

MANCO MATTERS

A PUBLICATION FROM MANCO ENGINEERING GROUP

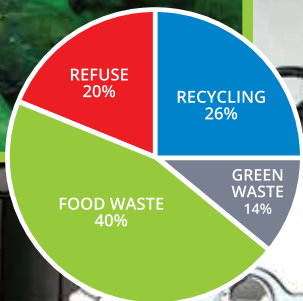
FOOD FOR THOUGHT!

The evolution of food waste recovery technology grows ...virtually by the day. Numerous programmes are being introduced with sustainable down stream business activities focusing on a significant minimisation of food waste to landfill. An accepted fact is that house hold refuse - after removal of commingled recycling initiatives, still retains 40% by weight of food waste.

Manco's engineering team has worked extensively on highly effective, lowest possible capital investment methodology in the kerb side collection area, for the last two years. Studies of systems operating in Europe and North America have been considered but none have provided the total solution for Australasian needs.

Recently released is the Manco Alley Cat 11 a dedicated food waste kerbside collection vehicle. Working extensively with Hino Trucks, (Hybrid technology), Wilkinson Transport Engineers (LEV-low entry left hand side vehicle conversion) and Enviroplaz (high molecular polyethylene body), Manco engineers are very excited with the resulting product.

Featuring real benefits such as; 4000kg payload on a 8500kg GVM vehicle; extensive fuel savings and low carbon footprint from Hino's latest hybrid technology and Manco's fully electro-hydraulic operation of all functions.



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The LEV dual control conversion is the result of extensive ergonomic engineering and provides the operator with easy entry and exit, similar to a typical bus user's routine. A special fail-safe park brake (in addition to Hino's standard park brake) ensures rapid brake activation and release with the operators constant cab exiting and re-entry.

Generally, collections involve smaller wheelie bins of approximately 26 litre, the vehicle provides three acceptance points, ensuring speed of discharge and payload maximisation (constantly on display for the operator). Each acceptance point has been designed to minimise operator fatigue and body movement with the central acceptance hopper being set at 1000mm providing a natural bin tipping motion height. For collections in high density areas such as; apartments, hotels, hospitals, etc an optional 60 to 240 litre multi bin electro hydraulic bin lifter provides bin discharge, with a unique small tipping arc, enabling pickups in the narrowest of lanes. Manco Environmental offices in Australia and New Zealand can provide a full operational video of this exciting new technology breakthrough should you desire further details.



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GREEN BINS, A NEW WAY OF COLLECTING RURAL RECYCLING

Rural recycling is a service that has been put in the too hard basket for many years now, resulting in the expectation that rural residents will utilise the facilities located in closer proximity to urban communities.

Rural communities have instead used farm tips or burning as a way to rid themselves of the burden of disposing of waste. It is Hastings District Council's desire to provide convenient recycling facilities to their rural communities that is cost effective to collect, transport and sort which leads to wider environmental positive outcomes, e.g. moving away from the use of farm tips.

Introducing specific rural recycling across the Hastings District would provide greater control to Council over the method of collection and servicing, informed and engaged communities and leading to a reduction in contamination and associated sorting costs. To gauge the need and willingness of the communities to participate, Council agreed to trial this service initially for 12 months at two locations.

This was extended to two years, to gather more detailed data and monitor seasonal trends. The trials using Wheelie Bins (MGB's), commenced in June 2012.

Over the past 18 months hook containers (Green Bins) have been designed and tested by Hastings District Council for the collection and transportation of recyclables. The Green Bins have movable internal walls which allow for individual site adjustments and removable signage. They can be used at both large transfer stations and small rural communities. Manco worked with Hastings District Council to produce the 3rd version of the bin and were then awarded the construction contract to build 15 bins over the winter of 2015.



These Green Bins, utilising 20 foot shipping containers, are able to store a larger volume of material than the current collection methodology and have resulted in less truck movements and therefore reduced servicing costs. The design includes several internal compartments enabling the collection of up to six different products in the one bin. It is also hoped that the enclosed Green Bins will reduce the volume of wind blown litter at the sites where open topped bins have been used in the past.

Article courtesy of Angela Atkins - Waste Minimisation Planner, Hastings District Council.



Hook bin in transport mode



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BIG BELLY OFFERS SIGNIFICANT SAVINGS FOR LOCAL AUTHORITIES



Initiatives taken by Councils, in conducting a critical review of their parks and reserves refuse collection programs, can provide councils with some serious operational savings in real dollar terms.

Under an agreed trial period, Manco will guarantee significant monthly savings with the installation of the revolutionary solar powered "Big Belly" compaction and recycling bins.

USA Big Belly is an internationally recognised industry leader with over 60,000 units in operation in 26 countries. The bins provide a genuine and practical solution where current collections are occurring too often with no data on the level of refuse or recyclables, no compaction to minimise collections and excessive labour and fuel costs.

The CLEAN software package advises the operator with real data on bin levels from 75 percent to full. Many councils with a large geographical footprint incur significant volume variances due to seasonal and weather changes with bin locations in key tourist areas. Studies show valuable savings between current collection frequency levels and labour, when compared with both the five to one compaction capability plus the bin status data of the Big Belly – Solar powered units.

It can be a time consuming task for such councils to extract the current costs and embrace this environmental enhancing new emerging technology. Manco provides at no cost and no obligation a review template and will provide the required staff to conduct the necessary research. Councils who genuinely wish to create ratepayer savings, are invited to contact Manco and work through the possible economic and environmental benefits.



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RAPID DEPLOYMENT A VITAL EFFICIENCY FACTOR

Today's highly competitive contracting environment in both ultra-band roll out and the conversion of street lighting to LED requires a unique and efficient vehicle.



Long gone are the large cumbersome elevated work platforms when the tasks can be achieved with smaller new technology vehicles, providing the same safe working loads and working radius, at significantly lower operating costs.

Manco's new SCJ13 is an insulated central mounted Aerial Work Platform (AWP), offering 200kg SWL at 13 metres working height and a horizontal outreach up to 7.5 metres. The platform complies with AS/NZ 1418:10 2011 low voltage insulation standards.

Installed on a 3500kg GVM Mercedes Sprinter (or similar), permits operation with a standard motor vehicle (Class1) licence. The platform boasts numerous features including removable radio remote controls, including engine start stop and emergency lowering from the platform.

Automatic levelling of the basket is standard, along with the capability for both air and electric tool operation. With tens of thousands of fibre cable still to be installed and a growing demand for street light conversions to LED, the Manco SCJ 13 looks well placed for these applications.

LED (Light Emitting Diodes) lighting conversions represent not only up to a 30% energy saving, but a design life of 20 years.

Manco Engineering offers these exciting new AWP units through its current rental fleet. Full technical details and operator training is available on request.



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SMART'S GROUND BREAKING – AND RADICAL VEHICLES FOR TASMAN

According to Maori tradition, the canoe Uruao brought the ancestors of the Waitaha people to Tasman District in the 12th century. Archaeological evidence indicates early Maori settlement due to the abundance of seafood, birdlife and favourable gardening for items such as kumara.

In 1642 Abel Tasman, a Dutch explorer from whom the district is named, sailed into Golden Bay where after a confrontation with local Maori he elected to sail eastwards.

Today this beautiful region, renowned for its excellent wines, an abundance of fruit and vegetable growing, seafood and scenic attractions, still retains significant areas of its natural beauty. Companies such as Smart Environmental are entrusted to be part of the team that ensures maintenance and preservation of this important region.

Frequently, the point of difference can lie purely within the technical specification to ensure contract profitability is achieved.

When Smart Environmental looked to renew its Tasman District Council contract, the technical requirements put to Manco were somewhat daunting. The requirement to maximise payloads was determined using a triple compartment (glass, recyclables and refuse) body design.

The overall layout focused on good operator ergonomics combined with high productivity. A small turning circle and naturally one man operation were also key factors. However, frequently with duo (recycling/refuse) bodies one compartment capacity can be full before the other – hence payloads are not achieved.

Manco engineers working closely with Smart's own engineering team, subsequently developed a radical new design using two totally independent compaction bodies with a non-tipping full eject box compactor, with either compartment selected via a robust hydraulically controlled butterfly divider.

Additionally, depending on route loading, the split body can always be dedicated for either refuse and or recyclables. The front section provides an independent three way colour split body for the simultaneous glass collection loaded via a hydraulically operated chain lifter.





However, perhaps the most radical feature is the introduction of the recently tested high molecular polyethylene sheet in the manufacture of the glass compartment body and loading bin.

Weighing less than one third of its steel counterpart, and well known for its use as a wear reducing liner in tipper bodies, this design offers some exciting new opportunities in weight reduction for the industry.

Body capacities are; glass 6m³, recyclables 13.8m³ and refuse 9.2m³. One man operation is achieved using the proven Wilkinson Transport Engineering LEV left hand conversion which also includes the highly successful rear steer axle system, bringing the turning circle back to within the front drive axle wheel base.

To compliment the fleet, Smart will introduce the largest capacity recycling side loader to operate in New Zealand with a 35m³ body. Manco is privileged to be a key supplier to this wholly owned New Zealand Company as they continue to rollout exciting new initiatives in recycling and refuse contracts.



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Public Transport
Authority

PERTH'S PTA INTRODUCES "FIRST OF ITS KIND" ROAD RAIL CONSIST



Transperth Trains is a division of the Public Transport Authority of Western Australia. It is responsible for operating Perth's urban passenger rail system, as part of the Transperth network with an annual patronage of 63.5 million passengers.

The Fremantle to Guildford line commenced operating as a steam-powered service in March 1881, followed by the Perth to Armadale line in May 1889, and the Perth to Joondalup line (now Clarkson) in 1993 and the Perth to Mandurah line in December 2007.

Diesel trains were used on the rail network until the three lines then in service, the Armadale, Fremantle and Midland, were electrified in the early 1990's. The conversion from diesel to electric trains was accompanied by many upgrades to the rail network, such as upgrades to stations and tracks, and the cost of the undertaking was estimated at around \$109 million.

Today, the Perth urban network encompasses 5 main lines, 173km of track with 50 stations to service this busy Western Australian city. In December 2014 Manco Rail supplied the PTA with a state of the art Overhead Maintenance Vehicle to service the Perth rail network.



The unit is the first of its kind in the Southern Hemisphere. With both truck and trailer fitted with Manco road/rail modules, the ISUZU FXY Long prime mover is complete with a 50km/hr hydrostatic drive, a demountable Manco EWP5500 Scissor unit, and a Palfinger PK23500C radio remote crane.

With the first ever road rail combination trailer, the Manco HRT700/2/Air trailer carries the PTA's rail equipped JLG 600 series telescopic boom lift to and on site, but can also be used for cable drum and transformer activities.

Manco personnel spent two weeks commissioning the unit and training PTA engineers and linemen in the operation of this new fleet addition.



MORETON BAY'S NEW RAIL LINK

A major \$1.15 billion rail project that will result in 12.6 kilometres of heavy gauge dual track is currently underway located between Petrie and Kippa - Ring on the Redcliffe peninsula.



The new line is part of the QR City train suburban network and will incorporate six interconnecting rail stations. Funding for the project includes the Commonwealth and Queensland Governments and the Moreton Bay Regional Council. Planned for completion in June 2016, the Managing Contractor Thiess Australia, has contracted John Holland to carry out the extensive rail electrification works.

Manco Rail is in turn proud to be supplying its proven road/rail truck and trailer combination for wiring and cable installation. Using Manco's Road Rail Scania P420 with 20 tonne metre Palfinger radio remote crane, the consist includes a 20 tonne payload rail trailer giving an all up combination train mass of 46 tonnes in full load configuration.




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IT'S ALL IN THE GLASS!!!

The evolution of downstream recycled glass industries is not dissimilar to the industrial pioneering days for automating materials handling. With regulators constantly pushing for glass reduction at landfills and entrepreneurs around the globe exploring new applications, all this ultimately leads to new opportunities in the development of the required processing plants.



Recycled glass can be ground to less than 10 microns.

What needs to be remembered is that glass is 100% recyclable and can be recycled endlessly without loss in quality or purity – something few food and beverage packaging options can claim.

Today the growing applications for recycled glass other than the traditional use for new containers includes such areas as; abrasives, aggregate and cement substitutes, bead manufacturing, decorative applications, fibreglass, fractionators (match striker surfaces) fluxes in metal foundry work, cosmetics, paint and resin fillers, fertilisers, decorative tiles --- and the list goes on.

Manco has seized this opportunity to provide finely ground glass powder, free of organics, metals and sugars and available in sizes ranging from minus 1mm downwards, with availability less than 10 microns.

The key to Manco's plant design is based on our patented rotary ball mill where drums are operated in series with feed product cascading to the next drum as selected sizing is extracted using air classifiers. Prior to this phase the recycled glass is subject to a washing, drying and a pre-crushing process to ensure all contaminants are removed.

The picture opposite shows a typical four drum plant capable of a four tonne per hour supply with 60 percent available at less than 10 microns.

A new 10 drum plant operating five drums in parallel feeding two drums in series is currently under manufacture and will be installed for operation in NSW. The key criteria will be to offer a plant with flexible particle sizing so that client's specific sizes from less than 5mm can be accommodated under a continuous process.

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DEALING A “CRUSHING BLOW!”

Just over 1 million tonnes of glass packaging are annually consumed in Australia and 49% of this comes from recycled glass. Sydney based Bottle Sonic is one of NSW’s leading glass bottle recycling management specialists, offering an environmentally friendly and ideal solution for pubs, restaurants, hotels, bars and venues in the hospitality industry that have a high volume of glass bottles or are tight on space.

Offering Manco supplied innovative crushing machines, sizes ranging from an under the counter crusher for smaller boutique bars and venues to larger multi feed crushers for larger restaurants, sports complexes and hotels, Bottle Sonic is constantly working on finding sustainable solutions. Their business philosophy is to work with their clients, assuring them of a performance mandate that provides their customers a reduction in volume of up to 80 percent and the ability to crush up to 68 -100 bottles per minute along with a sustainable end use that does not clearly include landfilling.

A key component of Bottle Sonic’s customer relationship focuses on health safety and environmental risk. Referred to as RCG (recovered crushed glass) the company provides a Materials Safety Data sheet to all customers to ensure handling of crushed glass is fully understood.

A typical and very prestigious new location is the world famous Sydney Cricket Ground (SCG), which today accommodates numerous sporting functions, being a far cry from its original sole cricket use in 1848!

Although Bottle Sonic glass crushers are only a tiny aspect, it forms a strategic part of a major ongoing stand redevelopment following on from the \$197 million upgrade of the previous MA Noble, Don Bradman and Daily Messenger stands in 2014. Ultimately, this wonderful facility will represent a true completed “bowl” construction for its 48,000 capacity events.

Bottle Sonic’s main client base focus is around bars and restaurants, and has recently installed a crusher at the prestigious new “Emporium” restaurant in Parramatta, offering a distinct modern Australian style of dining combined with Mediterranean influences.

Targeting the top end of the market, where traditionally clients travel into Sydney’s CBD and inner city restaurants, the Emporium offers a genuine “top end” facility at affordable prices. With an internationally renowned head chef, handmade Venice furniture, whilst sitting under mounds of Ivy and Jasmine to create a true Mediterranean feel.

The Emporium also boasts the largest in-house coffee roaster in Western suburbs to ensure the highest possible standards for its loyal coffee drinkers.



The Emporium Parramatta



The Emporium Parramatta



Sydney Cricket Ground (SCG)

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TONGA UPGRADES REFUSE AND RECYCLING PROGRAM

With the financial support by way of a significant grant from the Australian Agency for International Development and the Asian Development Bank, Tonga with its capital Nuku'alofa, located on the main Island of Tongatapu is now operating a new waste/recycling program using Manco's proven 8m³ rear loading refuse vehicles and 5500 litre capacity septic tanker.



Tonga is an archipelago of one hundred and fifty islands, of which only thirty six are inhabited. Many of these islands have yet to introduce a waste minimization program which is high on the government's agenda.

Currently on Tongatapu alone, waste generation is around 30 tonnes per day or around half a kilo per person. With around 10,000 tonnes per year and growing, new waste initiatives are underway.

Although most producers use their own containers, including an array of plastic bags, containers, steel drums and wheelie bins, approximately 65 percent of the urban waste stream is now being captured but still only 25 percent of the rural areas.

Focusing firstly on education of acceptable environmental practices, the collection ratios are on the increase along with the increase of robust recycling activities.

It is a difficult task with old practices difficult to change, but once an understanding within any particular village is achieved the downstream positive results flow.



KIRIBATI – A NATION BATTLING LANDFILL USAGE

Spread over 33 atolls and islands (just 21 being inhabited) and situated in the middle of the Pacific Ocean and centred where the Equator intersects the International Date Line, the Republic of Kiribati is facing a daunting issue with the degradation of marine and fresh clean water due to waste contamination.

The International Waters project has been established to address the root causes of this degradation with a "low tech" low cost community based solution encouraging the population to separate the organic waste and to use "Green Bags" to contain the landfill waste.

With aid from the New Zealand Government, Manco is part of the programme with the supply and operator training of its 6m³ rear loader.



Working daily in the streets the target is to divert 60% of the waste to landfill and to introduce robust composting processes.

Manco trainers will revisit the capital Tarawa on a regular basis to ensure collection and equipment is operating at their planned potential.

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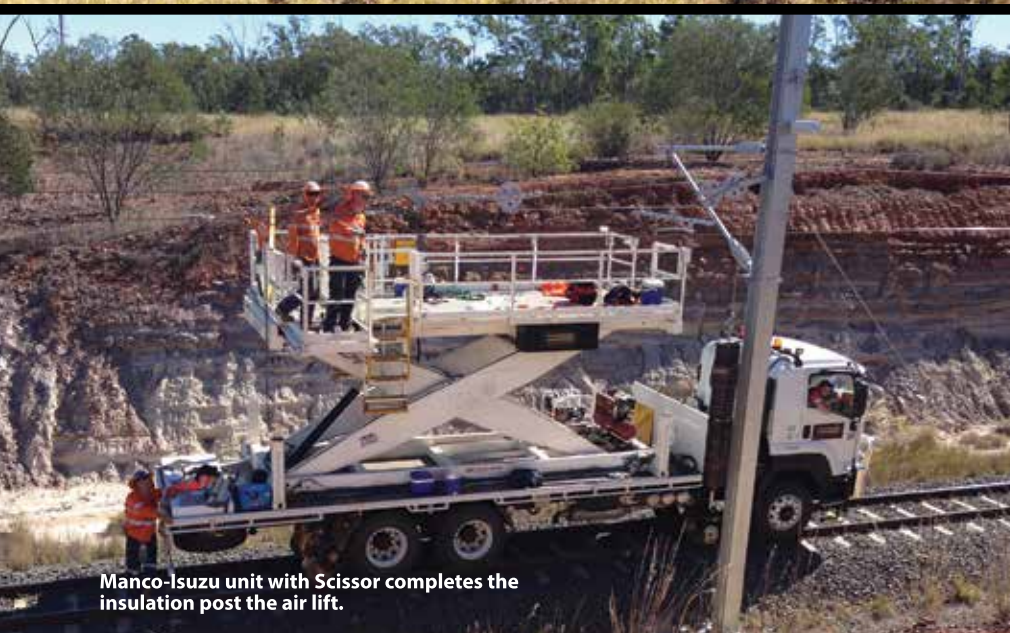
INNOVATION IS STANDARD PRACTICE FOR LAING O'ROURKE



Eurocopter Squirrel positions a pre-assembled mast.



Manco Rail crane unit lays out wiring and cables prior to the chopper airlift.



Manco-Isuzu unit with Scissor completes the insulation post the air lift.

Central Queensland with searing midday temperatures up to 50°C, in the “middle of nowhere”, was just another day at the office for Laing O’Rourke’s Bauhinia rail electrification team.

Completing the two year construction project in just over 12 months required the introduction of some serious innovation and ground breaking technology.

The Bauhinia project required the electrification of Aurizon’s rail network from the Rolleston mine to link with the Wiggins Island Coal Export terminal on Queensland’s East Coast reducing the operating costs of diesel power locomotives with their electric counterparts.

A key to the project’s success was the introduction of helicopters for pole erection and stringing overhead wires and cables along the entire route.

Using road rail vehicles supplied by Manco Rail, both poles and wire were positioned along the route ahead of the helicopter aerial positioning – a first for an Australian rail network!!

The 110km project was a huge challenge because of the remote and unforgiving conditions of the Australian outback with the need to establish nine substations and 132kV switch yard along the route.

Manco Rail treasures its association with Select Plant Hire, the equipment division of Laing O’Rourke and always respects the demands this client places on both quality and delivery.

MANCO RAIL
ALWAYS ON TRACK

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RECYCLING A HIGH FOCUS AT TAUPO

Lake Taupo created 26,500 years ago due to the world's largest known eruption was first occupied in 1869 as an armed constabulary post.



Today the largest fresh water lake in Australasia is internationally renowned as a high production geothermal power producing area and a mecca for outdoor activities surrounded by the volcanic mountains and snow fields. Well known for their innovative solutions and approach when it comes to recycling, EnviroWaste Services operate the recycling kerbside sorting and collection contract in the Taupo District. The special task of servicing 19,000 households per week efficiently and safe, requires a deep understanding of local conditions, prevailing local recycling activities and kerbside collection methodology.

The resulting kerbside collection vehicles are a unique multi compartment unit all with specially

designed specifications to maximise the particular product in question.

Firstly, the front compartment handles 6m³ of glass product loaded via a 0.35m³ low level intermediary hopper. The second compartment is of similar design but of 6m³ capacity to ensure a payload in this section of 140kg is achieved. The final or third compartment is dedicated to paper and cardboard product and has a capacity of 11m³.

Collectively, this unique one man collection vehicle offers an efficient kerbside technology, reflecting EnviroWaste's constant focus on providing a low carbon footprint, safe collection vehicle that is non-intrusive as it goes about its daily tasks.



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TRADE WASTE WATER DISCHARGE AND RECIRCULATING TECHNOLOGIES



Legislation covering trade water discharge to storm water outlets is being enforced at a greater level throughout both Australia and New Zealand.



Also the cost of commercial water usage can be greatly reduced with robust filtration recirculating plants.



Manco Environmental is introducing proven technologies for industry, local authorities and transport / environment / civil engineering contractors with above ground recirculating cleaning and water recirculating installations with the ability to recycle and clean up to 72000 litres of water per hour. In addition to retrofitting existing wash systems, Manco offers an above ground plant consisting of an "easy to locate" low profile deck (which requires minimal pre-installation preparation). This unit is designed to accommodate most high pressure water or water / steam cleaners.

Complete with an access ramp and removable sides, contaminated product drains to a heavy duty sump pump feeding a sophisticated water treatment and recycling modular unit. Relocation can be easily accomplished enabling the entire plant to be used in either a contract – project environment or on leased land. The facility is designed for vehicle operators that require degreasing and cleaning of an entire vehicle or components prior to maintenance or overhaul.

For all installations (retrofit or new), the powerful ozone system aids in removing oils and waxes as well as disinfecting and deodorizing the recycling water. The five step filtration process ultimately provides ten micron clean odour free water back to the wash system on demand. The ozone recirculation system operates independently from the pump filtration system and in general continues operation even after the trade water use has been completed for the day.

The Ozone process de-emulsifies the oils so that they may be easily captured by the micro-pore filtration system. All algae and bacteria are killed so there is no build-up of organic growth within the plant.



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NOW IT'S BUILT AND OPERATIONAL...

With 34,000 construction hours, 3500 foundations and masts, 560km of overhead lines and 175km of railway tracks in place, Auckland's new electrified Rail network has been fully commissioned.



A total of 57 Spanish built EMU (Electrical Multiple Unit) trains are in service and meeting all expectations. However, behind the scenes is a significant infrastructure to ensure the network operates with minimum downtime and maintenance is at the highest level.

Tasked with this function is Electrix, one of New Zealand's leading providers of engineering, construction and maintenance services. Post contract award, Electrix favoured Manco Rail with an order to provide a "State of the Art" support vehicle that had extensive capabilities in the event of both an emergency on track call out or scheduled maintenance.



The resulting vehicle provides multi-function services with a radio controlled crane, removable Elevated Work Platform, Pantograph and full 20 foot ISO twist lock deck. Therefore, tasks from replacement of masts to transformers, resetting of overhead wiring and cable tolerances to wire replacement can all be executed with the one vehicle.

Offering Manco's modular reversing friction drive gearbox, the entire unit can be operated on rail from either the EWP platform or in the operator's cabin. Manco's complex in cab HMI and PLC controllers provide an extensive array of vigilant, fail safe operational features that ensure the highest level of workplace safety standards are met.

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