

SOMERSAULT

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SIGNALLING RECORD SOCIETY OF VICTORIA INC



The double wire frame and block instrument in the signalbox at the railway museum in Utrecht, the Netherlands. Like most of northern Europe, the frame and block instruments were based on equipment originally supplied by the German Siemens company, though manufactured in the Netherlands. The double wire frame pictured here differs significantly from the McKenzie and Holland double wire frames used in Victoria. Among the more minor oddities is that the levers are normally down and are reversed by bringing them to the vertical position. The interlocking is effected by the small handles at the front of the flat box immediately above the double wire levers. Operation of these handles release the double wire levers. The Netherlands uses a modified form of the Siemens-Halske Lock and Block system and the instrument is the large verticle box at this end of the frame.

Photo: Andrew Waugh

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MINUTES OF MEETING HELD FRIDAY SEPTEMBER 19, 1997.

- Present:-** A.Jungwirth, W.Brook, J.Churchward, G.Cumming, P.Gerandt, M.Guiney, W.Johnston, K.Lambert, D.Langley, B.McCurry, J.McLean, R.Murray, L.Savage, P.Silva & R.Smith.
- Apologies:-** G.O'Flynn & R.Whitehead.
- Visitor:-** C.Stephens.
- The President, Mr. Alan Jungwirth, took the chair and opened the meeting @ 2017 hrs.
- Minutes of the July 1997 Meeting:- Accepted as read. J.McLean / D.Langley. Carried.
- Matters Arising:-** Glenn Cumming sought further information concerning the item about the Annett Key from the Great Southern Railway. It is believed that the key has been stolen, but apart from that nothing further is known.
- Correspondence:-** A letter has been received from the estate agent agreeing to the alteration to the lease of the Archives Room at Seymour.
- Jack McLean has received from Peter Kay a copy of S.R.S.U.K. Research Note No.8 - List of General Appendices. A copy will be made available to interested persons.
- P.Silva / W.Johnston.
- General Business:-** Glenn Cumming reported on the recent successful Upfield Line tour.
- Glenn Cumming spoke about arrangements for the forth coming signal box tour on Melbourne Cup Day to Kyneton, Bendigo, Castlemaine, Maryborough & Ballarat.
- Peter Silva spoke about the possibility of a joint tour with the R.T.A. travelling on the Upfield Line transfer train. Further details as they come to hand.
- Jack McLean advised that the Church ceases business on February 8, 1998. The status of the hall is yet to be determined.
- The meeting was advised that Lal Lal had not been abolished and will be retained for the time being.
- Bill Johnston spoke about the re - signalling at Williamstown. Double line block has been abolished & replaced by three position automatic signalling. All semaphore signals on the Williamstown line have been removed. Searchlight signal mechanisms have been retained on some signals.
- Bill Johnston described the very large reflectorised sign with DICE codes at Manor Loop.
- It was reported that Maroona is still manned for train working purposes.
- Bill Johnston noted that North Melbourne Junction signal box is now covered in graffiti.
- Laurie Savage described the DICE boards at Maryborough & asked about DICE boards at other locations.
- Bill Johnston described the arrangements at Newport where there is a location board & a repeating signal for Up trains on the SG line.
- David Langley noted that SG trains changed from miniature electric staff to Section Authority Working at Newport and asked why similar arrangements were not in use at Pyrenees Loop.
- Discussion took place noting what was required for an interface between the CTC & SAW at Pyrenees Loop. At Newport the interface is a man & a written procedure.
- It was reported that Section Authority Working is to be introduced between Maryborough & Donald shortly.
- Discussion took place on recent works at Flinders Street & impending works.
- Reports were received on the progress of the new electric train stabling sidings at Burnley, Westall, Camberwell & Bayswater.
- Keith Lambert advised that the Through Siding at Oakleigh is to be removed shortly.

The new points for Flinders Street Yard are being constructed on concrete sleepers. How do you spike points out of use when they use concrete sleepers ?

A discussion took place on the Stop board arrangements in Melbourne Yard.

An update was received on Riggs Creek Loop & Bowser Loop.

Keith Lambert reported that Gowrie would be closed as a staff station next weekend.

Syllabus Item:- The President introduced member Roderick B. Smith who presented the annual screening of slides from the collection of the late Stephen McLean.

At the conclusion of the syllabus item, The President thanked Roderick for the entertainment and this was followed by acclamation from those present.

Meeting closed @ 2217 hrs.

The next meeting will be on Friday 21 November, 1997 at the Uniting Church Hall, Hotham Street, Mont Albert, commencing at 2000 hours (8.00 pm).

SIGNALLING ALTERATIONS

The following alterations were published in WN 30/97 to WN 39/97. The alterations have been edited to conserve space. Dates in parenthesis are the dates of the Weekly Notice.

- 30.04.1997 **Newmarket**
 The Up Automatic signal E.188 (at the Up end of the platform) was converted to a Home signal on Wednesday, 30.4.97, and renumbered Post 36. The Home signal is worked by lever 36 at Newmarket. An illuminated letter 'A' is provided, but will only be illuminated when the track circuit ahead of the signal is occupied whilst the Newmarket Panel is switched out. A Low Speed Light has not been provided. Whilst the Upfield bus connection is operating, Home 36 is to be held at Stop until the OiC at Newmarket indicates that platform work has been completed. Newmarket Panel will be switched in (Monday - Friday) from the 0549 Up Departure until the 1920 Up Departure and (Saturday) from the 0551 Up Departure until the 1921 Up Departure. (SW 135/97, WN 34/97)
- 24.07.1997 **Toolamba Junction**
 On Thursday, 24.7.97, the Miniature Master Key Lock on the junction points was replaced with a Large Master Key Lock. Miniature Master Keys 50 & 51 (for use at Toolamba Junction) were withdrawn. A Signaller must be in attendance at Toolamba for all movements to and from the Echuca line. (SW 251/97, WN 30/97)
- 29.07.1997 **Avenel**
 On Tuesday, 29.7.97, Nos 2 and 3 Tracks were abolished. Points 10 and 26 were secured reverse (to No 1 Track). Homes 3, 4, 32, and 33 (applying to and from No 1 Track) were secured at 'Proceed'. Homes 5, 6, 30, & 31 (applying to and from No 2 Track) were secured at 'Stop'. Avenel will no longer be available to cross trains. Points 12 & 25 were abolished. Plunger 11 was abolished. Disc 7 (Post 2) and Disc 29 (Post 14) were abolished. Posts 3 (Disc 8), 5 (Disc 15), 7 (Disc 14), and 9 (Disc 23) were abolished. Levers 7, 8, 11, 12, 14, 15, 23, 25, 29 were sleeved normal. Levers 9, 10, 26, 27 was sleeved reverse. Closing Lever 20 was sleeved reverse. Amend Diagram 18/91. (SW 254/97, WN 30/97)
- 01.08.1997 **Flinders Street**
 From Monday, 1.8.97, the existing connections between Burnley Local lines and the Caulfield Sidings were replaced by new connections further out from the platforms. Points 246 (Up/Down Burnley Local near Platform 4), Points 244 & Catch 244 (Caulfield Sidings to Up Burnley Local), and Crossovers 247 and 249 (lead from Caulfield Sidings towards Platforms 2 and 3) were spiked normal. Points 236 (Platforms 2 and 3 to Down Burnley Local) will remain in use. Homes 343 and 347 (on Up Burnley Local) were abolished. Up Automatic 289 (on Up Burnley Local) was converted to a Home signal and numbered 347. Up Automatic 291 (on Up Burnley Local) was altered to display Medium Speed Indications. Dwarf 349 (at exit of Caulfield Sidings) was relocated 74 metres in the Down direction. The new connections to the Caulfield Sidings are formed by Crossover 247 between the Down Burnley Local and the Up Burnley Local, and Points 249 between the Up Burnley Local and the Caulfield Sidings. A Derail and Crowder (249) was provided at the exit of the Caulfield Sidings. (SW 297/97, WN 40/97)
- 01.08.1997 **Somerville**
 Commencing Friday, 1.8.97, Signallers will be in attendance:
 Monday - Friday:0900-1700
 Saturday0730-1540

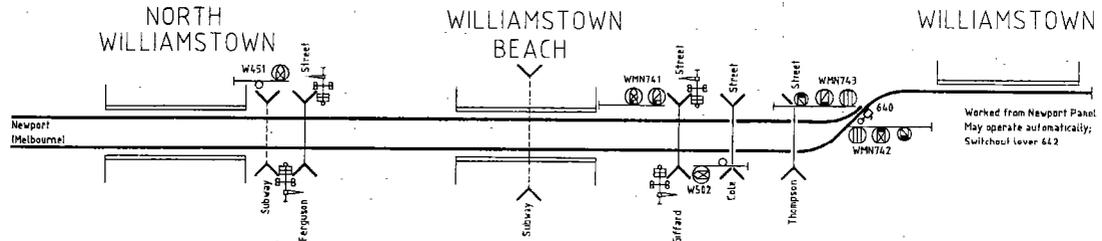
At other times, Somerville will be worked under Driver in Charge conditions. Circular SW 185/97 and memo issued 3.7.97 (Somerville - Authorisation for 'Driver in Charge' conditions) are cancelled.

(SW 261/97, WN 30/97)

03.08.1997

Newport - Williamstown

From Sunday, 3.8.97, control of the points and signals at Williamstown was transferred to the panel at Newport and the panel at Williamstown was abolished. The Double Line Block System between Newport and Williamstown was replaced by Automatic Block Signalling.



Post 66 (Down Starting Signal, Newport) was converted to a Down Automatic signal and numbered W451. Posts 67 (Up Home, North Williamstown), 68 (Down Home, Williamstown Beach), 70 (Up Home Williamstown Beach) and 69 (Down Distant, Williamstown) were abolished. Post 71 (Down Home Williamstown) was converted to a controlled Automatic signal numbered WMN 741. Post 72 (Up Starting, Williamstown) was converted to an Up Automatic signal and numbered W502. Posts 73 (Down Home Williamstown) and 75 (Up Home Williamstown) were converted to three position Homes and renumbered WMN743 and WMN742 respectively. Post telephones were provided at WMN742 and WMN743.

The points and signals at Williamstown will normally operated automatically. The Williamstown portion of the panel need only be switched in when it is necessary to run two consecutive Up or Down trains, or under failure conditions. The switch out lever is 642 and lever 640 operates the points.

The Signaller, Newport, must switch Williamstown in whenever a point or signal failure occurs. The Post phones are recorded and Caution Orders will be issued under the Section 34, Operating Procedure 18. Caution Orders 2377 will be used for both Homes WMN742 and WMN743. Should the points fail, the Driver is to be instructed to place the points into the Hand Operating mode and each Driver is to be instructed as to the required position of the points.

(SW 255/97, WN 35/97)

10.08.1997

Control

From Sunday, 10.08.97, responsibility for all V/Line Train Control functions at Control will be transferred from the PTC to the Victorian Rail Track Corporation (VicTrack)..

(SW 266/97, WN 31/97)

10.08.1997

Seaford

Traffic light co-ordination was commissioned at Seaford Road from Sunday, 10.8.97. (Postponed from an earlier date.)

(TS 736 & 743/97, SW 30 & 31/97)

(12.08.1997)

Platform Departures - Signal at Stop

Whenever the Home signal at the end of a platform is at Stop, the Driver should centre the reverser as a reminder that the signal is at Stop. The reverse should not placed in the forward position until the signal clears.

(WN 30/97)

(12.08.1997)

Flinders Street

The alterations which were to have been made to the Camberwell Sidings on 26.7 & 27.7.97 have been postponed.

(SW 252/97, WN 30/97)

(12.08.1997)

Newport - Williamstown & Altona Junction

Diagram 45/97 replaced 13/97 and 37/88. Diagram shows the situation after the abolition of Williamstown signalbox.

(SW 272/97, WN 30/97)

(12.08.1997)

Seaford

The commissioning of traffic light co-ordination at Seaford Road level crossing has been postponed.

(TS 736/97, WN 30/97)

(12.08.1997)

Ballarat

Diagram 28/97 replaced 14/92. Diagram is as in service and shows the abolition of Warrenheip.

(SW 260/97, WN 30/97)

(12.08.1997)

Gorea

A pedestrian crossing has been provided at 395.456 km.

(SW 256/97, WN 30/97)

(12.08.1997)

Seymour

Diagram 26/97 replaced 32/95. Diagram is as in service.

(SW 259/97, WN 30/97)

(12.08.1997)

Traralgon - Bairnsdale

Master Keys 17 & 18 have been withdrawn. Master Key 16 remains in use.

(SW 258/97, WN 30/97)

- 12.08.1997 **Gowrie**
From Tuesday, 12.8.97, the Back Platform Track was booked out of service. The main line points were spiked and clipped normal. If Homes 68 or 71 fail, verbal authority from the Signaller Gowrie is sufficient to pass the Home at Stop, but the Driver must ensure that the flashing lights are operating when passing Home 68 prior to entering the crossing.
Amend Diagram 23/97. (SW 282/97 & 315/97, WN 32/97 & 35/97)
- 13.08.1997 **Avenel**
From Wednesday, 13.8.97, the signalbox and all remaining signals and points were abolished. The main line was slewed to a new alignment adjacent to the platform.
Points 10 & 26 were abolished. Posts 1, 2, 6, 10, 14, and 15 were abolished.
Diagram 18/91 is cancelled. (SW 267/97, WN 31/97)
- 16.08.1997 **Burnley Underground Loop.**
On Saturday, 16.08.1997, Homes 245, 258 (Parliament), 225, 240 (Melbourne Central), 209, and 218 (Flagstaff) were altered to display 'Normal Speed Warning'. The approach operation on Homes 392, 393 (Parliament), 390, 391 (Melbourne Central) and 389 (Flagstaff) was removed. Note the approach operation of Home 388 (Flagstaff) remains in service. (SW 263/97, WN 31/97)
- 16.08.1997 **Pyrenees Loop - Wolseley**
In conjunction with the resurfacing of the line between Pyrenees Loop and Wolseley from 16.8.97 to 31.10.97, it will not be necessary to provide standard track protection for the resurfacing gang at the end of the section from which the track machines are stabled if the following instructions are complied with.
The Train Controller must operate the Departure Signal for the track machines to depart from the crossing loop. Once the machines are clear of the points and the Train Controller grants permission, the Dual Control Point Machine must be placed in the Hand Operating mode. It must remain in this mode until the track machines arrive back to be stabled. After being restored to Motor Operating mode, the Arrival Signal may be cleared for passage into the loop. The Special Ganger is to notify the Train Controller when all track machines are in clear in the loop. (SW 286/97, WN 33/97)
- 17.08.1997 **Broadmeadows**
From Sunday, 17.8.97, Post 26 (Up Home 4 from No 1 Track to Up line and Up Disc 16 from No 1 Track to Siding A) was replaced by three position Up Home (light) 4. The new signal is operated by the existing levers, and will show a medium speed aspect for movements to the Up line and a Low Speed Caution aspect for movements to Siding A. A train stop was provided at the new signal. Approach locking (of 30 seconds) is provided on the new Up Home. If it is necessary to restore levers 4 or 16 prior to the passage of the train, the levers must be restored to the special notch for 30 seconds, then they can be restored fully normal.
Point detection (U5) is provided on Points 18 and 20, and a lever lock on lever 12 to prevent Points 12 being restored until the train has cleared the points.
Amend Diagrams 14/86 and 7/96. (SW 281/97, WN 35/97)
- 17.08.1997 **Mildura - Driver Responsible for Signalling**
Commencing on Sunday 17.8.97, Driver responsible for Signalling conditions will apply at Mildura for the departure of Train 9142 on Sunday in addition to the arrival of Train 9139 Tuesday - Friday.
In addition to the instructions in SW 582/96 (see Somersault 20/1 page 4), prior to ceasing duty on Sundays, the Signaller must place the A Pattern Annett Key and a Master Key in the special box in the Train Crew Radio Room. All signals must be left at Stop. Upon commencing duty, the Driver of Train 9142 must obtain the Master and Annett Keys and confer with Train Control. After completing any shunting work, the Driver must place the Annett Key in the special box in the Train Crew Radio Room and obtain a Train Order. The points may then be set for the train to depart and Home B (Post 2) cleared from the push button at Points C.
Should Home B fail, the instructions for the failure of Homes on Post 6 must be carried out (see SW 582/96) (SW 279/97, WN 32/97)
- 18.08.1997 **Flemington Bridge - Upfield**
Commencing Monday, 18.8.97, when track, signal, or overhead works are carried out between Fawkner and Upfield, the Train Staffs for the affected sections must be handed to the Supervisor in Charge when the Signaller grants absolute occupation. The Train Staffs are not to be returned until the Absolute Occupation is cancelled.
When it is necessary for track machines or hi-rails to pass through interlocked gates or hand gates, arrangements must be made for a qualified Signaller and a Gatekeeper to be in attendance to operate the gates and fixed signals. A 'roving' Signaller and Gatekeeper may be used provided they are qualified in all the locations involved. (SW 283/97, WN 32/97)
- (19.08.1997) **Staff/Master/Annett Key - Annett Key Exchange Apparatus**
To ensure that level crossing equipment detects the approach of trains during maintenance work, an Infrastructure Employee must not operate an exchange apparatus without the authority of the Train Controller.

At Westmere a Notice Board lettered 'Do not remove Annett Key unless permission is received from the Train Controller' is erected at the Down end of the siding.

Exchange Apparatus is provided at:

Waurm Ponds	Boorcan	Dennington	Willaura
Westmere	Massey	Lascelles	Minyip
Caltex Siding (Newport)	Teddywaddy	California Gully	Swan Hill Cattle Siding
Mooroopna	Congupna	Katunga	Balmattum
Maryvale	Sale Industrial Estate Sdg		

(SW 264/97, WN 31/97)

(19.08.1997) **Tools at Interlocked Signalboxes (Book of Rules, Section 27, Procedure 2, Clause a)**

It will no longer be necessary to provide a hammer, cold chisel, punch or spanners in interlocked signalboxes.

It will be necessary to keep a wire hook for releasing broken or damaged catch rods, a suitable piece of wire (bridle) to temporarily repair a signal wire, and enough point clips to secure all the facing points in the longest possible route.

When examining Signallers, the Examining Officer must instruct the candidates how to release a broken catch rod and how to temporarily repair a broken signal wire.

(SW 268/97, WN 31/97)

20.08.1997 **Manor**

DICE operation of the points and signals was commissioned from Wednesday 20.8.97 and Drivers will now be responsible for the operation of all points and signals.

The DICE operation at Manor differs from that at Gheringhap in that the DICE code may be entered at any time after passing the DICE Zone Approach Board, irrespective of whether the train is to enter No 1 or No 2 Track. A call for No 2 Track will be held for 300 seconds after being entered before being acted upon. The time delay when cancelling a route by means of the key switch is 330 seconds instead of 300 seconds at Gheringhap.

(SW 274/97, WN 32/97)

24.08.1997 **Pascoe Vale & Glenroy**

Defective impedance bonds were replaced from Sunday, 24.8.97.

(TS 65/97, WN 33/97)

24.08.1997 **Springvale**

Alterations to the traffic light co-ordination were carried out on Sunday 24.8.97.

(SW 291/97, WN 33/97)

25.08.1997 **West Tower - Melbourne Steel Terminal Gantry Area**

The Gantry Crane Area comprises the full length of the Broad Gauge Gantry Track between the locked points on the North Lead and the Derail Block at the West Tower end, and the Standard Gauge Gantry Track and Billet Track between the locked points on the South Lead and the locked points at the West Tower end of these tracks. The 65 metres of the Broad Gauge Gantry Track between the Derail Block at the West Tower end and Dwarf 104 is *outside* the Gantry Crane Area and locomotives may be stabled there without obtaining permission from BHPT.

The BHP Service Companies Transport (BHPT) must obtain a 'hand over' from the NR Melbourne Steel Terminal (NR/MST) Shunt Crew and lock on all Derails and Hand Locking Bars protecting the Gantry Area prior to commencing operations in the Gantry Area. The BHPT will retain possession of the Gantry Area until the area has been handed back to the NR/MST Shunt Crew. All Derails and Hand Locking Bars must be locked off prior to the area being handed back. To prevent confusion, after possession has been handed back to the NR/MST Shunt Crew, BHPT cannot reclaim possession that day.

If it is necessary to conduct rail operations in the Gantry Area whilst BHPT have possession, the NR/MST Shunt Crew or Train Crew must obtain permission from BHPT. All BHPT operations must cease and the appropriate Derail or Hand Locking Bars must be locked off before permission can be granted. BHPT operations may recommence only when the movement has been completed and the Derail or Hand Locking Bars locked on.

Broad Gauge trains arriving into the Gantry Area must be routed via the Reversing Loop and North Lead. Points 125 must be sleeved normal. Arrivals via No 1 Ice Track are not permitted without authority from the Superintendent Safeworking. Locomotives may remain attached to Broad Gauge trains to allow Train Inspection. The trains are to be drawn as close to the Derail at the West Tower end, but the train is not to be moved until permission has been obtained from the BHPT crew. When it is necessary for the Broad Gauge train to depart, permission must be obtained from the BHPT crew. The Signaller, West Tower, must be contacted. The Signaller may then unsleeve Points 125 and set the route. The points must be resleeved normal as soon as the departing train has cleared Points 125.

These instructions are to be read in conjunction with SW 324/97. SW 205/97 is cancelled.

(SW 295/97, WN 33/97)

26.08.1997 **Somerton Loop - Longwood Loop**

In conjunction with the resurfacing of the line between Somerton Loops and Longwood Loops from 26.8.97 to 26.9.97, it will not be necessary to provide standard track protection for the resurfacing gang at the end of the section from which the track machines are stabled if the following instructions are complied with.

The Train Controller must operate the Departure Signal for the track machines to depart from the crossing loop. Once the machines are clear of the points and the Train Controller grants permission, the Dual Control Point Machine must be placed in the Hand Operating mode. The points must remain in this mode until the track machines arrive back to be stabled. After being restored to Motor Operating mode, the Arrival Signal may be cleared for passage into the loop. The Special Ganger is to notify the Train Controller when all track machines are in clear in the loop. If the machines are to stable in the Cripple Siding, the Switch Lock release must be obtained in the usual way after the points have been returned to the Motor Operating mode. (SW 289/97, WN 33/97)

(02.09.1997) **Train Order Territory**

The status of locations in Train Order Territory are as follows. The first symbol indicates the status when the location is attended, and the second when unattended. The symbols are: ACS (Attended Crossing Station), AJS (Attended Junction Station), BP (Block Point), ITOS (Intermediate Train Order Station), ITS (Intermediate Terminal Station), TOTS (Train Order Terminal Station), UCL (Unattended Crossing Loop), UJS (Unattended Junction Station), UTS (Unattended Terminal Station)

South Geelong (TOTS) - Winchelsea (ACS/ITOS) - Colac (ACS/ITOS) - Camperdown (ACS/ITOS) - Warrnambool (TOTS)
 Murtoa (TOTS/UTS) - Warracknabeal (ACS/ITOS) - Hopetoun (UTS)
 Dimboola (TOTS) - Yaapeet (UTS)
 Maryborough (TOTS) - Dunolly (ACS/UCL) - Emu Loop (UCL) - Sutherland Loop (UCL) - Donald (ITS/UCL) - Watchem Loop (UCL) - Birchip Loop (UCL) - Curyo Block Point (BP) - Woomelang (UCL) - Gama Block Point (BP) - Speed Loop (UCL) - Ouyen (ITS/BP) - Hattah (ACS/BP) - Carwarp Loop (UCL) - Yatpool Block Point (BP) - Irymple (ACS/ITOS) - Mildura (TOTS)
 Dunolly (ACS/UCL) - Arnold Block Point (BP) - Inglewood (AJS) - Korong Vale Loop (UCL with junction) - Mysia Block Point (BP) - Quambatook Block Point (BP) - Ultima Block Point (BP) - Manangatang Block Point (BP) - Robinvale (UTS)
 Korong Vale Loop (UCL with junction) - Granites Block Point (BP) - Wycheproof Block Point (BP) - Sea Lake Block Point (BP) - Kulwin (UTS)
 Eaglehawk (AJS/UJS) - Bridgewater (ACS/ITOS) - Inglewood (AJS/UJS)
 Bendigo (TOTS) - Eaglehawk (UJS) - Dingee (ACS/ITOS) - Kerang (ACS/ITOS) - Swan Hill (ITS) - Piangil (UTS)
 Bendigo (TOTS) - Echuca (ITS) - Barnes (UJS) - Deniliquin (UTS)
 Barnes (UJS) - Moulamein (UTS)
 Seymour (TOTS) - Nagambie (BP) - Murchison East (ACS/BP) - Toolamba (AJS/BP) - Shepparton (ITS) - Numurkah (ACS/ITOS) - Strathmerton (AJS) - Tocumwal (UTS)
 Toolamba (AJS/UJS) - Echuca (ITS)
 Shepparton (ITS) - Dookie (UTS)
 Strathmerton (AJS/UJS) - Cobram (UTS)
 Seymour (TOTS) - Longwood Block Point (BP) - Riggs Creek Loop (UCL) - Benalla (ITS) - Bowser Block Point (BP) - Wodonga (TOTS)
 Benalla (ITS) - Yarrawonga (ACS/ITOS) - Oaklands (UTS)
 Traralgon (TOTS) - Sale (ACS/ITOS) - Stratford (ACS/ITOS) - Bairnsdale (UTS)
 Cranbourne (UTS) - Nyora Catchpoints (UTS)

(SW 296/97, WN 33/97)

(02.09.1997) **Train Order Territory - Proceed and Return Train Orders**

Proceed and Return Train Orders may be issued on the following sections:

Dimboola - Yaapeet	Shepparton - Dookie
Murtoa - Hopetoun	Benalla - Oaklands
Swan Hill - Piangil	Cranbourne - Koala Siding
Echuca/Barnes - Moulamein	Traralgon - Sale
Echuca/Barnes - Deniliquin	Bendigo - Bridgewater and return to Eaglehawk

(SW 296/97, WN 33/97)

(02.09.1997) **West Tower**

Whenever a shunting movements is performed from Homes 256 or 262 to the Stabling Sidings, Arrival Tracks, Down Main Goods line, or Down Coburg Goods line, the train must draw forward until the rear is clear of the signal governing the reverse movement, short shunting movements are not permitted. This is to prevent a train being signalled across the diamond crossing adjacent to Dwarf 136 whilst an Up train is approaching the signal. (SW 293/97, WN 33/97)

(02.09.1997) **Inglewood**

The junction points at Inglewood are secured by a Master Key lock. A Down Home signal protects the junction from the Bendigo direction, but no signals are provided on the main line. The points to the Loop Track are secured by Master Key locks.

Inglewood is not to be used as a Block Post for main line movements, nor are trains to cross at Inglewood unless specially authorised by the Superintendent Safeworking.

Before a Train Order may be issued for a train to proceed between the Bendigo line and Korong Vale or Dunolly (or vice versa) a competent employee must be at Inglewood to operate the junction, there must be

no outstanding Train Orders for the Arnold Block Point - Korong Vale Loop section, and the previous train must have departed complete from Arnold Block Point or Korong Vale Loop.

A Train Order may then be issued to Korong Vale Loop, Arnold Block Point, or Dunolly, or from those locations to Inglewood. If the train is proceeding to or from Dunolly, the Order will allow the train to shunt as required at Inglewood. For a train entering the Eaglehawk line, the Train Controller must issue a Train Order to the competent employee for the train to proceed onto the Eaglehawk line, who must then deliver it to the Driver.

The Driver must hand the Master Key to the competent employee who will set the points for the Eaglehawk line and clear the Down Home or give a Green Hand signal. The competent employee must obtain the permission of the Train Controller prior to reversing the points. This must be noted on the Train Graph.

The Train Control must not issue any further Train Orders for the Arnold Block Point - Korong Vale Loop section until advice has been received that the points have been set for the primary corridor and the preceding train has passed Arnold Block Point or Korong Vale Loop complete (in the case of a train from Eaglehawk) or departed Inglewood complete (in the case of a train to Eaglehawk).

(SW 296/97, WN 33/97)

(02.07.1997) **Korong Vale Loop and Junction**

The junction points at Korong Vale are located on the Down side of the Loop. The points are worked by a WSa lever and are not locked. No signals are provided.

Prior to issuing a Train Order to a Down Robinvale train at Korong Vale Loop, the Train Controller must ensure that there is no opposing Train Order on the Robinvale line, that there is no opposing Train Order issued between Granites Block Point and Korong Vale, that the last Down Robinvale train has departed complete from Mysia Block Point, and the last Down Korong Vale train has departed complete from the junction. A Train Order may not be issued to an Up train to depart Granites Block Point to Korong Vale until the Down Robinvale train has departed complete from Mysia Block Point and any preceding Up train has departed from Korong Vale Loop.

Drivers of trains must stop at the junction and ensure that the points are set correctly before proceeding.

The rules for Down Korong Vale trains are symmetrical.

(SW 296/97, WN 33/97)

(02.09.1997) **Eaglehawk**

The junction points at Eaglehawk are secured by an Annett lock. The Annett key is kept under lock and key at Bendigo signalbox. Up Homes on a bracket post protect the junction from both the Inglewood and Swan Hill lines. The points and signals are normally set for the Swan Hill line.

Before issuing a Train Order for a train to pass through Eaglehawk, the Train Controller must check:

Down Swan Hill train No Up Train Orders have been issued between Inglewood or Dingee and Bendigo and that the last Down train has departed Eaglehawk complete (if applicable)

Up Swan Hill train: No Up Train Orders have been issued from Inglewood or Bridgewater to Bendigo and that the last Down Inglewood train has departed Eaglehawk complete (if applicable)

Down Inglewood No Up Train Orders have been issued between Bridgewater or Dingee and Bendigo and that the last Down train has departed Eaglehawk complete (if applicable)

Up Inglewood train: No Up Train Orders have been issued from Dingee to Bendigo and that the last Down train has departed Eaglehawk complete (if applicable)

If the train is passing to or from the Inglewood line, the Train Controller must then arrange for a competent employee to obtain the Eaglehawk Annett Key and set the junction points for the Inglewood line. The Train Controller must then be notified that the points have been reversed and the Train Graph must be endorsed accordingly. A Train Order can then be issued to the Inglewood train.

The Train Controller may issue a Train Order for an Up train to proceed from Inglewood to Eaglehawk while a Train Order is current on the Swan Hill line. In particular, a Train Order may authorise a Down Inglewood train to proceed to Bridgewater and return to Eaglehawk. A Through Train Order from Inglewood to Bendigo may be issued provided a competent employee is in attendance at Eaglehawk and the points and signals set for the Inglewood line.

Eaglehawk must not be used for Up or Down 'follow on' movements over the Swan Hill line. A Train Order must not be issued for a train to proceed from Dingee to Bendigo whilst a through Train Order is current from the Inglewood line until the Inglewood train arrives complete at Bendigo. A Train Order must not be issued for a train to proceed from Dingee to Eaglehawk.

A Train Order must not be issued for a Down Swan Hill train (following a Down Inglewood) or an Up Inglewood train (following an Up Swan Hill) until the Train Controller has been notified that the preceding train has departed Eaglehawk complete, the points set for the correct line, and the Up Home placed at proceed.

(SW 296/97, WN 33/97)

(02.09.1997)

Barnes

The points at Barnes are plunger locked and may be secured for either line. Up and Down Home signals are provided for both lines, and a further Up Home (light) protecting the level crossing. A TAILS unit is provided between the Down Home signals and the points.

Drivers carry out all safeworking duties at Barnes.

Train Orders may be issued through Barnes on either the Moulamein or Deniliquin lines. Train Orders can be issued to allow Up Moulamein and Deniliquin trains to approach Barnes at the same time. A Train Order can be issued to an Up train to proceed from Moulamein or Deniliquin to Barnes whilst a Train Order is outstanding on the other line.

Prior to issuing a Train Order for a Down train to proceed from Echuca to Barnes, Deniliquin, or Moulamein, there must be no opposing Train Orders issued between Barnes and Echuca and the preceding Down train must have departed Barnes complete. No further Train Orders may be issued until the train has departed Barnes complete. The Driver is responsible for operating the points and signals at Barnes, and must notify the Train Controller when the train has departed Barnes complete.

Prior to issuing a Train Order for an Up train to proceed from Deniliquin or Moulamein to Echuca, there must be no Train Orders issued between Barnes and Echuca and that the last train has departed Barnes complete or arrived Echuca complete. No further Barnes - Echuca Train Orders may be issued until the Up train has arrived Echuca complete. The Driver is responsible for operating the points and signals at Barnes, and must notify the Train Controller when the train has departed Barnes complete.

The Train Controller may issue a Down train with a Train Order to proceed to Moulamein, Deniliquin or any intermediate siding and return to Barnes, or to return to Echuca if no other train movements will take place between Echuca and Barnes. (SW 296/97, WN 33/97)

(02.09.1997)

Toolamba

Toolamba is provided with a loop track. The junction is at the Down end. All points at Toolamba are secured by Master Key locks. An Up Home is provided on the Echuca line. A Block Point location with TAILS is provided at the Up end of Toolamba.

Prior to issuing a Train Order for a movement to or from the Echuca line, the Train Controller must ensure that a competent employee, with Master Key, is at Toolamba. The competent employee is not to operate the points until a Train Order has been issued for the train to enter or leave the main line and only then with permission of the Train Controller, and the Train Controller is to note that the points are reversed on the Train Graph. A Green Hand signal is to be used to authorise movements to the Echuca line.

Before issuing a Train Order for movements from the Echuca line, the Train Controller must ensure that there are no opposing Train Orders issued to or through Toolamba (except in the case of an Up train from Echuca to Seymour when no Train Orders may be outstanding between Shepparton and Murchison Loop for either Up or Down trains). Finally, for a train leaving the Echuca line, the Train Controller must ensure that the last train to travel through Toolamba has departed complete the Toolamba Block Point - Shepparton section, which includes locking away at Mooroopna. For a train from Seymour to Echuca, the previous train must have arrived complete at Murchison East or Shepparton or locked away at Mooroopna. For a train from Shepparton to Echuca, the previous Up train must have departed Toolamba Block Point complete. (SW 296/97, WN 33/97)

(02.09.1997)

Strathmerton

The junction points are secured for the Tocumwal line by a Master Key lock and an Up Home is provided for movements from Cobram.

A competent employee must be at Strathmerton before the Train Controller can issue a Train Order for an Up or Down Cobram train to enter the line between Numurkah and Strathmerton. There must be no outstanding Train Orders for the Numurkah - Strathmerton section and the last train must have arrived complete at Numurkah or Tocumwal.

When it is necessary for the Cobram train to enter or leave the Cobram line, the Driver must give the competent employee the Master Key. After obtaining the permission of the Train Controller, the competent employee must reverse the points and clear the Home signal (for an Up train) or exhibit a green hand signal (for a Down train). The competent employee must obtain a Train Order for a Down train to proceed to Cobram before operating the points. After giving permission to operate the points, the Train Controller must endorse the Train Graph and no Train Orders may be issued between Numurkah and Tocumwal until the junction points have been set for the main line and the Cobram train has cleared the section.

Strathmerton must not be used for follow on train movements. (SW 296/97, WN 33/97)

04.09.1997

Flinders Street

On Thursday, 4.9.97, Dwarf 348 was relocated from the Down to the Up side of the line. Amend Diagram 21/97. (SW 314/97, WN 35/97)

07.09.1997

Flinders Street

From Sunday, 7.9.97, Points 650U were spiked reverse. Crossover 664 was installed and spiked normal. Amend Diagram 21/97. (SW 312/97, WN 35/97)

07.09.1997

Warrnambool

Commencing Sunday, 7.9.97, the Driver will be responsible for signalling at Warrnambool for all trains, including shunting and movements to Dennington.

Arrival of Down Goods Train 9260 (M-F) at 0600. The train must be brought to a stand at the Down Home. After communicating with the Driver of Train 8220 (0635 Up Passenger, standing at platform) to inform him that the train will arrive into No 2 Road, the Driver of 9260 will obtain the Annett Key from the box at the Up end points, and reverse the points and clear the Down Home (from the quadrant at the points). The signal must be restored to Stop and the points returned to the Normal position when the train has cleared the main line. After ensuring that the train has arrived complete, the Driver of 9260 will fulfil the Train Order and enter the Train Number, arrival time, and Train Order number in the TRB. The Driver will sign the entry in the TRB. The Annett Key will be used to clear the Down Home.

Arrival and Departure of Passenger Trains 8220, 8207/8232, 8217/8246, 8237

Upon arrival of the Down Passenger train, the Driver must restore the Down Home to Stop and remove the Annett Key. After running around and ensuring that the train has arrived complete, the Driver will fulfil the Train Order and enter the Train Number, arrival time, and Train Order number in the TRB. The Driver will sign the entry in the TRB. The Annett Key must be placed in the box in the Station Office.

For departure of the Up Passenger train, the Driver must obtain the Annett Key and clear the Down Home. The Driver will enter the Train Number, time of departure, and Train Order number in the TRB and sign the entry. After ensuring that the train is complete with proper tail signals, the train may depart.

Departure of Up Goods Train 9220 (M-F)

Upon commencing duty, the Driver of 9220 must obtain permission to place the Down Home to Stop. The Annett Key will then be removed. When shunting is complete, the Down Home signal must be cleared for the arrival of Down Passenger Train 8237. The Driver must obtain a Train Order after the arrival of 8237. The Driver will enter the Train Number, time of departure, and Train Order number in the TRB and sign the entry. The Annett Key must then be taken from the box in the Station Office and locked in the box at the Up end points. A competent employee will reverse the points and display a Green Hand signal to the Driver. When the train has cleared the points, they must be restored to normal and locked.

The Train Controller must be informed of the arrival and departure of all trains. (SW 303/97, WN 35/97)

08.09.1997

Dandenong - Hallam & Lyndhurst

Commencing 8.9.97, Diagram 47/97 replaced 29/90 showing the 'as in service' condition.

(SW 321/97, WN 37/97)

09.09.1997

Lyndbrook Loop - Cranbourne

Commencing 9.9.97, Diagram 49/97 replaced the temporary diagram showing the 'as in service' condition

(SW 320/97, WN 37/97)

13.09.1997

Boronia

Automatic signal L1053 was relocated 13.6 metres in the Up direction on Saturday, 13.9.97, and the lights were reverse staggered. Amend Diagram 15/91.

(SW 319/97, WN 36/97)

13.09.1997

Oakleigh

The Through Siding was abolished on Saturday, 13.9.97. Points 23 (No 1 Road to Through Siding), Crossover 53 (Through Siding to Down Line) and Crossover 55 (Up Line to Through Siding) were spiked normal. Dwarfs 26, 52 and 62 were abolished. Levers 23, 53, & 55 were sleeved normal.

Amend Diagram 11/85.

(SW 318/97, WN 36/97)

14.09.1997

Camberwell

The Goods Sidings were booked out of service on Sunday, 14.9.97. Points 25 and Dwarf 22 were abolished. Levers 22 and 25 were sleeved normal. Amend Diagram 1/96.

(SW 322/97, WN 37/97)

15.09.1997

Flinders Street

Points 650U were removed from Monday, 15.9.97, and a new set of points installed (but not commissioned) leading from the Up end of No 10 Track to the Down Through Suburban line.

(TS 757/97, WN 36/97)

(16.09.1997)

Road Transferable Locomotive - Captive Master Key

RTL.1 has been equipped with a Master Key. The Key is engraved 'RTL.1' and is secured to a shadow board by a 4D padlock, the key of which is attached to the vehicle keys. The Master Key is to be only used on lines where the Train Order or Section Authority Systems are in use.

(SW 310/97, WN 35/97)

19.09.1997

Flinders Street

On Friday, 19.9.97, a 'running' low speed aspect was installed on Home 338.

(SW 334/97, WN 37/97)

20.09.1997

Toorong

Pedestrian gates were installed at Toorak Road on Saturday, 20.9.97.

(TS 073/97, SW 37/97)

21.09.1997

West Tower - Sims Street Junction

From Sunday, 21.9.97, Up Home 138 was relocated 75 metres in the Up direction and Dwarf 136 was relocated 185 metres in the Up direction.

(SW 328/97, WN 36/97)

21.09.1997

Werribee

Post 18 was replaced by a cantilever mast on Sunday, 21.9.97.

(TS 70/97, WN 37/97)

21.09.1997

Maryborough - Donald

Section Authority Working replaced the Train Order System between Maryborough and Donald between 0800 and 1600, Sunday, 21.09.97. The sections are Maryborough - Dunolly - Emu - Sutherland - Donald.

Section Authorities will be transmitted on Channel 5.

Maryborough

Maryborough will be attended for all train movements and is not to be switched out for DICE operation. Permission to enter Maryborough yard is by signal aspect; Section Authorities will not be issued to trains from the Ararat or Castlemaine lines.

Begin and End Section Authority Boards were removed from adjacent to Post 4 and provided adjacent to Posts 2 and 24. Begin and End Train Order Boards were removed from adjacent to Post 26.

Dunolly

Dunolly will be an open/close location. Dunolly must be attended and open in the Section Authority Workstation for all trains to and from the Korong Vale line and for all Standard Gauge trains. When closed, Dunolly will be operated as a Trailable Loop. When open, Section Authorities will be to 'Dunolly', when closed they will indicate 'Dunolly LP'.

Dunolly cannot be opened while there are outstanding Train Orders between Dunolly and Maryborough or Dunolly and Emu, nor with a train with a directional block is standing at Dunolly. For this reason, Dunolly must be attended and open prior to issuing Down Korong Vale train a Section Authority to leave Maryborough. Similarly, Dunolly must be attended and open prior to an Up or Down Standard Gauge train to proceed to or from Dunolly. It will not be necessary for Dunolly to be attended or open to issue a Train Order from Arnold Block Point to Dunolly.

Dunolly must not be closed whilst a train is standing in either the Loop or Main tracks. It cannot be closed whilst there are outstanding Section Authorities between Dunolly and Maryborough or Dunolly and Emu.

When Dunolly is open, the fixed signals will normally be at Stop. Movements into the yard will be governed by the fixed signals and it will not be necessary to issue a Section Authority to bring an Up Korong Vale line train into the yard.

When Dunolly is closed the fixed signals will be at proceed. Shunting movements must not be allowed to foul the Main line or Loop.

Begin and End Section Authority Boards and Begin and End Train Order Boards will be located adjacent to Post 7.

Donald

Section Authority Working ends at the Down end Fouling Board at Donald Loop and begins at the Up end Fouling Board. Donald Loop is on the Up side of Donald station yard.

Donald is an open/close location. When open, the fixed signals will normally be at Stop. When closed, the signals will be at Proceed. Donald must be attended for all trains which shunt Donald Yard. It will not be necessary to issue a Train Order for a Down move from Donald Loop to Donald Yard. When Donald is closed it will be treated as a Trailable Point Loop and Section Authorities will show 'Donald LP'. Shunting movements must not be allowed to foul the main or loop lines when Donald is closed.

Donald Loop is the interface between two Train Controllers, and to ensure that loop road at Donald is clear before a train is given permission to approach Donald, the following instructions must be adhered to.

When a Down train arrives at Donald Loop when it is unattended, the Driver will relinquish the Section Authority for the Sutherland - Donald section and acknowledge receipt of the 'Final Authority' message. The Section Authority Train Controller must release the relinquished Section Authority, place a Track Block over the Down loop, and then log the train off in the Workstation. The Driver must then change to Channel 3 and 600 mode to obtain a Train Order for the advance section. When the Train Order is received the Driver must key in the appropriate DICE command to depart from Donald. The Driver must advise the Train Order Train Controller when the train has departed Donald Loop complete. The Train Order Train Controller must pass this advice to the Section Authority Train Controller who will then remove the Track Block.

When an Up train arrives at Donald Loop when it is unattended, the Driver must advise the Train Order Train Controller and fulfil the Train Order. The Driver must then switch to Channel 5 and 1200 mode and contact the Section Authority Train Controller. A Text Test must then be performed, after which a Section Authority may be issued for the Donald Loop - Sutherland section. The Driver must advise the Section Authority Train Controller when the train has departed Donald Loop complete, and this advice must be forwarded on to the Train Order Train Controller.

Donald can neither be opened or closed while there are Section Authorities outstanding between Sutherland and Donald. When opening or closing Donald, the Signaller must notify both Train Controllers. A note must be made in the TRB, the (Train Order) Train Graph, and the (Section Authority) Electronic Train Graph.

SW 332/97 replaced SW 296/97.

(SW 325/97, WN 36/97)

MCKENZIE & HOLLAND ROCKER FRAMES

Andrew Waugh

Prior to 1912, the standard interlocking frame on the Victorian Railways was the 'Rocker' frame built by McKenzie and Holland and known by them as the No 5, 5A, 6, or 6A Pattern machines. Ten are still in service, including the very large No 1 Box.

A very detailed description of the operation of the Rocker frame has been written by Colin Rutledge and appeared in Somersault, commencing in Volume 10, No 5. The operation of a Rocker frame is hard to describe without copious illustrations, and the recent abolition of Newport A gave the opportunity to take a series of photos of the frame while it lay in the grass at Newport.

In the UK, the Rocker frame is sometimes known as the 'Hook, Cam & Soldier', which is quite descriptive. The actual locking is carried out by large cast iron locks which 'hook' lock studs fitted to the levers. Operation of

the lock is by means of cams, rocking shafts, and soldiers.

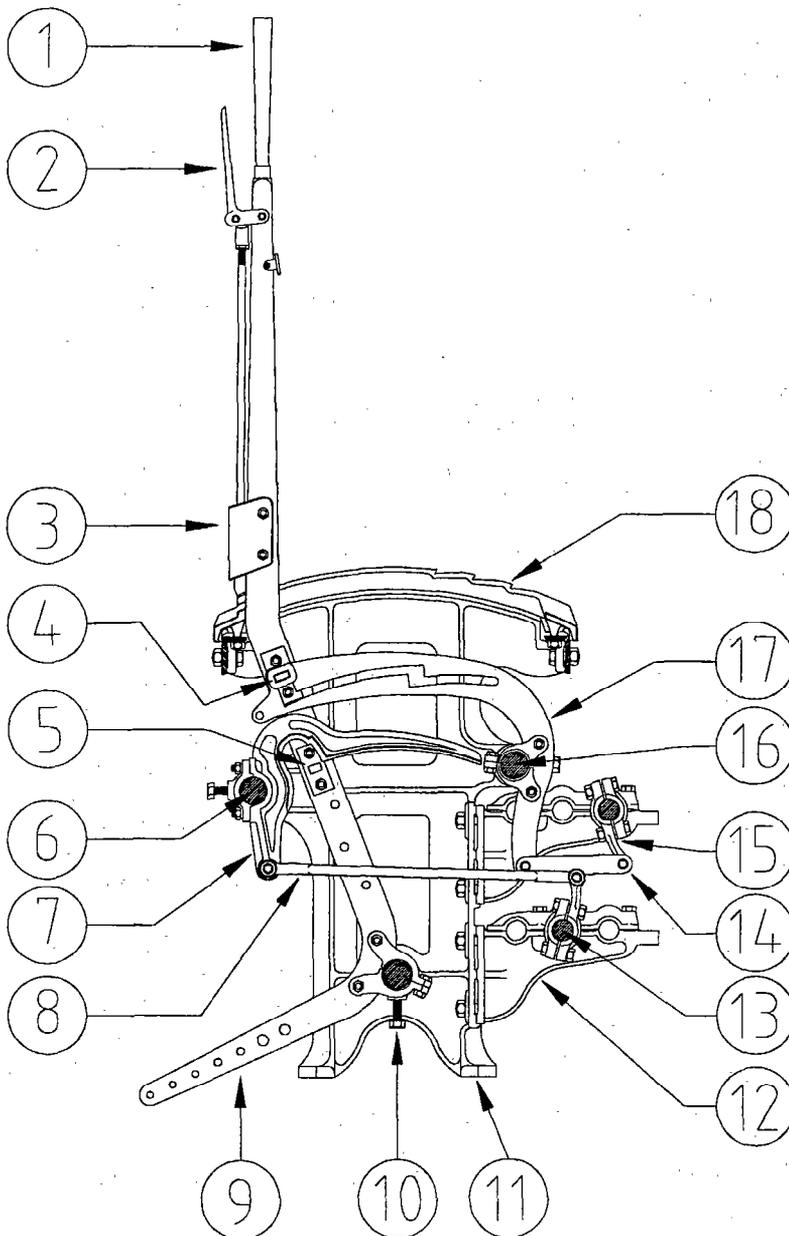
The operation of the locking can be followed from transverse view below. The locking is driven indirectly from the movement of the lever (1) by means of a cam (17). Movement of the cam has two phases. The first occurs during the initial movement of the lever. Attached to the lever just below the floorplate is a cam stud (4) which operates in a slot in the cam. As the lever is moved from the normal position, the cam stud forces the cam upwards, rotating it clockwise around the cam shaft (16). During this movement the tail of the cam moves forwards $1\frac{1}{8}$ " which operates the interlocking. The second movement of the cam occurs as the lever approaches the first reverse notch. The cam stud again lifts the cam and the cam tail again moves forward $1\frac{1}{8}$ " to operate the locking for a second time. This first movement of the cam locks any conflicting levers and the second movement releases levers for subsequent operation. The lever can be placed in any of three reverse notches. Further movement beyond the first reverse notch does not affect the locking, but gives a greater travel to the lever tail.

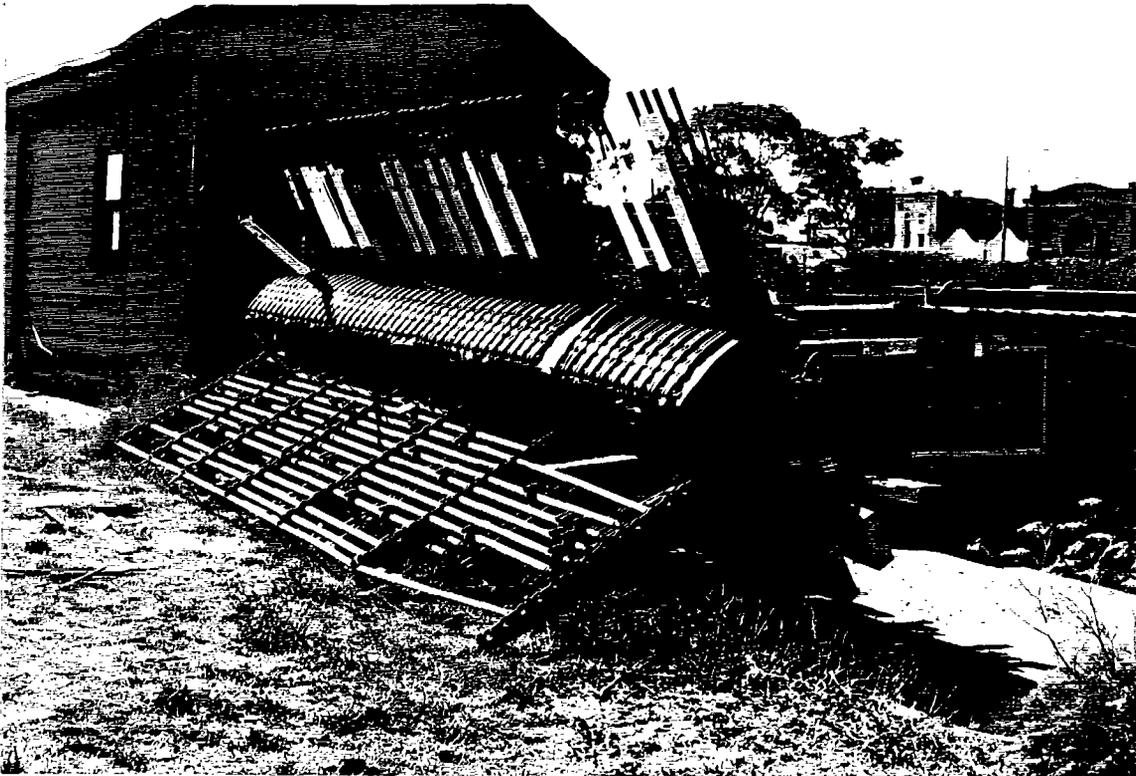
The motion of the cam plate is transferred up and down the frame by means of rocking shafts (13). Frames can contain two layers of rocking shaft brackets, as shown in the diagram. Two cam links (14) connect the cam tail to a soldier (15) clamped to a rocking shaft. As the cam is lifted by the lever, the soldier rotates the rocking shaft.

The interlocking is performed by cast iron locks (7) which rotate on a lock shaft (6) mounted on the rear of the frame. The tails of the locks are connected by lock rods (8) to soldiers clamped to the rocking shafts.

As the rocking shaft rotates, the movement is transferred to the cast iron locks which rotated on the lock shaft to lock or release levers by means of a lock stud (5) mounted on the lever.

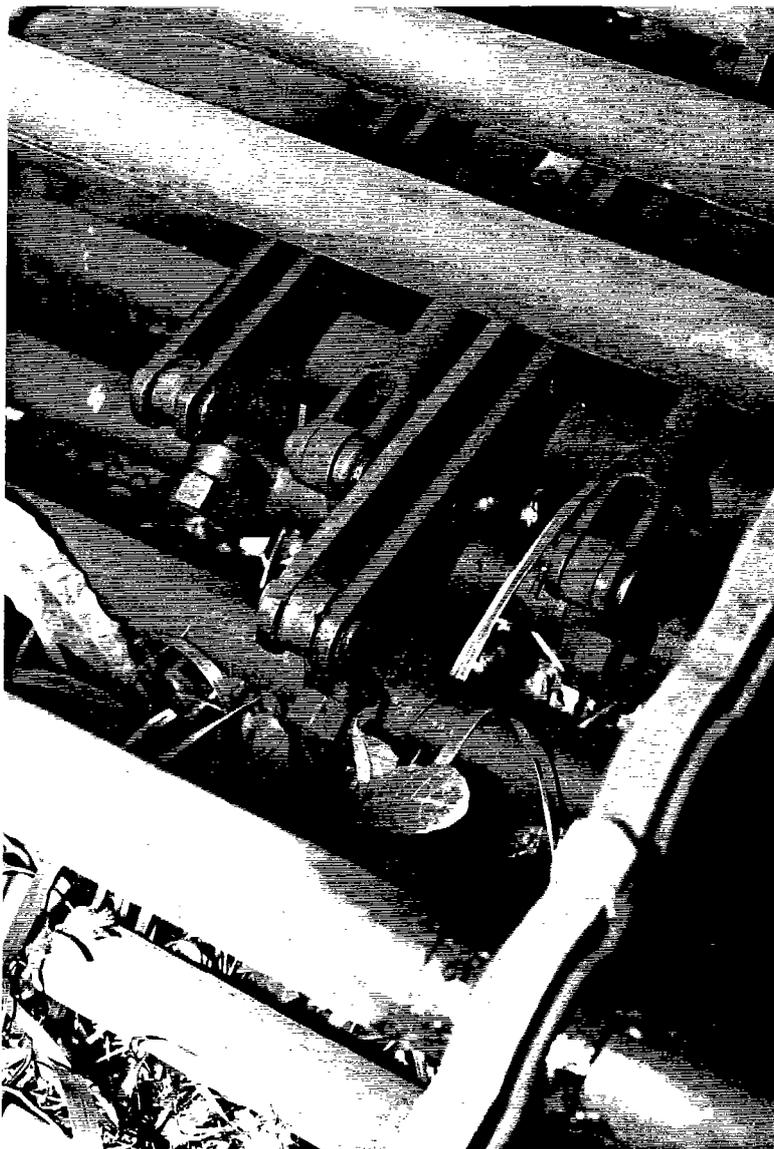
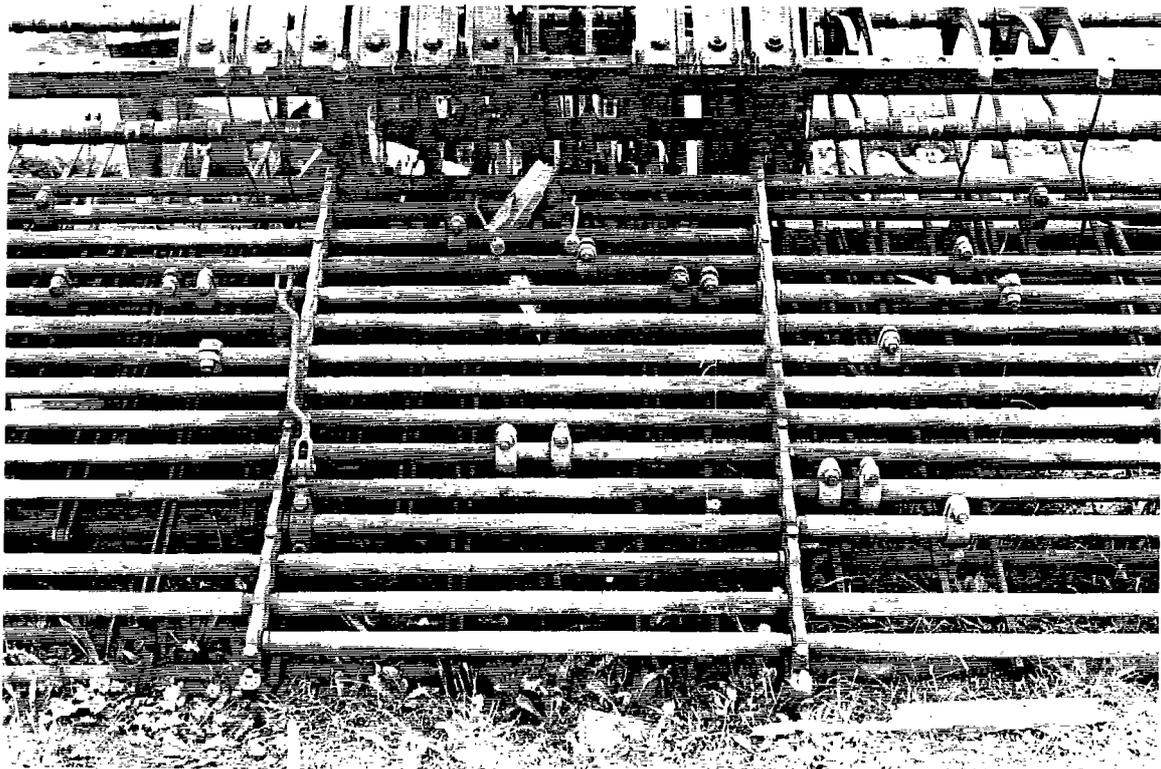
There are several different types of cast iron lock. The one illustrated in the diagram is the main lock. This is used to lock a lever normal when another lever is operated. As the Main Lock rotates around the lock shaft, the heel of the lock drops in front of the lock stud preventing the lever from being moved from the normal position.



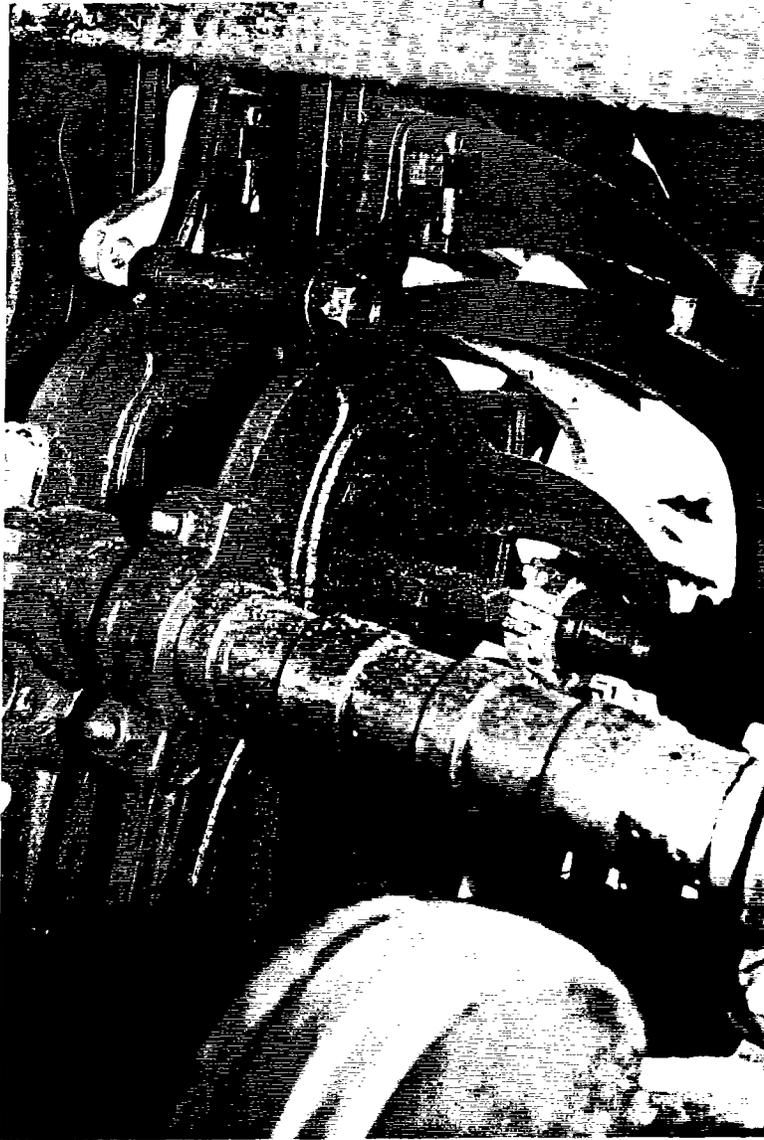


Above, a general view of the frame from Newport A from the rear showing the rocking shafts which transfer the motion of the levers up and down the frame. The number of rocking shafts on a Rocker frame is limited (by the width of the box, if nothing else) and this was one of the major limitations to the complexity of the locking that could be applied to Rocker frames and influenced interlocking practice. Rocking shafts did not always extend the full length of the frame. Rocking shafts provided when the frame was new often extended the full length of the frame, but rocking shafts provided during alterations were often as short as possible. Note that the weight of the rocking shafts has caused the frame to tip to the rear. In service it would be upright! Below, a view of the rocking shaft brackets from the left hand end of the frame. Two tiers of rocking shafts can be applied to a frame (known as the 'top' and 'bottom' rocking shafts). Thirty shafts could be fitted to the Newport A frame; 15 in the top bracket (which has 16 holes, but the first could not be used as it fouls the cam tails) and 15 in the bottom bracket.





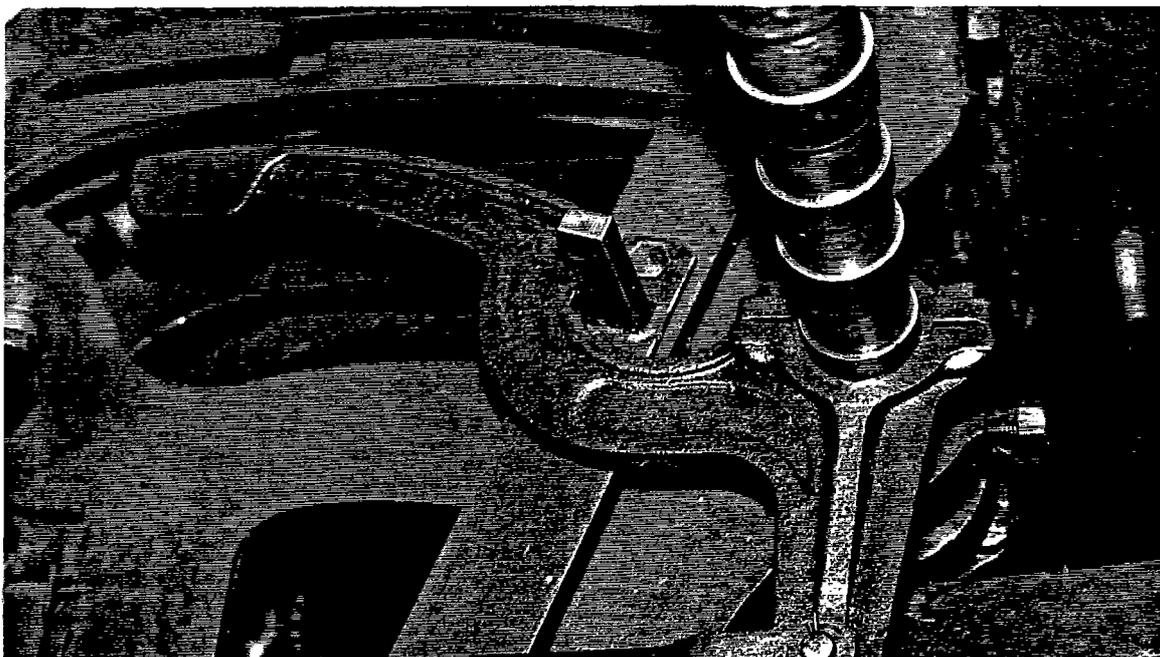
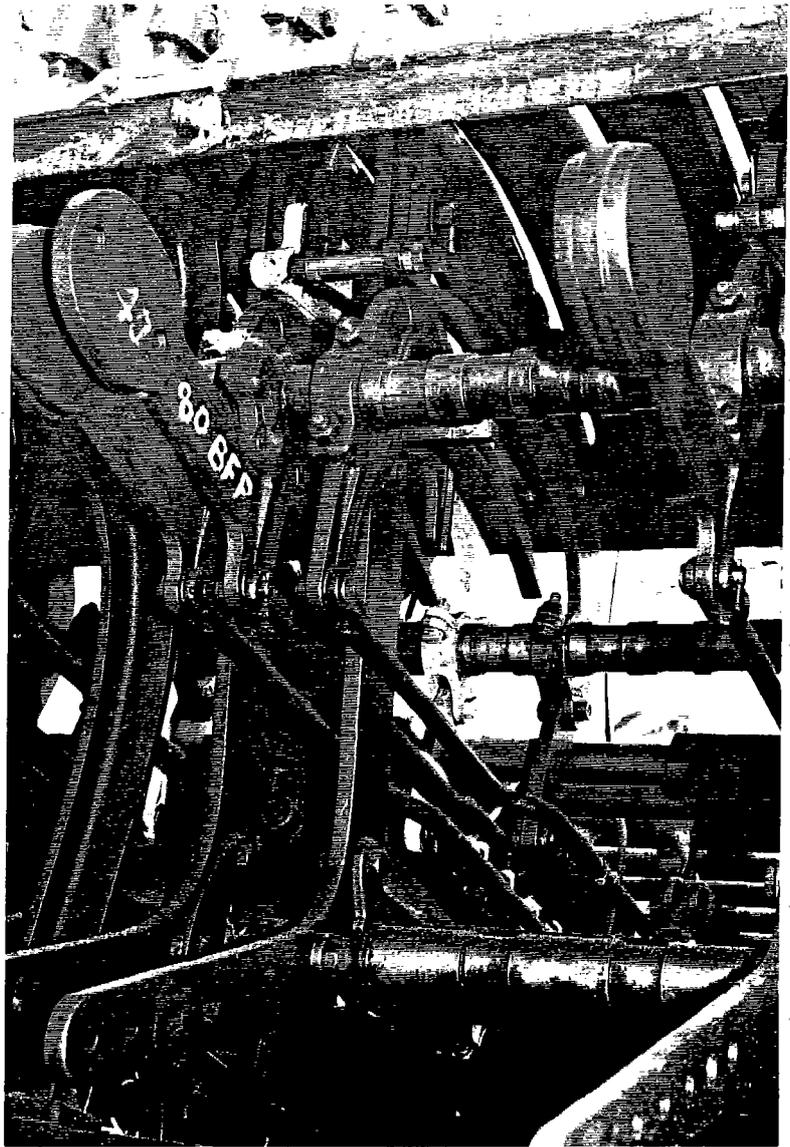
Above, a view looking down 'through the floor' onto the top rocking shafts. The soldiers can be seen clamped to the shafts, with the cam links and lock rods visible running vertically towards the top of the photo. The cam links are the closely spaced parallel bars which can be seen in the middle and to the left of the photo, the lock rods are the thicker rods to the right. One point to notice is the relative sparsity of soldiers. This photo was taken near the middle of the frame, and most of the levers were point and lockbar levers. In Rocker frames the rocking shafts were generally driven by the point and lockbar levers and the locks were applied to the signal levers. The middle of the frame consequently had few soldiers. Left, a detail shot of the soldiers clamped to two rocking shafts. The lower shaft has the drive from a cam; the cam links are the two flat parallel mild steel bars $1\frac{1}{2}$ " by $\frac{5}{16}$ ", one placed each side of the soldier head. The upper shaft has a drive from a cam at left, and then drives to two locks. Lock rods are solid $\frac{3}{4}$ " wrought iron rods with an forged eye to connect to the soldier head. Each lock rod is different, and must be made to order by a blacksmith.

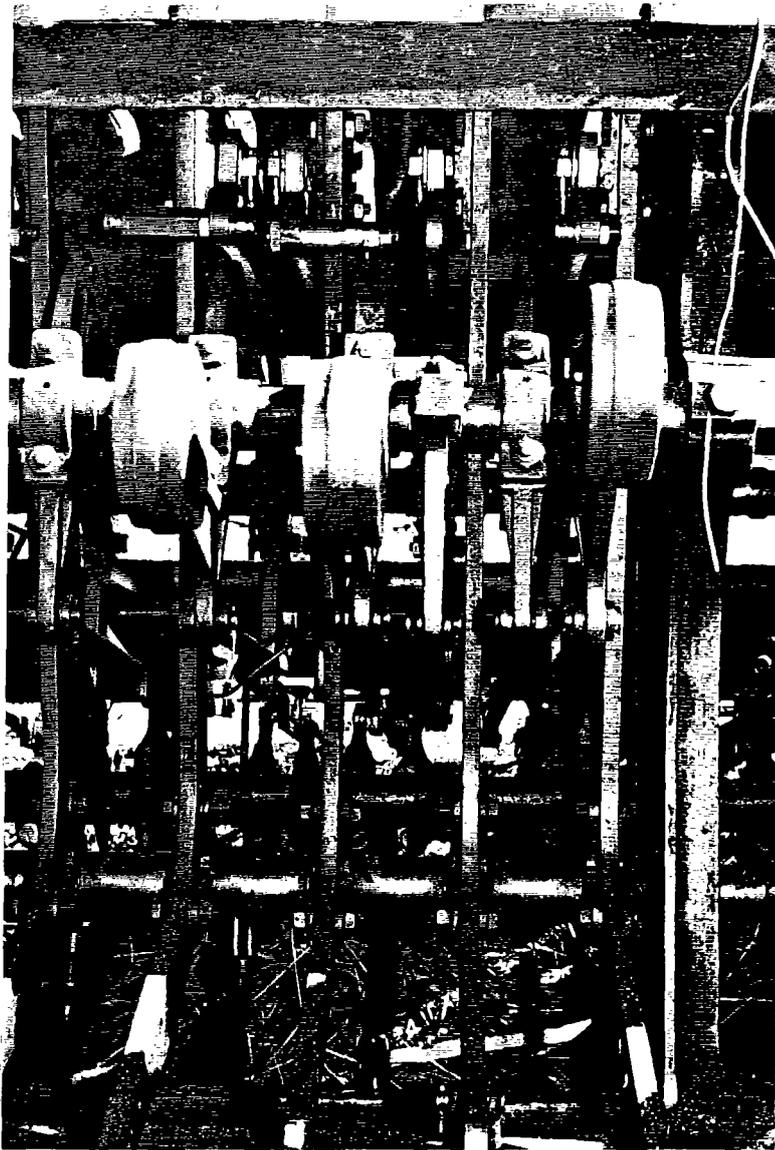


Left, a shot from the rear of the frame showing a lever working a cam (at the top) and being locked by a main lock (below). The lock shaft can be seen crossing the photo. The lever is behind the lock and cam. The two rises in the cam slot can be clearly visible, with the cam stud in its normal position at the top of the first rise. The cam is prevented from jumping off the cam stud by a large square washer and split pin. The horizontal pin mounted on the extension at the end of the cam drove an electric lock mounted above floor level. The lock stud can be seen between the heel of the main lock and the lock shaft. If the main lock dropped down, the lock stud would be trapped behind the heel of the main lock, holding the lever normal. If the lever was reversed, the lock stud would pass underneath the curved lower edge of the main lock and prevent the main lock from rotating, hence locking the levers that drive the main lock. Below, a shot taken when the frame had been partially dismantled showing a lever in the first reverse notch. The cam has operated through the two rises, and it can be seen that in this position the back quarter of the cam stud is supporting the cam, preventing it from dropping. The lever could be worked to any of the three reverse notches, the cam stud travelling in the final section of the cam slot.



Right, the same view as the top view on the previous page, but taken from slightly further back showing the complete underfloor gear for one lever. Crossing the photo from left to right can be seen the lock shaft (top), the cam shaft (middle), and the lever shaft (bottom). A number of rocking shafts can be seen immediately above the lever shaft. The lever shaft is turned down every 5 inches for a lever, but the cam shaft and lock shafts are turned down twice every 5 inches. This allows two cams or two locks between each lever. The cam tail and lock tails are in the same vertical plane, so where there is a cam and a lock on the same side of the shaft (as for this lever), the lock rod must be set to clear the cam tail. The set can be clearly seen in this photo. Victorian frames were normally arranged for a vertical leadout, and the lever tail projected out the back of the frame. A variety of lengths of lever tails were used in Rocker frames. Short tails were cheaper to fabricate, but gave limited travel and were mostly used for points or lockbars. Below, not from Newport A, this photo is included to show a different type of cast iron lock, a branch lock. When the branch lock is in its normal position (as shown here), the heel of the lock locks the lever normal. When operated, the heel drops from in front of the lock stud and releases the lever. When the lever is reversed, the curved tail of the branch lock prevents it from being lifted again, and so the lever(s) operating the branch lock are locked reverse.





Left. A square on view of the rear of the frame showing how locks and cams were fitted between levers. Two locks could be fitted between each lever. Thus, at most four different types of cast iron lock could be applied to one lever (two on each side), but this limited the number of locks which could be applied to adjacent levers. Four locks on a lever was very rare, a more typical number would be two: a main lock (locking the lever normal) and a branch lock (releasing the lever from normal). Two cams could also be applied between each lever, and this can be seen between the third and fourth levers from the right. The cast iron A frames supporting the interlocking frame also occupied space between the levers and restricted the locking on the levers adjacent to the frame. Below, Two bays of the frame from the rear. The basic support of the frame were the A frames. Older interlocking frames had A frames every 7, 8, or 9 levers. The exact frame spacing depended on the length of the frame, and there was some tendency to have a closer frame spacing in the middle of the frame. A frames reduced the locking capacity of the frame and added weight. Later frames appeared to standardise on 10 lever spacings, but never longer than that. This photo also shows that Rocker frames were not totally packed with metal; there is plenty of space here.



SIGNALLING ALTERATIONS

Continued from Page 101

- 22.09.1997 **Flinders Street**
From Monday, 22.9.97, the Burnley Through Siding was abolished. Dwarfs 325 and 390 were abolished. Points 225 (entrance at Flinders Street) and 250 (entrance at Jolimont Junction) were spiked normal and the point motors removed. Amend Diagram 21/97 and 35/97. (SW 335/97, WN 37/97)
- 22.09.1997 **Spotswood**
Commencing Monday, 22.9.97, the block hours will be:
Tuesday & Thursday 1850 hours to 0220 hours next day (or departure of No 0544 Light Engine)
Saturdays 2200 hours to 2300 hours (or departure of No 0544 Light Engine)
(SW 346/97, WN 38/97)
- 22.09.1997 **Corio**
Commencing Monday, 22.9.97, the block hours will be:
Mondays - Fridays 0500 hours to 2200 hours
Saturdays & Sundays Switched out
(SW 346/97, WN 38/97)
- 22.09.1997 **North Geelong B**
Commencing Monday, 22.9.97, the block hours will be:
Monday - Sunday 2100 hours Sunday until 0600 the following Saturday
(SW 346/97, WN 38/97)
- 22.09.1997 **Meredith**
Commencing Monday, 22.9.97, the block hours will be as required by Manager, Customer Service Delivery. (SW 346/97, WN 38/97)
- 22.09.1997 **Sydenham - Bendigo**
Commencing Monday, 22.9.97, the block hours will be:
Sydenham:
Mondays - Fridays 0545 hours to clearance of 8047 (Sunbury at 2000)
Saturdays and Sundays Switched Out
Diggers Rest
Mondays - Fridays 0610 hours to clearance of 8016 (Sydenham at 0824)
Saturdays and Sundays Switched Out
Sunbury
Mondays - Fridays 0525 hours to clearance of 8048 (St Albans at 2050)
Saturdays 0650 hours to clearance of 8021 (Kyneton at 1427)
Sundays Switched Out
Clarkefield
Mondays - Fridays 0600 hours to clearance of 8024 (Sunbury at 1033)
Saturdays and Sundays Switched Out
Gisborne
Mondays - Fridays 0510 hours to clearance of 8017 (Kyneton at 1141)
..... 1330 hours to clearance of 8044 (Sunbury at 1944)
Saturdays and Sundays Switched Out
Woodend
Mondays - Fridays 0510 hours to clearance of 8026 (Gisborne at 1049)
..... 1730 hours to clearance of 8045 (M-Th) or 8053 (F) (Kyneton at 1942)
Saturdays and Sundays Switched Out
Kyneton will be attended by a Signaller
Mondays - Fridays 0415 hours to clearance of 9080 (Castlemaine at 0045 next day)
Saturdays 0600 hours to clearance of 8045 (Bendigo at 2100)
Sundays 0710 hours to clearance of 9084 (?)
Castlemaine
Mondays - Fridays 0550 hours to clearance of 9084 (Kyneton at 2215)
Saturdays and Sundays Switched Out
Bendigo will be attended by a Signaller
Mondays - Fridays 0001 hours Mondays to arrival of 9080 on next Saturday (0115)
Saturdays 0630 hours to arrival of 8045 (2100)
Sundays 0650 hours to clearance of 9084 (?)
(SW 343/97, WN 38/97)