



Maintenance of mobile equipment

1. INTENT

This standard identifies the controls required to manage the risk when personnel are required to perform maintenance on mobile equipment.

2. APPLICATION

This Standard applies to all mobile equipment operated or maintained at Perenti projects and off-site workshops.

3. REQUIREMENTS

3.1 PEOPLE

- A competency-based training system must be in place for maintenance personnel required to conduct work on mobile equipment.
- Maintenance personnel must, as a minimum, have achieved all mandatory competencies required for the task they are to perform before conducting the task without direct supervision.
- Maintenance personnel must not operate mobile equipment unless competent or under instruction (or "in training").
- Personnel must hold the appropriate high-risk work licence required for the task being performed (e.g. Dogging, forklift). In jurisdictions outside Australia where high-risk work licenses do not exist, personnel are required to comply with the intent of this standard and undergo an equivalent level of training.
- Only a licensed electrician can perform work on electrical systems over 24 Volts on mobile equipment.

3.2 SYSTEMS AND PROCEDURES

- When mobile equipment arrives at a Perenti project, it must be inspected by a competent person to ensure compliance with Perenti, ISG Business unit and project-specific requirements.
- Mobile equipment must be chocked or onboard jacks grounded before maintenance activity commences.
- All elevating machine assemblies (e.g. booms) must be supported before maintenance activity involving the boom structure or lift mechanism commences. Feeds and rod handlers may be worked on without supporting the boom providing power sources have been isolated.
- A point of work risk assessment (SWIC, Take 5, JSA) must be completed for all maintenance tasks other than routine servicing.
- Mobile equipment must be positively isolated before any maintenance activity can take place.
- Mobile equipment must not be operated during maintenance activity unless under a testing and adjusting or testing and commissioning protocol.
- Maintenance personnel must control risks associated with defective critical components in accordance with maintenance procedures before relocating mobile equipment to facilitate repair.
- Trained operators and spotters must be used when mobile equipment enters or departs workshops to control risks associated with equipment movement in restricted spaces.

- OEM diagnostic equipment, parts manuals, and maintenance manuals must be available at each project and accessible by site maintenance personnel.
- Minimum requirements and specifications for the storage, assembly and maintenance of tyres and rims must be documented at each project. These requirements must include the tools and equipment to be used and the procedures and competencies required for stripping, assembly and inflation. The following requirements must be included:
 - Tyre, rim and wheel maintenance work (including tyre pressure checks and tyre handler operation) may only be undertaken by adequately trained, competent and authorised personnel;
 - Tyre, rim and wheel maintenance work (including routine tasks) must not take place without a point of work risk assessment (SWIC, Take 5 or JSA);
 - When inflating / deflating tyres, a remote device fitted with a pressure gauge, shut off and dump valve must be used and monitored by personnel for the entire duration of the task;
 - Remote inflation / deflation device hose length must allow for personnel to keep a minimum of 3 metres perpendicular distance from the outer limit of potential hazardous trajectory of assembly failure and all personnel must keep this distance during the task;
 - Heat must never be applied (weld, grind, torch etc) to an inflated and or assembled tyre/rim/wheel. Deflation and full disassembly must be completed if hot works are required;
 - All tyres of 24" rim / wheel diameter or less must be inflated in a purpose built and certified tyre inflation cage;
 - All tyres of 25" rim / wheel diameter or where a cage cannot practically be used, must be inflated with use of an adequately positioned blast guard / equipment such as a tyre handler, forklift or IT loader to reduce the hazardous potential of assembly failure;
 - Tyres that have been run flat or found to be 20% under their OEM specified inflation pressure shall not be re-inflated unless first disassembled, inspected and verified as serviceable by trained and competent personnel:
 - Prior to removal from mobile plant, all assemblies (inclusive of adjacent wheels in dual wheel groups) must be deflated to the required safe removal pressure as risk assessed and dependent on OEM specifications, industry standards and point of work risk assessments;
 - Where rubber tyred equipment is subject to electrification (lightning, powerlines) catch or come into contact with fire or a hot tyre / pyrolysis is suspected emergency procedures must be followed;
 - Tyre handlers and mechanical lifting aids shall not be used for any purpose other than that specified in their design;
 - Personnel shall never leave the controls of the tyre handler or other mechanical lifting aid whilst it is supporting a load;
 - Personnel must never enter the area between an assembly and tyre handler attachment unless adequate controls are in place as specified in the point of work risk assessment (eg Wheel Chocks, Fallback arrestors, spotters, positive communications); and



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- Assemblies must never be inflated whilst clamped by a tyre handler or mechanical lifting aid.
- A maintenance strategy should be implemented on site to cover preventative maintenance, corrective maintenance, breakdown maintenance and plant and equipment inspections.

3.3 PLANT AND EQUIPMENT

- All mobile equipment must be subject to a risk assessment before mobilisation, and all engineered risk controls must be identified in an ISG Business unit build specification.
- All new Perenti mobile equipment must conform to the current ISG Business Unit build specification at the time of delivery.
- Inspection and maintenance strategies must be developed and implemented for each item of mobile equipment before its commissioning.
- All mobile equipment must be maintained to a functional condition consistent with Perenti ISG and OEM specifications.
- When a build specification is updated, the requirement to upgrade existing mobile equipment of that model must be risk assessed and a change management program implemented, should existing equipment require upgrading.
- OEM parts must be used for all brake and steering maintenance.
- All hydraulic lines and fittings must meet or exceed OEM specifications.
- All hoses and harnesses must be returned to the as built location and be secured by the intended clamps at the completion of maintenance activity.

3.4 TEMPORARY REPAIRS

- Any maintenance activity that returns a machine to an operational state but does not achieve normal manufacturer's specifications is deemed a temporary repair. In order for such a machine to be used the temporary repair must:
 - not impede or alter the operation of any safety function or critical component;
 - not create an unsafe condition if the temporary repair fails;
 - be reported to project maintenance management so that a permanent repair can be scheduled.

3.5 EQUIPMENT MODIFICATIONS

- Mobile equipment and tools used to perform maintenance work must not be modified from ISG business unit build specification unless approved by the responsible ISG business unit maintenance manager or equivalent.
- Equipment modifications must be subject to the ISG management of change process.