Title:	Revision:
HAZARD ANALYSIS AND RISK ASSESSMENT	A
	Date: 28/05/2025
Client: LINGONG HEAVY MACHINERY CO., LTD.	Page: 1 of 17
Project: DESIGN VERIFICATION TELEHANDLER LGMG H625	

This Risk assessment has been prepared exclusively for LINGONG HEAVY MACHINERY CO., LTD. as part of design verification process carried out by Engineering Design Innovations Pty Ltd. Explanation of table headers and other important notes is given at the end of this document, a 5x5 risk matrix with quantitative risk scores is also included; it outlines determination and evaluation of risk scores: **Low** (1 – 5), **Moderate** (6 – 9), **High** (10 – 17), **Very High** (18 – 25). Various aspects of plant life cycle have been considered in this risk assessment.

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
1	Following inadequate operating procedures	Crushing Impact Severing Falling	Setup Operation Emergency Maintenance Transport	Operating instructions given in Operator's Manual. Decal on plant near controls refers user to the Operator's Manual.	9	Train operators on safe use of the plant. Operator training should include at least the following: • pre-operation inspections; • Safe operation of plant; • Regular maintenance tasks; • Understanding of plant operation; • Capabilities and limitations; • Emergency procedures; Do not operate the plant unless proper training has been received. Ensure operator's manual is kept with the plant for reference.	ADMIN USER ADMIN	Yes	3
2	Illness, fatigue, intoxication	Crushing Impact Severing	Setup Operation Emergency	Operator requirements outlined in operator's manual.	21	Do not operate the plant whilst unwell, tired, under the influence of alcohol, prescription drugs which cause dizziness	USER	Yes	3

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
		Falling	Maintenance Transport			or affect the ability to work, or illicit drugs.			
3	Following a poor system of work.	Crushing Impact Severing	Set up Operation Maintenance Emergency Transport	Operator's manual outlines plant specifications, limitations and residual risks associated with operation of the plant.	22	Implement appropriate system of work based on manufacturer's recommendations (e.g. operating instructions in operator's manual).	ADMIN	Yes	2
4	Abrupt use of controls.	Crushing Impact Severing	Set up Operation Maintenance Emergency Transport	Plat fitted with proportional controls which allow reasonably smooth operation.	13	Avoid abrupt and jerky movements when operating the plant.	USER	Yes	2
5	Unintended operation of controls.	Crushing Impact	Set up Operation Maintenance Emergency	Plant movement stops when controls are released.	17	Do not operate the plant unless trained to do so.	USER	Yes	6
6	Inadvertent operation of controls.	Crushing Impact	Set up Operation Maintenance Emergency	Boom functions are enabled only if the operator is seated on the driver's seat.	18	Avoid carrying objects in the cabin which may accidentally operate the controls. Always turn off the engine before leaving the cabin.	USER USER	Yes	1

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
7	Lowering/raising boom.	Crushing, impact	Set up Operation Maintenance Troubleshoot	All movements activated with hold-to-run controls.	15	Ensure all persons are clear of moving components before performing a movement. Be aware of the presence of objects and persons in the vicinity of the plant.	USER USER	Yes	1
8	Unauthorised use	Crushing Falling	Set up Operation	Vehicle keys required to unlock the cabin and start the engine.	14	Keep plant locked when not in use. Store keys in a secured place.	USER ADMIN	Yes	1
9	Overhead power lines.	Electrocution	Set up Operation Transport Emergency	Warning present in cabin, visible from the operating position.	22	Keep a safe distance away from power lines; follow local authorities' regulations regarding safe distance from powerlines. Be mindful of overhead power lines on roads when transporting the plant on a vehicle. Do not move, approach or come in contact with a plant that has contacted power lines until network power has been isolated.	USER USER USER	Yes	6

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
10	Plant's moving parts.	Crushing Impact Shearing Drawing Severing	Set up Operation Maintenance	Plant fitted with guards to cover engine. Crush and impact hazard decals fitted to the plant.	13	Maintain a safe distance from moving parts of the plant.	USER	Yes	2
11	Exposure to sun, hot environment.	Sunburn Heatstroke Eye injury	Set up Operation Maintenance	Cabin fitted with air conditioner.	20	Wear long sleeves, hat, trousers, sunglasses, and apply sunblock cream regularly. Keep hydrated by drinking plenty of fluids and electrolytes. Minimise exposure to sun.	USER USER USER	Yes	3
12	Runaway vehicle.	Crushing Death	Set up Operation Maintenance Packing up	Driving is only enabled if the operator is sitting in the driver's seat. Plant fitted with a hand brake.	19	Ensure the parking brake and parking is engaged before leaving the driving position.	USER	Yes	2
13	Soft ground conditions, working near ditches, trenches or pit walls.	Overturning Crushing	Set up Operation	Operator's manual recommends avoiding working near ditches and trenches, and	22	Maintain a safe distance from ditches, trenches or pit walls.	USER	Yes	2

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
				using outrigger pads on soft ground. Maximum outrigger / tyre downforce is displayed on the machine.		Assess ground condition before setting up the plant. Ensure ground can support maximum ground pressure applied on each outrigger / tyre.	USER USER		
14	Excessive wind	Overturning Crushing Severing	Set up Operation		22	Do not operate the plant under excessive wind conditions. Know and understand plant limitations. Regularly monitor wind speed when operating in wind-sensitive areas.	USER USER USER	Yes	3
15	Exposure to extreme cold weather.	Frostbite Hypothermia	Set up Operation	Cabin fitted with air conditioner.	9	Wear warm clothing such as jackets, gloves and head covering when working in cold environments.	USER	Yes	3
16	Lightning	Electrocution Shock	Set up Operation		21	Do not use the plant during a thunderstorm.	USER	Yes	1
17	Incorrect connection of attachment.	Crushing	Set up Operation	Attachment replacement procedure given in operator’s manual.	19	Ensure attachment is correctly connected and locking pin is properly secured.	USER	Yes	1

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
18	Explosive environment	Explosion	Set up Operation		24	Do not use the plant in an explosive environment.	USER	Yes	3
19	Flammable materials. Hot hydraulic oil. Open flames.	Explosion Fire Burning	Set up Operation Maintenance	Hydraulic hoses inside the cabin are tucked behind covers.	18	Do not operate the plant in the vicinity of flammable materials unless adequate control measures are taken to minimise the risk of explosion/fire. Avoid contact with hot surfaces and open flames.	USER USER	Yes	2
20	Person riding on forks. Using telehandler as personnel lift.	Overturning Crushing	Set up Driving	Warning decal present on machine.	19	Do not ride on lifting attachments or any part of the plant; only the operator is permitted on the plant whilst seated in the driving position. Do not use the plant as personnel lift.	USER USER	Yes	1
21	Misuse	Crushing Impact Trauma	Operation	Operator’s manual provides danger statement about potential death or serious injury as a result of plant misuse.	18	Do not use the plant for any other purpose than its intended use as explained in the operator’s manual.	USER	Yes	2

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	Origin	Potential consequence							
22	Entering / exiting the cabin.	Falling	Operation	Access steps and handholds provided.	22	Do not jump off the cabin. Always enter and exit the cabin facing inwards. Use 3-point contact to enter and exit the cabin.	USER USER USER	Yes	1
23	Flat tyre	Overturning	Operation		19	Regularly check condition and air pressure of all tyres. Do not operate a plant with a flat / deflated tyre.	USER USER	Yes	1
24	Missing/unreadable decals and signs.	Crushing Impact Severing	Operation Maintenance	Operator's manual contains list of decals and warning to replace missing or damaged decals.	14	Regularly inspect and replace missing or unreadable decals. Record any extra safety decals added to the plant which are not provided by the manufacturer so they can be inspected / replaced during regular maintenance if required.	ADMIN ADMIN	Yes	1

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
						Check that all decals on the MEWP are present.	USER		
25	Overloading	Overturning Crushing	Operation	Load-limiting system present. Rated capacity chart present in the cabin for all approved attachments.	19	Do not overload the plant.	USER	Yes	1
26	Unintended operation of tilt forward function.	Crushing Impact	Operation Maintenance	Tilt operation protect with function-enable button.	14	Keep attachment tilted back at all times. Ensure all persons are clear of the working area.	USER ADMIN	Yes	1
27	Engine exhaust pipe	Burn	Operation Maintenance	Exhaust pipe out of reach from the ground or protected by engine hood.	8	Do not touch exhaust pipe when hot.	USER	Yes	1
28	Poor lighting, dust, fog.	Crushing Fatigue	Operation		17	Ensure there is adequate lighting on the job site. Do not operate the plant under poor visibility conditions.	USER / ADMIN USER	Yes	3

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
29	Contaminants such as asbestos, fumes and biohazards.	Cancer Respiratory illnesses	Operation		22	Do not work on contaminated sites.	USER	Yes	3
30	Plants operating nearby. Road traffic.	Crushing Impact	Operation		22	Beware of other plants, such as cranes, MEWPs and forklifts operating nearby. When working on public roads, implement a traffic management plan to safely divert road and pedestrian traffic away from the job site.	USER USER	Yes	1
31	Unsecured load	Crushing	Operation		24	Ensure loads are properly secured before lifting. Do not lift load above persons on the ground or lower levels.	USER USER	Yes	3
32	Using non-approved attachments	Crushing	Operation	Approved attachments listed operator’s manual.	24	Do not use attachments which are not approved for use by the manufacturer.	USER	Yes	1
33	Structural failure.	Crushing Falling	Set up Operation Maintenance Transport		19	Regularly inspect the plant as per maintenance schedule to ensure integrity of structural components.	USER / ADMIN	Yes	2

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
34	Overturning.	Crushing Falling Death	Operation	Plant stability following the requirements for AS 10896.1:2019 successfully tested..	15	Do not exceed plant's rated capacity. Do not operate the plant under environmental conditions beyond its limitations.	USER USER	Yes	1
35	Lifting unbalanced loads. Lifting liquid loads.	Overturning Crushing	Operation		19	Lift unbalanced loads with their centre of gravity placed as close as possible to the plant's longitudinal centreline. Ensure containers with liquids are fitted with internal baffles, or are full to minimise shifting of the liquid during movement.	USER USER / ADMIN	Yes	2
36	Electronic component failure.	Crushing	Operation	Controls design comply with the requirements of AS 10896.1 Emergency stop button available in the cabin.	15	Become familiar with location of emergency stop button. Regularly test operation of the emergency stop button.	USER	Yes	1
37	Excessive chassis inclination.	Crushing Falling	Operation	Maximum allowable chassis inclination is given in the load chart.	19	Visually check chassis inclination via control panel before operating the aerial part of the machine.	USER	Yes	1

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
				Chassis inclination indicators present in the cabin and are visible from the operating position.					
38	Using a mobile phone	Crushing Impact	Operation		14	Do not use a mobile phone whilst operating the plant.	USER	Yes	1
39	Engine exhaust fumes	Suffocation	Operation		19	Ensure there is adequate ventilation on the job site to minimise the effects of exhaust fumes inhalation.	USER / ADMIN	Yes	3
40	Failure of FOPS / ROPS	Crushing	Operation	FOPS / ROPS structure complies with ISO 3449-2005 and ISO 3471-2008	9	Inspect structure and report any damage during usage. Do not operate a plant with a damaged FOPS / ROPS.	USER	Yes	1
41	Faulty/out of order, or poorly maintained plant.	Crushing Impact Trauma	Operation Emergency		14	Always perform pre-operation inspection before operating the plant. Implement ‘tag out’ procedure to isolate faulty/out of order plants. Do not use an ‘out of order’ plant.	USER ADMIN USER	Yes	2

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
						Perform plant maintenance as per manufacturer's maintenance schedule. Keep maintenance records / plant log book up to date.	ADMIN USER / ADMIN		
42	Travelling with a raised load	Overturning	Operation	Load chart indicates travelling is only permitted with the load close to the ground.	24	Do not travel with a raised load.	USER	Yes	1
43	Travelling with a freely suspended load.	Crushing Overturning	Operation	Pick-and-carry operation limitation given in operator's manual and load chart.	14	Do not exceed machine limitations for pick-and-carry operations. Ensure all persons are well away from the driving path.	USER ADMIN	Yes	1
44	Travelling downhill with load.	Overturing	Operation		19	Avoid travelling downhill on very steep gradient. When travelling downhill must be done, drive in reverse with the load facing uphill.	USER	Yes	3

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
45	Travelling fast with load. Travelling on uneven ground.	Crushing	Operation	Maximum travel speeds with load are given in the load chart	18	Do not exceed the recommended speed limits given in the load chart, or speed limits indicated by the site manager. Drive to the site conditions; that is, maximum allowable speeds may be too fast for certain sites / ground conditions.	USER USER	Yes	1
46	Excessive noise	Hearing loss	Operation Maintenance		17	Wear hearing protection	USER	Yes	3
47	Refuelling	Explosion Fire	Maintenance		14	When refuelling: • Keep away from ignition sources; • Do not smoke;	USER	Yes	3
48	Inadequate maintenance procedures.	Crushing Shearing Severing Injection	Maintenance		14	Ensure the person who performs maintenance is competent for the tasks to be carried out. Follow adequate maintenance schedule as provided by the manufacturer.	ADMIN USER	Yes	1

ID	Description of Hazard		Activity	Control Measure ALREADY Implemented	Risk Score	Further Recommended Control Measure	By Whom	Control Measure Practical ?	Risk Score
	Origin	Potential consequence							
49	Incorrect connection of hydraulic hoses.	Crushing Falling Injection	Maintenance		14	Carry out performance and function tests after any plant maintenance involving disconnection of hydraulic hoses.	ADMIN	Yes	1
50	Pressurised hydraulic reservoirs.	Injection	Maintenance		14	Follow established safe work procedures when working with pressurised equipment.	ADMIN	Yes	1
51	Other job site hazards	Slipping Falling Suffocation Crushing Burn	Operation	Job site hazards mentioned in operator's manual.	22	Perform job hazard and risk analysis of the job site and task to be performed. Follow a safe work method statement (SWMS) when performing high risk work activities.	USER USER	Yes	6
52	Plant modifications after completion of risk assessment.	Crushing Overturning	Set up Operation		22	Ensure modifications made to the plant are inspected, assessed, and approved by a competent person. Review hazard analysis and risk assessment after plant modifications.	ADMIN ADMIN	Yes	2

RISK PRIORITY CHART

RISK PRIORITY CHART						
LIKELIHOOD		CONSEQUENCE				
		A	B	C	D	E
		Insignificant (No treatment required)	**Minor** (first aid treatment only)	**Moderate** (Medical treatment and lost time)	**Major** (Serious injury, specialist treatment, hospitalisation)	**Catastrophic** (Death, permanent disability, multiple injuries)
1	**Rare** (Will happen in exceptional cases)	1	3	6	10	15
2	**Unlikely** (Not like to occur in foreseeable future)	2	5	9	14	19
3	**Possible** (May occur within foreseeable future)	4	8	13	18	22
4	**Likely** (Likely to occur within foreseeable future)	7	12	17	21	24
5	**Almost certain** (Expected in most cases)	11	16	20	23	25

RISK SCORE	ACTION
18 - 25: Very high	ACT NOW
10 - 17: High	Highest management decision required urgently
6 - 9: Moderate	Do something to address the risk
1 - 5: Low	OK for now. Record and review any changes

GENERAL NOTES

1. Table legend is as follows:
   a) **ID.** Hazard identification number;
   b) **Description of Hazard**: Brief description of identified potential source of harm
      - **Origin** – Source of potential hazard.
      - **Potential consequence** – Possible consequences / injuries in relation to the hazard identified.
   c) **Activity:** Phase of machine life cycle or activity being carried out.
   d) **Control measure ALREADY implemented:** Any control measure already in place to minimise the hazard
   e) **Risk Score**: Used to prioritise risks in order of importance from 1 to 25 (4 being the highest risk score and most significant).
      - **18 - 25: Very High** – **ACT NOW**. Urgent, do something about the risk immediately.
      - **10 - 17: High** – Highest management decision is required urgently.
      - **6 - 9: Moderate** – Follow management instructions.
      - **1 - 5: Low** – OK for now. Record and review if any equipment/ people/ materials/ work processes or procedures change.
   f) **Further recommended control measure**: Recommendation of control measures to be taken. All items on each hazard must be addressed in order to minimise / control the risk
   g) **By whom:** Person / entity responsible for executing the control measure
      - USER – Refers to machine operator(s), person responsible for daily operation of the plant.
      - ADMIN – Refers to plant owner, supervisor or manager responsible for the management or control of the plant.
      - AGENT – Refers to importer of the plant: LINGONG HEAVY MACHINERY CO., LTD.
      - OEM – Refers to Original Equipment Manufacturer: LINGONG HEAVY MACHINERY CO., LTD.
   h) **Control Measure Practical?** Is the recommended control measure economically and technically feasible?
   i) **Risk Score:** Risk score after the recommended control measure has been implemented.
2. The list of hazards identified in this report is by no means exhaustive. Although Engineering Design Innovations Pty Ltd has made every attempt to identify reasonably foreseeable hazards, no guarantee is given as to the completeness of this risk assessment.
3. This hazard identification and risk assessment report has been prepared based on the information available at the time of publication. Persons legally responsible for the use of the plant are responsible for regularly reviewing and identifying new and existing hazards, and to apply appropriate control measures to eliminate the hazard or manage the risk. Hazard identification and risk assessment are only the first two steps of risk management; it is the responsibility of the person legally responsible for the use of the plant to complete all steps of risk management.

4. Risk assessment has been performed in accordance with guidelines published by “Worksafe Australia” (Managing the Risks of Plant in the Workplace Code of Practice), and “AS 4024.1201-2014 Safety of machinery Part 1201: General principles for design - Risk assessment and risk reduction”.
5. Other hazards may arise due to factors such as plant deterioration due to poor maintenance, and the operator being unfit to work (due to illness, intoxication or other circumstances which will affect the operator's performance or concentration). It is the responsibility of the person legally responsible for the use of the plant to ensure it is adequately maintained, and operators are fit to work.
6. Refer to Appendix ‘A’ of AS/NZS 1418.10-2011 for list of hazards associated with operation of MEWPs.
7. Refer to Appendix ‘L’ of AS/NZS 1418.10-2011 for list of hazards associated with operation of electrically insulated MEWPs.