

Plant Hazard Identification and Risk Assessment

Plant information

Plant item:	2.5T LPG FORKLIFT Komatsu FG25-16 S/N 717155	Plant identification details (asset/plant no.):	HF225		
Project:					
Competency required to operate the plant:	LF – Forklift truck other than a pedestrian operated forklift truck) Certificate of Competency.				
List all legislation, codes of practice and Australian Standards applicable to this item of plant:					
WH&S Act 2011 WH&S Regulation 2011 Plant Code of Practice 2008 AS 2359 Section 6 Powered industrial Trucks Hazardous Manual Task Code of Practice 2011 How to Manage Health and Safety Risk Code of Practice 2011					
List other documentation relevant to this plant reviewed during this assessment? ie SWMS, SOPs, Manufacturer's Handbook.	SWMS Forklift Operations Operational Manual/Safety Operation KOMATSU Forklift.				
Assessment conducted by: Names and positions	ED HORWOOD OPERATIONS MANAGER			Date:	1 June 2017

Plant Hazard Identification and Risk Assessment

The following risk ranking criteria are used to assess the level of risk for the various aspects involved in a design. Higher risks require increased levels of control.

Consequence		Safety	Risk	Probability						
Substantial	Cannot achieve key team or major program milestone, > x days	Class 1 (Fatal Incident)		Almost Certain	Threat can be expected to occur. 75%-99%	5	10	18	23	25
Major	Major slip in key milestone or critical path impacted; X-X Days Slip	Class 1 (Permanent Injury)		Likely	Threat will quite commonly occur. 50%-75%	4	9	17	20	24
Moderate	Major slip in key milestone; not able to meet needed date, X-X Days Slip	Class 2 (Lost Injury Time)		Possible	Threat may occur occasionally. 25%-50%	3	8	13	19	22
Minor	Additional resources/re-planning required to meet need/key date, X-X Days Slip	Class 3 (Minor injury, medical treatment required)		Unlikely	Threat could infrequently occur. 10%-25%	2	7	12	15	21
Negligible	Minimal or no key impact on dates, X-X Days Slip	Class 3 (Slight injury First Aid)		Rare	Threat may occur in exceptional circumstance. 0%-10%	1	6	11	14	16

	Extreme Threat
	Very High Threat
	High Threat
	Moderate Threat
	Low Threat

Negligible	Minor	Moderate	Major	Substantial
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Note: Existing Safe Health and Work Method Statements (SH&WMS) etc are to be reviewed along with other control measures relating to the plant. If the assessment identifies that a SH&WMS etc is not fit for the purpose, note this as a corrective action required in the **Additional Controls** section.

Plant Hazard Identification and Risk Assessment

Maintenance and repair assessment (Complete this section for assessment of Major Maintenance and repair activities only – Minor maintenance, inspection and casual access by the operator to included in operational assessment)

Maintenance/repair being assessed:	Yes, records available.		
No. of employees working on (or likely to be working on) plant:	Depending on type of work – minimum 1		Estimate of duration of activity: 1 YEARS.
Type of activity:	Scheduled frequency.	Inspection By	Location of maintenance:
<input checked="" type="checkbox"/> Scheduled. As per KOMATSU Manufacturer's Handbook – Inspections to be carried out:	• Daily – (every 8 hours)	Operator	<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
	• Weekly – (every 100 hours)	Competent service fitter	<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
	• Monthly – (every 250 hours)	Competent service fitter	<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
	• 3 monthly – (every 500 hours)	Competent service fitter	<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
	• 6 monthly – (every 1000 hours)	Competent service fitter	<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
<input checked="" type="checkbox"/> Unscheduled.	When and if it malfunctions		<input checked="" type="checkbox"/> On site <input type="checkbox"/> Off site.
Competency requirements for maintenance: (e.g. electrical, welding, etc)	Only a trained, qualified person may inspect, maintain or repair forklift trucks. Only licensed gas fitters may repair and/or replace parts on LP gas powered forklift trucks. Only qualified tyre fitters should remove and fit tyres.		
References (Australian Standards, maintenance manuals etc):	WH&S Act 2011 WH&S Regs 2011 Plant Code of Practice 2008 AS 2359 Section 6 Powered industrial Trucks SWMS Forklift Operations - Operational Manual/Safety Operation KOMATSU Forklift.		

Plant Hazard Identification and Risk Assessment

Identified energy sources:	N/A		State method of isolation:	N/A
Other permit to work required?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If Yes, which permits:	N/A	

Plant Hazard Identification and Risk Assessment

Hazard identification and risk assessment during operations and/or maintenance activities									
Section 1 Put an X if the hazard does apply to the plant. Leave blank if the hazard does not apply to the plant.			Section 4 Then indicate the Consequence, Likelihood and Risk Rating .						
Section 2 Write where on the plant the hazard exists.			Section 5 Write the existing Controls and relevant Comments relating to additional controls required						
Section 3 Indicate when the exposure is likely to occur? During Operations (O), Maintenance (M) or Both (B).			Section 6 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 Where on this plant does this hazard exist?	SECTION 3 Exposure during O M or B?	Section 4			SECTION 5 Controls and comments	SECTION 6 Residual Risk		
			Consequence	Likelihood	Risk Rating		Consequence	Likelihood	Risk Rating
Entanglement - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	Engine compartment	B	Major	Possible	Very High Threat 19	Ensure hands, fingers and any other limbs are not exposed to any moving parts whilst completing pre-starts and/or maintenance works.	Major	Unlikely	High Threat 15
						Ensure machine is isolated in accordance with the project isolation and tag out procedure.	Major	Unlikely	High Threat 15
Crushing - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 type="checkbox"/> Exposed edges (falling) <input type="checkbox"/> Tools being dropped <input type="checkbox"/> Material falling or being ejected from working area <input checked="" type="checkbox"/> Moving components	Fork movements	B	Major	Likely	Very High Threat 20	Ensure trained and certified operators only operate and service machine.	Major	Possible	Very High Threat 19
						Ensure keys are removed when machine is unattended.	Major	Unlikely	High Threat 15

Plant Hazard Identification and Risk Assessment

<input checked="" type="checkbox"/> Plant overturning <input checked="" type="checkbox"/> Uncontrolled movement of loads.						Ensure before any maintenance work commences the personal danger tag is to be attached to the isolation source or ignition switch.	Major	Unlikely	High Threat 15
	Forklift operation	O	Major	Likely	Very High Threat 20	Ensure competent and certified ticketed operator stops machine if any personnel encroaches the work area.	Major	Possible	Very High Threat 19
						Operator to ensure forks are set as wide apart as the load allows and carry the load as close to the floor as possible.	Major	Unlikely	High Threat 15
Cutting/ Stabbing/ Puncturing - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 type="checkbox"/> Contact with flying parts or work pieces <input type="checkbox"/> Parts or work pieces breaking (disintegrating) <input type="checkbox"/> Work pieces ejected <input checked="" type="checkbox"/> Movement of plant or components <input type="checkbox"/> Isolation of energy sources <input type="checkbox"/> Body or body parts caught between moving components	Engine compartment	M	Major	Possible	Very High Threat 19	Ensure machine is switched off and key removed before any maintenance is undertaken.	Major	Unlikely	High Threat 15
Shearing - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Can anyone's body parts be cut off between two parts of the plant and a work piece or structure?									

Plant Hazard Identification and Risk Assessment

<input checked="" type="checkbox"/> Body or body parts caught between moving components <input type="checkbox"/> Isolation of energy sources <input type="checkbox"/> Body or body parts shear when passing structure.	Fork Movements	B	Major	Likely	Very High Threat 20	Operator to ensure forks are set as wide apart as the load allows and carry the load as close to the floor as possible.	Major	Possible	Very High Threat 19
						Maintenance personnel to ensure to set the park brake and lower the forks onto the floor or ground. Always remove the engine key.	Major	Unlikely	High Threat 15
Striking - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Can anyone be struck by moving objects due to plant or surfaces of the plant, or material handled by plant operation?									
<input type="checkbox"/> Uncontrolled or unexpected movement of plant (<i>warning sirens required</i>) <input type="checkbox"/> Uncontrolled or unexpected movement of components or material (<i>warning sirens required</i>) <input type="checkbox"/> Moving objects due to Parts or work pieces breaking (disintegrating) <input type="checkbox"/> Work materials protruding into travel path	Forklift during operations	O	Major	Possible	Very High Threat 19	Whilst completing Pre-start checklist ensure travel alarm and visual warning beacon are operational.	Major	Unlikely	High Threat 15
						Be aware of limited sight distance and blind spots when driving or operating	Major	Unlikely	High Threat 15
						No 'stunt' driving or horseplay while operating a machine	Major	Rare	High Threat 14



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Issue date 16/6/2013
 Review date 16/ 6/2017
 CFS Hire

Plant Hazard Identification and Risk Assessment

of Plant. <input checked="" type="checkbox"/> Normal movement of plant <input type="checkbox"/> Isolation of energy sources <input type="checkbox"/> Other (please specify) <hr/>						Do not operate unless properly trained to safely operate the machine	Major	Rare	High Threat 14
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Electricity (Shock or burns) Contact - Yes No

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?

Plant Hazard Identification and Risk Assessment

<input type="checkbox"/> Contact via damaged or poorly maintained electrical leads and cables <input type="checkbox"/> Overloading of electrical circuits <input type="checkbox"/> Isolation of electrical energy sources <input checked="" type="checkbox"/> Contact with or proximity to live electrical conductors <input type="checkbox"/> Contact via damaged electrical control devices <input type="checkbox"/> Contact via water entry <input type="checkbox"/> Other (please specify) <hr/>	Forklift operations	B	Substantial	Possible	Very High Threat 22	<p>Maintain safe distances from electrical power lines and apparatus in accordance with AS 2550.5, Electrical Safety Regulations 2002 Schedule 4 And as per manufacturers chart below:</p> <table border="1" data-bbox="1234 688 1556 1013"> <thead> <tr> <th rowspan="2">Voltage Phase to Phase</th> <th colspan="2">Minimum Safe Approach Distance</th> </tr> <tr> <th>Feet</th> <th>Meters</th> </tr> </thead> <tbody> <tr> <td>0 to 300V</td> <td colspan="2">Avoid Contact</td> </tr> <tr> <td>300V to 50KV</td> <td>10</td> <td>3.05</td> </tr> <tr> <td>50KV to 200KV</td> <td>15</td> <td>4.60</td> </tr> <tr> <td>200KV to 350KV</td> <td>20</td> <td>6.10</td> </tr> <tr> <td>350KV to 500KV</td> <td>25</td> <td>7.62</td> </tr> <tr> <td>500KV to 750KV</td> <td>35</td> <td>10.67</td> </tr> <tr> <td>750KV to 1000KV</td> <td>45</td> <td>13.72</td> </tr> </tbody> </table>	Voltage Phase to Phase	Minimum Safe Approach Distance		Feet	Meters	0 to 300V	Avoid Contact		300V to 50KV	10	3.05	50KV to 200KV	15	4.60	200KV to 350KV	20	6.10	350KV to 500KV	25	7.62	500KV to 750KV	35	10.67	750KV to 1000KV	45	13.72	Substantial	Unlikely	Very High Threat 21
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750KV to 1000KV	45	13.72																																	
<p>Explosion/Fire - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Can anyone be injured by an explosion of gas, vapours, liquids, dusts or other substances, triggered by plant operation?</p>						Substantial	Rare	High Threat 16																											
<input type="checkbox"/> Ignition of flammable atmosphere initiated by the plant <input type="checkbox"/> Ignition of flammable atmosphere initiated by material	Hot exhaust system	O	Major	Unlikely	High Threat 15	Do not operate forklift over or near flammable materials. Park forklift with rear end at least 30cm from timber, paper products and other similar materials to avoid combustion of those materials.	Major	Rare	High Threat 14																										

Plant Hazard Identification and Risk Assessment

<input checked="" type="checkbox"/> Ignition of flammable material by the plant <input type="checkbox"/> Ignition of flammable material by the process <input type="checkbox"/> Other (please specify) Housekeeping	Engine compartment	B	Major	Unlikely	High Threat 15	Do not operate the machine or charge/change the battery in hazardous locations or locations where potentially flammable or explosive gases or particles may be present.	Major	Rare	High Threat 14
<p>Slips/ Trips/ Falls - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Can anyone using the plant or in the vicinity of the plant, slip, trip or fall due to the working environment or other factors?</p>									



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Issue date 16/6/2013
 Review date 16/ 6/2017
 CFS Hire

Plant Hazard Identification and Risk Assessment

<input checked="" type="checkbox"/> Uneven or slippery work or access surfaces entering or exiting the plant <input type="checkbox"/> Housekeeping hazards produced by the plant <input type="checkbox"/> Material ejected or falling from the plant <input type="checkbox"/> Inadequate work platforms (size, location, fall protection) <input checked="" type="checkbox"/> Access (ladders, stairs, walkways) to and from the plant <input type="checkbox"/> Lack of guardrails or fall protection <input type="checkbox"/> Collapse of the supporting structure <input type="checkbox"/> Other (please specify) <hr/>	Access steps to forklift operators seat	B	Moderate	Possible	High Threat 13	Ensure foot and hand holds are free from dirt/oil and grease	Moderate	Unlikely	High Threat 12
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High Pressure Fluid - Yes No

Can anyone come into contact with fluids under high pressure, due to failure or misuse of the plant?

Plant Hazard Identification and Risk Assessment

<input checked="" type="checkbox"/> Contact with fluids or gas under pressure as part of normal operation <input type="checkbox"/> Contact with fluids or gas under pressure due to failure <input type="checkbox"/> Contact with fluids or gas under pressure due to misuse <input type="checkbox"/> Striking due to severed high pressure hoses/couplings <input type="checkbox"/> Stored energy in machine systems/accumulators counterweights <input type="checkbox"/> Isolation and bleeding of pressure energy sources <input type="checkbox"/> Other (please specify)	Oil lines - engines	M	Major	Unlikely	High Threat 15	Qualified trained service fitter only to repair or replace as required	Major	Rare	High Threat 14
Plant rolling over/ through limits - Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Can this item of plant roll or tip over due to operating over specified working limits?									
<input checked="" type="checkbox"/> Tip over hazards. <input checked="" type="checkbox"/> Upper and lower limits	Forks/Tynes.	O	Major	Likely	Very High Threat 20	The equipment and materials must not exceed the maximum load capacity as per load capacity chart located on the machine. The higher the lift, the lower the allowable load.	Major	Possible	Very High Threat 19

Plant Hazard Identification and Risk Assessment

						When carrying loads up or down a slope, go forwards up the slope and backwards down the slope. Do not turn on a slope as this may cause the forklift to tip over.			
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Working environment and ergonomics - Yes No

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?

Plant Hazard Identification and Risk Assessment

<ul style="list-style-type: none"> <input type="checkbox"/> Inadequate lighting levels <input type="checkbox"/> Glare from artificial light <input type="checkbox"/> Glare from natural light <input type="checkbox"/> Placement and identification of controls <input type="checkbox"/> Seating design or seating location <input type="checkbox"/> Human error or behaviour aspects (Human factors) <input type="checkbox"/> Manual handling tasks associated with the plant <input type="checkbox"/> Cramped or restricted work spaces (particularly for maintenance) <input type="checkbox"/> Noise levels <input type="checkbox"/> Vibration <input type="checkbox"/> Rain or moisture <input type="checkbox"/> Radiation (ionising – non ionising) <input type="checkbox"/> Biological <input checked="" type="checkbox"/> Location of plant in the workplace <input checked="" type="checkbox"/> Other (please specify) Heat and UV radiation 	Engine	B	Major	Possible	Very High Threat 19	Ensure adequate airflow when operating forklift.	Major	Unlikely	High Threat 15
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Plant Hazard Identification and Risk Assessment

Other Hazards – Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>									
Can anyone be injured or suffer ill health from exposure to:									
<input checked="" type="checkbox"/> Chemicals <input type="checkbox"/> Toxic Gases <input type="checkbox"/> Vapours <input checked="" type="checkbox"/> Fumes	Engine	B	Major	Possible	Very High Threat 19	Ensure adequate airflow when operating forklift.	Major	Unlikely	High Threat 15
	Batteries	B	Major	Possible	Very High Threat 19	Keep sparks, flames and lighted tobacco away from batteries	Major	Rare	High Threat 14
Condition and suitability of plant									
<input type="checkbox"/> Age and condition <input checked="" type="checkbox"/> Service and maintenance history <input type="checkbox"/> Frequency of use (high or low use or inappropriate duty cycle) <input type="checkbox"/> Not fit for purpose <input type="checkbox"/> Unsuitable accessories/fittings	Forklift Forklift not serviced and maintained as per scheduled frequency.	B	Major Risk	Possible	Very High Threat 19	Ensure maintenance timeframes are adhered to as per manufacturer's requirements. Operators to ensure daily pre-start checks are completed.	Major	Unlikely	High Threat 15

Plant Hazard Identification and Risk Assessment

<input type="checkbox"/> Inability to apply isolation/lock out devices <input type="checkbox"/> Accessories in unsafe condition <input type="checkbox"/> Use in arduous environment <input checked="" type="checkbox"/> Modification from original design <input type="checkbox"/> Other (please specify) <hr/>	Possible modifications to original design could cause further hazards or reduce structural integrity	B	Major	Possible	Very High Threat 19	Any modifications must be approved by forklift manufacturer. Adjustments and/or replacement parts must be completed by train authorised service personnel only.	Major	Unlikely	High Threat 15
System of work relating to the plant									
<input type="checkbox"/> Emergency procedures relating to the plant <input type="checkbox"/> Communication systems associated with plant operation <input type="checkbox"/> Communication	Operator	O	Major	Possible	Very High Threat 19	When parking the forklift, stop at a place where it will not be in the way of other machinery or vehicles.	Major	Unlikely	High Threat 15
						Apply the parking brake and lower the forks onto the floor or ground.	Major	Unlikely	High Threat 15

Plant Hazard Identification and Risk Assessment

methods with plant operation <input type="checkbox"/> Use of Permit to Work system <input checked="" type="checkbox"/> Start up and shut down procedures <input type="checkbox"/> Secure against unauthorised use/access <input type="checkbox"/> Storage or restoration to service requirements <input type="checkbox"/> Other (please specify)						Always remove the engine key.	Major	Unlikely	High Threat 15
Environmental issues causes failure									
<input checked="" type="checkbox"/> Inclement weather causes issues <input type="checkbox"/> Wind fowls cables and snags or breaks cable <input type="checkbox"/> Water impairs operation <input type="checkbox"/> Wind speed exceeds recommended limit <input type="checkbox"/> Other (please specify)	Forklift operations	O	Substantial	Possible	Very High Threat 22	Forklift must be operated in accordance with manufacture's specifications.	Substantial	Rare	High Risk 16
						Do not operate during lightning or storm	Substantial	Rare	High Risk 16
						Do not operate in strong or gusty winds	Substantial	Rare	High Risk 16



Plant Hazard Identification and Risk Assessment

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