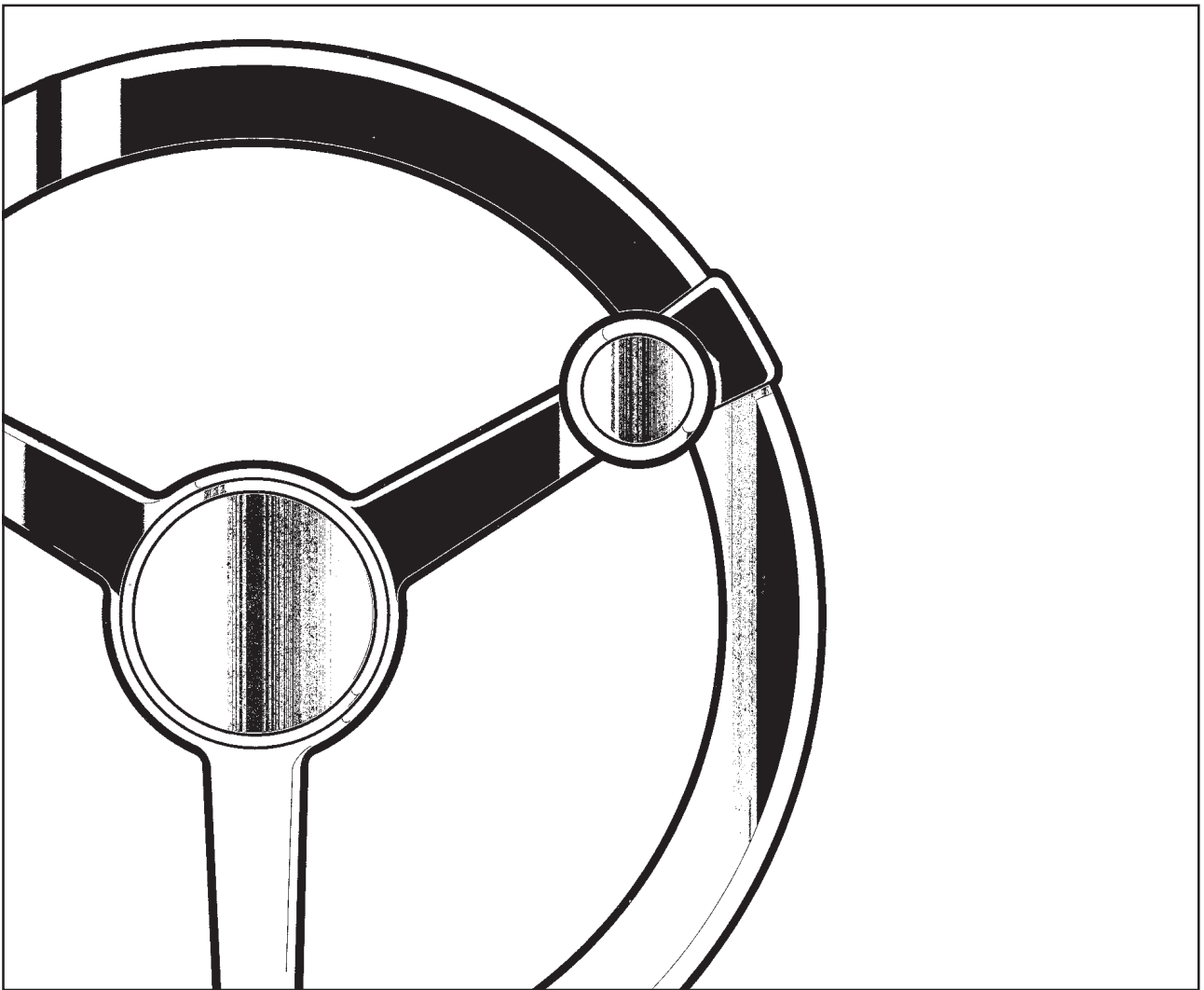


DYNAPAC CA 250 OPERATION

O250EN3



DYNAPAC
Metso Dynapac AB

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Phone: +46 455 30 60 00, Fax: +46 455 30 60 30
www.dynapac.com

DYNAPAC

Vibratory Roller CA 250

Operation O250EN3, April 2003

Diesel engine:

CA 250: Cummins 4BTAA 3.9C

These instructions apply from:

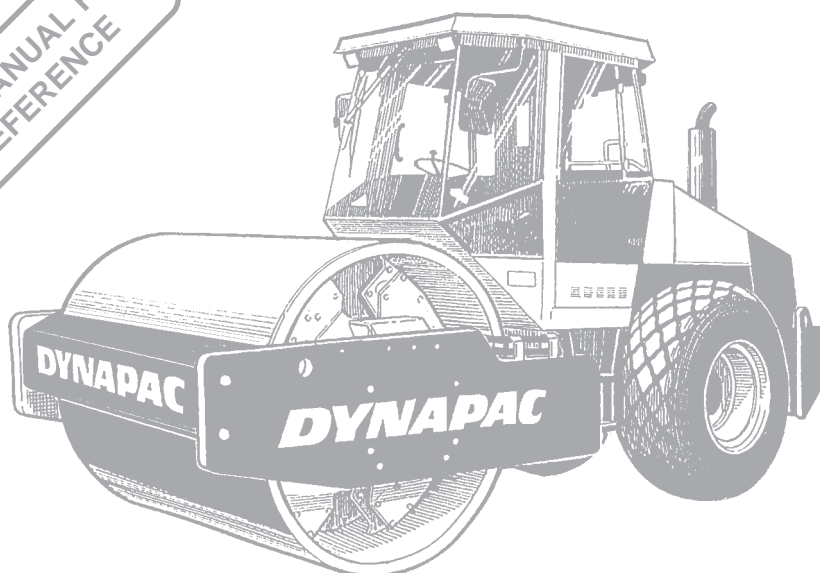
CA 250 PIN (S/N) *65720251*

CA 250D PIN (S/N) *65820251*

CA 250PD PIN (S/N) *65920251*

CA 250P PIN (S/N) *66020251*

**KEEP THIS MANUAL FOR
FUTURE REFERENCE**



Dynapac's medium heavy vibratory soil compactor is the CA 250.

This compactor is available in (smooth drum), P (padfoot) and PD versions respectively. Both the P and PD versions are used mainly on cohesive material and disintegrated rock.

All types of base courses and subbase courses can be compacted deeper and the interchangeable drums, ie, std to P, D to PD and vice versa, facilitate even greater variety in the range of application.

The cab and safety-related accessories are described in this manual. Other accessories, such as compaction meter, speed recorder and CCS/RA field computer, are described in separate instructions.

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WARNING SYMBOLS

WARNING



Safety instructions – Personal safety

CAUTION



Special caution – Machine or component damage

SAFETY MANUAL

WARNING



The safety manual, which accompanies each machine, must be studied by each operator of the roller. Always follow the safety rules and do not remove the manual from the roller.

GENERAL

This manual contains instructions concerning operation and use of the roller. For information regarding care and maintenance, see the manual, "MAINTENANCE, CA 250".

WARNING



When starting up and driving a cold machine, which implies cold hydraulic fluid, the braking distance will be longer than normal until the machine reaches normal working temperature.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

SAFETY INSTRUCTIONS (Read the Safety Manual also)



1. The operator must be familiar with the contents of the OPERATION MANUAL before starting the roller.
2. Make sure that all instructions in the MAINTENANCE MANUAL are followed.
3. Only trained and/or experienced operators may drive the roller. Passengers are not allowed on the roller. Remain seated during all operation.
4. Never use the roller if it is in need of adjustment or repairs.
5. Board and leave the roller only when it is stationary. Use the grips and railings that are provided. Always use a "three-point grip" - both feet and one hand or one foot and both hands - when boarding or exiting the machine.
6. The ROPS (Roll Over Protective Structure) should always be used when the machine is operated on risky ground.
7. Drive slowly in sharp bends.
8. Avoid driving at an angle on slopes; drive straight up or down.
9. When driving close to unsafe edges or holes, make sure that at least two thirds of the drum width is firmly on material that has already been compacted.
10. Make sure that there are no obstacles in the direction of travel, on the ground or overhead.
11. Drive extra carefully on uneven ground.
12. Use the safety equipment provided. The seat belt must be worn on machines fitted with ROPS.
13. Keep the roller clean. Clean dirt and grease from the operator's platform without delay. Keep all signs and decals clean and clearly legible.
14. Safety measures before refueling:
 - Stop the engine.
 - Do not smoke.
 - No naked flame in the vicinity.
 - Ground the nozzle of the filling device against the tank to prevent sparks.
15. Before repairs or service:
 - Place chocks against the drums/wheels and against the strike-off blade.
 - Lock the articulation if required.
16. Hearing protectors are recommended if the noise level exceeds 85 dB(A). The noise level may vary depending on what material the machine is operating on.
17. Make no changes or modifications on the roller that could affect safety. Changes may only be made following written consent by Dynapac.
18. Do not use the roller until the hydraulic fluid has reached its normal working temperature. Braking distance can be longer than usual if the fluid is cold. See starting instructions in the OPERATION MANUAL.

SAFETY WHEN DRIVING

Driving near an edge

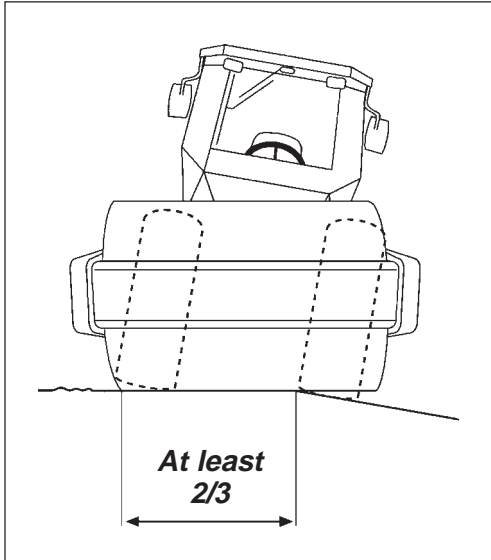


Fig. 1 Position of drum when driving near an edge

When you drive near an edge, at least two thirds of the drum width must be on solid ground.

WARNING



Remember that the machine's center of gravity is displaced outward when you steer to one side. For example, it shifts to the right when you steer to the left.

Slopes

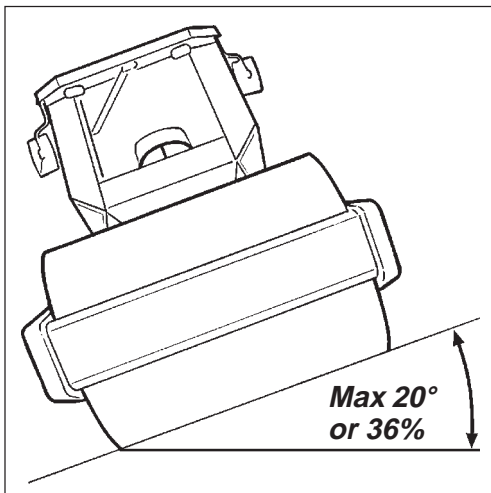


Fig. 2 Tipping angle on side slopes

WARNING



The ROPS (Roll Over Protective Structure) is always recommended when driving on slopes or insecure ground.

WARNING



Where possible, avoid all driving *across* a slope. Instead, drive up and down on sloping ground.

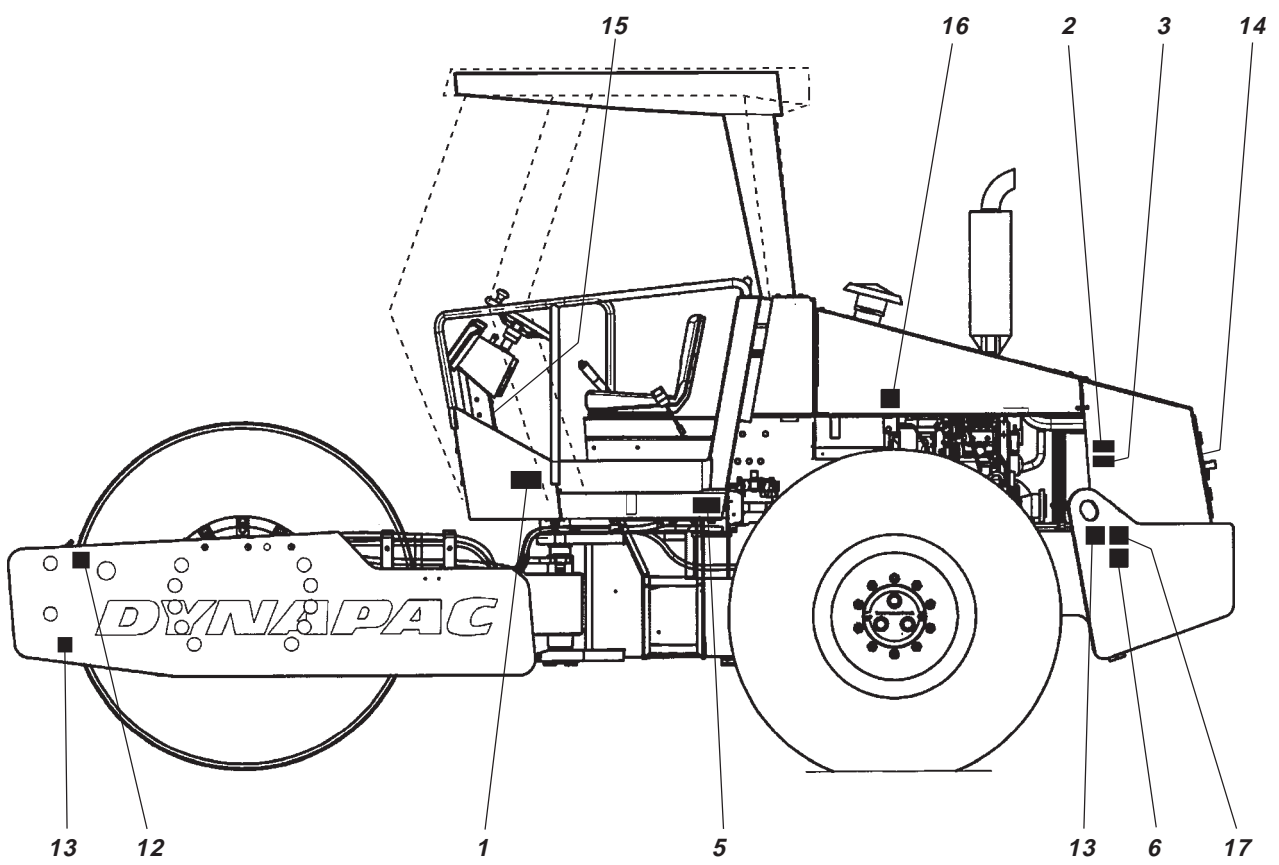
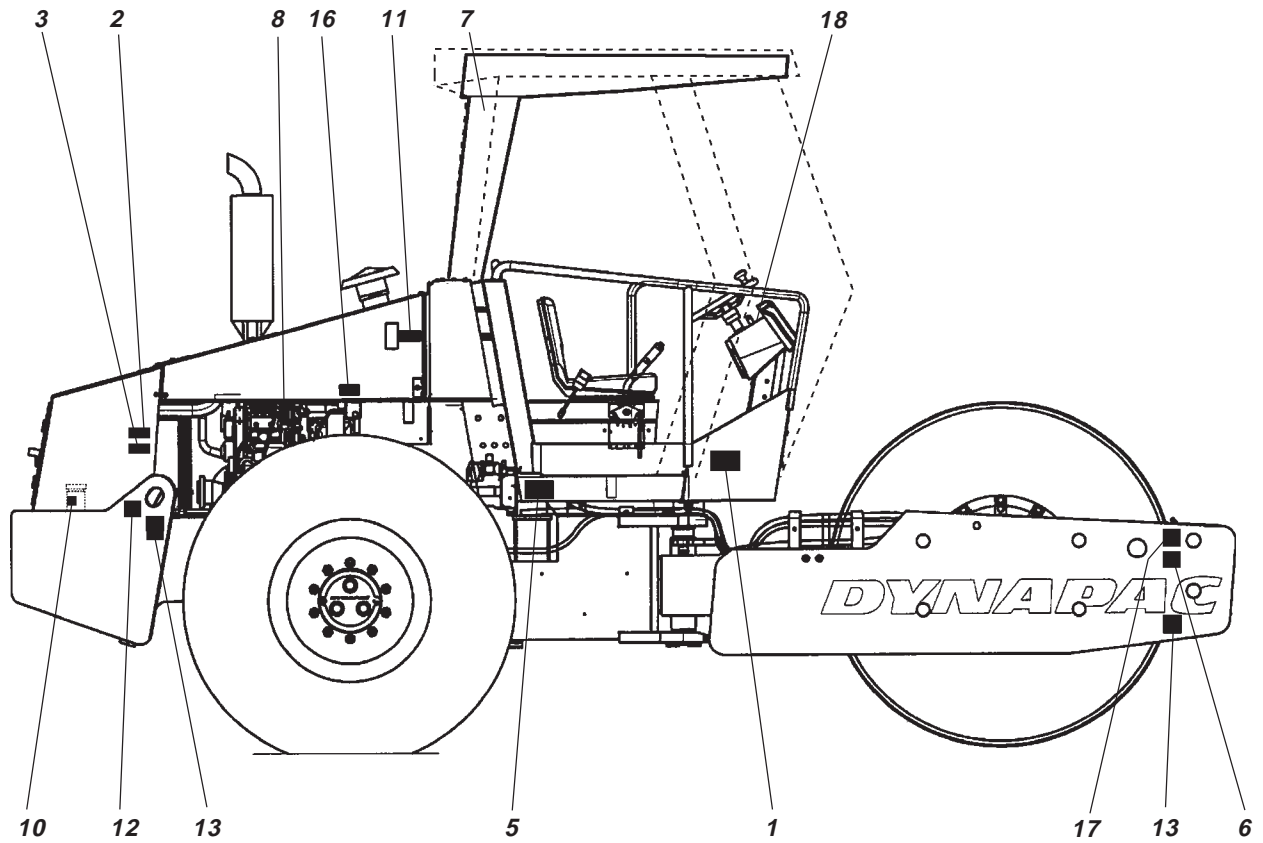
The tilting angle is measured on a hard, level surface with the machine stationary, steering angle zero, vibration switched OFF and all tanks full. Remember that loose ground, steering of the machine, vibration switched ON, driving speed and raising the center of gravity (for example, with accessories) may cause the machine to topple even on a smaller slope than that stated here.

WARNING

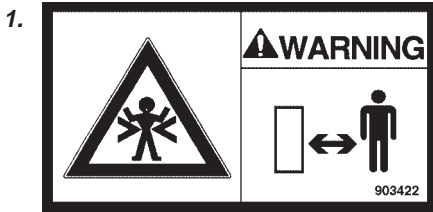


To leave the cab in an emergency, release the hammer located on the rear right post and break the rear window.

SAFETY DECALS, LOCATION/DESCRIPTION



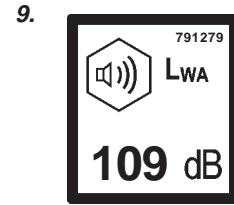
SAFETY DECALS, LOCATION/DESCRIPTION



1. Crush zone, articulation/ Drum. Maintain a safe distance from the crush zone.



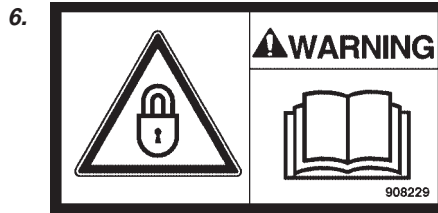
5. The operator is urgently requested to read the safety manual, and the operation and maintenance instructions before using the machine.



9. Sound Power level



2. Warning - rotating engine components. Keep your hands at a safe distance from the danger zone.



6. The articulation must be interlocked when lifting. Read the instruction manual.



10. Diesel fuel



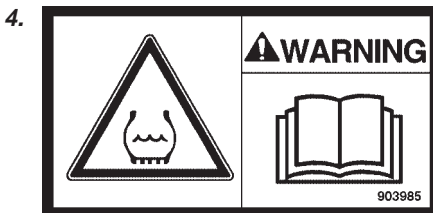
3. Warning - hot surfaces in the engine compartment. Do not touch.



7. Emergency exit



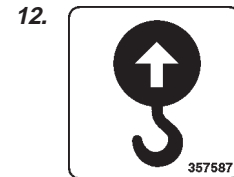
11. Hydraulolja



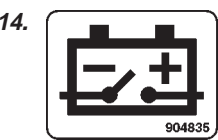
4. Tires filled with ballast (Optional) Read the instruction manual.



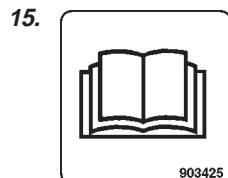
8. Start gas may never be used.



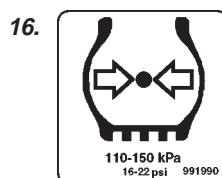
12. Lifting point



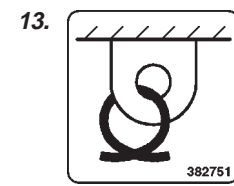
14. Battery disconnect



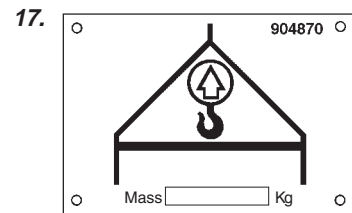
15. Handbook compartment



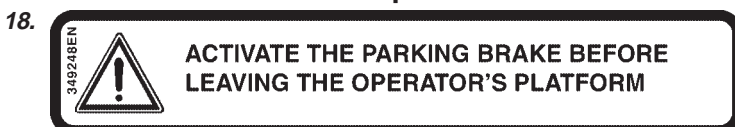
16. Tire pressure



13. Securing point



17. Lifting plate



MACHINE AND ENGINE PLATES

Machine plate

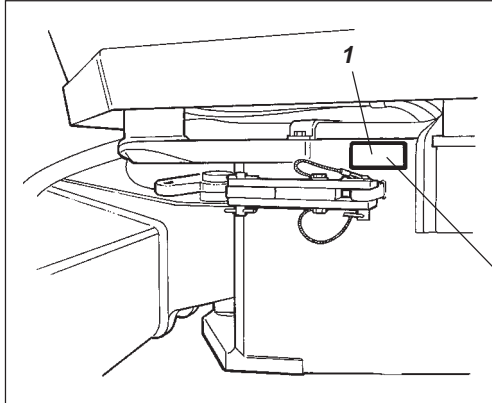
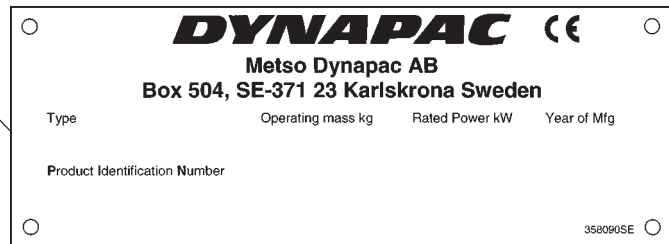


Fig. 3 Operator's platform
1. Machine plate

The machine type plate (1) is affixed on the front left edge of the tractor frame. The plate shows the manufacturer's name and address, type of machine and PIN "Part Identification Number" (serial number). Please state the PIN (serial number) of the roller when ordering spare parts.



PIN on frame

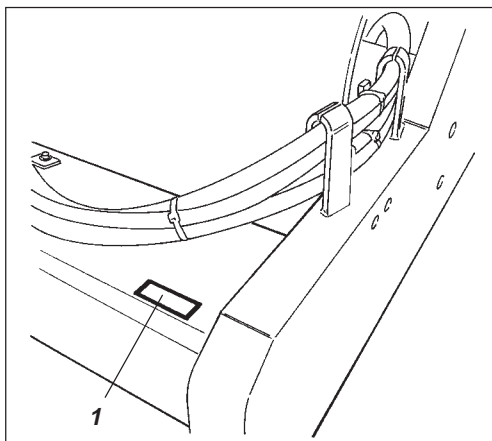


Fig. 4 Front frame
1. PIN

The PIN (1) of the machine is punched on the front right edge of the forward frame beam.

MACHINE AND ENGINE PLATES

Engine plate

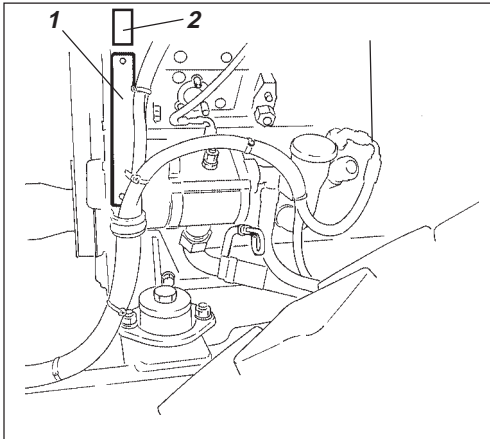


Fig. 5 Engine
 1. Engine plate
 2. EPA sign (USA)

The engine data plate (1) is affixed to the right side of the engine under the injection pump. The plate indicates the type of engine, serial number and engine data. Please state the engine serial number when ordering spare parts. See also the engine manual.

Engine plate

Cummins Engine Company, Inc Columbus, Indiana 47202-3005	CIDL		CPL		Engine Serial No.		
	Family				Cust. Spec.		
● Warning Injury may result and warranty is voided if fuel rate, rpm or altitude exceed published maximum values for this model and application.	#		Engine Model				
	Valve lash		Inch	Int.	Exh.	Timing-TDC	○
	cold		MM	Int.	Exh.	Fuel rate at rated HP	mm ³ /st
Date of MFG.	Firing Order		FR		Low Idle RPM		
Made in Great Britain.	3284907	Rated HP/KW		at		RPM	

EPA sign (USA)

IMPORTANT ENGINE INFORMATION

This engine conforms to xxxx U.S. EPA and California regulations for heavy duty non-road compression ignition diesel cycle engines as applicable.

THIS ENGINE IS CERTIFIED TO OPERATE ON DIESEL FUEL

EU/EPA sign

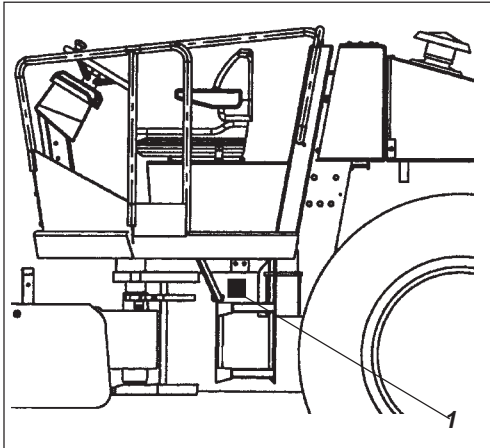


Fig. 6 Operator's platform
 1. Data plate/combination plate

	MADE IN GREAT BRITAIN BY CUMMINS INC. www.cummins.com		IMPORTANT ENGINE INFORMATION This engine conforms to 2003 U.S. EPA and California Tier II and EU Stage 2 regulations for heavy duty non-road compression ignition diesel cycle engines as applicable. THIS ENGINE IS CERTIFIED TO OPERATE ON DIESEL FUEL		
	CID/L.....	239/3.9	CPL.....	8039	Engine Serial No.....
Family.....			3CEXL0239AAD	Customer Spec.....	386616
c11 *97/68FA *00/00*0199 *00				Engine Model.....	B3.9-110C
Valve lash - [cold] inch	Int. .010	Exh. .020		Timing TDC.....	PLUNGER 0.8MM
mm Int. .254	Exh. .508			Fuel rate at rated HP.....	84.0 mm ³ /st
Firing Order.....	1-3-4-2			FR.....	91165 Low Idle RPM..... 850
Rated HP/kW	110/82	@	2200 RPM	Date of Mfg.....	10-12-02

INSTRUMENTS AND CONTROLS

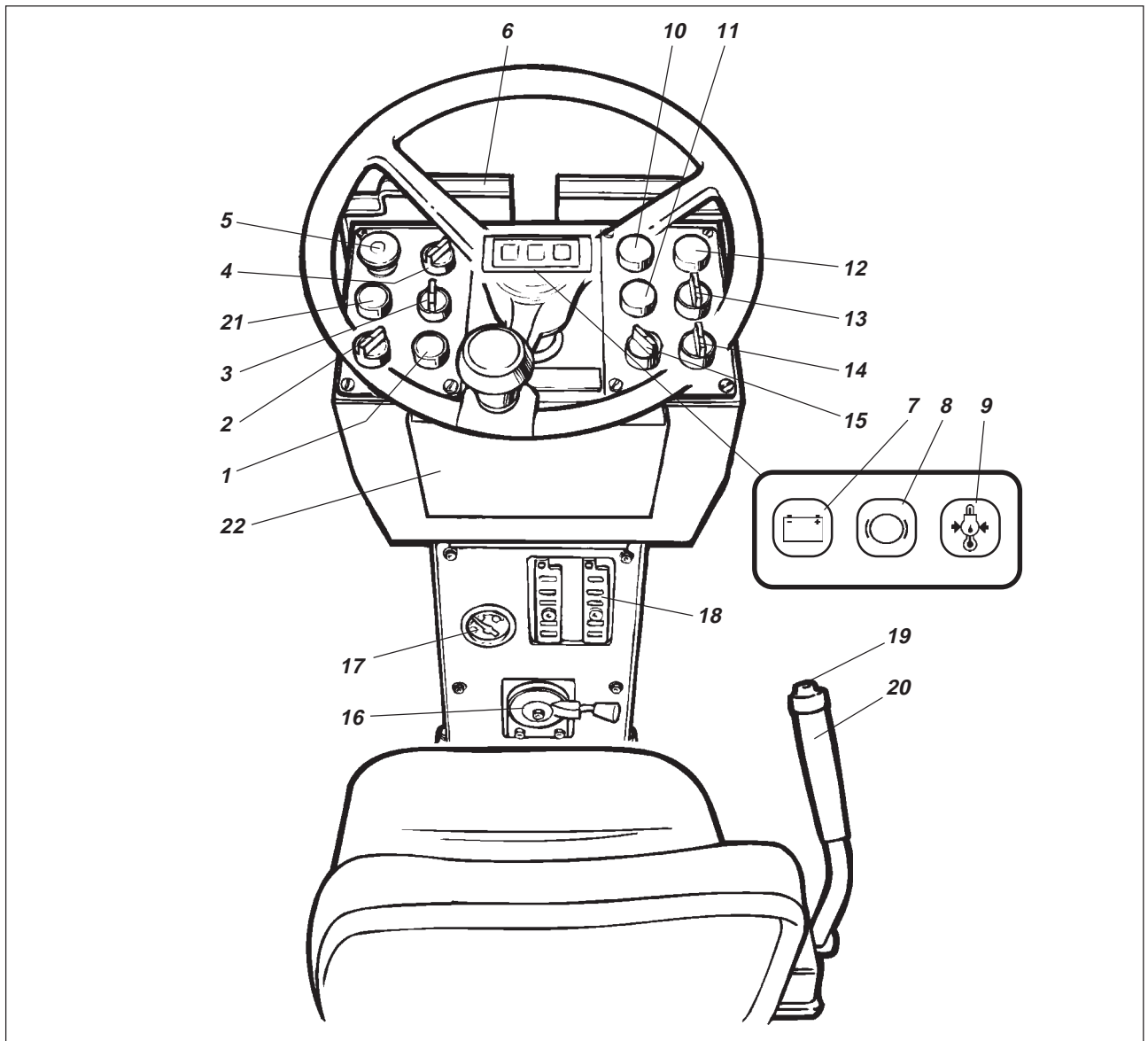

















Fig. 7 Instruments and control panel











- | | |
|---|--|
| 1. Horn | 12. Warning lamp, hydraulic temperature |
| 2. Starter switch/Preheating lamp | 13. Amplitude selector Low/0/High |
| 3. Hazard beacon <input type="checkbox"/> | 14. Speed selector, drum <input type="checkbox"/> |
| 4. Working lights <input type="checkbox"/> | 15. Speed selector, rear axle <input type="checkbox"/> |
| 5. Reserve/Parking brake knob | 16. Engine revs control |
| 6. Instrument protection | 17. Fuel gauge |
| 7. Warning lamp, charging | 18. Fuse box |
| 8. Brake warning lamp | 19. Vibration ON/OFF |
| 9. Warning lamp, engine oil pressure/
Warning lamp, engine temperature | 20. Forward/Reverse lever |
| 10. Warning lamp, hydraulic filter | 21. Test button for warning lamps |
| 11. Warning lamp, air filter | 22. Handbook compartment |

= Optional

INSTRUMENTS AND CONTROLS, FUNCTIONAL DESCRIPTION

Item in fig. 7	Designation	Symbol	Function
1	Horn, switch		Press to sound the horn.
2	Starter switch		In mode  the electric circuit is broken. In mode  all instruments and electric controls are powered, and the engine preheater is activated. NB. Do not start the engine before the preheating lamp goes out. In mode  the starter motor is energized.
3	Hazard beacon, switch (Optional)		Turn to the right to switch on the hazard beacon.
4	Working lights, switch (Optional)		Turn to the right to switch on the working lights.
5	Reserve brake/Parking brake		Push in to activate the reserve brake. Parking brake is applied if pushed in when machine is stationary. Both brakes are released when knob is pulled out.
6	Instrument protection		Fold down over the instruments to protect from weather and damage.
7	Warning lamp, battery charging		The alternator is not charging if this lamp lights when the engine is running. Stop the engine and locate the fault.
8	Brake warning lamp		This lamp will light when the parking or reserve brake knob is pressed and the brakes are applied.
9	Warning lamp, oil pressure		This lamp lights if lubricating pressure in the engine is too low. Stop the engine immediately and locate the fault.
10	Warning lamp, hydraulic filter		If the lamp lights up when the diesel engine is running at full speed, the hydraulic fluid filters must be replaced.
11	Warning lamp, air filter		The air filter should be cleaned or replaced if this lamp lights when the engine is running at full speed.
12	Warning lamp, hydraulic temperature		This lamp lights if the hydraulic fuel is too hot. Stop the roller, and allow the fluid to cool down by idling the engine. Locate and remedy the fault.

INSTRUMENTS AND CONTROLS, FUNCTIONAL DESCRIPTION

Item in fig. 7	Designation	Symbol	Function
13	Amplitude selector		Left mode gives low amplitude. Right mode gives high amplitude. Vibration switched OFF in O mode.
14	Speed selector, drum (Optional)		Transport speed (High) Working speed (Low)
15	Speed selector, rear axle (Optional)		Transport speed (High) Working speed (Low)
16	Revs control, diesel engine		Upper mode, engine working revs. Lower mode, idling revs.
17	Fuel gauge		Indicates fuel level.
18	Fuse box		Contains fuses for the electrical system.
19	Vibration ON/OFF, switch		Push and release the switch to engage vibration, push once more to disengage vibration. The above applies only when the amplitude selector (13) is in position High or Low.
20	Forward/Reverse control		The lever must be in neutral to start the engine, it cannot be started with the forward/reverse lever in any other position. Direction of travel and speed of the roller is regulated with the forward/reverse lever. The roller moves forward when the lever is moved forward, etc. Speed of the roller is regulated in proportion to how far the lever is moved from neutral. The further from neutral, the higher the speed.
21	Test button for warning lamps		The lamps 10, 11, 12 are checked when the switch is pressed.
22	Handbook compartment		Stowage space for safety manual and operator's manuals.

CONTROLS IN THE CAB

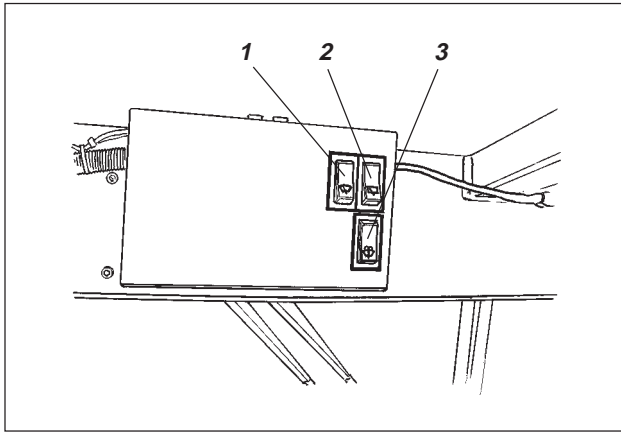


Fig. 8a Cab roof, front

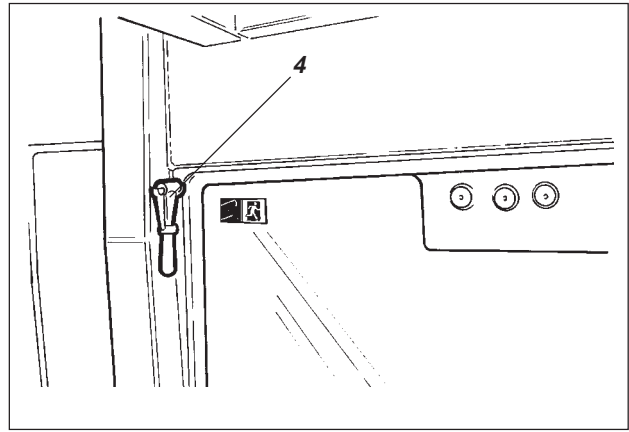


Fig. 8b Cab roof, rear

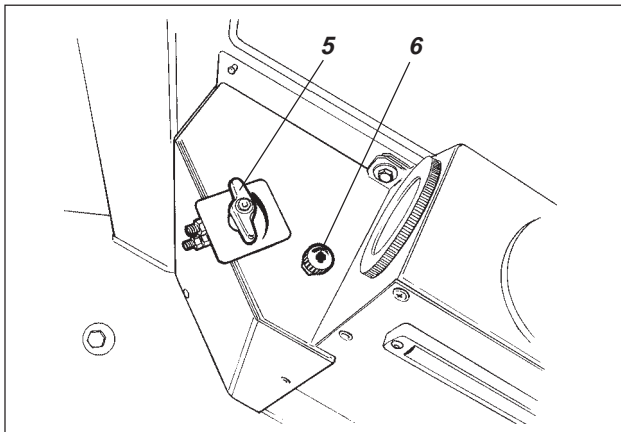


Fig. 8c Cab, right side

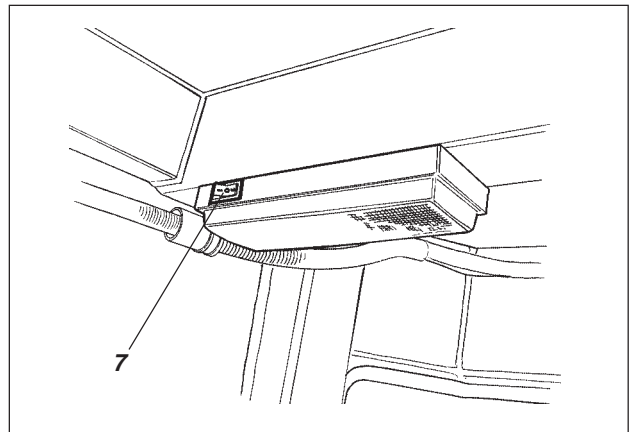


Fig. 8d Cab, rear

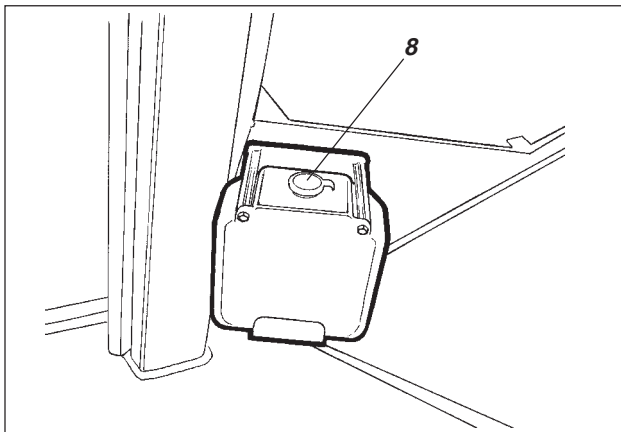










Fig. 8e Cab, left side

CONTROLS IN THE CAB, FUNCTIONAL DESCRIPTION

Items in fig. 8	Designation	Symbol	Function
1	Wiper front, switch		Press to turn on the front wiper.
2	Wiper rear, switch		Press to turn on the rear wiper.
3	Screenwash front and rear panes, switch		Press at the top to spray the windscreen. Press at the bottom to spray the rear screen.
4	Hammer for emergency evacuation		To evacuate the cab in an emergency, release the hammer and break the REAR window.
6	Heater (Optional)		Left mode, maximum heating. Right mode, heating turned off.
7	Air fan, switch (Optional)		Left mode, fan turned off. Right mode, cab ventilation increases in three steps.
8	Cab lighting, switch		Press to turn on the cab lights.
9	Windshield washer fluid		Fill with new fluid as needed.

BEFORE STARTING

Battery disconnecter – Switching ON

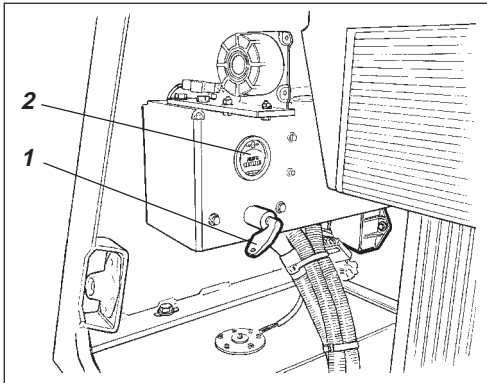


Fig. 9 Engine compartment
1. Battery disconnecter
2. Hourmeter

Remember to carry out daily service. See maintenance manual.

The battery disconnecter is located in the engine compartment. Open the engine cover and set the key (1) to the ON position. The entire roller will be powered.

The hourmeter (2) records the number of hours so long as the engine is running.



WARNING

The engine hood must be unlocked during operation, so that battery power can be disconnected quickly if necessary.

Operator's seat – Setting

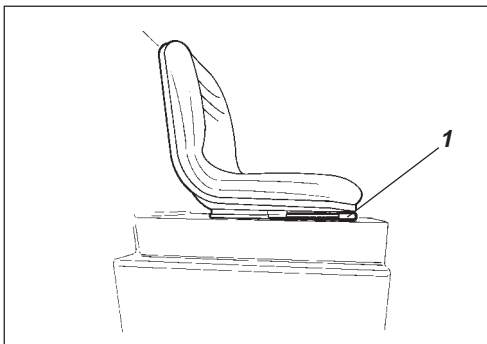


Fig. 10 Operator's seat
1. Locking lever - length adjustment

Adjust the operator's seat to ensure a comfortable posture and so that all controls are within easy reach.

The seat can be adjusted as follows:

- Length adjustment (1)



WARNING

Always make sure that the seat is secure before beginning operation.

Operator's seat in cab and with ROPS (Optional) – Setting

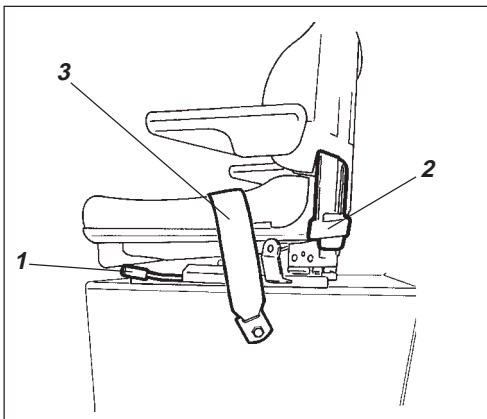


Fig. 11 Operator's seat
1. Locking lever - length adjustment
2. Lever - weight adjustment
3. Seat belt

Adjust the operator's seat to ensure a comfortable posture and so that all controls are within easy reach.

The seat can be adjusted as follows:

- Length adjustment (1)
- Cushioning to suit weight of operator (2).



WARNING

Always make sure that the seat is secure before beginning operation.



WARNING

Remember to use the seat belt (3).

BEFORE STARTING

Instruments and lamps – Checking

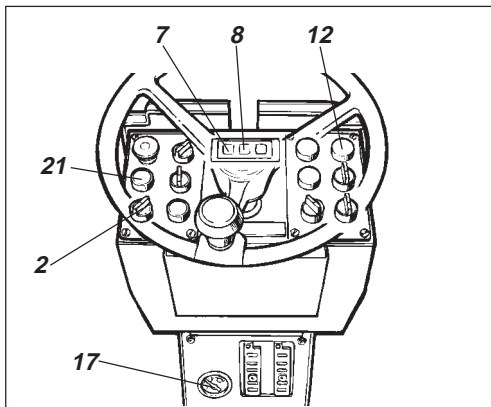


Fig. 12 Instrument panel

- 2. Starter switch/Preheating lamp
- 7. Charging lamp
- 8. Brake lamp
- 12. Oil pressure lamp
- 17. Fuel gauge
- 21. Test button for warning lamps

Turn the starter switch (2) to position I. Press the button (21) and make sure that all the control lamps light.

Check that the fuel gauge (17) gives a reading.

Check that the warning lamps for charging (7), oil pressure (12) and parking brake (8) light.

Check that the indicator lamp (2) for engine preheating lights.

Reserve/parking brake – Check

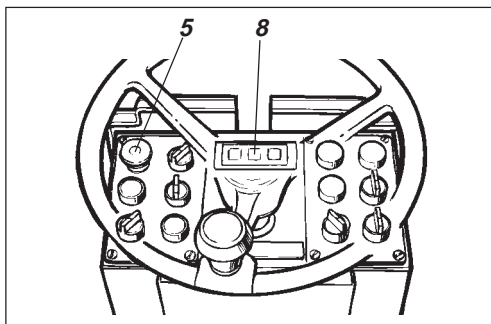


Fig. 13 Controls panel

- 5. Reserve/parking brake knob
- 8. Brake lamp

WARNING



Ensure that the reserve/parking brake knob (30) is pressed down. The roller can start to move if the engine is started on sloping ground if the parking brake is not applied.

Operator's station

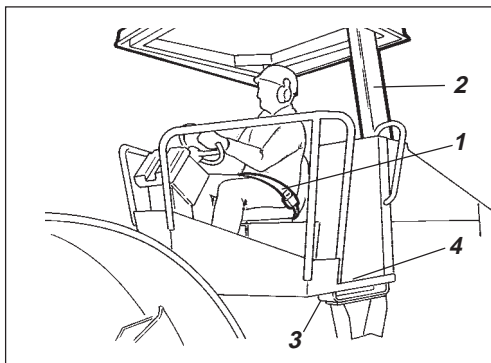


Fig. 14 Operator's station

- 1. Seat belt
- 2. ROPS
- 3. Rubber element
- 4. Anti-slip

If the roller is equipped with a ROPS (Roll Over Protective Structure) or a cab, always use the seat belt (1) and wear a hard hat.

WARNING



Replace the seat belt (1) if it shows signs of wear or has been subjected to severe force.

CAUTION



Check that the rubber elements (3) on the platform are intact. Worn elements will impair comfort.

WARNING



Ensure that the anti-slip (4) on the platform is in good condition; replace with new anti-slip if friction is poor.

WARNING



If the machine is fitted with a cab, make sure that the door is closed when in motion.

BEFORE STARTING

Field of view

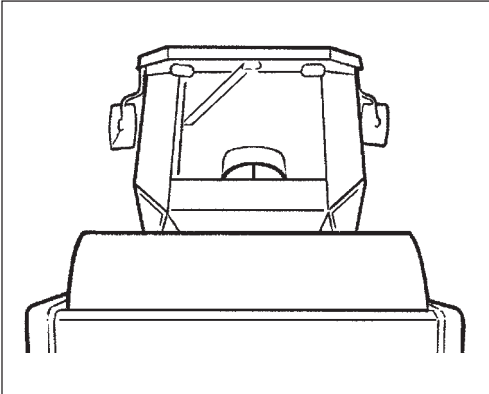


Fig. 15 Field of view

Before starting, make sure that the field of view is unobstructed, both in front and behind. All cab windows must be clean and rearview mirrors properly adjusted.

STARTING

Starting the engine

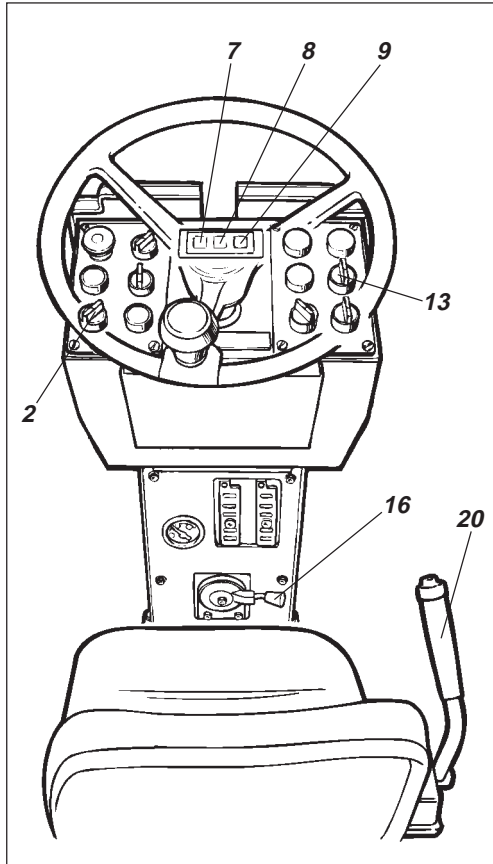


Fig. 16 Control panel

- 2. Starter switch/Preheating lamp
- 7. Charging lamp
- 8. Brake lamp
- 9. Oil pressure lamp/engine temperature
- 13. Amplitude selector
- 16. Revs control
- 20. Forward/Reverse lever

Set the forward/reverse lever (20) in neutral. The engine can only be started with the lever in neutral.

Set the amplitude selector (13) for Low/High vibration to mode **O**.

Set the revs control (16) to the idling mode.

Turn the starter switch (2) to mode **I**. The preheating lamp (2) lights if the engine needs preheating before starting, ie, wait until the preheating lamp goes out before turning the starter switch to start.



Do not run the starter motor too long. If the engine does not start immediately, wait a minute or so before making a new attempt.

Warm up the diesel engine with the engine speed control at the idling setting for a few minutes, or for a longer period if the ambient air temperature is below +10°C (+50°F).

Check while warming up that the warning lamps for oil pressure (9) and charging (7) are out. The warning lamp (8) for the parking brake shall still light.



When starting up and driving a cold machine, ie, cold hydraulic fluid, the braking distance will be longer than normal until the fluid reaches normal working temperature.



Ensure that ventilation (evacuation) is adequate if the engine is run indoors. ie, danger of carbon monoxide poisoning.



Start gas may not be used because the diesel engine is fitted with an electric preheating device in the intake tube. Risk of personal injury.

Driving the roller

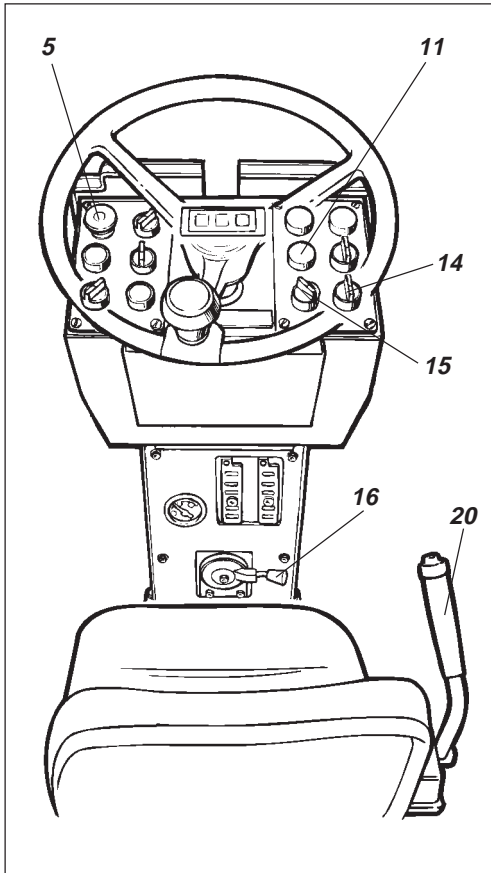


Fig. 17 Instrument panel

- 5. Reserve/parking brake knob
- 11. Warning lamp, air filter
- 14. Speed selector, drum
- 15. Speed selector, rear axle
- 16. Revs control
- 20. Forward/Reverse lever

WARNING



Under no circumstances may the machine be operated from the outside. The operator must remain seated inside the machine during all operation.

Move the revs control lever (16) upwards and latch it at its limit, engine speed should now be about 2300 rpm.

Ensure that the steering is working properly by turning the steering wheel once to the right and once to the left while the roller is stationary.

WARNING



Ensure that the area in front of and behind the roller is clear.

WARNING



Pull up the reserve/parking brake knob (5) and check that the warning lamp for the parking brake is out. When starting the roller on a slope, be prepared that it may begin to roll.

Set the High/Low speed selectors (14) and (15) to the desired mode, see decal on the control panel.

Max. speeds

- Low drum/Low rear axle = 5 km/h (3 mph)
 - High drum/Low rear axle = 6 km/h (3.7 mph)*
 - Low drum/High rear axle = 9 km/h (5.5 mph)*
 - High drum/High rear axle = 16 km/h (10 mph)*
- * (with optional accessory only)

WARNING



The High/High mode may only be used for transport runs on an even surface.

Carefully move the forward/reverse lever (20) in the desired direction of travel. Speed increases as the lever is moved farther from the neutral position.

CAUTION



Speed must always be regulated with the forward/reverse lever and **never** by changing speed of the engine.

WARNING



Test the reserve brake by pressing the reserve/parking brake knob (5) while the roller is running slowly forward. Stop the roller and identify the fault if the brake does not work.

Check occasionally while driving that no lamps light. If the oil pressure lamp lights, stop the roller and the engine immediately. Check and remedy any fault; see also the maintenance manual and the engine manual.

CAUTION



If the warning lamp (11) for the air cleaner lights during operation (at full engine revs), the main filter must be cleaned or replaced; see Maintenance Manual.

VIBRATION/DRIVING

Low/High amplitude – Setting

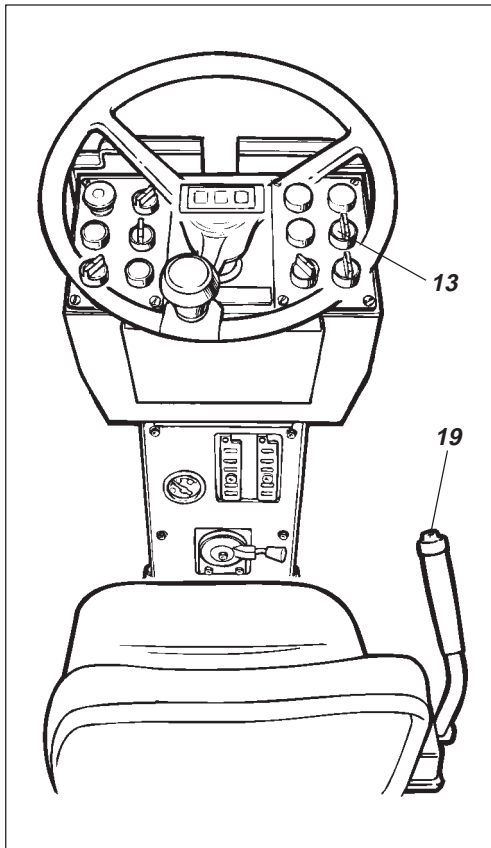


Fig. 18 Instrument panel
13. Amplitude selector
19. Vibration ON/OFF

Drum vibration can be set in two modes, selected using the switch (13). Turn the knob to the left mode for low amplitude, to the right mode for high amplitude.



Never alter the amplitude setting while the vibration is running. Switch vibration off first and wait until it has ceased before altering the amplitude.

Engagement and disengagement of vibration is made with the switch (19) on top of the forward/reverse lever. Always switch off vibration before the roller comes to a complete standstill.



Never allow vibration to be on when the roller is stationary; this may damage the surface and the machine.

DRIVING ON DIFFICULT COURSES

Drum drive (Optional)

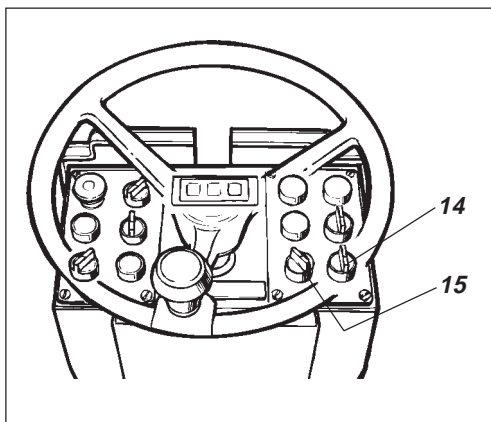


Fig. 19 Control panel
14. Speed selector, drum
15. Speed selector, rear axle

If the machine is equipped with a 2-speed drum drive and becomes bogged down, turn the knobs for driving as follows.

If the drum spins, set the drum drive high and the rear axle low.

If the rear tires spin, set the drum drive low and the rear axle high.

Set the knobs to their initial positions when grip is restored to the machine.

BRAKING

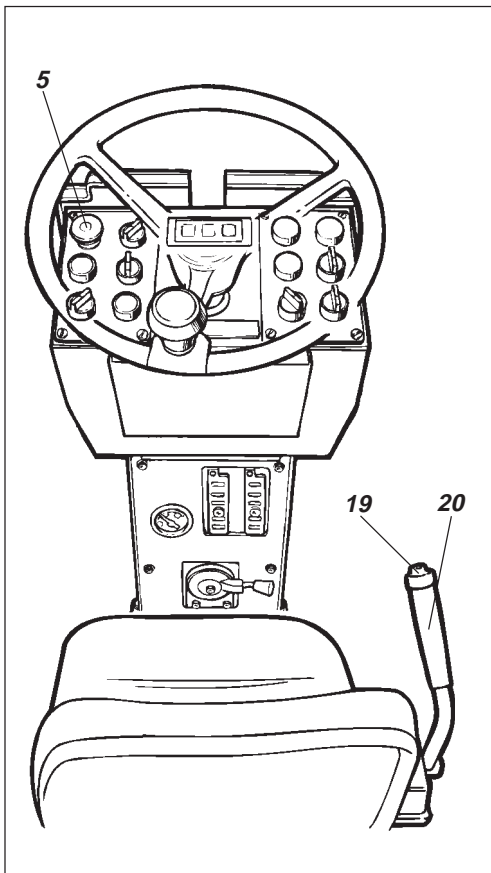


Fig. 20 Control panel
5. Reserve brake knob
19. Vibration switch ON/OFF
20. Forward/Reverse lever

Using the reserve brake

Braking is normally done with the forward/reverse lever (20).

The hydrostatic transmission brakes the roller when the lever is moved toward neutral. In addition, multi-disc brakes in the rear axle act as a parking brake and are activated when the reserve brake knob (5) is pressed in.

WARNING



To brake in an emergency, press the reserve/parking brake knob (5), hold the steering wheel firmly and be prepared for a sudden stop.

After braking, restore the forward/reverse lever to neutral and pull up the reserve/parking brake knob.

Normal braking

Press the switch (19) to disengage vibration.

Move the forward/reverse lever (20) to neutral to stop the roller.

WARNING



Always press the parking brake knob (5), even for brief stops on sloping ground.

Turn the speed control back to idling, allow the engine to idle a few minutes to cool down.

WARNING



When starting up and driving a cold machine, which implies cold hydraulic fluid, the braking distance will be longer than normal until the machine reaches working temperature.

Switching off

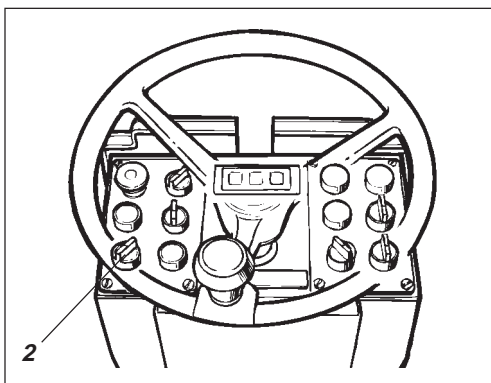


Fig. 21 Instrument panel
2. Starter switch

Check instruments and warning lamps to see if any faults are indicated. Switch off all lights and other electrical functions.

Turn the starter switch (2) to mode **O**. Lower the instrument cover (on rollers without cab) and lock it.

PARKING

Chocking the drum

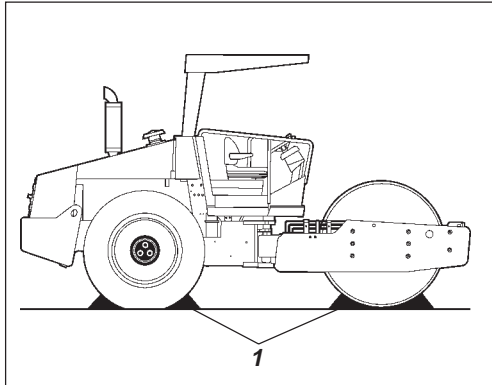


Fig. 22 Arrangement
1. Chock



WARNING

Never leave the roller with the engine running unless the reserve/parking brake knob is pressed in.



WARNING

Ensure that the roller is parked in a safe place for traffic. Chock the drums if the roller is parked on sloping ground.



CAUTION

Remember the risk of freezing during the winter. Fill the cooling system of the engine with anti-freeze mixture. See also maintenance instructions.

Battery disconnecter

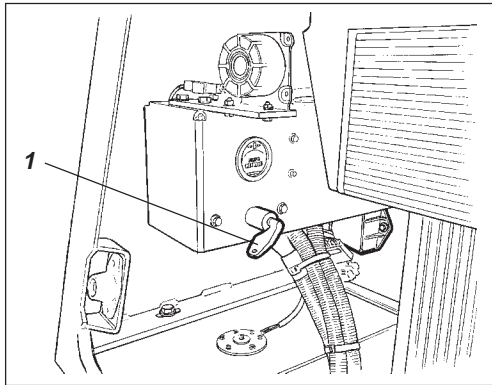


Fig. 23 Battery compartment
1. Battery disconnecter

Switch the battery disconnecter (1) into disconnected mode and remove the key before leaving the roller.

This will prevent discharging of the battery and will also make it difficult for any unauthorized person to start and drive the machine. Also lock the engine compartment cover.

INSTRUCTIONS FOR LIFTING

Locking the articulated joint

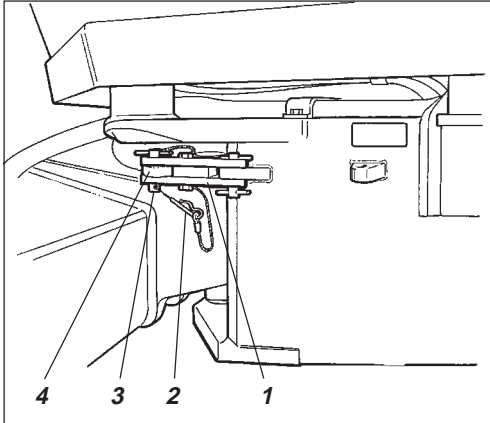


Fig. 24 Articulation in interlocked mode

1. Locking arm
2. Locking cotter
3. Locking stud
4. Locking lug

WARNING



Articulation must be locked to prevent inadvertent turning before lifting the roller.

Turn the steering wheel so that the machine is set to drive straight forward. Push in the reserve/parking brake knob.

Pull out the lowermost locking cotter (2) fitted with a wire, pull up locking stud (3) fitted with a wire.

Fold out the locking arm (1) and secure it to the upper locking lug (4) on rear machine frame.

Fit the locking stud (3) in the holes through the locking arm (1) and locking lug (4) and secure the stud in position with the locking cotter (2).

Lifting the roller

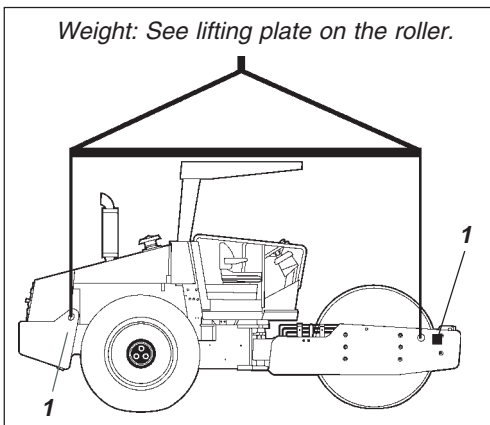


Fig. 25 Roller prepared for lifting

1. Lifting plate

WARNING



The gross weight of the machine is noted on the lifting plate (1). See also technical specifications in the maintenance instructions.

CAUTION



Lifting gear, such as chains, steel wires, straps, and lifting hooks must be dimensioned in conformance with current regulations.

WARNING



Keep well clear of the lifted machine! Make sure that lifting hooks are securely anchored.

Releasing the articulated joint

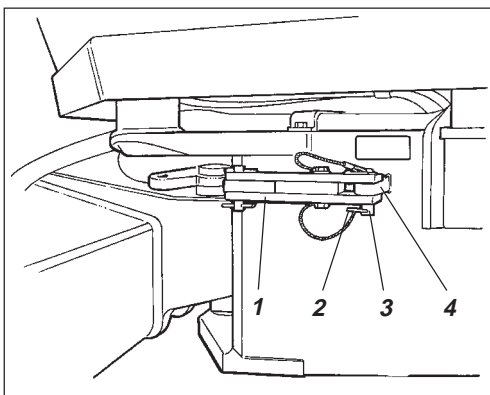


Fig. 26 Articulation in open mode

1. Locking arm
2. Locking cotter
3. Locking stud
4. Locking lug

CAUTION



Remember to restore the articulation interlock to its open mode before driving again.

Fold back the locking arm (1) and secure it in the locking lug (4) with the locking stud (3). Insert the lowermost locking cotter (2) fitted with a wire, to secure the locking stud (3). The locking lug (4) is located on the tractor frame.

TOWING

Alternative 1 Towing short distance with engine working

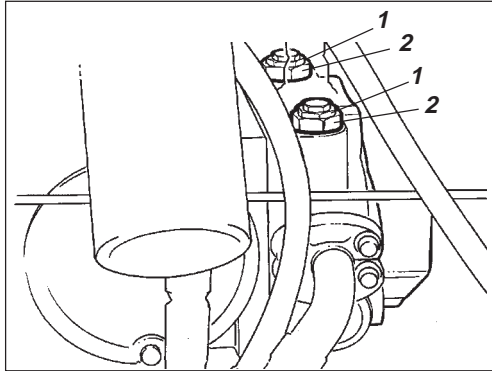


Fig. 27 Propulsion pump
1. Towing valve
2. Locknut

The roller may be moved a distance of up to 300 metres (330 yards) using either of the following alternatives.



Press the reserve/parking brake knob, and stop the engine temporarily. Chock the drums to prevent the machine from rolling.

Turn both towing valves (1) (middle hexagonal nut) three turns anticlockwise, holding against on the multifunction valve (2) (lowermost hexagonal nut). The valves are located on top of the propulsion pump.

Start the engine and allow it to idle.

The roller can now be towed and can also be steered if the steering system is in action.

Alternative 2 Towing short distance with engine not working

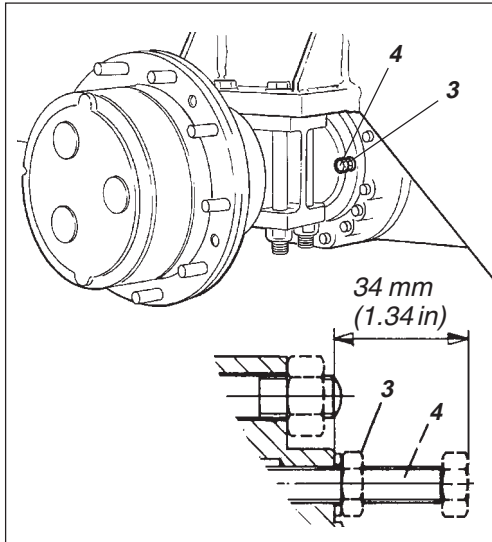


Fig. 28 Rear axle
3. Locknut
4. Adjusting screw



Chock the drums to prevent the roller from moving when the brakes are mechanically disengaged.

First, open both of the towing valves according to alternative 1 above.

Rear axle brake

Undo the locknut (3) and adjust the adjustment screws (4) by hand until resistance increases, and then one additional turn. The adjustment screws are located on the rear axle, two screws on each side of the differential housing.



After towing, remember to tighten the towing valves (1). Screw out the adjusting screws (4) to their initial position 34 mm (1.34 in) from the contact surface, and tighten the locknuts (3). Tighten the four hexagonal socket screws (5).

INSTRUCTIONS FOR TOWING

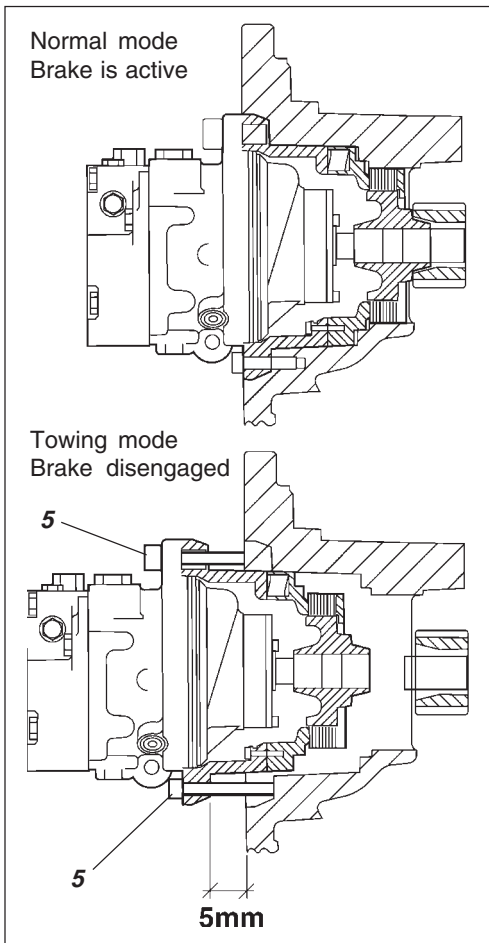


Fig. 29 Drum brake
5. Screw

Drum axle, brake disengagement

Disengage the drum brake by unscrewing the four hexagonal socket screws (5) about 5 mm (3/16 in) and then by pulling out the motor adapter against the screw heads.

The brakes are now disengaged and the roller can be towed.



After towing, remember to tighten the towing valves (1). Screw out the adjusting screws (4) to their initial position 34 mm (1.34 in) from the contact surface, and tighten the locknuts (3). Tighten the four hexagonal socket screws (5).

TOWING/RETRIEVAL

Towing a roller

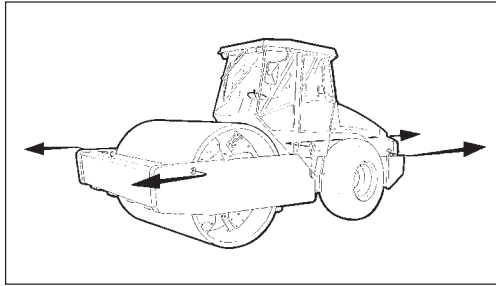


Fig. 30 Retrieval



WARNING

The roller must be counter-braked when towing. Use a towbar because the roller will have no ability to brake.



CAUTION

The roller must be towed slowly, max. 3 km/h (2 mph) and for a short distance only, max. 300 m (330 yards).

When a machine is towed/retrieved, the towing device must be connected to both lifting holes. Pulling forces shall act longitudinally on the machine as illustrated.



CAUTION

Restore the items for towing according to alternative 1 or 2 on the preceding page.

TRANSPORT

Roller prepared for transport

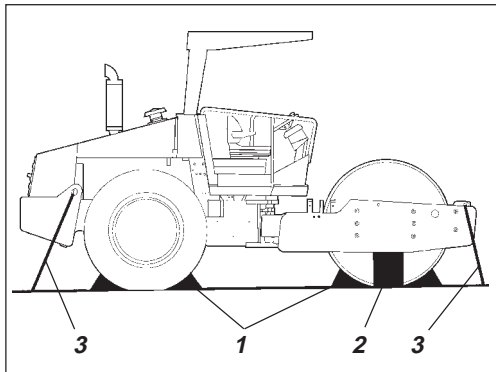


Fig. 31 Transportation

1. Chocks
2. Supporting blocks
3. Lashing wire



WARNING

Interlock the articulation before lifting and transportation. Follow the instructions under the respective heading.

Chock the drums (1) and secure the chocks to the transport vehicle.

Block up under the drum frame (2), to avoid overload on the rubber suspension of the drum when lashing.

Clamp down the roller with lashing strap (3) at all four corners; decals indicate the fixing points.



CAUTION

Remember to restore the articulation interlock to its open mode before starting the roller again.

OPERATING INSTRUCTIONS - SUMMARY

WARNING



1. Follow the **SAFETY INSTRUCTIONS** in the **Safety Manual**.
2. Ensure that all instructions in the maintenance manual are followed.
3. Turn the battery disconnecter to ON.
4. Move the forward/reverse lever to neutral.
5. Set the vibration selector to the **O** mode.
6. Set the revs control to the idling mode.
7. Start the engine and allow it to warm up.
8. Set the revs control in the operating mode.
9. Put the reserve/parking brake knob in the pulled-out position.

WARNING



10. **Drive the roller. Operate the forward/reverse controls with care.**

WARNING



11. **Test the brakes.**
Remember that the braking distance will be longer if the roller is cold.

12. Use the vibration only when the roller is in motion.

WARNING



13. **IN AN EMERGENCY:**
 - **Push in the reserve/parking brake knob.**
 - **Hold the steering wheel firmly.**
 - **Brace yourself for a sudden stop.**

14. Parking: Push in the reserve/parking brake knob.
Stop the engine and chock the drums.

15. Lifting: – See the operation manual.

16. Towing: – See the operation manual.

17. Transport: – See the operation manual.

18. Retrieval: – See the operation manual.