

## NEW TRAMS

At present, Contract No. 3000 Extension 28 is close to finish and the delivery of Contract No. 3000 Extension 24 is about to commence.

The work content of these trams will be very similar to the present tram contract extension except that the M.T.A. has decided to proceed with the installation of pantographs - one per tram in lieu of trolley poles.

You may be interested to hear more about this decision.

Systems of current collection which use trolley poles on trams are in a distinct minority throughout the world. The new vehicles proposed for the M.T.A. are articulated trams and the power requirements of these are only marginally attainable with our carbon shoe current collector head. The current ratings are likely to be in the range 600 to 1000 amps at 600V. These currents can only be satisfactorily met under present technology using pantographs.

We have ordered 40 Austbreck pantographs, assembled in Melbourne generally to the same design used by MetRail but with carbon, not copper bows. On the 24 tram extension Preston Workshops personnel will be installing the pantographs.

Changing over from poles to pantographs is a big job and because M.T.A. has one of the largest networks of track in the world (240 km of double track) this progressive operation will proceed over a number of years. Line by line the changeover will be made. The requirements of trolley poles and pantographs are quite different and the need to provide dual running capability for one year or more on each line will put a considerable strain on the maintenance system of overhead fittings.

Over a period of years (probably 5 or more) changes in the type and number of overhead fittings will occur and the trolley pole collectors will be phased out. In their place a requirement will arise for maintenance of pantographs. Specifically designed access platforms will be needed for maintenance and installation in Workshops and Runningsheds.

I now wish to talk about trams of Contract No. 4000.

A Letter of Intent to place a Contract for 130 articulated Light Rail Vehicles has been forwarded to Comeng. Tenders were received for trams with traction equipment from Swedish, Hungarian, Belgian, Finnish, Dutch, Japanese and German equipment suppliers.

A Comeng body with AEG power traction equipment and Siemens micro-processor control equipment has been selected. Trucks will be of Duewag design.

Certain changes have been made in procedures to be adopted in this Contract and the reason for these will be discussed.

M.T.A. considers that too much of our available trackwork and work spaces at Preston Workshops have been occupied by Comeng during the commissioning phases. Comeng will therefore be required to establish a test track at their works to adjust and debug the tram and to present it ready for testing by our Contracts personnel.

M.T.A. will build the power trucks, details of which work I will now discuss.

Up to now, the traction unit has arrived from Europe in a large crate fully assembled. The traction unit consists of a monomotor driving two hypoid gear boxes mounted on two axles, each carrying one brake disc. In the early part of the contract this item was admitted duty free under a bylaw. However, this bylaw was withdrawn by Customs. There is now no advantage in bringing the unit into Australia in this form. The new Contract calls for a higher Australian participation through Offsets.

It is therefore likely that certain parts of the gear box to axle coupling will be made in Australia and the machining of the axle may also be carried out in Australia. Assembly of the traction unit in itself is an Offset and this will be done at Preston Workshops. The nature of the work is similar to the work which the truck shop has been engaged on during gearbox repairs done under Warranty. In addition it appears likely we will undertake the assembly of the Bochum Type 54 resilient wheel on our Bochum press installed in the Truck Shop. This is work previously done at Krupps in West Germany. This press will also be used to fit new replacement tires as tires wear out.

The power trucks chosen are similar in concept but are slightly more sophisticated than those in the Z3 trams. The motor and gear boxes will be suspended not on the axles but from the frame. When the truck has been assembled and wired, this frame less the truck bolster and secondary suspension will be put into a jig which will place a vertical load on the truck as in service. This jig will be provided by Comeng and located at Preston Workshops. When loaded, the relative position of the axles will be measured to ensure they are parallel within close tolerances and that the truck will run truly. Comeng will manufacture the truck frames and truck bolsters as previously.

Because of the new responsibilities of Comeng to commission the tram at Dandenong, the truck bolster will be assembled by Comeng and the slewing ring will be bolted to the tram at Comeng. The centre truck which is not powered but has two free running axles equipped with disc brakes will be assembled by Comeng at Dandenong.

It is anticipated that the tested tram will be delivered assembled to Preston Workshops on a special low loader. After unloading on a special ramp it will be fitted out with seat frames, fibreglass seat surrounds and upholstery manufactured and supplied by Preston Workshops.

In addition we will fit up bulkhead glasses, stanchions and bell cords, from kit sets as provided by Comeng in the previous Contracts.

The articulated trams are significantly longer than the "A" class and there is accordingly more body work per tram (76 seats compared to 42).

The fibreglass shop will receive orders to manufacture front dash and canopies which are expected to be very similar to the "A" class. We may also receive orders for the manufacture of the electrically insulating fibreglass cover for the articulated joint which prototype work was successfully carried out by Preston Workshops recently.

The delivery rate as announced by the Minister of Transport is for 30 per year which is considerably higher than previous rates.

The increased work loads have been calculated and to meet the requirements, the following extra manpower will be required:

Truck shop	1 man
Sheet metal shop	1 man
Fibreglass shop	2 men
Trimmers shop	2 men
Body shop	4 men
Total ...	<u>10 men</u>

It is proposed that these extra men will be employed as the demand for the particular work in the respective shops develops.

Some special new provisions have to be made to handle and repair articulated trams efficiently at Preston Workshops.

The length of the articulated trams prevents their transport by the existing traversers and therefore access to the body shop is difficult. Consequently it is proposed to build an extension to the body shop and to the truck and electrical shops with longer traversers and appropriate jacking gear to facilitate lifting of bodies and removal of trucks and underbody equipment. Also, appropriate trackwork to allow convenient access to these buildings is proposed.

\$2,000,000 has been assigned in the capital budget submission to the Ministry of Transport for 1985/86 towards these facilities with greater expenditure projected for 1986/87.

In conclusion, I hope this has given you a clear picture of the participation which is proposed for Preston Workshops personnel in the new Contracts which will extend over the next five to six years.

The Management expresses its confidence in all the Preston Workshops personnel to execute the work proposed to the high standards which have become synonymous with this Workshop. We believe that the division of work between the Preston Workshops and the Contractor will give an appropriate balance of new work activity which will still be compatible with the necessary overhauling and maintenance capacity and which represents a sensible logistic solution to the problem of transport.