

Run-Up Procedure: Rack & Pinion Hoist

Novocastrian Rentals P/L ABN 27 110 725 623

1. Outline

This procedure is intended for Pre-Hire Inspection (Run-Up) of all Rack & Pinion Materials Hoists and details the inspection items as listed on Form 0505 “Run-Up Sheet: Rack & Pinion Hoist”. The results of the inspection are entered into the *TRACS Repair System* as a completed Work Order with the Repair Type of “RU”.

2. Preparation

Draw a copy of “Form 0505 Run-up Sheet: Rack & Pinion Hoist” from the office. Record the Hoist Equipment ID from the stamped number “DDGG-XXX” where “XXX” is the unique item number from the top of the rear stabiliser on the motor side. Enter the Hoist details, the Inspector’s name and the date.

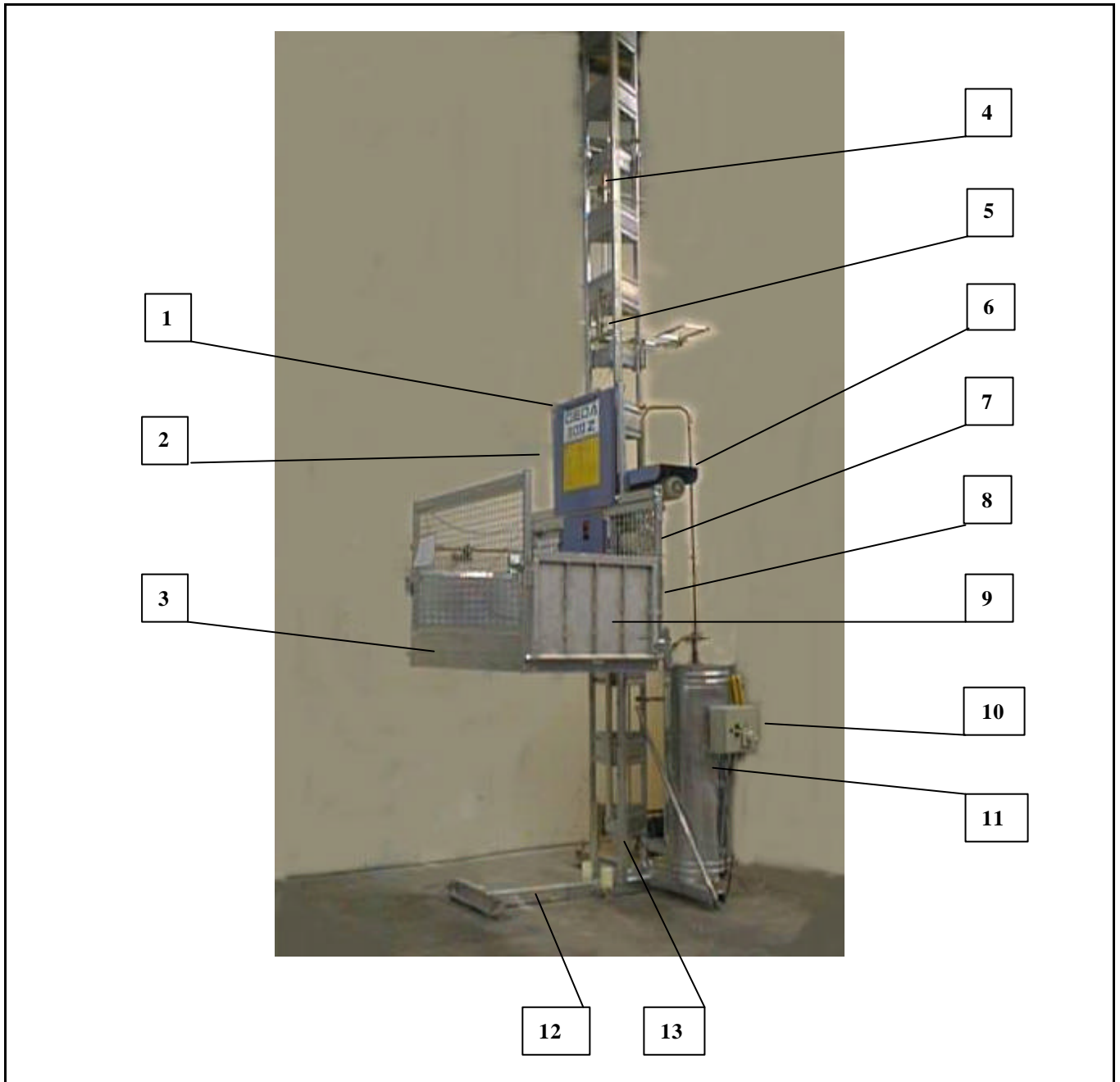
Place the Hoist on a firm level surface with sufficient clear working space around the Hoist. Ensure that there is adequate strong direct lighting.

The Inspector should read and thoroughly understand the operation and control of the particular Hoist before use, found in the Operating Instructions for the particular Hoist - see the Equipment Manual.

3. Glossary

<i>All Hoists:</i>	A reference to all Rack & Pinion Hoists.
<i>Geda Hoists:</i>	A reference to Hoists manufactured by Geda Dechintreiter only.
<i>Maber Hoists:</i>	A reference to Hoists manufactured by Maber Costruzioni only.
<i>Trolley:</i>	The part that is driven up and down the mast, and holds the load platform.
<i>Control Box:</i>	Electrical box mounted on the cable drum, containing the operating indicator lamps, main isolator key switch and landing gate interlock socket.
<i>Switch Box:</i>	Electrical box mounted on the Hoist trolley.
<i>Run Condition:</i>	Hoist condition where operation is possible and only the green indicator lamp on the <i>Control Box</i> is lit.
<i>Hoist Lockout:</i>	Hoist condition where operation is not possible due an <i>Interlock Switch</i> or the EMERGENCY-OFF control on the <i>Rigger’s Control</i> being set. This condition on the <i>Control Box</i> is shown on <i>Geda Hoists</i> when the top red lamp only is lit, and on <i>Maber Hoists</i> as no lamps lit.
<i>Gate Lockout:</i>	Hoist condition where operation is not possible due to the landing level gate interlock being set, or the EMERGENCY-OFF switch pressed on the <i>Pendant Control</i> . Both red lamps on the <i>Control Box</i> will be lit.
<i>Proximity Switch</i>	Electric switch that disables the Hoist function if metal is not sensed (no mast). A Hoist <i>Run Condition</i> is maintained.
<i>Interlock Switch</i>	Electric switch connected to a Hoist part that causes a <i>Hoist Lockout</i> condition when set.
<i>Working-Limit</i>	Electrical switch that controls normal travel range. When set, Hoist motion in that direction is disabled but the opposite direction is enabled. A Hoist <i>Run Condition</i> is maintained.
<i>Final-Limit</i>	<i>Geda Hoists</i> only. An electrical <i>Interlock Switch</i> controlling travel outside the normal range. When tripped, a <i>Hoist Lockout</i> condition is set, requiring use of a <i>Drop Test Control</i> to move the Hoist platform back into the normal travel range..
<i>Storey Stop</i>	An electrical <i>Interlock Switch</i> to stop the Hoist at a Landing Level when operating in Automatic Mode.
<i>Pendant Control</i>	Hand held control used to operate the Hoist under normal conditions.
<i>Rigger’s Control</i>	Used for erection of the Hoist. The control is platform mounted on <i>Geda Hoists</i> , and as a hand-held pendant on <i>Maber Hoists</i> .
<i>Drop Test Control</i>	Hand-held control used for performing Drop Tests on all <i>Geda Hoists</i> and later series <i>Maber Hoists</i> .
<i>Drop Test:</i>	Action where the effectiveness of the Overspeed Governor is tested.
<i>Manual Descent Device:</i>	A device for opening the motor brake to return the platform to ground.

Typical Rack & Pinion Hoist showing major parts



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|--------------------------|-------------------------|
| 1 Mast Guard | 8 Switchbox |
| 2 Rigger's Deck | 9 Loading Ramp |
| 3 Load Platform | 10 Control Box |
| 4 Working-Limit Actuator | 11 Cable Drum |
| 5 Storey Stop Actuator | 12 Base and Stabilisers |
| 6 Motor and Gearbox | 13 Base Mast |
| 7 Overspeed Governor | |

4. Hazard and Risk Assessment

A Hazard Assessment should be conducted before the start of work with this equipment and a Risk Management strategy adopted. Failure to use Risk Management could result in injury and/or death. The checklist should incorporate, but not be limited to the following:

Hazard	Risk	Control
Falling from mast or platform	Moderate	Do not climb out of the platform at height, use the Rigger's Deck for tie or maintenance work. Take care when entering or leaving the Rigger's Deck due to the opening between deck and handrail. Do not stand on the Rigger's Deck handrail. Use Height Safety equipment if adding more than two mast sections.
Collapse or Tipping of the Hoist	Moderate	Ensure Hoist is placed on a firm stable floor space and the Hoist base under the mast is in firm contact with the floor. Check all stabilisers are firm against the ground and the Hoist is level in all planes. Check mast bolts are tight. Ensure a tie to a firm structure is placed within the first 4m.
Crushing from parts of the Hoist	Moderate	Do not stand under a raised platform without bracing under the platform and electrically isolating the Hoist. Exercise care when lowering or performing a <i>Drop Test</i> on a Hoist. Do not allow body parts to come between Hoist parts. Take care when moving test weights.
Electrocution	Low	Inspect power supply lead and plug before use. Check the Hoist for electrical insulation (Mega test) before use. Do not operate with faulty electrical parts. Only use a protected power supply.
Part or whole of the load falling	Low	Ensure that test weights used are structurally sound and any loose parts are secured. Ensure the test weight will not move during Hoist operation. Take care when moving test weights. Ensure loose tools are not left on the Hoist during operation
Slipping or tripping	Low	Maintain a neat tidy work space. Hang all leads in the air.
Ergonomics	Low	Adopt good lifting techniques when adding/removing mast sections or loading/unloading the platform to reduce the risk of back injury.

5. Visual Inspection

The paragraphs below relate to the inspection items on Form 0505 "Run-up Sheet: Rack & Pinion Hoist" and are related by the alphabetical reference.

- A) Inspect the Annual Inspection plate on the motor cover. If the last Annual Inspection performed date is more than 1 year ago, then the Hoist must have an Annual Inspection performed before this Run-up is performed. Check that the Manufacturer's ID plate is present and readable. *Maber* plates are on the platform mast cover, *Geda* plates are found on the on the right hand side of the platform *Trolley*.
- B) Check the following signs are present and readable.

All Hoists

- 2off double sided "Load Capacity" signs attached to the platform meshed sides.
- 1off "Load Capacity" sign attached to the *Control Box*.
- 1off "Operator required" sign on the *Control Box*
- 1off "Conveyor & Hoist" sign on the *Control Box*.
- 1off "Electrical Hazard" sign on the *Switch Box*.
- 1off "Conveyor & Hoist" sign on the *Switch Box*.

Geda Hoists

- 1off Geda #17918 "Assembly" sign on the platform mast cover
- 1off Geda "Model" sign on the platform mast cover.
- 1off "Rigger's Control" sign on the *Switch Box*.
- 2off #17597 Geda "Warning" signs on the base mast.
- 1off "Governor Direction" sign on the Overspeed Governor cover.

- C) Ensure that current copy of the Operating Instructions for the type of Hoist is present in the Instruction Holder attached to the *Control Box*. Check the “Operating Instructions Enclosed” sign on the holder is readable
- D) Inspect the cable drum. Check the drum is undamaged, securely fixed to the Hoist and the cable is neatly wrapped in the drum. Check the cable feed arm is correctly aligned. Apply talcum powder to the cable as a lubricant.
- E) Inspect the motor/gearbox unit. Check securing bolts are tight. Check that the fan cover and motor cover are in good condition.
- F) Remove the Overspeed Governor cover and ensure the parts are in good condition. Check that the movable arms are free and have undamaged faces. Lubricate the Maber single arm with grease at the special grease nipple. Lubricate the two Geda arms with WD-40 or similar at the pivot points. Check the locking slots on the Governor base are undamaged. Check that the springs are undamaged.
- G) Inspect the drive sprocket, overspeed governor sprockets, rollers and retaining plates for condition.
- H) Inspect the base mast, including the drive rack. Check mast bolt tension. On *Geda Hoists* ensure the tear-away mast rack is undamaged. Lubricate mast if required.
- I) Check the condition and operation of the stabilisers, including the 5th under-mast stabiliser on *Maber Hoists*. Check all stabilisers are firm against the ground and that the Hoist is level in all planes. Inspect the bump rubbers and ensure they are not deformed.
- J) Inspect the Hoist platform. Check for damage to the meshing, guards, covers and floor. Dents in the floor may indicate overloading and the platform securing bolts or pins as well as the *Trolley* structure should be checked. Inspect the condition and operation of the loading ramps. Ramps should lock securely. Inspect the Rigger’s Deck. Fold-down the platform, check the platform decking and handrail for condition and stability. Ensure the Rigger’s Deck folds up and locks securely.
- K) Check the mast guard for condition and operation. Check the guard locks into it’s raised position effectively
- L) Inspect the *Control Box* and *Switch Box* for condition. Ensure the locks on the boxes work correctly and there is no internal damage, corrosion loose or altered wiring.

6. Interlock Tests

- M) Inspect the power lead and plug. Do not repair but replace any damaged item
- N) Have the Hoist electrically tested by a Competent person. Ensure the Hoist insulation and earthing is within requirements. Plug the Hoist into a power supply with an RCD, ELCB or other safety device fitted. Check that a current Electrical Test Tag is fitted.
- O) Check the operation of the key switch found on the *Control Box*. The key should only be able to be withdrawn when turned to “OFF”. Turn the key to “ON” and the green indicator lamp should light up. If not lit, refer to the section “Fault Finding” elsewhere in these instructions.
- P) Check all Hoist *Interlock Switches*. Open each of the following and check that a *Hoist Lockout* condition occurs:
All Hoists: each Platform Loading Ramp, Rigger’s Deck
Maber Hoists: Mast Guard, Taut Cable, Obstruction Guard
Geda Hoists: Overspeed Governor cover.
- Q) Check the Landing Gate interlock. Remove the dummy plug and check that a *Gate Lockout* condition occurs.

7. Hoist Controls Tests

- R) Inspect the pendant control housing and lead for condition. Check the Hoist controls as follows:
EMERGENCY-OFF pressed: *All Hoists*: check the Hoist will not operate.
Maber Hoists: *Hoist Lockout* condition.
Geda Hoists: *Gate Lockout* condition
Released: *All Hoists*: *Run Condition*. (Note: *Maber Hoist* green START button must be pressed before *Run Condition* is restored)
START BUTTON pressed: *Maber Hoists only*. Must be pressed after any interlock is set,
even if the green lamp on the control box is lit.

MODE SWITCH: on *Geda Hoists* only. This switch has been disabled and provides no function.

UP BUTTON: Press this button firmly and check the Hoist moves upwards. Hoist motion stops when button is released.

DOWN BUTTON: Press firmly and hold this button and check the Hoist moves downwards. Hoist motion stops when button is released.

- S) Check the *Proximity Switch* operation. Press the UP BUTTON and hold until the platform is raised to the top of the mast where the switch will cause the Hoist to stop, even though the green lamp on the *Control Box* is lit. Lower the platform to the ground.

- T) Change-over the control of the Hoist to the *Rigger's Control*. On *Geda Hoists*, check that the mode switch found on the *Switch Box* for condition and function. On *Maber Hoists*, unplug the *Pendant Control* and plug in the *Rigger's Control*.
Check the operation of the *Rigger's Control*. Confirm that operation of the **EMERGENCY-OFF** control will disable all Hoist functions and enforce a *Hoist Lockout* condition.

Load two mast sections on the platform and add these masts to the tower. Tie the mast to an adequate structure within 4m from the ground. Install the Working-Limit switch actuator and one Storey-Stop actuator. See the Assembly Instructions relevant to the manufacturer of the Hoist for addition method. The Inspector must carry a *Manual Descent Device* when rigging the mast.

- U) Run the Hoist up to the upper *Working-Limit Switch* and check that the Hoist stops automatically. Run the Hoist down to the lower *Working-Limit Switch* and check that the Hoist stops automatically.
- V) On *Geda Hoists*, raise the Hoist 1 metre to check the *Final-Limit Switch* from the rear of the *Trolley*. This is the switch on the right-hand side of the *Trolley*. Use a tool to trip the switch during first UP then during DOWN function. Check the Hoist stops and that the Hoist will not move when any function switch is pressed on the *Pendant Control*. Remove the tool and check that hoisting motion is restored.
- W) Check the operation in automatic mode.
Maber Hoists. Press the UP BUTTON to the first click and check the Hoist stops at the *Storey Stop*. Press the UP BUTTON again and raise the Hoist past the *Storey Stop*. Press the DOWN BUTTON to the first click and check the Hoist stops at the *Storey Stop*. Repeat the test but press the UP BUTTON completely down and check that the Hoist passes through the *Storey Stop*.
Geda Hoists. Press the UP BUTTON slightly and check the Hoist stops at the *Storey Stop*. Press the UP BUTTON again and raise the Hoist past the *Storey Stop*. Press the DOWN BUTTON and check the Hoist passes through the *Storey Stop*. Repeat the test but press the UP BUTTON completely down and check that the Hoist passes through the *Storey Stop*.

8. Performance Tests

- X) Load the platform with a load equal to the capacity of the Hoist. Place the test load as close to the mast as possible and ensure it does not move during Hoist operation. Raise the Hoist 1 metre and stop. Ensure the Hoist stops immediately and does not creep down. Raise the Hoist another metre and stop, checking the Hoist starts under load OK and stops immediately with no down-wards creep. Lower the Hoist 1 metre and check that the Hoist motion stops immediately with no downward creep.
- Y) Place an additional load equivalent to 25% of the rated capacity on the Hoist together with the test load from X). Do not operate the Hoist, but ensure there is no downward creep.
- Z) A *Drop Test* should be performed on *Maber Hoists* at three monthly intervals and at annual intervals on *Geda Hoists*. See Form 0509 "Procedure – Annual Inspection Rack & Pinion Hoists" for details
- AA) Record any parts used during Run-up Inspection in this space, using Part Numbers where possible
- BB) Record all Labour by all personnel involved in the Run-up Inspection, including overtime.

9. Fault Finding

Refer to separate Form 0510 Rack & Pinion Fault Finding

RUN-UP INSPECTION IS COMPLETE