

830E Contactor Installer

Zinifex Century Mine

The Problem or Initiative

The 50 830E electric haul trucks at Zinifex Century Mine have three main contactors (large electrically operated switches), each weighing approximately 32kg each. The contactors provide power to the wheel motors that propels or retards the vehicle. Each contactor wears out after approximately two years. The fleet of 50 830E electric haul trucks requires maintenance to change up to 50 contactors annually.

Shortly after starting at Zinifex Century Mine, electrician Ken Dewhirst observed someone struggling to lift and move a contactor during regular maintenance. He realised that the weight of the contactor, combined with the person's awkward lifting position, to create a serious injury risk. The contactors are extremely tricky to handle, with their position in the vehicle requiring lifting with an almost fully extended arm. Space is restricted, making it awkward for another person to assist with the lift.

Ken was sure that there was a safer, more effective method of handling the contactors. He approached a fitter, Trevor Hartnell, who had designed a successful roller change out jig for the D-11R dozers. They decided to design a similar lift assist tool for the contactors on the 830E haul trucks.

The Solution

Eight months ago, Ken and Trevor analysed the details, objectives and requirements of the project. Trevor used this information to design and manufactured a lift-assist prototype – the 830E Contactor Installer - made out of box steel.

The 830E Contactor Installer comprises three components and weighs approximately fifteen or twenty kilograms fully assembled. The three-component design was used so that the weight of the prototype itself did not create a new manual handling risk. The 830E Contactor Installer must be carried up on to the truck's bonnet in parts then reassembled to fit the contactor.

The 830E Contactor Installer has been in use ever since. Five people share a single 830E Contactor Installer. Another 830E Contactor Installer is being manufactured in lightweight aluminium, which will be lighter and more easily carried onto trucks and into work areas. This will result in further reductions to manual handling risks addressed by the 830E Contactor Installer.

Benefits/Effects

The 830E Contactor Installer has reduced the manual handling risks previously associated with changing contactors on the electric haul trucks, and allows one person to perform what used to be a two-person task.

The contactor is fully and securely supported, cannot fall off and is easily lifted into and out of position. By allowing contactors to be carried and manoeuvred securely,

the risk of them being dropped damaged, or damaging other contactors, has been eliminated.

The prototype 830E Contactor Installer was made from items that were readily available on site at an estimated cost of less than \$1000 including labour.

Transferability Across Industry

The 830E Contactor Installer can be modified for transfer to any mine site or industry facing similar large machinery component manual handling issues. The concept itself can be applied to numerous lifting scenarios.

Innovation

The 830E Contactor Installer is a safe, cheap and reliable solution to a challenging and potentially expensive problem that could cause injuries and stock losses.

The 830E Contactor Installer





Above Left and Right: Handling the contactor

Below: The 830E Contactor Installer in use during maintenance on the electric haul trucks

