

THE NEW MARSHALLING YARD AT TE RAPA

First in New Zealand with Retarders

NEW ZEALAND RAILWAYS' new hump marshalling yard at Te Rapa, near Hamilton, is now in use. It was officially opened by the Minister of Railways, Hon. J. B. Gordon, on Sunday 10 January 1971.

With more than 30 miles of track and refined electronic equipment, the new Te Rapa yard is the largest and most advanced in New Zealand. It is the first to have a semi-automatic hump shunting system.

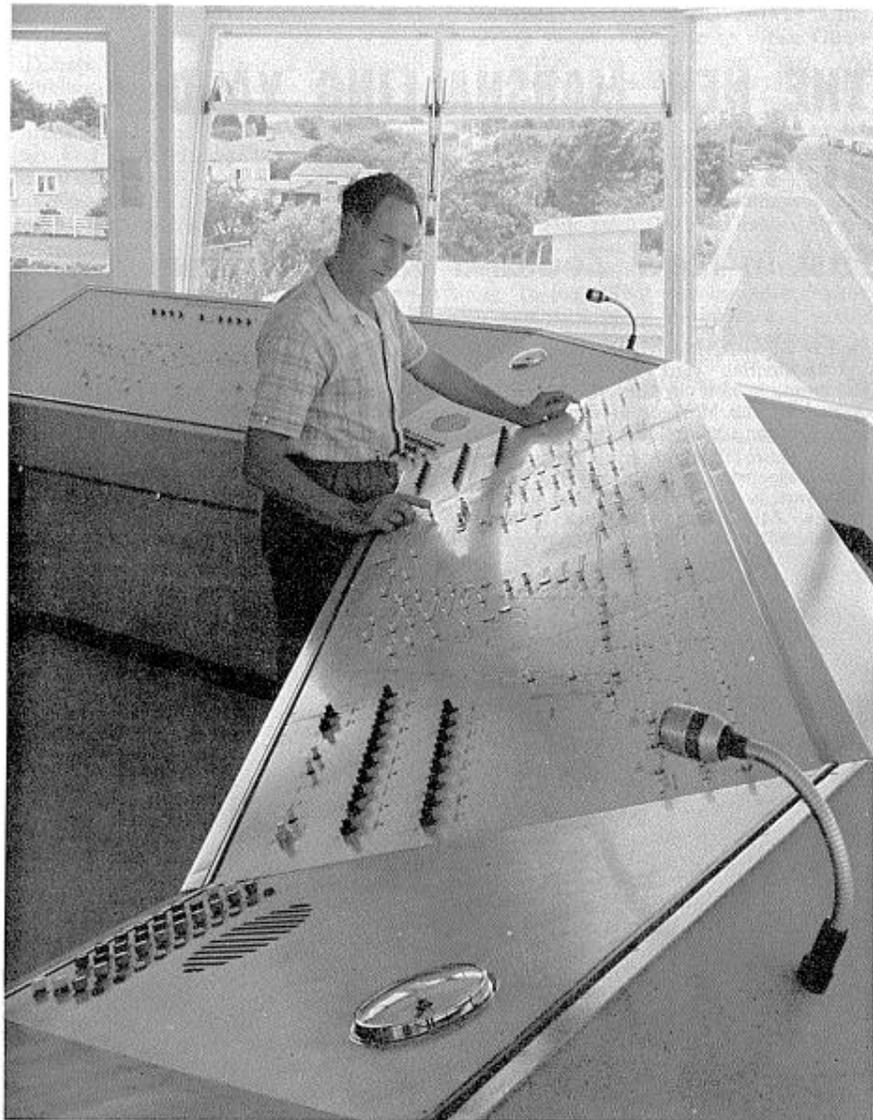
The tracks are arranged in two distinct sections: one for trains from the north, the other for trains from the south and east. Each section comprises three parts—arrival tracks, sorting sidings or grids, and departure tracks on which trains to be despatched are assembled. The two sections are linked by exchange sidings.

Extending about 2½ miles altogether on the western side of the main line north of

Looking up the hump across the wagon retarder from the throat of the east classification sidings at New Zealand Railways' new Te Rapa marshalling yard near Hamilton.

Photograph: N.Z. Railways Publicity





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Designed by New Zealand Railways' signals engineers and manufactured in New Zealand, the three-section signal control panel in the new Te Rapa Signal Box is of the push-button route-setting type. It covers not only the movement of goods trains within and through the new yard, but also train movements on the main line northward to Ngaruawahia and ultimately through the Frankton station and junction to the south.



Photograph: N.Z. Railways Publicity

Te Rapa marshalling yard from the south end. At left are the west arrival roads, from which a rake of wagons is being propelled over the hump into the west classification sidings or "grid". To the right of these sidings are the exchange sidings and the east grid. The East Grid Control Tower and hump can be seen in the distance to the right of the Wagon Repair Depot. In the foreground is the Diesel Depot and Locomotive Supervisor's Office.

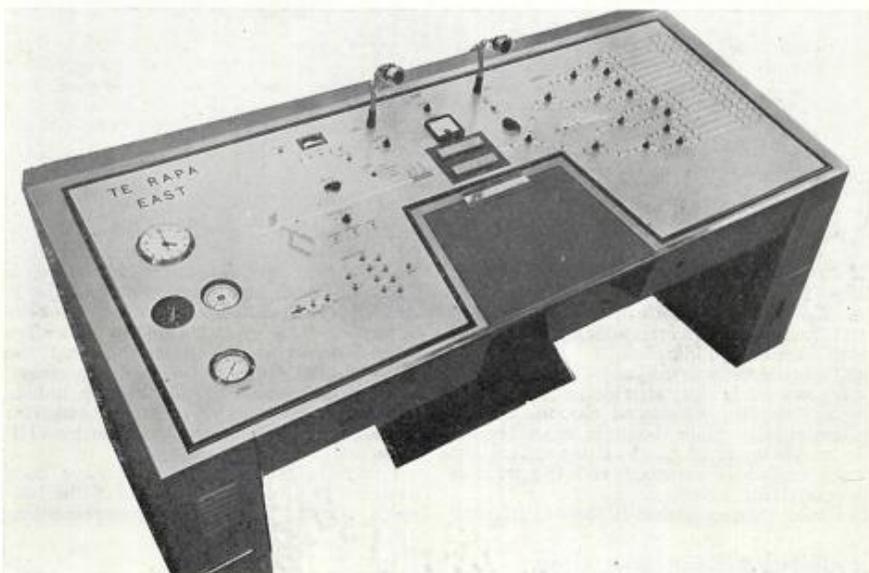
Frankton, the entire complex covers about 75 acres. Ancillary services included in the new yard comprise a modern wagon repair depot, a diesel locomotive servicing depot, a new signal box with a route-setting control panel, and several administration and staff amenity buildings.

Trains entering the arrival tracks pass over a weighbridge, at which equipment is being installed to record wagon weights automatically while the train moves across at speeds up to 15 m.p.h. Upon arrival, the train engine is detached and the train is prepared for humping.

Radio communication is used to transmit

information and instructions between key men in the yard and the control centres, and a Hump Speed Light Indicator in the cab of each hump shunting locomotive is operated via radio frequency by the Grid Controller. This gives a constant indication to the driver as to whether or not the required humping speed is being maintained. It can also give a red stop indication if necessary. The controller can also communicate with the enginedriver by VHF voice radio.

Five "Da" class locomotives have been modified to give precise control of the low-speed working required on hump-shunting



ABOVE: Wagons roll down the hump across the retarder into the West Yard classification sidings. Grid control tower to the left, and diesel depot in the background.

LEFT, UPPER: Te Rapa West Grid Control Operator at his desk, showing the switches for route selection into the various classification and exchange sidings. Immediately in front of him is the train list showing the destinations and weights of the various "cuts" of wagons.

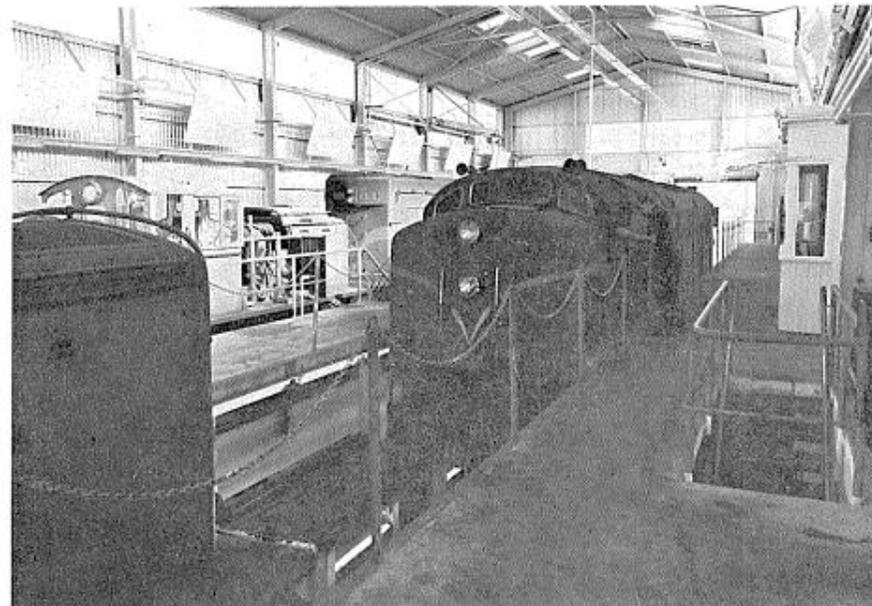
LEFT, LOWER: The Te Rapa East Grid control desk showing the general arrangement of indications and controls. In addition to the clock, dials show wind speed and direction, and retarder air pressure. A computer-controlled indicator immediately in front of the operator indicates the degree of retardation recommended for each cut of wagons.

Photographs: N.Z. Railways Publicity



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This "Trackmobile" is one of two at Te Rapa yard used for moving wagons that have stopped short in the sidings. It is shown, upper, with road wheels in position, and lower with road wheels retracted.



Photograph: N.Z. Railways Publicity

Locomotives in the new Te Rapa diesel servicing and inspection depot.

duties. The hump locomotive pushes the train, uncoupled between wagons at the appropriate places, at about one or two miles an hour towards the hump.

As each wagon, or group of wagons, separates and accelerates down the slope, it passes two radar speed-detection units, each of which measures its speed. It also passes over a short weigh rail that electronically records its weight. From this information, a computer estimates the speed of the wagon and its rollability and, making allowance for the distance it has to run, displays to the Grid Controller the amount of braking action to be exerted by the retarder at the throat of the grid.

Provision is made for quick clearance of any wagon that might stop before it reaches its allotted siding, one Whiting Trackmobile being located in each of the two yards. This, in effect, is a special design of tractor that can run on either road wheels or rail wheels to move the offending vehicle out of the way. Its driver is in VHF radio communication with the Grid Controller.

Once wagons have been sorted into the appropriate classification sidings, they can

be moved on a further stage and assembled into trains in the departure yard for onward despatch. In a train for Auckland, for example, the wagons can be arranged in such an order that they can be easily sorted at Westfield or Auckland, with a minimum of shunting, for distribution to wharves, private sidings, goods sheds and suburban stations.

In the present timetable, upwards of 42 goods trains are scheduled to arrive at Te Rapa on a typical working day, or one every 35 minutes approximately (on average), with a similar number of departures. Soon the Te Rapa yard is expected to be handling about 5,000 wagons each working day; but there is room for the yard to be extended as traffic grows with industrial expansion. When fully developed Te Rapa will be able to handle 5,000 wagons a day.

It is estimated that the total cost of the project, which was first announced in 1964, has been about N.Z.\$54 million. This includes all the ancillary features, such as the wagon repair and locomotive depots, which were substantial undertakings in themselves.