

£80m overhaul assures reliability

In recent issues, *Metronet Matters* has reported on an innovative maintenance regime, modifications, diagnostic equipment and in-service maintenance checks that have improved reliability on the Central line fleet. The long-term reliability of the trains has now been assured through an £80 million overhaul.



Job satisfaction: (From left): Process Engineer Tony Gray, Stores Manager Ray Martin, Chief Inspector Bob Park, Chief Bogey Inspector Kamlesh Sharma, Production Manager Martin Lush, Materials Manager Jim Magill, and (kneeling) Quality Manager Paul Ellis with Saleem Mohammad, Senior Project Manager in the cab

An £80 million overhaul of the entire Central line fleet has just been completed in less than half the time originally planned, helping make the trains three times more reliable than before Metronet took control of maintenance and renewals in 2003.

The complete overhaul of underframe, bogies, doors and ventilation equipment on 700 carriages (85 eight-car trains on the Central line and five four-car trains on the Waterloo & City line – it shares the same train stock), was originally planned to take 54 months. It was, however, accomplished in just 24 months following concerns raised by the inquiry into the Chancery Lane derailment which happened just over two months before Metronet took over.

Senior Project Manager Saleem Mohammad (who, since the completion of the project, has moved to London Underground) said: “The overhaul was always planned but because of Chancery Lane there was a lot of pressure to get it done much faster – and rightly so. But it wasn’t easy – we had only two weeks to put together a plan and this was at a time when the business had just transferred to Metronet with new processes, new people and new procedures.”

Materials were going to account for the vast bulk of the £80 million expenditure – over 1,000,000 significant components were eventually replaced or refurbished – so supplier co-operation was vital. The managing director of MRBCV at

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the time personally met dozens of suppliers to ensure their buy-in. Alternative suppliers were also found to reproduce parts: some products with a lead-time of nine months were sourced in just three.

The overhaul began in early 2004. Two-car units from the Central line were brought into Ruislip Depot, north-west London, where they were lifted from their

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bogies. (The Waterloo & City line trains are physically isolated from the rest of the network and were overhauled in their own depot, at Waterloo.) Underframes were inspected and overhauled – pneumatics, traction equipment, coupling devices, air suspension and brakes to name but a few.

All 8,400 door mechanisms were overhauled too, as was the passenger ventilation system and driver's air conditioning.

Meanwhile, the bogies were taken overnight to the Train Modification Unit at Metronet's Acton works in west London to be stripped, cleaned, overhauled and tested. Wheelsets and motors were sent for inspection and overhaul as required at the Railway Engineering Workshops across the road.

Metronet then used its recently-installed bogie press (see *Metronet Matters* issue 5) to establish correct height in just two hours (it previously had to be done by loading the bogies under a train and took 24 hours).

By further honing processes to maximise work rates, Metronet cut the time it took to overhaul a set of four bogies from 436 hours to just 16 and the whole two-car unit from two-and-a-half months to just three days.

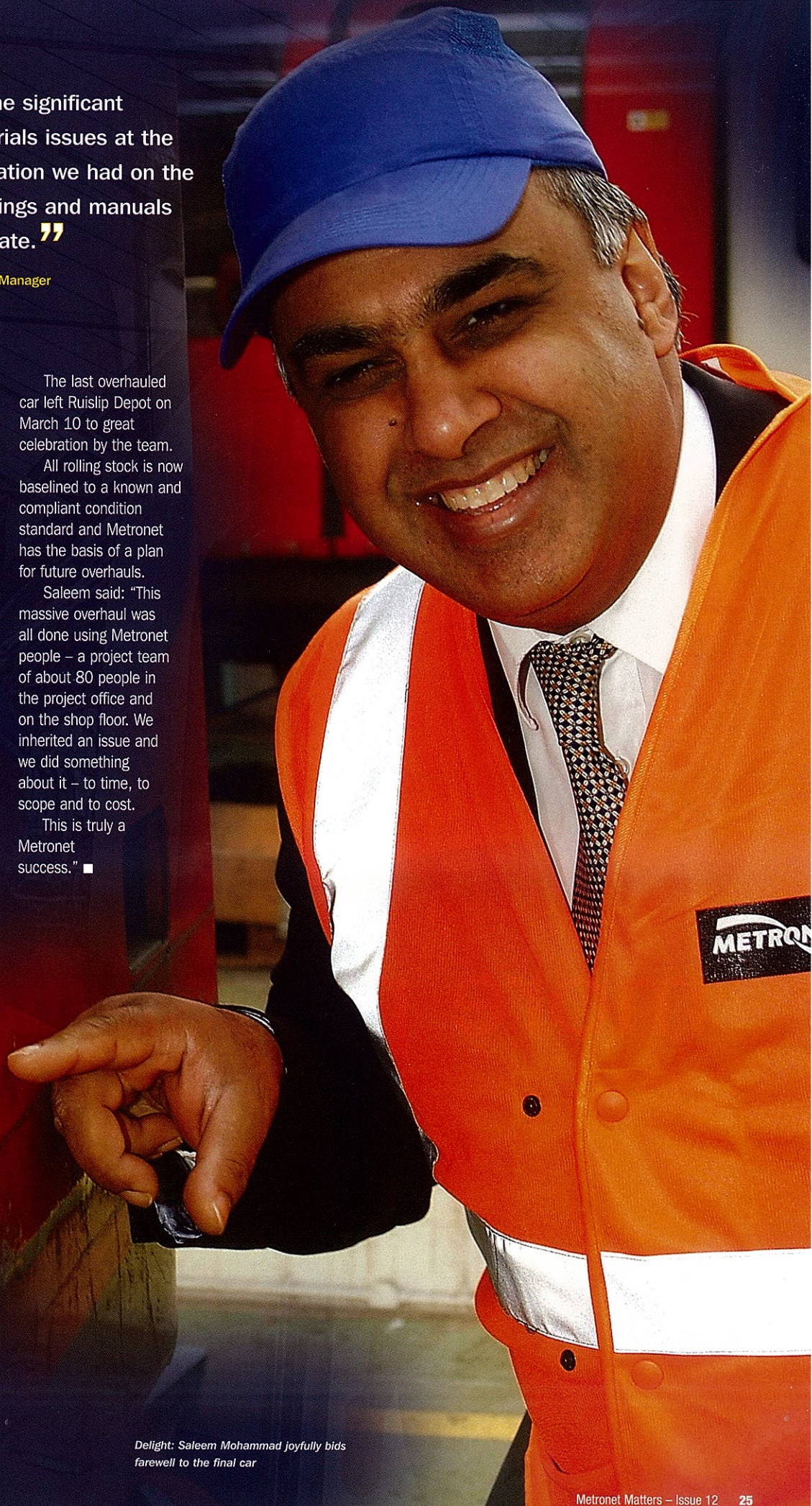
Saleem explained: “We had to overcome significant engineering and materials issues at the onset because information we had on the units in terms of drawings and manuals was not entirely accurate.”

The last overhauled car left Ruislip Depot on March 10 to great celebration by the team.

All rolling stock is now baselined to a known and compliant condition standard and Metronet has the basis of a plan for future overhauls.

Saleem said: “This massive overhaul was all done using Metronet people – a project team of about 80 people in the project office and on the shop floor. We inherited an issue and we did something about it – to time, to scope and to cost.

This is truly a Metronet success.” ■



Delight: Saleem Mohammad joyfully bids farewell to the final car