AD45 FRONT STRUT HANDLING TOOL

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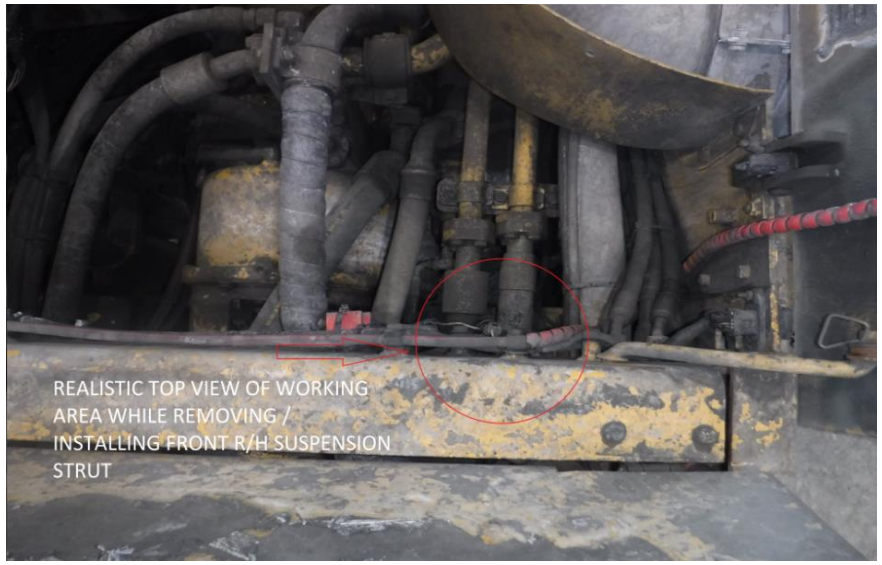
Mobile Asset Maintenance

AD45 Front Strut Handling Tool

- Developed in house
- By fitters performing the job
- To reduce the risk of injury

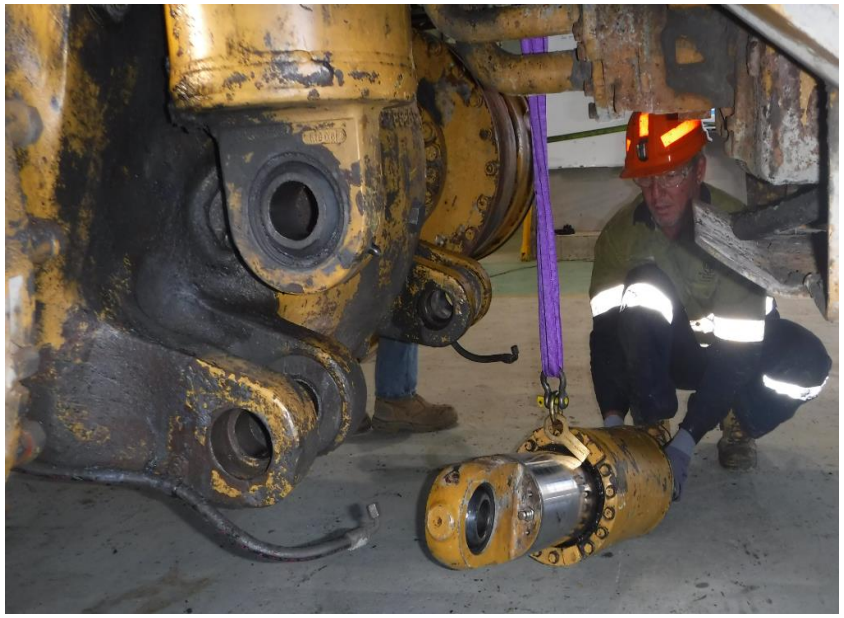
Front Strut

- Struts changed Annually
- Weight 145kg
- Restricted Space
- Restricted Access from above
- Inherent Risks



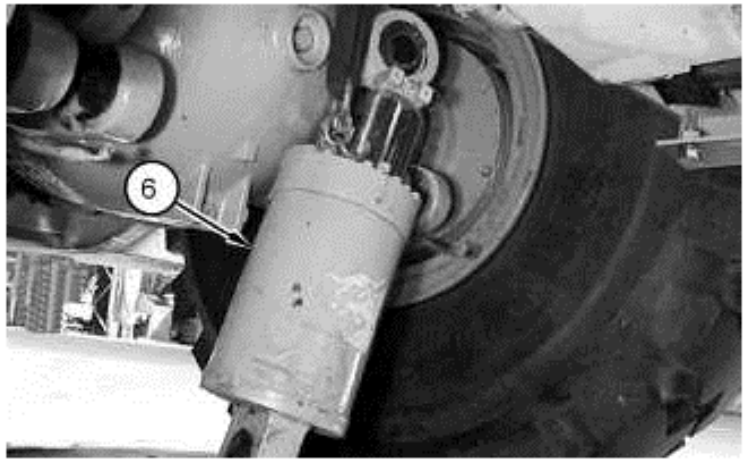
Current Process

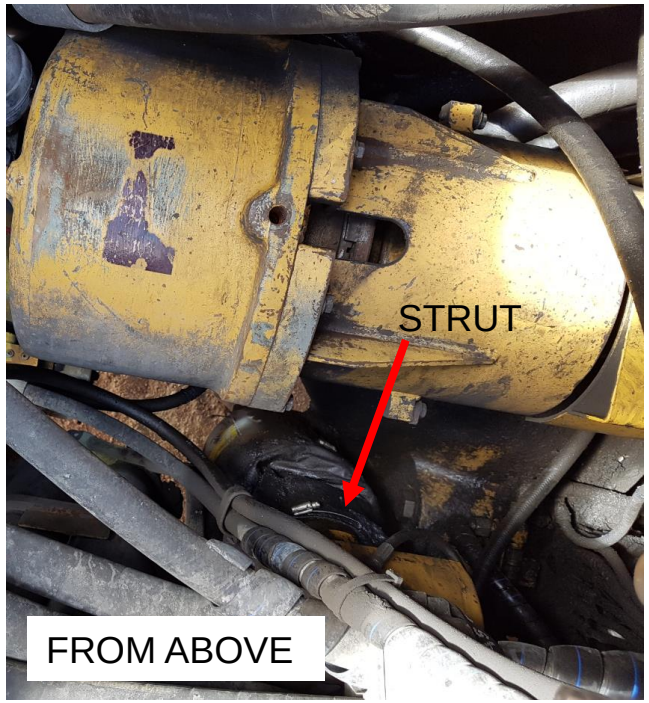
- Install lifting eye
- Lower sling
- Lift strut
- Suspended at awkward angle
- Man handle into position

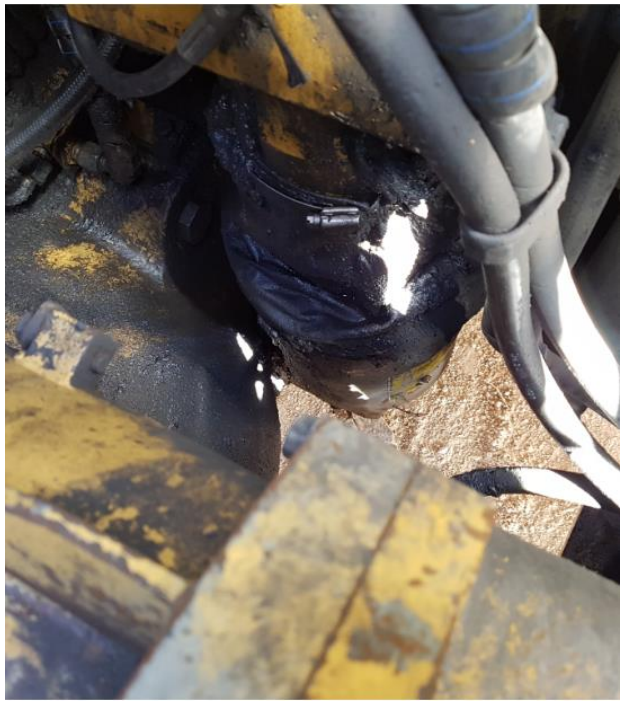


RISKS

- Suspended Loads
- Gravitational Energy
- Out of balance forces from when pin is removed
- Physical exertion during alignment leading to Sprains & Strains
- Pinch Points







LEADING WITH SAFETY

- Working safely is our first priority
- Culture of Continuous Improvement
- PB5
- Involvement in continuous improvement
- Support from leadership team
- Engineer was added to the team to provide assistance

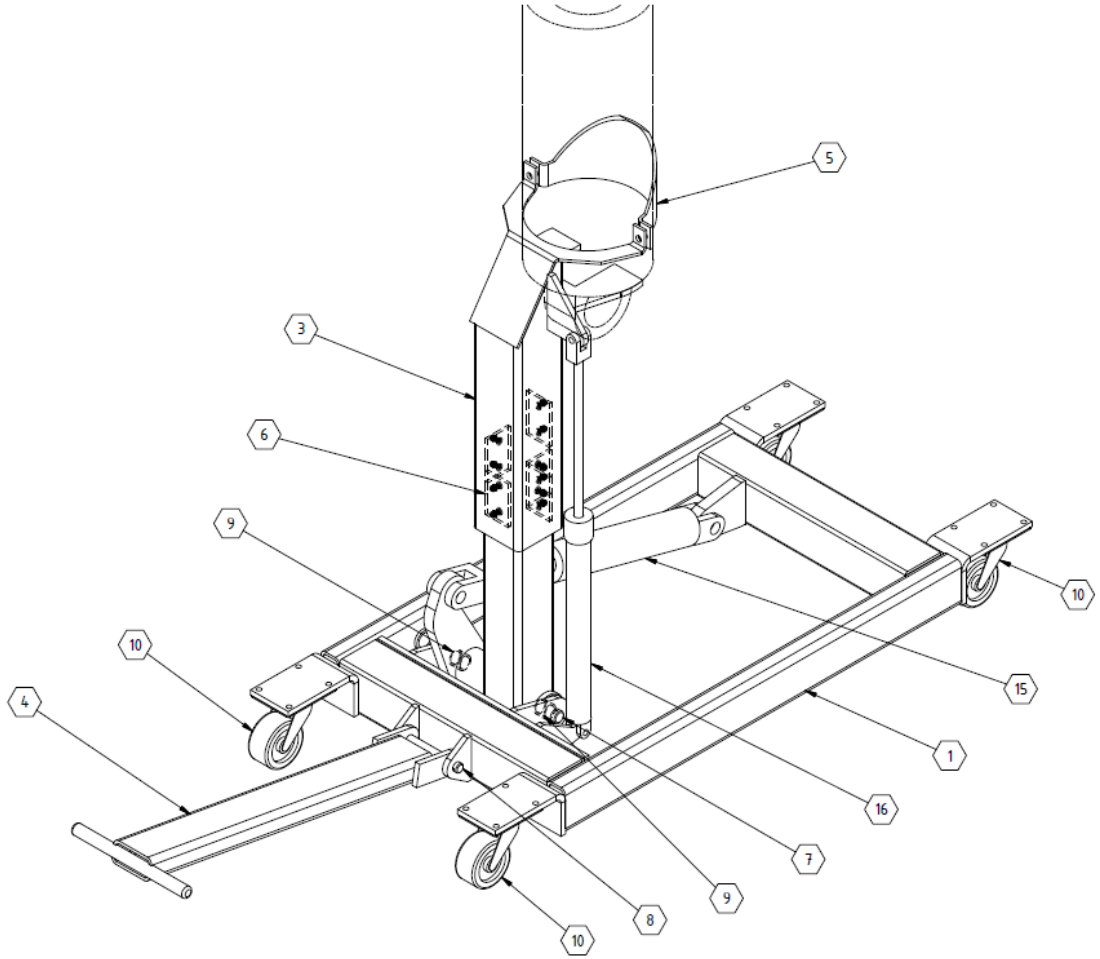
ENGINEERING

Design Goal

- *Eliminate as much manual handling as possible*

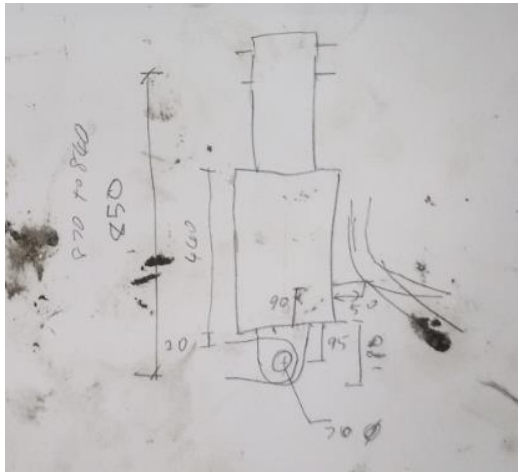
Required Features

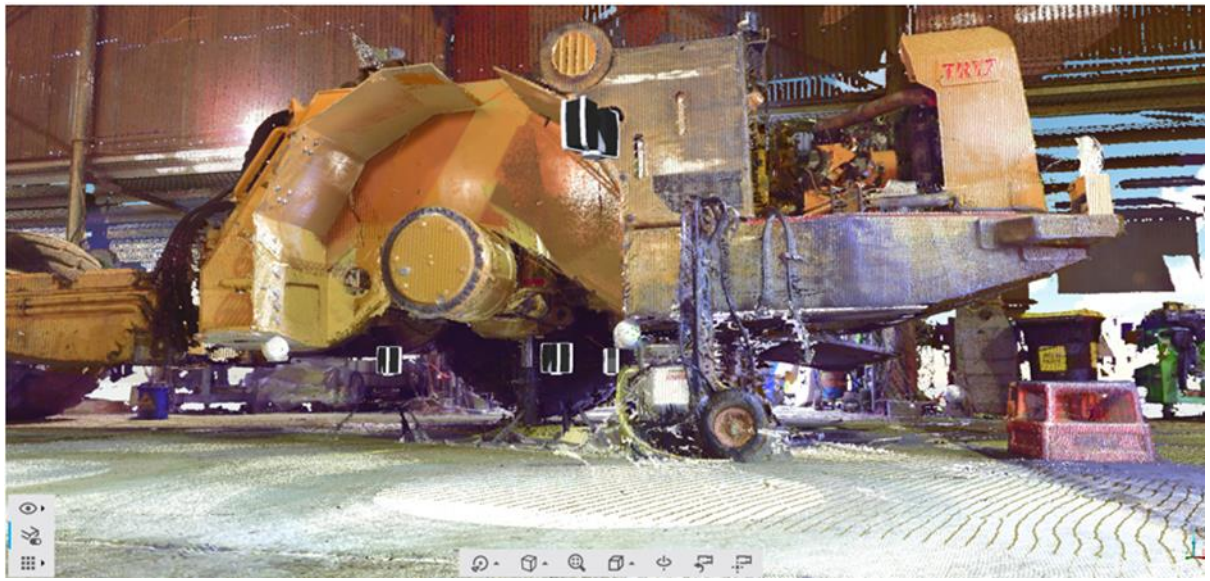
- *The ability to support the entire 145kg weight of the strut*
- *Clamp to hold suspension strut securely*
- *Vertical Lift and Drop*
- *Tilt to clear underside of truck*
- *Be dimensionally compatible with the truck to avoid clashe*
- *Mounted on Trolley for ease of movement*
- *Fail to safe in the event of hydraulic hose failure*



ISO VIEW

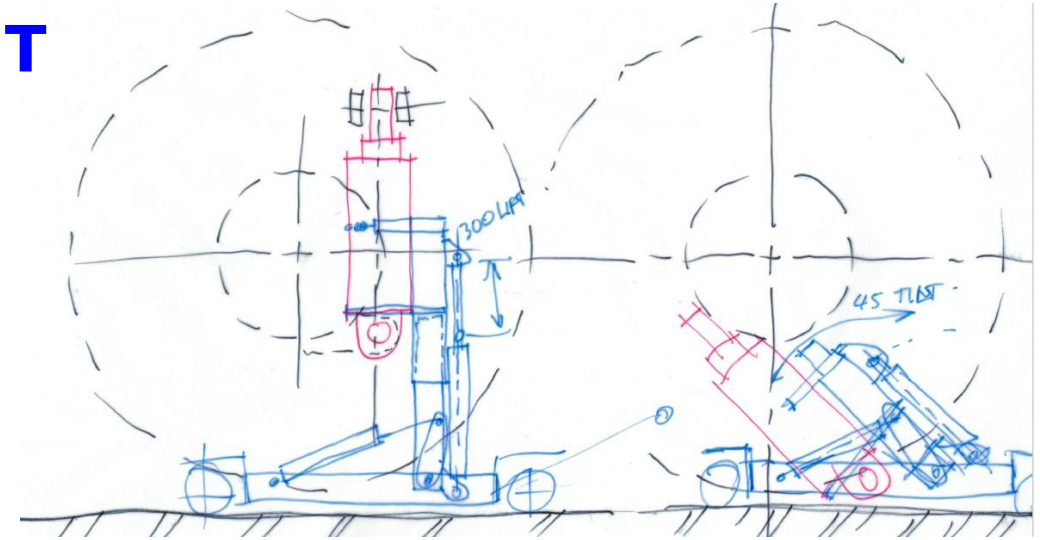
MEASURE UP

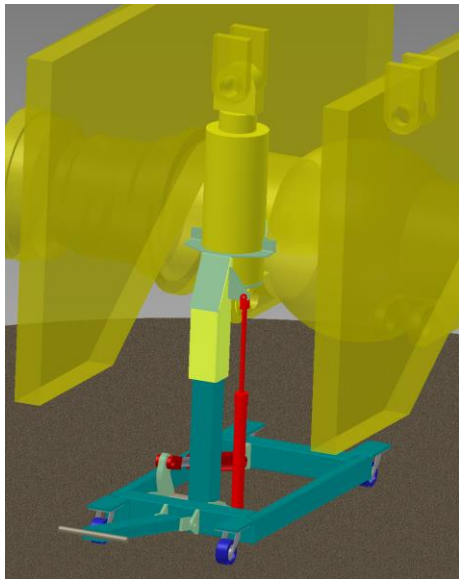


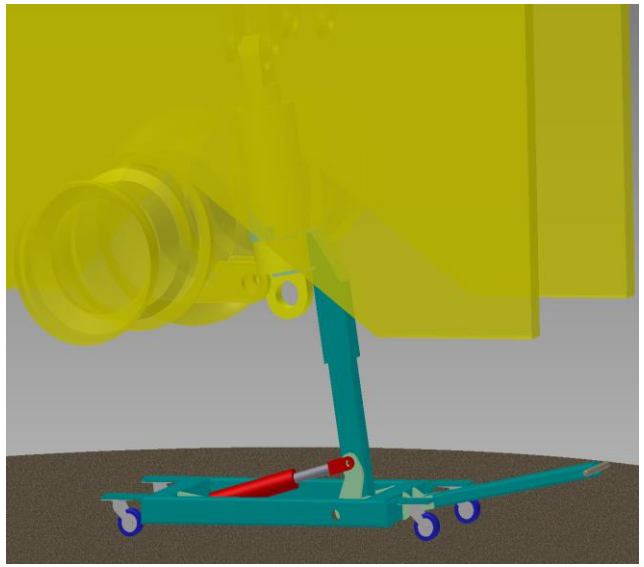


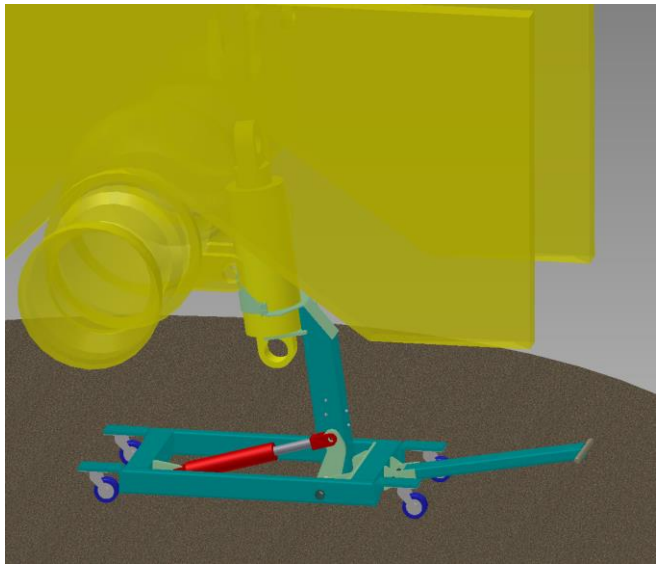
DESIGN DEVELOPMENT

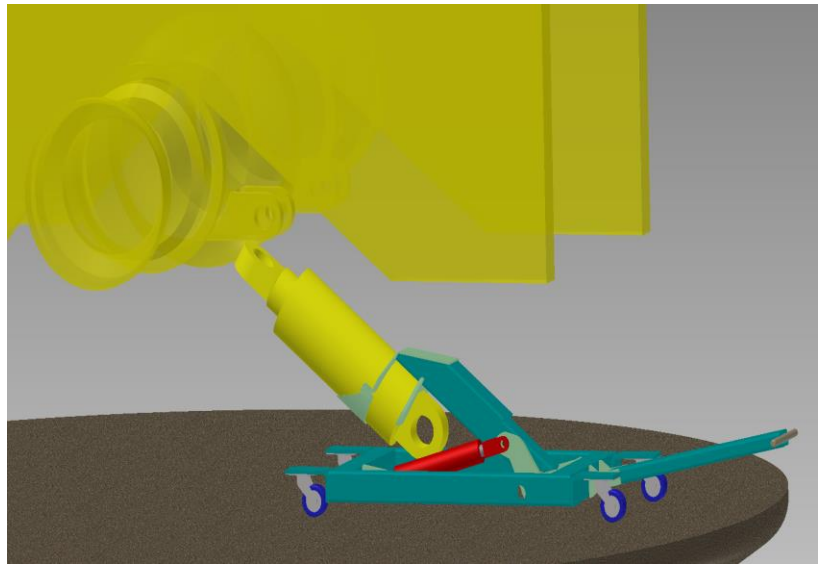
- Sketches
- Reviews
- 3D Model
- Site checks



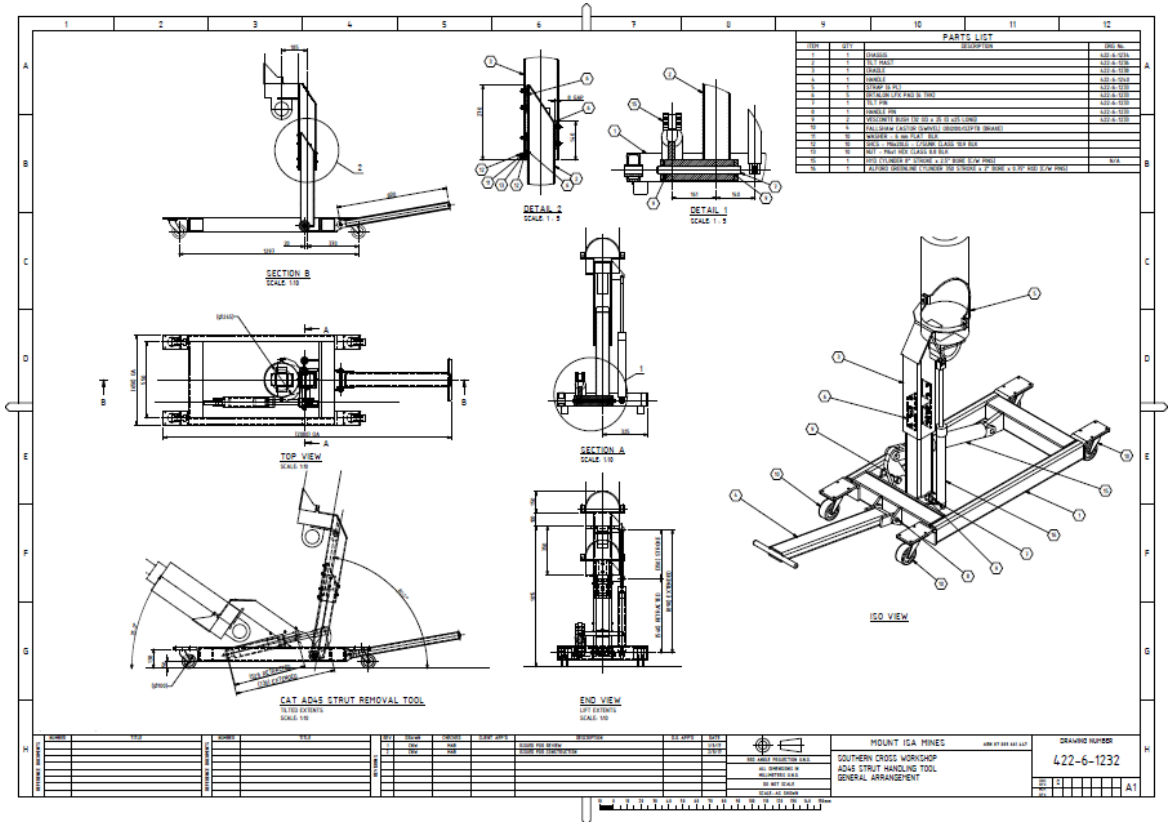


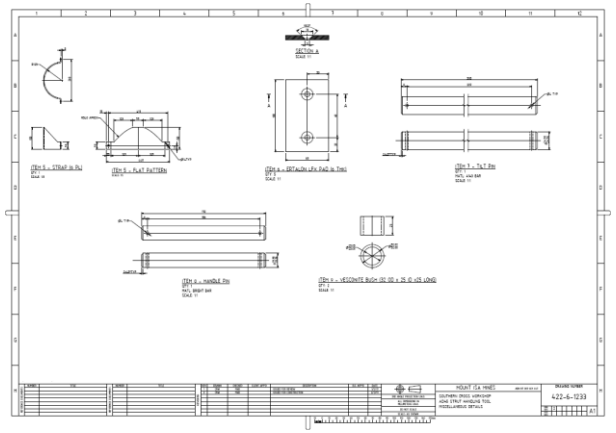


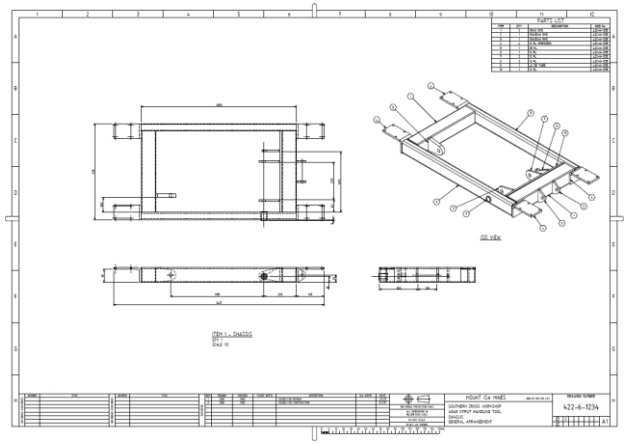


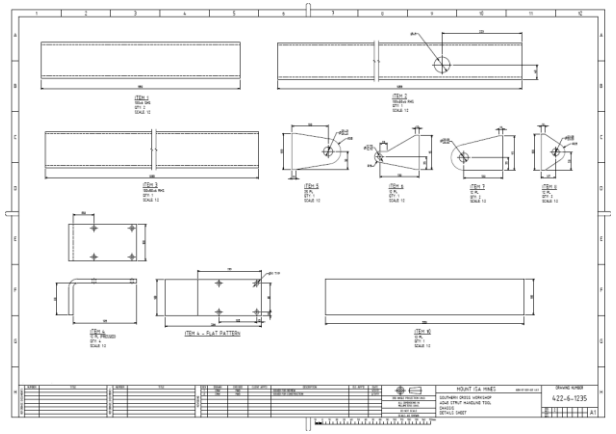


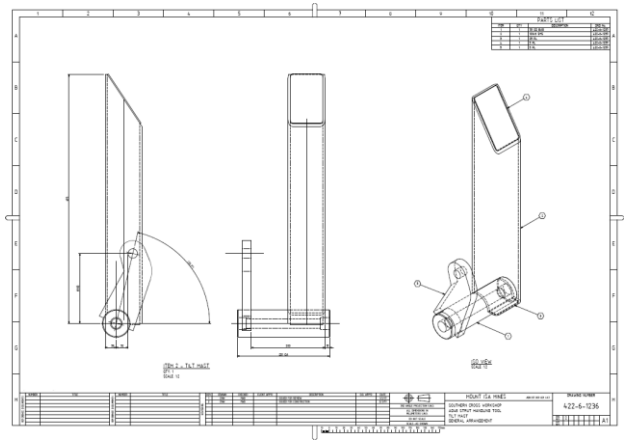
FABRICATION







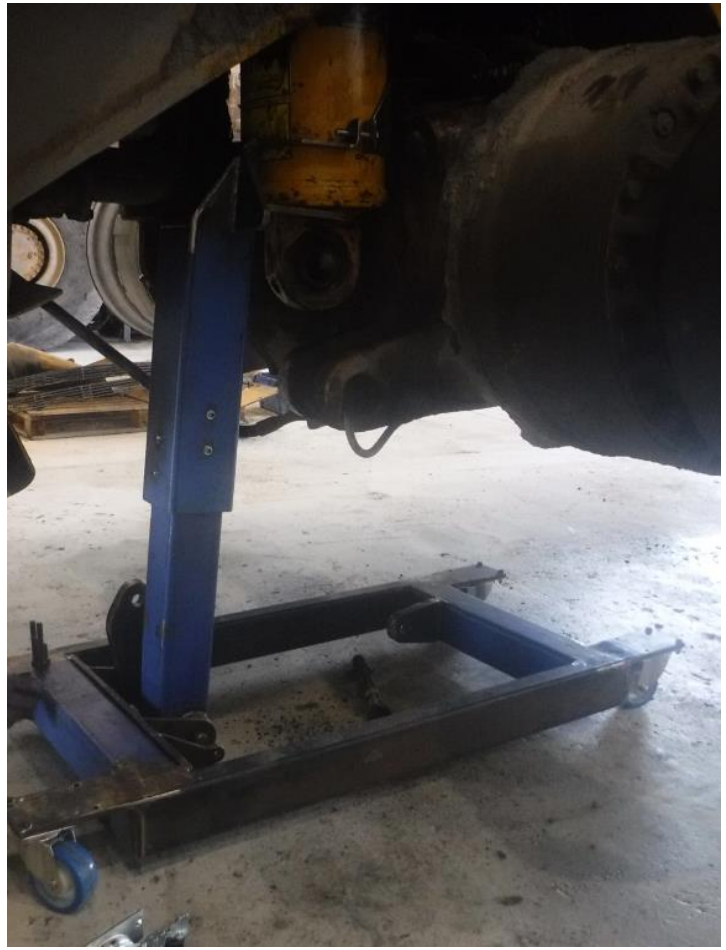




Sharing My story

Understanding and leading in times of true adversity

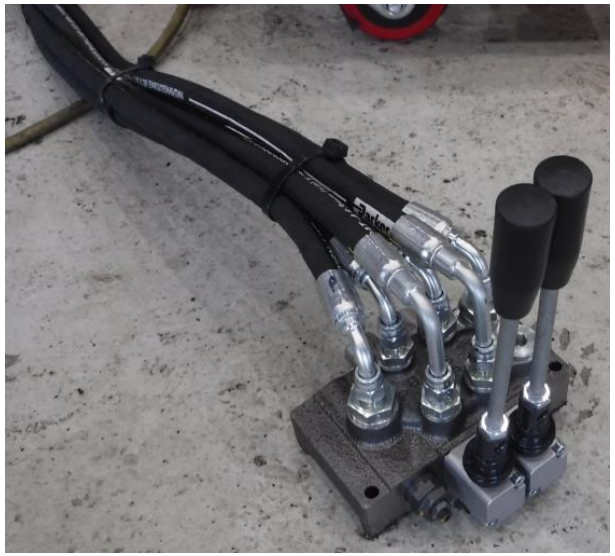
TRIAL FIT

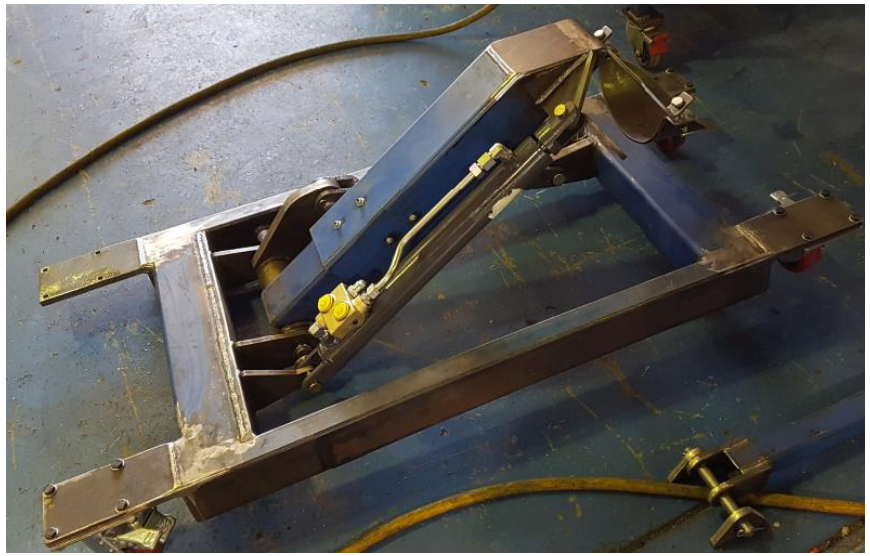


HYDRAULICS

A local hydraulic contractor was engaged for the hydraulic system
The System and features:

- *On board 240V Electric power pack*
- *Double acting cylinders with counterbalance valves on both ports*
- *Controls mounted on 2m lead*

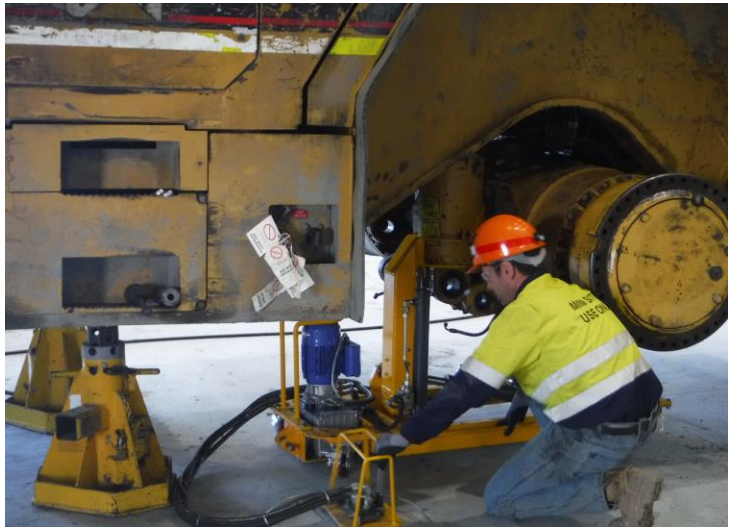


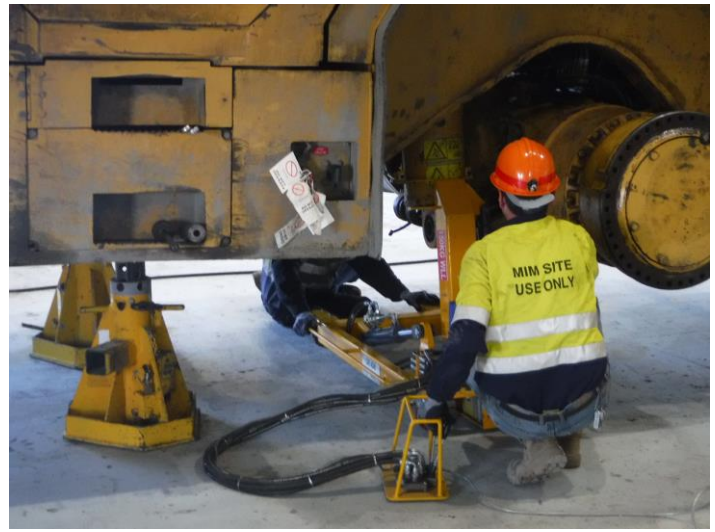


COMMISSIONING

The tool was successfully commissioned removing and replacing a suspension strut on the first attempt.

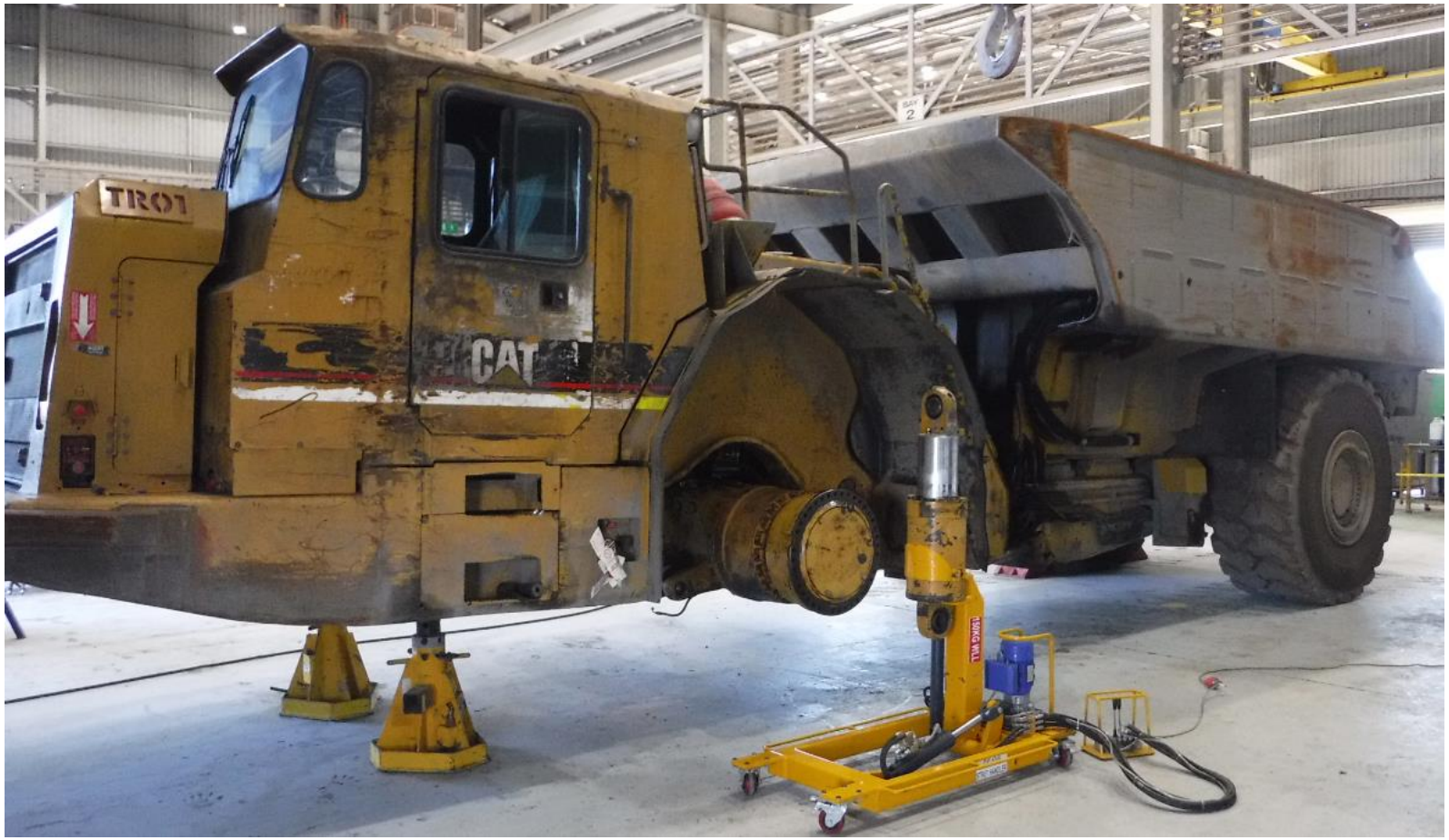
COMMISSIONING





BENEFITS

- Reduction in inherent risk
- Developed in house
- Productivity improvement
- Proved safety and efficiency improvements can go hand in hand
- Fosters onsite safety citizenship



TRANSFERABILITY & COST

Transferability

- Designed specifically for the AD45
- Plan to assess for use on Atlas Copco fleet
- Possibility for other uses, i.e. drivetrain components

Approximate Cost

• Design - including Lidar scan modelling and drawings	$6,990
• Direct costs - including parts and fabrication	$9,350
• **Total**	**$16,340**


CAUTION
CAT

Questions?