PROCEED ORDER
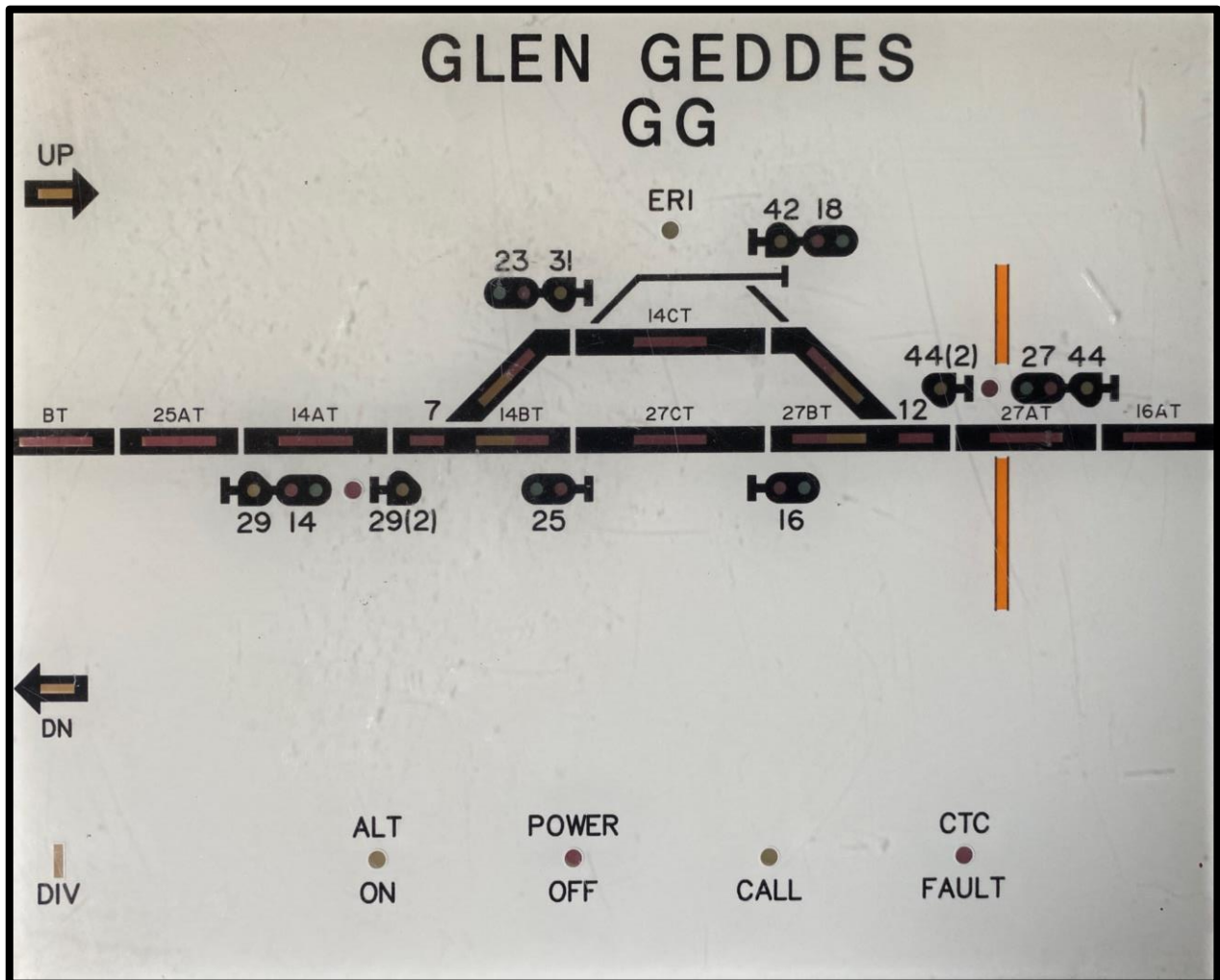
The Journal of the Signalling Interest Group Queensland

The final design phase of the physical CTC mimic panel showing the tile from Glen Geddes which would have existed at the Townsville Control Centre.

Contents

CTC Mimic Panel Designs (4)

The last two phases of mimic panel design could generally be described as refinements of the previous design. Although there is no documentation to describe why, the size of the mimic panel tile was increased to be 250mm wide and 200mm high. The extra width may have been deemed necessary to give a little more space for the track and signal layout especially if the station had Outer Home and/or Advance Starter signals. It may have also helped the Train Controller, seated at his desk a short distance away, see the layout more clearly with elements spaced out a bit more.

The Caboolture to Gympie CTC system installed between late-1982 and early-1983 shows that the 250mm wide mimic panel tiles were used and with 12 tiles on each row the same overall size of the diagram was kept as 3m.
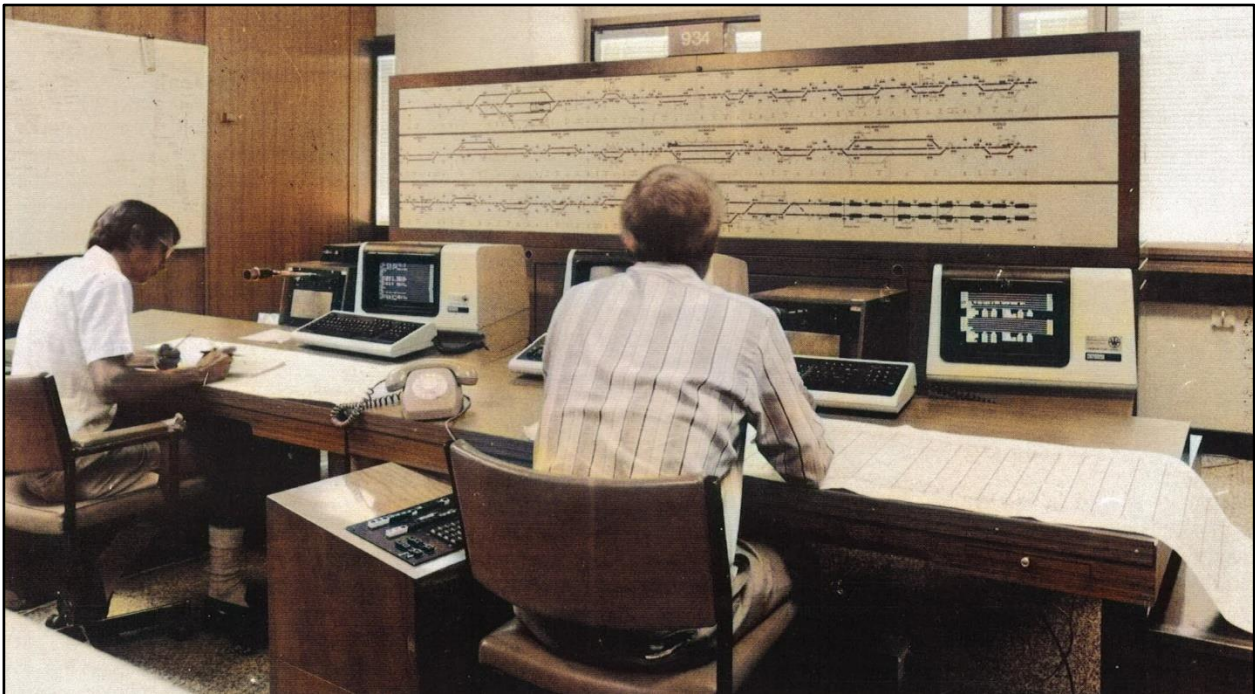

Above: A scan from ROA Network magazine (colourised) showing the Brisbane Control Room and the Caboolture to Gympie CTC system. Note the unusual and unique addition of alphanumeric train describer displays (four tiles in the bottom right corner) to indicate the train numbers of trains operating between Petrie and Caboolture. QGR19870100-SCAN0004.jpg

What cannot be seen in the image is the manufacturing process used for these mimic panel tiles. It is likely that instead of screen-printed diagram details an engraved-metal and paint-filled process was used to create a more durable finish. All remaining mimic panel tiles of this size and from this era known to exist have an engraved metal face with black paint-filled details for the track plan, signals, and all lettering and numbering. The use of LED's continued and again they were soldered onto a circuit board with current/voltage dropping resistors directly behind the tile face. The LED's also fitted through holes in the tile face with round and rectangular holes utilised.

With later re-organisation of Train Control Boards, much of the area originally controlled from Maryborough was transferred to Brisbane which meant a larger mimic panel was necessary. Early photographs of Brisbane Control show three Train Controllers sitting facing a mimic panel with four rows of tiles with each row having a capacity for 21 tiles. Due to the long width of the mimic panel the tiles were arranged into three groups such that each Controller was looking at the area under his control positioned directly in front of him. The left-hand section of the mimic panel displayed Bundaberg to Paterson, the middle section Theebine to Pomona, and the right-hand section Cooroy to Caboolture. Bundaberg and the sections north of Bundaberg previously controlled from Maryborough were then controlled from Rockhampton.

When the area controlled by Maryborough, from Bundaberg to Gympie, was transferred to Brisbane new 250mm wide tiles were made to replace the redundant 200mm wide tiles originally used at Maryborough Control.
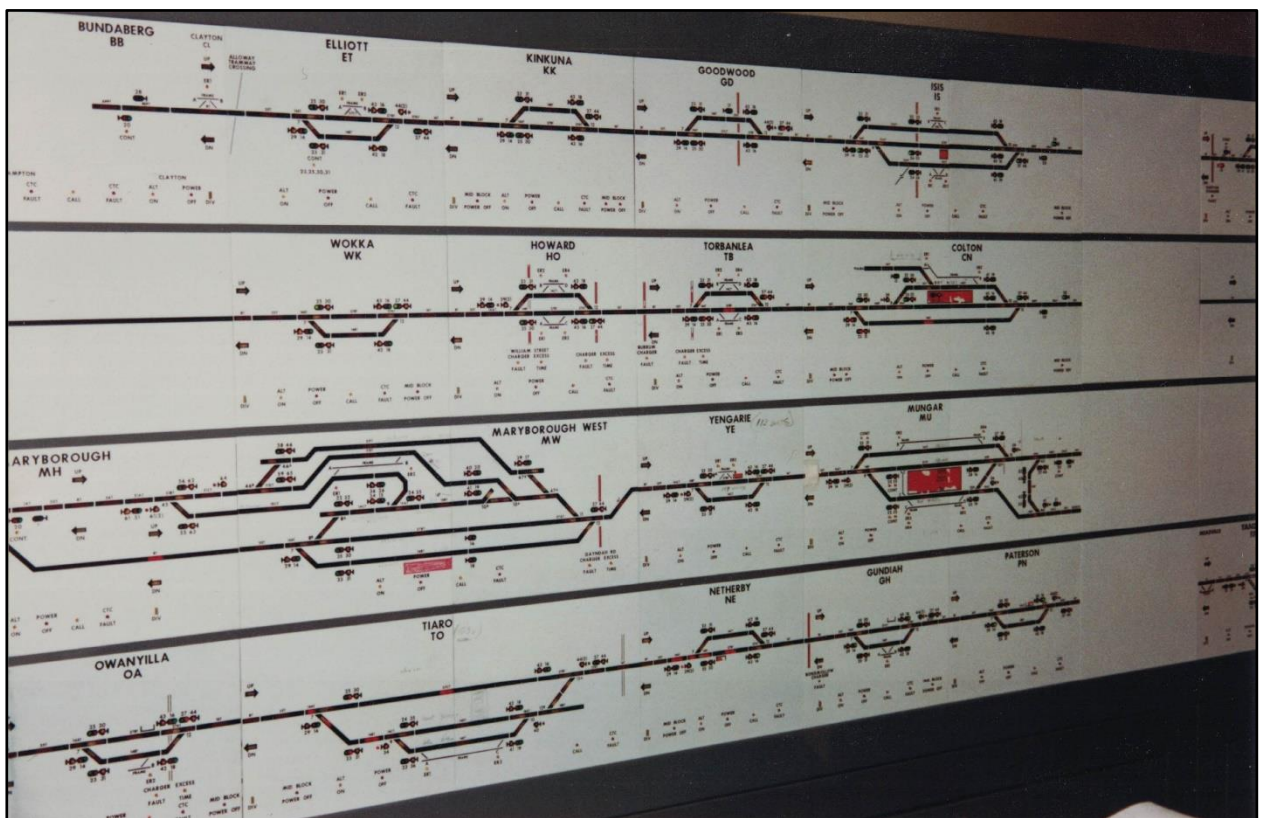

Above: Brisbane Control, Bundaberg to Paterson section of the mimic panel with the newer 250mm by 200mm tiles.

The overall size of the mimic panels was adjusted to what was needed at the time, plus perhaps space for expansion if that was known to be needed in the future. The overall size of the mimic panels also changed due to the larger 250mm wide tiles, and larger geographic areas controlled by each person.

There were examples of small mimic panels and also large examples like the Brisbane Control mimic panel mentioned above and illustrated above and on the following page. There was no standard size for the overall mimic panel, but the tile size was standard.
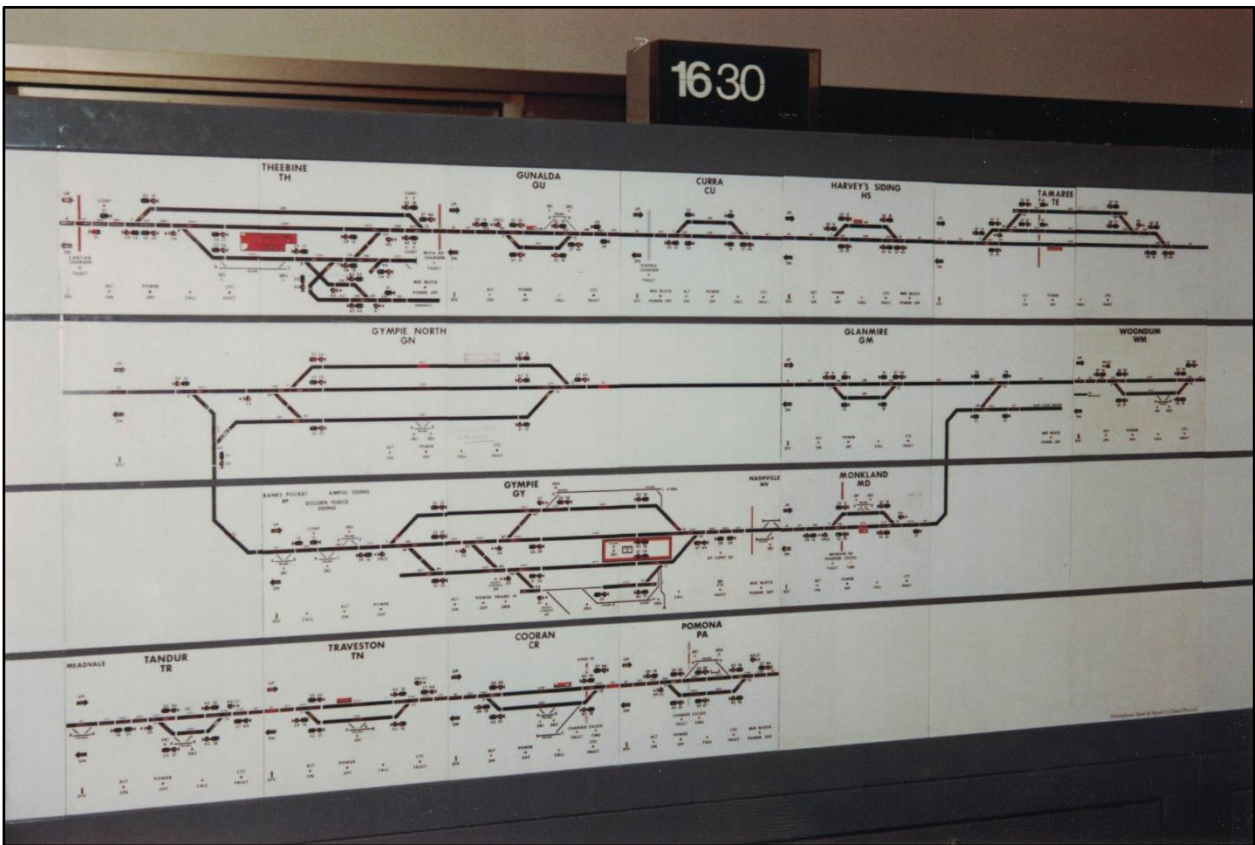
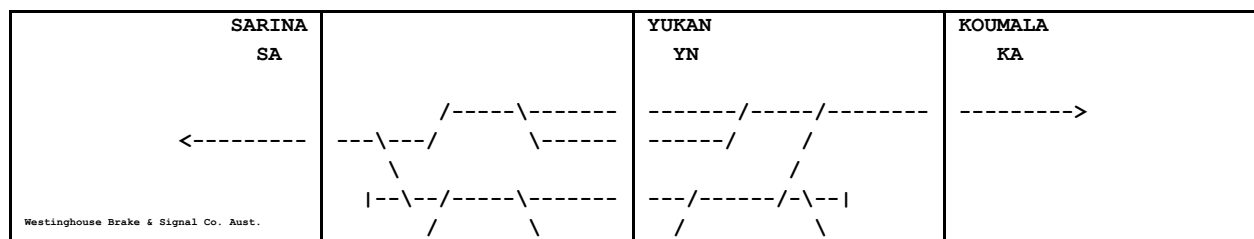*Above: The middle section of the Brisbane Control mimic panel displaying stations from Theebine to Pomona. The Gympie North deviation now shown in use as well as the older Gympie/Monkland route.*
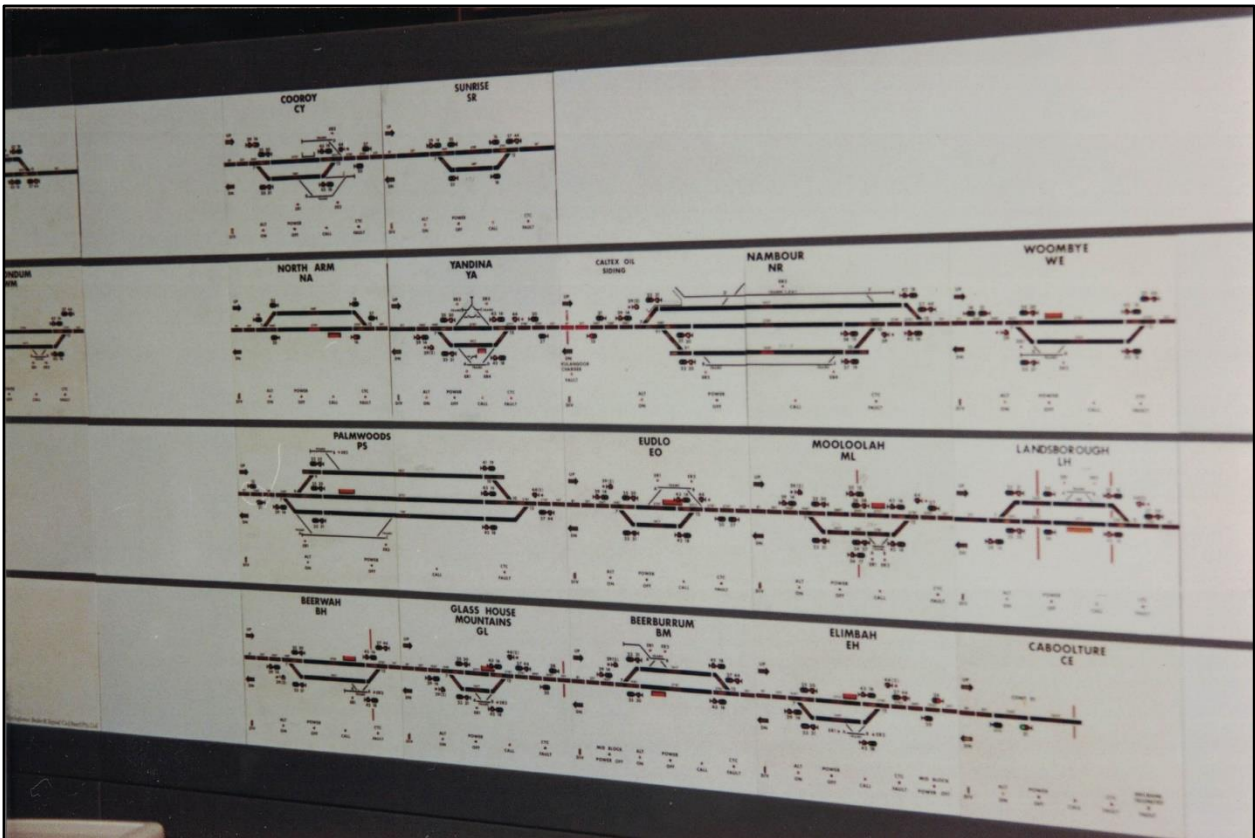
Above: The right-hand section of the mimic panel showing stations Cooroy to Caboolture. Although Caboolture was originally CTC controlled, by this time control of signalling at Caboolture was transferred to Mayne Control.

The mimic panel for Hay Point to Coppabella, Riverside, Blair Athol and Gregory had sixteen 250mm wide tiles arrange into four rows. This 4m wide mimic panel was, similar to Brisbane, divided into two sections such that the area of control for each Controller was directly in front of them. There were 15 spare tiles to cater for future growth and or changes.

By contrast an early mimic panel for the North Coast Line through Yukan consisted of only four 250mm wide tiles to display the very small area of CTC control from Sarina to Koumala. The overall size of the mimic panel was thus 1000mm (1m) wide and 200mm high with no scope for future expansion. Yukan itself had two tiles while the sections to Sarina and Koumala each had one tile. Two or three of these original tiles may still exist.

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+-------------------------+-------------------------+-------------------------+-------------------------+
|              SARINA     |                         | YUKAN                   | KOUMALA                 |
|              SA         |                         | YN                      | KA                      |
|                         |                         |                         |                         |
|                         |        /-----\-------    -------/-----/--------   ---------->             |
|         <---------      ---\---/          \------   ------/     /                                   |
|                              \                             /                                        |
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|  Westinghouse Brake & Signal Co. Aust.      /       \        /          \                           |
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Above: A diagram showing the approximate layout of the North Coast Line CTC Mimic Panel controlling the sections from Sarina and Koumala, the North Coast Line crossing loop at Yukan, and the dual-controlled crossovers and signals connecting to the Goonyella System CTC.

The small four-tile mimic panel was ultimately replaced as CTC was commissioned north and south of Yukan on the North Coast Line. The later mimic panel had the capacity for three rows of tiles with 12 tiles on each row giving an overall width of 3m.

Just to complete the record as it is known, the mimic panels at Rockhampton Control at one time featured both large and small mimic panels. The North Coast Line mimic panel showing stations from Bundaberg to Rockhampton was 16 tiles wide (4m) and 4 rows tall with the area divided into two sections. The Central Line mimic panel showing stations from Rocklands to Emerald including the branch lines to Laleham, Gregory and Kinrola was 15 tiles wide (3.75m) and 4 rows tall with the area divided into two sections. The original mimic panels for the North Coast Line between Gladstone and Rockhampton and the Central Line were replaced and had new 250mm wide tiles manufactured.

These tiles were the engraved-metal/paint-filled style and several of them still exist in various private collections. There was nothing wrong with the engraved-metal/paint-filled method of construction other than it possibly being time-consuming to manufacture. After engraving the sheet metal, the background colour would have been applied first and allowed to dry, then the black track diagram/lettering and numbering would have been painted in and again left to dry. Some minor details like level crossings may have required a third stage of painting and appear to have been done by hand. A layer of clear varnish appears to have been applied to protect the painted finish.

This size and style of mimic panel tile also used smaller connecting plugs for the cabling and featured a plug at both ends instead of the permanently soldered wires seen on the 200mm by 200mm tiles from the Gympie-Maryborough and Port Curtis-Tolmies mimic panels.

The final phase of the mimic panel development did not incorporate a change in the size or shape of each tile, but more of the method of manufacture of the tiles. Without knowing the exact materials or process involved, the construction appears to be of a multi-layered plastic face with the circuit board, current limiting resistors and LED's all mounted behind it.

The top layer of plastic is clear and has no holes in it making for a smooth surface finish to the mimic panel, the LED's shine through this layer from behind and do not project through it as in previous designs using LED's. Behind the top layer of plastic, and above the next layer of plastic, is the actual track diagram which appears to be a separate thin sheet that has been printed with the required information and includes holes for LED's to shine through from behind. The lower (white) layer of plastic is drilled with holes to position the LED's to shine through the middle layer track diagram. A slightly smaller style of plug appears to have been used for these tiles compared to the previous engraved-metal/paint-filled style.
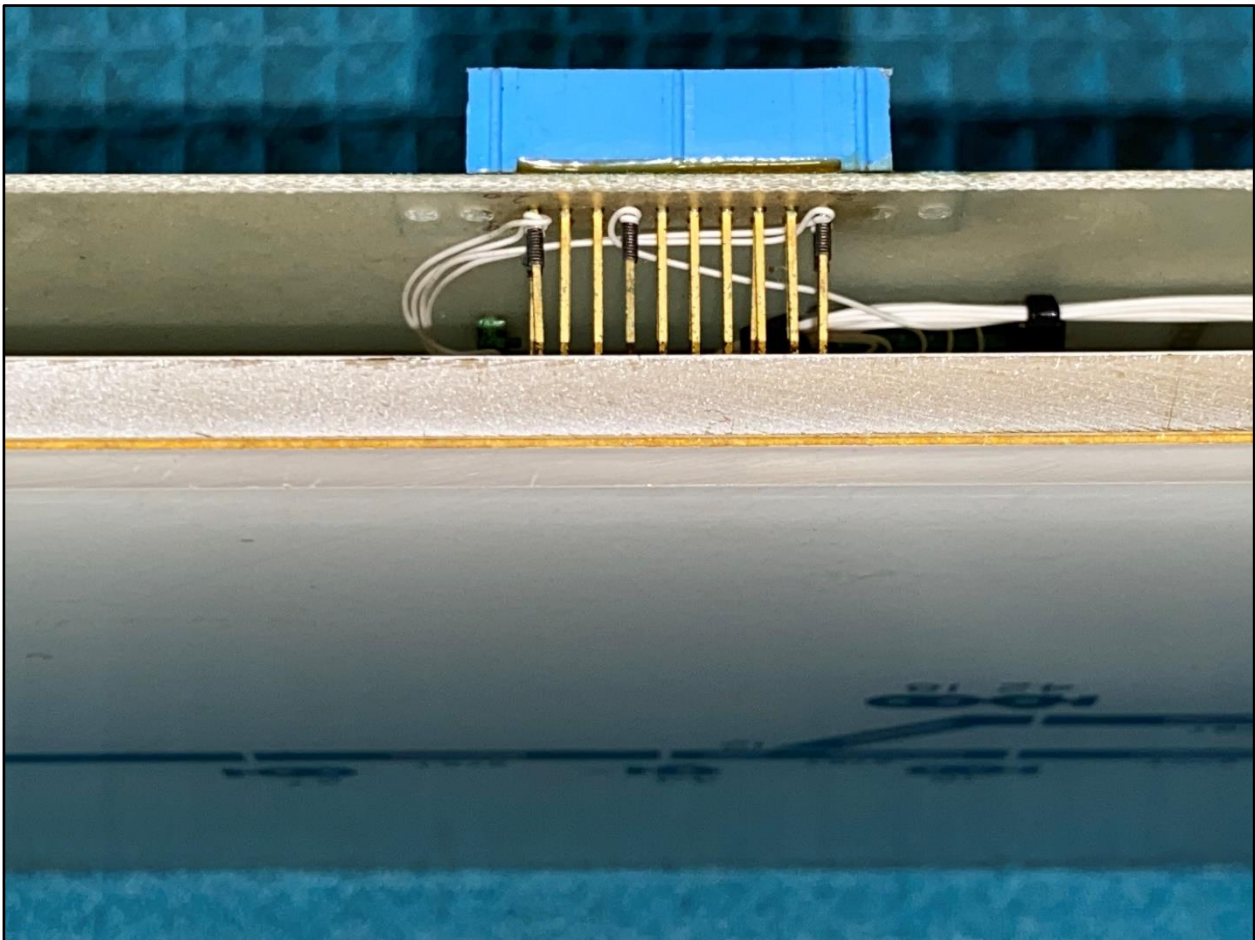
Above: A side view of the layered plastic method of construction for the final type of mimic panel tile used in Queensland.

This style of mimic panel tile was used at Rockhampton Control for the CTC system north of Rockhampton where again a small mimic panel existed at one time. This panel showed the stations north of Rockhampton, only as far as The Caves, and included North Rockhampton on the Yeppoon Branch. The panel was five tiles wide (1.25m) with two rows. The Moura Short Line mimic panel, the replacement of the original mimic panel mentioned in *Proceed Order* (July-September 2023) was again customised to the required size. Stations from Callemondah to Moura Mine were displayed on a panel seven tiles wide (1.75m) and arranged in three rows, although the top row was spare and never used, and there was one spare tile in the bottom right corner. The Ipswich to Toowoomba CTC mimic panel also featured this style of construction.
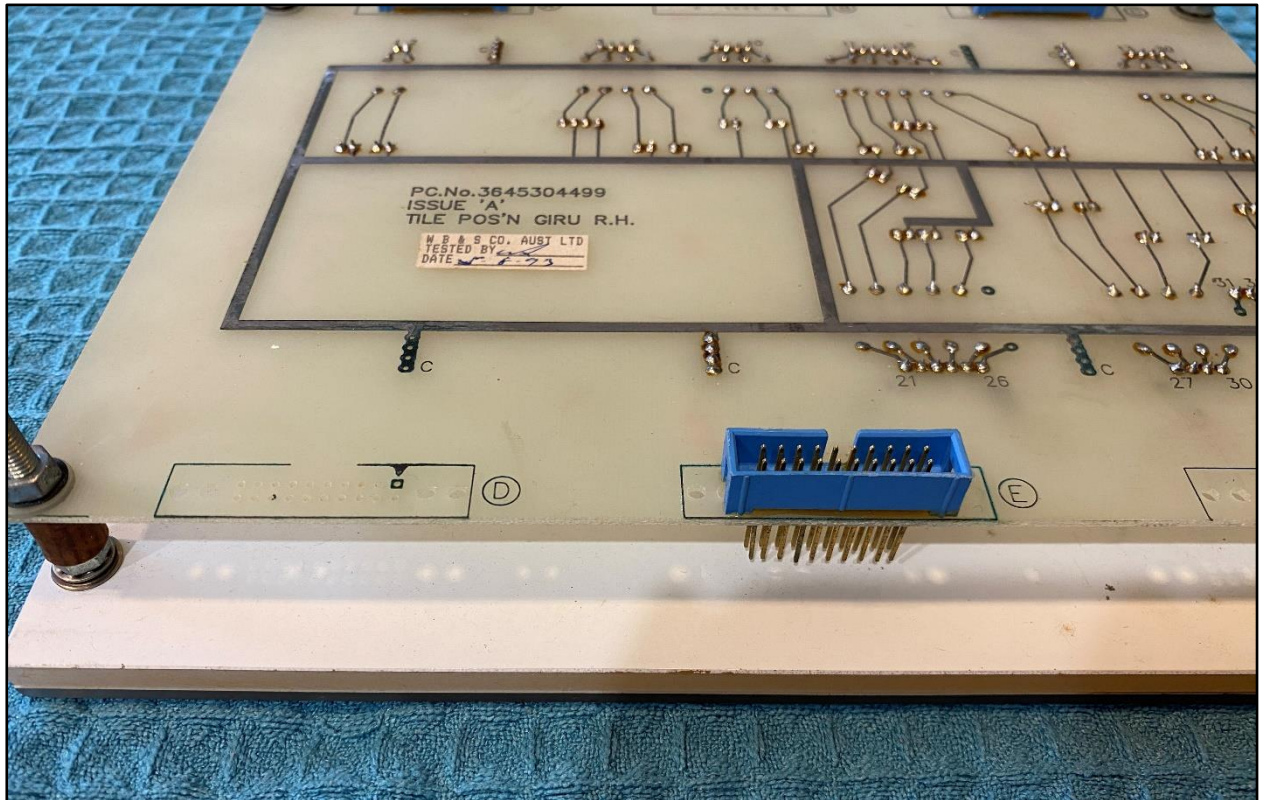
Above: A rear view of the layered plastic style of construction showing the circuit board mounted behind the fascia and the connecting plug for the cable. The tile represents part of Giru station and was manufactured/tested in August 1993.

While track and signalling alterations are not that frequent, the need to remove and replace mimic panel tiles with each change was an obvious expense as the old tiles were unlikely to be re-usable except for parts perhaps. The notion of having the track diagram on a Visual Display Unit had clear advantages as it was only a software change that was required with the modified track/signalling layout appearing on the same VDU. The change from a physical mimic panel to a screen-based control screen also had clear advantages when large changes were required as they could all be implemented simultaneously – the time-consuming process of removing and replacing multiple mimic panel tiles was gone.

This brought to an end the short era of the physical CTC mimic panel in Queensland.

Signalling Ipswich 1972

Signalling changes occur from time to time but there are also proposed changes that are never completed or change significantly between the original design idea and the actual work completed. One such change at Ipswich involved a suggestion to alter the two two-arm semaphore signals at Ipswich protecting the Bremer River Bridges to colour light signals and operate them from pushbuttons instead of ground frame levers. The existing four-lever ground frame at the southern end of the Bremer River Bridge was to be abolished.

The scheme was later revised to retain the semaphore signals and relocate the ground frame to the north end of the bridge. That configuration was brought into use on 29th November 1972 and remained in use for a number of years. The signals could be operated by the Shunter or other authorised employees, however if no Shunter was available the Fireman of a light engine could operate the levers under the direction of the signalman in Ipswich signal cabin. The signals were normally left at 'stop' and were to be placed at 'proceed' for all movements including shunt moves. A telephone was provided near the new position of the ground frame.

The ground frame still exists but has been decommissioned. One of the two rail bridges was also decommissioned and removed making two of the levers spare as shown in the diagram below that dates from the early 1990's.
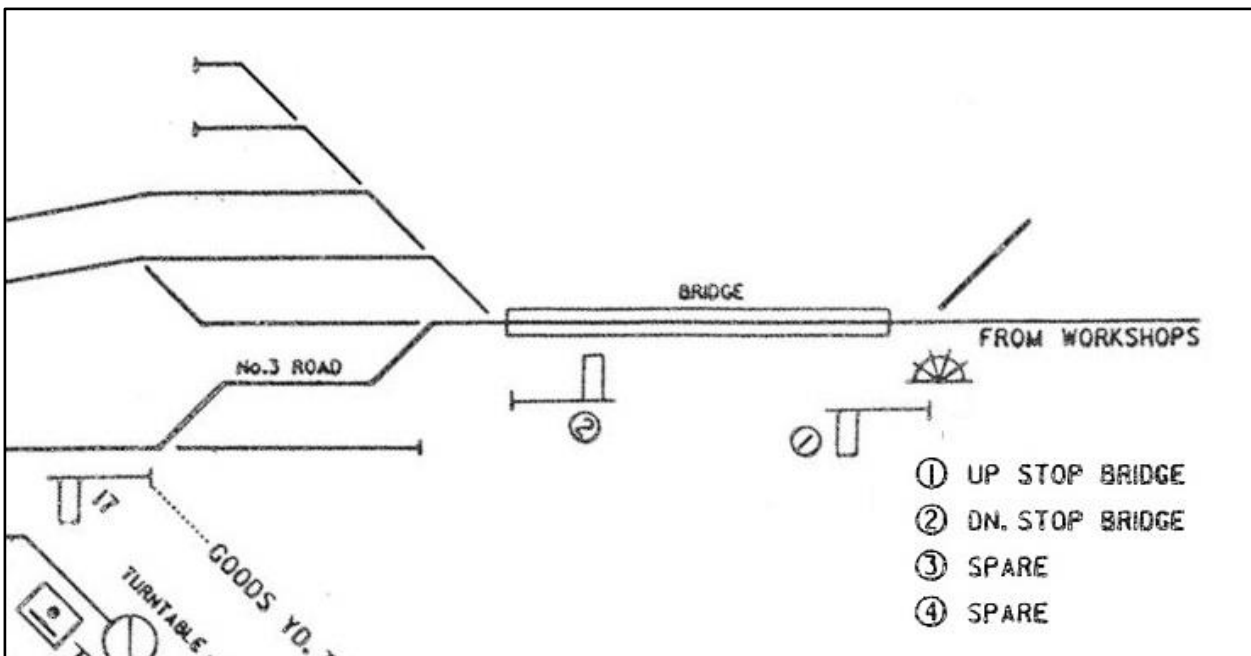
Above: Ipswich South Yard, the Bremer River Bridge, and the four-lever ground frame relocated to the northern side of the river during the 1990's.