

# Cylinder Cradle

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**(A Glencore Company)**



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# Copper Refineries Pty Ltd

Commenced operations in 1959

Production capacity 300,000 tonnes of copper cathode per annum

Major upgrades in 1999 and 2007 – refinery became one of the most modern and efficient refineries in the World.



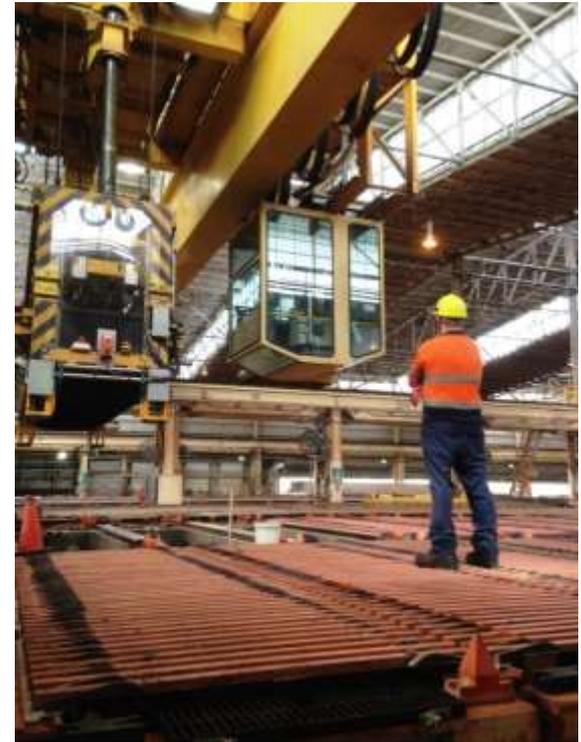
# Tankhouse

Process of electro-refining to extract copper (purity 99.995%) from anodes on to motherplates.

Cathodes are stripped from the motherplates and bundled for shipping to the customer.

24 hour operation:

- 12 hour day shift (strip and scrap of cathode and spent anode)
- 12 hour night shift (cell and production maintenance)



# Issue context – Walking Beam Hydraulic Cylinders



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# Cylinder Removal Issues

High risk task:

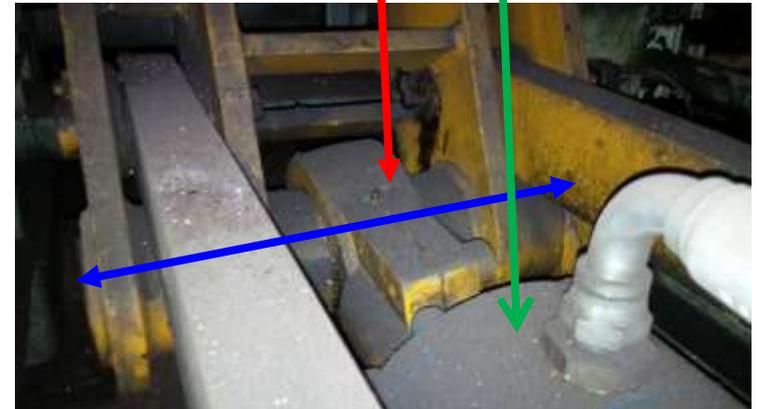
- Heavy weights (>350kg per cylinder)
- Cramped work environments
- Suspended loads
- Surface friction
- Manual handling risks



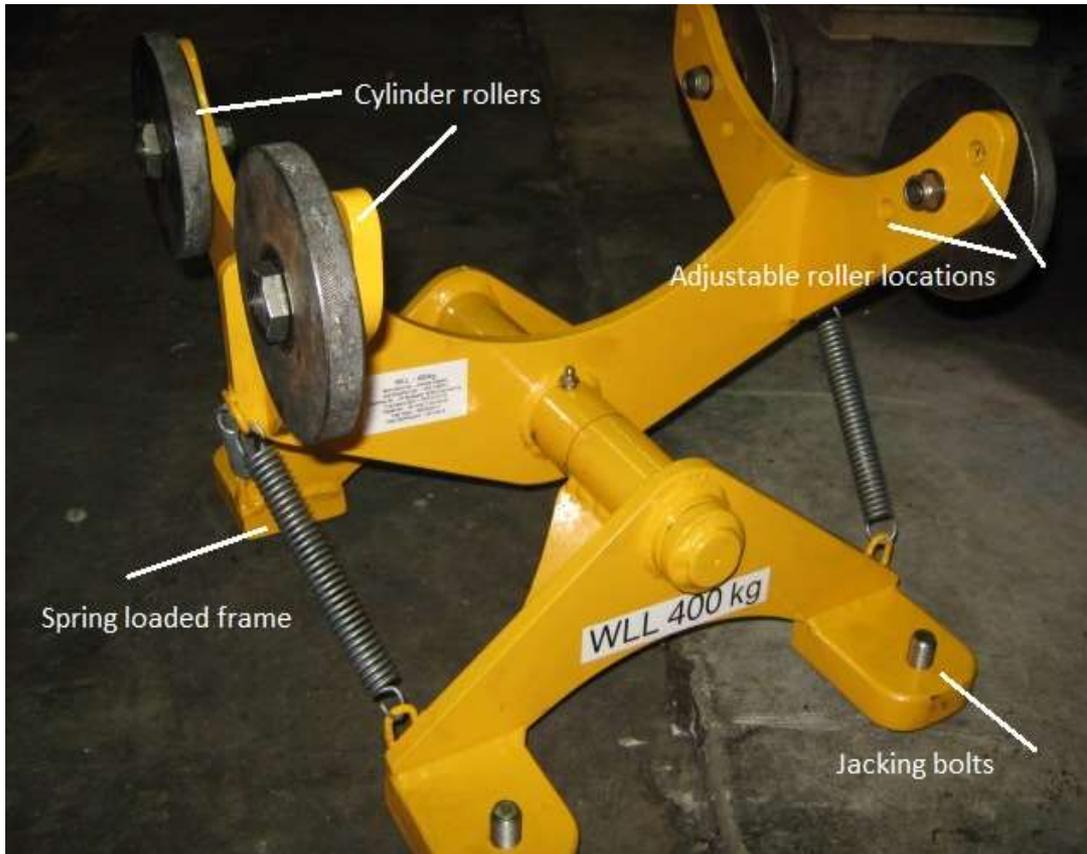
Blue arrow - Pin length 525mm  
long inside frame 690mm wide  
Red arrow - Clevis  
Green arrow - Hydraulic cylinder

Additional issues:

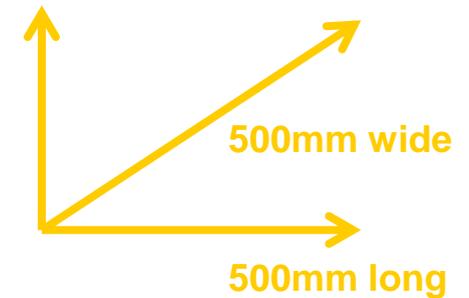
- Resource intensive
- Delays impacting production start up and operating targets
- Inability to respond to breakdowns and scheduled maintenance work



# Solution – Cylinder Cradle



360mm high



25kg



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# Outcomes – Cylinder Cradle

Direct outcomes:

- Reduced labour commitment (60 to 8 man hours)
- Guaranteed return to day production
- Preserved walking beam structural integrity
- Eliminated friction
- Eliminated use of slings and harnesses as a primary control of a high risk suspended load
- Reduced exposure to manual handling risks



Acquired a maintenance tool that is :

- Portable, compact and adjustable
- Height adjustable to allow for uneven floor surfaces
- Diversity of application: Use from cylinder replacement; rolling pipes, pipe spools and small tanks for welding repairs or fabrications; and rolling heat exchanger shells for maintenance works
- Multifunctional – ground or workbench applications



# Summary– Cylinder Cradle

Broad range of opportunities for industries with restricted access cylinder and pipe work replacement or maintenance activities.

Financial outlay (\$1,000 including certification costs).

Achieved:

- Quantifiable time savings of 52 man hours per change out
- Nil production impacts
- Improved safety and job satisfaction for maintenance crews



# Maintenance - D Crew

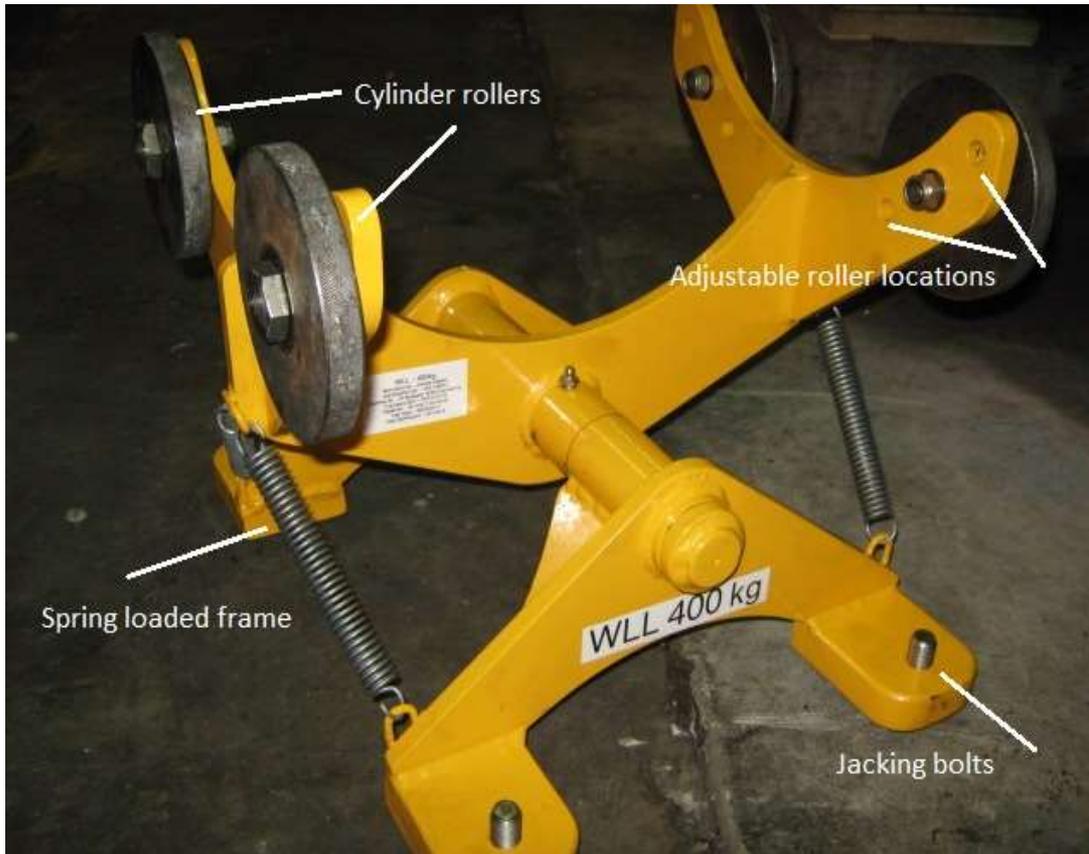


*With thanks....animation*

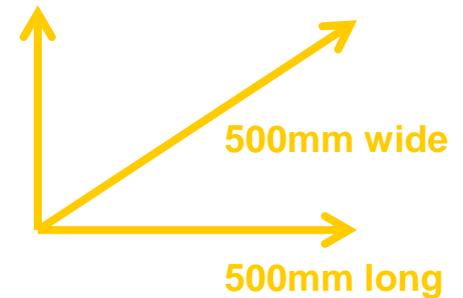


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# Questions? Cylinder Cradle



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