



# Risk Assessment Report

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Serial No: 20398 and up

Machine: PC55MR

Model: 5

Audit Date: 8/05/2018

Audit Location: Fairfield

Assessment Team: Bart Genson, Ralph Goad, Tony Corry

Conditions: Cabin, Rubber Shoes, Komatsu Genuine Attachments, Beacon, TOPS, OPG1

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

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**01 - Equipment Design**

**A - General**

**KAPRA ID** 01.01.03 **Source of Risk** Hazardous Manual Tasks

**Requirement(s) or Condition(s)** The manufacturer must give to each person to whom the manufacturer provides the plant or structure adequate information about the features of the plant or structure that eliminate or minimise the need for any hazardous manual task to be carried out in connection with the plant or structure.

**Findings/ Details** Opening and closing of engine side covers and cabin door.

**Recommended Controls** Advise operator and maintenance staff of the potential striking and ergonomics hazards when opening and closing engine covers and door.  
Demonstrate opening / closing of engine covers and door.

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



Side cover

**02 - Access Systems**

**A - General**

**KAPRA ID** 02.01.01 **Source of Risk** Access to work areas above ground level

**Requirement(s) or Condition(s)** Access to all work areas above ground level has been provided in the form of ladders, handrails and guard railed platforms / walkways / landings etc.  
Reference(s): WA COP-Prevention of Falls at Workplaces; COP- Managing the Risk of Falls at Workplaces

**Findings/ Details** Maintenance activities carried out on beacon, worklights, boom light, mirrors and cleaning cabin windows.

**Recommended Controls** Advise operation and maintenance personnel of the potential for slips, trips and falls when accessing the beacon, worklights, mirrors, boom light and window glass for maintenance purposes.  
Advise operator and maintenance staff that the radiator and hydraulic tank compartments should not be used as tread surfaces and recommend the use of an elevating work platform when performing maintenance activities on the beacon.

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

02 - Access Systems

A - General

KAPRA ID 02.01.02 Source of Risk **Obstructions / projections**

**Requirement(s) or Condition(s)** Access systems are free from projections and obstructions.

**Findings/ Details** Attachment pedal, travel levers (with pedals) and boom swing control pedal partially obstruct cabin access.

**Recommended Controls** Advise operation and maintenance personnel of the potential for slips, trips and falls due to attachment pedal, travel levers (with pedals) and boom swing control pedal. Demonstrate safe access and egress from 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



Operation Pedals and Levers

02 - Access Systems

A - General

KAPRA ID 02.01.04 Source of Risk **Lighting**

**Requirement(s) or Condition(s)** Lighting allowing safe use of the access system is provided.  
Reference(s): WA COP-Prevention of Falls at Workplaces; WHS COP- Managing the Risk of Falls at Workplaces 2011

**Findings/ Details** Night operations.

**Recommended Controls** Advise operator and maintenance staff of the potential for slips, trips and falls and ergonomics hazards 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	D	2	Low	E	2	Low

02 - Access Systems

A - General

KAPRA ID 02.01.05 Source of Risk Carriage of small objects while using access systems

**Requirement(s) or Condition(s)** Design of access / egress systems considers functionality when operator or serviceman use it while carrying small objects such as tools and equipment, from and around the work areas.

**Findings/ Details** None

**Recommended 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 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	C	2	Moderate	E	2	Low

02 - Access Systems

A - General

KAPRA ID 02.01.06 Source of Risk Slip resistant surface

**Requirement(s) or Condition(s)** All walking surfaces, including steps, treads and rungs are slip resistant  
 Reference(s): AS1657

**Findings/ Details** Use of blade as a tread surface.

**Recommended Controls** Advise operator and maintenance staff of the potential for slips, trips and falls when using blade as a tread surface.  
 Advise operator and maintenance staff that the blade should not be used as a tread surface.

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



Blade

**Requirement(s) or Condition(s)** The following requirements apply:  
 A) Level change of less than 300mm, intermediate step is not necessary.  
 B) Level change between 300-450mm, an intermediate step is provided.  
 C) Level change of more than 450mm, a ladder, stairway or walkway is provided  
 Reference(s): AS1657

**Findings/ Details** Vertical distance between ground and track is 570 mm.  
 Vertical distance between track and slip resistant step on cabin access system is 345 mm.

**Recommended Controls** Advise operator and maintenance staff of the potential for slips, trips and falls and ergonomic hazards due to level changes in cabin access system (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	D	2	Low	E	2	Low



Height from track to cabin step



Height from ground to track

**02 - Access Systems**

**B - Platforms & Landings**

**KAPRA ID** 02.02.01 **Source of Risk** Platforms and landings width

**Requirement(s) or Condition(s)** The clear width of the walking/working surface of every platform and landing is not less than 600 mm.  
Reference(s): AS1657

**Findings/ Details** Track widths are 400mm.  
Width of operator's compartment flooring is 540mm.  
Width of operator's compartment flooring between travel pedals and operator's seat is around 280mm.

**Recommended Controls** Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazards due to landing width (refer to details).  
Demonstrate safe use of cabin access system.

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

**02 - Access Systems**

**B - Platforms & Landings**

**KAPRA ID** 02.02.03 **Source of Risk** Vertical clearance above floors (Headroom)

**Requirement(s) or Condition(s)** Headroom - Vertical clearance above all floors (except for cabin entrance opening) is 2000mm minimum.  
Reference(s): AS1657

**Findings/ Details** Interior operator's compartment height is approx 1520mm.

**Recommended Controls** Advise operation and maintenance personnel of the potential ergonomic hazard due to interior operator's compartment height.  
Demonstrate safe use of operator's compartment access system.

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



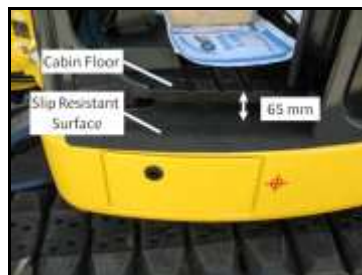
Cabin height

**Requirement(s) or Condition(s)** Surfaces are to be installed as follows:  
 A) All elements and panels are securely fixed to the supporting structure  
 B) All elements and panels are evenly laid with a maximum variation in height of 5 mm between adjacent sections  
 C) Where surface is likely to be wet, provision is made to prevent the retention of the liquid by drainage or other means  
 D) Walking surface is slip resistant  
 E) Capable of sustaining the imposed actions  
 F) Floors are evenly laid, any variation in height between adjacent boards or plates do not exceed 5 mm.  
 Reference(s): AS1657

**Findings/ Details** 65mm variation in floor height between the slip resistant step and the operator's compartment flooring.

**Recommended Controls** Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to variations in floor heights (refer to details). Advise operator and maintenance staff to always maintain three points of contact when using the operator's compartment access system (refer to the OMM manual). Demonstrate safe use of the operator's compartment 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



Slip Resistant Step and Flooring



02 - Access Systems

D - Handrails

KAPRA ID 02.04.04 Source of Risk Handrail clearance

**Requirement(s) or Condition(s)** There shall be a minimum hand clearance of 50 mm between the handrail and any adjacent structure.

**Findings/ Details** 45mm clearance on cabin access handrail due to mirror mount and mirror.  
35 mm clearance on grabrail at cabin door.

**Recommended Controls** Advise operator and maintenance staff of the potential ergonomics hazard due to handrail clearances (refer to details). Demonstrate safe use of handrails both when accessing the cabin and cleaning the rear cabin window.

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



Handrail clearance

02 - Access Systems

N - Emergency Use

KAPRA ID 02.14.02 Source of Risk Means of egress from operator's cab

**Requirement(s) or Condition(s)** Two means of egress are provided from the operators cab to the ground, including;  
A) at least one means of normal egress and  
B) at least one means of emergency egress which is suitably marked e.g. second door, push out window, ladder, escape chute etc., and which is away from fire sources.

**Findings/ Details** Emergency egress located near engine compartment.

**Recommended 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



Emergency egress

**04 - Work Environment**

**C - Lightings**

**KAPRA ID** 04.03.01 **Source of Risk** Lighting about the workplace

**Requirement(s) or Condition(s)** Lighting allows people to work and move safely about the workplace.  
Reference(s): WA Occupational Safety and Health Regulations 1996 3.13(a)(b); QLD COP Plant 2005 Item 1.27

**Findings/ Details** Night operations.

**Recommended 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	2	Moderate	E	2	Low
High temperature	C	3	High	D	3	Moderate
Cut, stab and puncture	C	3	High	D	3	Moderate
Crushing	C	3	High	D	3	Moderate
Ergonomic	D	3	Moderate	E	3	Moderate
Striking	C	2	Moderate	D	2	Low

**05 - Instrumentation and Operator Controls**

**A - General**

**KAPRA ID** 05.01.13 **Source of Risk** Labelling of instrumentation and controls

**Requirement(s) or Condition(s)** All instrumentation and controls are labelled so that their nature and function is clear.  
Reference(s): QLD COP - Plant 2005 Item 1.25

**Findings/ Details** Safety lock lever and control levers.

**Recommended Controls** Advise operator and maintenance staff that there are potential crushing and striking hazards associated with misuse of the safety lock lever and other control levers.  
Advise operator and maintenance staff that the safety lock lever functions as a hydraulic isolation device and demonstrate this functionality.  
Refer to the OMM manual for further information on the safety lock lever and other control levers.

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

**05 - Instrumentation and Operator Controls**

**C - Communication Systems**

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

**Requirement(s) or Condition(s)** Equipment control systems provide for effective communication between persons involved in operation or maintenance.  
Reference(s): QLD Mining and Quarrying Safety and Health Regulations 2001 102(1)(b)(i)

**Findings/ Details** None.

**Recommended 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	C	3	High	D	3	Moderate
Cut, stab and puncture	D	2	Low	E	2	Low
Shearing	C	3	High	D	3	Moderate
Striking	D	3	Moderate	E	3	Moderate
Electrical	C	3	High	D	3	Moderate

**07 - Safety Signage**

**A - General**

**KAPRA ID 07.01.02 Source of Risk Marking of areas requiring PPE**

**Requirement(s) or Condition(s)** Safety signs are placed in areas where PPE is required.  
Reference(s): NZ Management of Noise in the Workplace 2002 Item 6.4

**Findings/ Details** None.

**Recommended 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

**Requirement(s) or Condition(s)** Pipes and other parts that may become hot are adequately guarded and insulated.

**Findings/ Details** Exhaust pipe, hydraulic tank, hydraulic valving, engine lube filter, radiator header tank and oil cooler may become hot during and following operation.

**Recommended Controls** Advise operator and maintenance staff that the exhaust pipe, hydraulic tank, hydraulic valving, 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



Radiator



Exhaust pipe



Engine components

**Requirement(s) or Condition(s)** Guards intended for preventing access to danger zones is designed, constructed and positioned to prevent parts of the body from reaching danger zones (see also AS 4024.1801 and AS 4024.1802).

**Findings/ Details** Cooling fan not fully guarded.  
 Note: Cooling fan is inside engine compartment.

**Recommended Controls** Advise operator and maintenance staff of the potential cut, stab and puncture hazards when working in the vicinity of the cooling fan.  
 Advise operator and maintenance staff that the machine should be switched off prior to opening engine rear cover, to only perform maintenance on the cooling fan 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
Cut, stab and puncture	D	3	Moderate	E	3	Moderate



Engine Cooling Fan

**08 - Guardings**

**A - General**

**KAPRA ID** 08.01.06 **Source of Risk** Moving parts

**Requirement(s) or Condition(s)** Guards to protect against hazards generated by moving parts, for example pulleys, belts, gears, racks and pinions, shafts, are either fixed guards or movable interlocking guards.

**Findings/ Details** Air conditioning compressor belt pulley not fully guarded  
 Note: AC belt and pulley are inside engine compartment.

**Recommended Controls** Advise operator and maintenance staff of the potential crushing hazards when working in the vicinity of the air conditioning compressor belt pulley inside engine compartment. Advise operator and maintenance staff that the machine should be switched off prior to opening engine top cover, to only perform maintenance on 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



A/C Compressor Belt Pulley

**09 - Isolation Devices**

**A - General**

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

**Requirement(s) or Condition(s)** Machinery is fitted with device(s) that enable it to be isolated from all power supplies. NOTE: Consider all power supplies including electrical, hydraulic, mechanical, pneumatic, etc.

**Findings/ Details** No battery electrical isolation as part of standard build.

**Recommended 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	D	3	Moderate	E	3	Moderate

**Requirement(s) or Condition(s)** Isolation devices are:  
 A) ensure a reliable isolation (disconnection, separation)  
 B) have a reliable mechanical link between the manual control and the isolating element(s)  
 C) be equipped with clear and unambiguous identification of the state of the isolation device which corresponds to each position of its manual control (actuator).  
 Reference(s): AS4024.1603

**Findings/ Details** Safety lock lever.

**Recommended 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 3-14 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	3	High	D	3	Moderate
Striking	C	3	High	D	3	Moderate

**Requirement(s) or Condition(s)** The relationship between each isolating device and the machine (or part of it) which is to be isolated, is clear and easily understood.  
 Reference(s): AS4024.1603

**Findings/ Details** Safety lock lever.

**Recommended 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 3-14 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	3	High	D	3	Moderate
Striking	C	3	High	D	3	Moderate

**Requirement(s) or Condition(s)** When dissipation of stored energy would excessively reduce the ability of the machine to be used, additional means are incorporated to reliably restrain or contain the remaining stored energy.  
Reference(s): AS4024

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

**Recommended 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 sub tank wherever possible.

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