Paul’s Post - insights from our Technical Director

Safety props on loaders - same, same but different?

A loader is a loader, right? A raised structure is a raised structure, right?

Why then don’t all loader risk questionnaires in Plant Assessor have a question asking for a mechanical safety prop?

Loaders that do include this question/control are agricultural tractors, skid steer loaders, crawler loaders and backhoe loaders. Wheel loaders don’t include this question.

Why, you ask, is this?

The answer to this question essentially revolves around whether it is foreseeable that the operator or maintenance staff will be required to perform a task under that raised structure.

Plant Assessor helps suppliers and users of plant & equipment by researching and applying relevant risk controls/treatments to the hazards and risks associated with specific types, makes and models of equipment.

The authorities for the various controls/treatments specified include mandatory requirements of legislation, requirements or recommendations of Australian and/or International Standard, Regulator Codes of Practice and other guidance material, Industry leading practice, and also via the application of the risk assessment process and hierarchy of controls.

Mandatory Requirements

In this case there is no mandatory specific legislative requirement, no Australian Standard (unlike tipping bodies AS1418.8 part 4) or Regulator Code of Practice.

There is, however, an International Standard for earthmoving equipment that specifies this requirement. ISO 20474.1:2008 Earth Moving Machinery - Safety, Part 1: General Requirements, includes the following clause –
4.22.3 Support devices

On machines on which maintenance can only be performed with equipment in a raised position, such equipment shall be mechanically secured with a device according to ISO 10533. If the support device or devices are required for daily maintenance, they shall be permanently affixed to the machine or shall be stored in a secure place on the machine.

A wheel loader has the engine at the rear, not beneath the loader arms, so operators and maintenance staff are not required to access the area under a raised loader on a regular basis.

On agricultural tractors, crawler loaders and backhoe loaders, a safety prop is required as operators will need to check oils on a daily basis – requiring access under the raised loader structure. In the case of skidsteer loaders any maintenance under the cabin requires access under the raised loader.

Applying the Risk Assessment Process

The risk assessment process involves following these steps:

- Identify any hazards that exist on the machine e.g. slipping, tripping, falling, cutting, crushing, shearing, pinching etc.
- Assess the risk associated with the identified hazard using the consequence vs likelihood method.
- Control the risk
  - Evaluate the risk based on the assessment score
  - Apply a hierarchy of risk control to determine the appropriate control.
- Monitor

Applying the Risk Assessment Process to Loaders

In our case for loaders where the engine is next to the loader arms (agricultural tractors, crawler loaders & backhoe loaders) or the loader needs to be raised to access other components (skid steers):

- Identify the hazard – Crushing. Operators and maintenance staff are regularly accessing the area under the raised loader
- Assess the risk – Consequence = Catastrophic, likelihood = possible (Risk score is High 22 by using the Plant Assessor risk matrix)
- Control the risk
  - Risk score = High, therefore act immediately to mitigate the risk
  - Apply the hierarchy of controls:
    - Eliminate – not possible
    - Substitute – (use another method to access area) not possible
    - Engineering – possible. Install a mechanical safety prop
    - Administrate – affix instruction label, train operators and maintenance staff
    - PPE – not possible
Monitor
- Conduct machine inspections to ensure that –
  - Instruction label is present and legible &
  - Safety prop is present and functional
- Observe staff to ensure prop is used

In the case of a wheel loader -

- Identify the hazard – Crushing. Operators do not need to access the area under the raised loader. Maintenance staff may need to access this area in rare circumstances. There is no operational hazard. There is a hazard for maintenance staff in rare circumstances
- Assess the risk
  - Operator – no risk
  - Maintenance – Consequence = catastrophic, likelihood = rare (Risk score is Medium 15 by using the Plant Assessor risk matrix)
- Control the risk
  - Operator – no control required
  - Maintenance
    - Risk score = Medium. Take reasonable steps to mitigate risk.
    - Hierarchy
      - Eliminate – not possible
      - Substitute – (use another method to access area) possible but not practical
      - Engineering – possible. Provide a mechanical safety prop for maintenance staff
      - Administrate – train maintenance staff
      - PPE – not possible
      - Monitor
      - Conduct inspections to ensure that safety prop is available and functional
      - Observe staff to ensure prop is used

I hope this provides an answer to the question and also gives some insight into the detail that is considered when applying risk controls to machines in Plant Assessor.

As usual, if you have a question that you would like answered please drop us a line at - info@assessor.com.au