The Railway Traffic in Melbourne

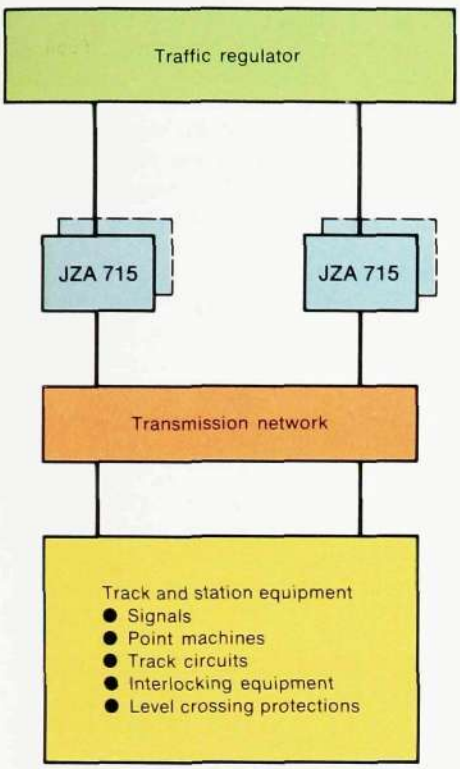


Fig. 2
Block diagram of the control and supervision system

Melbourne is the capital of Victoria in South-Eastern Australia. The city has a population of almost 2.7 million and consists of a downtown area at the head of Port Phillip Bay, surrounded by residential areas with mostly single family dwellings. Being a seaport and an industrial centre the city provides many employment opportunities, and the movement of traffic to and from the downtown area is heavy.

The Victorian Railway has an extensive suburban rail network connecting the suburbs with downtown Melbourne. The network extends over 330 route kilometres with a traffic density of about 2000 electric trains per day. The congestion of passengers, especially in the vicinity of Flinders Street station, creates difficult traffic problems mornings and afternoons.

To relieve the streets of the traffic MURLA (Melbourne Underground Rail Loop Authority) was formed at the beginning of the 1970s. This organization has planned and is in the process of executing a project in which most of the suburban lines are routed through the central business district in a loop of four tunnels, fig. 1. The passenger flow will then be distributed through five stations within the loop. The project has now reached the stage where two tunnels are in service.

In conjunction with this tunnel project, the train control and signalling system of the suburban lines is being modernized. One phase of this modernization program was the delivery from Ericsson of two control and supervision systems JZA 715 in January 1982. The system includes train describer, control and display, figs. 2 and 3. About 60 stations with approximately 4000 different supervised or controlled objects, such as track circuits, signals and point ma-

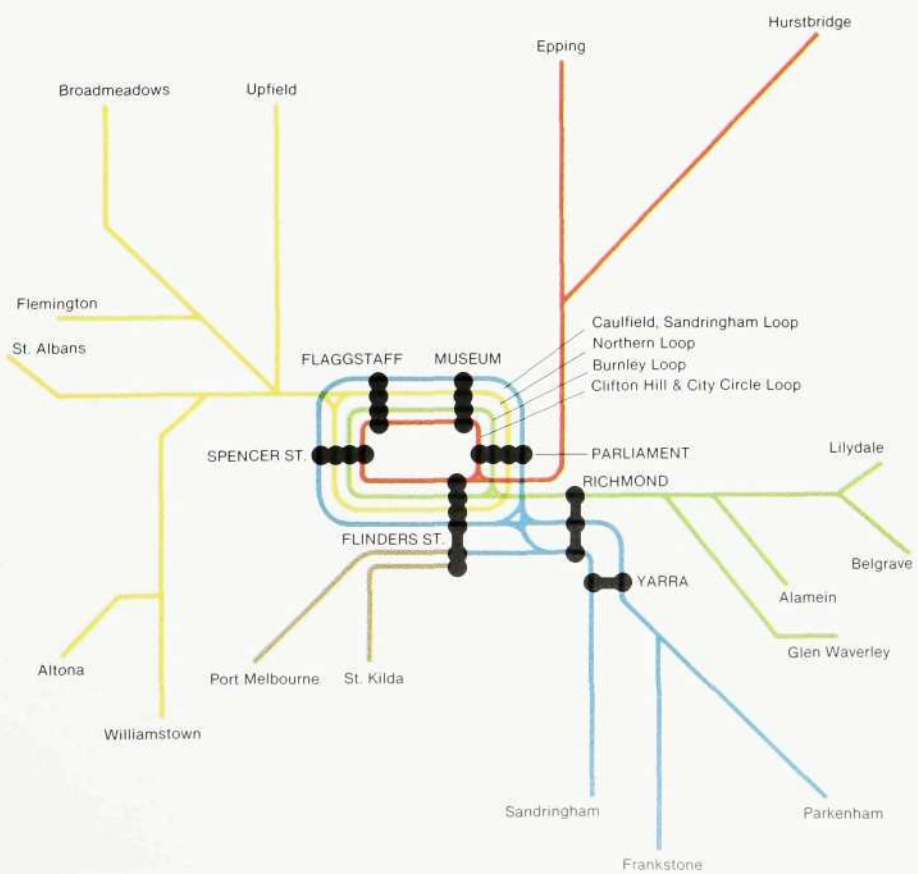
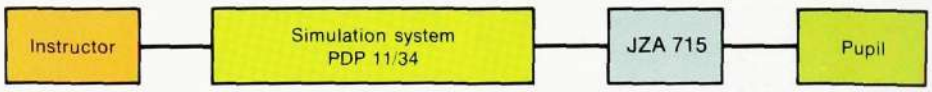


Fig. 1
Map of the railway network in Melbourne

Fig. 4
Block diagram of the simulation equipment



chines, are presently included. The final testing of the control and supervision system is presently being carried out by the Victorian Railways.

In parallel with the testing, the traffic regulators are being trained in the use of the system. This will continue until all staff has been trained. For the training another JZA 715 system from Ericsson is used. This system forms part of a simulation model controlled by a PDP 11/34 computer, fig. 4. It is possible for the instructors training the regulators to vary different parameters, such as time table, train speeds, delays and train movements. The train delays for a training session are accumulated and the total can be used as a measure of the skill of the trainee. By varying the train speeds the simulation can be carried out at speeds other than the normal. In this manner it is possible to study the effects of, for example, different loading. The simulation equipment is constructed so that it can also be used in tests and for checking time table layouts.

By changing the input data the simulation system can be used with any other optional railway installation and for studying different traffic situations and track layouts. Ericsson has an option permitting them to use and market the simulation system for such purposes.

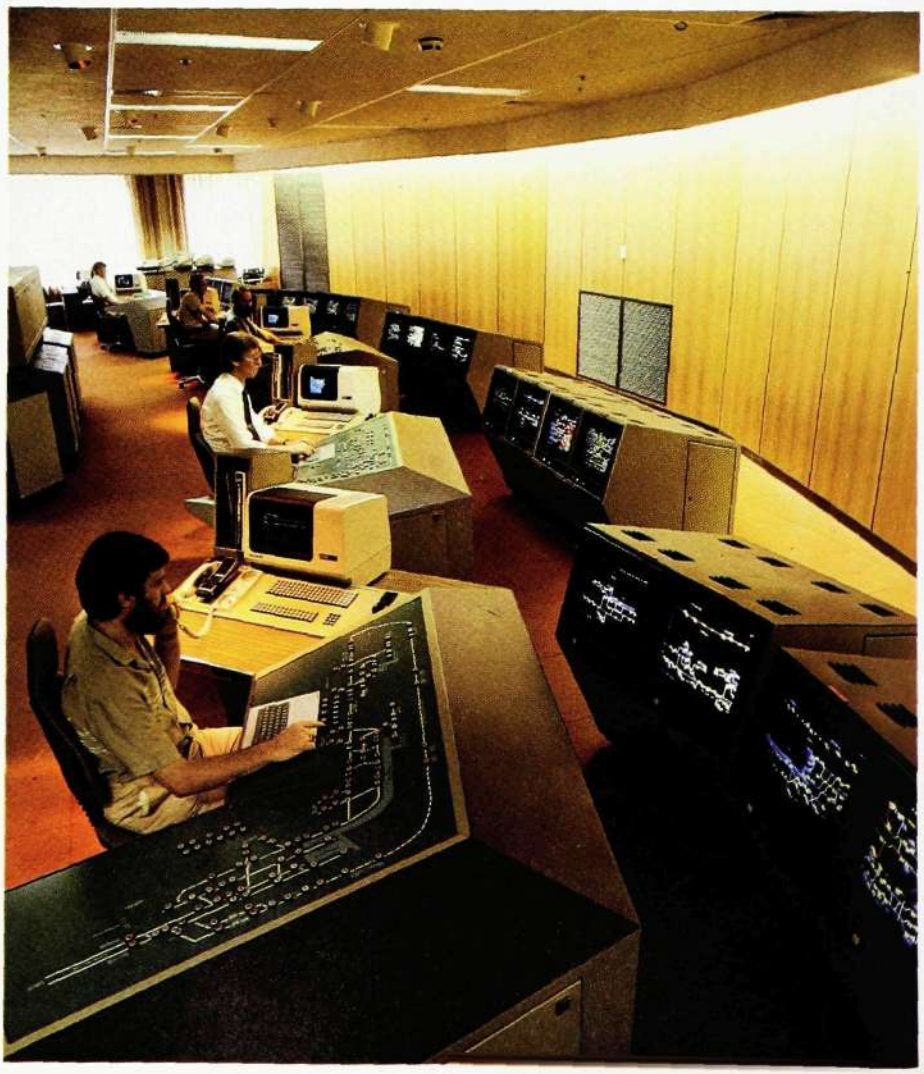


Fig. 3
Traffic regulators, control consoles and display equipment