


## Plant Hazard Identification Risk Assessment and Control (HIRAC)

PLANT INFORMATION							
Plant item:	Ammann ARX90T3	Plant identification details (asset/plant no.):					
		ROPS Serial Number:					
		Machine Serial Number: 4122028					
Competency / licences etc. required to operate the plant:	National Certificate of Competency	Operator Training		Assessment of competency			
	<input type="checkbox"/>						
<b>Attention:</b> This hazard identification and risk assessment has been developed by Ammann Pty Ltd with reference to the hazards and risks associated with the item of plant only. Procedural controls referenced within this document are based on Manufactures maintenance and operation procedures. Where this item of plant is hired or sold it is the responsibility of the PCBU with management or control of the plant to assess how the nature of hazards and risks associated with the operating environment impact on the content of this document.							
<b>Plant Noise Levels</b> - Noise level testing completed at 100% throttle while plant is stationary. Noise testing completed in compliance with AS2012/1 and AS2012/2.							
OEM testing and certification <input type="checkbox"/>	Conplant noise level testing		<b>Noise Advice: Operator</b>  <b>BELOW 85dB(A)</b> Hearing protection not required by operator for short durations (less than 8 hours)	<b>Noise Advice: Bystander</b>  <b>BELOW 85dB(A)</b> Hearing protection not required by bystanders for short durations (less than 8 hours)	<b>Plant Dimensions and Specifications</b>		
Reading at operators station	81 dB(A)				Height mm	3050	
Reading for bystanders taken:	1200 mm above ground				Width mm	1822	
	7000 mm from plant				Length mm	4760	
Left 83 dB(A)	Right 84 dB(A)				Operating Weight (Maximum)	9470	
Front 75 dB(A)	Back 82 dB(A)						

Risk Assessment Team				
Name		Position	Signature	Date
Rohan Anderson		Sales & Dealer Manager – Australia / New Zealand / Pacific		3/8/16
Dary Samadi		National Manager - Service, Technical Support and Training - Conplant		3/8/16
Paul Vandersluis		Managing Director AAU		3/8/16
Authorised by:				
Name		Position	Signature	Date
Rev0	Rohan Anderson	Sales & Dealer Manager – Australia / New Zealand / Pacific		3/8/16
Rev1				
Rev 2				

<b>MAINTENANCE &amp; REPAIR ASSESSMENT</b> (Complete this section for assessment of <b>Maintenance and repair</b> activities only – inspection and casual access by the operator to included in operational assessment)					
<b>Maintenance/repair being assessed:</b>	General service/scheduled service/break-down service				
<b>No. of employees working on (or likely to be working on) plant:</b>	1-2 Service Field Technicians/Mechanics		<b>Estimate of duration of activity:</b>	< 8 hours	
<b>Type of activity:</b>	<b>Scheduled frequency.</b>	<b>By Whom</b>	<b>Location of maintenance:</b>		
<input checked="" type="checkbox"/> Scheduled Daily Logbooks must be completed prior to commencing operations checking items as described in the logbook and operators manual. All faults must be noted and machine must not be operated until plant has been repaired or assessed as safe by a competent person.  Competent Person may be any of the following. <ul style="list-style-type: none"> <li>• Youngman &amp; Richardson Field Service Technician</li> <li>• Youngman &amp; Richardson Plant Mechanic</li> </ul>	Daily (pre-start inspection)	Operator	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input type="checkbox"/>
	Pre-hire General Service	Plant Mechanic	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input checked="" type="checkbox"/>
	250 hours of operation	Plant Mechanic	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input checked="" type="checkbox"/>
	500 hours of operation	Plant Mechanic	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input checked="" type="checkbox"/>
	Major Service (1000 hour intervals)	Plant Mechanic	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <b>Unscheduled.</b>	When and If Repairs required	Field Service Technician	Customer Site	<input checked="" type="checkbox"/>	Youngman & Richardson Workshop <input checked="" type="checkbox"/>
<b>Competency requirements for maintenance:</b> (e.g. electrical, welding, etc)	All Inspections, maintenance and repairs shall be carried out by a competent person. No repairs are to be attempted without authorisation from Ammann.				
<b>References</b> (Australian Standards, maintenance manuals etc):	Maintenance Manuals, Maintenance/service records and Plant Operations manual.				
<b>Isolation of energy sources:</b>	Hydraulic system	Main battery isolator	Electrical systems	Main battery isolator	
	Engine isolation	Main battery isolator	Control systems	Main battery isolator	

**HAZARDOUS CHEMICALS** Complete this section for assessment of fluids and other chemicals either stored within the plant systems or used within the process that the plant is completing. Do not include chemicals from other ancillary processes (eg, truck wash, water dispersant)

Chemical Name:	Use/Purpose <i>(what does this chemical do, eg - fuel, hydraulic fluid, lubricant etc)</i>	Risk Phrases <i>(as per MSDS)</i>	Exposure risk <i>(when does this risk exist?)</i>			PPE Required	MSDS Attached
			Operation	Maintenance	Failure		
Fuchs Titan Ultralube 1540	Engine Oil	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
Fuchs Titan HDD Premix Coolant	Coolant	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
Fuchs Titan Gear Hyp LD 8090	Gear Oil	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
Fuchs Titan Gear Syn 80140	Gear Oil	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
Fuchs HVI68	Hydraulic Oil	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
Renolit LXM02 Grease	Grease	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Chemical resistant gloves, eye protection, long sleeve/pant	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

RISK ASSESSMENT	
Evaluate the risks associated with operating, refuelling, maintaining and working around the item of plant.	
List the potential hazard, does it need controls, what controls are needed, consider the hierarchy of control and score the consequence and the likelihood.	
Refer to Appendix 1 for Consequence (C), Likelihood (L) and Risk Rating (R) descriptions.	
<b>Section 1</b> Put an <b>X</b> if the hazard does apply to the plant. Leave blank if the hazard does not apply to the plant.	<b>Section 4</b> Write the existing Controls and relevant Comments relating to additional controls required
<b>Section 2</b> Indicate when the exposure is likely to occur. Mark all that apply with an <b>X</b>	<b>Section 5</b> Indicate who is responsible for applying or using the controls.
<b>Section 3</b> Then indicate the <b>Impact (I)</b> , <b>Likelihood (L)</b> and <b>Risk Rating (R)</b>	<b>Section 6</b> Indicate the residual risk taking into account controls being implemented after considering applicable legislation, Codes, Standards, etc.

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<b>Entanglement - Yes No</b>										
Can anyone's hair, clothing, gloves, necktie, jewellery, rags and other materials become entangled with moving parts of plant, or materials in motion?										
<input checked="" type="checkbox"/> Arms, hands, fingers, or upper body <input type="checkbox"/> Legs, feet, or lower body <input checked="" type="checkbox"/> Hair, clothing, or jewellery	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	3	C	H	<b>Plant/Engineering/Signage Controls</b> <ul style="list-style-type: none"> <li>• Guards to moving parts</li> <li>• Emergency stop fitted in cabin</li> <li>• Battery isolator in lockable compartment</li> <li>• Warning signs and decals as required on external covers, bonnet, guards etc</li> <li>• All belts and pulleys contained within closed engine bay</li> </ul> <b>Procedural Controls</b> <ul style="list-style-type: none"> <li>• Site traffic control procedures</li> <li>• Exclusion zone/Maintain safe clearance to workers</li> <li>• Daily prestart checks</li> <li>• Operator competency/training</li> <li>• Correct PPE to be worn at all times</li> <li>• Clothing to be buttoned up and tucked in - no loose articles</li> <li>• Ensure all guards and covers in place when operating machine</li> <li>• Ensure hands kept away from moving parts</li> <li>• Lock out/tag out plant when carrying out maintenance</li> <li>• Activate parking brake before leaving operators station</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	4	D	L
					Maintenance Personnel/ Operators	During operation and maintenance				

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
					<b>Transport/Loading/Unloading Controls</b> Ensure adequate exclusion zone is in place Stay clear of roller and truck if winching	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Crushing/Striking - Yes No</b>										
Can anyone be crushed due to falling, uncontrolled or unexpected movement of plant or its load, lack of capacity to slow, stop or immobilise the plant, tipping or rolling over, parts of plant collapsing, contact with moving parts during testing, inspection, maintenance, cleaning or repair, thrown off, under or trapped between plant and materials or fixed structures?										
<input checked="" type="checkbox"/> Plant tipping or rolling over <input type="checkbox"/> Materials falling or being ejected from working area. <input checked="" type="checkbox"/> Unexpected movement of plant, load or material <input checked="" type="checkbox"/> Inability to slow, stop or immobilise plant <input type="checkbox"/> In-running rollers/gear sets <input checked="" type="checkbox"/> Unexpected start up or movement <input checked="" type="checkbox"/> Between plant and materials or fixed structures <input type="checkbox"/> Falling objects created by the plant <input type="checkbox"/> Load falling/moving due to power loss or plant failure <input type="checkbox"/> Other (please specify)	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input checked="" type="checkbox"/> During Transport	2	C	<b>E</b>	<b>Plant/Engineering/Signage Controls</b> <ul style="list-style-type: none"> <li>•Emergency stop</li> <li>•Battery Isolator in lockable compartment</li> <li>•Parking brake</li> <li>•Seat belt, enclosed cabin and ROPS</li> <li>•Seat switch</li> <li>•Rotating beacon</li> <li>•Reversing alarm</li> <li>•Warning signs and decals as required</li> <li>•Struts/supports on bonnet</li> <li>•Engineered lifting and tie-down points with labels</li> <li>•Signage to crush zone at articulation point</li> <li>•Articulation locking brace</li> <li>•Hydraulic steering speed limit</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	3	E	<b>M</b>
					<b>Procedural Controls</b> <ul style="list-style-type: none"> <li>•<b>IN ADDITION TO PLANT CONTROLS - OPERATOR AND PLANT CONTROLLER MUST ENSURE THAT EFFECTIVE SITE CONTROLS ARE IN PLACE TO AVOID CRUSHING HAZARDS RELATING TO MOBILE PLANT</b></li> <li>•Daily prestart checks</li> <li>•Operator competency and training</li> <li>•Assess site risks</li> <li>•Correct PPE to be worn at all times</li> <li>•Ensure seat belt worn at all times during operation</li> <li>•Ensure all guards in place when operating machine</li> <li>•Ensure exclusion zones maintained at all times</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk					
		I	L	R		Who	When	I	L	R			
					<ul style="list-style-type: none"> <li>• Lock out/tag out plant when carrying out maintenance</li> <li>• Lock out/tag out plant when cleaning machine</li> <li>• Activate parking brake before leaving operators platform</li> <li>• De-energise/ depressurise hydraulic system prior carrying out maintenance</li> <li>• Use chocks on rollers to prevent movement when carrying out maintenance work where there is a risk of plant moving.</li> <li>• Avoid all driving across a slope, instead drive up and down the slope</li> <li>• Do not exceed manufacturers recommendation for lateral tilt or gradability - see operations manual</li> <li>• Ensure that at least two thirds of the drum width is on a stable working base</li> <li>• Drive slowly when turning sharply - maintain recommended operating speeds</li> <li>• Do not operate roller on damp and in poor ground conditions</li> <li>• Ensure there are no obstacles in the path of travel</li> <li>• Drive machine carefully on uneven ground</li> <li>• Ensure ramp is not contaminated by dirt or oil</li> <li>• Check clearance to overhead structures</li> </ul>								
					<p><b>Transport/Loading/Unloading Controls</b></p> <ul style="list-style-type: none"> <li>• Ensure the ramp is fitted securely to the truck/float</li> <li>• Ensure angle of the ramp is not too steep</li> <li>• Make sure ramps are suitable for the weight of the plant</li> <li>• Ensure truck/float is levelled transversely for loading/Unloading.</li> <li>• Operator must be comfortable with all switch board controls and their applications. Know where the Emergency Stop is.</li> <li>• Visually inspect all controls on the switch board to ensure all controls are in line with the loading/unloading instructions in the Operations Manual.</li> <li>• Before loading ensure the traction control switch is on. See operating manual for more detailed information.</li> <li>• Comply with max allowed loads/overmass/dimension permits</li> <li>• Make sure plant is tied down appropriately</li> <li>• Ensure ramp is not contaminated by dirt or oil</li> <li>• Ensure articulation locking brace is engaged prior to lifting</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting						

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Cutting/ Stabbing/ Puncturing - Yes No</b> Can anyone be cut, stabbed or punctured by coming in contact with moving plant or parts, sharp or flying objects, work pieces ejected, work pieces disintegrated or other factors not mentioned?										
<input checked="" type="checkbox"/> Contact with sharp parts <input type="checkbox"/> Parts or work pieces breaking/shearing <input type="checkbox"/> Work pieces ejected <input checked="" type="checkbox"/> Body or body parts caught between moving components <input type="checkbox"/> Other (please specify)	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	3	C	H	<b>Plant/Engineering/Signage Controls</b> <ul style="list-style-type: none"> <li>• Emergency stop</li> <li>• Battery Isolator in lockable compartment</li> <li>• Guards to moving parts</li> <li>• Warning signs and decals as required</li> <li>• Hydraulic cylinders and stay on bonnet</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	5	D	L
					<b>Procedural Controls</b> <ul style="list-style-type: none"> <li>• Assess site risks</li> <li>• Correct PPE to be worn at all times</li> <li>• Lock out/tag out plant when carrying out maintenance</li> <li>• Lock out/tag out plant when cleaning machine</li> <li>• Activate parking brake before leaving operators platform</li> <li>• De-energise/ depressurise hydraulic system prior carrying out maintenance</li> <li>• Use chocks on rollers to prevent movement when carrying out maintenance work where there is a risk of plant moving.</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Shearing - Yes No</b> Can anyone's body parts be cut off between two parts of the plant and a work piece or structure?										



SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<input checked="" type="checkbox"/> Body or body parts caught between moving components <input checked="" type="checkbox"/> Body or body parts shear when passing structure. <input type="checkbox"/> Other (please specify)	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	2	D	H	<b>Plant/Engineering/Signage Controls</b> <ul style="list-style-type: none"> <li>• Emergency stop</li> <li>• Battery Isolator in lockable compartment</li> <li>• Seat belt</li> <li>• Rotating beacon</li> <li>• Reversing alarm</li> <li>• Warning signs and decals as required</li> <li>• Engineered lifting and tie-down points with labels</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	4	E	L
					<b>Procedural Controls</b> <ul style="list-style-type: none"> <li>• Daily prestart checks</li> <li>• Correct PPE to be worn at all times</li> <li>• All guards in place during operation.</li> <li>• Lock out plant prior to maintenance or removing guards</li> <li>• Qualified and competent maintenance workers only</li> <li>• Site traffic management procedure</li> <li>• Suitable exclusion zone</li> <li>• Operator competency</li> <li>• Ensure all body parts remain within ROPS/cabin</li> <li>• Ensure bonnet stay is engaged before working in engine bay</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b> <ul style="list-style-type: none"> <li>• Stay clear of roller and truck if winching</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Friction - Yes No</b> Can any part of a persons body be injured by continuous contact with moving parts?										
<input checked="" type="checkbox"/> Contact with moving components <input type="checkbox"/> Other (please specify)	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance	3	C	H	<b>Plant/Engineering/Signage Controls</b> <ul style="list-style-type: none"> <li>• Emergency Stop</li> <li>• Lockable battery isolator</li> <li>• All belts enclosed in engine bay</li> <li>• No moving components accessible from operating position</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	3	E	M

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		I	L	R		Who	When	I	L	R
	<input type="checkbox"/> Work around moving plant <input type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport				<ul style="list-style-type: none"> <li>Fixed guarding as required</li> <li>Signage on outside of fixed/moveable guards</li> </ul> <p><b>Procedural Controls</b></p> <ul style="list-style-type: none"> <li>Lock out/tag out plant when carrying out maintenance</li> <li>Exclusion zone/Maintain safe clearance to workers</li> <li>Correct PPE to be worn at all times</li> <li>Clothing to be buttoned up and tucked in - no loose articles</li> <li>Ensure all guards and covers in place when operating machine</li> </ul> <p>Ensure hands kept away from moving parts</p> <p><b>Transport/Loading/Unloading Controls</b></p>	Maintenance Personnel/ Operators	During operation and maintenance			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Electricity (Shock or burns) Contact - Yes No</b> Can anyone be injured by electrical shock or burnt due to damaged or poorly maintained leads or switches, water near electrical equipment, working near or contact with live electrical conductors, lack of isolation procedures or the factors not mentioned?										
<input type="checkbox"/> By damaged or poorly maintained electrical cables or connections <input type="checkbox"/> Overloading of electrical circuits <input checked="" type="checkbox"/> Contact with or proximity to live electrical conductors <input type="checkbox"/> By damaged or worn control devices <input type="checkbox"/> Contact with water or condensation	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input checked="" type="checkbox"/> During Transport	1	C	E	<p><b>Plant Controls</b></p> <p><b>Procedural Controls</b></p> <ul style="list-style-type: none"> <li>Maintain clearance to over head power lines and electrical conductors as per legislative requirements - plant height is 3020mm</li> <li>Check site and surroundings for electrical hazards prior to operation</li> <li>Lock out procedures for all maintenance</li> <li>De-energise systems prior to maintenance</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	3	E	M

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<input type="checkbox"/> Other (specify)					<b>Transport/Loading/Unloading Controls</b> <ul style="list-style-type: none"> <li>• Check surroundings for electrical hazards prior to loading machine - look up and live</li> <li>• Check plant height prior to loading</li> <li>• Maintain clearance to overhead power lines</li> <li>• Consider height of plant, height of ramps and height of elevated tilt tray prior to commencing</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Burns, Explosion or Fire - Yes No</b>										
Can anyone be injured by an explosion of gas, vapours, liquids, dusts or other substances, triggered by plant operation?										
<input type="checkbox"/> By sparks, slag or hot byproducts produced by the plant <input type="checkbox"/> Pilot light incorporated in plant <input checked="" type="checkbox"/> Ignition of flammable material by the plant <input type="checkbox"/> Other (please specify)	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input type="checkbox"/> Work around moving plant <input type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	3	D	M	<b>Plant Controls</b> <ul style="list-style-type: none"> <li>• Hot components enclosed within engine bay</li> <li>• Hot components isolated/insulated from combustible fluids</li> <li>• 2.5kg dry chemical fire extinguisher</li> <li>• Emergency stop</li> <li>• Battery isolator in lockable compartment</li> <li>• Warning signs and decals as required</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	4	E	L
					<b>Procedural Controls</b> <ul style="list-style-type: none"> <li>• Daily prestart checks</li> <li>• Regular/scheduled maintenance as per manufacturers recommendations</li> <li>• Operator competency</li> <li>• Lockout while undertaking maintenance</li> <li>• Depressurise hydraulic system prior to maintenance</li> <li>• Keep fire/sparks away</li> <li>• Keep flammable goods away</li> <li>• Site refuelling procedure</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b>	Transport Driver/ Operator	During loading/unloading and prior to transporting			

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Slips/ Trips/ Falls - Yes No</b> Can anyone using the plant or in the vicinity of the plant, slip, trip or fall due to the working environment or other factors?										
<input type="checkbox"/> Uneven or slippery work or access surfaces <input type="checkbox"/> Housekeeping issues caused by the plant <input type="checkbox"/> Lack of safe access systems and handrails <input type="checkbox"/> Lack of guardrails to prevent access to/falls into hazardous areas of the plant <input type="checkbox"/> Insufficient structural strength of access system/platform <input checked="" type="checkbox"/> Other (please specify) - Poor housekeeping	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	3	C	H	<b>Plant Controls</b> <ul style="list-style-type: none"> <li>Plant access steps and handrails</li> <li>Ergonomic cabin entry</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	3	E	M
					<b>Procedural Controls</b> <ul style="list-style-type: none"> <li>Ensure plant and steps/walkways are clean</li> <li>Pre-start checks</li> <li>Regular maintenance and repairs</li> <li>Maintain 3 points of contact at all times while climbing</li> <li>Face steps/ladders when climbing</li> <li>Use plant access steps/handrails provided</li> <li>Do not jump from machine</li> <li>Do not stand on bonnet or drums</li> <li>Wear appropriate protective footwear</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b> <ul style="list-style-type: none"> <li>Ensure plant and steps/walkways are clean</li> <li>Maintain 3 points of contact at all times while climbing</li> <li>Face steps/ladders when climbing</li> <li>Use plant access steps/handrails provided</li> <li>Do not jump from machine</li> <li>Use grip painted walkways on the truck deck</li> <li>Wear appropriate protective footwear</li> <li>Exclusion zone while loading/unloading as required</li> <li>Do not load/unload on roadway unless traffic controls are in place</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<b>High Pressure Fluid - Yes No</b> Can anyone come into contact with fluids under high pressure, due to failure or misuse of the plant?										
<input checked="" type="checkbox"/> Due to a component failure <input checked="" type="checkbox"/> Due to expected wear and tear <input checked="" type="checkbox"/> Due to misuse or incorrect operation <input type="checkbox"/> Stored pressure or incorrect isolation/inability to isolate systems <input type="checkbox"/> Release of pressure caused by shut down/isolation <input type="checkbox"/> Other (please specify)	<input type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	3	D	M	<b>Plant Controls</b> <ul style="list-style-type: none"> <li>Rated and pressure tested hydraulic systems</li> <li>Hydraulic hoses and lines to AS 3791</li> <li>Hydraulic lines protected from snagging/mechanical damage by location and guarding</li> <li>Hydraulic hazards contained within enclosed engine bay</li> </ul> <b>Procedural Controls</b> <ul style="list-style-type: none"> <li>Daily pre-start checks - check condition of hydraulic lines</li> <li>Lock out/Tag out procedure for all maintenance</li> <li>De-pressurise prior to working on hydraulic system</li> <li>Wear appropriate PPE for task</li> </ul> <b>Transport/Loading/Unloading Controls</b>	Maintenance Personnel/ Operators	During operation and maintenance	5	D	L
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Working environment and ergonomics - Yes No</b> Can anyone be injured due to seating design, repetitive body movement or posture, excessive effort, poor workplace or plant design causing mental or physical stress, lack of consideration for human behaviour, poor lighting or others factors not mentioned?										
<input type="checkbox"/> Inadequate lighting of operators station <input type="checkbox"/> Glare from artificial or natural light <input type="checkbox"/> Controls not marked/clearly labelled <input type="checkbox"/> Inconsistent function of similar controls	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport				<b>Plant Controls</b> <ul style="list-style-type: none"> <li>Enclosed cabin isolates operator from noise</li> <li>Tinted windows</li> <li>Noise testing</li> <li>Ergonomic cabin layout</li> <li>Suitable operators seat and station</li> <li>All controls labelled</li> <li>Engine bay set up to allow access to commonly serviced/access items</li> <li>Air conditioning in cabin</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<input type="checkbox"/> Size, height or layout not suitable <input type="checkbox"/> Other (please specify)					<b>Operator/Procedural Controls</b> <ul style="list-style-type: none"> <li>Follow appropriate manual handling and ergonomic techniques</li> <li>Hearing protection for workers within 5m - 106dB</li> <li>Use appropriate access equipment and manual aids for servicing</li> <li>Use appropriate tools for servicing</li> <li>Major service to be performed in workshop environment</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b> <ul style="list-style-type: none"> <li>Follow appropriate manual handling techniques</li> <li>Hearing protection for workers within 5m - 106dB</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										
<b>Other Hazards – Yes No</b> Can anyone be injured or suffer ill health from exposure to:										
<input type="checkbox"/> Chemicals <input type="checkbox"/> Toxic Gases <input type="checkbox"/> Vapours <input checked="" type="checkbox"/> Fumes <input type="checkbox"/> Other (please specify)	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input type="checkbox"/> During Transport	2	D	H	<b>Plant Controls</b> <ul style="list-style-type: none"> <li>Exhaust exits externally/away from closed cabin</li> <li>Filtered fresh air to cabin</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	5	D	L
					<b>Operator/Procedural Controls</b> <ul style="list-style-type: none"> <li>Never operate in an enclosed/confined space without appropriate ventilation</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance			
					<b>Transport/Loading/Unloading Controls</b> <ul style="list-style-type: none"> <li>Never operate in an enclosed/confined space without appropriate ventilation</li> </ul>	Transport Driver/ Operator	During loading/unloading and prior to transporting			
<b>Additional Plant Controls required (including hierarchy of controls):</b>										

SECTION 1 Hazard category and examples	SECTION 2 When does this hazard exist?	Section 3 Initial Risk			SECTION 4 Controls and Comments	Section 5 Responsibilities		Section 6 Residual Risk		
		I	L	R		Who	When	I	L	R
<b>Environmental Aspects and Impacts - Yes No</b> Can the physical environment be harmed or damaged due to the plant systems or substances?										
<input type="checkbox"/> Does the plant produce waste or by-products that require treatment <input type="checkbox"/> Does the plant produce registered waste products <input checked="" type="checkbox"/> Operation causes nuisance, eg noise, dust, vibration etc	<input checked="" type="checkbox"/> During normal operation <input checked="" type="checkbox"/> During routine maintenance <input checked="" type="checkbox"/> Work around moving plant <input checked="" type="checkbox"/> During Loading/Unloading <input checked="" type="checkbox"/> During Transport	3	D	M	<b>Environmental controls</b> <ul style="list-style-type: none"> <li>• All used fluids to be collected and returned to workshop where they will be disposed of in accordance with local legislation</li> <li>• Used filters to be returned to workshop and disposed of by waste management contractor</li> <li>• No service work to be completed within 15 meters of a water course</li> <li>• Absorbent matting and drip trays to be used where environmental hazard exists</li> </ul>	Maintenance Personnel/ Operators	During operation and maintenance	5	D	L
					Maintenance Personnel/ Operators	During operation and maintenance				
					Transport Driver/ Operator	During loading/unloading and prior to transporting				
<b>Additional Plant Controls required (including hierarchy of controls):</b>  										

**Operator Acknowledgement**

I have reviewed the Plant Risk Assessment and have had the opportunity to comment and make changes as I thought necessary

Name:	Position:	Signature:	Date:	Company:



		Likelihood ('L' in risk column)				
		A	B	C	D	E
Impact ('I' in risk column)		Almost Certain	Likely	Moderate	Unlikely	Rare
		1 – Catastrophic	(Multiple fatalities or serious injuries)	<b>E</b>	<b>E</b>	<b>E</b>
2 - Major	(Death/permanent disability)	<b>E</b>	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>
3 - Moderate	(Medical treatment)	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>M</b>
4 – Minor	(First aid)	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>	<b>L</b>
5 - Insignificant	(No treatment required)	<b>H</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>

Risk Key	
<b>E - Extreme</b>	Immediate response. Discontinue work, isolate and act. <b>Not acceptable as a residual risk</b>
<b>H - High</b>	Respond quickly. Hazard must be managed before work can proceed <b>Not acceptable as a residual risk</b>
<b>M - Medium</b>	Respond in a reasonable timeframe to rectify. Consider additional control measures where practical
<b>L - Low</b>	Low Priority. Review control measures periodically and reassess risk