

Careful Inspection

The Secret of

Successful Maintenance.

Melbourne Tells How it is Done.

Robert Mack Maintenance in Melbourne

Mr. Russell

By H. H. Bell, Chairman of the Melbourne and Metropolitan Tramways Board.

When the Melbourne and Metropolitan Tramways Board took over the various municipal tramway trusts and the cable system in 1919-20, the number of trams withdrawn from service owing to defects developing on the road was approximately one per 4,000 miles. To-day, it is one car per ^{32,000} 26,000 miles. The difference is expressed in two words--inspection and maintenance.

Under the Chief Engineer (Mr. T. P. Strickland), so comprehensive a system of inspection has been built up that it may be said confidently that the Melbourne trams have now but few opportunities to go wrong. Each evening, as the car reaches the depot to which it is attached, the brakes ~~and gears~~ ^{to} are examined and tested, and the workman concerned fills in a card, bearing the car's number, to that effect, and signs it. In turn the depot foreman inspects the car and signs for it, and so there is a double check--the workman signs that he has done the job, and the foreman certifies that by personal inspection he has satisfied himself that the work detailed on the card has actually been done. ^{when the} Brakes ~~and gears~~ having been attended to, the car is then dusted, swept, and sprayed and is then ready for service next morning.

Once a week every car has a day in, and it is then that it is gone over very thoroughly by the respective artisans--fitters, electricians and body builders--and washed. The motors are opened up and examined, every moving part is oiled, all the brakes are meticulously tested. Any minor repair or adjustment found necessary is done on the spot, and a record of such work is kept on a card and again subscribed to by the employes

and by the foreman. Particular attention is given to the reports made by drivers of particular faults. These are painstakingly investigated and adjusted. Everything except **major** repairs is done by the mechanics at the depots, from adjusting a sticky trolley wheel to grinding out flats on the wheels.

Each car has its own history sheet, on which is recorded everything that has happened to it--when it was built, the depots it has been in, the mileage it has covered, its visits to the main tramway workshops at Preston and why it has gone there, down to any peculiarities it may have exhibited during the years. These cards and that history sheet have been found invaluable when any question of equipment has arisen in Court cases, and also most useful in establishing a guide to the maintenance of particular cars. Like all things mechanical, trams, although built to a standard pattern, ~~vary a great deal.~~ *have their little idiosyncrasies* In one it may be the brakes, in another the controller, the motors or the axle boxes. *show small differences in them.* Whatever ^{minor} peculiarity it may possess is not long undiscovered, and therein lies the value of the records which are compiled from day to day. One illustration of the ~~immense~~ value of this systematic and rigorous inspection is that cars withdrawn from service owing to hot axle boxes ~~number but two per annum.~~ *are almost unknown*

Apart from the supervision exercised by himself, the Running Sheds Superintendent, who is responsible for this branch of the work under the Chief Engineer, has the assistance of two rolling stock inspectors, one of whom must visit daily each depot on the north of the River Yarra, and the other each depot south of the river. The superintendent gets round each depot at least once a week. *to deal with emergency defects* In addition, two skilled mechanics are ^{located in} ~~on the~~ *the City during the whole of the working hours* [^] road all day long. A loose brake, a controller which is not working so satisfactorily as it might, or some such small trouble, is reported to the

first traffic inspector seen by the driver. The inspector at once telephones, and by the time the tram reaches Swanston street or Elizabeth street the mechanic is waiting to pick up the tram and put the trouble to rights, usually ^{during its} when it is running. If some minutes are required, however, he goes on with the car to its suburban shunt and there performs the necessary adjustment.

Lastly, there is the emergency wagon with its teams of five men, each skilled in their own particular job, who drill on Tuesdays and Fridays with the speed and efficiency of ^e firmen. Within ⁴⁰ 37 seconds of the receipt of the emergency call, the wagon, equipped with all sorts of tools, fire extinguishers, first aid kit and stretchers, is on the road, hastening to the ^{scene} locus of the accident. ^{The training of} ~~in one recent case,~~ the crew ^{has been such that it is able within} had ~~to~~ two and a quarter minutes ^{to} raise ^a the tram ~~concealed~~ sufficiently high as to permit ^{any person} ~~who~~ who had been hurled beneath it to be extricated. A fitter examines the wagon and its equipment each week, and here again has to sign that he has done so and that everything is in order.

Normally, a tram is not booked for overhaul No. 1 until it has completed 100,000 miles. When that total has been reached, it is subjected to a more rigorous inspection than usual on its day in. Its condition may be such that it is decided that it can easily be kept in running for another four or six weeks. In no circumstances, however, is the mileage allowed to exceed 120,000. When the tram reaches the Preston Workshops it is completely dismantled. The body goes to the woodwork and car body section for thorough renovation and painting, while the trucks with their motors and other equipment pass through the various shops where the component parts are taken to pieces, cleaned and repaired and leave practically as good as new.

All this elaborate procedure of inspection and repair may seem to the uninitiated (expensive). Actually, it pays handsome dividends, as the figures

I have quoted in the opening paragraph demonstrate. Careful and systematic inspection is cheaper than a major breakdown on such a thoroughfare as St Kilda road, with its consequent disorganisation of the services on seven or eight routes. A defect found and remedied on the car's day in may cost a few shillings ; but that same defect, ignored and then resulting in a breakdown on the road, might easily cause ^{a serious} the loss of ~~£100~~ in revenue. In operating a street transport system it is far better to be sure and safe rather than take a risk and be sorry. We take no risks, and the result is that each evening 95 per cent of our rolling stock is on the streets, earning revenue, a record which I do not think is excelled by any other tramway in the world.