Working with the Robel MMTs

Robel's Andrew Keens details Network Rail's use of the new equipment on its front line operations.

Over the past two-and-a-half years, readers of *Rail Infrastructure* have received regular updates on Robel's project to build and deliver eight Mobile Maintenance Trains (MMTs) to Network Rail. At the end of August, the last of these eight machines entered operational service, marking the end of this phase of production. August also marked the first anniversary of MMT1 at Darlington being in full operational production.

What benefits will this fleet of MMTs deliver? How and where is Network Rail using them and how will they change the day-to-day maintenance of the railways? I spoke to the Network Rail MMT project team to find out more.

Future strategy

From his base in Darlington, Seth Beckreck, project engineer, summed up why the MMT is a vital part of Network Rail's future strategy: 'Network Rail is absolutely committed to improving the safety of staff working on the infrastructure, working conditions and the facilities that our people work in. The MMT delivers a world class safety environment and improves the welfare that we can provide to our people, enabling them to deliver excellent quality work. Within Network Rail, we are committed to our continuous improvement methods, using tools and thinking to challenge ourselves to improve quality and productivity. The MMT is a great example.'

So where will the machines be used? The MMTs are now operational across four Routes - London North Eastern & East Midlands, Anglia, South East and Wessex. The machines are stabled at Basingstoke, Darlington, Derby,





Below: Rail being hoisted in from the intermediate car into the mobile maintenance unit as part of a rail replacement task on the Basingstoke MMT.



Horsham, Paddock Wood, Retford, Romford and Wakefield. Interest has been registered by further Routes as, wherever the MMT shows up, it generates demand. As the concept develops and realises production, work quality and safety benefits, new ideas develop to continuously widen the potential.

In to service

Over this first year, a number of tasks have been undertaken and processes developed, including:

Rail and insulated rail joint replacement, including welding and associated stressing.

- Pad and insert replacement.
- Wet bed eradication.
- Spot resleepering.
- Track geometry repairs.
- Fishplate oiling.

Importantly, each machine is a tailor made Robel concept, interpreted according to Network Rail's specification and fitted out with the hand-operated tools required for the tasks to be undertaken on each area. Key to the future of this machine will be the development of a greater range of application to give a truly versatile operating platform. Network Rail's intention, in the second year, is to

Left: Old rail removed and the new piece of rail is ready for installation.

Right: New rail installed and the welders are setting up for the first weld.



New Equipment

Right: A pair of Robel verticle tampers being used inside the mobile maintenance unit. *Photograph: Tim Stafford.*

Below: A welder grinding the new weld following completion of the rail defect replacement task.



increase capability to include:

S&C maintenance and component replacement.

- Sleeper squaring.
- Rail joint straightening.
- Waybeam maintenance.
- Adjustment and switch maintenance.

Level crossing flushing and unit replacement.

Signalling and telecommunications



on-track equipment replacement, as well as cable running out.

Better processes

To gain a better insight into how these machines are used and how they have changed the day-to-day work processes and conditions of the maintenance gangs, I spoke to James West-Beard, Works Delivery Manager, who is responsible for the operation of the Basingstoke machine. His focus, since going operational in April, has been on rail defect replacement.

To date, his team have replaced, stressed and cleared away the scrap materials relating to more than 80 defects. His message is quite clear: 'The introduction of the MMT on Wessex allows the maintenance departments to carry out planned works whilst we respond to reactive rail defects at short notice. The concept offers the team the chance to complete a task, such as a rail change in one shift, as tools materials and equipment are all on-board. A conventional rail change task may take several shifts to complete as materials and equipment will need to be on-site prior to the work taking place.'

By existing means, the shift would start with the loading of equipment and lighting onto road vehicles at the depot, these vehicles are then driven to an access point



and then loaded onto trolleys and pushed a mile or more to the site of work. Petrol driven generators would then be connected and tower lights erected and all equipment offloaded manually. Rail would be delivered, normally by lorry, to the access point and then manually moved with iron men to site, a slow and labour intensive process.

Possession times are short, typically three hours, and by using these methods the full task could take between three and four shifts. All that has now changed as James points out, 'The mess area allows staff to rest whilst travelling directly to site - the team can relax and prepare for the night ahead. The train has the ability to store all equipment, tools and materials in a safe and compliant manor and, with the overhead gantry hoist in operation, manual handling is significantly reduced.'

Additional benefits

On conventional sites, welfare facilities would be minimal, with the prospect of a long walk back to the vans for a meal break. With the MMT, this is part of the past. 'The toilet and messing facilities all improve the wellbeing of staff,' said James. 'When on-site, the MMT has greatly changed the workplace. It provides an excellent working environment with ample LED lighting, gantry hoists, expanding sidewalls and the ability to power all equipment directly from the power points located throughout the unit. Tasks have become easier and safer to complete. Do not forget the MMT staff remain dry and unaffected by the elements at all times!'

According to James, the integration of Robel Hand-Operated Tools (HOTs) has made life a lot easier for the crew: 'The main HOTs used on-board are the Robel vertical tampers. As these are powered pneumatically and require no engine, the Hand-Arm Vibration Syndrome (HAVS) are significantly reduced. The 415v Robel rail profile grinder is an excellent piece of equipment. As this is electrically powered, the noise levels are extremely low allowing staff to communicate easier and without being subjected to petrol fumes. When welding in the MMU, the extraction kit expels all harmful gases and fumes. A big winner for the Wessex team is the Robel third rail stressing kit

Left: On a recent visit, Mark Carne, Chief Executive, Network Rail (right), is shown around the Basingstoke MMT by James West-Beard. Photograph: Network Rail.

New Equipment

Right: An operator using a Robel de-clipping machine to remove clips as part of the re-padding process on the Darlington MMT.

Below: A rail lifter raising the rails to enable the pads to be changed. Photograph: Tim Stafford.



which can be installed without the need to lift or slew the conductor rail. The obvious advantages are that we remove the risk of leaving the conductor rail up on the insulator pots and remove the danger of crushing injuries to staff.'

Future possibilities

In the development of the MMT concept, Robel has delivered a visionary step change in rail maintenance, refined in partnership with its clients. A one-stop shop delivering a range of tasks, safer, faster and more efficiently and with vast potential. It is estimated by Network Rail that the MMT offers a 50% unit cost reduction in rail changing when compared to normal methods.

By developing further work processes and exploring opportunities to work adjacent line open and train in section, Network Rail seeks to further maximise the MMT capability. And there is not only increasing domestic interest -Network Rail has already hosted delegations from Japan and Australia where they are keen



to emulate this success. All photographs: Andrew Keens, unless credited otherwise.