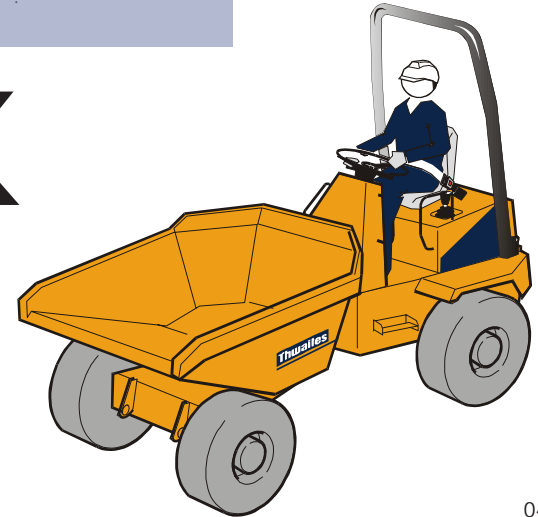
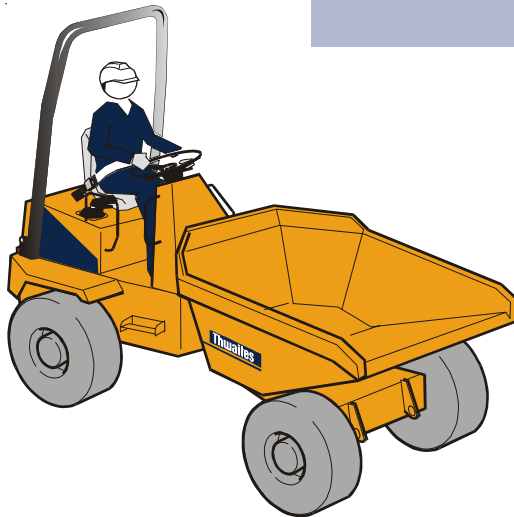


OPERATOR
INSTRUCTION
MANUAL

UK



Thwaites Limited put 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 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 recommend. 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.

Safety Symbols.



- Attention!
- Become 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



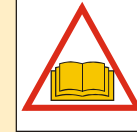
CAUTION

1 Before You Operate This Machine



Read Operator Instruction Manual.

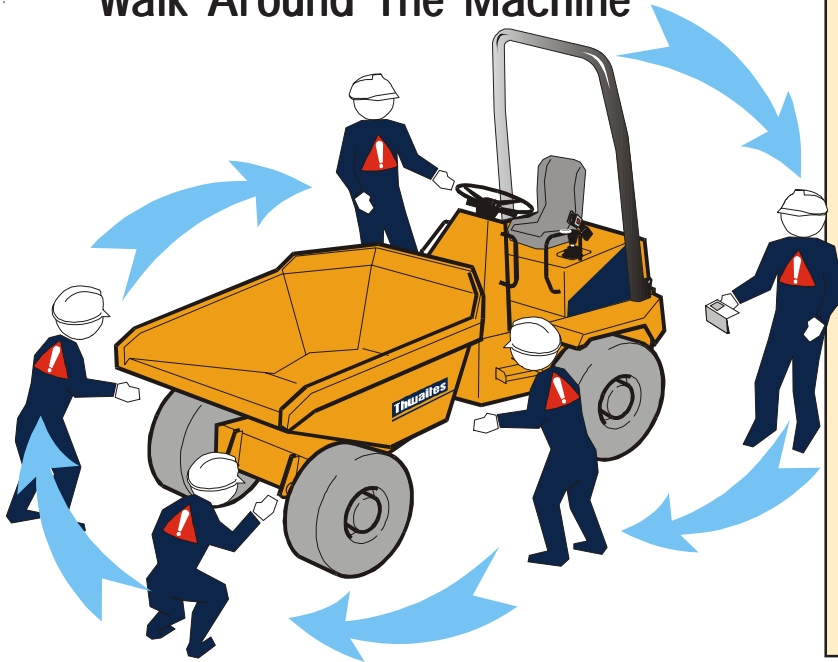
1. Questions - contact:
Thwaites representative.



2. Learn to operate this dumper.
3. Ensure you are fit to operate.
4. Wear correct safety clothing and ensure safety equipment is available.

Complete Checks in Section **1** Before Starting The Engine

Walk Around The Machine



Visually Check The Machine

- 1 Chassis/Skip Locks - Disengaged.
- 2 Controls/Crush Zone/Rams - Clean/Clear debris.
- 3 Roll Over Protective (ROPS) frame - Secure/Fully upright/Undamaged.
- 4 Seatbelt Anchorage - Secure/Serviceable.
- 5 Covers and Mudguards - Secure.
- 6 No Fluid Leaks.
- 7 All Labels - Legible.
- 8 Tyres - No Cuts/Splits.
- 9 Bolts - Tight/In Position.
- 10 **Perform Daily Maintenance Tasks.**
(See Rear Cover)
11. Report all faults immediately. ✓



**DO NOT OPERATE UNTIL ALL
FAULTS HAVE BEEN RECTIFIED.**

1 Before You Operate This Machine



Mount Machine & Check Controls

- 1 Use grabrails and footsteps provided to reach machine seat.
(Mount and dismount facing machine).
- 2 Engine Cover - Secure/Locked.
- 3 Seat - Adjust for Comfort/Reach.
- 4 Wear Seatbelt (If fitted) - Adjust.
- 5 Check Parking Brake - ON.
- 6 Controls - to Neutral.
- 7 Foot Brake - Pressure.
- 8 Learn and check all control functions explained in the following pages.



WARNING

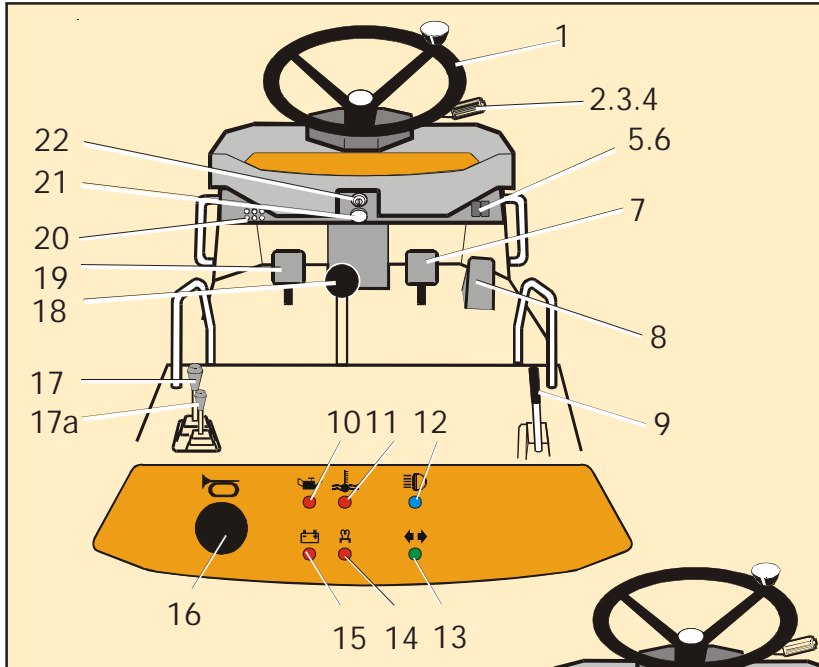
Seatbelt **MUST BE WORN** when operating machines fitted with Roll Over Protective frame.

Complete Checks in Section



Before Starting The Engine

1 Controls Function - Layout

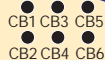


Controls Location & Functions

1. Steering Wheel.
2. Direction Indicator Selector - Forward = Left turn - Back = Right turn.*
3. Lights - Twist 1 = Sidelights ON - Twist 2 = Dipped headlights ON.*
4. Up = Flash. Down = Main beam.*
5. Hazard Warning Light Switch.*
6. Beacon Switch.
7. Foot Brake Pedal.
8. Throttle Pedal.
9. Parking Brake Lever.
10. Engine Oil Pressure Warning Light.
11. Water Temperature Warning Light.
12. Headlamp Main Beam Pilot light.*
13. Direction Indicator Pilot Light.*
14. Heat/Start Pilot light.
15. Battery Charging Warning Light.
16. Horn Push.
17. Bucket Raise/Lower/Rotate Lever.
- 17a. Lift/Lower (Hi Swivel only)
18. Gear Lever.
19. Clutch Pedal (Start Inhibitor).
20. Circuit Breakers (Push to reset).
21. Ignition & Parking Brake Warning Buzzer.
22. Ignition Switch.

* Optional items

- 20
- CB1 Fuel/Direction Solenoids.
 - CB2 Instrumentation/Warning.
 - CB3 L/H Sidelights.*
 - CB4 R/H Sidelights.*
 - CB5 Ignition Fed Lights.*
 - CB6 Battery Fed Lights.*

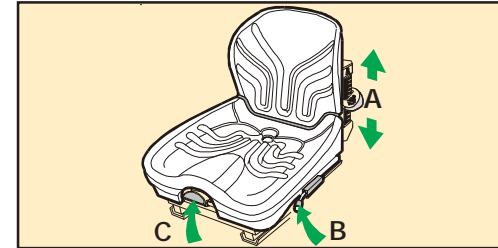


Complete Checks in Section **1** Before Starting The Engine

1 Controls Function - Explained

Seat Adjustment

- 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.

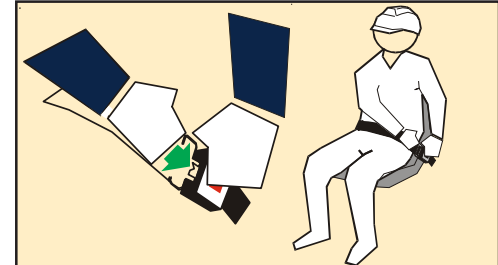


Seatbelt (If Fitted)

- Adjust length of belt when sitting on machine.
- 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.



(8)- Throttle Pedal - Right Foot

- Press down pedal, to increase speed.
- Lift pressure from the pedal to reduce speed.

(7) - Foot Brake Pedal - Right Foot

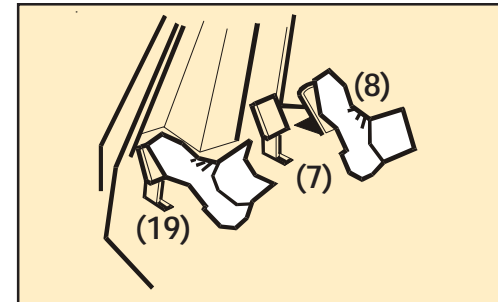
- Push down on the pedal to slow/stop the machine.

(19) - Clutch Pedal - Left Foot

- Press down before each gear change - select gear and release.



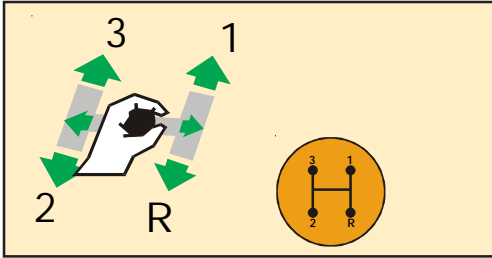
Start inhibitor fitted - press down clutch pedal before starting engine.



Complete Checks in Section 1 Before Starting The Engine

1 Controls Function - Explained

Thwaites



(18) Gear Lever - Left Hand

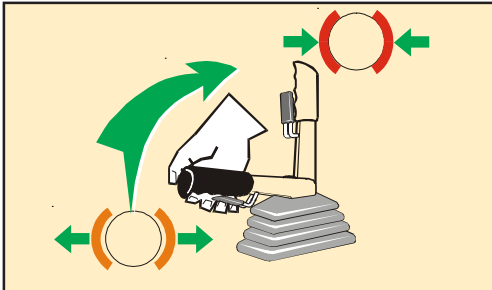
Forward Left
Third Gear

Forward Right
First Gear

Neutral

Back Left
Second Gear


Back Right
Reverse

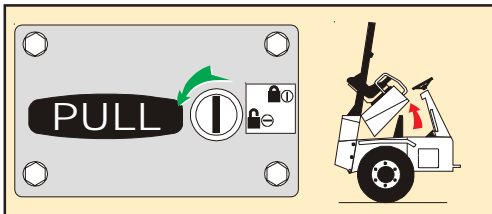


(9) Parking Brake Lever - Right Hand

When the machine is stationary (or in an emergency):
Pull up to apply.

Pull catch and lower to release.

 *An audible warning device is fitted to your machine.
This will sound when the parking brake is engaged.*



Engine Cover Open/Close

Insert ignition key and turn anticlockwise to unlock.
Pull handle to release and raise cover.
Lower cover, secure and lock before driving.

Complete Checks in Section  Before Starting The Engine

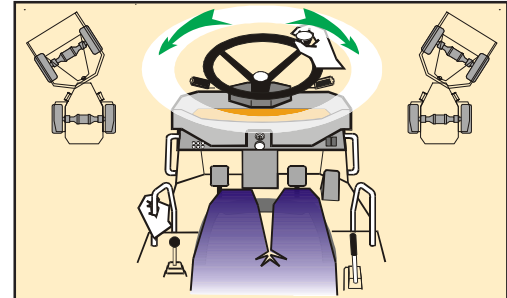
1 Controls Function - Explained

(1) Steering Wheel - Both Hands

Turn the wheel to the right (*clockwise*) to turn machine to right.
Turn the wheel to the left (*anticlockwise*) to turn machine to left.



When using the spinner knob for low speed single handed steering ensure the non steering hand is on the engine cover grab rail.



(17) Tipping Control Lever (Forward Tip Models) - Left Hand

Push forward to discharge bucket.
Push backwards to park bucket.

(17) Tipping Control Lever (Swivel Models) - Left Hand

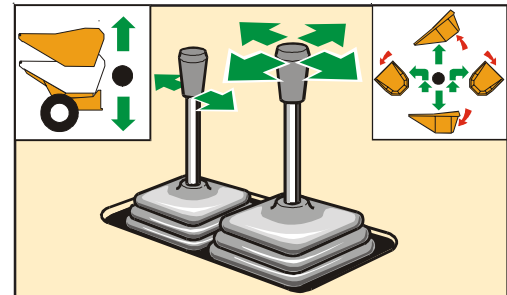
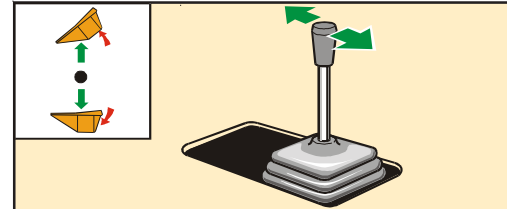
Raise bucket 100 mm (4") to disengage pivot centring lock.



Rotate skip, fully lowered, to automatically engage centring lock.
Raise bucket and Push lever to the right to rotate bucket to right.
Raise bucket and Push lever to the left to rotate bucket to left.
Increased engine speed reduces cycle times.



Movement of the bucket is disabled if the steering wheel is moved (Priority Steering).



(17a) Hi/Low Control Lever (Hi Swivel Models) - Left Hand

Push forward to raise bucket.
Push backwards to lower bucket.

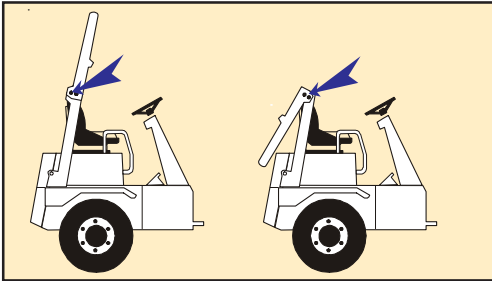
Complete Checks in Section



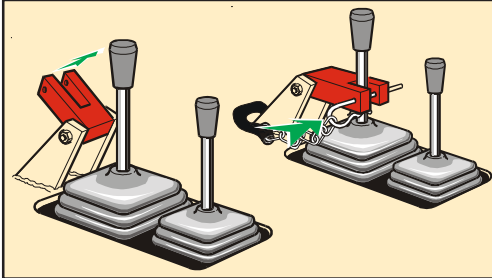
Before Starting The Engine

1 Controls Function - Explained

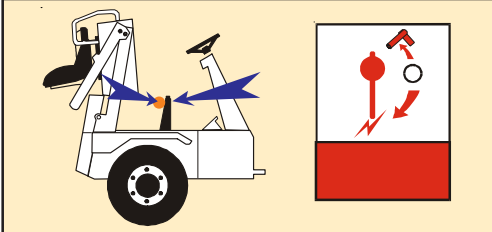
Thwaites



Folding Roll Over Protective Frame - Lower & Raise *(Optional)*
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 *(Optional)*
Place yolk over tipping lever and secure with linch pin.

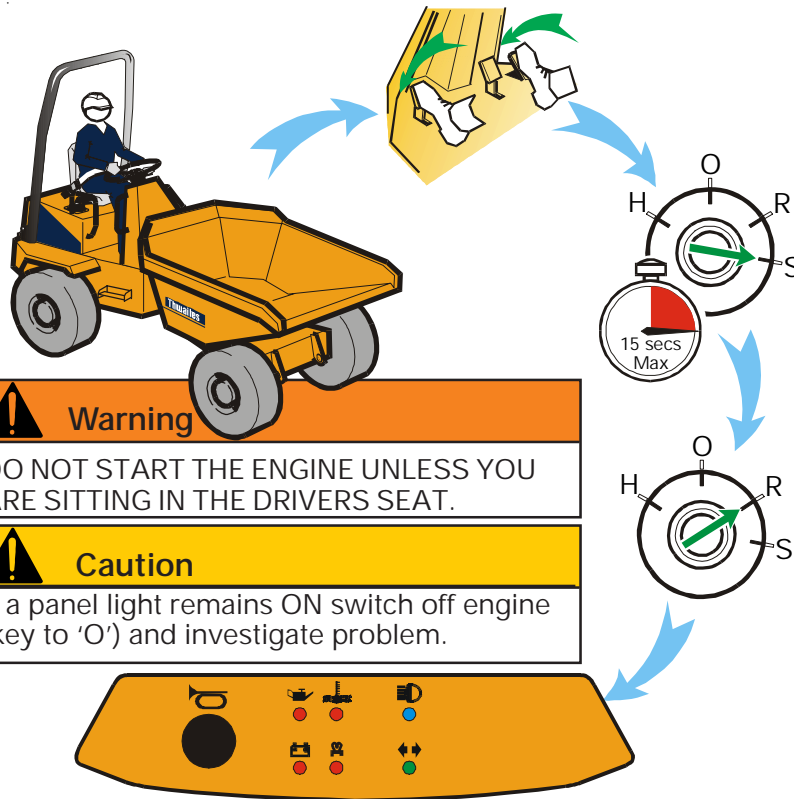


Beacon Stowage *(Optional)*
Unplug and remove beacon.
Secure beacon on bracket provided beneath bonnet.

Battery Isolator *(Beneath engine cover)*
Turn key anticlockwise to isolate the battery power supply.

Complete Checks in Section 1 Before Starting The Engine

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 15 seconds max.
If the engine does not start within 15 seconds return key to position O and wait 30 seconds before turning to S again.
- When the engine fires, release key.
(Springs back to 'Run' position (R)).
- Reduce accelerator pedal pressure to prevent over revving.
Cold Start Aid -
Turn key to position (H). When panel Light extinguishes start engine (as above).

To Stop The Engine

- Turn key to position (O).



Caution

Do not use unauthorised starting aids.
Do not TOW or BUMP start.

Warning

DO NOT START THE ENGINE UNLESS YOU ARE SITTING IN THE DRIVERS SEAT.

Caution

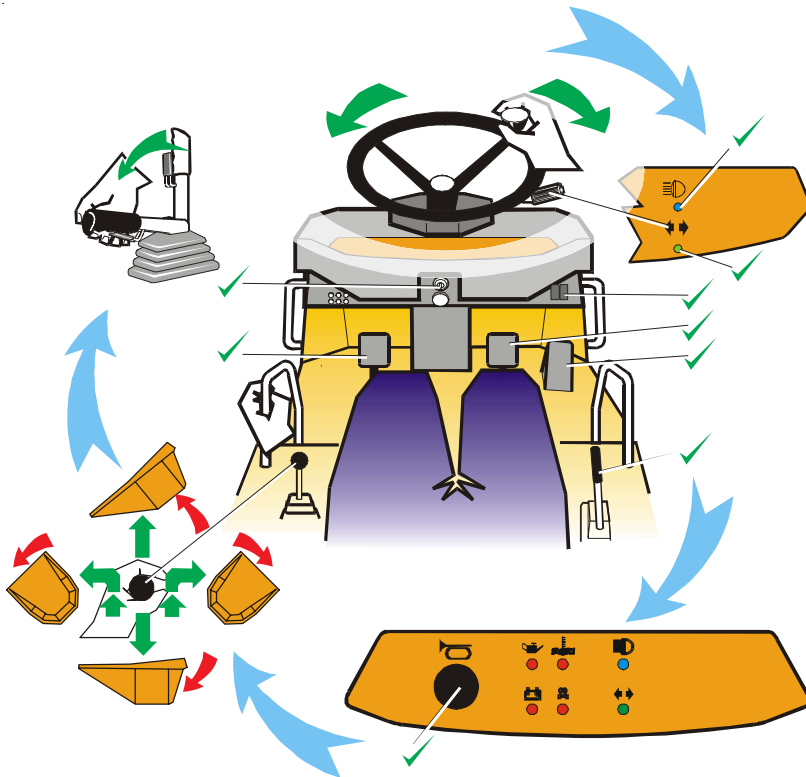
If a panel light remains ON switch off engine (key to 'O') and investigate problem.

Complete Checks In Section

2

Before Loading The Machine

2 Check the following Control Functions



Function Checks - Engine ON

Brakes

- Foot Brake pedal for firm feel.
- Parking Brake.
Carry out Park Brake Test *(Described on next page).*

Steering

- Rotate steering wheel left to right - right to left.

Electrics

- Horn Sounds.
- Reverse Alarm sounds (Optional).
- Beacon Flashes.
- Lights (Optional)-
Side
Main
Stop
Indicators
Hazards

Tipping Lever

- Discharge/Park Bucket.
- Rotate - Right to left/Left to Right.
(Swivel model only).

Lift/Lower Lever

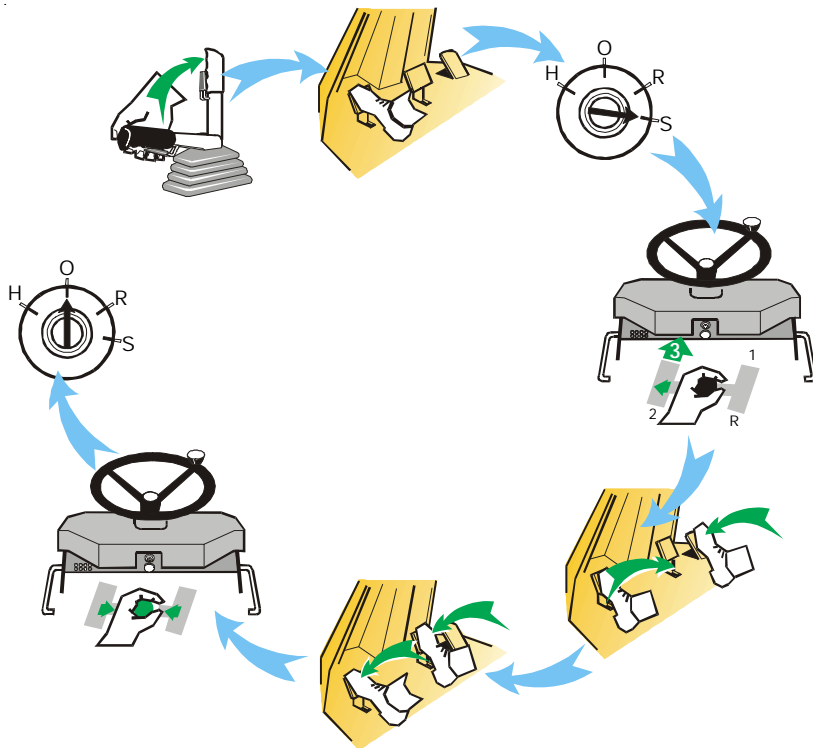
- Raise/Lower bucket.
(Hi Swivel only)



Complete Checks In Section **2** Before Loading The Machine

2 How to Test the Parking Brake


Thwaites



Warning

Before testing Parking Brake ensure the machine is on firm level ground and the area is clear of people.

- Apply parking brake .
- Depress clutch pedal and start engine.
- Select 3rd gear.
- Use the throttle pedal to gradually increase engine speed to full revs.
- Gradually release the clutch pedal.
- Release throttle and apply clutch and foot brake if the machine moves forwards.

 You should be able to stall the engine before the machine moves.

- Select neutral.
- Turn ignition key to off position.



Warning

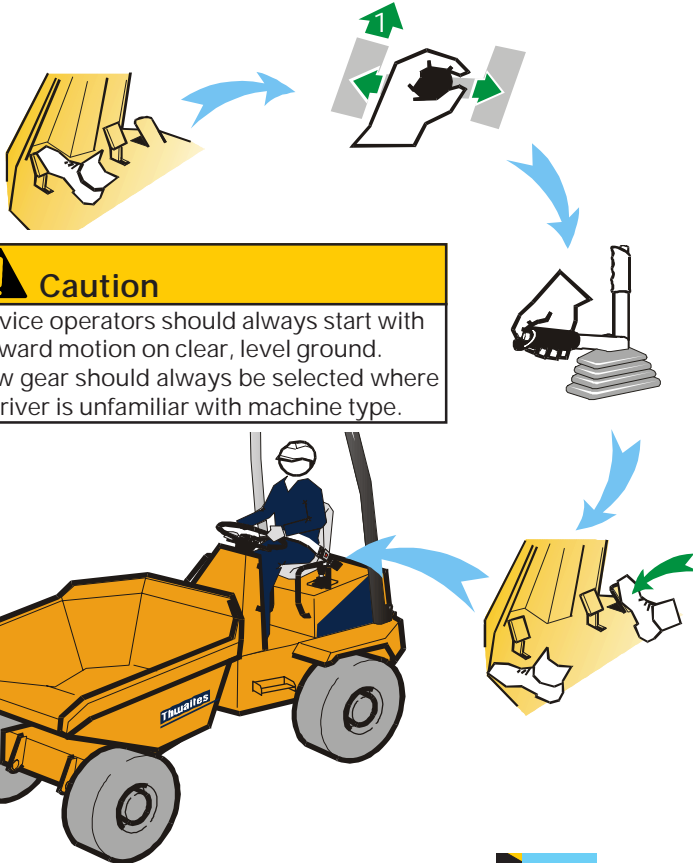
Do Not Operate a machine that has moved during the above parking brake test.

Complete Checks In Section

2

Before Loading The Machine

2 Driving Procedure and Safe Parking



Moving From Rest and Stopping

- Depress clutch pedal.
- Select gear- One.
- Slowly depress accelerator pedal, release clutch pedal and parkbrake lever and move slowly.
- Hold steering wheel with both hands.
- Remove foot from accelerator pedal.
- Brake gently to a halt, using foot brake pedal, and press clutch pedal to prevent stalling.
- Apply park brake and select neutral.

Changing Speed/Direction

- Release accelerator pedal.
- Depress clutch pedal.
- Select next gear.
- Release clutch pedal and press accelerator pedal.
- STOP motion and engage parking brake before changing direction (forward/reverse).

After Operating - Park Safe

- Always leave bucket empty when not in use.
- Ensure machine is on firm level ground.
- Apply parking brake.
- Engage neutral.
- Hydraulic system at rest in a safe condition
- Stop engine and remove key.
- Lock engine cover.

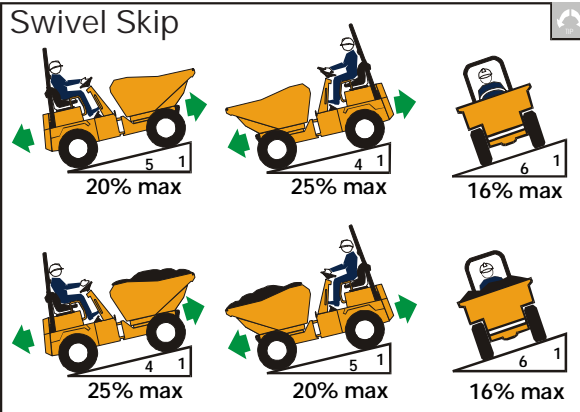
Complete Checks In Section **2** Before Loading The Machine

3

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

Thwaites

Swivel Skip



Diagrams illustrating correct and incorrect practices for Swivel Skip on gradients:

- Top row (Incorrect):
 - Left: Machine on a 5:1 gradient (20% max) with bucket tilted.
 - Middle: Machine on a 4:1 gradient (25% max) with bucket tilted.
 - Right: Machine on a 6:1 gradient (16% max) with bucket tilted.
- Bottom row (Correct):
 - Left: Machine on a 4:1 gradient (25% max) with bucket in central lock.
 - Middle: Machine on a 5:1 gradient (20% max) with bucket in central lock.
 - Right: Machine on a 6:1 gradient (16% max) with bucket in central lock.

WORKING ON GRADIENTS

DO NOT exceed maximum stated gradients.

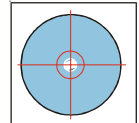
DO NOT turn across gradients.

DO NOT brake suddenly in wet, muddy, icy conditions or when operating on loose surfaces.

DO NOT run down hill with controls in neutral.

DO NOT operate lift mechanism (Hi-Swivel) on sloping ground.

Check indicator



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 parking brake when stopped on sloping ground and in addition chock wheels securely when leaving the machine unattended to prevent movement.

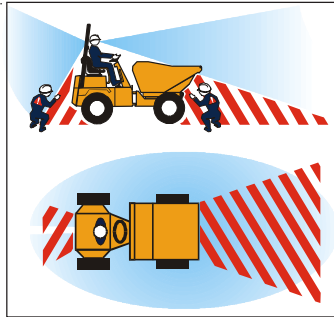
Always position swivel bucket in central lock.



3 !

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

Thwaites



! VISIBILITY

Check ahead and behind machine before operation.

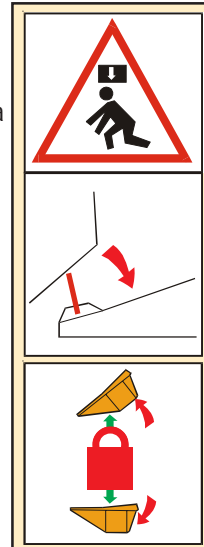
Be aware of low visibility areas when operating.

Sound the horn to warn people in the immediate area before operating.

! CRUSH ZONE

Stay clear of articulation area when the engine is running.

Never operate machine controls when standing on either side of machine.



! WORKING UNDER A RAISED BUCKET

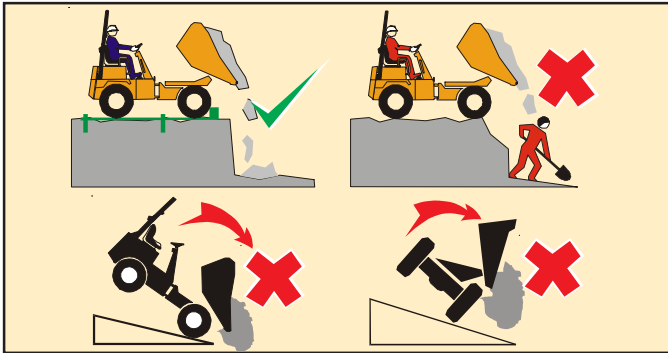
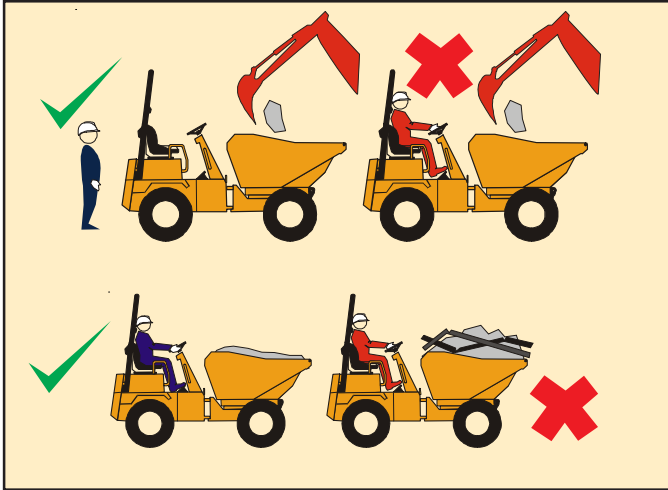
Lock bucket Safety Prop during maintenance.

Never work under an unproped bucket.

When using bucket Safety Prop engage Tipping Lever Lock. *(If fitted)*

3

WARNING HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH



LOADING

DO NOT exceed machines' rated capacity.



Parking Brake **ON**, drive to **NEUTRAL**, engine **OFF**, **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

Use **STOPBOARDS** and **SUPPORT** walls on trenches.



DO NOT tip bucket if load is sticking.



DO NOT discharge load when working on sloping ground.

3

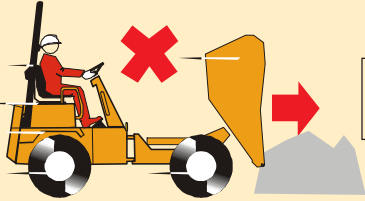


WARNING HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH

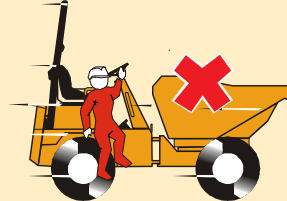
Thwaites



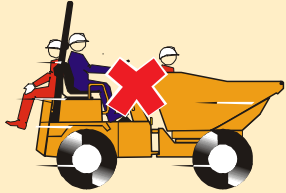
DRIVING



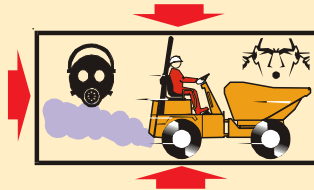
DO NOT drive with the bucket tipped (bulldozing)



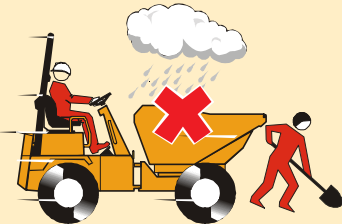
NEVER dismount from a moving machine



DO NOT carry passengers



Avoid confined work areas - exhaust fumes and noise can be a hazard



Avoid hazardous site conditions - people, weather, ice etc.

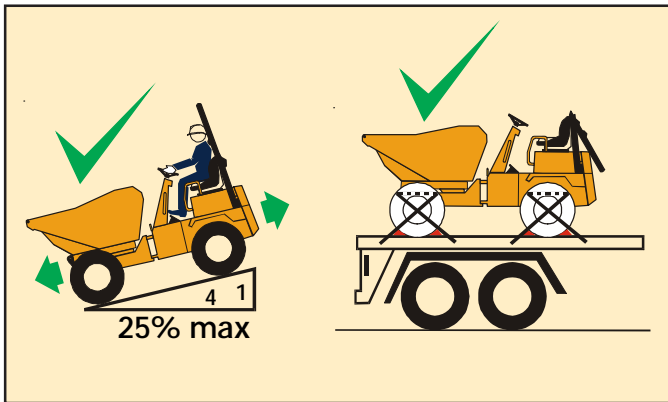
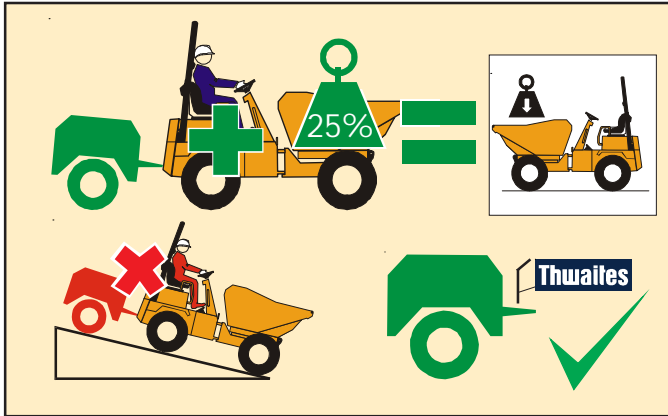


DO NOT operate with the roll over protective structure folded down.

Attention! Section 3 Correct and Incorrect Working Practices

3 !

WARNING HAZARDS OR UNSAFE PRACTICES WHICH COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH



! TOWING A TRAILER



Place minimum 25% of machine's rated payload, ballast load in skip.



Gross weight to be towed, plus 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 Thwaites approved towing pin.

! TRANSPORTATION



Reverse machine slowly onto a suitable trailer.



DO NOT drive forward up ramp when loading.



Apply parking brake.

Stop engine.

Chock wheels. *(To prevent movement).*

Engage chassis locking bar.

Secure to trailer.



Ensure legal load. *(Height/weight).*



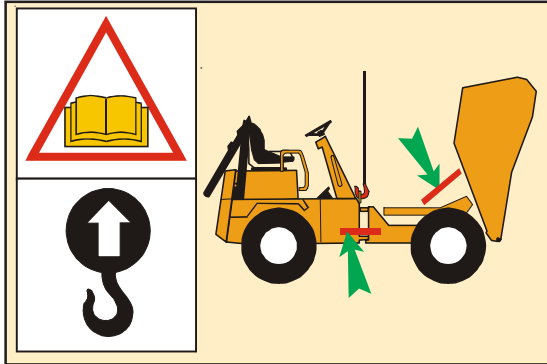
3



CAUTION

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

Thwaites



! LIFTING

- Tip bucket fully forward.
- Engage bucket safety prop.
- Engage chassis locking bar.
- Lift using centre eye provided.

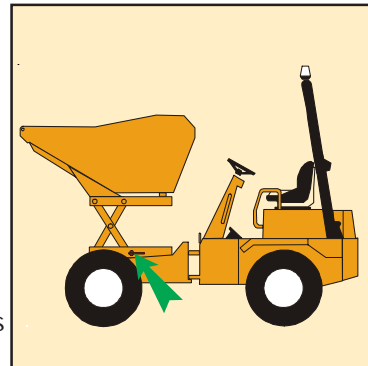


! PARKING BRAKE

X DO NOT apply parking brake if dumper is moving. Except in an emergency.

! SLOPING SURFACES




X DO NOT step on rear mudguards sloping surfaces.



! SCISSOR LIFT

✓ Insert locking pin when working beneath bucket.

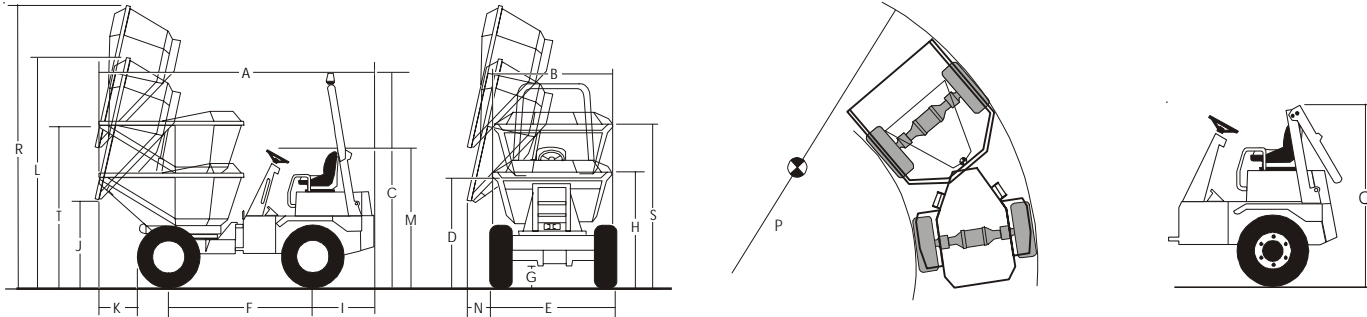
4 Machine Fault - Checks you can make


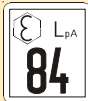
Problem	Reason	Solution
Engine will not start	Isolator switch OFF Forward/reverse lever not in neutral. Battery voltage too low. Faulty fuel supply. Electrical stop on fuel pump defective. Circuit breaker tripped.	Switch on Shift to neutral. Check battery and connections. Check fuel level and connections. Check connections. Reset (Push to reset).
Engine starts and stops	Blocked fuel or air filter. Air in fuel system.	Replace fuel or air filter. Check fuel line connections.
Black engine smoke	Air filter clogged (Indicator red). Fuel system defect. Wrong fuel.	Replace or clean air filter. Contact Thwaites dealer. Replace fuel and filter.
 ● Engine oil pressure  ● High engine temperature  ● Irregular alternator	Low oil level. Radiator choked. Low coolant level. Defective or loose alternator belt.	Top up engine oil Clean radiator. Top up coolant. Adjust replace alternator belt.

Always investigate panel warning lights and tripped circuit breakers.

4 Data Chart - Power Swivel & Hi Discharge

Thwaites

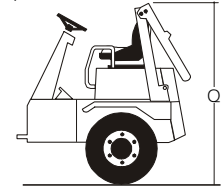
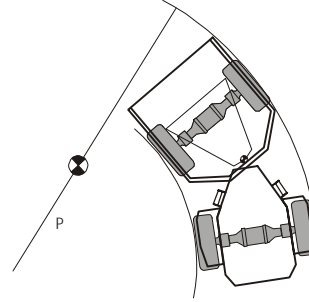
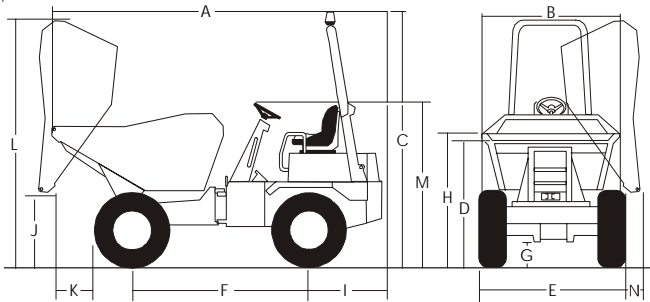


Dimensions (mm)	2.0T	1.5T	Weight (Kg)	2.0T	1.5T	Noise
	Swi	HiSw		Swi	HiSw	
A. Length	3644	3623	Unladen			Airborne (10m) 
B. Width	1472	1382	Front axle	640	700	
C. Height (ROPS & Beacon)	2958	2958	Rear axle	1185	1225	
D. Bucket lip height	1339	1410	Total	1825	1925	
E. Width over tyres	1469	1469	Rated payload			
F. Wheelbase	1850	1850	Laden	2000	1500	
G. Ground clearance	271	271	Front axle	2450	2100	
H. Bucket load height	1384	1442	Rear axle	1365	1325	
I. Axle to rear	984	984	Total	3815	3425	
J. Tipping ground clearance	698	1071	Towbar (Max)			Operator 
K. Tipping tyre clearance	420	398	Pull load	550	550	
L. Height tipped (Bucket)	2649	2773	Vertical load	1500	1500	
M. Max height without ROPS	1902	1902	Tyre Pressure			
N. Tipping side clearance	267	230	Bar (psi) Front	3.5 (51)	3.5 (51)	
P. Tyre clearance diameter (m)	7.5	7.4	Rear	2.3 (33)	2.3 (33)	
Q. Height (ROPS folded)	1844	1844				
R. Max height tipped (raised bucket)		3395				
S. Bucket load height (raised bucket)		2064				
T. Bucket lip height (raised bucket)		2032				

Typical vibration levels - whole body 0.7 - 0.8 m/s². Hand/arm less than 2.5 m/s².

4 Data Chart - Forward Tip

Thwaites

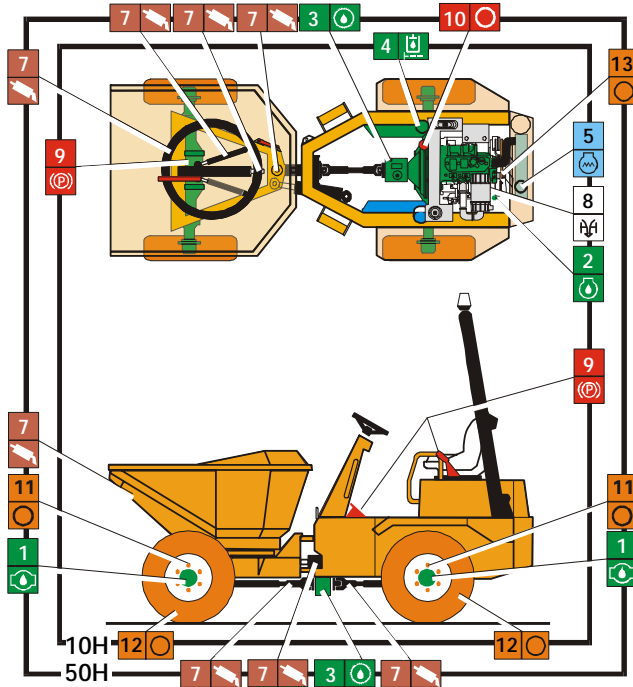


Dimensions (mm)	2T		Weight (Kg)	2T		Noise
		Fwd			Fwd	
A. Length	3498		Unladen			Airborne (10m)
B. Width	1490		Front axle	520		
C. Height (ROPS & Beacon)	2958		Rear axle	1205		
D. Bucket lip height	1336		Total	1725		
E. Width over tyres	1469		Rated payload			
F. Wheelbase	1850		Laden	2000		
G. Ground clearance	271		Front axle	2190		
H. Bucket load height	1408		Rear axle	1535		
I. Axle to rear	984		Total	3725		
J. Tipping ground clearance	277		Towbar (Max)			Operator
K. Tipping tyre clearance	590		Pull load	550		
L. Height tipped (Bucket)	1997		Vertical load	1500		
M. Max height without ROPS	1902		Tyre Pressure			
P. Tyre clearance diameter(m)	7.7		Bar (psi)Front	3.5 (51)		
Q. Height (ROPS folded)	1844		Rear	2.3 (33)		

Typical vibration levels - whole body 0.7 - 0.8 m/s². Hand/arm less than 2.5 m/s².

4 Daily/Weekly Checks

220/221/226



	AXLE OIL	1	BP Tractran 8
	ENGINE OIL	2	SAE 10W 30
	TRANSMISSION OIL	3	Mobil EP 90
	HYDRAULIC OIL	4	Mobil DTE 24
	COOLANT LEVEL	5	H ₂ O + 33% Antifreeze
	FUEL LEVEL	6	Diesel
	GREASE	7	Fill All Points
	AIR CLEANER	8	Check Indicator
	BRAKES	9	Test Park & Foot Brake
	BRAKE OIL	10	Mobil DTE 24
	WHEEL NUTS	11	271Nm (200lb ft)
	TYRE PRESSURE	12	See Data Chart
	FAN BELT	13	Condition/Tension

This machine must be serviced after first 50 hours

Normal service intervals:

250 hours 500 hours
1000 hours 2000 hours

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