

## **AURT 572593A Analyse/Evaluate Brake Faults on Wheeled Mobile Plant**

Private Entry – Sam Lichos

### **The Problem**

There is an alarming number of mobile plants being operated that have been tested by a method that does NOT COMPLY with Coal Mining Safety and Health Regulation and does NOT MEET the Australian Standards 2958.1. This creates an unacceptable, high potential risk.

Reference: Coal Mining Safety and Health Regulations  
Part 10 – PLANT  
Division 1 – Fixed and Mobile Plant  
Braking systems  
66. (1)  
66. (2)

Reference: Australian Standard AS 2958.1  
Earth-moving machinery – Safety  
Part 1: Wheeled machines – Brakes

For many years brake testing has been undertaken throughout all industries. Instrumentation to allow these tests to be done has improved significantly from the days where distance measurements were taken or a Tapley Meter was used. When testing brakes, operators have the best intentions in mind; however the procedures used vary greatly – some being extremely good while others could be categorised as useless, the interpolation of results also fall into this category.

Over the past number of years, I have conducted numerous brake tests and recently commenced conducting audits in work areas (coal mines, hard rock mining, underground mines, quarries and transport companies.) what has become blatantly evident is that there is no uniformity in the way testing is carried out. Documented results/information displayed on mandatory brake test sheets in most cases lack credibility and accuracy and are non-compliant with The Australian Standard 2958.1 and Coal Mining Safety and Health Regulation.

This creates an unacceptable high risk in that machinery can and has been sent back into production with ineffective or faulty brakes, the results of which can cause serious **injury** or **death**.

## The Initiative

I have chosen words which sum up the parameters and guide lines used to come up with a solution.

They are: \*UNIFORM

\*ACHEIVABLE

\*ACCURATE

\*CREDIBLE

\*REPEATABLE

\*CONFIDENCE (the machine returned to service is SAFE)

## The Solution – A nationally recognised competency

### Develop a Brake Test Training Package

This training package will bring uniformity as to the way brake tests are conducted over the entire range of applications from earth moving machinery to commercial and private vehicles.

This unit covers the competence to analyse and evaluate wheeled mobile plant braking systems in order to initiate action to sustain, vary or enhance performance. It includes failure analysis covering the complex diagnosis of multisystem and intermittent faults as well as evaluation of performance achievements and variations. It also requires the candidate to indentify, evaluate, select and document the most appropriate response to the stated objective of the analysis and evaluation process. The unit relates to an automotive technologist of subject matter specialist. It encompasses and builds on trade level competencies.

## Discussion

Over the past number of years, I have received requests from a large cross section of companies for assistance in training personnel to be able to accurately brake test machines. The varied methods used throughout industries bear no uniformity as each operator tended to do what he thought was right. This information, whether accurate or not was transported to mandatory test sheets which were then stored.

On reviewing this information, it became apparent that many of the people conducting the tests were not even setting up the instruments correctly and when the results were produced, did not understand what they meant. On the completion of tests, some fo the testers transferred the information to the mandatory sheets and allowed the machinery to return to production even though the results indicated that the machine DID NOT pass the brake test.

It was very apparent during the conducting of audits that the greater percentage of information gained from the brake tests would not stand up under scrutiny had there been a serious incident.

## Benefits/Effects

The competency attained on the completion of the brake test training package will:

1. Will give uniformity in the way brake tests are conducted throughout Australia.
2. The accuracy of the results obtained will stand up to any scrutiny.
3. Because the results can be accurately repeated, this gives creditability to the results.
4. When machines are returned to service, this is done with the knowledge and confidence that the risk of an accident or incident because of a brake failure has been reduced/eliminated.

## Transferability across Industry

The brake test training package along with the competency obtained can be used anywhere that there are brakes to be tested (from the largest of mines to small automotive workshops.)

### IMPORTANT NOTE

THIS COMPETENCY IS ALSO APPLICABLE TO MACHINERY TYPES SUCH AS SLEWS ON DRAGLINES, SHOVELS AND ALL SLEWING CRANES.

## Innovation

AN AUSTRALIAN FIRST

AURT572593A ANALYSE AND EVALUATE WHEELED MOBILE PLANT BRAKING SYSTEMS FAULTS FOR EARTH MOVING MACHINERY (have been notified of approval by the NTIS.)

This competency was compiled by Joncris Sentinel Services

## Costing

Cost will depend of the training requirements of the individual customer which will depend on the range/type of machinery required to be tested. It is envisaged the full course for all types of machines will take three (3) days to conduct and the competency documentation issued on the successful completion of a course. Most large companies have their own trainers/assessors while others out-source to training services so this will vary the costs.