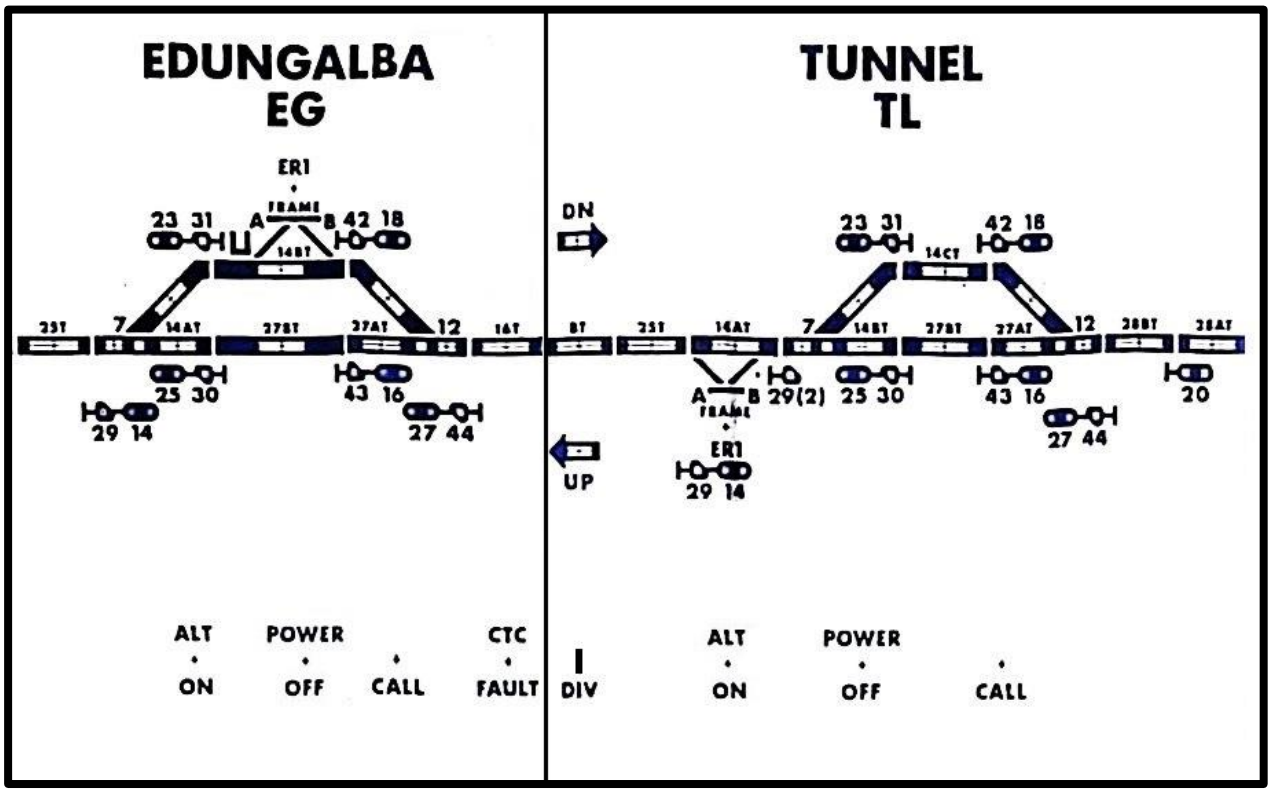
PROCEED ORDER

The Journal of the Signalling Interest Group Queensland

No.21 **January/March 2024**

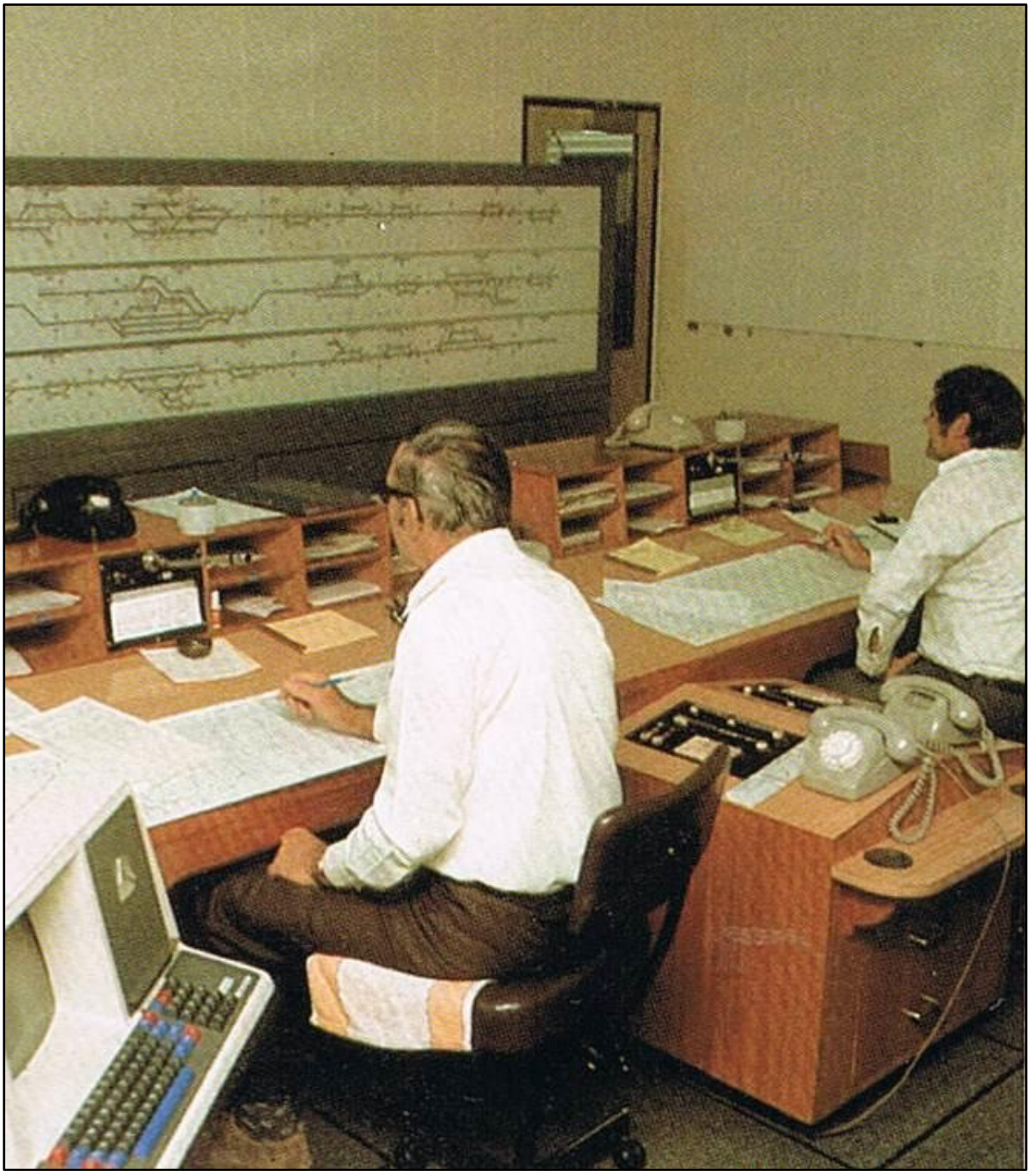


A section of the drawing showing part of two tiles from the Port Curtis Junction to Tolmies CTC Mimic Panel located at the Rockhampton Control Centre. This CTC system was installed between 1980 and 1982 following the successful installation of the identical system between Gympie and Maryborough / Avondale between 1979 and 1980. Both systems introduced new features to the Control Room and associated mimic panels. The feature article this edition continues to explore the development of the CTC Mimic Panels since their initial introduction in 1971.

Contents

CTC Mimic Panel Designs (3)

The fourth CTC system to be installed in Queensland covered the section of track between Gympie and Maryborough. The system was progressively commissioned from Gympie in November 1979 to Maryborough in March 1980 and then extended to Avondale. This CTC system signalled a few changes to previous installations. The Controller now had a computer terminal into which he typed commands to control the points and signals, the former idea of a push/pull button switch panel was abandoned, and the mimic panel was modernised with current technology.



Above: The Maryborough Control Room showing the Train Controllers, train control diagram, mimic panel, computer terminal and telephone system. QR Annual Report 30-6-1980

The mimic panel was retained but advances in technology saw the use of LED's instead of incandescent lamps which allowed the size of the mimic panel to be reduced, or more accurately that more could be included in a similar space. The control centre for the CTC system was at Maryborough in a new purpose-built building constructed near the existing station building. The system, including the mimic panel, was supplied by Westinghouse Brake & Signal (Aust) Pty. Ltd.

The mimic panel was described as being 3m long and 600mm high, with three rows of tiles that were 200mm high. Examples of mimic panel tiles from this era show them to be 200mm by 200mm (square). For the mimic panel to be 3m long, 15 tiles 200mm wide could be accommodated and this is illustrated in the diagram below. Based on the poor-quality photograph from the 1980 QR Annual Report shown on the previous page the approximate layout of the stations and the tiles they were represented on is shown below. Again, more complex stations were represented on two or three tiles while simple stations occupied a single tile. A few blank tiles were provided at the edge of the mimic panel, and a couple of simple single track only tiles existed within the diagram. The diagram also shows the layout after the CTC had been extended to include control of Avondale, the then boundary of the Southern Division, and the section from Littabella.

LA--	-AD-	-MV-	BE ---- GB	-NB-	-BB-	-BB-	-BB-	-ET-	-KK-	-GD-	----	-IS-	-WK-	
-HO-	-TB-	--CN	CN--	MH-- ----	---\ --BW	-BW-	-BW-	----	-OT-	-YE-	--MU	MU--	-OA-	
--TO	TO--	-NE-	-GH-	-PN-	--TH	TH--	-GU-	----	-CU-	-HS-	--TE	TE--	--GY	

200mm by 200mm Tiles (Maryborough Control)

LA – Littabella, AD – Avondale, MV – Meadowvale, BE/GB – Booloongie/Gooburrum, NB – North Bundaberg, BB – Bundaberg, ET – Elliott, KK – Kinkuna, GD – Goodwood, IS – Isis, WK – Wokka, HO – Howard, TB – Torbanlea, CN – Colton, MH – Maryborough, BW – Baddow, OT – Oakhurst, YE – Yengarie, MU – Mungar, OA – Owanyilla, TO – Tiaro, NE – Netherby, GH – Gundiah, PN – Paterson, TH – Theebine, GU – Gunalda, CU – Curra, HS – Harvey's Siding, TE – Tamaree, GY - Gympie

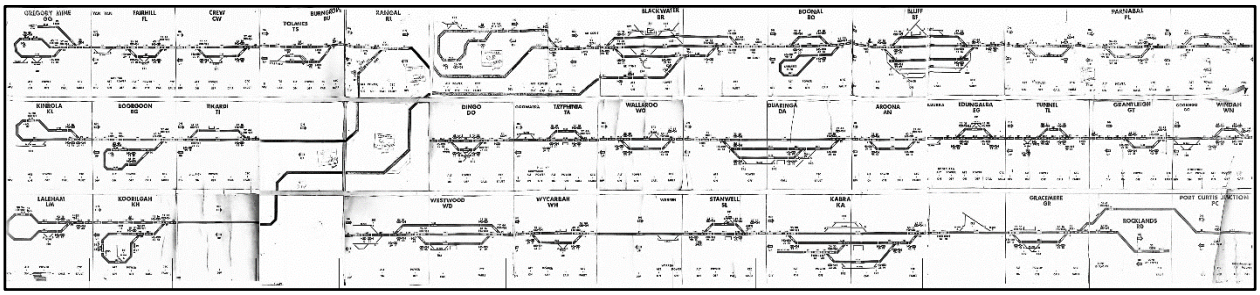
No examples of tiles from this mimic panel are known to exist, however tiles from the Port Curtis Junction to Tolmies CTC mimic panel from Rockhampton Control do exist. These tiles are also 200mm by 200mm and have the track layout and symbols screen printed on to them. LED's are directly mounted on a circuit board behind the tile and a cable with a large multi-pin plug was used to connect the tile to the wiring in the mimic panel. The Port Curtis Junction to Tolmies CTC system was commissioned between February 1980 and April 1982 with commissioning starting from Port Curtis Junction and working westwards to Tolmies.

This project had three stages:-

(1) Port Curtis Junction to Tunnel,
(2) Tunnel to Bluff, and
(3) Bluff to Tolmies & branches.

Mimic panel tiles from Kabra, Dingo and Boonal are known to exist and are all 200mm by 200mm with Kabra using two tiles of this size due to the complex layout of the passing loop/junction station. The Gympie to Maryborough mimic panel tiles were likely to be the same design as the Port Curtis Junction to Tolmies mimic panel tiles that were installed at a similar time.

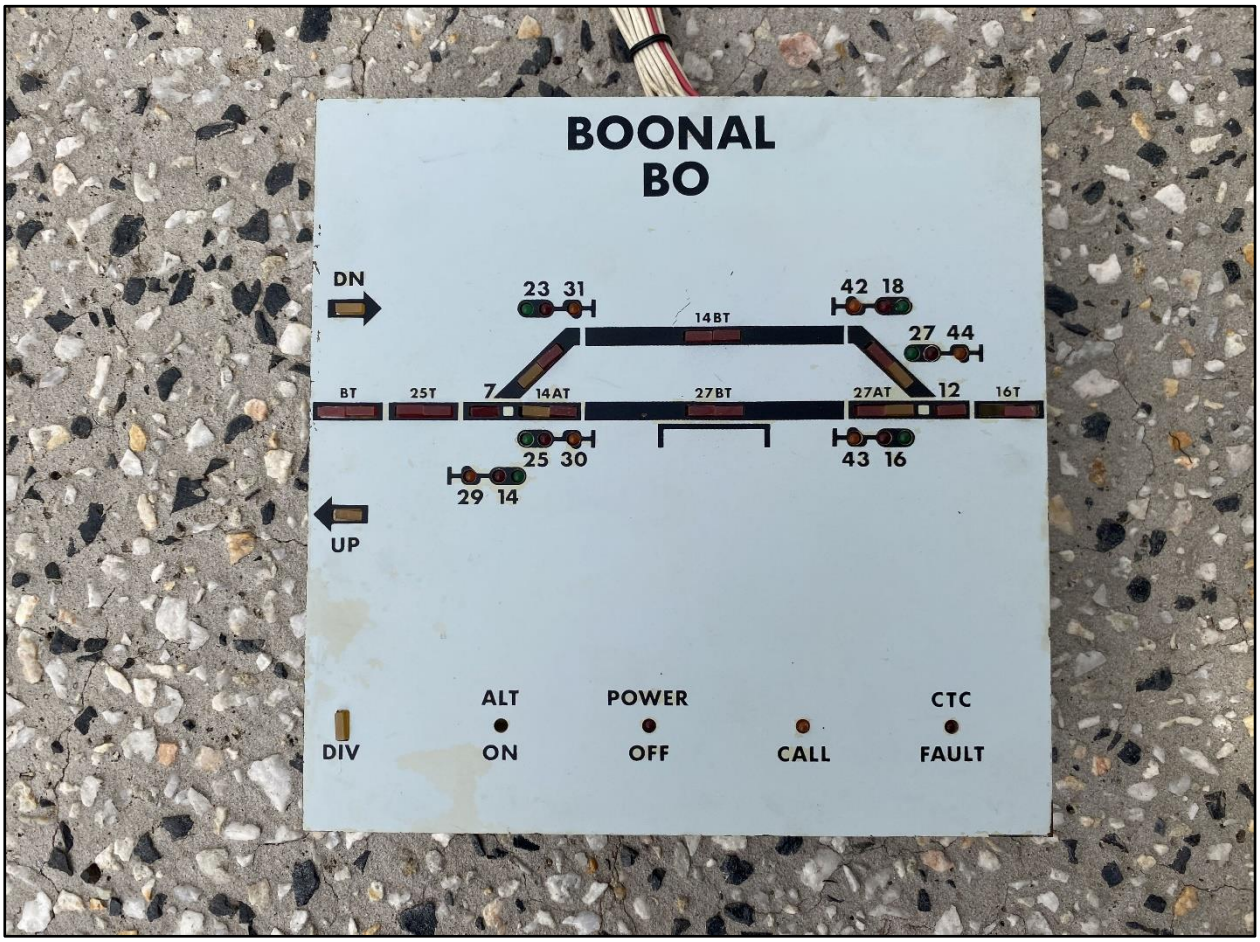
The mimic panel in Rockhampton for the Port Curtis to Tolmies CTC system was the same overall size as the one at Maryborough and again had three rows of tiles with 15 tiles across the panel. The diagram below shows the layout of the tiles after the scheme was complete to Tolmies as well as the branch lines to Laleham, Kinrola, Curragh and Gregory.



Above: A very condensed view of the drawing of the Rockhampton CTC Mimic Panel showing the layout of the 3 rows of 15 tiles after the Laleham, Kinrola and Gregory branches had opened. Starting in the bottom right corner is Port Curtis Junction and Rocklands with the line continuing to the left (west) to Westwood. The line continues on the middle row from the right-hand side with Windah to Dingo shown, and then continues on the top row from the right-hand side with Parnabal and Bluff. The two unnamed loops are Umolo and Walton that were added at a later date. Left of Bluff can be seen Boonal with the balloon loop then the junction station of Blackwater. The line dropping down and to the left is the Laleham Branch and continuing left of Blackwater is Curragh with its balloon loop. The next tile to the left is Rangal and the junction dropping down and to the left is the Kinrola Branch. The tile left of Rangal is Burngrove and Tolmies with the branch north to Gregory shown. There is little room for any expansion with most stations or junctions occupying a single tile, only the more complex stations of Kabra, Westwood, Duaringa, Bluff and Blackwater occupy two tiles.

The photograph on the next page shows the CTC mimic panel tile for Boonal, part of the original Port Curtis to Tolmies CTC system. As mentioned in *Proceed Order* issue No.9 Boonal had been a crossing loop since 1969 and remained a crossing loop with the introduction of CTC. At this time there were no sidings at Boonal, just the main line and crossing loop, and this is represented on the original CTC mimic panel tile. When CTC was commissioned at Boonal the balloon loop was already under construction suggesting the original mimic panel tile saw little use until it was replaced with a new one incorporating the coal loading balloon loop.

The lettering, track diagram and signal numbers are all screen printed in black onto the grey background. A layer of varnish was used to protect the face. Round and rectangular holes are punched through the metal for the LED indications, the round LED's are all 3mm in diameter while the rectangular LED's are 3 mm by 8 mm. The station name and corresponding signal mnemonic are in large letters at the top of the tile while medium sized letters and numbers are used for signal numbers, point numbers, Up and Down indicators and status indications at the bottom of the tile. A smaller sized font is used for the track circuit numbers.



Above: The original CTC mimic panel tile for Boonal before the installation of the coal loading balloon loop and dead-end siding. This tile was removed and placed in a junk box for many years, suffered a few scratches, some staining, and the varnish layer discoloured over time.

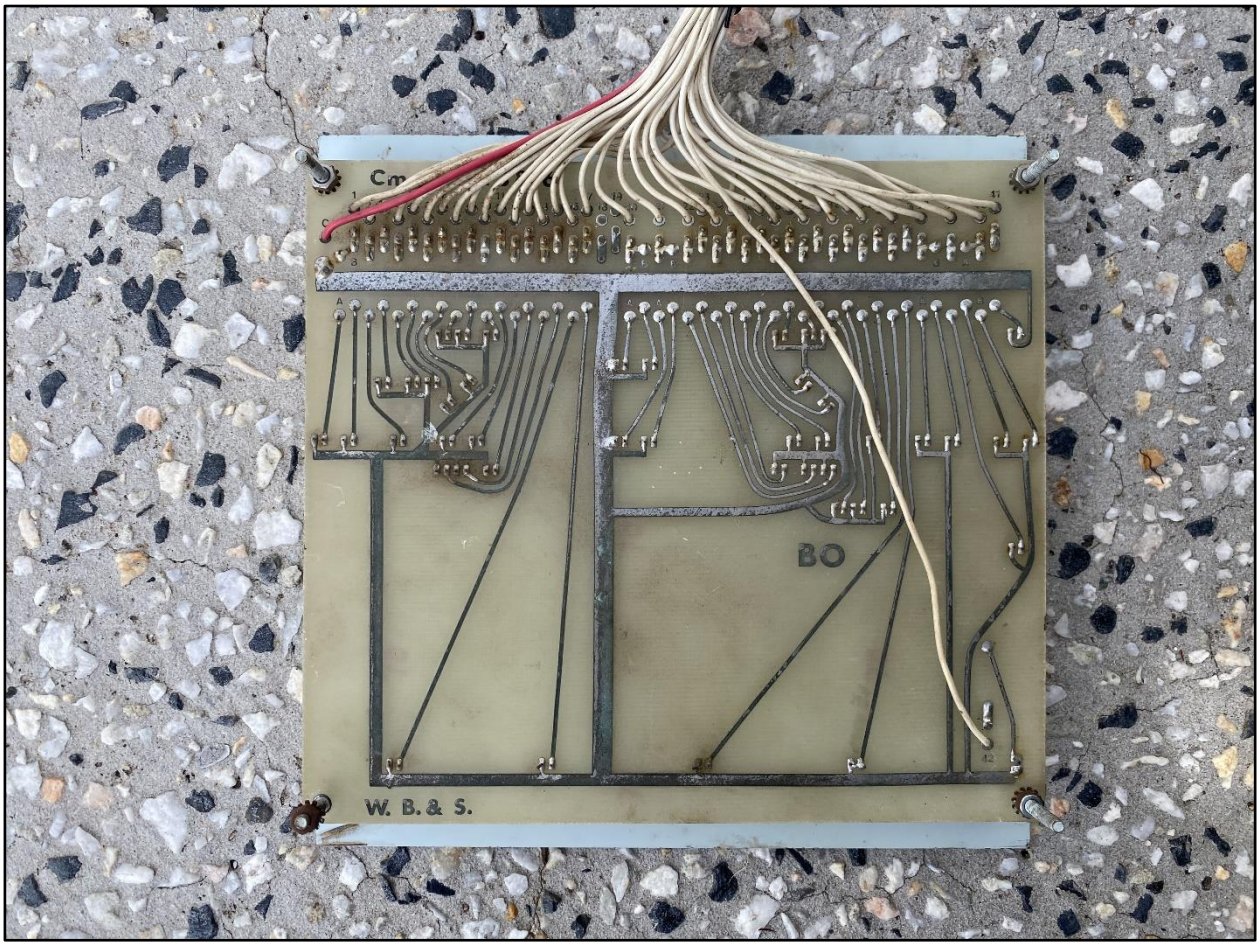
All running signals have two LED's (one red and one green) provided regardless of how many aspects the actual signal may have. This is standard practice for a mimic panel as it is only necessary to show if the signal is showing a 'proceed' aspect or a 'stop' aspect. Whether the 'proceed' aspect is a green, steady yellow, or flashing yellow, is irrelevant to the Train Controller. All position light shunt signals (29, 30, 31, 42, 43, 44) are represented by a yellow LED as white LED's did not exist at this time.

The position of the turnouts is indicated by a yellow rectangular LED and track circuit occupancy is indicated by red rectangular LED's. The Up and Down indications and the DIV (division) indicator are all yellow LED's. Typically, two Train Controllers operated the CTC system and the

dividing point between the two Controllers areas of operation is indicated when the yellow DIV LED is lit. The position of the division can be varied due to operational requirements; hence the DIV LED appears on many of the tiles.

The reverse side of the mimic panel tile as shown below has the Westinghouse Brake & Signal (W. B. & S.) name in the bottom left, and the mnemonic BO for Boonal towards the centre for ease of identification from behind the mimic panel. In the top left the code Cmxxx (partly obscured) is the Westinghouse drawing number specific to the Boonal mimic panel tile; each tile having its own specific drawing number. All the wiring is soldered to the top edge of the tile (with only one exception), one white wire is provided for each LED and the red wire is a common. Each individual LED has its own resistor to limit the voltage/current flowing through the LED and these resistors are mounted on the circuit board and behind the tile face.

Even this simple layout has 45 LED's to provide indications for track circuit occupancy, signal indications, point position, direction of travel indicators and alarm indications for this station.



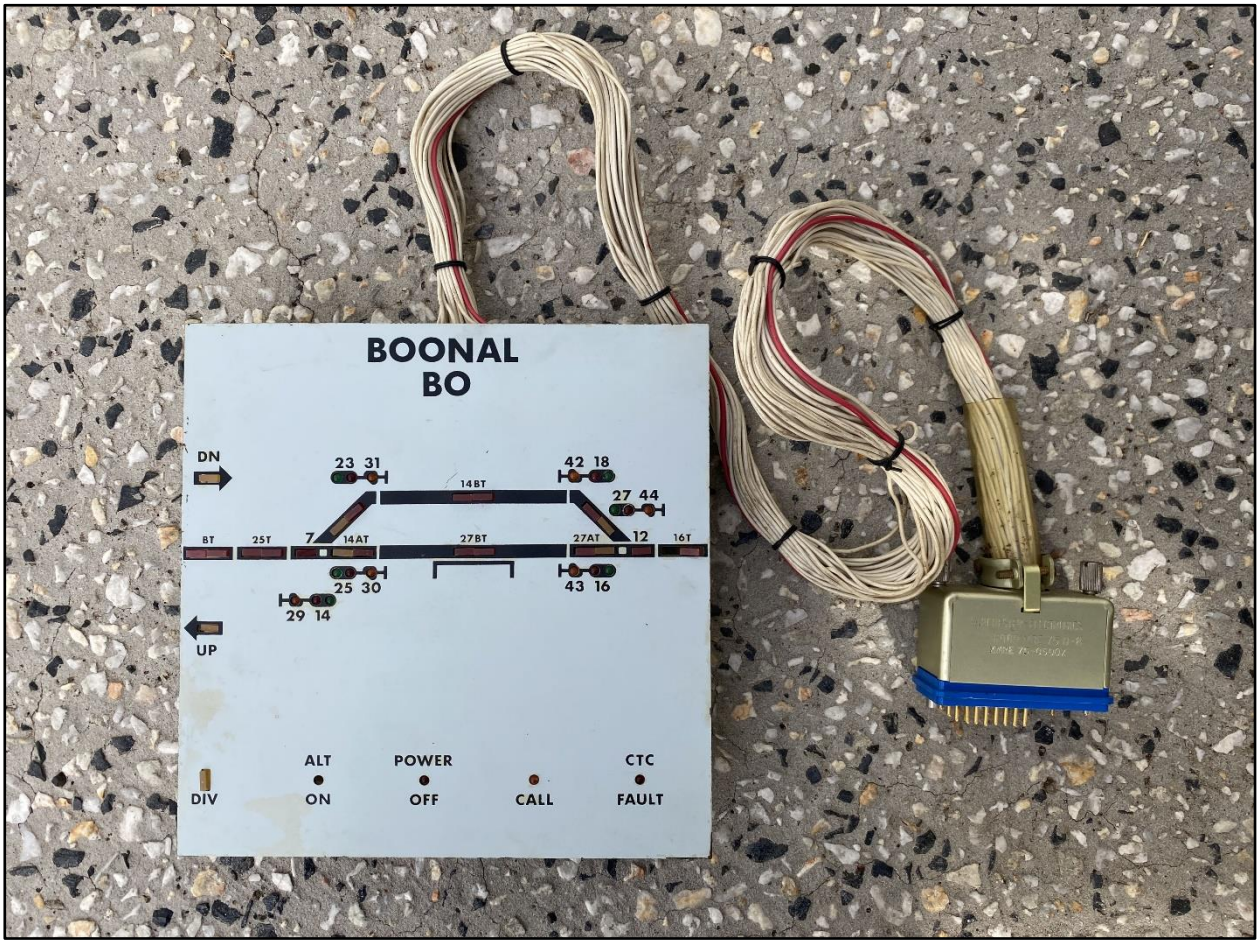
Above: The reverse side of the mimic panel tile showing the printed circuit board with WB&S in the bottom left; the letters 'BO' to indicate it is for the Boonal tile, and the wiring to connect the tile.

The final photograph shows the connector plug at the end of the wires from the circuit board. Each tile was plugged into the mimic panel frame wiring which ran away to the electronics driving the system. The use of

a plug enabled easy removal and replacement of any tile or tiles when modifications took place. Changes to the track or signalling layout at a station meant that a completely new mimic panel tile needed to be designed and manufactured and this is exactly what happened with Boonal.

The CTC was commissioned at Boonal in April 1981 and one of the Night Officers was retained after this date as construction of the Boonal balloon loop had or was about to commence. The balloon loop trackage was completed and ballasted by the end of May 1981 and the remaining Night Officer was removed from the 29th of May 1981. Additional signalling for the balloon loop and the coal loading facility was not complete at this stage. No date has been found to verify the date the Boonal balloon loop opened or when CTC became operational for the balloon loop.

Even if a number of months elapsed before the balloon loop was signalled and added to the CTC system, the mimic panel tile photographed probably only saw a number of months in use before being replaced with an upgraded version.



Above: The complete tile showing the wiring and connecting plug which enables quick changeover when alterations are required.

Further design changes took place as mimic panels needed to be expanded to cover even larger geographical areas and these will be discussed in the next issue of *Proceed Order*.

To be continued...

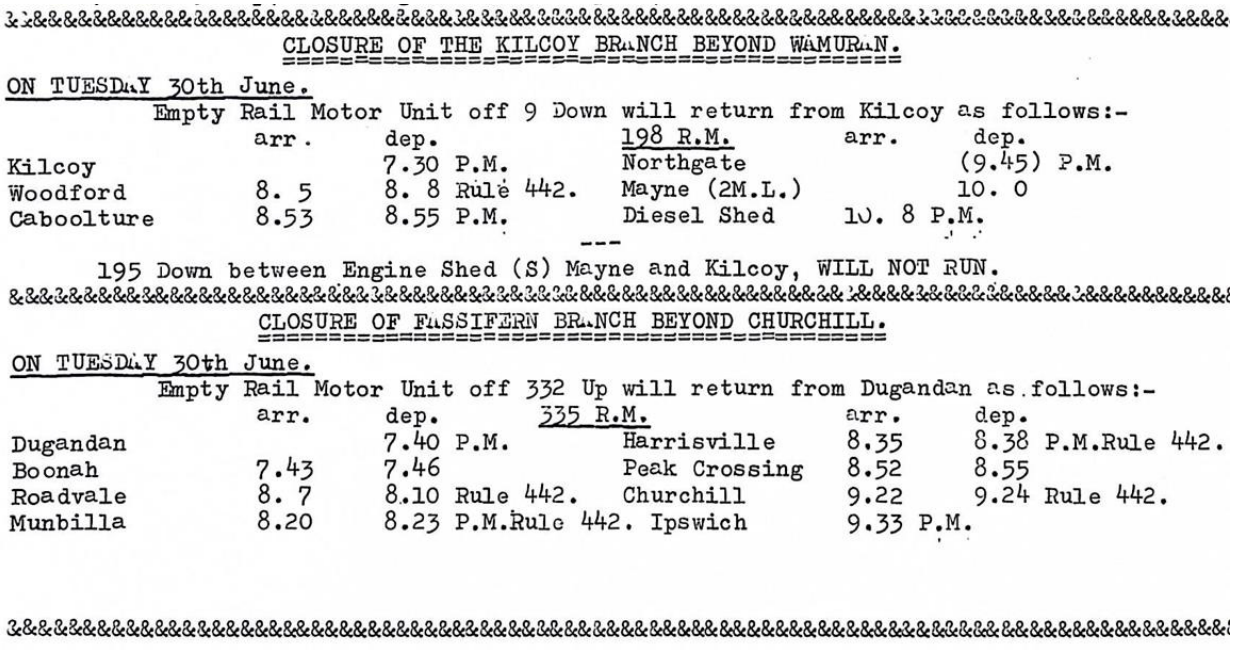
Line Closures & Ordinary Staff Withdrawal

On 30th June 1964 several sections of line were closed permanently in various parts of Queensland. Instructions were issued to staff concerning the last trains to convey freight as well as parcel and passenger traffic on each section. Further information was provided to indicate what train would cancel and withdraw the Ordinary Staff and associated equipment.

The table below indicates the line sections concerned, the last train to remove rollingstock, and the last train service to cancel and withdraw the Ordinary Staff - sometimes this was the same train.

Section	**Train to clear rollingstock from all stations on section.**	**Train to remove Ordinary Staff, Ticket Boxes and paperwork.**
Beenleigh to Southport	277 Down Tuesday 30th June 1964	277 Down Tuesday 30th June 1964
Woodford to Kilcoy	196 Up Monday 29th June 1964	198 Up Rail Motor Tuesday 30th June 1964
Churchill to Dugandan	323 Down Tuesday 30th June 1964	335 Down Rail Motor Tuesday 30th June 1964
Kingaroy to Nanango	K15 Down Monday 29th June 1964	K15 Down Monday 29th June 1964
Isis Junction to Cordalba	Return of C21 Down Tuesday 30th June 1964	Return of C21 Down Tuesday 30th June 1964

The Ordinary Staff, Staff Boxes, Train Staff Ticket Books, Line Clear Books, etc., applicable for each of the closed sections were to be collected by the guards working the last train or rail motor returning over the section. On arrival back at the finishing depot, the necessary arrangements were to be made for the booking of this equipment by Value Parcel to the "Trains" section in Brisbane.



CLOSURE OF THE KILCOY BRANCH BEYOND WAMURAN.

ON TUESDAY 30th June.

Empty Rail Motor Unit off 9 Down will return from Kilcoy as follows:-

	arr.	dep.	198 R.M.	arr.	dep.
Kilcoy		7.30 P.M.	Northgate		(9.45) P.M.
Woodford	8. 5	8. 8 Rule 442.	Mayne (2M.L.)		10. 0
Caboolture	8.53	8.55 P.M.	Diesel Shed	10. 8 P.M.	

195 Down between Engine Shed (S) Mayne and Kilcoy, WILL NOT RUN.

CLOSURE OF FASSIFERN BRANCH BEYOND CHURCHILL.

ON TUESDAY 30th June.

Empty Rail Motor Unit off 332 Up will return from Dugandan as follows:-

	arr.	dep.	335 R.M.	arr.	dep.
Dugandan		7.40 P.M.	Harrisville	8.35	8.38 P.M.Rule 442.
Boonah	7.43	7.46	Peak Crossing	8.52	8.55
Roadvale	8. 7	8.10 Rule 442.	Churchill	9.22	9.24 Rule 442.
Munbilla	8.20	8.23 P.M.Rule 442.	Ipswich	9.33 P.M.	

Above: Part of Train Notice 2495 dated 17th June 1964 showing the schedule of two of the rail motors mentioned above.