



LHD Hydraulic Cabin Presentation

October 2006

Project Origin/History

- *Project started as a response to a roll-over incident underground*
- *Project seeks to address the following issues found lacking by today's standards in tradition LHD vehicles :*
- *Ergonomics/Driver comfort*
- *Certified roll-over/falling object protection*
- *Operator visibility issues*

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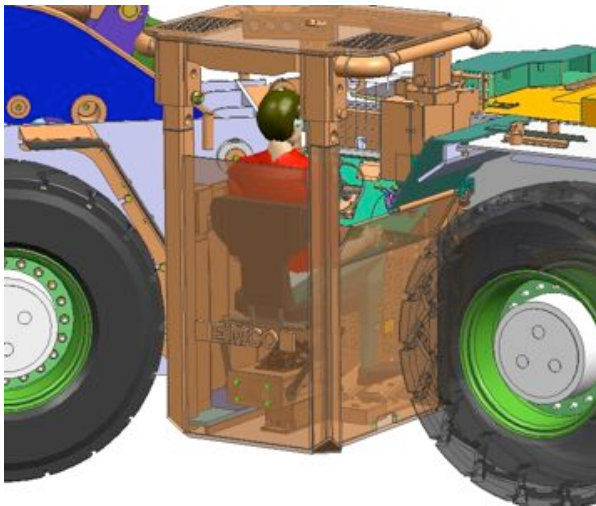
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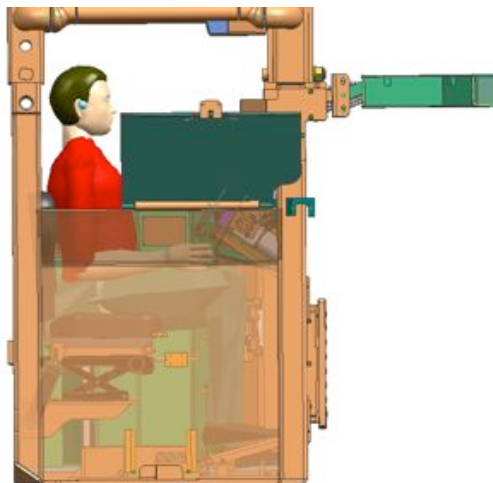
Ergonomics/Driver comfort

- All design work was completed utilising 3D CAD allowing a virtual model of the finished product
- This in turn has enabled a virtual 3D representation of a 5th and 95th percentile operator to be moved about the cabin to simulate arm and leg movements for placement of controls
- Operator cabin space has been increased for greater driver comfort

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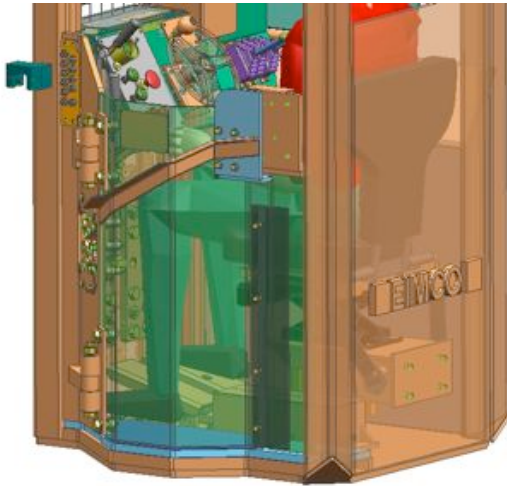


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Certified roll-over/falling object protection

- **Certified ROPS to AS2294**
- **Certified FOPS to AS2294**
- **ROPS structure to be built around an Ergonomic cabin space envelope**
- **Design has been an integration of Underground Operational Requirements, Engineering Standards, Ergonomics, Specific Machine Requirements, Durability & Cost**

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Operator Visibility Issues

- **ROPS structure designed to move 500mm in the vertical direction relative to the machine chassis**
- **Cabin can be lowered for low roof heights and raised for greater driver visibility**
- **Operator stays seated with a fastened seat belt at all times**
- **The practice of operators standing unrestrained while operating these vehicles has been eliminated**
- **Very difficult to change the traditional 'culture' of the end user of these LHD machines**

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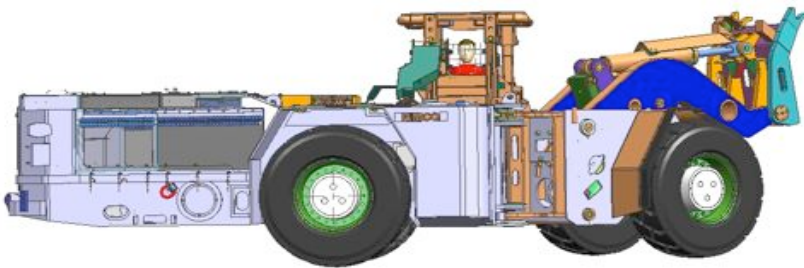


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The Future

- **Prototype has been in the field for 12 months without incident, however one iteration of pedal design has been required**
- **Presently have orders for the following LHD models : 913 retrofit, ED7 & ED10**
- **Presently investigating the use of cabin mounted screens with fore-aft camera's for low height applications**