



Moranbah North Coal



## Innovation

Name: Peter Humphrey

Moranbah North Coal, Anglo Coal Australia.

Eimco, Load Haul Dump, implement hose pressure test unit.

### Problem / Initiative

An operator sustained an injury while operating an Eimco Can Grab Implement. The Can Grab implement was removed from service and decommissioned. A new Can Grab implement was purchased and a risk assessment was carried out using the Can Grab and an Eimco in a workshop environment to identify any risks associated with the equipment.

The Can Grab was returned to service and during a routine task the Can Grab once again malfunctioned. The operation of the implement requires two levers to be actioned simultaneously to release the grips, failing this operation an experienced operator notified the engineering department to investigate. The engineering department investigated both the LHD and the implement and identified a pressure problem with the quick coupler hosing on the Eimco not functioning at the correct pressures.

Following the investigation a request came from the site Safety and Health representative, regarding a test rig or procedure that could identify pressure issues on Eimco's. Peter Humphrey, a mines mechanical fitter, independently put himself to task to assist with the identification of a possible solution to the problem. Peter identified that there were times after a service when the hoses leading to the Eimco's quick coupler were not reaching desired pressures and the root cause mainly from either blockages or some form of pump malfunction.

Peter then put his idea of a test rig forward to his supervisor who approved of his innovation.

### Solution:

Design a pressure test unit, the "Humphrey guard" to ensure that all quick coupler hose pressures were at the correct operational pressures before the Eimco was released from service.

This unit consisting of a bank of pressure gauges interconnected to pressurised hoses and could easily be connected to the Eimco's quick coupler port and was light weight enough that without the assistance of an operator the diesel fitter could connect it to the hydraulic system and visually see the pressures within the pipes whilst testing the Eimco from the drivers cab.

The Humphrey-Guard was introduced to the mobile machinery workshop by the fleet's maintenance engineer who commented that it is a tool of such simplicity which can identify an operational error of either blocked interconnected hoses or faulting pumps, it will defiantly help avoid a serious incident. It has now become part of the diesel maintenance fitters 250 hour service procedures whereby hose pressures are tested post maintenance or on occasion when repairs have been carried out on the Eimco's hoses or pump system. An improvement to the Humphrey-Guard became apparent through use when a brake test gauge and test pilot bypass safety valve gauge were deemed necessary and added to the unit.



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**The Humphrey guard**  
Lightweight and portable.



**The Eimco quick coupler port**  
The Humphrey-Guard can be attached to its relevant coupling on the Eimco ensuring correct operation.

### Benefits/ Effects:

The benefit of the Humphrey guard is it's easy of use and minimal time it takes to ensure that critical components are proven functional. The unit verifies that all hoses and fittings are operational, that all pressures are to the require manufactures spec and that the dump pressure relief valve operates when required. Cost of the innovation was minimal as all parts were readably available in the mine store as stores stock. The Humphrey-Guard now ensures that the Eimco's are returned back to service more reliably and in turn pays off through increased utilisation and safer operation by reducing the opportunity of an incident.



Implementation came from Mines Mechanical Technician Peter Humphrey when an idea lead to the drawing and design of a pressure testing device, known as the "Humphrey-guard"

### Transferable across industry

This innovation can be used on any underground mobile fleet maintaining Eimco with quick release couplings. Its simple design makes it lightweight and portable. The innovation can also be used across all industry that employs quick connect plant implements that require pressure testing. The design is simple and can be constructed to fit any size of machine.

### Innovation:

Devise a tool that would help the diesel maintenance crews verify that implement operating pressures are operating at the required levels once maintenance has been completed and the Eimco LHD released back to the operations free of defect.