




PLANT RISK ASSESSMENT

STEP 1: PLANT DETAILS, RAR 925 Mac 25 Terex Franna

Project: Detailed on RAR Cranes Job Dockets		
Company: RAR Cranes Australia	Phone No: 62996100	Date: Reviewed 25.11.2020.

Plant Provided: Pick & Carry Crane	
Make: Terex Franna	
Model: Mac 25	
Serial No.: 251079	
Dead Load of Plant: Tare 23920	
Design Safe Working Load of Plant (Lifting): 25T	
What is the plant to be used for on site: General Cranage, pick @ carry.	
What is the plant designed to do: Lift loads	
Safe Operating Conditions required particular to this Project: N/A	
Signed: 	Position: Safety Advisor
Name: Dick Garrety	Date: 25.11.20

QPP147.2



RISK ASSESSMENT

Pick & Carry Cranes



Risk Assessment

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WARNING

DO NOT OPERATE OR WORK ON THE CRANE UNLESS YOU HAVE READ & UNDERSTOOD THE INSTRUCTIONS AND WARNINGS IN THE OPERATOR'S AND MAINTENANCE MANUALS. FAILURE TO FOLLOW INSTRUCTIONS AND WARNINGS COULD RESULT IN DAMAGE TO THE CRANE; INJURY OR DEATH.



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RISK ASSESSMENT

A. GENERAL HAZARDS

RISK CONTROLS & GENERAL PRECAUTIONS

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| <p>A1. Unintended movement of plant due to clothing getting caught or tangled in control levers and mechanical parts.</p> | <p>A1. When driving or operating the machine, do not wear clothing with dangling parts, which might catch on control levers or mechanical parts. Wear appropriate personal protective equipment as necessary.</p> |
| <p>A2. Unintended movement of plant from operating wrong controls or errors in judgment.</p> | <p>A2. Do not operate the crane when you are excessively fatigued or unwell.
Read the Operators Manual & Risk Assessment ("this manual") thoroughly, familiarizing yourself with all controls before you start operating the crane.
Follow instructions and warnings in this manual and on plates and stickers mounted on the machine. If there is something you do not understand, have it explained to you. If the manual is lost, or a warning label is illegible, replace it.</p> |
| <p>A3. Fire and emergency response.</p> | <p>A3. Carry a fire extinguisher and first aid kit in the crane. Learn how to use the fire extinguisher before an actual emergency situation arises.</p> |
| <p>A4. Fire from handling chemicals.</p> | <p>A4. Do not smoke or use fire near fuel, oil, antifreeze, batteries or other chemicals, which could ignite.
Extinguish all fires and potential sources of ignition when handling these flammable materials.
Before refueling the crane, switch off the engine and check that there are no fires or potential sources of ignition nearby.
After refueling securely fasten all fuel and oil caps and wipe off any spillage.
Refuel and change oil in a well-ventilated work area.</p> |



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- B4.** Collision with other plant and structures.
- B4.** When operating a Pick & Carry crane, consider hazards such as overhead powerlines, nearby structures, other cranes, high obstructions and other mobile equipment within the crane working area.
- a. During articulating or reversing
 - b. From dirty windows and mirrors
 - c. From poor lighting.
 - d. From adverse weather conditions.
- a. When you need to articulate or reverse in areas of restricted visibility, place a guide or use a spotter and follow their instructions.
 - b. Keep the cab windows, mirrors, wipers and working lamps clean.
 - c. When working in areas with poor lighting switch on the lights. If required use additional illumination (mobile lighting can be hired from equipment hire places).
 - d. When visibility is bad due to fog, snow, rain, or other adverse weather conditions stop work and do not start again until conditions have improved.
- B5.** Collision with people or other vehicles when working on public roads
- B5.** When working on public roads, position a guide and erect fences, witches hats, etc. Observe all the traffic rules and safety regulations and laws of the Country or State where the crane is being used.
- B6.** Collision with objects and people working in the work area.
- B6.** Discuss your requirements with the site supervisor. If you consider that the people and equipment in the area has to be removed before you operate the crane, discuss it with the site supervisor so the necessary arrangements can be made.
- B7.** Electrocution from live overhead conductors. If you are working close to power cables you can also receive a shock even if the crane does not physically contact the cables.
- B7.** Take the following precautions when working near power cables.
- a. Contact the managing company in advance and arrange for electricity to be switched off (if possible), or arrange for cables to be fitted with protective devices .
 - b. Keep a safe distance between the machine and the power cables. Consult the electricity authorities on the location and voltage of cables on the site and the minimum isolation distance.
 - c. Use a spotter and follow their instructions.



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- B12.** The crane could tip over due to: **B12.**
- a. Strong windy conditions. Loads with large volumes or surface areas have larger wind forces acting on them. The wind forces and the loads from the suspended objects act on the crane and could cause the crane to tip over.
 - a. Stop work in strong windy conditions. If the wind has a gust speed of 10m/s or more, retract the boom, turn off the crane and get out of the machine. Resume work when the gust speed is below 10m/s.
 - b. Poor ground conditions.
 - b. Check that the ground conditions are stable and level over the entire intended path of travel. Do not operate the crane on unstable ground.
 - c. Rapid articulation.
 - c. Articulate the crane slowly and smoothly.



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| C4. | Slips, trips and falls when getting on or off the plant. | C4. | Take the following precautions when you get in and off the crane. <ul style="list-style-type: none">a. Check that all guards and covers on the machine are fastened correctly. Tighten any loose bolts or repair any damage.b. Wipe off any mud, oil or snow on the steps before you start work.c. Do not jump onto or off the machine.d. Do not hold onto the seat, control box, control levers or anything other than the hand-grips provided when you get on or off the machine.e. Do not get on and off the machine while it is moving. |
| C5. | Dropping of load | C5. | Check safety devices. Pick & Carry cranes are fitted with various safety devices which should be checked before starting work. |
| C6. | Crane overload or tip over in adverse working configuration. | C6. | Check the operation of the crane computer / Load Moment Indicator ("LMI") according to the pre-operational check procedure described in the Operators Manual (this manual should be kept in the crane cabin). |
| C7. | Failure of controls and/or mechanical parts of plant. | C7. | Before operating the crane check the machine according to the pre-operational checking procedure detailed in this manual. Check the operation of the control levers while the crane is not carrying any load.

Allow the crane to warm up before carrying full load.

Ensure that the crane is serviced regularly in accordance with this manual. |



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2. OPERATIONAL POTENTIAL HAZARDS & RISK CONTROLS

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B. HAZARDS WHEN OPERATING THE CRANE

RISK CONTROLS & GENERAL PRECAUTIONS

B1. Structural failure or tip over of the crane during operation.

Do not exceed the lifting capacity of the crane. If unsure of the lifting capacity, always check the rated lifting capacity chart. Lifting capacity varies with the boom length and working radius.

B2. Collision from swinging load or reduced stability of the crane.

Always check that all safety devices and warning systems are functioning properly. Do not operate a crane if any of the safety devices or warning systems are faulty.

Avoid sudden movement or violent operation of the crane. Operate the levers and pedals smoothly. Start, accelerate, decelerate, articulate and stop the crane smoothly and securely.

When lifting long loads tie a guide rope to each end of the load. This will prevent the load from swinging whilst it is being lifted.

Compound operations, such as combining winch hoisting or lowering, articulating, luffing and telescoping will be slower than the individual operations. When switching from compound to single operation, work the controls slowly and smoothly with no sudden change in speed or direction.

B3. Crane damage and tip over from using counterweights that are not specified.

Only use counterweights supplied by the manufacturer. Incorrect counterweights may subject the crane to unreasonable strain and damage it, or decrease the stability of the crane. For machines with variable counterweight (MAC25 all models, MAC25 SL all models, some AT-15 & AT-20 machines delivered to New Zealand), ensure the selection on the crane computer is correct before commencing lifting operations. Always refer to the correct load chart. Follow any warning provided in this manual or by the crane computer.



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- B8.** Dropping of load from insecure slings or hook. **B8.** To prevent the load from falling off or slipping out of the slings, pay attention to the following points when arranging the sling.
- a. The slings or chains should be of the right capacity and in good condition.
 - b. Arrange the slings so that they do not get tangled with each other.
 - c. The hook is fitted with a retainer to prevent the slings from slipping out. Check that the hook is in good condition and the retainer is operating correctly.
 - d. Place a protector (some soft material) to prevent the rope from damage where it comes into contact with the corner of the load, and elsewhere where the sling is prone to damage.
- B9.** Damage to the crane or reduced stability when working with a heavy load and long boom. **B9.** When lifting a load the boom flexes and increases the working radius. This is more noticeable with a very heavy load or long boom. Allow an extra margin below the rated lifting capacity to compensate for the increased working radius.
- B10.** Overload due the increased flexure of the boom when the load is lifted suddenly. **B10.** Lift the load off the ground carefully. Hoist the load vertically and pause briefly when the load is just off the ground to confirm the sling and that there is no overload. Then resume hoisting.
- B11.** Damage to crane or reduced stability if the load is lifted off the ground by luffing or extending the boom. **B11.** Never lift the load off the ground by luffing or extending the boom. Wait until the load is just off the ground before luffing or extending the boom.
- B12.** Damage or injury caused by personnel under the load when articulating. **B12.** Before moving the load sideways check that it is safe to do so. The path of the load or crane should be clear of people or obstructions.



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| <p>B15</p> | <p>Collision with obstacles from entanglement of wire rope during hoisting or articulating.</p> | <p>B15.</p> | <p>If the wire rope becomes entangled with an obstacle, carefully disentangle it without further hoisting or slewing. Place the load back on the ground and check that the wire rope is not damaged before resuming.</p> |
| <p>B16</p> | <p>Overload and tip over of the crane by sudden raising or lowering of the boom.</p> | <p>B16</p> | <p>Lower the load to the ground using the winch. Avoid sudden raising and lowering of the boom as it makes the crane prone to tipping over.</p> |
| <p>B17</p> | <p>People falling from height.</p> | <p>B17</p> | <p>Only lift people using a Terex approved man basket. A safety harness must be worn. Different states and countries have different safety regulations and laws. Always observe the laws of the state or country you are in.</p> |
| <p>B18</p> | <p>Damage to the boom or tip over of the crane if the load is not lifted from a position above its center of gravity.</p> | <p>B18</p> | <p>Never drag a load sideways, hoist it diagonally or drag it towards the crane. Luffing or hoisting to drag the load sideways or lift it diagonally subjects the crane to forces it was not designed for. These additional forces will damage the boom or cause the crane to tip over.</p> <p>Follow the signaler and lift the load vertically.</p> |



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C. HAZARDS WHEN CONTROLLING BOOM DERRICKING AND LOWERING:

RISK CONTROLS & GENERAL PRECAUTIONS

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| C1 | Reduced stability and possible tip over during luffing the boom. (When luffing the boom, the working radius increases as the angle of the boom decreases thus increasing the risk of tip over) | C1 | When luffing the boom, ensure that the load will not cause the crane to tip over at the largest radius. Refer to the load chart in this manual. |
| C2 | Damage to hook from overhoisting. | C2 | Terex Pick & Carry cranes compensate for the hook height below the boom head whilst telescoping in or out on boom 1 & 2. It is safe to two-block the hook block against the boom head with no load on hook for road travel. When lifting a load, care should be taken to prevent a load or hook block contacting the boom as damage may occur. The size of the lifting load must also be taken into account.

All MAC25 and MAC25SL models only compensate hook height on boom 1 & 2, but not for boom 3. The overhoisting protection device (anti two-block switch) is functions to stop boom 3 extending if contacted by the hook block. It is safe to override the anti-two block for road travel only. When lifting a load, care should be taken to prevent a load or hook block contacting the boom as damage may occur. The size of the lifting load must also be taken into account. |
| | | | Do not operate the crane if the overhoisting protection device is malfunctioning. |



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**E. HAZARDS WHEN
EXTENDING AND
RETRACTING THE BOOM**

RISK CONTROLS & GENERAL PRECAUTIONS

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| <p>E1. Abrupt stop from over-hoisted hoisted condition.</p> | <p>E1. Lower the hook sufficiently before extending the boom. Monitor the position of the hook block relative to the head of the boom. Care should be taken to prevent a load or hook block contacting the boom.</p> |
| <p>E2. Damage to the boom if used to push or pull objects (not applicable to DM type crane).</p> | <p>E2. Do not use the boom to push or pull objects as the crane is not designed for this. Loads must be freely suspended to move them.</p> |



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G. HAZARDS WHEN HANDLING THE JIB

RISK CONTROLS & GENERAL PRECAUTIONS

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| G1. | Jib breaking and falling off from overload. | G1. | When lifting an object, ensure that the load lifted is within the lifting capacity of the boom at the maximum working radius. |
| G2. | Injury due to manual handling while attaching jib | G2. | Follow instructions given in this manual for jib installation. Exercise caution while commanding crane movements. |



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3. POST-OPERATIONAL POTENTIAL HAZARDS AND RISK CONTROL

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4. INSPECTION AND MAINTENANCE POTENTIAL HAZARDS AND RISK CONTROL

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- A7. Mechanical failure through corrosion from oils contaminated with water.
- A7. When topping up or replacing fuel or hydraulic oil, take care to avoid the entry of water or other contaminants.
- Ensure that the oils are changed regularly according to the instructions in the crane service schedule.
- A8. Mechanical failure due to the use of incorrect oils, greases and filters.
- A8. Use only genuine Terex approved oils, greases and filters. The use of products not approved by Terex could void warranty. Terex will not in any way, accept responsibility for resultant accidents or breakdowns caused by the use of unapproved parts and/or products.
- A9. Environmental hazards from waste oil.
- A9. Drain waste oil from the crane into a proper container designed for the purpose. Dispose the waste oil in accordance with the regulations of the state or country. Never allow waste oil or other contaminants to get into the storm water system, streams, rivers or wetlands.
- A10. Injury or damage during cleaning.
- A10. When washing the crane take the following precautions:
- a. To prevent slipping wear slip-resistant boots.
 - b. High-pressure steam can cut skin, and splash dirt into the eyes. Wear suitable personal protective equipment (such as goggles) when using high-pressure steam.
 - c. Water sprayed on electrical equipment during washing can cause electrical shock or cause the equipment to fail. Ensure that all electrical equipment is protected from water over-spray and the electricity supply is fitted with a Residual Current Devices (RCD) to protect the operator from electrical shock.
- A11. Falling from height.
- A11. When working at heights take the following precautions:
- a. Keep the working area neat and tidy (no tools scattered around).
 - b. Wipe off any spilled oil or grease and walk carefully.
 - c. When climbing and descending, use the handgrips and platforms provided. Always support yourself on at least three points at a time.
 - d. Consider the use of additional safety devices such as fall arrest systems, lanyards, etc. if appropriate.



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**APPENDIX 1
WORKING ENVIRONMENT (SITE) CHECKLIST**