:

- the provision of standard Time Interval working, with a time interval of ten minutes being permitted for Middle Road movements, and fifteen minutes for Top Road movements. There are instances where five minutes are allowed, but this is only under specified situations;

- double-heading, or the provision of rear assistance, is allowed, and special arrangements exist for the carrying of the Staff and Ticket; and
- the procedures for emergency working

As with most rail systems, the ZZR had to determine an emergency or special form of safeworking, such as the SAO arrangements under State Rail, and ZZR developed what is now called SAF's (Safeworking Advice Forms). This particular segment of the overall safeworking system occupies the greater part of the safeworking procedures, since SAFs are used for all manner of purposes and under all manner of circumstances; especially when special working is involved, track maintenance being undertaken, or the standard OTS&T system fails in some way, or is deemed inoperable. Amongst the various uses of this special arrangement are:

- a) for the granting of permission for a train or track vehicle to enter a section when the Train Staff is at the other end of the section. This is an emergency situation where, for some reason, there is a need to allow a train or track vehicle into the section without the Train Staff. This might be due to train failure or an injury suffered to a crew member or passenger.
- b) as a substitute for a Train Staff Ticket if the Train Staff Ticket book is full, and no replacement book has yet been placed in the appropriate location. This is very rare, since every effort is made to ensure that there is always a replacement book available for use prior to the book in use being fully exhausted.
- c) the provision of information to train crews if a section is closed, and thus indicates to crews that trains are not to enter the section, except as directed; an example of this situation is where a bushfire is in the vicinity of the track, and there is a need to either get firefighting equipment into the area or it would be dangerous for standard operations to continue - the SAF is used to deny access to the section, except under the officer controlling activities over the affected section;
- d) the provision of information to crews about track maintenance, the location of worksites, the work being undertaken etc, as well as denying access to a particular section if the work being undertaken completely blocks the section (i.e. absolute possession of the section);
- e) the provision of information in the event that a train or track vehicle fails or divides within a section, and the seeking of assistance from other trains or track vehicles; there are various scenarios that could occur under such circumstances, but the SAF is used all under these different scenarios;
- f) as the equivalent of a Train Staff Ticket under Pilot working (used when the Train Staff is lost), and it is then known as a Pilot Caution Ticket;
- g) to provide information if the limits of a section need to be redefined for some reason; and
- h) for various other instances where information or special working is involved.

In the discussion about the use of Safeworking Advice Forms above, I have indicated a number of circumstances that are quite common on any railway,

and thus situations with the ZZR has had to come to grips. Some of these particular instances include:

1. where the Train Staff for the section is lost (such as falling off the locomotive) during normal operations. The procedures allow for a search to be conducted for a limited amount of time, but thereafter pilot working is introduced until either the Staff is located or alternate arrangements made;
2. the Train Staff Ticket book is full, and no other replacement book is available - this is a slightly unusual situation, but in the ZZR's case it has been decided that SAFs can be used as a substitute until such time that a replacement book is made available at the applicable location, and that should be as soon as possible;
3. the various scenarios where it is necessary to put a second train or track vehicle into the section without the Train Staff, either because the Staff is at the other end of the section (which was previously covered by the issuing of Line Clear Reports, and now SAOs, under the NSW OTS&T Rules and Regulations) or due to some other emergency situation (such as train failure or disablement, the train dividing in the section and the need to get assistance in some form, or the need to transport an injured person from the scene of an accident or other incident to a location where first aid etc can be obtained) - all these situations are covered under different sections of the procedures, with the issuance of Safeworking Advice Forms being the primary method of achieving the ends required;
4. situations where a section has to be closed, either fully or partially, due to some emergency or track maintenance activities - again all these situations have a particular section in the procedures, and once again the Safeworking Advice Form is the primary method used to solve the problem; and
5. a number of other issues that can arise under normal train operations, irrespective of the nature of the operations.

That is a brief description of the safeworking system in use on the ZZR. There is nothing terribly complicated by the system, with it being a simple modification of the NSW Ordinary Train Staff & Ticket system, supplemented by the issuing of Safeworking Advice Forms for special or emergency situations. All operational employees and volunteers, including those involved in track maintenance, have to be qualified in these procedures, the extent of those qualifications depending upon the positions they hold, and the ZZR has to ensure that to continue to meets its obligations under the Act, and thus its accreditation, that a constant programme of training, education, and re-qualification does occur.

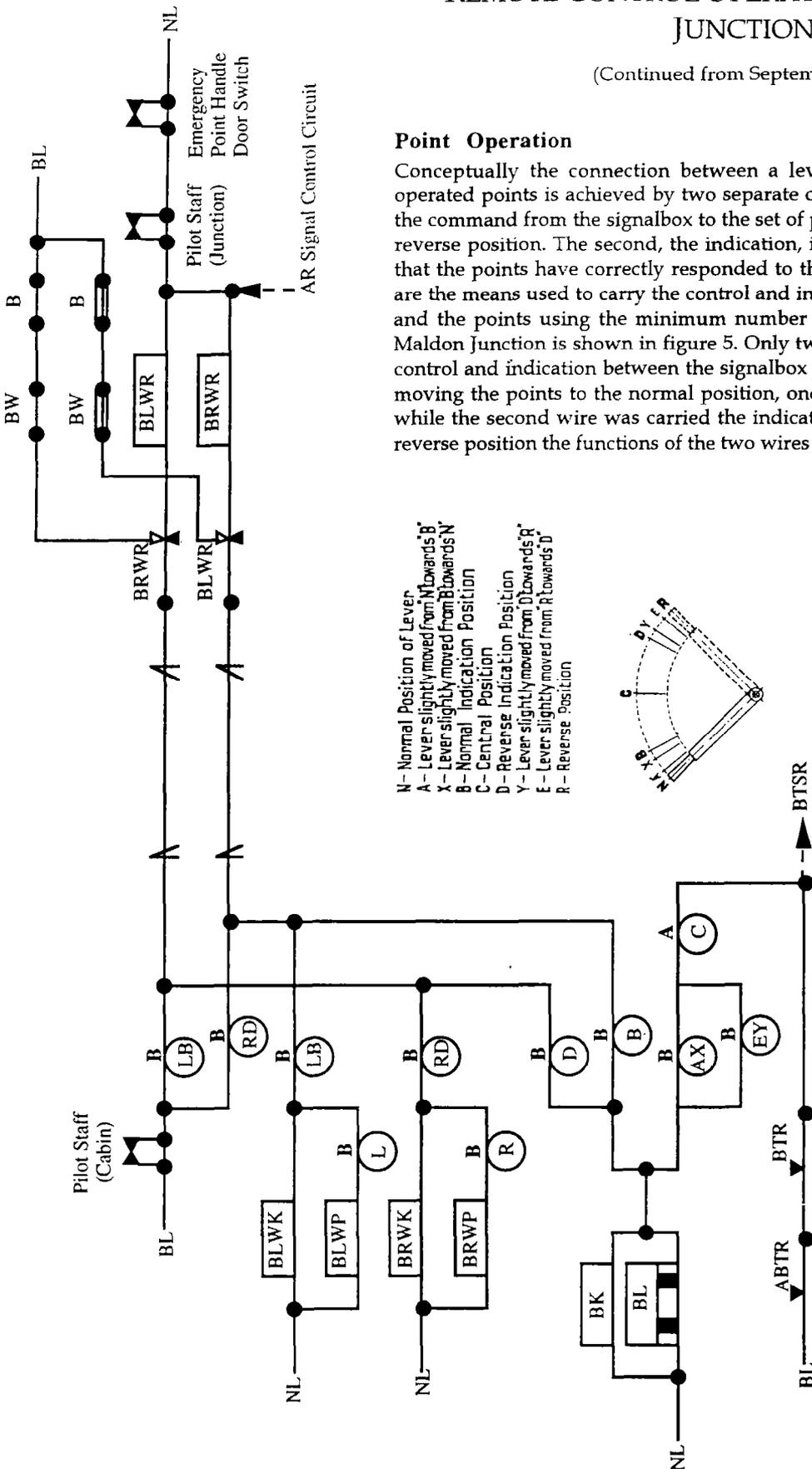
At the beginning of this article, I mentioned a publication called the "Operations Manual", which is the document containing all the relevant information pertaining to operational matters, and which is supplied to all operational personnel for their use, with certain section required to be learnt for training and the purposes of obtaining the required qualification.

REMOTE CONTROL OPERATION OF MALDON JUNCTION

(Continued from September 1995)

Point Operation

Conceptually the connection between a lever frame and a set of motor operated points is achieved by two separate circuits. The first, the control, is the command from the signalbox to the set of points to move to the normal or reverse position. The second, the indication, is the response from the points that the points have correctly responded to the command. Many and varied are the means used to carry the control and indication between the signalbox and the points using the minimum number of wires. The method used at Maldon Junction is shown in figure 5. Only two wires were used to carry the control and indication between the signalbox and the remote location. When moving the points to the normal position, one wire was used as the control, while the second wire was carried the indication. To move the points to the reverse position the functions of the two wires was reversed.



- N - Normal Position of Lever
- A - Lever slightly moved from M towards B
- X - Lever slightly moved from B towards N
- B - Normal Indication Position
- C - Central Position
- D - Reverse Indication Position
- Y - Lever slightly moved from D towards R
- E - Lever slightly moved from R towards D
- R - Reverse Position

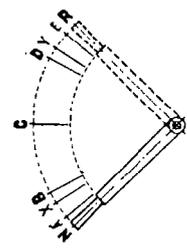


Figure 5 shows the circuits which transmitted the control and indication between the signalbox and Maldon Junction. To reverse the points for the Maldon line the Signaller moved lever B from the central position to the D position. Further movement to the full R position was prevented by the lever lock BL. However, movement to the D position was sufficient to energise relay BRWR (B Reverse Point Relay). Current flowed from the Signalbox box bus, through contacts in the Cabin Pilot Staff box, RD contacts on lever B, to the line wire. This ran to the relay cabinet at the junction, where the current passed through a back contact of relay BLWR, the coils of BRWR, contacts of the Junction Pilot Staff box, and contacts on the door of the Emergency Point Handle Box, to common.

Energising relay BRWR started the point motor (see figure 6). Current flowed from BL through front contact of BTR, the front contact of BRWR, the armature of the point motor, the back contact of BLWR, the point and lock detector BW, the field coils of the point motor, and finally through contacts on the Junction Pilot Staff Box

Figure 5. The control and indication circuits for Points B at Maldon Junction. The equipment at the top of the page, including relays BLWR and BRWR was located at Maldon Junction. The equipment at the bottom of the page at Castlemaine 'A' Box, mainly in the unit interlocker. Only two line wires were required to transmit the control and indication between the signalbox and the remote location. The inset shows the positions of the point lever.

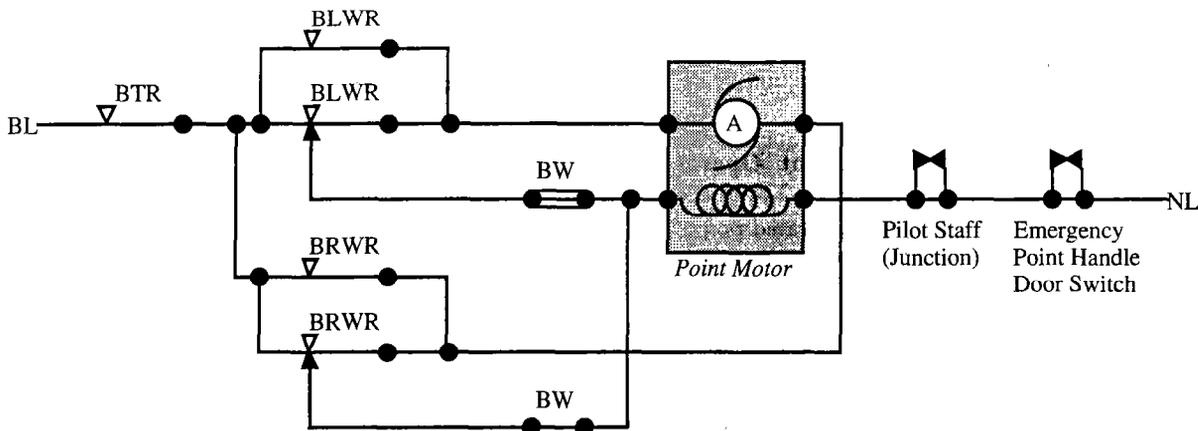


Figure 6. The point operation circuit. This circuit supplies power to operate the point motor at the junction points at Maldon Junction. The direction of the current through the field coils of the point motor determines its direction and this is controlled by the position of relays BLWR and BRWR. All this equipment was located at Maldon Junction.

and the Emergency Point Handle Box. Contact BW remained closed until the points were fully reversed and the point lock in. It then opened and power to the motor was cut. Separation of the motor operation circuit from the control circuit meant that the heavy current required to operate the point motor did not have to travel through the light control wire.

With the points fully reversed and locked, the indication could be sent back to the Signalbox. Returning to figure 5, current flowed from BL at the Junction, through the reverse contacts B (detecting the points lock in), BW (detecting the points reverse), the front contact of BRWR, and back to the Signalbox via the second line wire. Here the current divided. One branch went through an RD contact on lever B to energise BRWK (B Reverse Point Indicator). This changed the bottom right indicator on the Table Interlocker from blank to show 'Points Reverse'. Figure 7 shows the labelling on the three indications fitted to Lever B.

The second branch went through a D contact on Lever B and energised BL (the electric lock on lever B preventing movement beyond the D position) and BK (B Indicator). The last changed the top left indicator from 'Lever Locked' to 'Lever Free'.

This indicated to the Signaller that the lever could be moved to the R position. This movement cut off current to BL and BK, causing the indicator to fall back to 'Lever Locked' and locked the lever in the R position. Current continued to flow through BRWK, and movement of the lever to the full R position also energised BRWP (B Reverse Point Repeat Relay).

To restore the point lever to the C position, the lever was first moved to the E position. Provided the signal lever (A) was in the central position and no trains were on the track circuits over the points, BK and BL were energised from BL through the front contacts of ABTR and BTR, a C contact on lever A, and the EY contact on lever B. This unlocked the lever which could then be moved to the C position. This cut the current to relay BRWR which, in turn, cut the indication current. Everything is restored to normal, though it should be noted that the points remained set and locked reverse.

Movement of the points to the normal position was exactly analogous to the operation to the reverse position already described. The lever was moved to the

B position, energising relay BLWR to connect the circuit in the point motor. When the points were set and locked normal, the indication current energised BLWK, BK, and BL, whereupon the Signaller moved the lever to the full L position which dropped BK and BL and picked up BLWP. It is interesting to trace the current through the point motor circuit when BLWR was energised: from BL through the front contact of BTR, the front contact of BLWR, the armature of the point motor, the back contact of BRWR, the point and lock detector BW, the field coils, and the emergency contacts to common. Note that the direction of the current through the armature was reversed, while that through the field coils remains the same.

There are several interesting points to note about the circuits.

First, the operation of the emergency cutouts. Removal of the Pilot Staff at either end of the section broke down the circuit to energise the Point Relays (BLWR and BRWR). This prevented any movement of the points while pilot working was in force. Removal of the Pilot Staff at the junction also broke down the circuit driving the point motor and absolutely prevented operation of the points. Ideally, the Cabin Pilot Staff would have been included in this circuit, but the additional expense would hardly have justified the minor improvement in safety. Point operation during a failure was by a hand crank which was normally secured in a cabinet at Maldon Junction. To prevent injury to staff winding the points over by hand, it was important to break down the electrical operation of the points when hand operation was being used. This was

Continued on Page 116

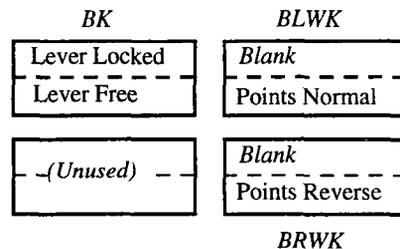
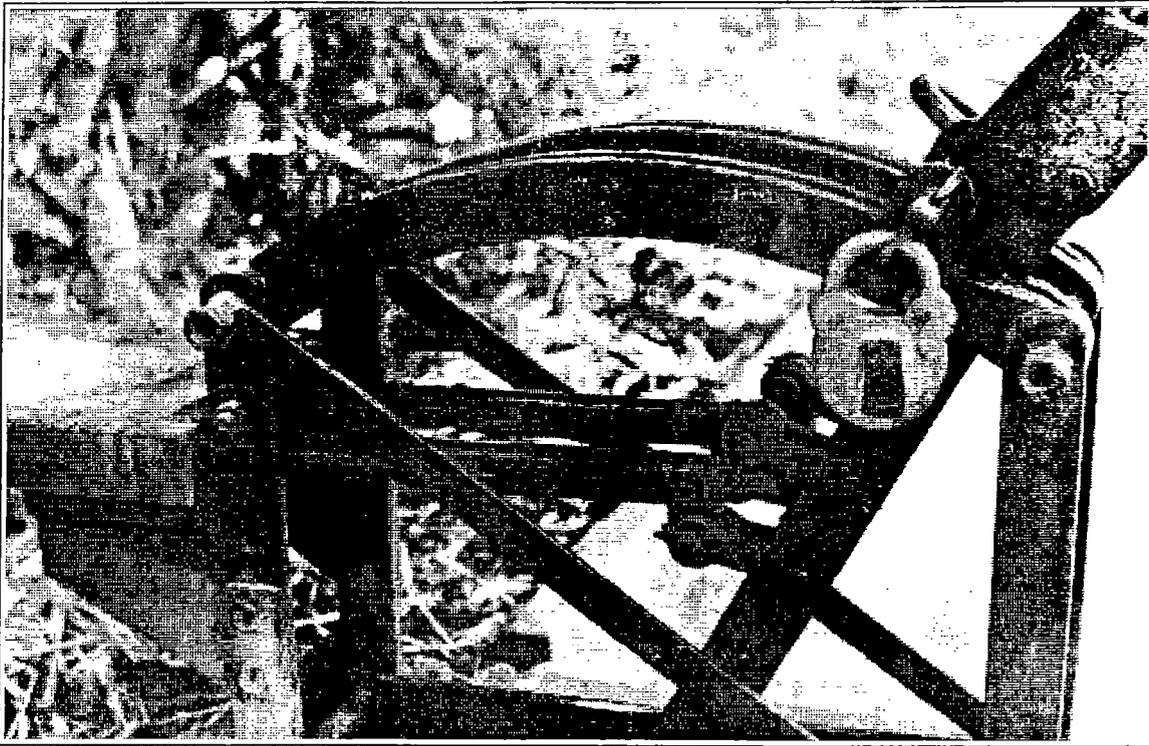


Figure 7. The lettering on the four indication screens fitted to Lever B. One screen was not used. The upper indication for each indicator was shown if the controlling relay was de-energised. The lower indication was shown if the relay was energised.

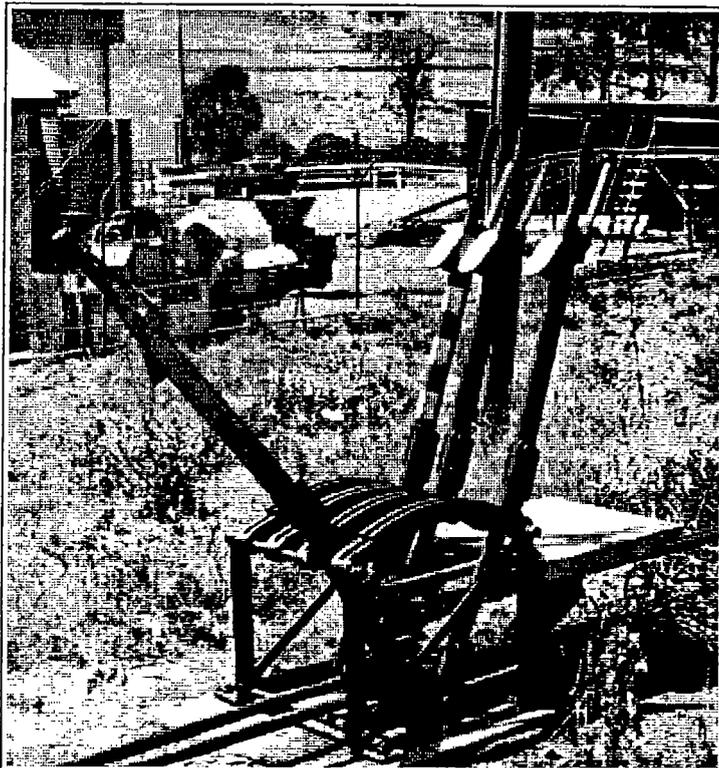
BRETTELL DUPLEX TAPPET FRAMES IN QUEENSLAND

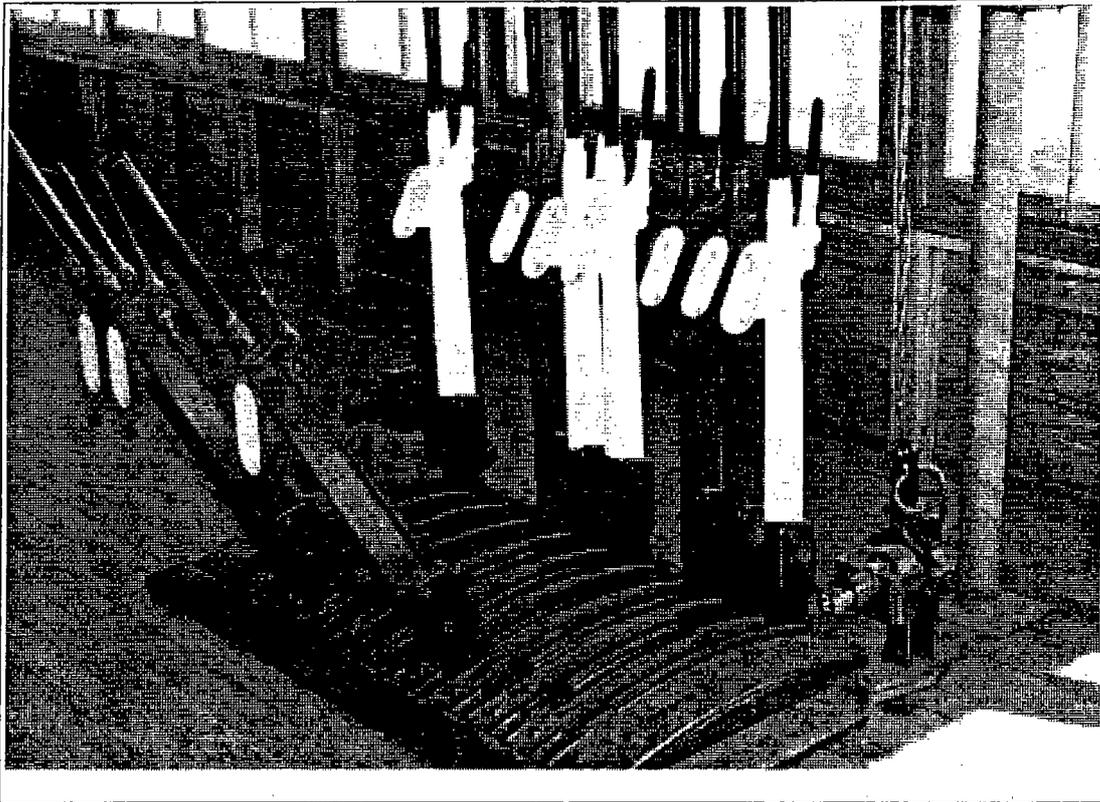


One of the problems with designing a tappet frame is the problem of the travel of the tappets. If a tappet is directly attached to the lever, it could move more than a foot as the lever moves from normal to reverse. Any notches in the tappets move the same distance and this is far greater than the distance between the locking troughs. This means that as the lever is moved, a notch in the tappet may pass several locks and leads to the possibility of the locking being incorrectly freed. The common solution to this problem was to adopt some mechanism to reduce the travel of the tappet. The "A" pattern frame used in Victoria used a cam. An alternative using two tappets was patented by J.D. Brettell in 1908. Frames using this locking were built by McKenzie and Holland and were popular in Queensland. The top photo shows the detail of Brettell Duplex Locking on a standard Queensland ground frame with two levers. As can be seen, each lever has two tappets. To quote [SSG] "Both the tappet irons are worked direct from the lever, because they are attached at

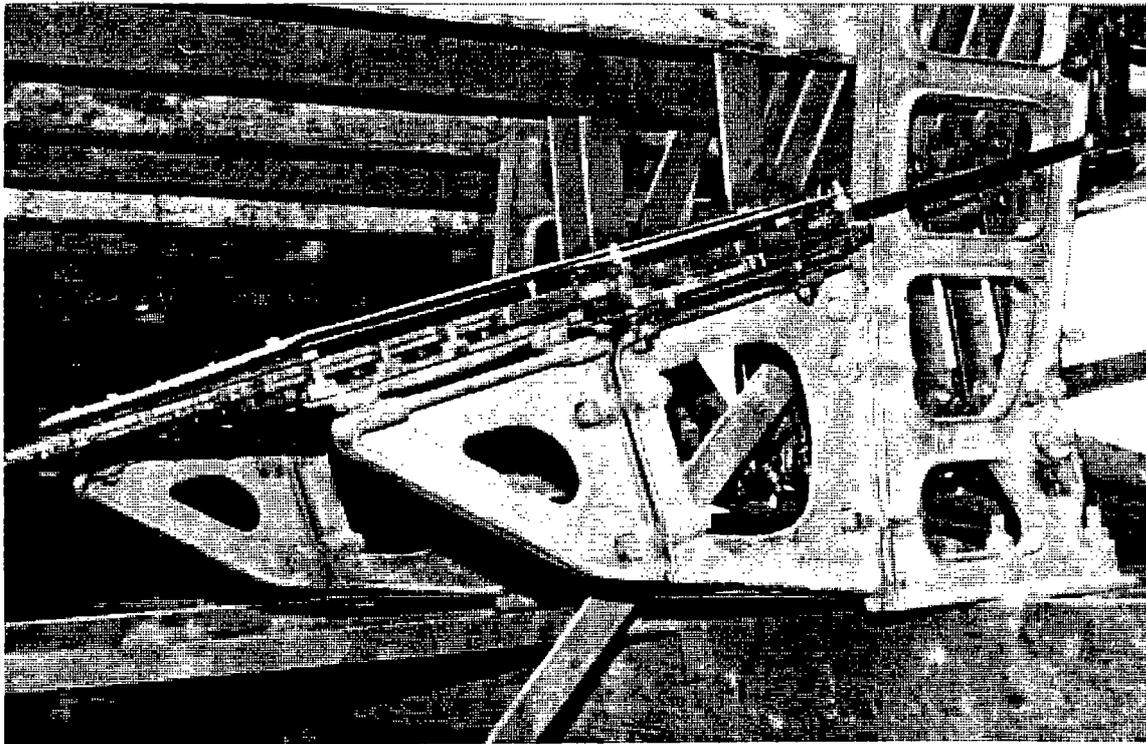
different distances from the lever fulcrum, they have different travels and the notches in both tappets coincide only when the lever is in the normal or reverse position." The two tappets, with their separate attachments to the lever, can be seen in the photograph. A set of notches for a normal lock can be seen cut in the tappets for both lever. On the nearer lever, these are just to the right and left of the diagonal bar.

The second photo (left) is an overall view of a standard Queensland ground frame, this time of four levers. This frame is equipped with Brettell pattern locking, with the locking box at the rear. These ground frames were constructed out of steel bars and pins and consequently looked much less solid than ground frames elsewhere with their cast iron standards and floor plates. This frame worked the connections to the meat plant at Willowburn.





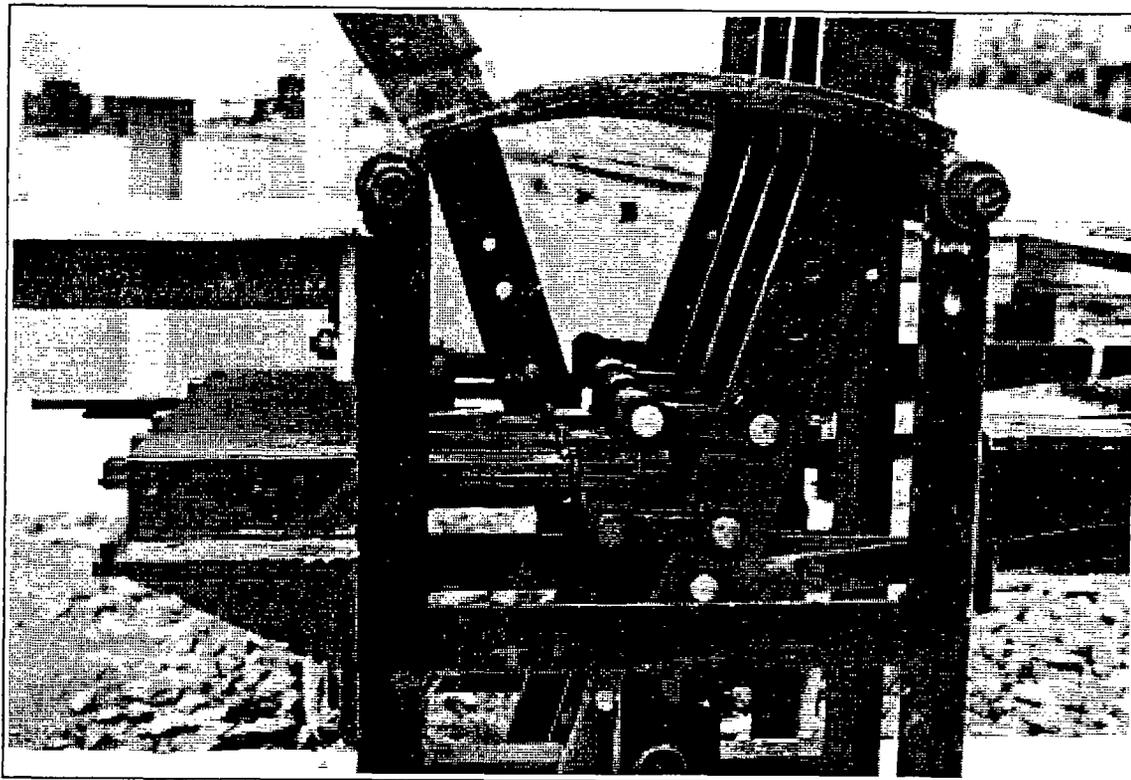
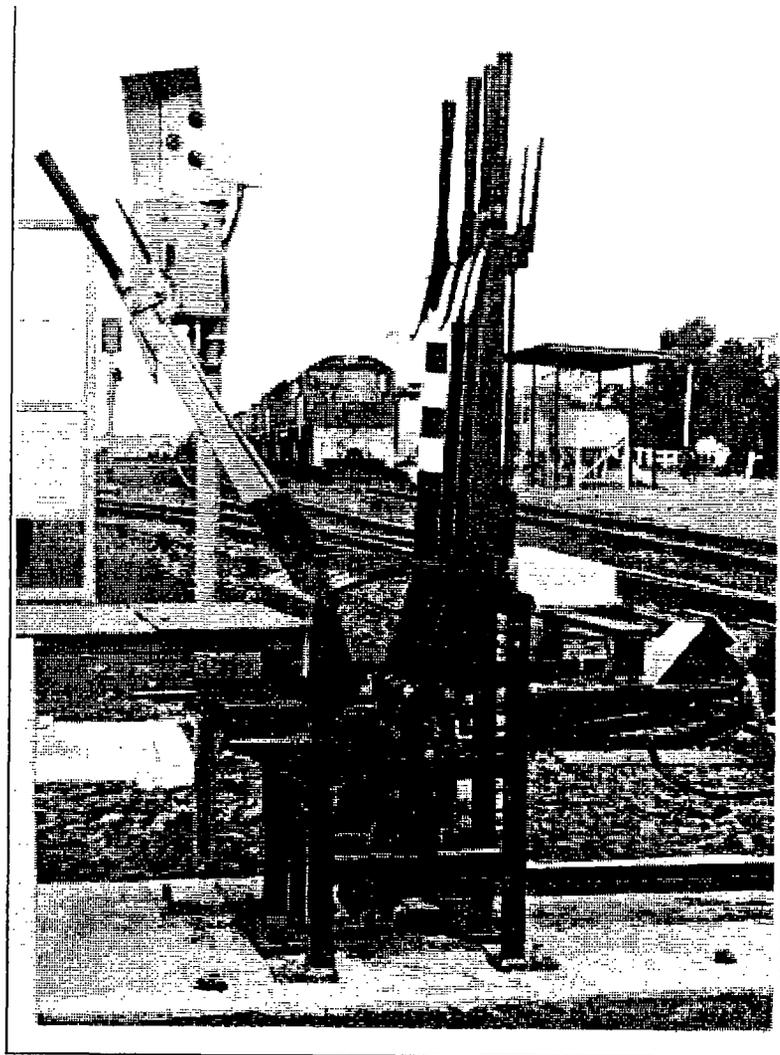
Full size frames using Brettell Duplex locking were known as McKenzie and Holland No 21 pattern frames. These two photographs show the 10 lever frame at Chinchilla (to the west of Toowoomba). This small frame only works the signals, although the much larger elevated cabin suggests that it was once planned to interlock the entire yard. The small stands at each end of the frame are the equivalent of Annett Locks; the keys operate outlying points. These are interlocked with the signal levers using the a vertical slide which can be seen, on the lower photo to operate a separate tappet via a bell crank. The connections between two tappets and Lever 10 can be seen through the hole in the standard.



Just to show that Brettell Duplex Locking is not yet finished in Queensland, this pair of photographs shows the ground frame at Grandchester which had been installed for the then brand new CTC installation. The photo to the left shows the complete ground frame. The boxes behind the levers are circuit controllers and lever locks. The lower view shows the detail of the Brettell Duplex locking. One lever is reversed, and the difference in travel in the two tappets can be seen on the left. The train in the background is waiting for the Down Indlander

References: [SSG] "A Guide to Mechanical Locking Frames" by the Signalling Study Group.

All photographs taken in October 1991 by Andrew Waugh.



SAFEWORKING ON THE ZIG ZAG RAILWAY

(Continued from Page 110)

Amongst the other items contained in the document, of a safeworking or safe operational nature are:

- a) descriptions of all the hand signals used on the Railway, including the light or torch equivalents of these hand signals;
- b) descriptions of all the flag signals used, again with their light or torch equivalents;
- c) trackside signs;
- d) the Westinghouse brake system;
- e) track locations; and
- f) shunting procedures.

The other segment that needs to be considered, and this does partially fall within the realm of safeworking, is the whole question of reporting procedures, especially in relation to reportable incidents and incidents that have to be notified to the Dept of Transport under the Rail safety Act. In a previous article, I made mention of the requirements of the Act in this regard, and obviously each railway has had to translate the requirements of the Act into their situation. In the case of the ZZR, a full incident reporting system was developed for all incidents, irrespective of whether they need to be reported under the Act or not. With the Act really being a self-regulation arrangement, it was felt that it was better to maintain records in relation to all incidents that might arise, irrespective of their nature or severity, since this would ensure that the safest railway possible was maintained. These records also provide

information for training needs, both individual and general, as well as rolling stock repairs and maintenance. As a result, every driver or employee/volunteer member involved in any incident, and deemed to be the person at fault, must ensure that they complete the necessary documentation (being the ZZR's own internal incident reporting documents) prior to them leaving the site on the date of occurrence of the incident, if possible. It is then the responsibility of the ZZR's management to determine if the incident falls under the provision of the Act and to determine the necessity for further action. The actions taken might be further investigation and/or inquiry, formal investigation, disciplinary action against those involved, training needs, assessment or re-assessment of competency, and so on. Under the Act, it becomes the responsibility of the railway to undertake this incident reporting and investigation internally, unless the incident was of such a nature that other parties (such as the police, WorkCover etc) need to be involved. The continued accreditation of the railway will depend, to some extent, on the policies and procedures that railway have in this regard, their compliance with their own procedures, and the effectiveness of the manner in which they comply with these procedures.

I trust that the foregoing material will provide a brief insight into some of the safeworking and associated procedures used on the Zig Zag Railway.

REMOTE CONTROL OPERATION OF MALDON JUNCTION

(Continued from Page 112)

not done by contacts on the point handle, but by contacts on the door of the cabinet. When the cabinet was opened contacts were opened which separately broke down the control of relays BLWR and BRWR and the point motor circuit itself.

Occasionally a set of points will be prevented from completing their stroke. The traditional example in British signalling books is a build-up of snow, but ballast being jammed between the blade and the stock rail is more likely in Australia. To prevent a total failure of the points when this occurs, it is important that the Signaller be able to reverse the points at any time during their stroke. If the Signaller does not get the indication from a set of points within a reasonable

amount of time, the Signaller can reverse the points and restore them to their original position. A second attempt can then be made. At Maldon Junction this was achieved by the two point detectors (BW) in the point motor circuit. As mentioned previously, these only opened when the points are set fully normal or reverse and locked. Consequently, during the stroke of the points, both detectors were closed. The direction of the current was directly controlled by the BLWR and BRWR relays. The Signaller could consequently reverse the direction of the points at any time during the point movement by moving the lever from B to the D position or vice versa.