KAPRA

KOMATSU AUSTRALIA PLANT RISK ASSESSMENT

RISK ASSESSMENT REPORT

Customer:	MAINSTREAM RECYCLING
Machine:	WA270_8
Serial No.	SN 85283
Service Meter Hour:	10
Condition:	New

Assessment Location:	Campbellfield
Machine Assessment Date:	27/09/2021

Komatsu Representative:

	Signature
Geoff Killury	
Title: Account Manager	

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.

Printed: Friday, 20 July 2018

KAPRA Risk Assessment Report

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Serial No: 83727 and Up

Machine: WA270 Model: 8

Audit Date: 18/07/2018 Audit Location: Fairfield

Assessment Team: Bart Genson, Ralph Goad, Stephen Hollins

Conditions: KGA Attachments, Beacon, Emergency Stop Switches (inside cabin and outside at ground level)

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.

Finding(s)/Detail(s) Opening and closing of engine side covers.

Suggested Control(s) Advise operator and maintenance staff of the potential ergonomics hazard when opening and closing engine side covers.
Advise operator and maintenance staff to maintain three points of contact when opening and closing engine side covers and that covers may be opened to two different height levels as is appropriate.
Demonstrate opening / closing of engine side covers.

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

LHS Engine Side Cover

02 - Access Systems **A - General**

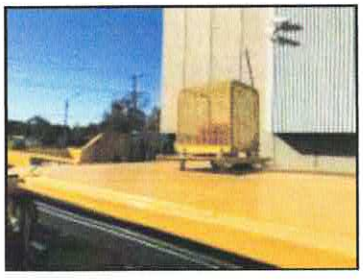
KAPRA ID 02.01.01 Source of Risk **Access to work areas above ground level**

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

Finding(s)/Detail(s) Maintenance activities carried out on beacon, antenna, wiper, adjustment of front work lights and mirror and cleaning of front cabin window. Rear mud guards have no guardrailing and is a work area for clearing obstacles from pre-cleaner, cleaning rear and side cabin windows, checking / filling of coolant and windscreen washer fluid and filling of auto greaser. Rear maintenance step is a work area for checking dust indicator and checking / cleaning / replacing air cleaner element.

Suggested Control(s) Advise operator and maintenance staff of the potential for slips, trips and falls when accessing the beacon, antenna and wiper for maintenance purposes, adjusting work lights and mirrors, cleaning cabin windows and windshield.
Advise operator and maintenance staff that the front and rear mudguards, engine bonnet and counterweight should not be used as tread surfaces and recommend the use of an elevating work platform when performing maintenance activities to these items.

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



Beacon and Antenna

Lights, Mirrors, Wiper, Windshield

Rear Mud Guard

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

Finding(s)/Detail(s) Night operations.

Suggested Control(s) Advise operator and maintenance staff of the potential 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.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**L**	**C**	**Risk Rating**	**L**	**C**	**Risk Rating**
Slips, trips and falls	C	2	Moderate	D	2	Low
Ergonomic	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.
Reference(s): WA COP-Prevention of Falls at Workplaces

Finding(s)/Detail(s) None

Suggested Control(s) Advise operator and maintenance staff of the potential for slips, trips and falls when carrying small objects (tools, lunchboxes, etc.) whilst accessing the machine.
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.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**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 02.01.07	Source of Risk **Provision for change in level of platforms, landings & walkways**	

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

Finding(s)/Detail(s) Vertical distance between ground and step 1 on LHS cabin access is 580 mm.
Vertical distance between step 1 and step 2 on LHS cabin access is 360 mm.
Vertical distance between step 2 and step 3 on LHS cabin access is 360 mm.
Vertical distance between step 3 and cabin floor on LHS cabin access is 380 mm.
Vertical distance between ground and step 1 on RHS emergency egress is 580 mm.
Vertical distance between step 1 and step 2 on RHS emergency egress is 360 mm.
Vertical distance between step 2 and step 3 on RHS emergency egress is 360 mm.
Vertical distance between step 3 and step 4 on RHS emergency egress is 305 mm.
Vertical distance between step 4 and cabin floor on RHS emergency egress is 90 mm.
Vertical distance between ground and engine platform step on both LHS and RHS is 530 mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazards due to distances between ground, steps and cabin.
Demonstrate safe use of access systems.

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

Engine platform step

LHS Cabin Access System

RHS Emergency Egress Access System

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

Finding(s)/Detail(s)

Step 1 width on LHS cabin access is 320 mm.
Step 2 width on LHS cabin access is 325 mm.
Step 3 width on LHS cabin access is 325 mm.
The cabin opening width is around 510 mm.
Step 1 width on RHS emergency egress is 320 mm.
Step 2 width on RHS emergency egress is 325 mm.
Step 3 width on RHS emergency egress is 325 mm.
Step 4 width on RHS emergency egress is 385 to 475mm.
Engine step platform width on both LHS and RHS is 320mm.

Suggested Control(s)

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

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**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

LHS Engine Step Platform

RHS Engine Step Platform 1 and 2

LHS Cabin Access System

RHS Emergency Egress Access System

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

Finding(s)/Detail(s) Interior cabin height is 1520 mm.

Suggested Control(s) Advise operator and maintenance staff of the potential ergonomics hazard due to interior cabin height.
Demonstrate safe use of cabin access system.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**L**	**C**	**Risk Rating**	**L**	**C**	**Risk Rating**
Ergonomic	D	3	Moderate	E	3	Moderate

Cabin Headroom Distance

02 - Access Systems **I - Step Ladders**

KAPRA ID 02.09.01 Source of Risk **Slope of step ladders**

Requirement(s) or Condition(s) Slope of step ladders is 60 to 70 degrees to the horizontal.

Finding(s)/Detail(s) Slope of LHS and RHS ladders is greater than 70 degrees.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazards due to slope of right hand side step ladder.
Advise operator and maintenance staff that the right hand side step ladder should only be used as an emergency exit and demonstrate safe use of step ladders.

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

02 - Access Systems — **I - Step Ladders**

KAPRA ID 02.09.02 Source of Risk **Width of step ladders**

Requirement(s) or Condition(s) The width of all step ladders measured between the stiles is 450-750mm

Finding(s)/Detail(s) Width of left hand side step ladder is 320-325mm.
Width of right hand side step ladder is 320-475mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazards due to step ladder widths.
Demonstrate safe use of step ladders.

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

02 - Access Systems — **I - Step Ladders**

KAPRA ID 02.09.03 Source of Risk **Capability to descend step ladder in forward direction**

Requirement(s) or Condition(s) Provision should be made to ensure persons descend a step-type ladder while facing the ladder (e.g. by means of durable warning signs).

Finding(s)/Detail(s) None.

Suggested Control(s) Advise operator and maintenance staff to always face the machine whilst using access systems and that step ladders must not be descended in a forward direction.
Demonstrate safe use of step ladders.

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

02 - Access Systems — **I - Step Ladders**

KAPRA ID 02.09.05 Source of Risk **Spacing of treads**

Requirement(s) or Condition(s) Treads are spaced 200-300mm apart.

Finding(s)/Detail(s) Vertical distance between step 1 and step 2 on left hand side step ladder is 360mm.
Vertical distance between step 2 and step 3 on left hand side step ladder is 360mm.
Vertical distance between step 1 and step 2 on right hand side step ladder is 360mm.
Vertical distance between step 2 and step 3 on right hand side step ladder is 360mm.
Vertical distance between step 3 and step 4 on right hand side step ladder is 305mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to step ladder step spacings.
Demonstrate safe use of step ladders.

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

02 - Access Systems — **I - Step Ladders**

KAPRA ID 02.09.06 Source of Risk **Variation in tread height/width**

Requirement(s) or Condition(s) All treads and rises in the same step ladder are uniform and within a tolerance of + 5mm .

Finding(s)/Detail(s) Tread heights on LHS step ladder vary between 360-380mm.
Tread widths on LHS step ladder vary between 320-325mm.
Tread heights on RHS step ladder vary between 305-360mm.
Tread widths on RHS step ladder vary between 320-475mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to variations in tread height and width.
Demonstrate safe use of step ladders.

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

02 - Access Systems — **I - Step Ladders**

KAPRA ID 02.09.07 Source of Risk **Tread width (depth)**

Requirement(s) or Condition(s) All treads are no less than 100mm wide.

Finding(s)/Detail(s) Tread heights on step ladders vary between 305-380mm.
Tread widths on step ladders vary between 320-475mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to variations in tread height and width. Demonstrate safe use of step ladders.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	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

02 - Access Systems **I - Step Ladders**

KAPRA ID 02.09.08 Source of Risk **Top tread location in relation to landing**

Requirement(s) or Condition(s) The top tread of all step ladders is level or integrated with the associated landing.

Finding(s)/Detail(s) Top tread of left hand side step ladder is 370mm from cabin floor.
Top tread of right hand side step ladder is 110mm from cabin floor.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to variation in height between top treads of step ladders and their associated landings.
Advise operator and maintenance staff to always maintain three points of contact when using access systems (refer to Operation and Maintenance manual).
Demonstrate safe use of step ladders.

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

LHS Top Tread to Cabin Floor

RHS Top Tread to Cabin Floor

02 - Access Systems **I - Step Ladders**

KAPRA ID 02.09.11 Source of Risk **Clear space between handrails**

Requirement(s) or Condition(s) The clear space between handrails is 550-750mm.

Finding(s)/Detail(s) Distance between handrails on left hand side step ladder is 320-580mm.
Distance between handrails on right hand side step ladder is 330-465mm.

Suggested Control(s) Advise operator and maintenance staff of the potential ergonomics hazard due to clear space between handrails.
Demonstrate safe use of step ladders.

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

02 - Access Systems **I - Step Ladders**

KAPRA ID 02.09.12 Source of Risk **Handrail commencement height**

Requirement(s) or Condition(s) Handrails commence no higher than 900mm above ground / floor level.

Finding(s)/Detail(s) Handrails on left hand side step ladder commence at 1350mm above ground.
Handrails on right hand side step ladder commence at 1300mm above ground.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to handrail commencement height.
Demonstrate safe use of step ladders.

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

LHS Handrail Commence Height

RHS Handrail Commence Height

02 - Access Systems **I - Step Ladders**

KAPRA ID 02.09.14 Source of Risk **Clearance between handrail and plane**

Requirement(s) or Condition(s) The clear distance, measured perpendicular to the slope of the step-type ladder, between the handrails and the plane through the nosing of the treads shall be not less than 150 mm and not more than 200 mm.

Finding(s)/Detail(s) Handrails are a continuation of stiles.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomics hazards due to handrail placement on step ladders.
Demonstrate safe use of step ladders.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**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

02 - Access Systems **I - Step Ladders**

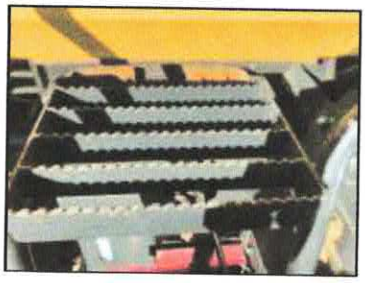
KAPRA ID 02.09.17 **Source of Risk** **Width of landings attached to ladders**

Requirement(s) or Condition(s) The width of all landings attached to ladders is no less than the width of the ladder or 600mm (whichever is greater).

Finding(s)/Detail(s) Landing width (step 3) on LHS cabin access is 325mm.
Landing width (step 4) on RHS emergency egress is 200mm.

Suggested Control(s) Advise operator and maintenance staff of the potential slips, trips and falls and ergonomic hazard due to width of landing attached to RHS emergency egress ladder. Demonstrate safe use of step ladders.

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



LHS (step 3) Landing Width

RHS (step 4) Landing Width

02 - Access Systems **I - Step Ladders**

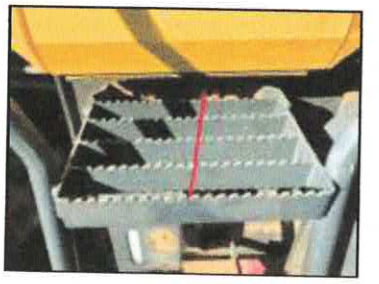
KAPRA ID 02.09.18 Source of Risk **Length of landings attached to ladders**

Requirement(s) or Condition(s) The minimum length of the landing shall be not less than 900 mm, measured horizontally from the front of the ladder.

Finding(s)/Detail(s) Landing length (step 3) on LHS cabin access is 225mm.
Landing length (step 4) on RHS emergency egress is 200mm.

Suggested Control(s) Advise operator and maintenance staff of the ergonomic hazard due to length of landings attached to LHS cabin access ladder and RHS emergency egress ladder.
Demonstrate safe use of step ladders.

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



LHS (step 3) Landing Length

RHS (step 4) Landing Length

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; b) at least one means of emergency egress which is suitably marked e.g. second door, pushout window, ladder, escape chute etc., and which is away from fire sources.
Reference(s): NSW MDG15-2002 Item 3.14; NZ COP-Cranes (3.1(16&18)

Finding(s)/Detail(s) Machine has two means of egress. The emergency egress is on the RHS, partially obstructed by the console and not marked.

Suggested Control(s) Advise operator and maintenance staff to use normal cabin egress system in the event of a fire around the engine area.

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

Console at 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

Finding(s)/Detail(s) Night operations.

Suggested Control(s) Install adequate lighting at workplaces when operating and maintaining the machine.
Advise operator and maintenance staff of the potential for slips, trips and falls, high temperature, cut, stab and puncture, friction, ergonomic hazards and crushing when performing maintenance activities at night.
Advise operator and maintenance staff that additional sources of lighting are required during night operations.

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

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

Finding(s)/Detail(s) Work equipment lock switch, work equipment control lever.

Suggested Control(s) Advise operator and maintenance staff that there are potential crushing and striking hazards associated with misuse of the levers.
Advise operator and maintenance staff that the work equipment lock lever functions as a hydraulic isolation device and demonstrate this functionality.
Refer to Operation and Maintenance manual for further information on the functions of the mentioned levers.

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

Work Equipment Lock Switch

Work Equipment Control Lever

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)

Finding(s)/Detail(s) None.

Suggested Control(s) 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.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	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
Striking	C	3	High	D	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

Finding(s)/Detail(s) None.

Suggested Control(s) 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.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	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**

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

Finding(s)/Detail(s) Exhaust pipe, engine components and work equipment cylinders.

Suggested Control(s) Advise operator and maintenance staff that the Exhaust pipe, engine components and work equipment cylinders 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.

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

RHS Engine Components

Exhaust Pipe

LHS Engine Components

Work Equipment Cylinder

08 - Guardings **A - General**

KAPRA ID 08.01.04 Source of Risk **Safe distance to prevent danger zones**

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).

Finding(s)/Detail(s) Work equipment area and machine articulation zone.

Suggested Control(s) Advise operator and maintenance staff of the potential crushing hazards when working in the vicinity of work equipment area and articulation zone.
Advise operator and maintenance staff that the machine should be switched off prior to performing maintenance in the immediate area and 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.

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

Articulation Zone

Warning Sign

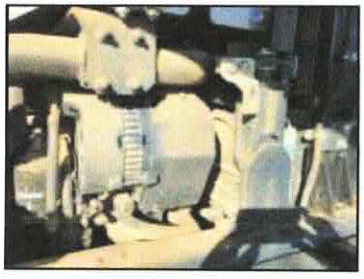
08 - Guardings		A - General
KAPRA ID 08.01.06	Source of Risk **Moving parts**	

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.
Reference(s): AS4024

Finding(s)/Detail(s) Wheels, coupler, work equipment cylinders and bucket
Note: Air conditioning compressor belt pulley and alternator belt pulley are guarded.

Suggested Control(s) Advise operator and maintenance staff of the potential crushing hazards when working in the vicinity of the wheels, coupler, work equipment cylinders and bucket/fork.
Advise operator and maintenance staff that the machine should be parked on a level ground, work equipment lowered to ground and engine shutdown prior to working on these areas.
Advise operator and maintenance staff that battery isolation is fitted to the right hand side of the engine bay, and should be utilised when any maintenance tasks are being performed.
Only perform maintenance 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.

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



Alternator

Air Compressor

09 - Isolation Devices		A - General
KAPRA ID 09.01.03	Source of Risk **Identification of state of isolation device**	

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).

Finding(s)/Detail(s) Work equipment lock switch and battery isolation switch.

Suggested Control(s) Advise operator and maintenance staff that there are potential crushing, striking and electrical hazards associated with misuse of the safety lock lever and battery isolation switch.
Advise operator and maintenance staff that the lock lever functions as a hydraulic isolation device and demonstrate this functionality.
Refer to Operation and Maintenance manual for further information on the work equipment lock lever and isolation switch.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**L**	**C**	**Risk Rating**	**L**	**C**	**Risk Rating**
Crushing	C	3	High	D	3	Moderate
Striking	C	3	High	D	3	Moderate
Electrical	E	1	Low	E	1	Low

Work Equipment Lock Switch

Battery Isolation Switch

09 - Isolation Devices **A - General**

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

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): AS3000; AS4024; QLD Mining and Quarrying Safety and Health Regulations Item 27

Finding(s)/Detail(s) Work equipment lock switch and battery isolation switch.

Suggested Control(s) Advise operator and maintenance staff that there are potential crushing, striking and electrical hazards associated with misuse of the safety lock lever and battery isolation switch.
Advise operator and maintenance staff that the lock lever functions as a hydraulic isolation device and demonstrate this functionality.
Refer to Operation and Maintenance manual for further information on the work equipment lock lever and isolation switch.

	Initial Risk Assessment			Residual Risk Assessment		
Hazard	**L**	**C**	**Risk Rating**	**L**	**C**	**Risk Rating**
Crushing	C	3	High	D	3	Moderate
Striking	C	3	High	D	3	Moderate
Electrical	E	1	Low	E	1	Low