



THE UNIVERSITY OF  
**NEWCASTLE**  
AUSTRALIA



## Modifications of X-Ray Trolley Tables

### Project Scope:

#### Introduction:

The Bio-Medical Sciences Department at the University of Newcastle has a role in the training of future surgeons. As such, the University of Newcastle has a facility where surgical procedures can be practiced, and x-rays taken to examine their work on donated cadavers.

Four new surgical x-ray trolleys were purchased for this purpose by the Department of Bio-Medical Sciences. The x-ray trolleys were all at fixed, non-adjustable heights. Not being able to adjust these trolleys created ergonomic problems for the users and the different procedures that would be carried out.

TUNRA's highly specialised workshop team was engaged by Bio-Medical Sciences to develop and implement a design in order to make the x-ray trolley table's height adjustable.

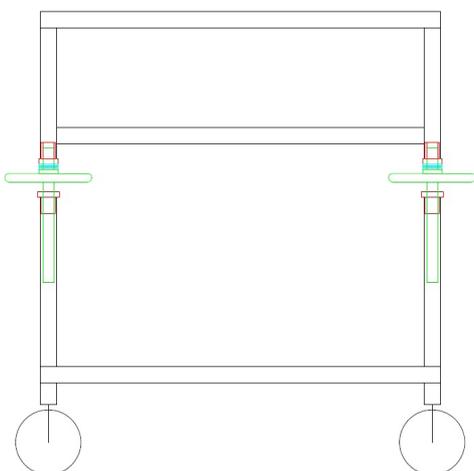


Figure 1: X-Ray Trolley Tables

### Challenges:

- ▶ No detailed drawings of the trolleys were available.
- ▶ A means of being able to adjust the four legs on the trolley had to be developed.

### TUNRA Bulk Solids Solution:

TUNRA's workshop team provided the following:

- ▶ A CAD drawing of the existing trolley was produced as a reference for modifications.
- ▶ A unique jacking system for each of the four legs was developed and implemented.
- ▶ A new drawing indicating all intended modifications was produced in order to maintain consistency.
- ▶ An additional stainless steel cross brace was added to support one end of the trolley below the cutting point on the legs.
- ▶ The four legs were cut and sections removed to allow fitment of the jacking system.
- ▶ Custom stainless steel inserts were made to fit into the upper leg sections to support the top of the jack screws.
- ▶ Custom brass threaded inserts were made and fitted to the lower leg sections.
- ▶ The jack screw was made using a 250mm length of 20mm stainless steel threaded rod.
- ▶ A stainless steel hand wheel was attached to the rod and the jack screw was screwed into the brass insert.
- ▶ Ball thrust bearings were used between the hand wheel and upper bush to take the weight off the table and reduce the turning effort on the hand wheel.



Figure 2: Non-adjustable X-Ray Trolley Tables



Figure 3: Adjustable X-Ray Trolley Table

### TUNRA Bulk Solids Workshop:

The laboratory and workshop facilities at TUNRA Bulk Solids are ISO 9001, ISO 14001 and ISO 45001 accredited. These facilities reside on the Newcastle Institute for Energy and Resources (NIER) site at The University of Newcastle. TUNRA is regularly involved in the design, fabrication and commissioning of custom test rigs for both industry and the University.

Through the project work completed directly to industry, TUNRA has built significant capabilities in terms of both mechanical and electrical/electronic skills.

### Mechanical and Electrical Services:

- ▶ General and high-precision machining.
- ▶ Fabrication of ferrous and non-ferrous materials, excluding pressure welding.
- ▶ High level technical advice and installation of specialised equipment.
- ▶ Manufacture and assembly of items as per specifications.
- ▶ Monitoring, maintenance and repair of test and laboratory equipment.
- ▶ Licensed electrical work and installations.
- ▶ Fault finding and electrical testing capabilities
- ▶ Data logging
- ▶ PLC coding and HMI screen development.

### Why TUNRA Bulk Solids?

#### Experience and Expertise

We have provided expert solutions to industry for over 45 years and are the leading organisation for materials handling research and consulting in Australia and internationally

#### Research and Development

We have a proven track record in research and development through the close association with The University of Newcastle

#### Quality Service

We have highly qualified, well-trained and specialist staff that are committed to delivering excellence

#### First Class Facilities

Our laboratory is a state of the art facility located within the Newcastle Institute of Energy and Resources (NIER) at The University of Newcastle

#### Industry Standards

We are accredited to ISO 9001, ISO 14001 and ISO 45001

#### Independent

We are independent and not for profit

Advancing the Bulk Materials Handling Discipline Globally



### Further information

- To access our Case Studies visit [www.bulksolids.com.au](http://www.bulksolids.com.au)
- To discuss your industry and business needs phone 02 4033 9055