

All customers  
PC18MR-3 Hydraulic Excavator  
Serial Number(s) 22001 and up



**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.

## Report Information

Customer:	All customers
Machine Model:	PC18MR-3 Hydraulic Excavator
Serial Number(s):	22001 and up
Audit Date:	25/02/2025
Audit Location:	Fairfield NSW
Assessment Team:	Bart Genson, Lachlan Shoebridge, Samantha Ly, Tony Corry
Report Date:	25/09/2025
Machine Manual:	TEN00623-09 (Operation & Maintenance 'Manual')
Engine Manual:	N/A
Machine Safety Options:	<ul style="list-style-type: none"><li>• Handrails, lightings</li><li>• ROPS and OPG Top Guard</li><li>• Safety lock switch installed</li><li>• KOMTRAX tracking system</li></ul>

This risk assessment contains 6 main sections:

1. Transportation
2. Access Systems
3. Pre-start Checks
4. Operation
5. Maintenance
6. Emergency Situations

Each of the tasks in section 3 and 5 contain a reference to one or more access systems that are required to be utilised in order to complete the task. In addition to the hazards presented for the task being completed, the reader must consider the hazards of the referenced access systems.

Komatsu Limited (KLTD) conducted a 'Design Risk Assessment' in accordance with Komatsu Engineering Standards (KES) at the development stage of a machine. The KES is referenced from ISO 12100 (Safety of machinery -- General principles for design -- Risk assessment and risk reduction). KLTD follow these guidelines as stipulated by KES and confirm adherence through an internal process of checks and reviews. Due to intellectual property considerations, Komatsu cannot release information relating to KES to third parties. However, the outcome of the design risk assessment has been translated through the Komatsu machine's Operation Maintenance Manual (OMM) and Shop Manual which provide information on the safe operation and maintenance procedures, troubleshooting guide and identification of hazards safety warnings and precautions.

## Risk Assessment Matrix

Risks involved in completing tasks on the machine have been assessed using the likelihood and consequences identified during the audit process. The criteria for rating both likelihood and consequence have been extracted from Komatsu Australia's Occupational Health & Safety Policy. Consequences cover personal injury due to completion of routine tasks performed on the machine. It is the customer's responsibility to complete an environmental, financial and fire risk assessment on the machine before placing the machine into operation. The initial risk ratings are calculated with the existing controls detailed for each hazard in place. The residual risk rating is then calculated once the recommended controls have been put in place.

### Likelihood

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.

### Consequence

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 Matrix

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

## Generic Site Risk Controls

To minimise the risks involved with completing tasks on the machine, there are a number of controls that are recommended to be put in place by the Customer's worksite. These are generic in nature, and should be applied where possible.

### Personnel

1. Maintenance personnel hold a valid tradesperson qualification, and deemed as competent to work and authorised by appropriate site supervisors.
2. All personnel inducted with applicable site inductions, along with training in the assigned tasks.
3. Personnel operating or maintaining machinery are fit for work, and not under the influence of drugs or alcohol.
4. Safety discussions and reminders conducted frequently.
5. Refresher training sessions held.

### Before Maintenance Work Commences

6. Machine is washed and access systems free of mud and other debris.
7. Machine parked, where practical, on firm, flat and level ground with work equipment lowered to the ground or onto purpose built stands, with wheel chocks installed.
8. Machine has provisions for electrical and hydraulic isolation of circuits, and should be used along with a lock-out and/or tag-out system. Isolation to be tested and confirmed before work commences.
9. Machine allowed to cool for sufficient amount of time before maintenance work commences.
10. Take 5 (or site equivalent) completed before commencement of work. If Take 5 identifies need for Job Safety Analysis (JSA) or Safe Work Method Statement (SWMS), these are to be completed and followed as written.
11. Suitable PPE should be worn when completing tasks on the machines, including long-sleeve high-visibility shirt, long pants, hard hat, eye protection, safety footwear and protective gloves, along with any PPE identified through a Take 5 and/or JSA.
12. Material Safety Data Sheet (MSDS) are available, viewed and relevant precautions taken when handling substances.

### During Maintenance Work

13. Proper housekeeping standards are applied at all times, ensuring emergency escape routes are not impeded and fluid spills are cleaned up as soon as possible.
14. Three (3) points of contact are used when mounting or dismounting machines.
15. Service procedures provided in the manual are adhered to, and necessary precautions observed.
16. All tooling used is fit for purpose, and not modified in a manner compromising its integrity.
17. If tasks must be completed with the engine running, one person must remain in the operator's seat to shut-down machine in case of emergency. Positive communication must be maintained between all personnel involved in testing.
18. Work not completed beneath unsecured and/or suspended loads.
19. Personnel working at heights to use suitable fall arrest systems.
20. Permits are sought before entering confined spaces or exclusions zones.

1. Transportation

1.01 Transportation

Hazard: Not assessed - Transportation/site requirements and conditions may vary. Transport company, crane operators and site to complete separate risk assessment.

2. Access System

2. Access System  
2.01 Cabin access

Hazard: Slips, trips & falls

Existing Controls: Handrail or grabrail installed.  
The Manual informs personnel to avoid wearing loose clothing and accessories (Section 2 - Safety).  
The Manual informs personnel of precautions to be taken when getting on and off the machine (Section 2 - Safety).  
The Manual advises personnel to keep machine clean (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Initial Risk Assessment				Residual Risk Assessment			
Risk	L	C	Risk Rating	L	C	Risk Rating	
Slips, trips & falls	D	2	Low	E	2	Low	



Rubber tracks to use at step for operator access.



Handrails and grab rails installed.

### Hazard: Head bumps

Existing Controls: The Manual informs personnel of precautions to be observed when getting on and off the machine (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Striking	D	2	Low	E	2	Low

## 2. Access System

### 2.02 Emergency egress

Hazard: Obstructions (ie pedals, lock lever etc)

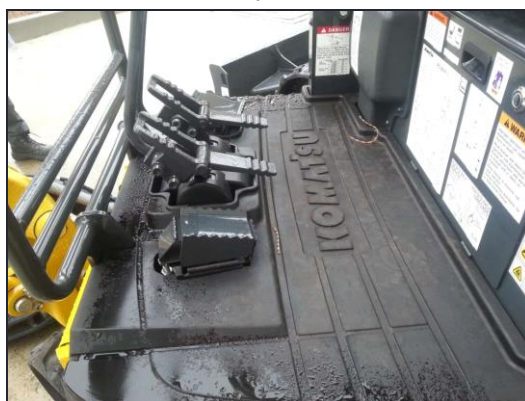
Existing Controls: Handrail or grabrail installed.  
The Manual informs personnel of precautions to be taken when getting on and off of the machine (Section 2 - Safety).  
The Manual advises personnel to keep machine clean (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	D	3	Moderate	E	3	Low



LHS Safety Lock Lever



Operator pedals



#### Hazard: Slips, trips & falls

**Existing Controls:** Handrails or grabrails installed.  
The Manual informs personnel to avoid wearing loose clothing and accessories (Section 2 - Safety).  
The Manual informs personnel of precautions to be taken when getting on and off the machine (Section 2 - Safety).  
The Manual advises personnel to keep machine clean (Section 2 - Safety).

**Recommended Additional Controls:** Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	D	3	Moderate	E	3	Low

#### Hazard: Difficulty maintaining 3 points of contact

**Existing Controls:** Handrails or grabrails installed.  
The Manual advises personnel of precautions to be taken when getting on and off the machine (Section 2 - Safety).

**Recommended Additional Controls:** Advise operator and maintenance staff of the potential for slips, trips and falls due to potential difficulties in maintaining three points of contact when using the RHS maintenance access system.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	D	3	Moderate	E	3	Low



Rubber tracks to be used as step for operator access.

## 2. Access System

### 2.03 Service bay right

Hazard: Pinch point (when closing covers)

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	C	2	Moderate	D	2	Low

Hazard: Hot components

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high temperature parts (Section 2 - Safety).  
Warning decals installed.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	3	Moderate	E	3	Low



Service bay right

## 2. Access System

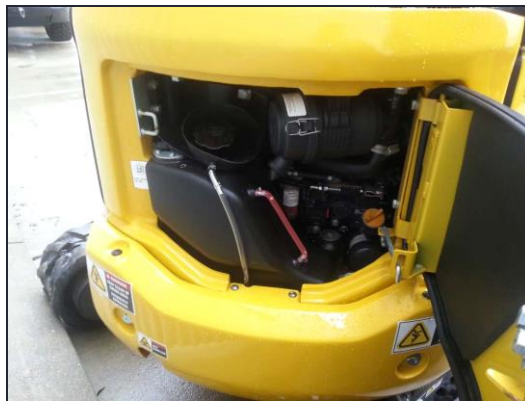
### 2.04 Engine hood/fuel tank access

Hazard: Pinch point (when closing covers)

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	2	Low	E	2	Low



Engine hood

## Hazard: Rotating parts

Existing Controls:	Battery isolator installed. Warning decal installed on engine hood door. The Manual informs personnel to avoid wearing loose clothing and accessories (Section 2 - Safety). The Manual informs personnel not to perform maintenance or adjustments whilst engine is running. If engine must be run for certain tasks, one person must be in the operator's seat and able to stop the engine (Section 2 - Safety).
Recommended Additional Controls:	Remove guarding only when access is required, and replace guarding after task completion. Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	2	Low	E	2	Low
Friction Burn	D	2	Low	E	2	Low
Striking	D	2	Low	E	2	Low



Warning decal installed

Hazard: Hot components

Existing Controls: "Hot surface" warning decal installed.  
The Manual outlines general safety precautions to be observed when dealing with high temperature parts (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Initial Risk Assessment				Residual Risk Assessment		
Risk	L	C	Risk Rating	L	C	Risk Rating
Burns	D	2	Low	E	2	Low



Warning decal installed

## 2. Access System

### 2.05 Work equipment access

Hazard: Crushing zone

**Existing Controls:** The Manual advises personnel of precautions to be taken when starting and stopping the machine (Section 3 - Operation).  
The Manual advises personnel not to allow anyone from riding on the work equipment or other attachments (Section 2 - Safety) and to not allow anyone to come close to any rotating or extending/retracting portion (Section 2 - Safety).  
Affixed warning decal located at the work equipment indicating a hazard of being hit by the working device of the machine and to keep away from machine during operation.

**Recommended Additional Controls:** Follow correct isolation and communication procedures.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	3	Moderate	E	3	Low



Warning decals on arm



Warning decals on blade

#### Hazard: Head bumps

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

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

#### Hazard: Hot components

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	2	Low	E	2	Low

## 2. Access System

### 2.07 Under machine/undercarriage access

Hazard: Crushing zone

Existing Controls: Safety Lock switches installed.  
The Manual advises personnel of precautions to be taken when starting and stopping the machine (Section 3 - Operation).  
The Manual advises personnel not to allow anyone from riding on the work equipment or other attachments (Section 2 - Safety) and to not allow anyone to come close to any rotating or extending/retracting portion (Section 2 - Safety).  
Affixed warning decal located at the work equipment indicating a hazard of being hit by the working device of the machine and to keep away from machine during operation.

Recommended Additional Controls: Follow correct isolation and communication procedures.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	3	Moderate	E	3	Low



Front blade



## 2. Access System

### 2.08 Service bay left/battery box

Hazard: Electricity

Existing Controls: The Manual informs personnel on safety precautions when handling battery (Section 2 - Safety).  
Affixed warning decal to battery box covers informs personnel to refer to the manual for safety precautions relating to batteries.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Electric Shock	D	2	Low	E	2	Low

Hazard: Explosion

Existing Controls: The Manual informs personnel that batteries generate hydrogen gas, and the necessary precautions to prevent explosions and/or fire (Section 2 - Safety).  
Affixed warning decal to battery informs personnel of precautions to be observed when handling batteries.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	2	Low	E	2	Low



Warning decal at battery box

#### Hazard: Pinch point (when closing covers)

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	C	2	Moderate	D	2	Low

#### Hazard: Hot components

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high temperature parts (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	3	Moderate	E	3	Moderate

### 3. Pre-start Checks

#### 3. Pre-start Checks

##### 3 Walk-around checks

Access System: Cabin access, Engine hood/fuel tank access, Service bay left/battery box, Service bay right, Under machine/undercarriage access, Work equipment access

Hazard: Hot fluids

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high temperature oil (Section 2 - Safety).  
The Manual outlines general safety precautions to be observed when dealing with high temperature coolant (Section 2 - Safety).  
Affixed warning decal to radiator informs personnel of hot coolant, and steps to be taken to prevent coolant from spurting out.  
Affixed warning decal to radiator informs personnel of hot water, and steps to be taken to prevent hot water from spurting out.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Scalding	D	2	Low	E	2	Low



Warning decal installed

Hazard: Hot components

Existing Controls: The Manual advises personnel of precautions to be taken for high temperature parts (page 2-46).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	2	Low	E	2	Low

#### Hazard: Fans, belts and pulleys

- Existing Controls:** The Manual informs personnel to avoid wearing loose clothing or any accessories (Section 2 - Safety).  
The Manual outlines the general precautions that should be taken when near rotating parts (Section 2 - Safety).  
The Manual informs personnel not to perform maintenance or adjustments whilst engine is running. If engine must be run for certain tasks, one person must be in the operator's seat and able to stop the engine at any time (Section 2 - Safety).
- Recommended Additional Controls:** Remove guarding only when access is required, and replace guarding after task completion.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	2	Low	E	2	Low
Friction Burn	D	2	Low	E	2	Low
Striking	D	2	Low	E	2	Low
Cutting, stabbing	D	2	Low	E	2	Low

#### Hazard: Slips, trips & falls

- Existing Controls:** The Manual informs personnel to avoid wearing loose clothing and accessories (Section 2 - Safety).  
The Manual informs personnel of precautions to be taken when getting on and off the machine (Section 2 - Safety).  
The Manual advises personnel to keep machine clean (Section 2 - Safety).
- Recommended Additional Controls:** Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	D	3	Moderate	E	3	Low

#### Hazard: Crushing zone

Existing Controls: Safety lock switch fitted to machine.  
The Manual advises personnel of precautions to be taken when starting and stopping the machine (Section 3 - Operation).  
Affixed warning decal located at the work equipment indicating a hazard of being hit by the working device of the machine and to keep away from machine during operation.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	2	Low	E	2	Low

#### Hazard: High dust level

Existing Controls: The Manual advises personnel to keep the machine clean (Section 2 - Safety).

Recommended Additional Controls: Ensure correct PPE is used for the task.  
Implement haul road maintenance program.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Respiratory irritation	D	3	Moderate	E	3	Low

#### Hazard: Pressurised fluid

Existing Controls: Warning decal installed.  
The Manual outlines general safety precautions to be observed when dealing with high pressure oil, fuel or coolant (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Fluid spray	D	2	Low	E	2	Low



Warning decal installed

#### Hazard: Electricity

Existing Controls: The Manual informs personnel on safety precautions when handling battery (Section 2 - Safety).  
Affixed warning decal to battery box covers informs personnel to refer to the manual for safety precautions relating to batteries.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Electric Shock	D	2	Low	E	2	Low

#### Hazard: Hazardous materials

Existing Controls: The Manual informs personnel of precautions to be taken when handling battery electrolyte (Section 2 - Safety).  
The Manual informs personnel of precautions to be taken when handling oil, fuel, coolant (Section 2 - Safety).

Recommended Additional Controls: Wear gloves and wash hands after completing task.  
Material Safety Data Sheet (MSDS) readily available.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Skin irritation	D	2	Low	E	2	Low
Explosion	D	2	Low	E	2	Low

#### Hazard: Tight working area

Existing Controls: None.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Striking	D	2	Low	E	2	Low

#### Hazard: Fluid spillage

Existing Controls: The Manual advises personnel to dispose of drained fluids as per local legislative guidelines (Section 2 - Safety).

Recommended Additional Controls: Ensure container is of sufficient size to catch drained fluids.  
Spill kit available and easily accessible.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	C	2	Moderate	E	2	Low

**Hazard: Handling flammable fluid**

Existing Controls: The Manual informs personnel of steps to prevent fire from occurring (Section 2 - Safety).  
The Manual informs personnel of actions to be taken in the event of a fire (Section 2 - Safety).

Recommended Additional Controls: Ensure fire fighting equipment is easily accessible.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Fire	D	3	Moderate	E	3	Low



## 4. Machine Operation

### 4. Operation

#### 4 Operating the machine

Access System: Cabin access

Hazard: High noise level

Existing Controls: None.

Recommended Ensure correct PPE is worn.

Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Hearing discomfort	D	3	Moderate	E	3	Low

Hazard: High heat level

Existing Controls: None.

Recommended Ensure correct PPE is worn.

Additional Controls: Apply sunscreen where necessary.

Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Heat-related illnesses	D	3	Moderate	E	3	Low

Hazard: High dust level

Existing Controls: None.

Recommended Ensure canopy is kept clean.

Additional Controls: Ensure correct PPE is worn.

Controls: Implement haul road maintenance program.

Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Respiratory irritation	D	3	Moderate	E	3	Low

## Hazard: Machine operation

**Existing Controls:** Mirrors installed.  
Beacon and work lights installed.  
The Manual informs personnel to read the Manual and safety labels prior to operation, inspection or maintenance of the machine (Section 2 - Safety).  
The Manual informs personnel of the method in which to operate the machine (Section 3 - Operation).  
The Manual informs personnel of precautions to be observed when travelling the machine (Section 2 - Safety).  
Affixed warning decal inside the operator's canopy informs personnel to sound the horn before travelling the machine.  
Affixed warning decals informs personnel to keep a safe distance away from the machine during operation.

**Recommended Additional Controls:** Ensure operator competency.  
Ensure Komatsu O&M Manual is available at all times and is read and understood by the operator. Safe operation procedures are provided in The Manual.  
Complete risk assessment/job safety analysis to be completed.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	3	Moderate	E	3	Low
Musculoskeletal injuries	D	2	Low	E	2	Low
Visibility issues from operator seat (ie. grease & fire bottles)	D	2	Low	E	2	Low



Warning decals installed



Warning decals installed

**Hazard: Electricity (when working around overhead electric cables/power pole)**

Existing Controls: Affixed warning decal inside the canopy warns against high voltage cables.

Recommended Additional Controls: Do not travel or operate the machine near electric cables.  
Refer to local, council or state regulations in relation to distances and working close to power poles, electric cables etc.  
Refer to The Manual for safety precautions.  
Refer to Generic Site Risk Controls on page 4 of this report.

	Initial Risk Assessment			Residual Risk Assessment		
Risk	L	C	Risk Rating	L	C	Risk Rating
Electric Shock	C	4	High	E	4	Moderate

## 5. Scheduled Maintenance

### 5. Maintenance - When Required

#### 5.011 Maintenance - When Required

Access System: Cabin access, Engine hood/fuel tank access, Service bay left/battery box, Service bay right, Under machine/undercarriage access, Work equipment access

Hazard: Airborne dust particles

Existing Controls: The Manual informs personnel to wear correct PPE whilst using compressed air for cleaning operations (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Dust inhalation	D	3	Moderate	E	3	Low

Hazard: Height of service point

Existing Controls: The Manual outlines general safety precautions to be observed for work at high places (Section 2 - Safety).

Recommended Additional Controls: Utilise an elevated work platform when performing task.  
Ensure machine is on level ground.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Musculoskeletal injuries	D	2	Low	E	2	Low
Slips, trips & falls	D	2	Low	E	2	Low

Hazard: Projected dust/fluid/mud

Existing Controls: The Manual informs personnel to wear correct PPE whilst using compressed air for cleaning operations (Section 2 - Safety).

Recommended Additional Controls: Replace filters instead of cleaning them.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Eye injury	D	2	Low	E	2	Low

#### Hazard: Fluid spillage

Existing Controls: The Manual advises personnel to dispose of drained fluids as per local legislative guidelines (Section 2 - Safety).

Recommended Additional Controls: Ensure container is of sufficient size to catch drained fluids.  
Spill kit available and easily accessible.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	C	2	Moderate	E	2	Low

#### Hazard: Hazardous materials

Existing Controls: The Manual informs personnel of precautions to be taken when handling battery electrolyte (Section 2 - Safety).  
The Manual informs personnel of precautions to be taken when handling oil, fuel, coolant (Section 2 - Safety).

Recommended Additional Controls: Wear gloves and wash hands after completing task.  
Material Safety Data Sheet (MSDS) readily available.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Explosion	D	2	Low	E	2	Low
Skin irritation	D	2	Low	E	2	Low

#### Hazard: Hot fluids

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high temperature oil (Section 2 - Safety).  
The Manual outlines general safety precautions to be observed when dealing with high temperature coolant (Section 2 - Safety).  
Affixed warning decal to radiator informs personnel of hot coolant, and steps to be taken to prevent coolant from spurting out.  
Affixed warning decal to radiator informs personnel of hot water, and steps to be taken to prevent hot water from spurting out.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Scalding	D	2	Low	E	2	Low

#### Hazard: Pressurised fluid

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high pressure oil, fuel and coolant (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Fluid spray	D	3	Moderate	E	3	Low

#### Hazard: Improper use of auxiliary tools, handtools or service tools

Existing Controls: Not assessed as condition may vary depending on site available tools.

Recommended Additional Controls: Refer to the service tools or hand tools manual for safe use.  
Refer to Generic Site Risk Controls on page 4 of this report.

#### Hazard: Crushing zone

Existing Controls: The Manual advises personnel of precautions to be taken when starting and stopping the machine (Section 3 - Operation).  
The Manual advises personnel not to allow anyone from riding on the work equipment or other attachments (Section 2 - Safety) and to not allow anyone to come close to any rotating or extending/retracting portion (Section 2 - Safety).  
Affixed warning decal located at the work equipment indicating a hazard of being hit by the working device of the machine and to keep away from machine during operation.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	3	Moderate	E	3	Low

#### Hazard: Uncommanded movement

**Existing Controls:** Safety lock switch installed to machine.  
The Manual informs personnel of precautions to be taken prior to leaving the machine after operation (Section 2 - Safety).  
Affixed warning decal in cabin informs personnel of the precautions when leaving the operator's seat.

**Recommended Additional Controls:** Test area is clearly defined and blocked off.  
Provision of positive communication between machine operator and maintenance staff.  
Machine line of travel to be kept clear.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Collision	D	3	Moderate	E	3	Low
Crushing	D	3	Moderate	E	3	Low
Cutting, stabbing	D	3	Moderate	E	3	Low
Striking	D	3	Moderate	E	3	Low

#### Hazard: Explosion

**Existing Controls:** The Manual informs personnel of the risk of explosion and fire when welding on the machine (Section 2 - Safety).  
The Manual informs personnel that batteries generate hydrogen gas, and the necessary precautions to prevent explosions and/or fire (Section 2 - Safety).

**Recommended Additional Controls:** Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	2	Low	E	2	Low

### Hazard: Projected objects

Existing Controls: The Manual informs personnel to wear safety gloves and glasses when using a hammer (Section 2 - Safety).  
The manual outlines general safety precautions to be observed when performing this task (Section 4 - Maintenance) (Check and adjust track tension).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Striking	D	2	Low	E	2	Low



## 5. Maintenance - Time Intervals

### 5.021 Maintenance - 100 Hours, 250 Hours, 500 Hours, 1000 Hours, 1500Hour, 2000 Hours

Access System: Cabin access, Engine hood/fuel tank access, Service bay left/battery box, Service bay right, Under machine/undercarriage access, Work equipment access

Hazard: Projected dust/fluid/mud

Existing Controls: The Manual informs personnel to wear correct PPE whilst using compressed air for cleaning operations (Section 2 - Safety).

Recommended Additional Controls: Replace filters instead of cleaning them.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Dust inhalation	D	3	Moderate	E	3	Low

Hazard: Fluid spillage

Existing Controls: The Manual advises personnel to dispose of drained fluids as per local legislative guidelines (Section 2 - Safety).

Recommended Additional Controls: Ensure container is of sufficient size to catch drained fluids.  
Spill kit available and easily accessible.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Slips, trips & falls	C	2	Moderate	E	2	Low

Hazard: Hazardous materials

Existing Controls: The Manual informs personnel of precautions to be taken when handling battery electrolyte (Section 2 - Safety).  
Affixed warning decal to battery informs personnel of precautions to be observed when handling batteries.

Recommended Additional Controls: Wear gloves and wash hands after completing task.  
Material Safety Data Sheet (MSDS) readily available.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Skin irritation	D	2	Low	E	2	Low

#### Hazard: Hot fluids

Existing Controls: The Manual outlines general safety precautions to be observed when dealing with high temperature oil (Section 2 - Safety).  
The Manual outlines general safety precautions to be observed when dealing with high temperature coolant (Section 2 - Safety).  
Affixed warning decal to radiator informs personnel of hot coolant, and steps to be taken to prevent coolant from spurting out.  
Affixed warning decal to radiator informs personnel of hot water, and steps to be taken to prevent hot water from spurting out.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Scalding	D	2	Low	E	2	Low

#### Hazard: Pressurised fluid

Existing Controls: Battery isolator installed.  
The Manual outlines general safety precautions to be observed when dealing with high pressure oil, fuel and coolant (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Fluid spray	D	3	Moderate	E	3	Low

#### Hazard: Improper use of auxiliary tools, handtools or service tools

Existing Controls: Not assessed as condition may vary depending on site available tools.

Recommended Additional Controls: Refer to the service tools or hand tools manual for safe use.  
Refer to Generic Site Risk Controls on page 4 of this report.

#### Hazard: Projected objects

Existing Controls: The Manual informs personnel to wear safety gloves and glasses when using a hammer (Section 2 - Safety).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Striking	D	2	Low	E	2	Low

#### Hazard: Crushing zone

Existing Controls: Battery isolator installed.  
The Manual advises personnel of precautions to be taken when starting and stopping the machine (Section 3 - Operation).  
The Manual advises personnel not to allow anyone from riding on the work equipment or other attachments (Section 2 - Safety) and to not allow anyone to come close to any rotating or extending/retracting portion (Section 2 - Safety).  
Affixed warning decal located at the work equipment indicating a hazard of being hit by the working device of the machine and to keep away from machine during operation.

Recommended Additional Controls: Follow correct isolation and communication procedures.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	3	Moderate	E	3	Low

#### Hazard: Uncommanded movement

**Existing Controls:** Safety lock switch installed to machine.  
The Manual informs personnel of precautions to be taken prior to leaving the machine after operation (Section 2 - Safety).  
Affixed warning decal in cabin informs personnel of the precautions when leaving the operator's seat.

**Recommended Additional Controls:** Test area is clearly defined and blocked off.  
Provision of positive communication between machine operator and maintenance staff.  
Machine line of travel to be kept clear.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Collision	D	3	Moderate	E	3	Low
Crushing	D	3	Moderate	E	3	Low

#### Hazard: Fans, belts and pulleys

**Existing Controls:** Battery isolator installed.  
Warning decals installed.  
The Manual informs personnel to avoid wearing loose clothing or any accessories (Section 2 - Safety).  
The Manual outlines the general precautions that should be taken when near rotating parts (Section 2 - Safety).  
The Manual informs personnel not to perform maintenance or adjustments whilst engine is running. If engine must be run for certain tasks, one person must be in the operator's seat and able to stop the engine at any time (Section 2 - Safety).

**Recommended Additional Controls:** Remove guarding only when access is required, and replace guarding after task completion.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Striking	D	3	Moderate	E	3	Low
Crushing	D	3	Moderate	E	3	Low

**Hazard: Handling flammable fluid**

**Existing Controls:** The Manual informs personnel of precautions to be taken when handling battery electrolyte (Section 2 - Safety).  
The Manual informs personnel of steps to prevent fire from occurring (Section 2 - Safety).  
The manual informs personnel of actions to be taken in the event of a fire (Section 2 - Safety).

**Recommended Additional Controls:** Ensure fire fighting equipment is easily accessible.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Fire	D	3	Moderate	E	3	Low

6. Emergency Situation

6. EMERGENCY SITUATION  
6.01 RECOVERY

Hazard: Not assessed due to varying conditions. Separate Risk Assessments to be completed on a case-by-case basis.

6. Emergency Situation  
6.01 Fire

Hazard: Fire

Existing Controls: The Manual informs personnel of steps to prevent fire from occurring (Section 2 - Safety).  
The Manual informs personnel of actions to be taken in the event of a fire (Section 2 - Safety).  
The Manual informs personnel not to start engine by short circuiting the engine starting circuit (Section 2 - Safety).  
The Manual informs personnel of the risk of explosion and fire when welding on the machine (Section 2 - Safety).  
The Manual informs personnel that batteries generate hydrogen gas, and the necessary precautions to prevent explosions and/or fire (Section 2 - Safety).  
Affixed warning decals for precaution when handling battery and for prohibiting the short-circuiting of starting circuit when starting engine.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Burns	D	4	High	E	4	Moderate

## 6. Emergency Situation

### 6.02 Uncontrolled movement

Hazard: Machine collision

Existing Controls: Rotating beacon installed.  
Travel alarm installed.  
Audible warning alarms (i.e. horn) installed.

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	4	High	E	4	Moderate

Hazard: Uncommanded movement

Existing Controls: The Manual informs personnel of precautions to be taken prior to leaving the machine after operation (Section 2 - Safety).  
Affixed warning decal in cabin informs personnel of the precautions when leaving the operator's seat.

Recommended Additional Controls: Test area is clearly defined and blocked off.  
Provision of positive communication between machine operator and maintenance staff.  
Machine line of travel to be kept clear.  
Refer to Generic Site Risk Controls on page 4 of this report.

Risk	Initial Risk Assessment			Residual Risk Assessment		
	L	C	Risk Rating	L	C	Risk Rating
Collision	D	4	High	E	4	Moderate
Crushing	D	4	High	E	4	Moderate

Hazard: Machine rollover

Existing Controls: ROPS/OPGT Top guard installed.  
The Manual informs personnel of precautions to be observed when working on loose ground (Section 2 - Safety).  
The Manual informs personnel of precautions to be observed when travelling machine (Section 2 - Safety).  
The Manual informs personnel of the method in which to operate the machine (Section 3 - Operation).

Recommended Additional Controls: Refer to Generic Site Risk Controls on page 4 of this report.

	Initial Risk Assessment			Residual Risk Assessment		
Risk	L	C	Risk Rating	L	C	Risk Rating
Crushing	D	4	High	E	4	Moderate



ROPS/OPG Certification