

IMPORTANT NOTE:

Komatsu Australia Pty Ltd ("Komatsu") has been requested by the customer to supply this risk assessment report in relation to the specified equipment ("the report"). The report supplements the information provided by Komatsu in the Operation and Maintenance manual ("the manual") and the report should be read in conjunction with the manual. The report does not purport to set out all possible risks which might be relevant to the customer's use or operation of the equipment in the report. The report is provided on a confidential basis for the internal use of the customer only and it is not to be used for any other purpose. The report does not form part of any contract between Komatsu and the customer and it is not to be relied upon by any other party for any purpose. The customer accepts sole responsibility for the use of the report. The customer acknowledges that it must carry out its own risk assessment in relation to the equipment in the report.

Serial No: C60001 and up Machine: PC200LC Model: 8
 Report Date: 5/09/2014 Location: Fairfield
 Assessment Date: 28/04/2009 Assessment Team: Amber Mahoney, Erwin Surjadi, Steve Bowling
 Conditions: KGA Attachments, Beacon

NOTE: Please refer to KAPRA Classification Guide for item definitions and classifications.

Risk Scoring Method

The likelihood and consequences for each potential hazards are assessed to calculate the risk level using the table shown below.

Likelihood "L" Codes

| Code | Descriptor | Description |
|------|----------------|--|
| A | Almost certain | Common or repeating occurrence. |
| B | Likely | Known to occur or has happened. |
| C | Possible | Could occur and is likely. |
| D | Unlikely | Could occur but not likely. |
| E | Rare | May occur only in exceptional circumstances. |

Consequences "C" Codes

| Code | Descriptor | Description |
|------|---------------|--------------------------------|
| 1 | Insignificant | No medical treatment required. |
| 2 | Minor | First aid treatment. |
| 3 | Moderate | Medical treatment required. |
| 4 | Major | Extensive injuries. |
| 5 | Catastrophic | Death or permanent disability. |

Risk Level Matrix

| Likelihood | Consequence | | | | |
|------------|-------------|----------|----------|---------|---------|
| | 1 | 2 | 3 | 4 | 5 |
| A | High | High | Serious | Serious | Serious |
| B | Moderate | High | High | Serious | Serious |
| C | Low | Moderate | High | Serious | Serious |
| D | Low | Low | Moderate | High | Serious |
| E | Low | Low | Moderate | High | High |

02 - Access Systems

A - General

KAPRA ID 02.01.01

Source of Risk **Access to work areas above ground level**



Details Top platform of machine has no guardrailing and is a work area for refuelling, topping up hydraulic oil, fuel/coolant filter replacement, checking levels of engine and swing gear box oils, maintaining beacon lighting and cleaning rear cabin window. Tracks are a work area for cleaning front and side cabin windows.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls when performing maintenance activities (eg. Refuelling, topping up hydraulic oil, fuel/coolant filter replacement, checking levels of engine and swing gear box oils, maintaining beacon lighting and cleaning cabin windows) on the top platform of the machine and on the tracks. Demonstrate safe access to all maintenance areas on the top platform of the machine and on the tracks.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 3 | Moderate | E | 3 | Moderate |

KAPRA ID 02.01.02

Source of Risk **Obstructions / projections**



Details Precleaner, fuel fill point and top of hydraulic tank partially obstruct walkways on the top platform of the machine.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls due to partial obstruction of walkways on the top platform of the machine by precleaner, fuel fill point and top of the hydraulic tank. Demonstrate safe access to all maintenance areas on the top platform of the machine.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |



Details Potential difficulties in maintaining three points of contact when using right hand side (i.e. maintenance) access systems.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to potential difficulties in maintaining three points of contact when using the maintenance access system. Demonstrate safe use of the maintenance access system.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Night operations.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazard when accessing the machine at night. Advise operator and maintenance staff that additional sources of lighting are required during night operations.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | C | 3 | High | D | 3 | Moderate |
| Ergonomic | D | 3 | Moderate | D | 3 | Moderate |



Details None.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls when carrying small objects (tools, lunchboxes, etc) whilst accessing the machine. Highlight that the Operation and Maintenance manual (refer to page 2-14) specifies not to get on or off the machine whilst holding tools. Advise operator and maintenance staff to always maintain three points of contact wherever possible and to place lunchboxes, tools, etc in a backpack or toolbag when accessing the machine.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |



Details Tracks have a maximum 7.8 degree slope.

Controls Advise operator and maintenance staff of the potential ergonomics hazard when accessing the machine due to the slope of the tracks. Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|-----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Vertical distance between track steps and tracks is 460 mm.
 Vertical distance between track and step 1 on right hand side (i.e. maintenance) access system is 450 mm.
 Vertical distance between step 1 and step 2 on right hand side (i.e. maintenance) access system is 400mm.
 Vertical distance between step 2 on right hand side (i.e. maintenance) access system and top platform is 400mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to access system step spacings (refer to details). Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Vertical distance between ground and track step is 530 mm.
 Vertical distance between track and cabin floor is 470mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazards due to access system step spacings (refer to details). Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

B - Platform

KAPRA ID 02.02.01

Source of Risk **Walkway / platform / landing width**



Details Walkway widths on top platform of machine are 230 - 560mm.
Track step widths are 320mm.
Step 1 width on right hand side (i.e. maintenance) access system is 400mm.
Internal cabin access width / clearance is 350 - 480mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to walkways / platform / landing widths (refer to details).
Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

KAPRA ID 02.02.02

Source of Risk **Vertical clearance above floors**



Details Interior cabin height is 1550mm.

Controls Advise operator and maintenance staff of the potential ergonomics hazard due to interior cabin height. Demonstrate safe use of cabin access system.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|-----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Dimensions of openings in Step 1 floor on right hand side (i.e. maintenance) access system are 390 mm x 50 mm.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls due to small openings in step 1 floor on maintenance access system. Demonstrate safe use of maintenance access system.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |



Details Slew area opening.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls when performing maintenance activities (eg. Refuelling, topping up hydraulic oil, fuel/coolant filter replacement, checking levels of engine and swing gear box oils and maintaining beacon lighting) on the top platform of the machine due to opening in floor at slew area. Demonstrate safe access to all maintenance areas on the top platform of the machine.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |

C - Handrails

KAPRA ID 02.03.01

Source of Risk **Continuity and composition of handrails**



Details Mirror mounts and mirrors protrude from handrails on cabin access system and right hand side (i.e. maintenance) access system.

Controls Advise operator and maintenance staff of the potential slips, trips and falls, ergonomics and cut, stab and puncture hazards when using access systems due to placement of mirrors on handrails. Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |
| Cut, stab and puncture | D | 2 | Low | E | 2 | Low |

KAPRA ID 02.03.02

Source of Risk **Handrail clearance**



Details 45mm clearance on cabin access handrail due to mirror mount and mirror.

Controls Advise operator and maintenance staff of the potential ergonomics hazard due to handrail clearance on the cabin access system. Demonstrate safe use of cabin access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|-----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Ergonomic | D | 2 | Low | E | 2 | Low |



Details 10 mm mounting bolts on handrails for cabin entry.

Controls 10mm bolts are standard factory build and suitable for the intended design purpose. Highlight that the Operation and Maintenance manual (refer to page 2-14) specifies to always check the handrails before getting on or off the machine, repair any damage and tighten any loose bolts.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | E | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

D - Guardrailings



Details Top platform of machine has no guard railing.

Controls Advise operator and maintenance staff of the potential for slips, trips and falls when performing maintenance activities (eg. Refuelling, topping up hydraulic oil, fuel/coolant filter replacement, checking levels of engine and swing gear box oils and maintaining beacon lighting) on the top platform of the machine. Demonstrate safe access to all maintenance areas on the top platform of the machine.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 3 | Moderate | E | 3 | Moderate |

F - Toeboards

KAPRA ID 02.06.01

Source of Risk **Objects falling from edges of floors higher than 2m**



Details Top platform of machine is 2100mm above ground.

Controls Advise operator and maintenance staff of the potential striking hazard due to tools, rocks, etc falling from the top platform of the machine. Highlight the need for safe housekeeping procedures.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Striking | C | 2 | Moderate | D | 2 | Low |

G - Stairways

KAPRA ID 02.07.01

Source of Risk **Stairway width**



Details Step 1 width on right hand side (i.e. maintenance) access system is 400 mm.
Top platform width on right hand side (i.e. maintenance) access system is 560 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to stairway widths (refer to details).
Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Top platform landing width on right hand side (i.e. maintenance) access system is 560 mm compared to the maximum stairways width of 800 mm.
Track landing width on right hand side (i.e. maintenance) access system is 600 mm compared to the maximum stairways width of 800 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to landing widths (refer to details). Demonstrate safe use of maintenance access systems.

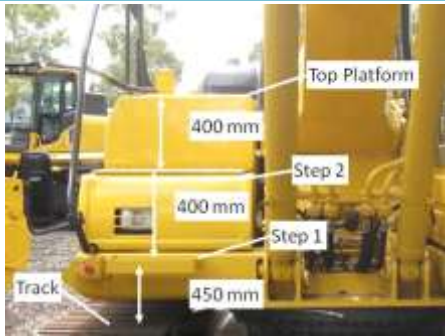
| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Track width on right hand side (i.e. maintenance) access system is 600 mm compared to the maximum stairways width of 800 mm.
Step 1 tread width on right hand side (i.e. maintenance) access system is 400 mm compared to the maximum stairways width of 800 mm.
Top platform tread width on right hand side (i.e. maintenance) access system is 560 mm compared to the maximum stairways width of 800 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to tread width (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Vertical distance between track and step 1 on right hand side (i.e. maintenance) access system is 450 mm.
 Vertical distance between step 1 and step 2 on right hand side (i.e. maintenance) access system is 400 mm.
 Vertical distance between step 2 on right hand side (i.e. maintenance) access system and top platform is 400 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to step height (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Depth of step 1 on right hand side (i.e. maintenance) access system is 200 mm.
 Depth of step 2 on right hand side (i.e. maintenance) access system is 530 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to step depth (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

KAPRA ID 02.07.09 Source of Risk Variations in rise / going dimensions



Details Rises on right hand side (i.e. maintenance) access system vary between 400 mm to 450 mm.
 Goings on right hand side (i.e. maintenance) access system vary between 200 mm to 530 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due variations in step heights and depth (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

KAPRA ID 02.07.10 Source of Risk Dimensions of rises / goings



Details Step 1 dimensions on right hand side (i.e. maintenance) access system is 200 mm by 400 mm.
 Step 2 dimensions on right hand side (i.e. maintenance) access system is 530 mm by 400 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to step heights and depths (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

KAPRA ID 02.07.11 Source of Risk Tread width in relation to going



Details No overlap on right hand (i.e. maintenance) access system except between tracks and step 1.

Controls Advise operator and maintenance staff of the potential slips, trips and falls when accessing the right hand (i.e. maintenance) access system (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | E | 1 | Low | E | 1 | Low |



Details The diameter of the handrail on right hand (i.e. maintenance) access system is 32 mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to size of handrails (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |



Details Vertical distance between step 1 nosing and the handrail on the right hand side (i.e. maintenance) access system is 260 mm.

Vertical distance between step 2 nosing and the handrail on the right hand side (i.e. maintenance) access system is 500 mm.

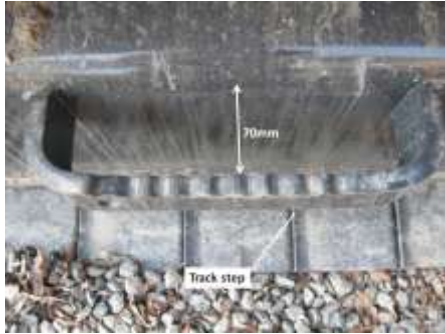
Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to handrail height (refer to details). Demonstrate safe use of maintenance access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | D | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

M - Individual Rung Ladders

KAPRA ID 02.13.09

Source of Risk **Clearance to back edge of rung**



Details Depth of track steps is 70mm.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to clearance to back edge of track steps. Demonstrate safe use of access systems.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | E | 2 | Low | E | 2 | Low |
| Ergonomic | E | 3 | Moderate | E | 3 | Moderate |

N - Emergency Use

KAPRA ID 02.14.02

Source of Risk **Means of egress from operator's cab**



Details Emergency egress located near engine compartment.

Controls Advise operator and maintenance staff to use normal cabin egress system in the event of a fire around the engine area.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|--------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Fire | D | 3 | Moderate | E | 3 | Moderate |

04 - Work Environment

C - Lightings

KAPRA ID 04.03.01

Source of Risk **Lighting about the workplace**



Details Night operations

Controls Advise operator and maintenance staff of the potential for slips, trips and falls, high temperature, cut, stab and puncture, friction and crushing hazards when performing maintenance activities at night. Advise operator and maintenance staff that additional sources of lighting are required during night operations.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Slips, trips and falls | C | 3 | High | D | 3 | Moderate |
| High temperature | B | 3 | High | C | 3 | High |
| Cut, stab and puncture | C | 3 | High | D | 3 | Moderate |
| Friction | B | 2 | High | C | 2 | Moderate |
| Crushing | C | 3 | High | D | 3 | Moderate |
| Ergonomic | D | 3 | Moderate | E | 3 | Moderate |

05 - Instrumentation and Operator Controls

A - General

KAPRA ID 05.01.14 Source of Risk Labelling of instrumentation and controls



Details Safety lock lever.

Controls Advise operator and maintenance staff that there are potential crushing and striking hazards associated with misuse of the safety lock lever. Advise operator and maintenance staff that the safety lock lever functions as a hydraulic isolation device and demonstrate this functionality. Refer to page 3-77 of the Operation and Maintenance manual for further information on the safety lock lever.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | C | 4 | Serious | D | 4 | High |
| Striking | C | 4 | Serious | D | 4 | High |

C - Communication Systems

KAPRA ID 05.03.01 Source of Risk Communications between persons involved in operation and maintenance



Details None.

Controls Advise operator and maintenance staff of the variety of potential hazards (crushing, cut, stab and puncture, shearing, striking and electrical) that may result from miscommunications between persons involved in operation or maintenance. Advise operator and maintenance staff to always sound the horn and ensure the area is clear before operating any part of the machine. Recommend the use of tag-out procedures, completion of risk assessment prior to any potentially hazardous activity and the fitment of a two-way radio or carriage of some other reliable communication device e.g. mobile phone.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | D | 4 | High | E | 4 | High |
| Cut, stab and puncture | D | 2 | Low | E | 2 | Low |
| Shearing | D | 4 | High | E | 4 | High |
| Striking | D | 3 | Moderate | E | 3 | Moderate |
| Electrical | D | 5 | Serious | E | 5 | High |

Details None.

Controls Advise operator and maintenance staff of the variety of potential hazards (crushing, fire and explosion) in emergency situations. Advise operator and maintenance staff to always sound the horn and ensure the area is clear before operating any part of the machine. Recommend the use of tag-out procedures, completion of risk assessment prior to any potentially hazardous activity and the fitment of a two-way radio or carriage of some other reliable communication device e.g. mobile phone.



| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|-----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | D | 4 | High | E | 4 | High |
| Fire | D | 4 | High | E | 4 | High |
| Explosion | D | 4 | High | E | 4 | High |

06 - Protective Structures

A - General

KAPRA ID 06.01.02

Source of Risk **Falling objects and equipment overturning**



Details OPG2 guards is available as an option.

Controls Advise operator and maintenance staff of the potential for crushing and striking due to equipment overturning or falling objects. Advise operator and maintenance staff that the machine is fitted with a safety cab (ROPS certification pending) and that an OPG2 guard to protect against falling objects is available as an option. Advise operator and maintenance staff to only operate machine in accordance with the Operation and Maintenance manual and recommend fitment of optional OPG2 guard where application has a falling object hazard.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | E | 3 | Moderate | E | 3 | Moderate |
| Striking | E | 3 | Moderate | E | 3 | Moderate |

07 - Safety Signage

A - General

KAPRA ID 07.01.02

Source of Risk Marking of areas requiring PPE



Details None.

Controls Advise operator and maintenance staff of the potential slips, trips and falls and striking hazards when operating and maintaining the machine. Advise operator and maintenance staff to refer to the Operation and Maintenance manual and site specific requirements for further information on when PPE is required.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Striking | C | 2 | Moderate | D | 2 | Low |
| Slips, trips and falls | D | 3 | Moderate | E | 3 | Moderate |

08 - Guardings

A - General

KAPRA ID 08.01.01

Source of Risk **Hot parts**



Details Exhaust pipe, muffler, turbocharger, radiator header tank and oil cooler may become hot during and following operation.

Controls Advise operator and maintenance staff that the exhaust pipe, muffler, turbocharger, radiator header tank and oil cooler may present a high temperature hazard during and following operation. Advise operator and maintenance staff to avoid contact with these areas until the machine has cooled down or utilise gloves whenever contact in this period is necessary. Advise operator and maintenance staff to only operate and maintain machine in accordance with the Operation and Maintenance manual.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| High temperature | C | 3 | High | D | 3 | Moderate |

KAPRA ID 08.01.02

Source of Risk **Exposed parts**



Details Exhaust pipe, muffler, radiator header tank and oil cooler.

Controls Advise operator and maintenance staff that the exhaust pipe, muffler, radiator header tank and oil cooler may present a high temperature hazard during and following operation. Advise operator and maintenance staff to avoid contact with these areas until the machine has cooled down or utilise gloves whenever contact in this period is necessary. Advise operator and maintenance staff to only operate and maintain machine in accordance with the Operation and Maintenance manual.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| High temperature | C | 3 | High | D | 3 | Moderate |



Details Turbocharger guarding and fan/belt guarding.

Controls Advise operator and maintenance staff of the potential high temperature, cut, stab and puncture, friction and crushing hazards when working in the vicinity of the turbocharger, cooling fan, alternator and air conditioning compressor belts and air conditioning compressor belt pulley. Advise operator and maintenance staff to avoid contact with the turbocharger until the machine has cooled down or utilise gloves whenever contact during and following operation is necessary. Advise operator and maintenance staff that the machine should be switched off prior to opening engine top cover, to only perform maintenance on fans, belts, pulleys and other items in the immediate area when the machine controls have been tagged out with a "DO NOT OPERATE" sign and to ensure all maintenance is carried out in accordance with the Operation and Maintenance manual.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | D | 3 | Moderate | E | 3 | Moderate |
| Friction | C | 2 | Moderate | D | 2 | Low |
| High temperature | C | 3 | High | D | 3 | Moderate |
| Cut, stab and puncture | D | 3 | Moderate | E | 3 | Moderate |



Details Air conditioner compressor belt pulley.

Controls Advise operator and maintenance staff of the potential crushing hazards when working in the vicinity of the air conditioning compressor belt pulley. Advise operator and maintenance staff that the machine should be switched off prior to opening engine top cover, to only perform maintenance on fans, belts, pulleys and other items in the immediate area when the machine controls have been tagged out with a "DO NOT OPERATE" sign and to ensure all maintenance is carried out in accordance with the Operation and Maintenance manual.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | D | 3 | Moderate | E | 3 | Moderate |

09 - Isolation Devices

A - General

KAPRA ID 09.01.01 Source of Risk Availability of isolation device for all power supplies



Details No electrical isolation.

Controls Advise operator and maintenance staff that there is a potential electrical hazard when conducting electrical repairs and when connecting / disconnecting the batteries.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Electrical | E | 1 | Low | E | 1 | Low |

KAPRA ID 09.01.04 Source of Risk Identification of purpose of isolation device



Details Safety Lock Lever

Controls Advise operator and maintenance staff that there are potential crushing and striking hazards associated with misuse of the safety lock lever. Advise operator and maintenance staff that the safety lock lever functions as a hydraulic isolation device and demonstrate this functionality. Refer to page 3-77 of the Operation and Maintenance manual for further information on the safety lock lever.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|----------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | C | 4 | Serious | D | 4 | High |
| Striking | C | 4 | Serious | D | 4 | High |

10 - Energy Dissipation/Restraint

A - General

KAPRA ID 10.01.02

Source of Risk Energy dissipation processes



Details Release of hydraulic pressure with work equipment raised, checking and topping up coolant levels and adding oil to hydraulic tank.

Controls Advise operator and maintenance staff that there is a potential crushing hazard when releasing remaining pressure in the hydraulic cylinder circuit whilst work equipment is raised above ground. Advise operator and maintenance staff to ensure work area is clear prior to conducting this activity and to exercise fine lever control to ensure that work equipment is lowered to the ground at a controlled state. Advise operator and maintenance staff that there is a potential high temperature hazard when checking and topping coolant levels and adding oil to the hydraulic tank. Advise operator and maintenance staff to never top up coolant levels via the radiator or add oil to the hydraulic tank until the machine has cooled down and to turn filler caps slowly to release internal pressure prior to removal. Advise operator and maintenance staff to check and top up coolant levels via the radiator subtank wherever possible.

| Hazard | Initial Risk Assessment | | | Residual Risk Assessment | | |
|------------------|-------------------------|---|-------------|--------------------------|---|-------------|
| | L | C | Risk Rating | L | C | Risk Rating |
| Crushing | D | 4 | High | E | 4 | High |
| High temperature | C | 3 | High | D | 3 | Moderate |