Operator’s Instruction Manual

5 – 9 Tonne

Mach 564 – 6 Tonne Powerswivel

Mach 565 – 6 Tonne Front Tip
Thwaites Limited puts Safety First

It is the policy of Thwaites Limited to promote safety in the operation of its machines and to create a general awareness of site safety and safe working practices for the operators of its machines.

This Operator’s Instruction Manual is intended for both new and experienced machine operators. It should remain with the machine at all times. All operators should be aware of its location and contents.

It is important that all operators are fully trained and familiar with the machine and that they have read and understood the information contained within this book before they attempt to operate in the site conditions for which the machine was designed.

This book details practices and operations which Thwaites Limited recommends. DO NOT operate this machine in ways other than those detailed within this book.

This machine is designed for customary construction site operations, and the transportation of bulk materials commonly carried on such sites; that is their ‘intended use’. Under certain controlled conditions the dumper may be used for towing wheeled loads.

Due to the varied nature of the operation of site dumpers and the absence of an agreed test standard, any figures quoted by Thwaites in relation to vibration values and exposure are for reference purposes only. It is the responsibility of the employer to assess vibration exposure based on the actual site conditions, and operating practices, at the point of use.

**Hand Arm Vibration** - The daily exposure Action/Limit Values of between 2.5 - 5.0m/s² (A8) are unlikely to be exceeded in an eight-hour reference period.

**Whole Body Vibration** - The daily exposure can only be accurately determined at the point of use. This exposure must be managed in respect of the Action/Limit Values of 0.5 and 1.15 m/s² (A8) respectively.

Employers should not rely solely on published vibration figures when undertaking risk assessments. Depending on the site conditions, cycle times may need to be adjusted in order to reduce operator exposure levels.

Vibration values based on typical duty cycles are available on request from Thwaites. These may be used for reference purposes only.

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**Safety symbols**

- Attention!
- Be alert!
- Your safety is involved!
- Correct action
- Incorrect action/procedure which should NOT be carried out

**Signal words**

Signal words are used on the machine and within this manual to identify levels of hazard seriousness:

- **DANGER**
- **WARNING**
- **CAUTION**
1. Before operating this machine

Read operator’s instruction manual

1. Contact your Thwaites representative in case of further questions
2. Learn to operate this machine
3. Ensure you are fit to operate
4. Wear correct safety clothing and ensure that safety equipment is available

Complete checks in section 1 before starting the engine
1 Before operating this machine

Walk around the machine

Visually check the machine
1. Are the chassis lock and the skip lock disengaged?
2. Are the controls, crush zone or hydraulic rams clean, and clear of any debris?
3. Is the Roll-Over Protective frame (ROPS frame) secure, fully upright and undamaged?
4. Is the seatbelt anchorage secure and serviceable?
5. Are the covers and mudguards secure?
6. Are the hoses free from fluid leaks?
7. Are all safety decals legible?
8. Are the tyres free of cuts or splits?
9. Are all bolts tight and in position?
10. Have the daily maintenance tasks been performed? (See rear cover)

Report all faults immediately.

DO NOT OPERATE THE MACHINE UNTIL ALL FAULTS HAVE BEEN RECTIFIED

Complete checks in section 1 before starting the engine
1 Before operating this machine

Complete checks in section 1 before starting the engine

Mount the machine and check the controls

1. Use the grabrails and foot steps provided to manoeuvre into seating position. Face the machine at all times when mounting and dismounting.
2. Is the engine cover secure and locked?
3. Adjust the seat position for comfort and easy access to controls.
4. Fasten the seatbelt. Adjust accordingly for safety and comfort.
5. Is the hand brake ON?
6. Set the transmission to neutral.
7. Does the foot brake feel firm?
8. Do not operate the machine without understanding all its controls as described in the following pages.

A seatbelt MUST BE WORN when operating machines fitted with a ROPS frame.

WARNING
Complete checks in section 1 before starting the engine.
1 Control functions - in depth

Seat adjustment
Type 1:
A – Push down to set driver weight (seat empty)
   Push fully down and release to reset (seat empty)
B – Lift to slide seat assembly forwards/backwards
C – Lift to slide cushion forward and set backrest
Type 2:
E – Turn knob to set driver weight
F – Lift to slide seat assembly forwards/backwards
G – Lift handle to adjust backrest

Seatbelt
• Adjust length of belt when seated
• Press buckle blade into buckle lock
• Pull belt webbing through buckle blade to remove slack

Seatbelt should not be worn loose. It should pass comfortably across hip bones and not the abdomen

Throttle pedal - right foot
• Apply pressure to increase speed
• Release pressure to reduce speed

Foot brake - right foot
Apply pressure to slow or stop the machine

Dump valve pedal - left foot
Press down before each gear change - select gear, then release

Complete checks in section 1 before starting the engine
1 Control Functions - in depth

Forward/neutral/reverse lever (FNR lever) (powershuttle) - left hand
- Push forwards to travel in a forward direction
- Lever centred = neutral
- Pull back to travel in a reverse direction

Gear lever (powershift) - left hand
- Up changes - anti-clockwise selects gears 1 to 4
- Down changes - clockwise selects gears 4 to 1

Warning - Overspeed time delay sensor fitted

Gear lever (powershuttle only) - left hand

<table>
<thead>
<tr>
<th>Forward-left</th>
<th>Forward-right</th>
</tr>
</thead>
<tbody>
<tr>
<td>First gear</td>
<td>Third gear</td>
</tr>
<tr>
<td>Back-left</td>
<td>Back-right</td>
</tr>
<tr>
<td>Second gear</td>
<td>Fourth gear</td>
</tr>
</tbody>
</table>

Hand brake lever - right hand
- Use only when the machine is stationary (or in an emergency)
- Pull lever up to apply
- Push button and lower lever to release

An audible warning device is fitted to your machine. This will sound if the parking brake is engaged whilst forward or reverse is selected.

Complete checks in section 1 before starting the engine
1 Control functions - in depth

Steering wheel - both hands
- Turn the wheel clockwise to turn machine to right
- Turn the wheel anti-clockwise to turn machine to left

Ensure the non-steering hand is on the engine cover grabrail when using the spinner knob for low-speed single handed steering.

Tipping control lever (front tip models) - left hand
- Push forward to raise skip
- Push backward to lower skip

Tipping control lever (powerswivel models) - left hand
- Raise skip 100 mm (4") to disengage pivot centring lock
- Rotate skip to a central position (fully lowered) to automatically engage centring lock
- Raise skip and push lever to the right to rotate skip clockwise
- Raise skip and push lever to the left to rotate skip anti-clockwise
- Increased engine speed reduces cycle times

Movement of the bucket is disabled if the steering wheel is moved (steering is given priority).

Opening and closing the engine cover
- Insert ignition key and turn anti-clockwise to unlock
- Pull handle to release and raise cover
- Lower cover, secure and lock before driving

Complete checks in section 1 before starting the engine.
Complete checks in section 1 before starting the engine

1 Control Functions - in depth

Lowering and raising the ROPS frame
- Remove linch pins and withdraw frame lock pins
- Lower frame and insert lock pins and linch pins in new position
- Reverse the procedure to raise the frame
- Ensure all pins are secure before driving

Tipping lever lock (if fitted)
- Place yoke over tipping lever and secure with linch pin

Beacon stowage
- Unplug and remove beacon
- Secure beacon on bracket provided beneath bonnet

Battery isolator (*beneath engine cover*)
- Turn key anti-clockwise to isolate the battery power supply
2 How to START and STOP the engine

To start the engine

- Depress accelerator pedal fully and turn the key clockwise to the start position ‘S’.
  All panel lights self-test (illuminate) and should extinguish on start-up.
- Allow the engine to turn for a maximum of 15 seconds
  If the engine does not start within 15 seconds return key to ‘O’ and wait 30 seconds. Turn to ‘S’ again
- When the engine fires, release key. It will automatically spring to ‘R’ (run position).
  The engine is fitted with an automatic device to ensure ample fuel supply under cold start conditions and economic running.
  Position ‘H’ should only be used below -15°C
- Reduce accelerator pedal pressure to prevent over-revving.

To stop the engine

- Turn key to position ‘O’.

CAUTION

- If a panel light remains on switch engine off (turn key to ‘O’) and investigate the problem.
- Do not use unauthorised starting aids
- Do not tow or bump start

Complete checks in section 2 before loading the machine
2 Preliminary checks

Function checks - engine ON

Brakes
- Does the foot brake feel firm?
- Carry out the hand brake test *(described on next page)*
- If the hand brake is on, and a gear is selected, a buzzer will sound and the drive may be disconnected.
  Note: hand brake microswitch must be disconnected to carry out hand brake test *(described on next page)*

Steering
- Rotate steering wheel clockwise and anti-clockwise

Electrics
- Does the horn sound?
- Does the reverse alarm sound? *(optional)*
- Does the beacon flash?
- Do all lights work? *(optional)*: side, main, brake, indicators, hazard

Tipping lever
- Raise and lower skip
- Rotate skip clockwise and anti-clockwise *(swivel model only)*
Complete checks in section 2 before loading the machine

1. Apply hand brake
2. Disconnect microswitch; connect test socket
3. Start engine and allow a 1-minute warm-up
4. Depress dump valve pedal
5. Select third gear (61.5 kW engine)/fourth gear (74.5 kW engine)
   Note: Please check the vehicle identification plate (located on the side of the machine) to identify engine power.
6. Release dump valve pedal
7. Apply firm pressure on the foot brake pedal
8. Select forward drive (the buzzer will sound)
9. Slowly reduce brake pedal pressure
10. If the machine has not moved, use the throttle pedal to gradually increase the engine speed to full revs (20 seconds max)
    The machine should not move during these tests
11. Reduce engine speed to idle
12. Select neutral
13. Reconnect microswitch to original position

WARNING
Before testing the hand brake ensure the machine is on firm level ground and that there are no people around the machine. Release throttle and apply foot brake if the machine moves during the following test.

WARNING
Do not operate a machine that has moved during the above parking brake test.
2 Driving procedure and safe parking

Moving from rest and stopping
- Depress dump valve pedal
- Select first gear
- Release dump valve pedal
- Select forward or reverse
- Release hand brake fully (machine may move)
- Slowly depress accelerator and move away
- Hold steering wheel with both hands
- Remove foot from accelerator pedal
- Brake gently to a halt using foot brake

Changing speed/direction
- Depress dump valve pedal
- Select next gear
- Release dump valve pedal
- The machine must be stationary and the hand brake must be engaged before changing direction

After operating - park safely
- Always leave skip empty when not in use
- Ensure machine is on firm level ground
- Apply hand brake
- Engage transmission to neutral
- Fully lower skip, in a central position
- Set drive to neutral
- Stop engine and remove key
- Ensure machine cannot be started

CAUTION
- Novice operators should always start with forward motion on clear, level ground
- A low gear should always be selected when a driver is unfamiliar with machine type
Attention! Section 3 correct and incorrect working practices

DANGER
IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH

Working on gradients

Swivel Skip

- DO NOT exceed maximum stated gradients
- DO NOT turn across gradients
- DO NOT brake suddenly in wet, muddy, icy conditions or when operating on loose surfaces
- DO NOT run downhill with controls in neutral
- Travel straight up, down or along a gradient
- Keep speed to a minimum and use the foot brake to reduce speed when travelling down gradients
- Always engage hand brake when stopped on sloping ground to prevent movement, and in addition, chock wheels securely when leaving the machine unattended
- Always position swivel skip in central lock

Forward Tip

- DO NOT exceed maximum stated gradients
- DO NOT turn across gradients
- DO NOT brake suddenly in wet, muddy, icy conditions or when operating on loose surfaces
- DO NOT run downhill with controls in neutral
- Travel straight up, down or along a gradient
- Keep speed to a minimum and use the foot brake to reduce speed when travelling down gradients
- Always engage hand brake when stopped on sloping ground to prevent movement, and in addition, chock wheels securely when leaving the machine unattended
- Always position swivel skip in central lock
DANGER
IMMEDIATE HAZARDS WHICH WILL RESULT IN SEVERE PERSONAL INJURY OR DEATH

VISIBILITY
- Check ahead and behind machine before operation
- Be aware of low-visibility areas when operating
- Before operating, sound the horn to warn people in the immediate area

CRUSH ZONE
- Stay clear of articulation area when the engine is running
- Never operate the machine’s controls when standing on either side of machine

WORKING UNDER A RAISED SKIP
- Lock skip safety prop during maintenance
- Never work under an unproped skip
- When using skip safety prop engage tipping lever lock (if fitted)

Attention! Section 3 correct and incorrect working practices
HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH

LOADING THE MACHINE
- DO NOT exceed the machine’s rated capacity
- Apply hand brake, set transmission to NEUTRAL, turn engine OFF, disembark the machine and STAND CLEAR
- Clear debris from controls
- Ensure SAFE STABLE LOW load which allows good visibility
- Reduce payload if materials being carried are not free flowing

UNLOADING THE MACHINE
- Use STOPBOARDS and SUPPORT walls on trenches
- DO NOT tip bucket if load is sticking
- DO NOT discharge load when working on sloping ground

Attention! section 3 correct and incorrect working practices
Attention! Section 3 correct and incorrect working practices
**HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH**

**TOWING A TRAILER**
- Place ballast load in skip. This load should be a minimum of 25% of the machine’s rated payload.
- The gross weight to be towed plus the ballast load **MUST NOT** exceed rated payload of machine.
- **DO NOT** exceed maximum tow bar pull or vertical load.
- Towing must not be carried out on sloping ground.
- Always use a Thwaites-approved towing pin.

**TRANSPORTATION**
- Reverse machine slowly onto a suitable trailer.
- **DO NOT** drive the machine forward when loading.
- Apply hand brake.
- Stop engine.
- Chock wheels *(To prevent movement)*.
- Engage chassis locking bar.
- Secure to trailer.
- Ensure legal load *(Height/weight of trailer)*.

**Attention!** section 3 correct and incorrect working practices.
Attention! Section 3 correct and incorrect working practices

CAUTION
HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN MINOR PERSONAL INJURY OR PRODUCT OR PROPERTY DAMAGE

USING A CRANE TO LIFT THE MACHINE
- Tip skip fully forward (except 9 Tonne)
- Engage skip safety prop
- Engage chassis locking bar
- Lift using centre eye provided

HAND BRAKE
- DO NOT apply hand brake if machine is moving (except in an emergency)

SLOPING SURFACES
- DO NOT step on the rear mudguards’ sloping surfaces. Use tread grip area (if fitted) to raise or lower hinged ROPS.

HINGED ROPS
- Use grab handles, tread grips (if fitted) and steps when standing on the machine to lower the ROPS frame.
- Avoid wet surfaces.
### Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Reason</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine will not start</td>
<td>isolator switch is turned off</td>
<td>switch isolator switch on</td>
</tr>
<tr>
<td></td>
<td>FNR lever not in neutral</td>
<td>shift transmission to neutral</td>
</tr>
<tr>
<td></td>
<td>battery voltage too low</td>
<td>check battery and connections</td>
</tr>
<tr>
<td></td>
<td>faulty fuel supply</td>
<td>check fuel level and connections</td>
</tr>
<tr>
<td></td>
<td>electrical stop on fuel pump defective</td>
<td>check connections</td>
</tr>
<tr>
<td></td>
<td>circuit breaker tripped</td>
<td>reset (push to reset)</td>
</tr>
<tr>
<td>Complete loss of electrical functions</td>
<td>maxi fuse blown</td>
<td>rectify electrical fault and replace fuse</td>
</tr>
<tr>
<td>Starter motor will not operate</td>
<td>faulty battery</td>
<td>replace</td>
</tr>
<tr>
<td>Maxi fuse blown</td>
<td>faulty starter motor/solenoid</td>
<td>replace starter motor/solenoid and maxi fuse</td>
</tr>
<tr>
<td></td>
<td>(current drawn by solenoid exceeds 25A)</td>
<td>(only replace with a 30 amp fuse)</td>
</tr>
<tr>
<td></td>
<td>short circuit on main feed or starter solenoid cables</td>
<td>locate and repair</td>
</tr>
<tr>
<td>Engine stops soon after start-up</td>
<td>blocked fuel or air filter</td>
<td>replace fuel or air filter</td>
</tr>
<tr>
<td></td>
<td>air in fuel system</td>
<td>check fuel line connections</td>
</tr>
<tr>
<td>Black engine smoke</td>
<td>air filter clogged (Indicator red)</td>
<td>replace or clean air filter</td>
</tr>
<tr>
<td></td>
<td>fuel system defect</td>
<td>contact Thwaites dealer</td>
</tr>
<tr>
<td></td>
<td>wrong fuel</td>
<td>replace fuel and filter</td>
</tr>
<tr>
<td>Machine will not move when FNR lever is selected</td>
<td>hand brake applied – machine fitted with isolator</td>
<td>release hand brake lever</td>
</tr>
<tr>
<td><img src="image" alt="engine-oil-pressure" /></td>
<td>low oil level</td>
<td>top up engine oil</td>
</tr>
<tr>
<td><img src="image" alt="high-engine-temperature" /></td>
<td>radiator choked</td>
<td>clean radiator</td>
</tr>
<tr>
<td><img src="image" alt="low-coolant-level" /></td>
<td>top up coolant</td>
<td>adjust, or, if necessary, replace alternator belt</td>
</tr>
<tr>
<td><img src="image" alt="irregular-alternator" /></td>
<td>defective or loose alternator belt</td>
<td>clean oil cooler</td>
</tr>
<tr>
<td><img src="image" alt="transmission-oil-temperature" /></td>
<td>oil cooler choked</td>
<td>correct oil level</td>
</tr>
<tr>
<td><img src="image" alt="transmission-oil-pressure" /></td>
<td>over/under filled with oil</td>
<td>top up transmission fluid</td>
</tr>
<tr>
<td><img src="image" alt="low-brake-oil" /></td>
<td>low transmission fluid level</td>
<td>top up brake oil</td>
</tr>
<tr>
<td><img src="image" alt="warning-buzzer-sounds" /></td>
<td>check oil level/leaks</td>
<td>release hand brake</td>
</tr>
</tbody>
</table>

Always check panel warning lights, tripped circuit breakers or blown maxi fuse
### Data Chart – Powerswivel

#### Dimensions (mm)

<table>
<thead>
<tr>
<th>A. Length</th>
<th>5T</th>
<th>6T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4780</td>
<td>4780</td>
</tr>
<tr>
<td>B. Width</td>
<td>2135</td>
<td>2280</td>
</tr>
<tr>
<td>C. Height (ROPS frame &amp; Beacon)</td>
<td>3320</td>
<td>3300</td>
</tr>
<tr>
<td>D. Bucket lip height</td>
<td>1615</td>
<td>1670</td>
</tr>
<tr>
<td>E. Width over tyres</td>
<td>2100</td>
<td>2240</td>
</tr>
<tr>
<td>F. Wheelbase</td>
<td>2480</td>
<td>2480</td>
</tr>
<tr>
<td>G. Ground clearance</td>
<td>320</td>
<td>370</td>
</tr>
<tr>
<td>H. Bucket load height</td>
<td>1795</td>
<td>1850</td>
</tr>
<tr>
<td>I. Axle to rear</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>J. Tipping ground clearance</td>
<td>1050</td>
<td>1100</td>
</tr>
<tr>
<td>K. Tipping tyre clearance</td>
<td>540</td>
<td>550</td>
</tr>
<tr>
<td>L. Height tipped (skip)</td>
<td>3650</td>
<td>3694</td>
</tr>
<tr>
<td>M. Max height without ROPS frame</td>
<td>2190</td>
<td>2230</td>
</tr>
<tr>
<td>N. Tipping side clearance</td>
<td>140</td>
<td>100</td>
</tr>
<tr>
<td>P. Tyre clearance diameter (m)</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Q. Height (ROPS frame folded)</td>
<td>2170</td>
<td>2230</td>
</tr>
</tbody>
</table>

#### Weight (kg)

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unladen</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front axle</td>
<td>1680</td>
<td>1780</td>
</tr>
<tr>
<td>Rear axle</td>
<td>2420</td>
<td>2490</td>
</tr>
<tr>
<td>Total</td>
<td>4100</td>
<td>4270</td>
</tr>
<tr>
<td><strong>Laden (including driver at 80 kg)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated payload</td>
<td>5000</td>
<td>6000</td>
</tr>
<tr>
<td>Front axle</td>
<td>6805</td>
<td>7420</td>
</tr>
<tr>
<td>Rear axle</td>
<td>2375</td>
<td>2930</td>
</tr>
<tr>
<td>Total</td>
<td>9180</td>
<td>10350</td>
</tr>
</tbody>
</table>

#### Towbar (Max)

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull load</td>
<td>3750</td>
<td>4500</td>
</tr>
<tr>
<td>Vertical load</td>
<td>1300</td>
<td>1500</td>
</tr>
</tbody>
</table>

#### Tyre Pressure

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar (psi) front</td>
<td>4.9(71)</td>
<td>3.9(57)</td>
</tr>
<tr>
<td>rear</td>
<td>2.5(36)</td>
<td>2.5(36)</td>
</tr>
</tbody>
</table>

#### Noise

- **Airborne (10 m)**
  - Naturally aspirated: 102 dB
  - Turbo: 103 dB
- **Operator**: 84 dB

Hyd mainline pressure - 170 bar
### Dimensions (mm)

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
<th>7T</th>
<th>9T</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Length</td>
<td>4438</td>
<td>4440</td>
<td>4450</td>
<td>4615</td>
</tr>
<tr>
<td>B. Width</td>
<td>2165</td>
<td>2354</td>
<td>2354</td>
<td>2485</td>
</tr>
<tr>
<td>C. Height (ROPS frame &amp; beacon)</td>
<td>3320</td>
<td>3390</td>
<td>3390</td>
<td>3625</td>
</tr>
<tr>
<td>D. Bucket lip height</td>
<td>1600</td>
<td>1610</td>
<td>1610</td>
<td>1740</td>
</tr>
<tr>
<td>E. Width over tyres</td>
<td>2100</td>
<td>2240</td>
<td>2240</td>
<td>2440</td>
</tr>
<tr>
<td>F. Wheelbase</td>
<td>2480</td>
<td>2480</td>
<td>2480</td>
<td>2615</td>
</tr>
<tr>
<td>G. Ground clearance</td>
<td>330</td>
<td>370</td>
<td>370</td>
<td>447</td>
</tr>
<tr>
<td>H. Bucket load height</td>
<td>1700</td>
<td>1740</td>
<td>1780</td>
<td>1975</td>
</tr>
<tr>
<td>I. Axle to rear</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1197</td>
</tr>
<tr>
<td>J. Tipping ground clearance</td>
<td>310</td>
<td>340</td>
<td>340</td>
<td>436</td>
</tr>
<tr>
<td>K. Tipping tyre clearance</td>
<td>574</td>
<td>520</td>
<td>520</td>
<td>642</td>
</tr>
<tr>
<td>L. Height tipped (skip)</td>
<td>2479</td>
<td>2505</td>
<td>2505</td>
<td>2800</td>
</tr>
<tr>
<td>M. Max height without ROPS frame</td>
<td>2190</td>
<td>2230</td>
<td>2230</td>
<td>2400</td>
</tr>
<tr>
<td>P. Tyre clearance diameter (m)</td>
<td>12.4</td>
<td>12.6</td>
<td>12.6</td>
<td>13.5</td>
</tr>
<tr>
<td>Q. Height (ROPS frame folded)</td>
<td>2190</td>
<td>2230</td>
<td>2230</td>
<td>2475</td>
</tr>
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</table>

### Weight (kg)

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
<th>7T</th>
<th>9T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unladen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front axle</td>
<td>1390</td>
<td>1490</td>
<td>1530</td>
<td>1740</td>
</tr>
<tr>
<td>Rear axle</td>
<td>2480</td>
<td>2590</td>
<td>2590</td>
<td>2860</td>
</tr>
<tr>
<td>Total</td>
<td>3870</td>
<td>4080</td>
<td>4120</td>
<td>4600</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>6T</th>
<th>7T</th>
<th>9T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Laden (including driver at 80 kg)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated payload</td>
<td>5000</td>
<td>6000</td>
<td>7000</td>
<td>9000</td>
</tr>
<tr>
<td>Front axle</td>
<td>5525</td>
<td>6525</td>
<td>7455</td>
<td>8740</td>
</tr>
<tr>
<td>Rear axle</td>
<td>3425</td>
<td>3635</td>
<td>3745</td>
<td>4940</td>
</tr>
<tr>
<td>Total</td>
<td>8950</td>
<td>10160</td>
<td>11200</td>
<td>13680</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>5T</th>
<th>6T</th>
<th>7T</th>
<th>9T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Towbar (Max)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pull load</td>
<td>3750</td>
<td>4500</td>
<td>5250</td>
<td>5250</td>
</tr>
<tr>
<td>Vertical load</td>
<td>1300</td>
<td>1500</td>
<td>1500</td>
<td>1500</td>
</tr>
</tbody>
</table>

### Tyre pressure

<table>
<thead>
<tr>
<th></th>
<th>4.0(58)</th>
<th>3.5(51)</th>
<th>3.9(57)</th>
<th>3.2(46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar (psi) front</td>
<td>2.5(36)</td>
<td>2.7(39)</td>
<td>3.0(44)</td>
<td>1.6(24)</td>
</tr>
<tr>
<td>Operator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Noise

- **Airborne (10 m)**
  - Naturally aspirated: 102 dB
  - Turbo: 103 dB

### Other

- Hyd mainline pressure - 170 bar
This machine must be serviced after first 100 hours

Normal service intervals: 250 hours 500 hours 1000 hours 2000 hours

Contact local Thwaites Distributor for details or www.thwaitesdumpers.co.uk

Note: failure to use Thwaites-approved lubricants may invalidate your warranty