COMPACTION ROLLER

HR70C-9

TABLE OF CONTENTS

1 MACHINE DESIGNATION, MANUFACTURER AND NOTES

1.1 Machine designation and intended use

Designation	Type
HYUNDAI compaction roller	HR70C-9
Purpose of use:	
The compaction roller serves to compact soil.	
Intended use:	
The compaction roller may only be used for the purposes and work mentioned in this manual. Any use of the machine for further purposes is considered as misuse and is not permitted.	

1.2 Manufacturer

Name of the manufacturer:
ATLAS WEYHAUSEN F. Weyhausen AG & Co. KG Maschinenfabrik
Address:
27793 Wildeshausen, Visbeker Straße 35 (Germany)
Contact:
Phone: +49 (0) 4431 981-0 Fax: +49 (0) 4431 981-139 E-Mail: info@f-weyhausen.de Web: http://www.atlaswalzen.com

1.2A Distributor

Distributor, Adderss
Hyundai Heavy Industries co., Ltd. 1000, Bangeojin sunhwan-doro, Dong-Gu, Ulsan, 682-792, Korea

1.3 Type plate and serial number

Fig. 1 Type plate at the rear end

Type plate labeling
2501 XXXX 123456 The serial number (1) features reference numbers X in order to identify specific equipment. The serial number (1) can be found on the type plate (2) on the right side, below the cabin, and, in addition, it has been engraved on the basic frame.
Serial number
2501 XXXX 123456 The serial number is engraved on the basic frame.

1.4 Position of the type plates

1.4.1 Type plate vehicle

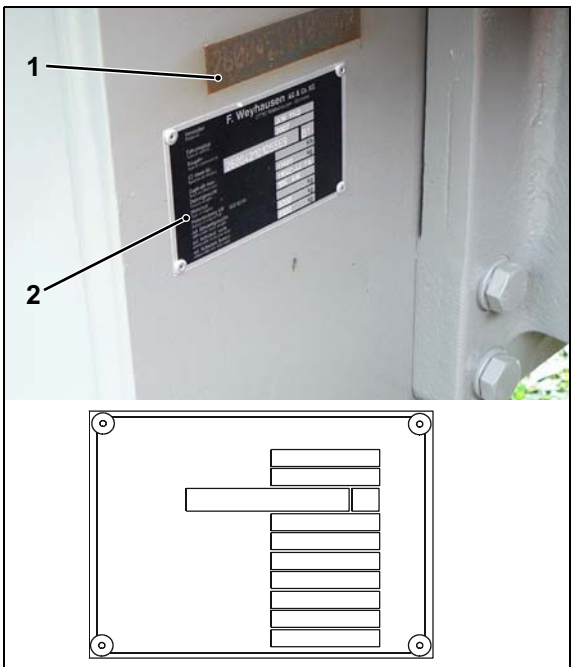

Fig. 2 Type plate at the rear end

Type plate labeling
2501 XXXX 123456
The serial number (1) features reference numbers X in order to identify specific equipment. The serial number (1) can be found on the type plate (2) on the right side, below the cabin, and, in addition, it has been engraved on the basic frame.
Serial number
2501 XXXX 123456
The serial number is engraved on the basic frame.

1.4.2 Type plate cabin

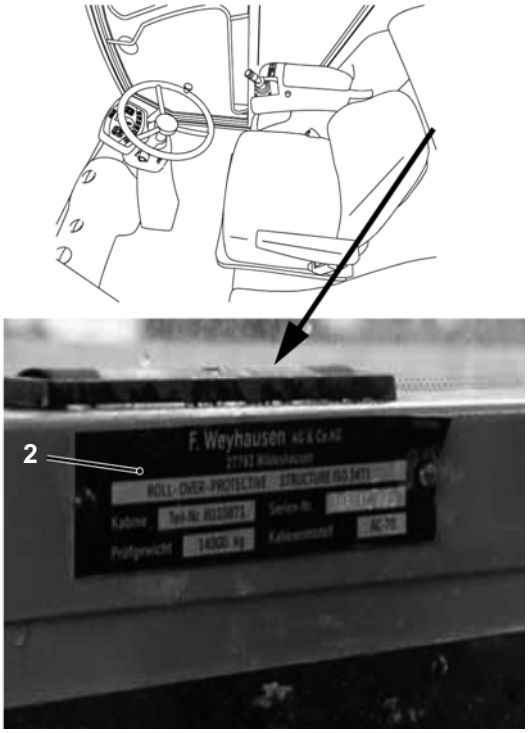

Fig. 3 Type plate in the cabin

1.5 Declaration of conformity

EC DECLARATION OF CONFORMITY
THE SIGNATORY
FA. F. WEYHAUSEN AG & CO. KG, VISBEKER STRASSE, 27793 WILDESHAUSEN, GERMANY

ACTING AS AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER

FA. F. WEYHAUSEN AG & CO. KG, VISBEKER STRASSE, 27793 WILDESHAUSEN, GERMANY
HEREBY DECLARES THAT THE MACHINE / EQUIPMENT DESCRIBED BELOW

1. MACHINE DESCRIPTION Compaction roller
2. MANUFACTURER: FA. F. WEYHAUSEN AG & CO. KG, VISBEKER STRASSE, 27793 WILDESHAUSEN, GERMANY
3. TYPE: Compaction roller
4. SERIAL NUMBER.: 2501 ##########
   YEAR OF MANUFACTURE:
5. ENGINE TYPE: Perkins
6. ENGINE OUTPUT:
7. ESTABLISHED AVERAGE SOUND POWER LEVEL (WITH REFERENCE TO ITEM 2 OF THE DIRECTIVES BELOW) WITH AN EQUIPMENT CORRESPONDING TO THIS TYPE: LWA 99.8 DB/1 PW
8. WARRANTED SOUND POWER LEVEL (WITH REFERENCE TO ITEM 2 OF THE DIRECTIVES BELOW) FOR THIS EQUIPMENT: LWA 106 DB/ 1 PW

COMPLIES WITH THE REQUIREMENTS OF THE FOLLOWING EUROPEAN DIRECTIVES AND GUIDELINES:

1. MACHINE DIRECTIVE: 89/392/EC SUPPLEMENTED BY 91/368/EC, 93/44/EC AND 93/68/EC AND ALL FURTHER APPENDICES; HOWEVER, NOT RESTRICTED TO THE CONSOLIDATION IN 98/37/EC
2. NOISE LEVEL DIRECTIVES: 2000/14/EC AND APPENDICES
3. ELECTROMAGNETIC COMPATIBILITY : 89/336/EC AND APPENDICES/
4. ENGINE EMISSION GUIDELINES: 97/68 AND APPENDICES

HARMONIZED STANDARDS: EN 474, PART 1, EN 474 PART 3, EN 292 PART 2 (1994 RATIFICATION) AND OTHERS, WHERE APPLICABLE
APPLICABLE NATIONAL TECHNICAL SAFETY GUIDELINES:

1. GUIDELINES REGARDING ROAD WORTHINESS / ROAD TRAFFIC REGULATIONS (STVZO) I
2. ACCIDENT PREVENTION GUIDELINES FOR VEHICLES (VBG 12)

INDICATE THE FOLLOWING CONFORMITY EVALUATION PROCESS (CONCERNING THE DIRECTIVES MENTIONED ABOVE, ITEM 2): 2000/14/EC APPENDIX VI

NOTIFIED BODY

1. TÜV NORD CERT, EUROPEAN NOTIFIED BODY 0044, AM TÜV 1, 30519 HANNOVER, GERMANY.
2. TECHNICAL DOCUMENTATION (CONCERNING THE DIRECTIVES MENTIONED ABOVE) AVAILABLE AT: F. WEYHAUSEN, VISBEKER STRASSE, 27793 WILDESHAUSEN, GERMANY

ISSUED

COUNTRY:	GERMANY
TOWN:	WILDESHAUSEN
DATE:	XX.XX.XX
BY:	Fa. F. WEYHAUSEN AG & CO. KG
SURNAME:	GABRIEL
FIRST NAME:	ARTUR
POSITION:	HEAD OF THE CONSTRUCTION DEPARTMENT

SIGNATURE

THIS IS AN ELECTRONICALLY GENERATED DOCUMENT: THE ORIGINAL DOCUMENT IS AVAILABLE AT THE COMPANY.

CE

1.6 User instructions

1.6.1 Using the compaction roller

Responsibility of the contractor

The **contractor** is the **owner** or **hirer** of the compaction roller.

- The responsibility to ensure that the compaction roller is exclusively operated, serviced and maintained by staff that is
  - physically, mentally and professionally fit and
  - has read and understood the operating and maintenance manual

  rests entirely with the owner or hirer of the vehicle.
- Prompt the operating and service staff to confirm this in written form before authorizing them to use the vehicle.
- Individuals under the influence of alcohol or drugs must not operate the compaction roller.
- Make sure that, in addition to the instructions and guidelines stated in this manual, the mandatory national or local safety regulations and laws referring to the operation of construction machinery are observed.

Responsibility of the driver and the service staff

Any individual intending to operate the compaction roller must have read and understood this operating and maintenance manual before starting to carry out any work related to the vehicle.
This also applies to individuals that are familiar with the operation and maintenance/servicing of this particular type of machine or similar vehicles.

The **driver of the compaction roller** is the person who operates and drives the compaction roller.

- Before starting to operate the compaction roller, it is the driver‘s obligation to ascertain that the vehicle is in faultless condition. In addition, the driver must observe the instructions concerning the operation of the compaction roller while it is being used.
- The responsibility to ensure that the machine and its operation do not cause any danger rests entirely with the driver of the compaction roller.
- Before working with the compaction roller, be sure to familiarize yourself with all its control elements and functions as well as its driving characteristics.

The **service staff** includes all individuals involved in servicing, maintaining and repairing the compaction roller.

- The service staff must abide by the default maintenance intervals and is responsible for carrying out the required inspections and work.
- The staff needs to ensure that the execution of the maintenance and service work in question does not cause any dangers to the environment.

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1.7 Notes on this operating and maintenance manual

This operating and maintenance manual serves to ensure the correct operation and maintenance of the compaction roller.

- It is an essential part of the compaction roller and needs to be kept close at hand in the cabin at all times.
- This manual contains all the information required for putting the compaction roller into operation, for working with it and driving it.
- Furthermore, it contains instructions regarding service and maintenance measures which need to be taken by the driver or the service staff. They serve to ensure that the vehicle is always ready for operation and contribute to a prolonged service life.
- Observing the safety instructions both in the corresponding chapters and in the descriptions is of vital importance.
- If you have any further questions concerning the operation or maintenance of the compaction roller, please contact your local authorized HYUNDAI dealer.
- In case you lose the operating and maintenance manual, order a new copy. Please state the serial number and the order number (if available).
- The owner or hirer of the compaction roller will be held liable for any damage resulting from inexpert operation or lack of skill on the part of the staff.

1.7.1 Symbols in the operating and maintenance manual

The warning notices in this operating and maintenance manual are accentuated by means of signal words and symbols which reflect the extent and the type of danger involved.
In order to prevent bodily injury and material damage, observing the warning notices in this operating and maintenance manual is **of vital importance**!

DANGER!
Warns of an imminently dangerous situation which may result in severe bodily injury or death if it is not avoided.

WARNING!
Warns of a dangerous situation which may result in severe bodily injury or death if it is not avoided.

CAUTION!
Warns of a dangerous situation which may result in slight injury if it is not avoided.

CAUTION!
Warns of a dangerous situation which may result in material damage if it is not avoided.

NOTE
Refers to further information and gives advice in order to ensure trouble-free and efficient operation.

2 SAFETY INSTRUCTIONS

2.1 General use of the compaction roller

DANGER!

Before starting the compaction roller, the driver needs to be informed of the specific safety requirements for work in the danger zone and is obliged to check whether the necessary precautions have been taken.

CAUTION!

Unknown environmental and working conditions!

- Prior to starting your work, make sure that the weather, the road and the condition of the ground allow for a safe operation of the compaction roller. Watch out for potential sources of danger and act accordingly.

2.2 Driving and working with the compaction roller

CAUTION!

The compaction roller is to be used in faultless condition only!

- Carry out the required checks and maintenance measures, see chapters on maintenance.
- Repair damage immediately or contact the **HYUNDAI SERVICE**.
  Do not resume your work before the damage is repaired.

WARNING!

Danger of falling while getting on/off the compaction roller!

- Always face the cabin, use handles, stairs and steps!!
- Always keep stairs, steps and handles clean and dry!
- Do not use any control elements as handles!

WARNING!

Restricted visibility caused by smoke, dust, fog etc.!

- Stop the vehicle or reduce speed until visibility improves.
- Be sure to keep the windows clean, free of ice, steam, frost.
- Do not hang up any clothes or other objects which might restrict your view.

WARNING!

Ensure the operational readiness of the compaction roller!

- Prior to starting your work, check the fill levels and add the required consumables, see maintenance instructions.

CAUTION!

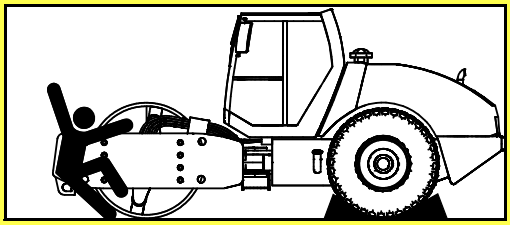
Parking the compaction roller!

- Secure the compaction roller after each operation. Activate the parking brake and pull out the ignition key.
- Lock the door after leaving the cabin.

DANGER!

Risk of injuries!

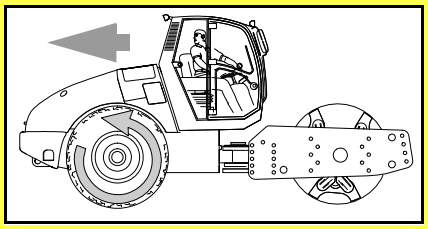
- Secure the compaction roller against rolling!



DANGER!

Watch out for individuals in the work area and within the operating range of the vehicle!

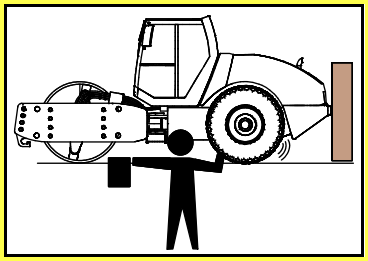
- Secure the work area against unauthorized trespassing.
- Before and while driving backwards, check the area behind you by looking backwards.



DANGER!

Working in unknown and/or complex environments!

- Find a skilled person to give you instructions!
- Agree on hand signals and warning calls beforehand!!



DANGER!

Risk of injuries!

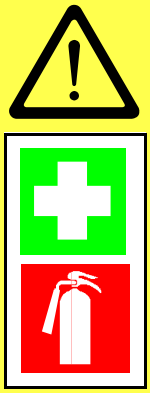
- Transporting individuals on the vehicle is strictly prohibited!
- Never transport people, neither on the steps nor in the cabin!

DANGER!

Sliding, breaking in of the compaction roller!

- Exercise extra caution when working near water!
- Before starting to work, check the inclination and carrying capacity of the ground.

2.3 Safety instructions in emergencies



CAUTION!

The emergency equipment can save lives!

- Always keep a first aid kit and a fire extinguisher close at hand.
- Make sure the emergency equipment is always ready for use.
- Familiarize yourself with using the emergency equipment beforehand.
- The owner of the compaction roller is responsible for providing the compaction roller with the required emergency equipment.

3 TECHNICAL SPECIFICATIONS

3.1 Operating data

Type HR70C-9 with smooth drum	
General data:	
Service weight	7100 kg
Axle load, front	3800 kg
Axle load, rear	3300 kg
Compaction capacity:	
static linear load	22.40 kg/cm
Amplitude high / low	1.8 / 0.8 mm
Frequency with high / low amplitude	30 / 40 Hz
Centrifugal force with high/ low amplitude	120 / 90 kN
Drum:	
Drum width	1700 mm
Drum diameter	1250 mm
Drum thickness	20 mm
Drive / transmission:	
Speed	0-10 km/h
Pendulum angle	±12°
Gradeability with / without vibration	45% / 50%
Noise level:	
Sound power level L_{wa}	106 dB

Type HR70C-9 with pad foot drum	
General data:	
Service weight	7250 kg
Axle load, front	4200 kg
Axle load, rear	3150 kg
Compaction capacity:	
Static linear load	
Amplitude high / low	1.8 / 0.8 mm
Frequency with high / low amplitude	30 / 40 Hz
Centrifugal force with high / low amplitude	120 / 90 kN
Drum:	
Drum width	1700 mm
Drum diameter	1140 mm
Drum thickness	15 mm
Drive / Transmission:	
Speed	0-10 km/h
Pendulum angle	±12
Gradeability with / without vibration	45% / 50%
Noise level:	
Sound power level L_{wa}	106 dB

3.2 Tires

Type HR70C-9	
Standard	16.9-24

3.3 Fill levels

Type HR70C-9	Capacity in liters
Fuel tank	167 l
Hydraulic tank	68 l
Engine oil	8 l
Coolant cooling system	25 l
Rear axle	10 l
Gearbox drum drive	1.8 l
Vibration drive	3.5 l

3.4 Engine

Type HR70C-9	
Make	Perkins 1104C-44 from 05/2008 1104D-44
Nominal output	61.5 kW (84 HP) at 2200 min^{-1}
Type	water-cooled
Number of cylinders	4 in line

3.5 Roll-over protection system (ROPS)

The cabin of the compaction roller corresponds to the stipulations of standard ISO 3471 (1994). It has been tested in accordance with the currently valid acceptance test specifications for roll-over protection systems (ROPS) and a ROPS authorization has been issued.

CAUTION!

Any modifications of the cabin are permitted only after a written form of approval has been issued by F. Weyhausen AG & Co. KG within the scope of the certification tests. Otherwise, the ROPS certificate loses its validity. No liability will be assumed for any modifications of the cabin (drilling/welding) carried out without prior explicit approval of the manufacturer!

3.6 Dimensions

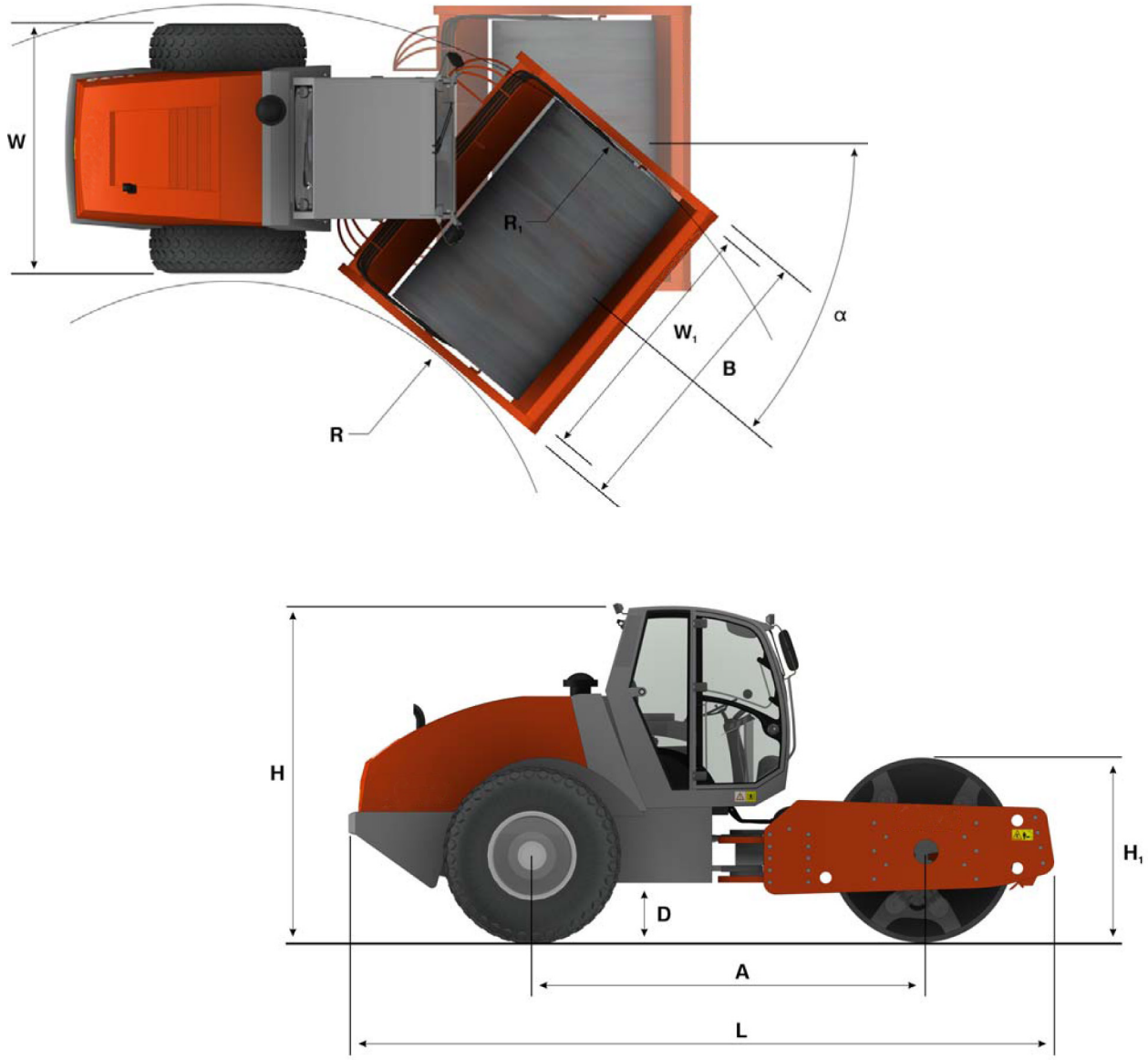


Fig.4 Dimensions

Dimensions Type HR70C-9	with smooth drum	with pad foot drum
A	2720 mm	2720 mm
B	1850 mm	1850 mm
D	375 mm	375 mm
H	2723 mm	2728 mm
H_1	1250 mm	1140 mm
L	5032 mm	5032 mm
R	3900 mm	3900 mm
R_1	5600 mm	5600 mm
W	1700 mm	1700 mm
W_1	1700 mm	1700 mm
	±30°	±30°

4 TRANSPORTING THE COMPACTION ROLLER

4.1 Securing the compaction roller before transporting it

WARNING!

Secure attachments and objects in the cabin before transporting the compaction roller!

Remove objects attached to the exterior of the cabin and transport them separately.

Remove or fasten objects that are kept in the cabin.

4.1.1 Loading and securing the compaction roller

CAUTION!

Precautionary measures for transporting the compaction roller!

The compaction roller may be loaded and unloaded by experienced and adequately trained persons only.

The compaction roller may only be loaded and unloaded on level and solid ground.

- Transporting the compaction roller requires a flat bed truck with a sufficient load capacity, which is adequately equipped for securing the compaction roller. Observe the total weight of the compaction roller before loading it onto the truck; see chapter on technical specifications.

4.1.2 Loading and unloading the compaction roller

Driving the compaction roller onto a flat bed truck

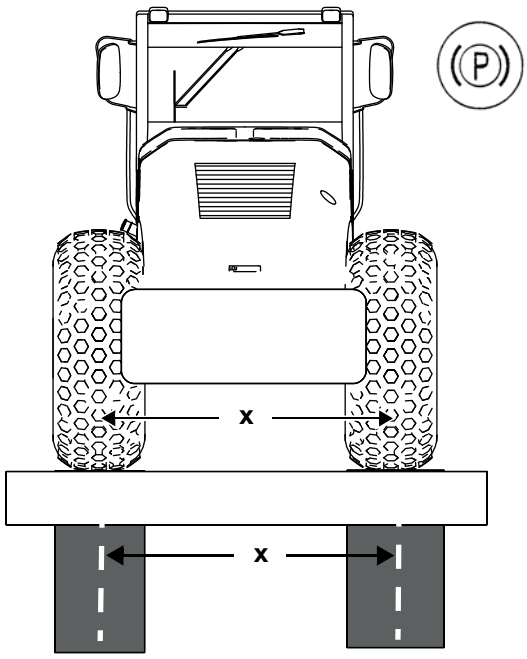


Fig.5 Driving onto a flat bed truck

- Check the position of the ramps of the flat bed truck before driving the compaction roller onto it.
- The ramps need to be positioned in a way that ensures that the tires roll on the center of the ramps.
- Start the Diesel engine.
- Release the parking brake. The symbol for the parking brake on the dashboard is deactivated.

NOTE

In order to prevent the roller drum from slipping while driving the machine onto the flat bed truck, drive the compaction roller onto the flat bed truck in reverse gear, with the rear of the roller ahead.

- Activate the parking brake and stop the diesel engine. The activation of the parking brake is indicated by the corresponding symbol on the dashboard.
- Remove the ignition key and lock the doors after getting off the vehicle.

4.1.3 Securing the compaction roller on the transport vehicle

Fastening the anti-buckling device between the front and the rear end

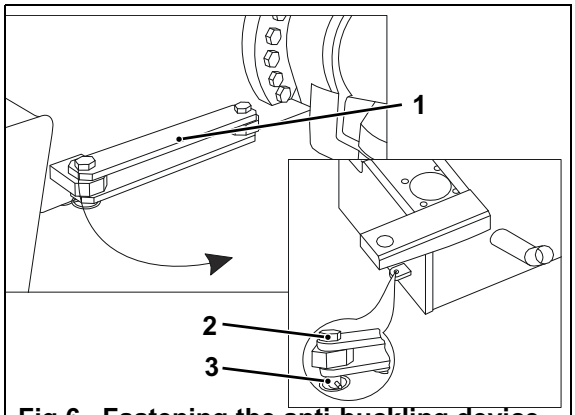


Fig.6 Fastening the anti-buckling device

- Install the anti-buckling device (1) between the front and the rear end.
- Secure the bolt (2) by means of a safety splint pin (3).

Tying the compaction roller to the transport vehicle

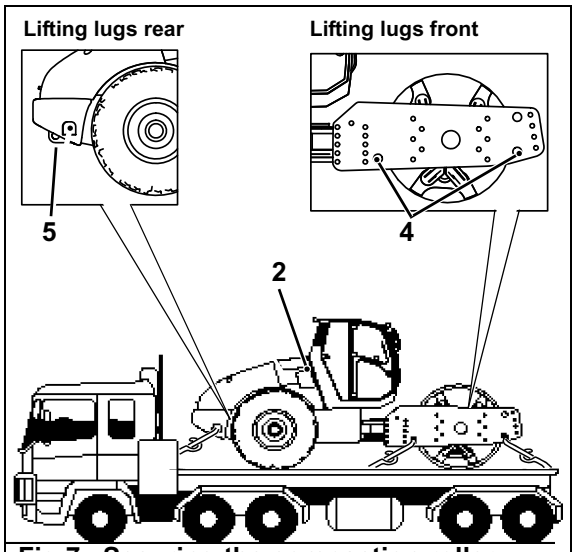


Fig.7 Securing the compaction roller

- The compaction roller disposes of four lifting lugs at the front end (4) and two lifting lugs at the rear frame (5).

WARNING!
The compaction roller may only be fastened to the transport vehicle at the labeled lifting lugs at the front end and at the rear frame.

NOTE
Observe the national regulations and guidelines regarding tie-down safety standards! Make sure the transport vehicle is suited for the dimensions and the weight of the compaction roller!

- Use chain hoists to secure the compaction roller (2) on the flat bed truck at the six lifting lugs.

NOTE
The illustration on the left is intended to give you a general idea of the tie-down and just serves as as symbolic representation. Be sure to use sufficiently dimensioned fastening equipment to secure the compaction roller!

4.1.4 Carrying out the transport

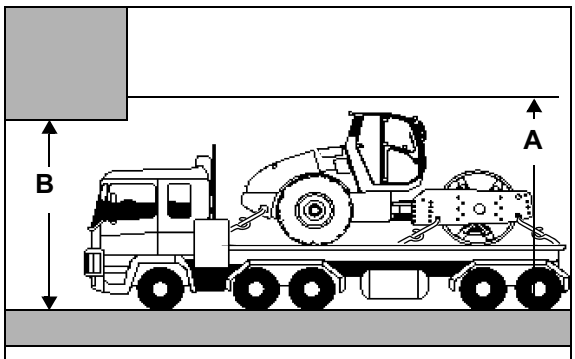


Fig.8 Carrying out the transport

- Be sure to inform yourself of the height **A** of the transport vehicle with the compaction roller tied to it.

CAUTION!
Consider the height of the transport vehicle with the compaction roller fastened to it (**A**) before attempting to pass underbridges with a height of **B**!

- Observe the applicable national and local laws regarding the execution of the transport.

5 GETTING ACQUAINTED WITH THE COMPACTION ROLLER

5.1 Overview: Assembly groups

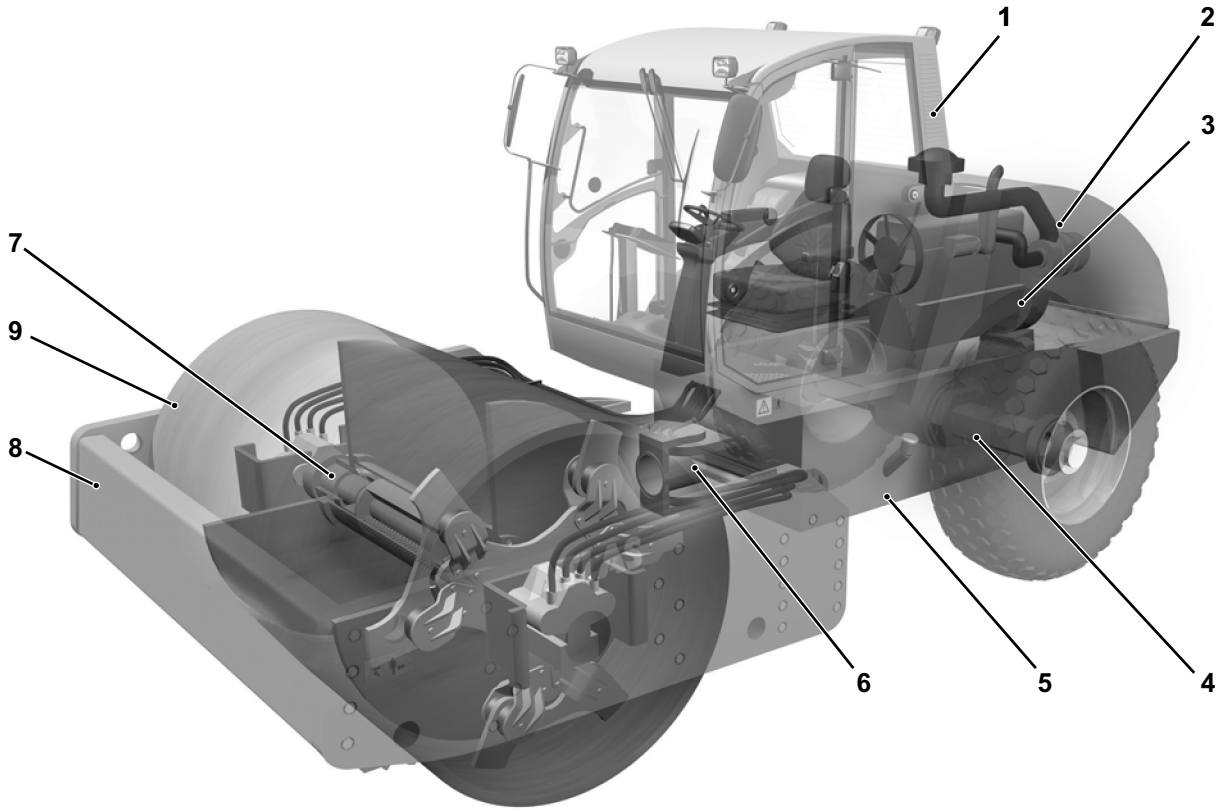


Fig.9 Overview: Assembly groups

Captions Assembly Groups

1 Cabin
2 Engine compartment with engine hood
3 Diesel engine and hydraulic system
4 Rear axle and wheels
5 Basic frame
6 Articulated pendulum joint
7 Vibration
8 Drum frame
9 Drum

5.2 Overview: Driver‘s compartment

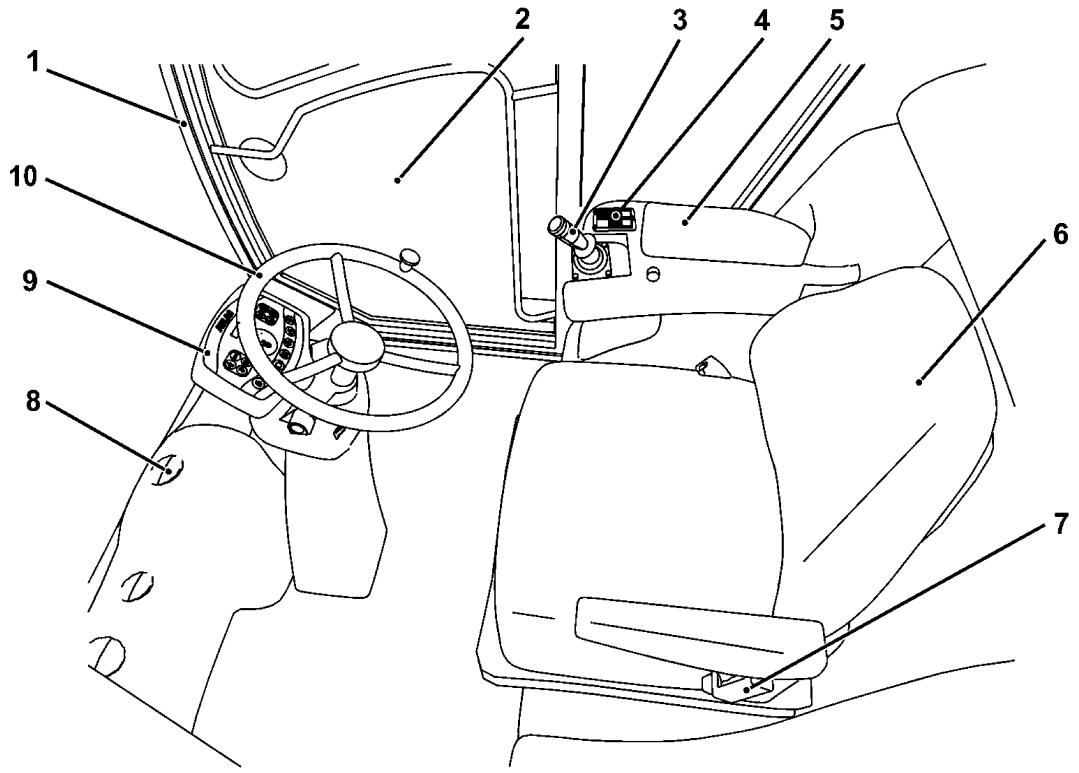


Fig.10 Overview: Driver‘s compartment

Captions Driver‘s compartment

1 Cabin frame
2 Cabin door
3 Control lever (Joystick)
4 Panel of switches, armrest
5 Adjustable armrest
6 Adjustable driver‘s seat
7 Safety belt
8 Air nozzle heating and ventilation
9 Dashboard
10 Steering wheel

5.3 Warning notices and labels

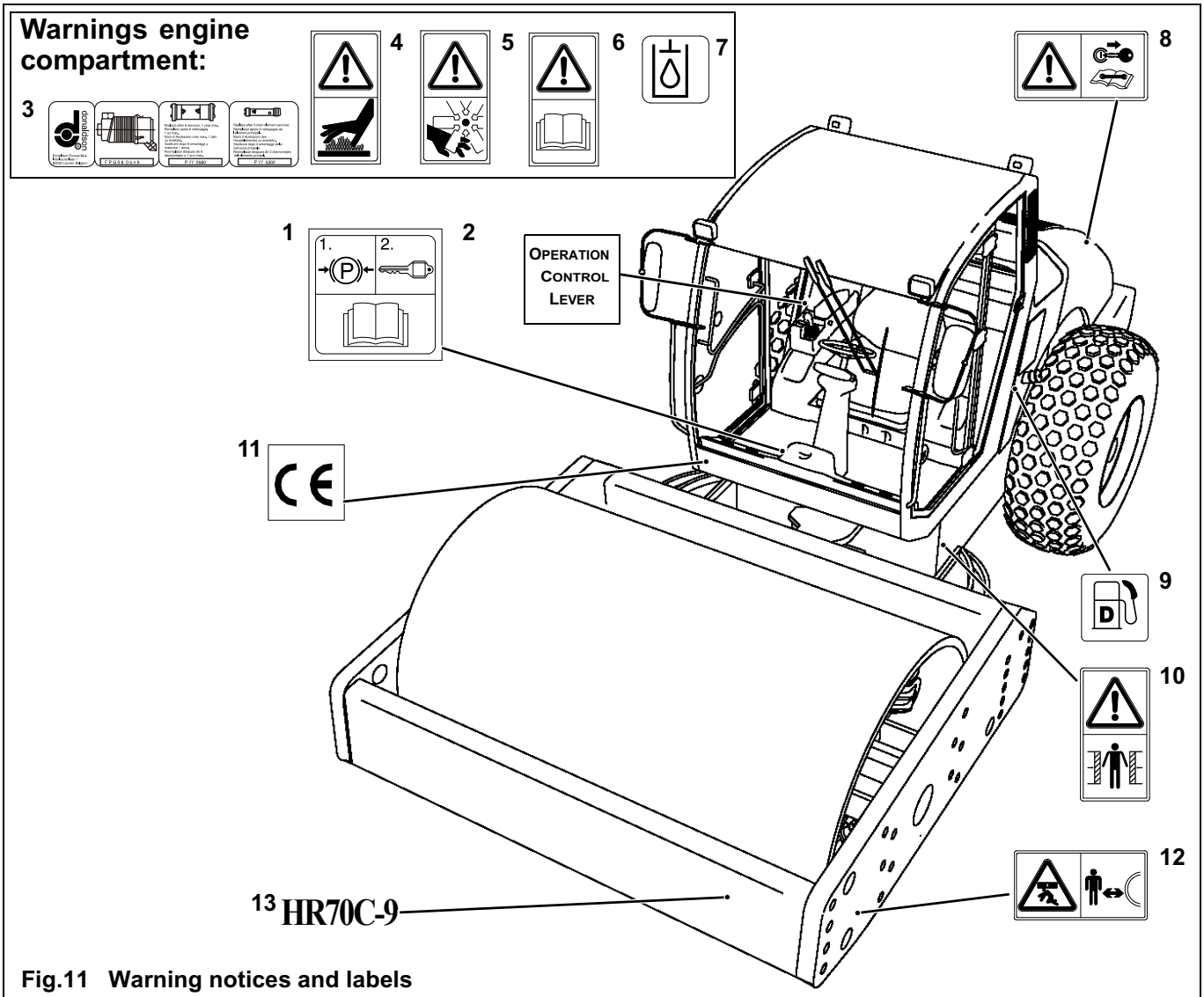


Fig.11 Warning notices and labels

Captions warning notices and labels

1 Start, actuate the parking brake & read the operating manual
2 Operation of the control lever
3 Warning notices air filter
4 Warning Hot surfaces
5 Warning Hand injuries
6 Read the operating manual
7 Fill level hydraulic oil
8 Lock the engine hood
9 Diesel only
10 Danger of crushing!
11 CE label
12 Warning Safety Distance - Risk of being run over
13 Type

6 BEFORE STARTING THE COMPACTION ROLLER

6.1 Prior to the initial start

NOTE

Obligation to inform yourself!

- Inform yourself of all issues related to operating the compaction roller.
- Read the safety instructions before starting the compaction roller. In addition to this, be sure to observe the national and local laws and directives concerning the operation of earth-moving construction machines. In case of doubt, contact your local HYUNDAI dealer.

6.2 Checking the compaction roller

6.2.1 Visual inspection

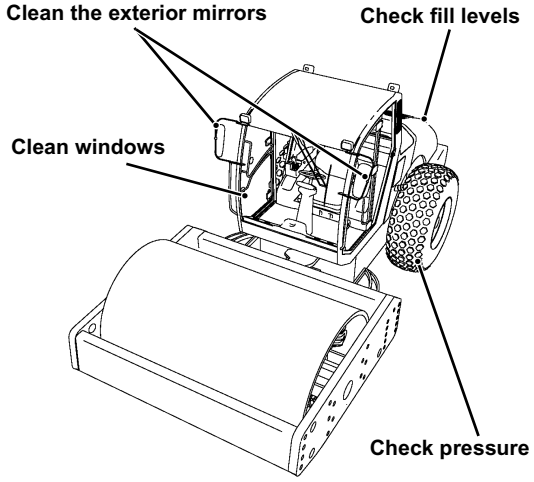


Fig.12 Visual inspection

Prior to starting the compaction roller, perform a visual inspection to get a picture of the current condition of the compaction roller.

Check:

- the accumulation of dirt and clean the compaction roller by means of a high pressure washer, if necessary,
- the condition and the air pressure of the tires (adjust the tire pressure, if necessary),

Tires	min. pressure	max. pressure	
Standard	1.2 bar	1.6 bar	with water filling
Special	Please contact your HYUNDAI dealer for information on the required tire filling		

- the fill levels:
  - Fuel (Diesel)
  - Hydraulic oil
  - Engine oil
  - Coolant and
  - Water level for the windscreen washer system,
- whether the windows of the cabin are dirty - clean the exterior and interior window panes, if required,
- whether the exterior mirrors are dirty - clean them, if required.

6.2.2 Checking the drum area

Before accessing the cabin and starting the compaction roller, check its drum area.

Cleaning the drum area

Check the scraper(s) of the smooth or pad foot drum and the drive area for the accumulation of dirt.

- If required, clean the entire drum area by means of a high pressure washer.

Checking the scrapers

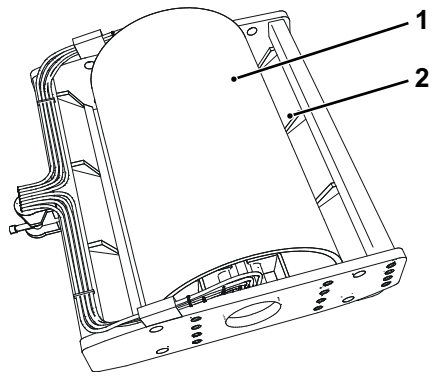


Fig.13 Checking the scrapers

- The smooth roller drum can be equipped with one of the following scraper types:
  - Standard scraper, rigid metal bar
  - Contact scraper, spring-loaded
  - Contact scraper with elastic vulcollan bar.
- After cleaning the drum area, check whether the scraper is correctly fitted at the smooth roller drum. If the scraper (2) is not properly seated at the smooth drum (1), adjust it.

Standard scrapers rigid metal bar

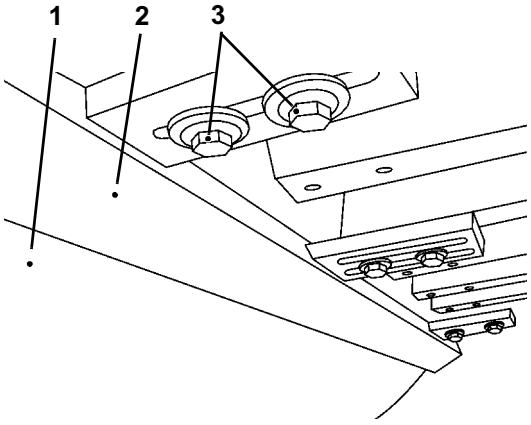


Fig.14 Standard scrapers

- Loosen the fastening bolts (3) of the scraper.
- Move the scraper (2) toward the smooth roller drum (1), to a distance of approx. 20 mm.
- Tighten the fastening bolts (3).

Contact scrapers, spring-loaded or Vulcollan bar

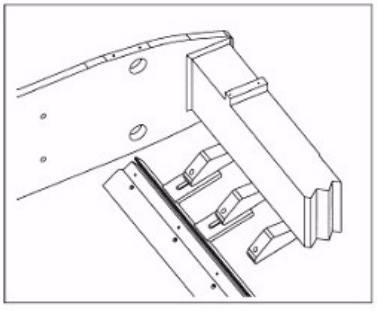


Fig.15 Contact scrapers

- Proceed as described above, but in this case, the scraper in question (flexible or spring-loaded) needs to fit tightly at the smooth roller drum.

6.2.3 Refueling (Diesel)

- Before starting your daily work with the compaction roller, make sure there is a sufficient amount of Diesel in the fuel tank.

CAUTION!
Environmental protection!
Make sure that neither oil nor fuel can penetrate the soil, pollute water or leak into the sewer system!

Type of fuel	according to standard	temperature range
Diesel fuel	ASTM D975-No. 1	for temperatures from below 0° C to - 30° C
Diesel fuel	ASTM D975-No. 2	for temperatures from above -10° C to 40° C

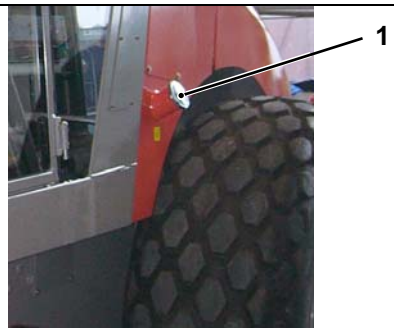


Fig.16 Filler neck

- The filler neck (1) for the fuel tank is located on the left side of the vehicle, behind the cabin.
- Unlock the cover of the tank.
- Open the tank cover and add a sufficient amount of Diesel fuel.
- Close the tank cover and lock it.

6.3 Opening the doors and accessing the vehicle

Opening and securing the doors

WARNING!

Danger of falling while getting on/off the compaction roller!

- Dirty shoes may cause you to slip while you are accessing the cabin. Clean the soles of your shoes before getting on the compaction roller.
- Always keep stairs and handles dry and clean!
- Use handles and steps to access the cabin!
- Always face the compaction roller while you are getting on the vehicle!
- Do not use any control elements as handles and do not hold on to the steering wheel when entering the cabin!

Accessing the cabin

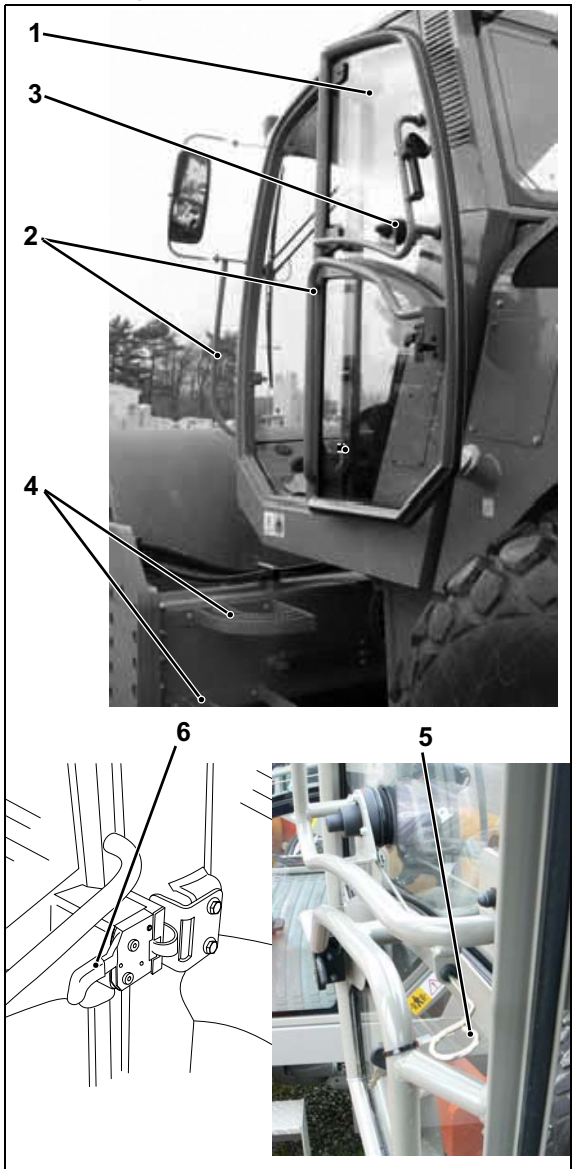


Fig.17 Opening the doors

NOTE

Prior to accessing the cabin, the checks described above need to be completed, see previous sections.

- Unlock one of the doors.
- Open the doors with the upper windows (1) and make sure the open windows click into place (3).

NOTE

- Prior to accessing the cabin, the upper windows (1) and the doors need to be properly locked .

- Hold on to both handles (2) and use the steps to access the cabin (4).
- After accessing the cabin, immediately sit down on the driver‘s seat.
- In order to release the doors, actuate the mechanism (5) of the release button (6).
- After releasing the doors, immediately close them and make sure they are securely engaged in the door lock.

Opening and closing the windows

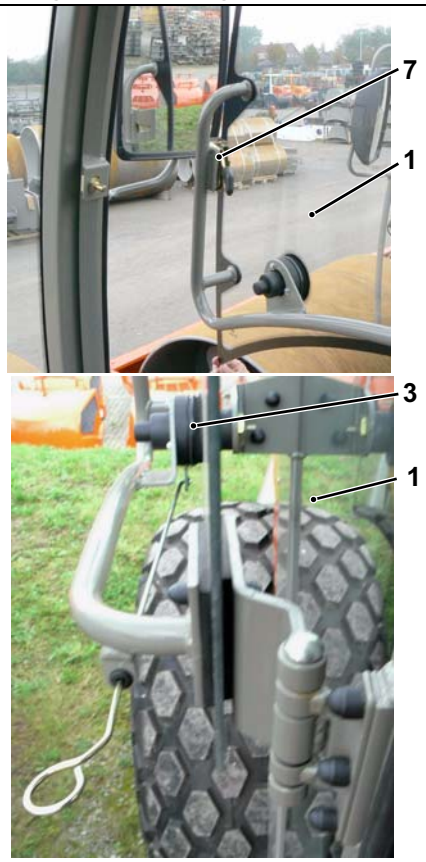


Fig.18 Opening the doors

- In order to open the windows (1), release the lock (7) and open the window on the desired side.
- Open the window and make sure it clicks into place (3).
- After releasing the windows, close the doors and make sure they are securely engaged in the door lock.

Opening the doors

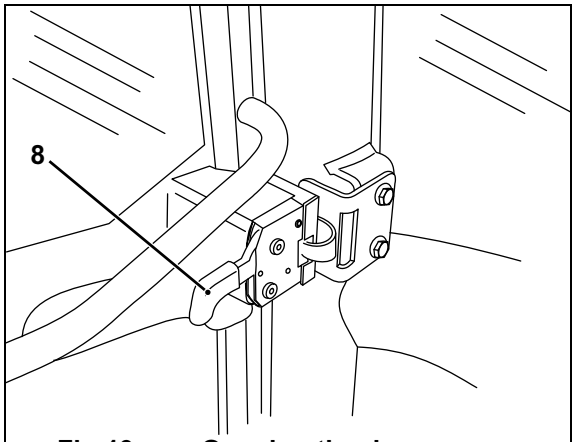


Fig.19 Opening the doors

NOTE
Close the windows and make sure they are securely fastened before opening the doors!

- Release the door by means of the door lock lever (8).
- Open the door until it clicks into place.

7 INDIVIDUAL SETTINGS

7.1 Adjusting the driver‘s seat

Driver‘s seat - Features

- Check the features of your driver‘s seat.
- Your seat may not dispose of all the optional features described in this section.

WARNING!
Always make sure you have made all the required adjustments before starting the compaction roller.

Weight adjustment

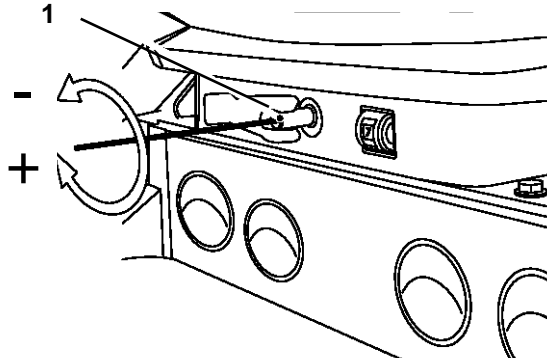


Fig.20 Weight adjustment

NOTE
The driver‘s seat has been designed for a maximum weight of 130 kg.
In order to prevent damage to your health, check and adjust the settings of the driver‘s seat each time before putting the compaction roller into operation.

- In order to make the necessary adjustments, the seat has to be unoccupied.
- Turn the adjustment lever (1) in the desired direction until it corresponds to your weight.
- The current setting is displayed on the vision panel.

Height adjustment

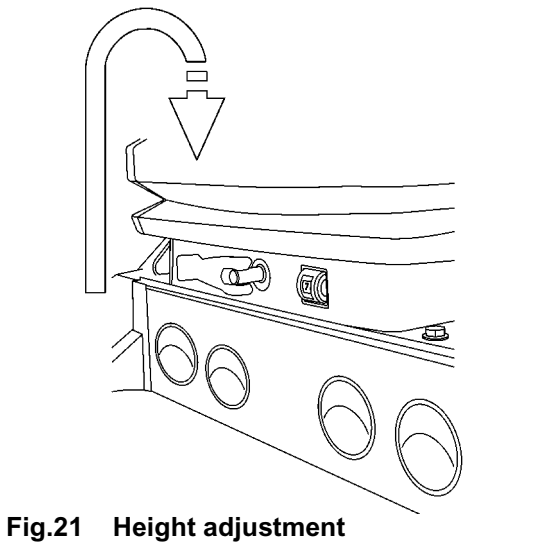


Fig.21 Height adjustment

- Lift the driver‘s seat until it audibly locks into the desired position.
- If you lift the driver‘s seat beyond the maximum height (stop), the seat will move back to its lowest position.

Longitudinal adjustment

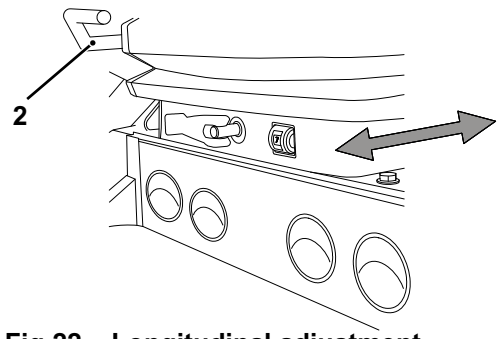


Fig.22 Longitudinal adjustment

- Make the necessary adjustments by means of the corresponding locking lever (2).
- Lift the locking lever and move the driver‘s seat into the desired position until the locking lever clicks into place.

CAUTION!
After making the required adjustments, ensure that the locking lever has clicked into place. If this is the case, the position of the driver‘s seat is fixed, i.e. it must not be possible to move it into another position any more!

Backrest inclination

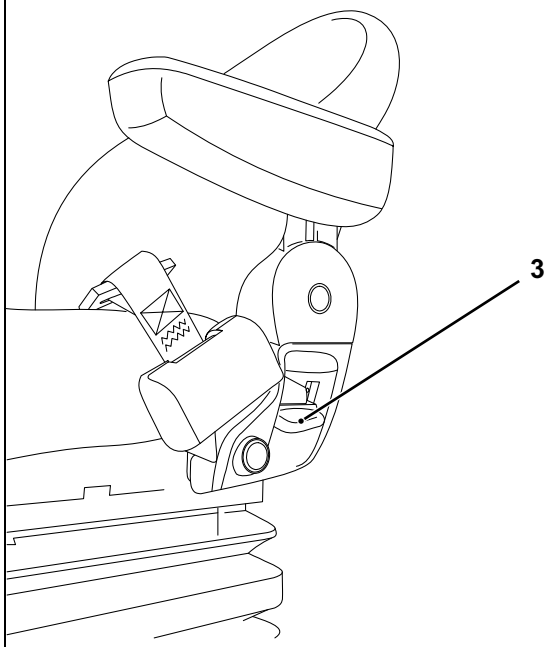


Fig.23 Backrest inclination

- Adjust the backrest by means of the corresponding locking lever (3).
- Lift the locking lever and move the backrest into the desired position.
- Check whether the locking lever (3) has clicked back into place after you have made the adjustment.

CAUTION!
After making the required adjustments, ensure that the locking lever has clicked into place. If this is the case, the position of the driver‘s seat/the backrest is fixed, i.e. it must not be possible to move it into another position any more!

Armrest on the left side of the seat

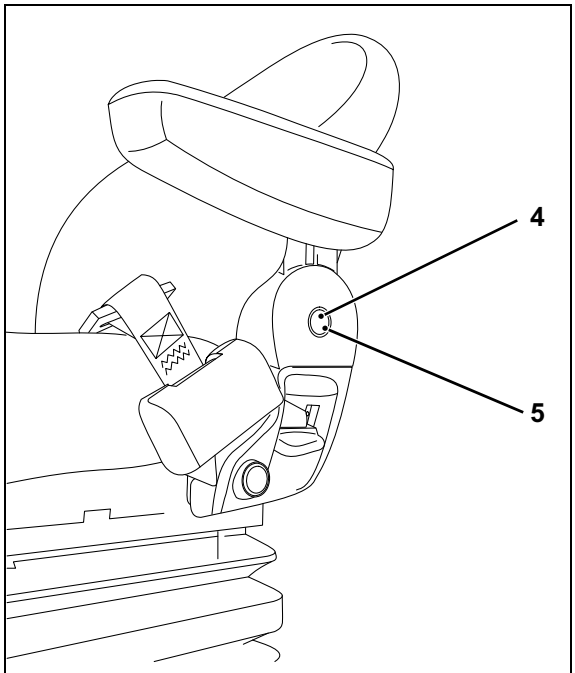


Fig.24 Left armrest

- The armrest on the left is foldable and its height can be adjusted.

NOTE
Before using the compaction roller and before leaving the seat, lift the left armrest.

- In order to adjust the height of the left armrest, remove the cap (4) covering the adjusting nut.
- Loosen the adjusting nut (5).
- Move the armrest to the desired height and tighten the adjusting nut again.
- Attach the cap.

7.2 Adjustable steering column

Adjusting the steering column

Fig.25 Adjusting the steering column

The steering column may have to be adjusted in order to meet your individual needs.

NOTE
If your distance to the steering wheel is too small or too big while you are properly seated on the driver's seat with the safety belt fastened, the steering column has to be adjusted.

- Step on the latch (6) of the steering column.
- Move the steering column (7) into the desired position.
- Release the latch (6), which locks the steering column (7) in its current position.

NOTE
Make sure that the steering wheel is securely locked. It must not be possible to move it into another position.

7.3 Adjusting the exterior mirrors

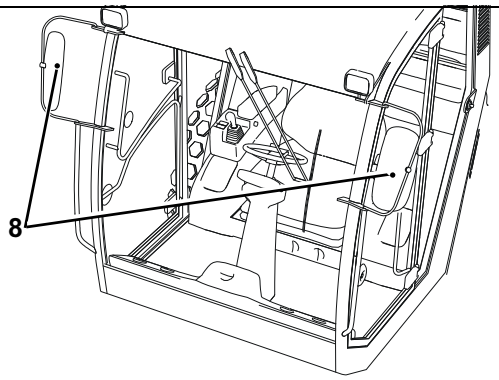
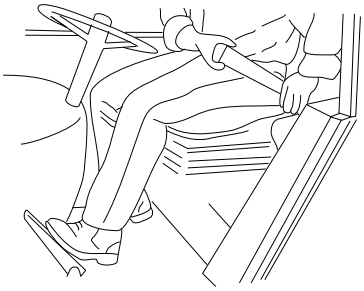


Fig.26 Adjusting the exterior mirrors

WARNING!
Restricted visibility!
Dirty and incorrectly adjusted exterior mirrors restrict your view to the rear.
Clean the exterior mirrors and adjust them according to your individual needs.

- The exterior mirrors (8) are installed at the right and left side of the front frame of the cabin.
- The mirrors can be turned and their inclination adjusted.
- Adjust the exterior mirrors (8) in a way that ensures the best possible view from the driver‘s seat.

7.4 Fastening the safety belt



DANGER!
Risk of death!
Fastening the safety belt before starting the Diesel engine and before driving the compaction roller is of vital importance to your safety!

Fastening the safety belt

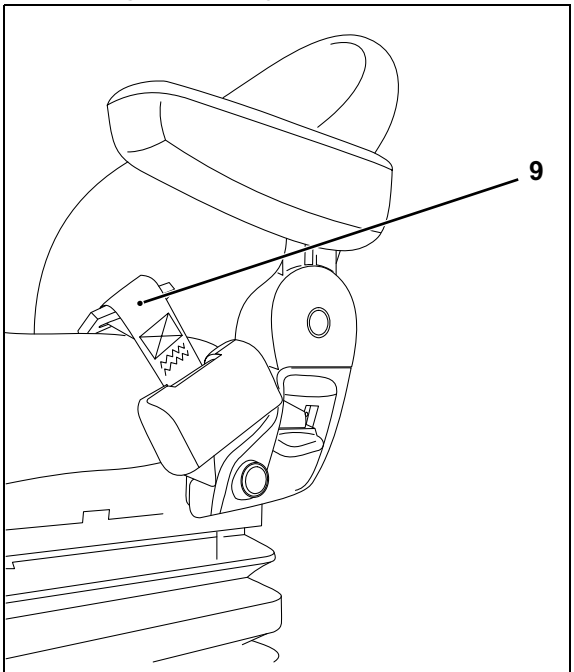


Fig.27 Safety belt

- The safety belt (9) is part of the driver‘s seat and can be found at the left side of the seat.
- Sit down on the driver‘s seat.
- Take the clasp of the safety belt and pull the belt around your upper body.
- Attach the clasp to the lock of the safety belt.
- Ascertain that the clasp audibly clicks into the lock and is securely fastened.

NOTE
After locking it, the safety belt has to fit tightly.

7.5 Driver‘s Seat: Optional Features

Turnable seat

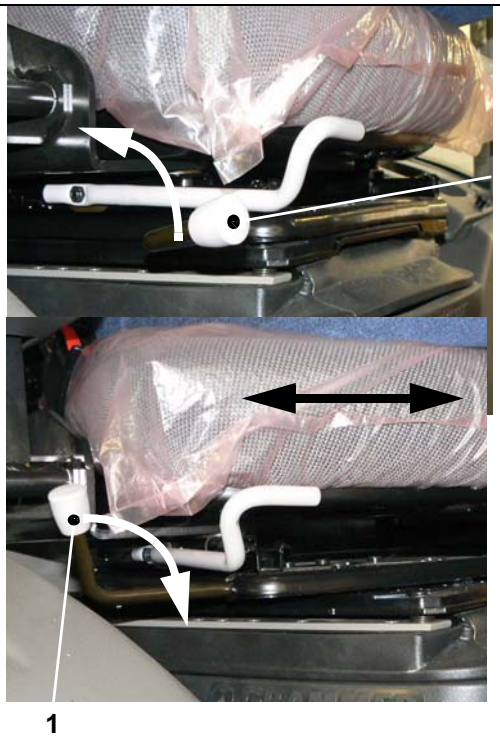


Fig.28 Turnable seat

- If your driver‘s seat is turnable, you can swivel it to the right.
- The armrest with the control lever is adjusted with the driver‘s seat.

WARNING!
Never adjust the seat while the compaction roller is in motion!

- Pull the lever upwards (1) to the back.
- Turn the seat in the desired direction.
- Lock the position of the seat by pressing down the lever (1).

NOTE
Be sure to press down the lever manually, as the seat does not automatically click into place after turning it.

Backrest extension

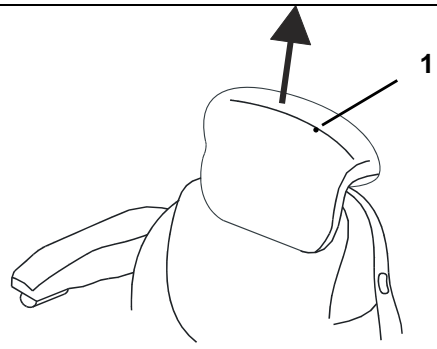


Fig.29 Backrest extension

- The backrest extension (1) may be adjusted by pulling it to the desired height.
- In order to cancel the back rest extension, pull past the limit stop.

Seat heating

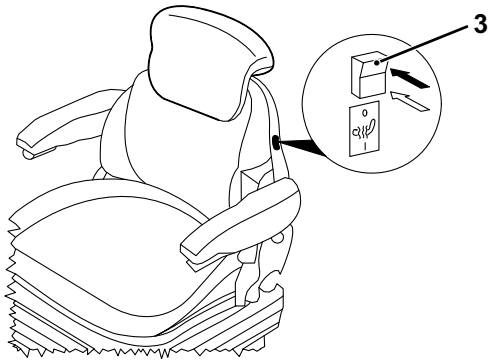


Fig.30 Seat heating

Activate the seat heating by actuating the switch (3) in the backrest.

Seat with air suspension

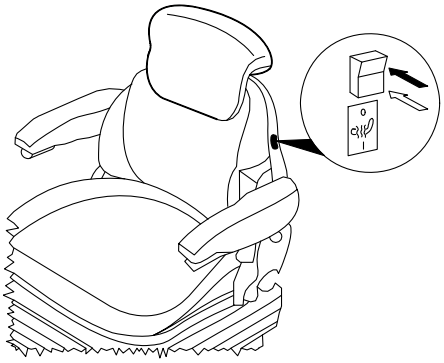


Fig.31 Compressor switch

The spring pressure for the seat with air suspension is provided by a compressor. Be sure to observe the maximum on-time of the compressor, whose activation must not exceed one minute.

8 CONTROL ELEMENTS AND DISPLAYS IN THE CABIN

8.1 Overview: Cabin

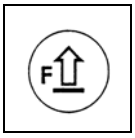
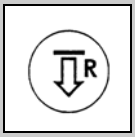
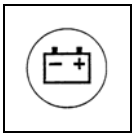
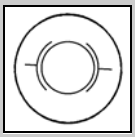
8.1.1 Dashboard

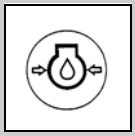
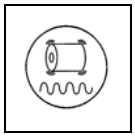
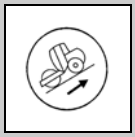
Fig.32 Dashboard

The dashboard of the compaction roller provides the driver with important information regarding the vehicle‘s functions and operating conditions by means of displays, symbols and lights.

- Operating hour meter (1)
- Fuel level in the tank (2).

Table of displays, symbols and lights

Symbol	Function	Description
	**Display forward motion (green)**	Activation indicates that the compaction roller is moving forward
	**Display reverse motion (green)**	Activation indicates that the compaction roller is moving backward
	**Control parking brake (red)**	Activation indicates the application of the parking brake. The Diesel engine can only be started with the parking brake applied. If the parking brake is applied during operation, the compaction roller stops.
	**Control preheat (yellow)**	LED lights up while the Diesel engine is being preheated (ignition lock position I) and goes out as soon as the starting temperature is reached.
	**Charge control (red)**	Lights up on activating the ignition. Goes out after the Diesel engine and the generator have started.
	**Brake pressure (red)**	Indicates an insufficient hydraulic oil pressure of the braking system.
	**Coolant temperature (red)**	If lit, immediately stop the operation of the compaction roller and let the Diesel engine idle. As soon as the light goes out, check the coolant level, as described in the maintenance instructions.

Symbol	Function	Description
	**Diesel engine oil pressure (red)**	If this lamp lights up during operation, immediately stop the Diesel engine.
	**Dual display Accumulation of dirt in the fuel filter / air filter of the Diesel engine (yellow)**	Indicates the accumulation of dirt in the air filter. Clean the filter, see chapters on maintenance.
	**Display high amplitude (yellow)**	Indicates that “**high** amplitude“ has been selected by means of the switch “soil compaction“ on the panel next to the control lever.
	**Display low amplitude (yellow)**	Indicates that “**low** amplitude“ has been selected by means of the switch “soil compaction“ on the panel next to the control lever.
	**Display drum drive (green)**	Indicates that the switch “overmodulation hydraulic engine drum“ (HA control) is **activated**.
	**Optional feature: Display rear axle drive (green)**	Indicates that the switch “overmodulation hydraulic engine rear axle“ (HD control) is **activated**.

8.1.2 Switches in the steering column

Fig.33 Switches steering column

Below the dashboard, switches, buttons and the ignition lock can be found.

- Switch parking brake (3).
- Switch horn (4).
- Emergency stop push-button (5) on the left side.
- Ignition lock (6) on the right side.

DANGER!
In any emergency which requires you to stop the compaction roller at once, push the **emergency stop push-button**.

8.1.3 Warning features

Horn

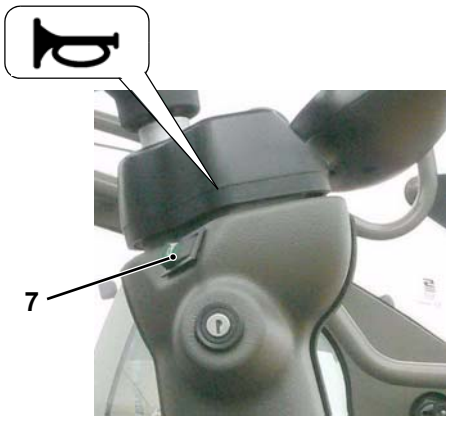


Fig.34 Horn

WARNING!
The horn is to be used as an acoustic warning device in exceptional cases only.

- In order to activate the horn, press the button (7) on the steering column.
- The warning sound continues as long as the button (7) is pressed.

8.1.4 Control lever and panel of switches in the right armrest

Control elements on the console

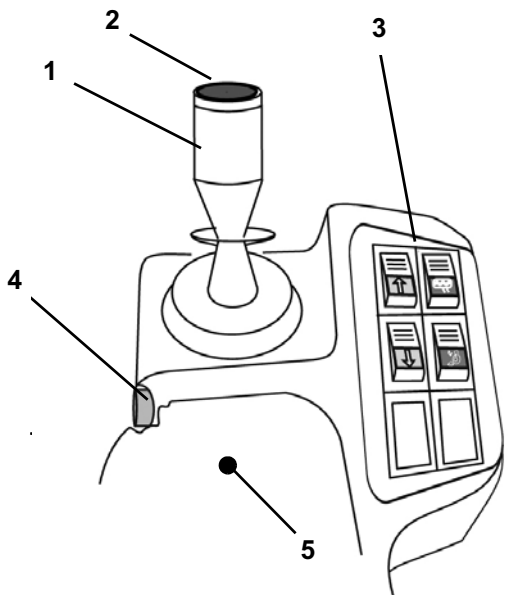


Fig.35 Control lever & panel of switches

The console of the adjustable armrest (5) on the right features the controls for the functions of the compaction roller.

1 Control lever direction of motion
2 Button vibration on/off
3 Panel of switches roller functions (illustration with optional features)
4 Armrest lock button
5 Right armrest

- You can adjust the right armrest (5), e.g. in order to get on or off the vehicle, by pressing the button (4).
- In order to get on / off the vehicle, move the armrest (5) into the rear position. In order to work, move it into the front position.

NOTE
Never adjust the armrest with the compaction roller in motion!

Functions of the control lever

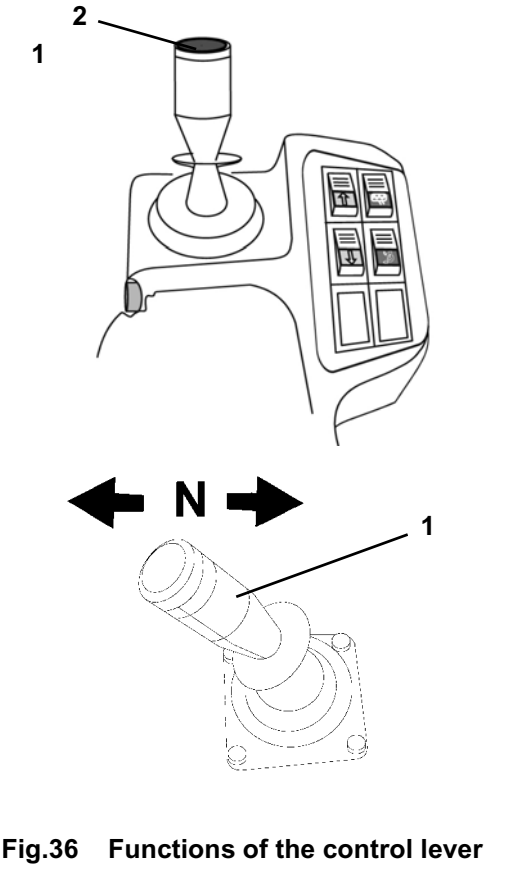


Fig.36 Functions of the control lever

- The control lever (1) in the right armrest serves to select the direction of motion and to set the speed of the compaction roller.

NOTE
- The more the control lever is moved into the desired direction of motion, the higher the speed of the compaction roller.
- As soon as the control lever has reached the end position, the maximum speed is set.
- Putting the joystick into the neutral position **N** stops the compaction roller.

- The button (2) Vibration on the control lever activates / deactivates the vibration.

Switches roller functions

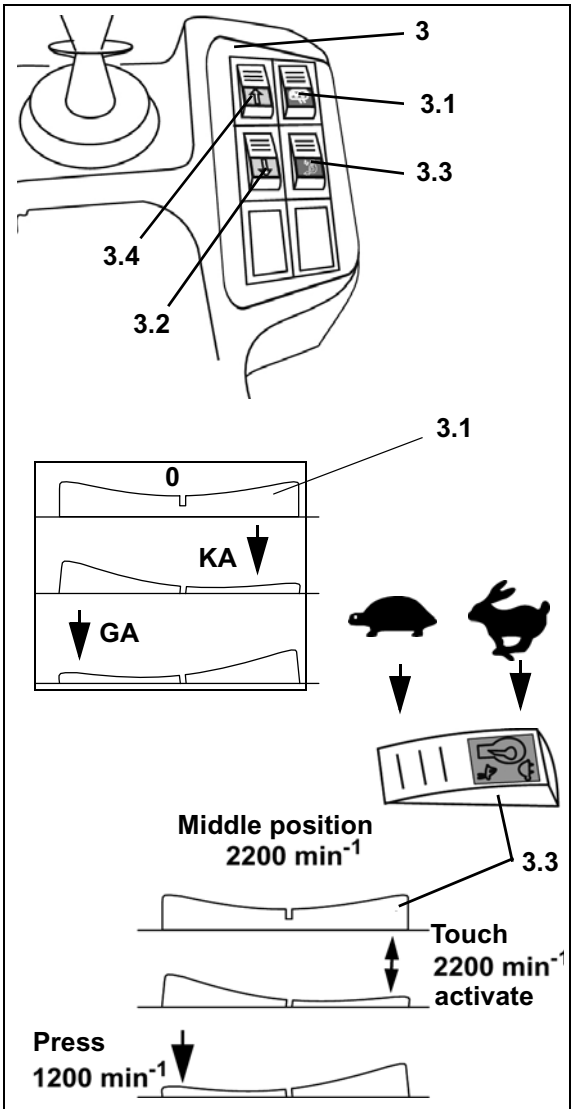


Fig.37 Functions of the switches

- The switches on the panel (3) of the right armrest serve to control the functions related to driving and vibration.
- **3.1**: **Switch:**
  Selects the type of vibration for soil compaction.
  - Middle position (**0**) = Vibration off.
  - Press down the front part of the switch (**GA**) to activate deep soil compaction (high amplitude)
  - Press down the rear part of the switch (**KA**) to activate surface soil compaction (low amplitude).

NOTE
By selecting the type of vibration, the vibration itself has not been activated.

- **3.2: Switch Overmodulation Drum**
- Overmodulation hydraulic motor drum on / off, see section on the hydraulic HA control.
- **3.3**: **Diesel engine speed switch**
- Set the Diesel engine speed switch (3.3) to the **Rabbit** or **Turtle** position.
- Turtle: low Diesel engine speed, approx. 1200 min^{-1}, switch position to the front
  or deactivate high engine speed.
- Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, Touch-switch to the rear (just touch the switch slightly and release it again).
- Middle position: high Diesel engine speed is activated
- **3.4: Switch HD system rear axle (optional feature)**
- Serves to activate / deactivate the 2nd stage of the rear axle.
- Front of switch pressed down: 1st stage, low tractive power
- Rear of switch pressed down: 2nd stage, high tractive power

NOTE
These settings are required in order to drive on heavy soil and on slopes. Please refer to the corresponding sections in this operating manual.

8.1.5 Panel of switches below the cabin roof

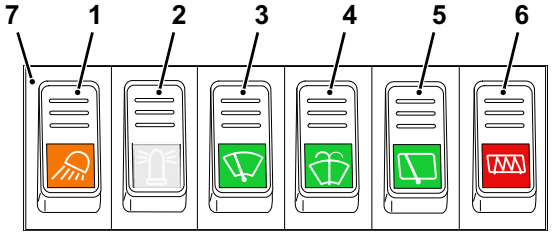


Fig.38 Panel of switches cabin roof

The switches on the panel (**7**) below the cabin roof serve to activate / deactivate the following functions:

1 Front and rear work lights
2 Rotating light (optional feature)
3 2-stage front wiper
4 Front windscreen washer system
5 Rear wiper and rear windscreen washer system
6 Rear window heating

8.1.6 Heating and ventilation

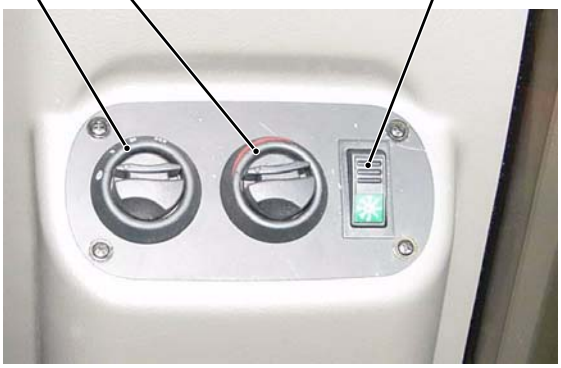


Fig.39 Controls heating and ventilation

The controls for heating and ventilation are installed on the panel to the left of the driver‘s seat.

- **1** Rotary switch fan, stages 0, I - III.
- **2** Rotary switch heating,
  red area: hot, blue area: cold.
- **3** Switch air conditioning on / off (optional feature).

Distribution of air

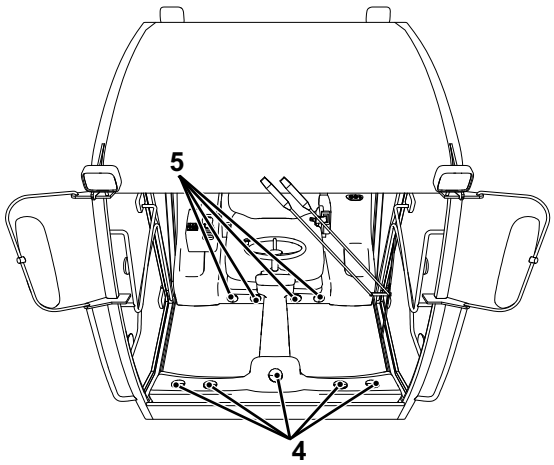


Fig.40 Air nozzles in the cabin

In the cabin, the following devices serve to ensure the air supply:

- **4** air nozzles in the front console,
- **5** air nozzles below the driver‘s seat.

9 STARTING, DRIVING AND STOPPING THE COMPACTION ROLLER

9.1 Prior to the initial start

NOTE

Obligation to inform yourself!

- Inform yourself of all issues related to operating the compaction roller.
- Read the safety instructions before starting the compaction roller. In addition to this, be sure to observe the national and local laws and directives concerning the operation of earth-moving construction machines. In case of doubt, contact your local HYUNDAI dealer.

9.2 Starting the Diesel engine

Starting the Diesel engine

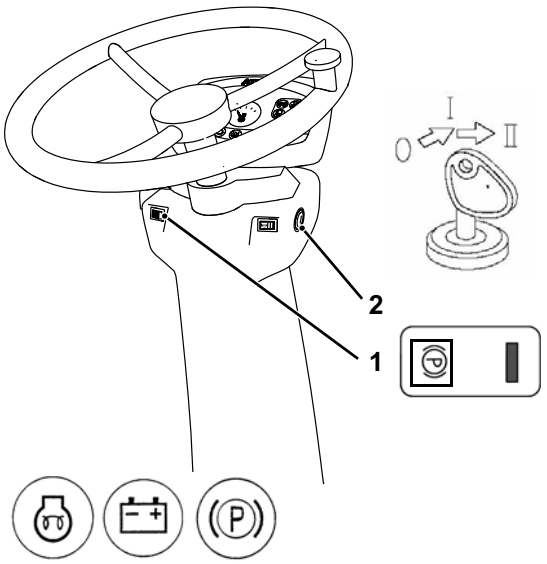


Fig.41 Starting the Diesel engine

- Insert the ignition key into the ignition lock (**2**).
- Apply the parking brake (**1**). As soon as the ignition has been activated, the symbol indicating the application of the parking brake lights up on the dashboard.
- Turn the ignition key to the right:
  - Position **I**: Ignition on and preheating. The symbol for preheating goes out after the preheating phase is completed. The symbols for charge control and for engine oil pressure light up.
  - Position **II**: Start. The symbols for charge control and for engine oil pressure must automatically go out after the Diesel engine has started.
- As soon as the engine has started, immediately release your grip on the ignition key.

CAUTION!

A warming-up phase with the Diesel engine running at idle speed is required prior to driving the compaction roller!
The functions of the hydraulic system are not available before the hydraulic oil has sufficiently warmed up!

Diesel engine does not start!

- Check:
  - whether the parking brake is applied,
  - the charge condition of the battery,
  - the battery main switch (if your vehicle is equipped with this optional feature),
  - the amount of Diesel in the fuel tank.
  - the engine compartment by performing a visual inspection

Diesel engine still does not start!

- Contact the HYUNDAI service staff.

9.3 Driving the compaction roller

WARNING!
Driving the compaction roller with the doors open is strictly prohibited.
You may open the windows in the doors before the start.

9.3.1 Starting forward and reverse motion

Forward motion

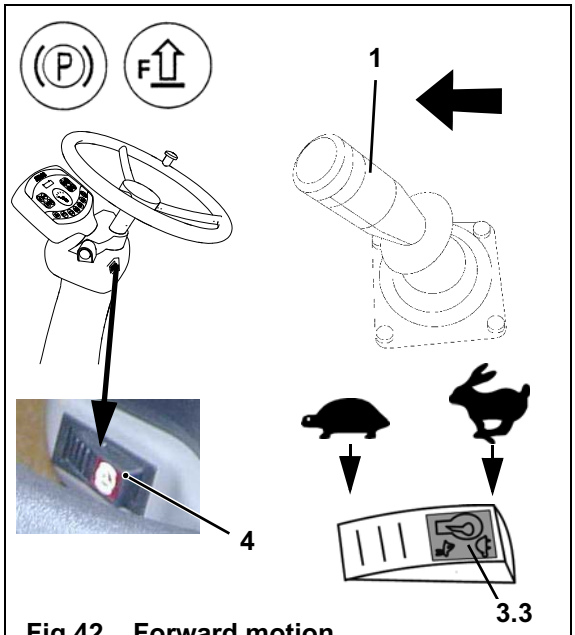


Fig.42 Forward motion

- Deactivate (i.e. release) the parking brake by means of the switch (4). The symbol indicating the activation of the parking brake goes out.
- Make sure that the switch for selecting the type of vibration is in the middle position **0**.
- Set the Diesel engine speed switch (3.3) to **Rabbit** or **Turtle**.
- Turtle: low Diesel engine speed, approx. 1200 min^{-1}, switch position (3.3): front
- Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, switch in the rear position (just touch the switch position)
- Hold on to the steering wheel.
- Move the control lever (1) forward.
- The symbol indicating forward motion lights up on the dashboard.
- The compaction roller starts to move forward.

NOTE
- The more the control lever is moved into the desired direction of motion, the higher the speed of the compaction roller.
- As soon as the control lever has reached the end position, the maximum speed is set.
- Putting the joystick into the neutral position **N** stops the compaction roller.

Stopping the forward motion

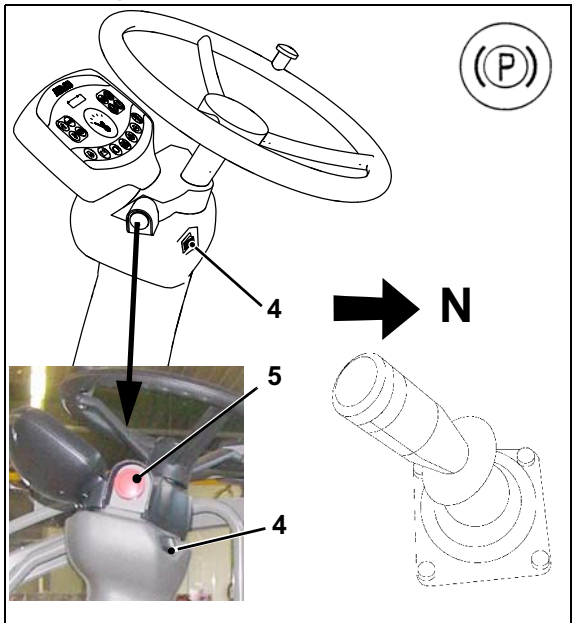


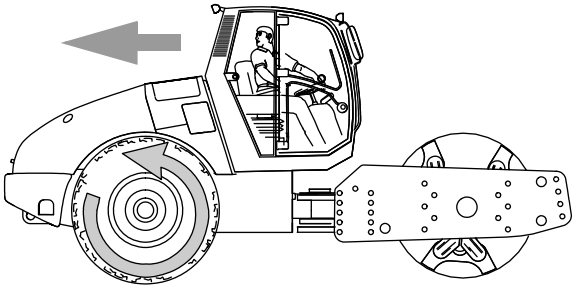
Fig.43 Stopping the forward motion

Stop the forward motion by means of the control lever or, in the event of an emergency, by pressing the emergency stop push-button (5).

- Move the control lever back to the neutral position **N**. The compaction roller stops.
- Use the corresponding switch (4) to apply the parking brake. The symbol indicating the activation of the parking brake lights up on the dashboard.

DANGER!
In emergencies which call for an immediate stop, press the **emergency stop push-button** (5).

Starting reverse motion



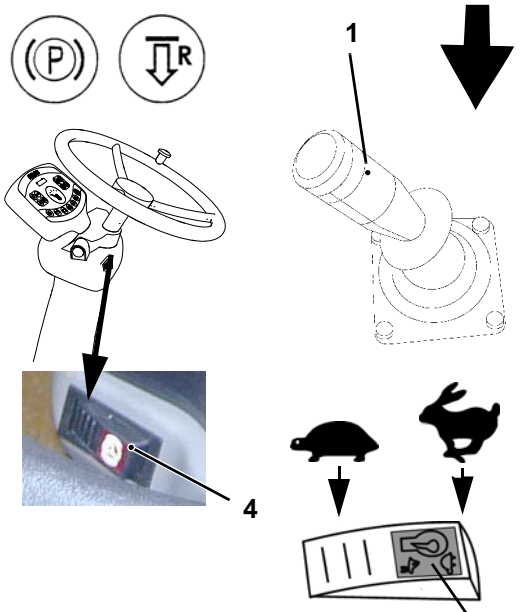


Fig.44 Reverse motion

DANGER!

Risk of accidents!

- Prior to any reverse movement of the compaction roller, make sure that your view to the rear is unobstructed!
- Before and while driving backwards, always check the area behind you by looking backwards!

- Deactivate (i.e. release) the parking brake by means of the switch (4). The symbol indicating the activation of the parking brake goes out.
- Make sure that the switch for selecting the type of vibration is in the middle position **0**.
- Set the Diesel engine speed switch (3.3) to **Rabbit** or **Turtle**.
- Turtle: low Diesel engine speed, approx. 1200 min^{-1}, switch position (3.3): front.
- Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, switch in the rear position (just touch the switch position).
- Hold on to the steering wheel.
- Move the control lever (1) backward.
- The symbol indicating reverse motion lights up on the dashboard.
- The compaction roller starts to move backward.

NOTE

- The more the control lever is moved backwards, the higher the speed of the compaction roller.
- As soon as the control lever has reached the end position, the maximum speed is set.
- Putting the joystick into the neutral position **N** stops the compaction roller.

Stopping the reverse motion

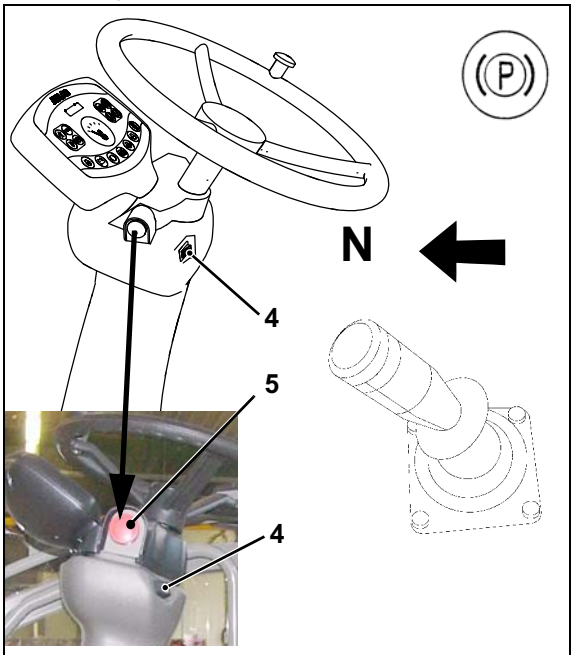


Fig.45 Stopping the reverse motion

Stop the forward motion by means of the control lever or, in the event of an emergency, by pressing the emergency stop push-button (5).

- Move the control lever back to the neutral position **N**.
- Use the corresponding switch (4) to apply the parking brake. The symbol indicating the activation of the parking brake lights up on the dashboard.

DANGER!

In emergencies which call for an immediate stop, press the **emergency stop push-button** (5).

9.3.2 Changing direction

Steering motions

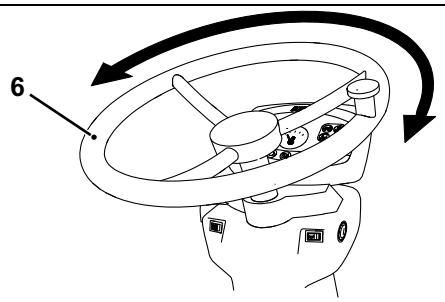


Fig.46 Steering motions

- Turn the steering wheel (6) in the desired direction of motion.
- Turning the steering wheel to the right causes the compaction roller to turn right.
- Turning the steering wheel to the left causes the compaction roller to turn left.
- The steering angle determines the turning radius.

9.4 Driving in the rain or with restricted visibility

DANGER!

Risk of accidents!

If the windows are steamed up or icy or if fog or precipitation cause restricted visibility,
Immediately stop the vehicle or reduce its speed to render an instant stop possible.

- Do not resume operation unless a sufficient all-round view has been attained.

9.4.1 Driving in the rain

Front wiper

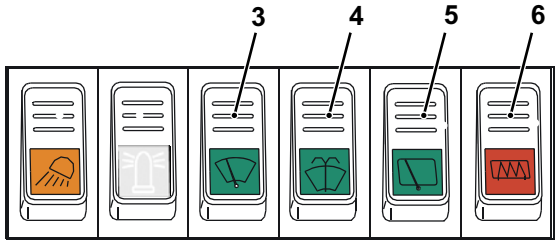


Fig.47 Switches wipers

- Activate the front wiper by means of the switch (3) on the panel at the cabin roof.
- In case the front screen is dirty, press the switch for the windscreen washer system (4) and clean the front screen.

Rear wiper

- Activate the rear wiper by means of the corresponding switch (5) on the panel at the cabin roof.
- If the rear window is icy or steamed up, actuate the switch for the rear window heating (6).

9.4.2 Driving in the dark or with restricted visibility

NOTE

Make sure the work lights and the rotating light (in case your compaction roller is equipped with this optional feature) are always activated while operating the compaction roller.

Activation of the work lights

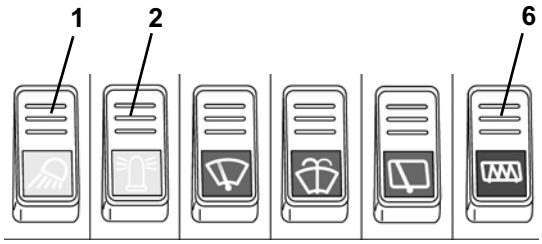


Fig.48 Panel of switches

- The switch for the front and rear work lights (1) is installed on the panel at the cabin roof.
- At dusk, immediately activate the front and rear work lights by means of the corresponding switch (1).

DANGER!

Danger due to limited visibility!

If the visibility range, despite of the activation of the work lights, is shorter than the braking distance of the compaction roller, immediately stop the operation of the compaction roller.

Activating the rotating light (optional feature)

If your compaction roller is equipped with a rotating light (optional feature), use the corresponding switch (2) ON / OFF to activate / deactivate it.

- Be sure to activate the rotating light during any operation of the compaction roller.

Steamed up or icy windows

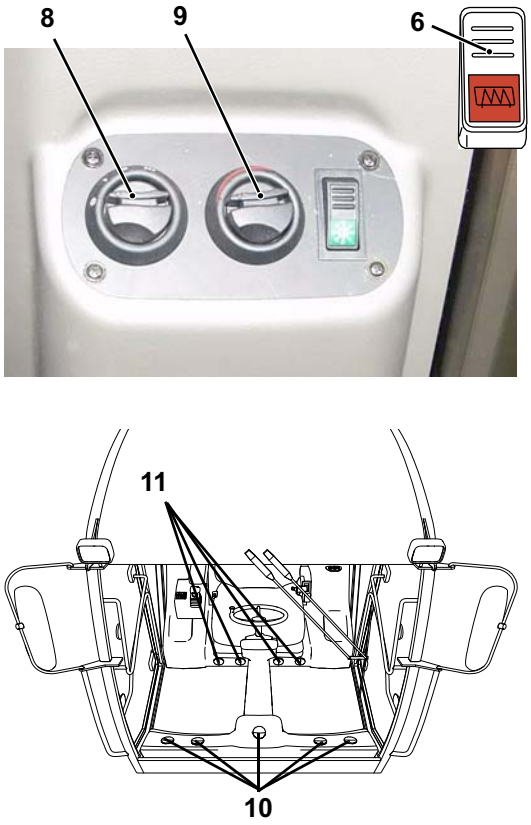


Fig.49 Steamed up windows

- If the windows are steamed up, set the fan to the highest stage by means of the corresponding rotary switch (8).
- Set the rotary switch for the heating (9) to the red area.
- Close the ventilation slots (11) below the driver‘s seat.
- Adjust the air nozzles (10) so the warm air flow points to the cabin windows.
- In case the rear window is steamed up, actuate the switch for the rear window heating (6) on the panel at the cabin roof.

9.4.3 Heating and ventilation

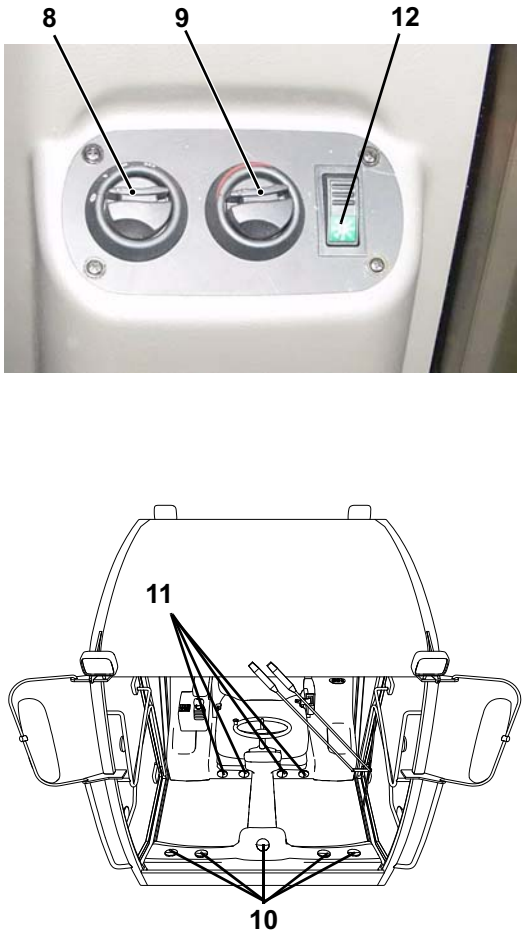


Fig.50 Rotary switches heating and ventilation

The heating is fed by the warm cooling water of the Diesel engine.

- Use the rotary switch for the fan to set the fan to the desired stage.
- Set the rotary switch for the heating (9) to the red area.
- Adjust the air nozzles (10,11) to distribute warm air in the cabin.
- Warm air enters the cabin as it flows through the ventilation slots at the cabin windows and below the driver‘s seat.
- The filter mat in the air intake opening needs to be clean (see chapters on maintenance for further information) to ensure an unrestricted air supply for the fan.
- **Compaction roller with air-conditioning (optional feature):**
- Activate the air conditioning by means of the corresponding ON / OFF switch (12).
- Use the rotary switch (9) for climate control.

9.5 Line-of-sight obstruction

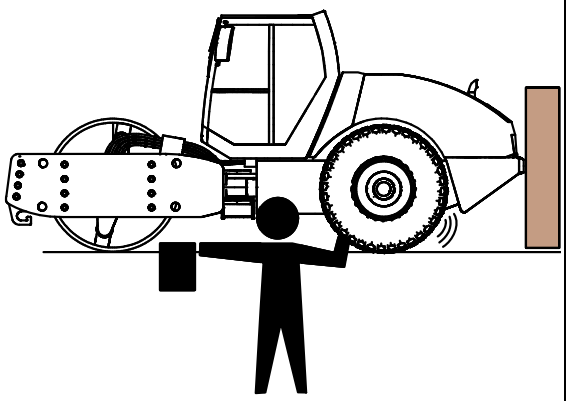


Fig.51 Giving hand signals & instructions

- In order to compensate for the drawbacks caused by line-of-sight obstruction, the following measures are to be taken:
  - Find a skilled person to give you the required instructions and hand signals.
  - Block the access to the operating area of the compaction roller.

NOTE

- In countries where official regulations concerning this issue exist, a special permit must be obtained.
  - The control elements of the vehicle must allow for easy and safe operation.
  - A sufficient field of vision must be ensured for the driver at all times, regardless of the operating and weather conditions.

9.6 Stopping and parking the compaction roller

Stopping the Diesel engine

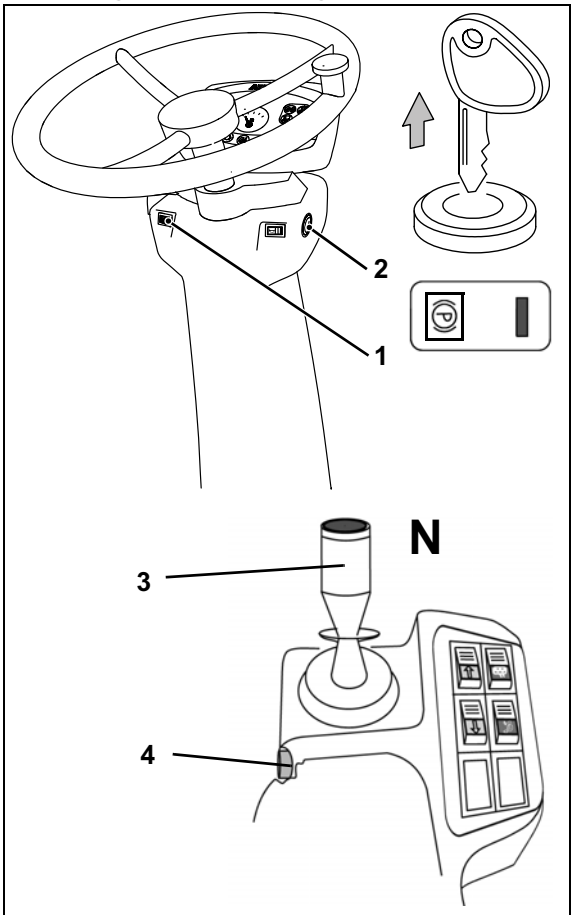


Fig.52 Parking the compaction roller

- Stop the compaction roller on solid and level ground.

NOTE
Never shut off the Diesel engine while it is running at a high engine speed. Let the Diesel engine idle until a temperature compensation has been established.

- Actuate the switch (1) to apply the parking brake. The corresponding symbol lights up on the dashboard.
- Turn the ignition key counterclockwise into the neutral position and remove it from the ignition lock (2).
- Press the locking button (4) in the right armrest and move it to the rear position in order to get off the vehicle.

9.6.1 Leaving the compaction roller

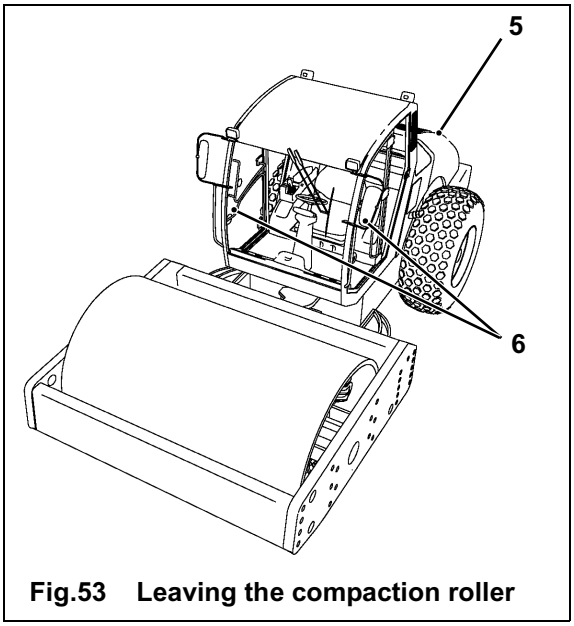


Fig.53 Leaving the compaction roller

- After leaving the cabin, lock both doors (6) and the engine hood (5).
- In addition, secure the compaction roller against rolling by means of wheel chocks.

WARNING!
If you intend to park the compaction roller on slopes, be sure to secure the machine with wheel chocks.

10 DRIVING ON HEAVY SOILS AND ON SLOPES

10.1 Hydraulic HA control of the drum

The hydraulic HA control can be used to drive the compaction roller on level grounds or on slopes, either with or without vibration.

10.1.1 Notes on the functions of the hydraulic HA control

NOTE

- The HA control prevents the drum from spinning on slopes or in heavy terrain.

Deactivating the HA control

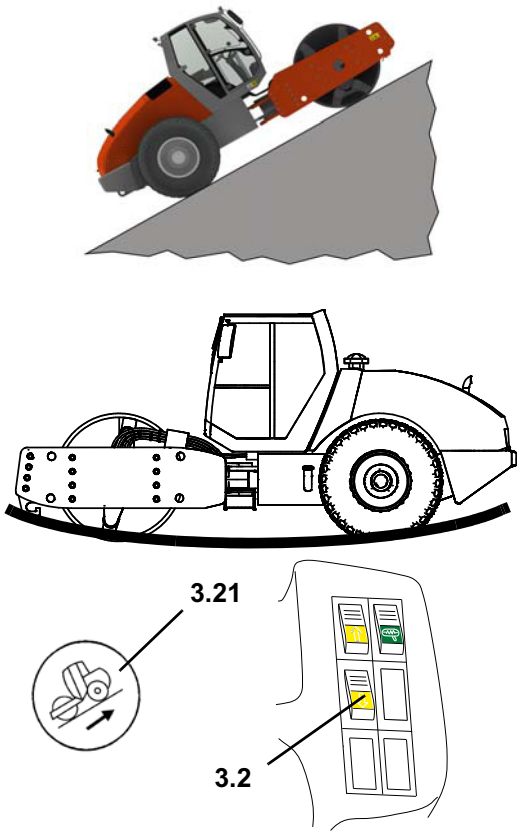


Fig.54 HA control drum

In certain situations, e.g.

- when starting the compaction roller with the drum sunk into the ground or
- while driving at a carefully set speed

it may be necessary to overmodulate the hydraulic HA control.

- In order to do so, actuate the switches Overmodulation Drum (3.2), which deactivates the HA control at the roller drum.
- Switch pressed down at the rear: Ha control deactivated. The corresponding light on the dashboard (3.21) is lit.
- The maximum driving torque is established at the roller drum.

WARNING!

Driving on slopes

If, even with the overmodulation activated, the required thrust cannot not established, do not continue operation on the slope in question and back up.

10.2 Hydraulic HD control of the rear axle (optional feature)

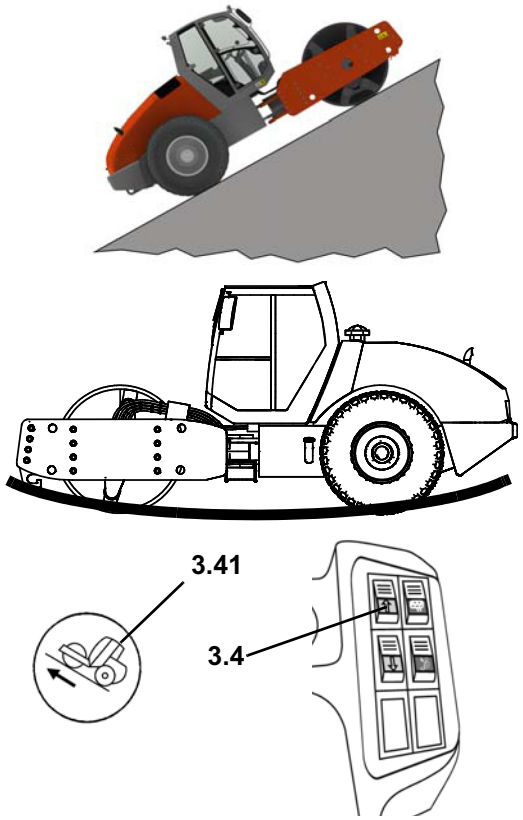


Fig.55 HD system rear axle

If your compaction roller disposes of the HD system for the rear axle drive, you may activate it while driving on slopes or on slippery grounds.

- Set the desired stage by means of the switch for the HD system of the rear axle (3,4).
- Switch pressed down at the front: 1st stage, low tractive force (default mode for driving the compaction roller).
- Switch pressed down at the rear: 2nd stage, high tractive force (on slopes or in heavy terrain).
- If the 2nd stage is set, the maximum driving torque is established at the rear wheels.

WARNING!

Material damage

If, even with the 2nd stage activated (i.e. high tractive force established), the required thrust cannot not established, do not continue operation on the slope in question and back up.

10.3 Driving on slopes

DANGER!

Danger of tipping!

Never drive or park the compaction roller across slopes, as operation involving lateral inclinations increases the danger of tipping. Never turn the vehicle around on a slope! Take the maximum climbing ability (gradeability) of the compaction roller into account.

10.3.1 Maximum gradeability of the compaction rollers

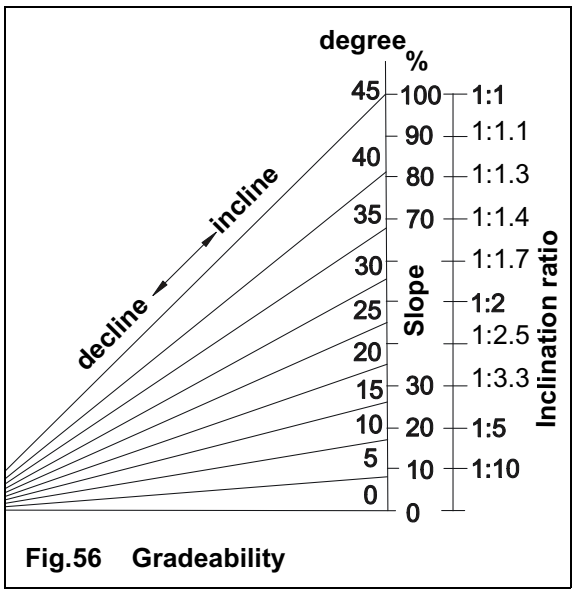


Fig.56 Gradeability

Gradeability of compaction rollers in %, depending on the ground

Compaction roller type	with compaction (%)	without compaction (%)
HR70C-9	**45**	**50**
HR110C-9	43	48
HR120C-9	45	48
HR140C-9	40	45

See the table on the left for information on the % / degree gradeability ratio.

10.3.2 Starting operation on slopes

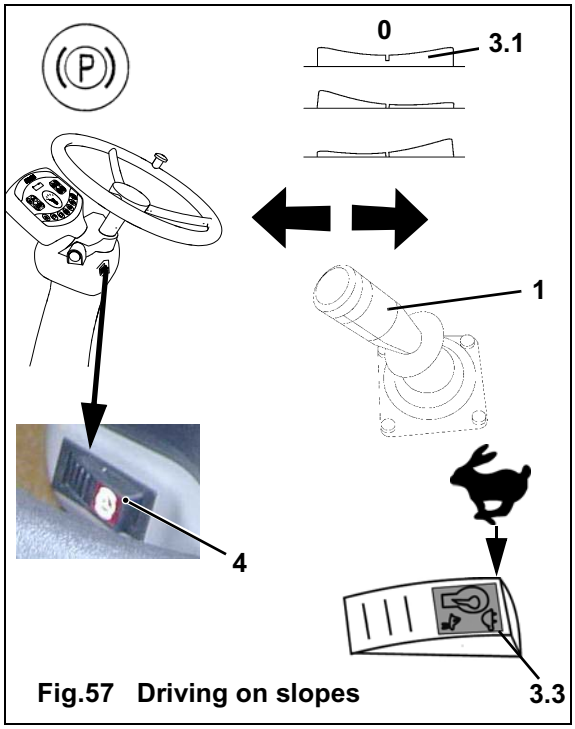
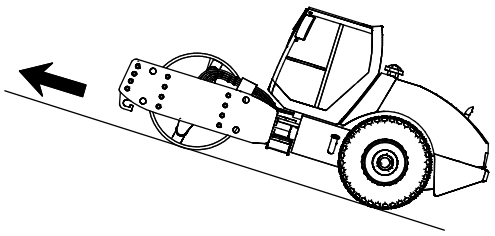


Fig.57 Driving on slopes

- Turn off (i.e. release) the parking brake by means of the switch (4), which causes the corresponding symbol on the dashboard to go out.
- Check whether the switch for selecting the type of vibration (3.1) is set to the middle position **0**.
- Set the Diesel engine speed switch (3.3) to the Rabbit position, **high Diesel engine speed** (switch position to the rear, just touch the switch slightly)
- Hold on to the steering wheel.
- Move the control lever (1) into the desired direction (drum or rear end of the compaction roller ahead).

10.3.3 Driving uphill

Driving with the roller drum ahead



NOTE

Forward motion is required, the roller drum points uphill, in the direction of motion.

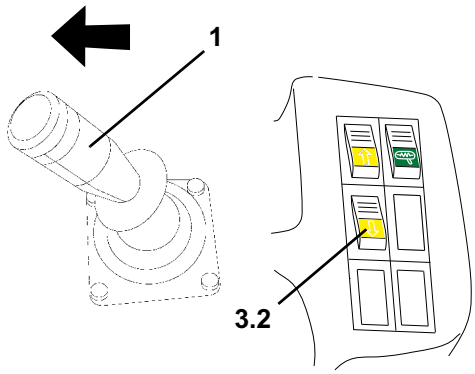
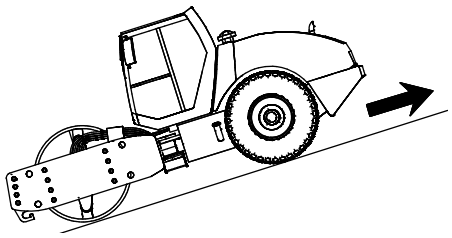


Fig.58 Forward motion, uphill

- Driving on slopes with the roller drum ahead is similar to driving the compaction roller.
- Move the control lever forward, which causes the compaction roller to move up the hill.

Driving with the rear end ahead



NOTE

Reverse gear, the rear end of the compaction roller points uphill, in the direction of motion.

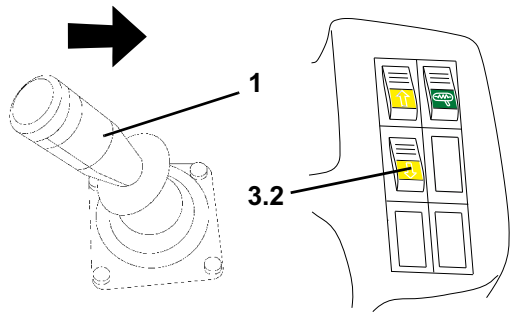
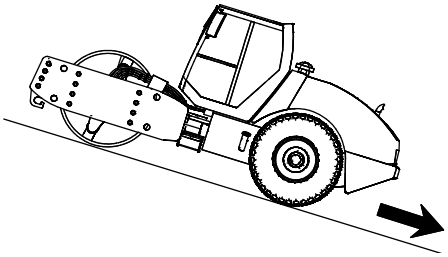


Fig.59 Reverse motion, uphill

- Driving on slopes with the roller drum ahead is similar to driving the compaction roller in reverse gear.
- Move the control lever backward, which causes the compaction roller to move up the hill with the rear end ahead.
- Set the switch Overmodulation Drum On / Off (3.2) to **OFF**.
- The compaction roller drives at the highest possible driving torque on the drum.

10.3.4 Driving downhill



NOTE

Reverse gear, the rear of the compaction roller points downhill, in the direction of motion.

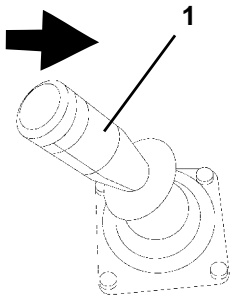


Fig.60 Driving downhill

- Driving down a hill with the rear end ahead is similar to driving the compaction roller in reverse gear.
- Move the control lever (1) backward, which causes the compaction roller to move down the hill with the rear end ahead.

10.3.5 Stopping the operation on slopes

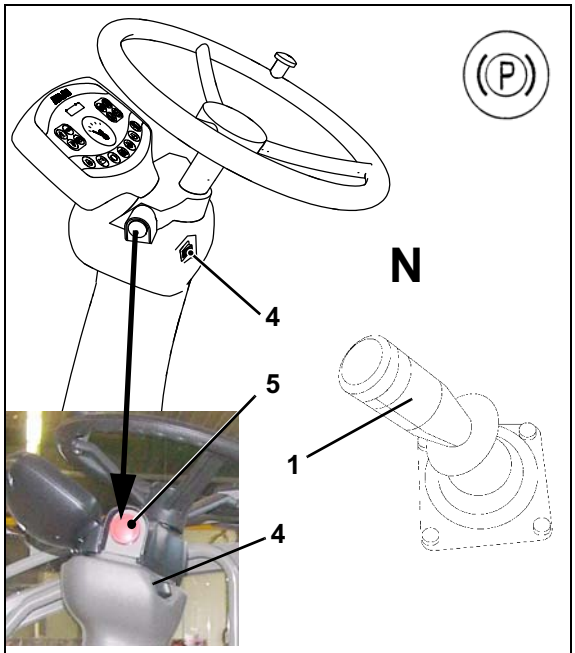


Fig.61 Stopping the operation on slopes

Stop the compaction roller by actuating the control lever (1) or, in the event of an emergency stop, by means of the emergency stop push-button (5).

- Put the control lever back into the neutral position **N**.
- Press the switch for the parking brake (4) to apply the parking brake. The symbol indicating the activation of the parking brake lights up on the dashboard.

DANGER!

In emergencies which call for an immediate stop, press the **emergency stop push-button** (5).

11 TOWING THE COMPACTION ROLLER

11.1 Safety instructions referring to the towing process

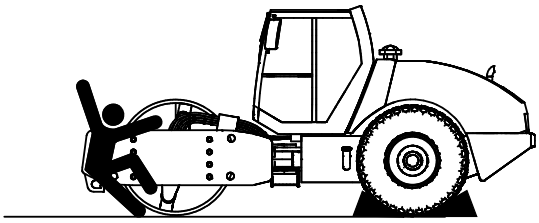
CAUTION!
Precautionary measures for towing!
The towing preparations and the towing process itself may only be carried out by experienced and skilled persons who have undergone the specific training required for these measures.
Make sure the towing vehicle disposes of the required tractive force. The total weight of the compaction roller needs to be taken into account, see chapter Technical specifications.

WARNING!
On slopes, the compaction roller may only be towed if it is connected to the towing vehicle by means of **tow bars**!
The compaction roller may only be towed if its emergency steering is in working order.

WARNING!
Material damage!
Before starting the towing process, make sure that the required preparations at the driving hydraulics and the parking brake have been completed.
Set the towing vehicle in motion very slowly and carry out the towing process at low speed.

11.2 Measures to be taken prior to towing

11.2.1 Secure the compaction roller against rolling



DANGER
Risk of death!
Use the wheel chocks to prevent the compaction roller from rolling, since there is no braking effect after releasing the parking brake and the HP valves!

- Put the wheel chocks under the rear wheels.

WARNING!
Operation on slopes!
If the compaction roller is parked on a slope and needs to be towed, make sure that the rear wheels and the drum are adequately secured!
In addition, use **tow bars** to establish a secure connection between the compaction roller and the towing vehicle.

11.2.2 Releasing the parking brake and the HP valves

WARNING!
Risk of death!
Prior to taking any of the measures described below, establish a secure connection between the towing vehicle and the compaction roller!
If the compaction roller is not properly secured against rolling, you must **not** carry out any of the work described below!

Opening the HP valves

4 mm socket head wrench

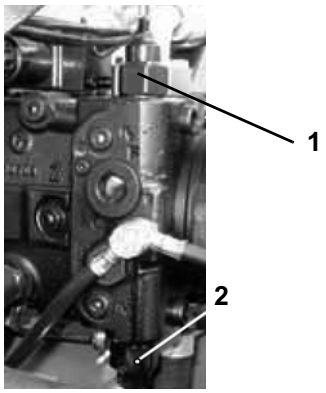


Fig.62 Opening the HP valves

In order to tow the compaction roller, short-circuit the hydraulic circuit between the traction pump and the hydraulic traction motors.

- Access the HP valves from the left side of the engine compartment (in the direction of motion).
- You need a socket head wrench (size WW 4) to loosen the HP valves (1) and (2).
- Unscrew the protecting caps.
- Use the socket head wrench to screw in the adjusting spindles until they are level with the valve housing.

Deactivating (releasing) the parking brake

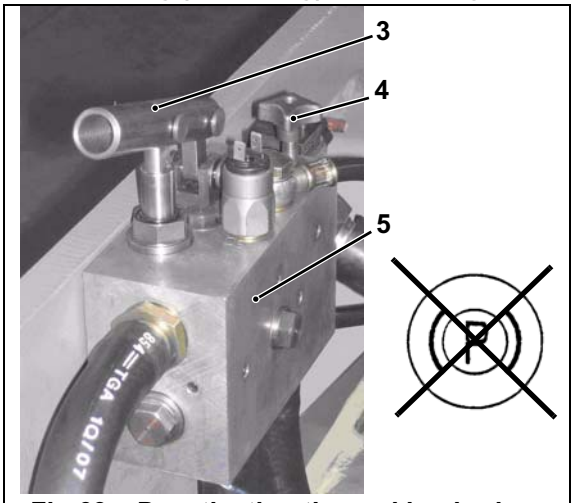


Fig.63 Deactivating the parking brake

In order to tow the compaction roller, you need to release the parking brake in the rear axle and in the drum via the hand pump (5).

- The hand pump (5) is installed in the engine compartment (on the left side, in the direction of motion).
- Put a pipe extension into the pump actuation (3).
- Close the relief valve (4).
- Build up pressure by manually pumping, which releases the parking brake und causes the corresponding light on the dashboard to go out.
- Remove the pipe extension.

11.3 Carrying out the towing process

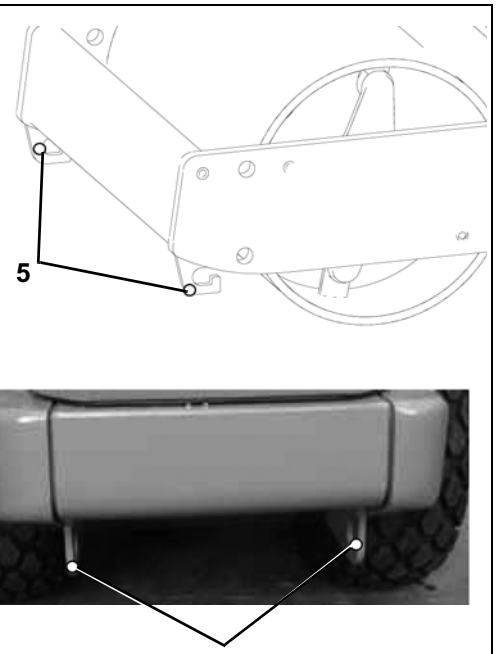


Fig.64 Tie-down lugs

WARNING!

The compaction roller may only be towed within a closed off work zone and not further than is absolutely necessary in order to remove it from the immediate danger / work zone!

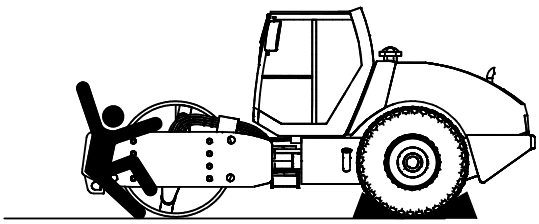
WARNING!

Material damage!

- Before starting the towing process, make sure the necessary preparations concerning the driving hydraulics and the parking brake have been completed.
- Set the towing vehicle in motion very slowly and carrry out the towing process at a maximum speed of **1 km/h**.

- Always fasten the compaction roller at both tie-down lugs at the front (1) and at the rear (2) in order to tow the machine.
- First of all, secure the compaction roller against rolling by establishing the connection with the towing vehicle.
- Remove the wheel chocks and the additional safety equipment used for preventing the compaction roller from rolling.
- The towing distance is to be kept as short as possible.

11.3.1 After towing



DANGER

Risk of being run over!

Immediately after completing the towing process, secure the compaction roller against rolling by means of the wheel chocks.

Make sure the parking brake is **activated** before disconnecting the compaction roller from the towing vehicle.

- After the towing process, the hydraulic circuit between the traction pump and the traction motor must be closed and the parking brake needs to be put in working order again.

Closing the HP valves

4 mm socket head wrench

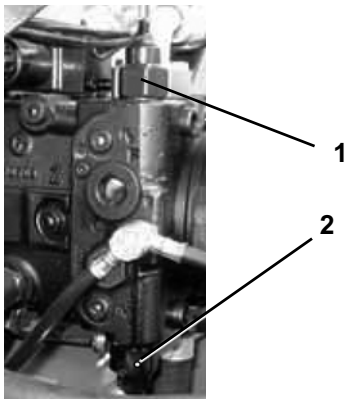


Fig.65 Closing the HP valves

- Access the HP valves from the left side of the engine compartment (direction of motion).
- In order to activate the HP valves (1 and 2), you need a socket head wrench (WW 4).
- Use the wrench to loosen the adjusting spindles until they have reached their initial position.
- Attach the protecting caps.

Activating the parking brake

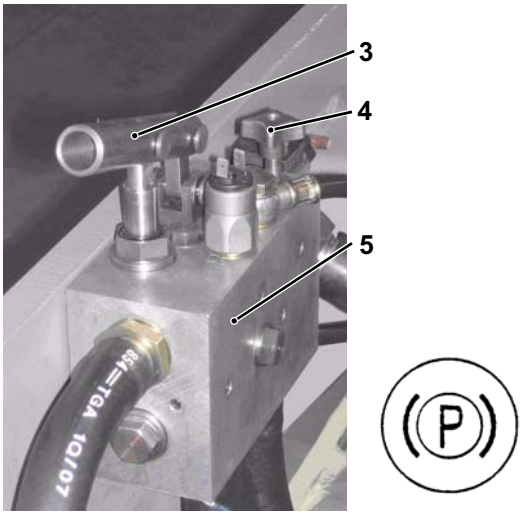


Fig.66 Activating the parking brake

After towing the compaction roller, you need to activate the parking brake in the rear axle again.

The hand pump (5) is situated in the engine compartment, on the left side (direction of motion).

- Slowly open the relief valve (4).

NOTE

Make sure the relief valve (4) is completely opened.

- The oil pressure escapes in the tank and the parking brake is activated, which is confirmed by the display on the dashboard, where the corresponding symbol needs to light up.

NOTE

After activating the parking brake, you may disconnect the compaction roller from the towing vehicle.

12 WORKING WITH THE COMPACTION ROLLER

12.1 Safety instructions referring to work with the vehicle

NOTE

Obligation to inform yourself!

- Inform yourself of all issues related to operating the compaction roller.
- Read the safety instructions before starting the compaction roller. In addition to this, be sure to observe the national and local laws and directives concerning the operation of earth-moving construction machines.
- In case of doubt, contact your HYUNDAI dealer.

DANGER!

Risk of death!

Transporting passengers on the compaction roller is strictly prohibited!

12.2 Control elements related to working (soil compaction)

The functions related to working with the compaction roller are activated by means of the control lever (1) and the switch for selecting the type of vibration (3.1).

Functions related to operation of the roller with compaction

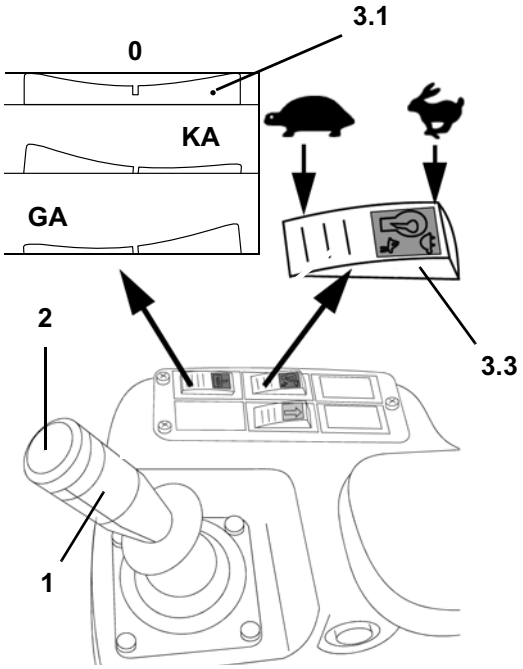


Fig.67 Functions roller operation

1 Control lever forward / reverse motion
2 Button Vibration on / off on the control lever
3.1 Selector switch type of vibration

- Middle position (0) = no type of vibration selected
- Pressed down at the rear (KA) = surface compaction (low amplitude)
- Pressed down at the front (GA) = deep compaction (high amplitude)

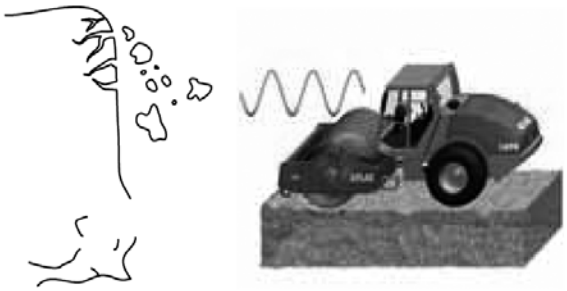
NOTE

Selecting the type of vibration does not activate the vibration itself.

3.3 Diesel engine speed switch

- Set the Diesel engine speed switch (3.3) to **Rabbit** or **Turtle**.
  Turtle: low Diesel engine speed, approx. 1200 min^{-1}
  Position of the switch: Pressed down at the front
  Rabbit: high Diesel engine speed, approx. 2000 min-1,
  Switch position: only touch the rear part of the switch slightly and release it again
- Middle position: high Diesel engine speed is activated.
- Deactivate high Diesel engine speed by pressing the switch down at the front (3.3).

12.3 Fields of application



The compaction rollers dispose of the following work modes:

- Simple operation (driving without vibration)
- Surface soil compaction
- Deep soil compaction

CAUTION!

Material damage

Never carry out any compaction work near buildings and monuments.

12.3.1 Basic information on soil compaction

NOTE

During a soil compaction process, the vehicle should run at a speed of about 1.2 to 3.0 km/h (i.e. 20-50 m/min), depending on the composition of the soil and the dumping height.

The first rolling cycle should be performed statically (i.e. without vibration, see chapter Working with the compaction roller) and on loose material.

Variations in the composition of different kinds of soil render it impossible to state generally valid figures regarding the number of compaction passes required to achieve the desired result. Therefore, trial runs are recommended means of determining the necessary amount of passes and the layer thickness.

As for too many passes, not only are they uneconomical but can, on finely graded material, be the cause of extreme vibration of the roller frame which subjects the vehicle to overs-training. Under normal conditions, the required degree of compaction is generally established after 4 to 8 passes. If the roller frame vibrates strongly, which might particularly be the case during the last passes, which call for a high degree of compaction, increase the speed to the upper limit of the recommended speed range.

While carrying out static compaction passes, the maximum speed may be set as required. In order to compact soils containing rock, the size of the biggest particle may never exceed two thirds of the dumping height because only insufficient compaction will be achieved under such conditions.

12.3.2 Simple operation, forward / reverse motion (without vibration)

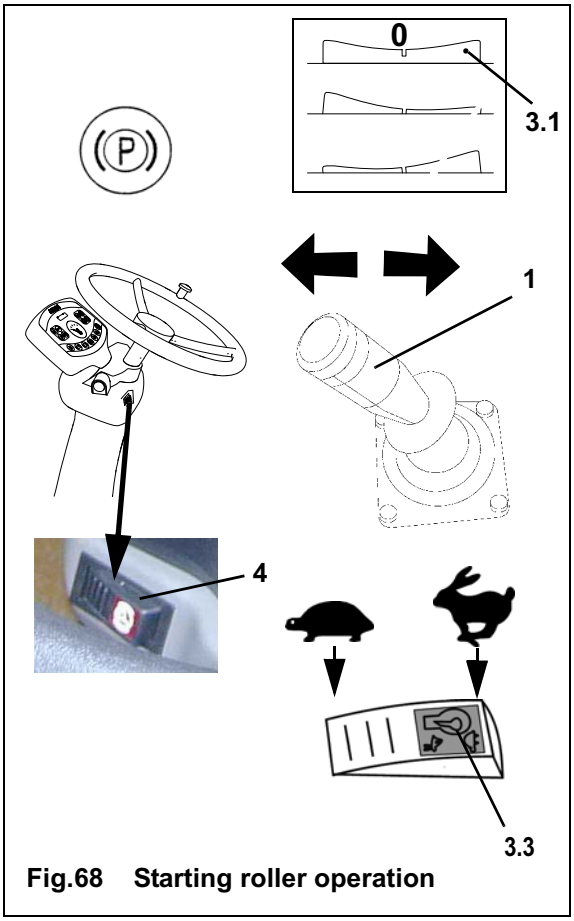


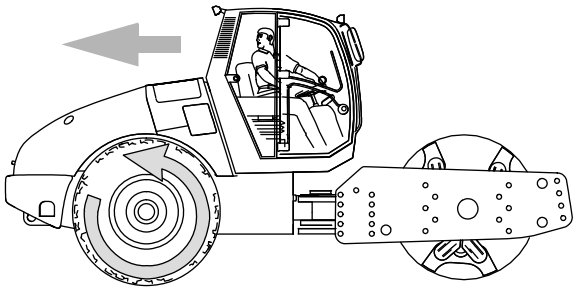
Fig.68 Starting roller operation

NOTE

Measures to be taken prior to driving!

The compaction roller needs to be ready for operation with the Diesel engine started and running at operating temperature.

- Actuate the switch (4) to deactivate the parking brake. The corresponding symbol on the dashboard is deactivated.
- Check whether the switch for selecting the type of vibration (3.1) is set to the middle position (**0**).
- Set a high engine speed by means of the Diesel engine speed switch (3.3).
  Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, position of the switch: pressed down at the rear end; touch it slightly and release it again.
- Move the joystick (1) forward or backward, into the desired direction of motion.
- The speed of the compaction roller is increased or decreased, depending on the motions performed with the joystick.



DANGER!

Risk of accidents!

- Prior to any reverse movement of the compaction roller, make sure that your view to the rear is unobstructed!
- Before and while driving backwards, always check the area behind you by looking backwards!

12.4 Soil compaction by means of the smooth roller drum

12.4.1 Surface soil compaction

Activating surface compaction

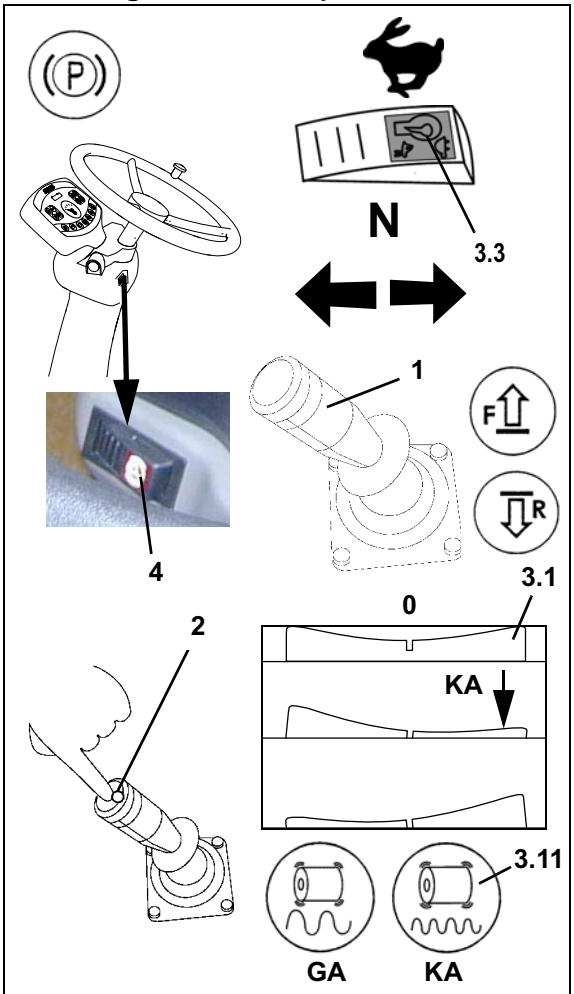


Fig.69 Activating surface compaction

NOTE

Measures to be taken prior to driving!

The compaction roller needs to be ready for operation with the Diesel engine started and running at operating temperature.

- Start roller operation, as described in the previous chapter.
- Set a high Diesel engine speed by means of the corresponding switch (3.3).
  Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, switch pressed down at the rear (just touch the switch slightly).
- Set the switch for selecting the type of vibration (3.1) to **low amplitude (KA).**
- The symbol for low amplitude **KA** (3.11) lights up on the dashboard.
- Move the joystick (1) forward or backward, depending on the desired direction of motion.
- The symbol indicating the direction of motion lights up on the dashboard.
- In order to activate roller vibration, push the button **Vibration on / off** (2) on the joystick (1).
- The compaction roller starts to move in the desired direction of motion and performs surface compaction.

NOTE

For surface compaction on slopes, be sure to consult the section Driving on heavy soils and on slopes.

Deactivating surface compaction

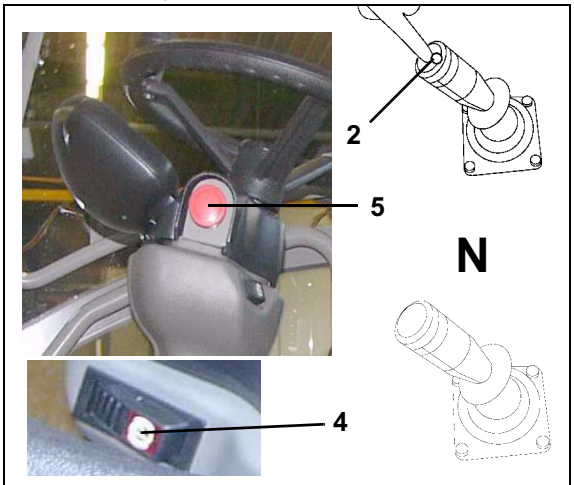


Fig.70 Deactivating surface compaction

- If you intend to deactivate the surface compaction, push the button **Vibration on / off** (2) again.
- The vibration is deactivated.
- However, the previously selected type of vibration remains preselected.
- In order to stop the compaction roller, move the joystick (1) back to the neutral position **N**.
- Apply the parking brake (4), which causes the corresponding symbol on the dashboard to light up.

DANGER!

In emergencies which call for an immediate stop, press the **emergency stop push-button** (5).

12.4.2 Deep soil compaction

Activating deep compaction

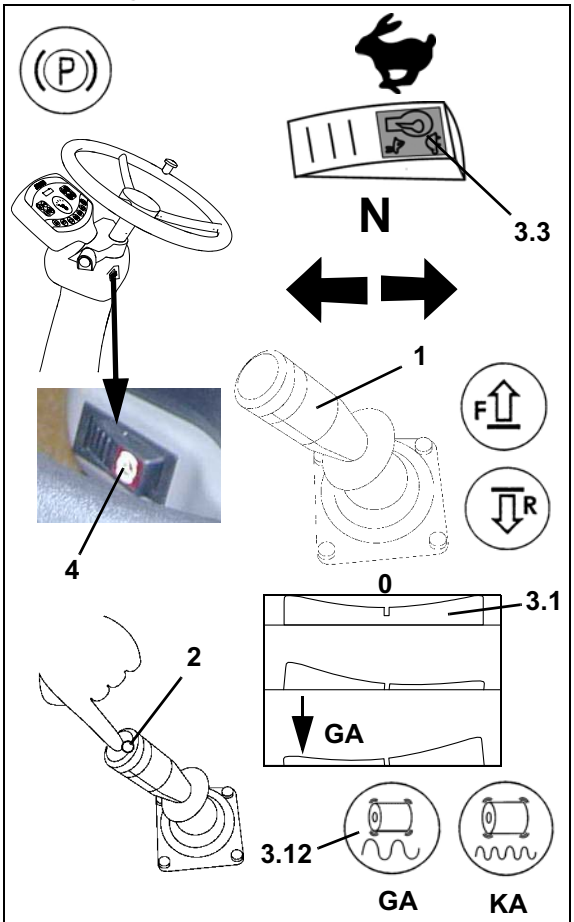


Fig.71 Activating deep compaction

- Proceed as described above, in the section on surface soil.
- Set a high Diesel engine speed by means of the corresponding switch (3.3).
  Rabbit: high Diesel engine speed, approx. 2200 min^{-1}, switch pressed down at the rear (just touch the switch slightly).
- Set the switch for selecting the type of vibration (3.1) to **high amplitude (GA).**
- The symbol for high amplitude **GA** (3.12) lights up on the dashboard.
- Move the joystick (1) forward or backward, depending on the desired direction of motion.
- The symbol indicating the direction of motion lights up on the dashboard.
- In order to activate roller vibration, push the button **Vibration on / off** (2) on the joystick (1).
- The compaction roller starts to move in the desired direction of motion and performs deep compaction.

NOTE
Be sure to consult the chapter Driving on heavy soils and on slopes before activating deep compaction during operation on slopes.

Deactivating deep compaction

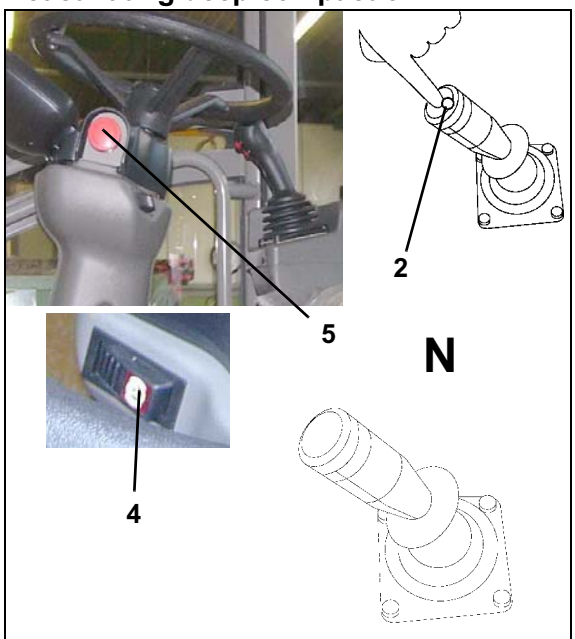


Fig.72 Deactivating deep compaction

- In order to deactivate the deep compaction mode, push the button **Vibration on / off** again (2).
- Vibration stops.
- However, the previously set type of vibration (3.1) is still preselected.
- Move the control lever (1) back into the neutral position **N** to stop the compaction roller.
- Set the Diesel engine speed switch to **Turtle** (low Diesel engine speed).
- Apply the parking brake (4), which causes the corresponding symbol on the dashboard to light up.

DANGER!
In emergencies which call for an immediate stop, press the **emergency stop push-button** (5).

12.5 Soil compaction with the pad foot drum

12.5.1 Basic information on the fields of application of the pad foot drum

NOTE

Using the pad foot drum always requires vibration and serves the following purposes:

- compaction of cohesive soils and mix soils containing a high concentration of water
- compaction of schistous soils and brittle rock as well as particle size reduction
- mixing hydraulic binders into the soil in order to stabilize the soil

The rolling speed should be between 30-60 m/min, i.e. approx. 1.8-3.6 km/h.

In case a high concentration of moisture is encountered, perform three compaction passes and allow several hours for the soil to dry prior to compacting it further.

As for compacting cohesive soils and mix soils, the progress of the compaction is indicated by the increasing ascent of the pad feet in the soil until they finally penetrate it only lightly.

As soon as the desired degree of compaction has been achieved and no new layers will be added, the compacted surface must be rolled by means of a smooth drum to prevent the top layer from being soaked by rain. In addition, the surface should be slightly inclined to render it possible for water resulting from precipitation to drain.

12.5.2 Compacting soil with the pad foot drum

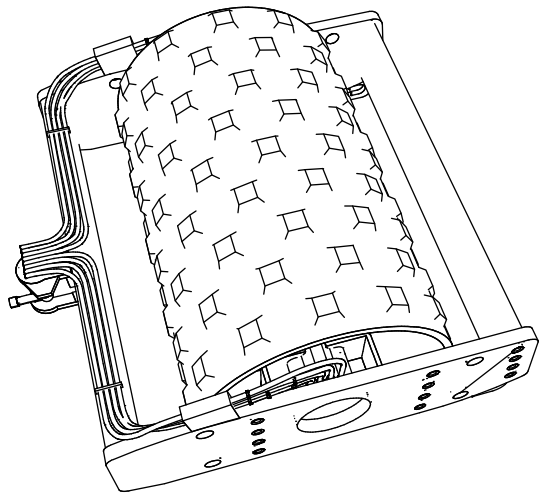


Fig.73 Pad foot drum

NOTE

After converting from a smooth roller drum to a pad foot drum, in order to operate the compaction roller, proceed as described in the section on soil compaction, see chapter Working with the compaction roller.

13 COMPACTION MEASUREMENT (OPTIONAL FEATURE)

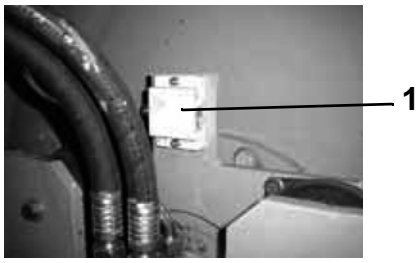


Fig.74 Compaction measurement

If your compaction roller is equipped with a compaction measurement device (optional feature), the oscillation and acceleration of the drum are measured. The respective values are established by a sensor (1) and forwarded to a computer. The computer transfers the values to a display in the cabin. The representation on the display enables the driver to inform him-/herself of the current values concerning the degree of compaction and vibration at all times.

NOTE

- The compaction measurement system establishes values and provides information on the degree of compaction.
- It does not interfere with the operational processes of the compaction roller.

13.1 Advantages of the compaction measurement system

Variants of the compaction measurement system

The system is available in two variants:

- Display and printing of the compaction data only
- Display of the compaction data and recording for subsequent analysis / printouts
- Optional: Printing the data after connecting a printer.

Advantages of compaction control

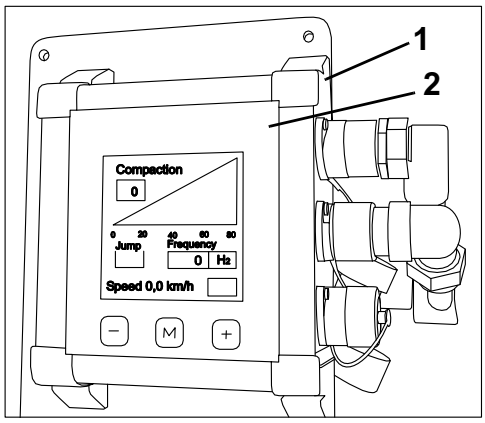


Fig.75 Compaction measurement

- The information retrieved by the compaction measurement system (2) enables the driver to better assess (and possibly reduce) the amount of passes required to attain a certain result in a specific environment.
- Thus, time and fuel can be saved as well as unnecessary wear and tear avoided.
- Potential problems due to certain characteristics of the soil or the material are detected and adequate measures can be taken to prevent them.
- The compaction roller may be operated in locations where area-wide compaction measurement for construction work is mandatory.

Displays of the compaction measurement

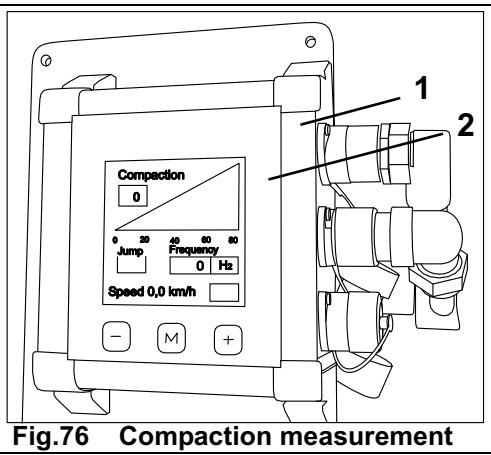


Fig.76 Compaction measurement

- An easy-to-install measurement system which serves to inform the driver of the degree of soil compaction.
- The compaction of the soil is continuously measured by an acceleration measurement device.
- As soon as the maximum compaction capacity of your vehicle has been reached, the maximum degree of compaction is set as a fixed value. The process of compacting the soil can then be terminated. In case no solid value can be established, an analysis of the roadbed is required.

Display

- **The following parameters are displayed (2):**
  - The relative degree of **compaction:** The more the soil is compacted, the higher the respective value.
  - The **frequency** : Displays the current frequency of the vibration drive as a numerical value in Hertz [Hz].
  - **Jump:** Operation on soil which has been compacted too much can cause the vehicle to jump and result in material damage.

WARNING!
Material damage!
If the vehicle starts to jump, immediately stop operating the compaction roller.

Installing and dismantling the compaction measurement system

Removing the compaction measurement from the cabin after each operation prevents the device from being stolen or damaged.

- Screw on/off the plug-in connections of the compaction measurement system.
- Attach/ remove the protecting caps of the plug-in connections.
- Remove the device from the mounting.

Compaction measurement system, variant 2:
Display and recording

In addition to displaying the current information regarding vibration and compaction, this type of measurement system is able to gather, record and save all the respective information available, once operation of the vehicle has started.

- The memory capacity allows you to record approx. a week‘s (i.e. 40 hours‘) operation data at construction sites.
- The data is recorded per track, which ensures reliable recordings even for complex construction measures and intricate maneuvering.
- The data thus retrieved can be transferred to a personal computer and evaluated by means of the corresponding software.

NOTE

- From an economic point of view, the most relevant advantages of compaction measurement with storage function are: quality enhancement of the operation as a result of controlled compaction and the comprehensible documentation of the compaction results both for the building contractor and the client.

Analysis and evaluation of the data

- The data of the entire construction project can be graphically displayed and printed as an overview.
- Areas of the image that contain values which are smaller than a set default value are marked in red. The overview can be gradually enlarged in order to represent certain parts in greater detail.
- The overview can be gradually enlarged in order to represent certain parts in greater detail.
- Not only can each compaction roller track be marked separately, but it is possible to display and print the individual tracks as line diagrams.
- With the aid of a movable cursor, the compaction results achieved by different tracks and passes can be compared.
- The compaction values can easily be calibrated with the results of selective standard test runs.

14 CONVERTING THE COMPACTION ROLLER

14.1 Safety instructions referring to work with the compaction roller

NOTE

Obligation to inform yourself!

- Inform yourself of all issues related to operating the compaction roller.
- Read the safety instructions before starting the compaction roller. In addition to this, be sure to observe the national and local laws and directives concerning the operation of earth-moving construction machines.
- In case of doubt, contact your HYUNDAI dealer.

14.2 Converting from a smooth to a pad foot roller drum

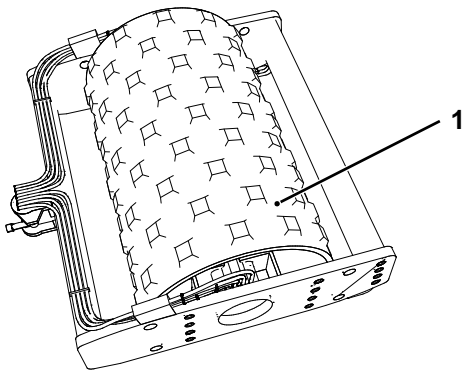


Fig.77 Pad foot drum

In order to operate the compaction roller with a pad foot drum (1), you can order a retrofit kit containing three pad foot segments as an optional feature from the manufacturer.

NOTE

- In order to mount the 3 pad foot segments on a smooth roller drum, observing the following instructions is of vital importance! Make sure you maintain the correct sequence!
- A crane with a lifting capacity of at least 6 tons is required to retrofit the compaction roller.

Labeling of the pad foot segments

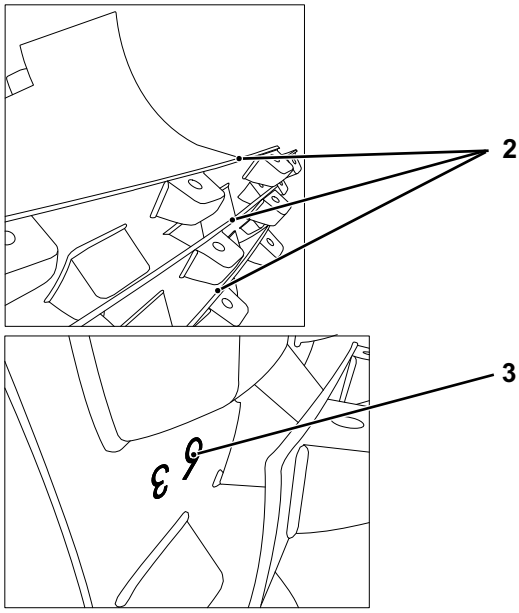


Fig.78 Pad foot segments

- Each of the three pad foot segments (2) is individually labeled next to the split pad feet (3).

NOTE

- Pay close attention to the labeling (3) of the segments (2) and the correlation of the serial numbers.
- Only the corresponding segments (2) and identical serial numbers match up for this particular compaction roller.

14.2.1 Mounting the pad foot segments on a smooth roller drum

Dismantling the attached parts of the smooth roller drum

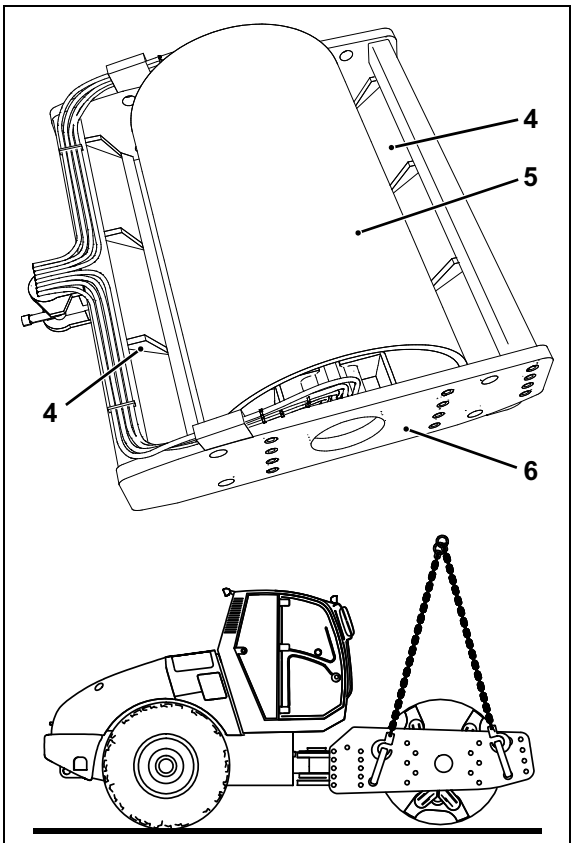


Fig.79 Lifting the roller frame

- Remove the front and rear scrapers (4) from the smooth roller drum (5).
- Make sure the roller frame is securely fastened by appropriate tie-down equipment (6) before lifting it by means of a crane. The lifting height is sufficient if a pad foot segment can be placed under the smooth roller drum (5).
- Prior to starting work, put struts under the roller frame to support it.
- Use a high pressure washer to clean the smooth roller drum (5).

Mounting the pad foot segments

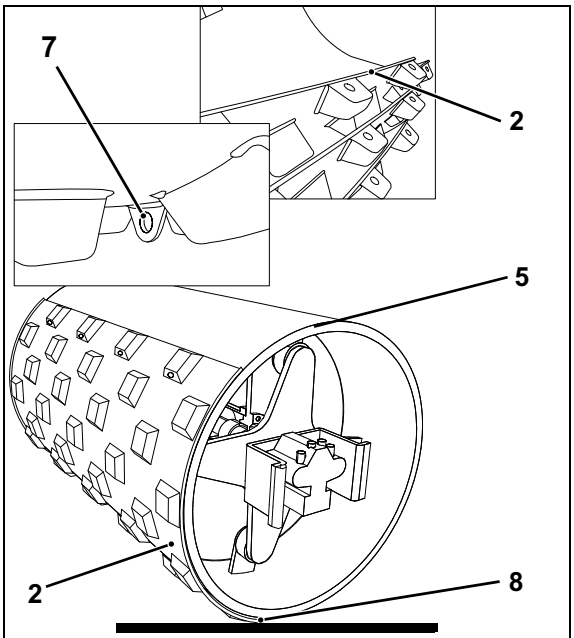


Fig.80 Mounting the pad foot segments

- Use a crane to lift the first segment (2) at the lifting lug (7) and to place it onto a transport vehicle at the lifting lugs. Drive the transport vehicle under the smooth roller drum (5), put down the segment (2) and adjust its position.
- Lower the roller frame (6) by means of the crane and place the smooth roller drum (5) on the segment (2). Remove the tie-down equipment.
- Advance the compaction roller until the smooth roller drum (5) rests only on the rear edge (8) of the first segment (2).

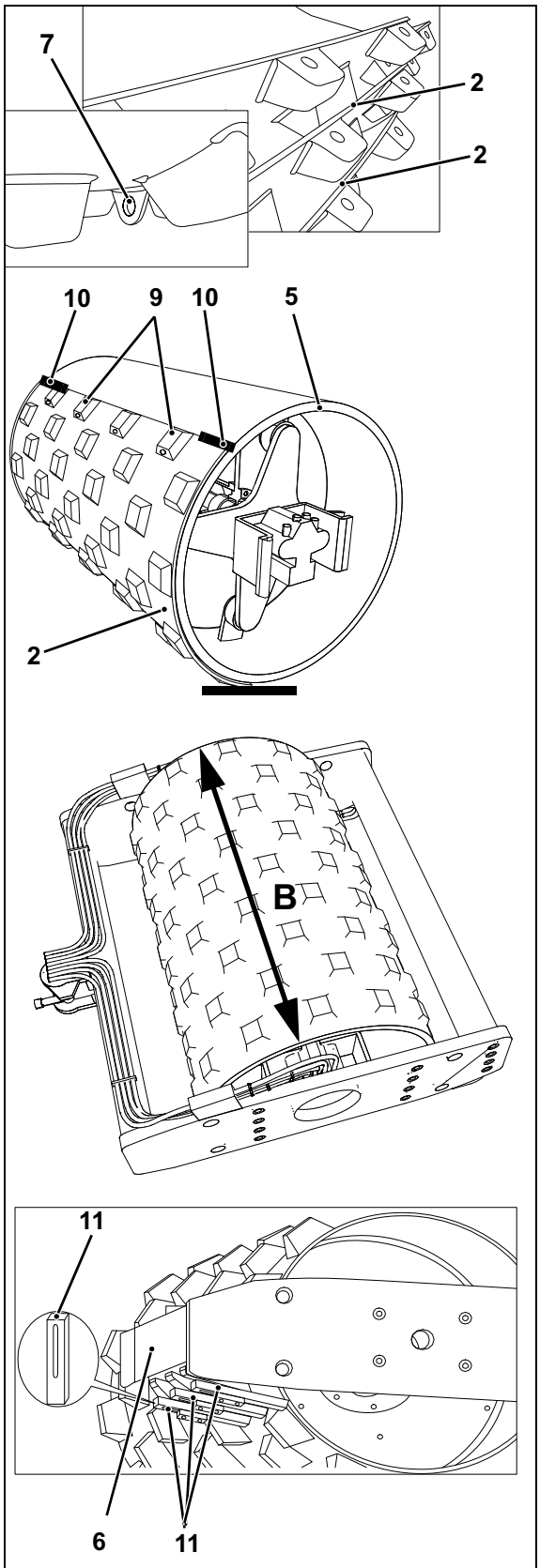


Fig.81 Mounting the pad foot segments

- Lift the second segment at the lifting lug (7). Place it on the top of the smooth roller drum (5), adjust it and connect it to the first segment (2) by bolting them together at the junctions (9).
- Use clamps (10) to attach the loose edge of the second segment to the smooth roller drum (5).
- Make sure there is enough space between the mounted segments and the roller frame.
- Back up the compaction roller until the bare part of the surface of the smooth drum (1) points upward, rendering it possible to mount the third segment (2).
- Attach the third segment (2). Connect it to the first and the second segment (2) by bolting them together at the junctions (9).
- Tighten all screws at the junctions evenly (9) along the entire width of the roller (B).
- Repeatedly drive the compaction roller forward and backward so the segment junctions point upward.
- Check all screw connections at the junctions (9) and tighten them (tightening torque: **195 Nm)**.
- Install the corresponding pad foot scrapers (11) in order to use the drum as a pad foot roller (6).

NOTE

After approx. 10 hours of operation, check all screws again (9).
If necessary, tighten them.
Tightening torque: **195 Nm**.

15 TIRES AT THE REAR AXLE

15.1 Water filling of the tires at the rear axle

In order to improve the propulsional properties of the tires at the rear axle, on delivery, they are filled with water and an additive composed of magnesium chloride which serves as antifreeze.

NOTE

- Magnesium chloride is commercially available granulated salt with a 47% share of dry substance which can be purchased at (chemical) wholesale.
- In countries where the exterior temperatures never fall below zero degrees Celsius, the tires can be filled with industrial water, without any additives.

15.1.1 Filling procedure: Water and antifreeze additive

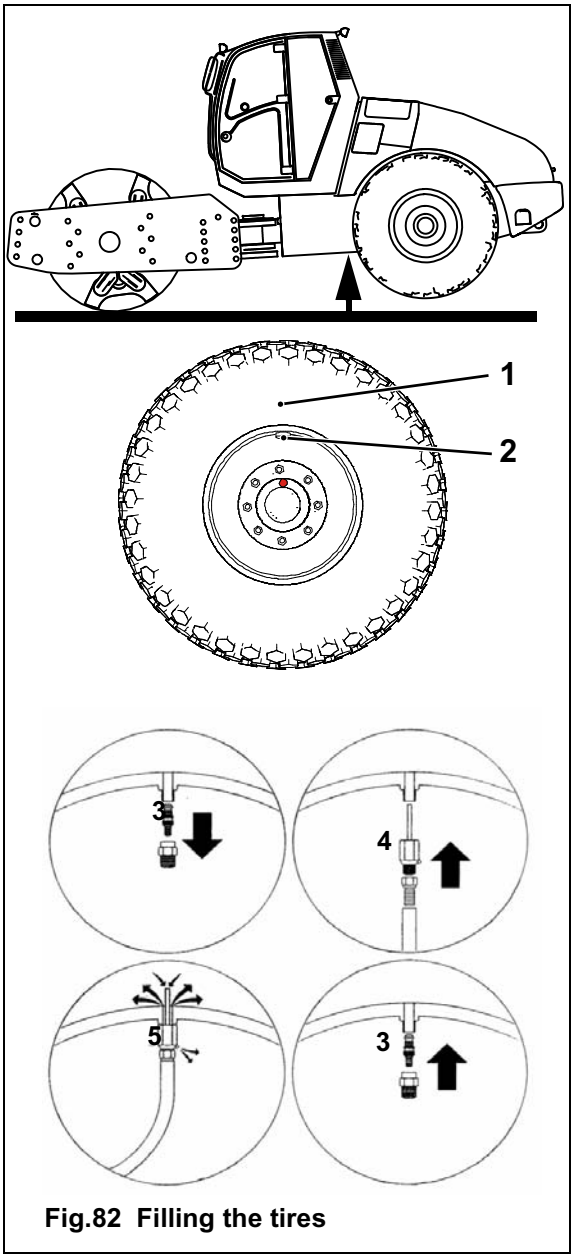


Fig.82 Filling the tires

- Lift the compaction roller at the rear axle by means of a sufficiently dimensioned hydraulic jack.
- Turn the tire (1) until the charge valve (2) is in the **top** position.
- Slowly unscrew the valve core (3).
- Screw a hose line (4) onto the charge valve (2).
- The saline solution (see “Preparation of the saline solution below) can be poured into the tire (1) by means of a container placed above the tire or via a special pump.
- The filling procedure (5) must be interrupted repeatedly because the tire needs to be bled.
- In case the tire is not sufficiently filled after pouring in the saline solution, add industrial water to establish the required fill level.

NOTE

- Since air must be exhausted from the tire (5), repeatedly interrupt the filling process. As soon as the level of water/saline solution has reached 75% of the volume of the tire (i.e. it is on a level with the charge valve), stop the filling process.
- The remaining air in the upper part of the tire is essential to ensuring its springiness.
- As soon as the required fill level of 75% has been reached, the saline solution must not leak from the tire with the charge valve (2) opened.

- After completing the process, attach the valve core (3) and fill the tire (1) with compressed air.
  Prescribed pressure: **1.2 bar - 1.6 bar**.

NOTE

Preparation of the saline solution:

- Mix magnesium chloride and water at a weight ratio of 1:1 in a clean container. Stir until the salt has completely dissolved.
- Always add the salt to the water, never vice versa.

15.1.2 Filling procedure: Pure water

- In order to fill the tire with water, use industrial water.
- The filling procedure is identical to the one described in section 15.1.1.

15.1.3 Emptying the tires

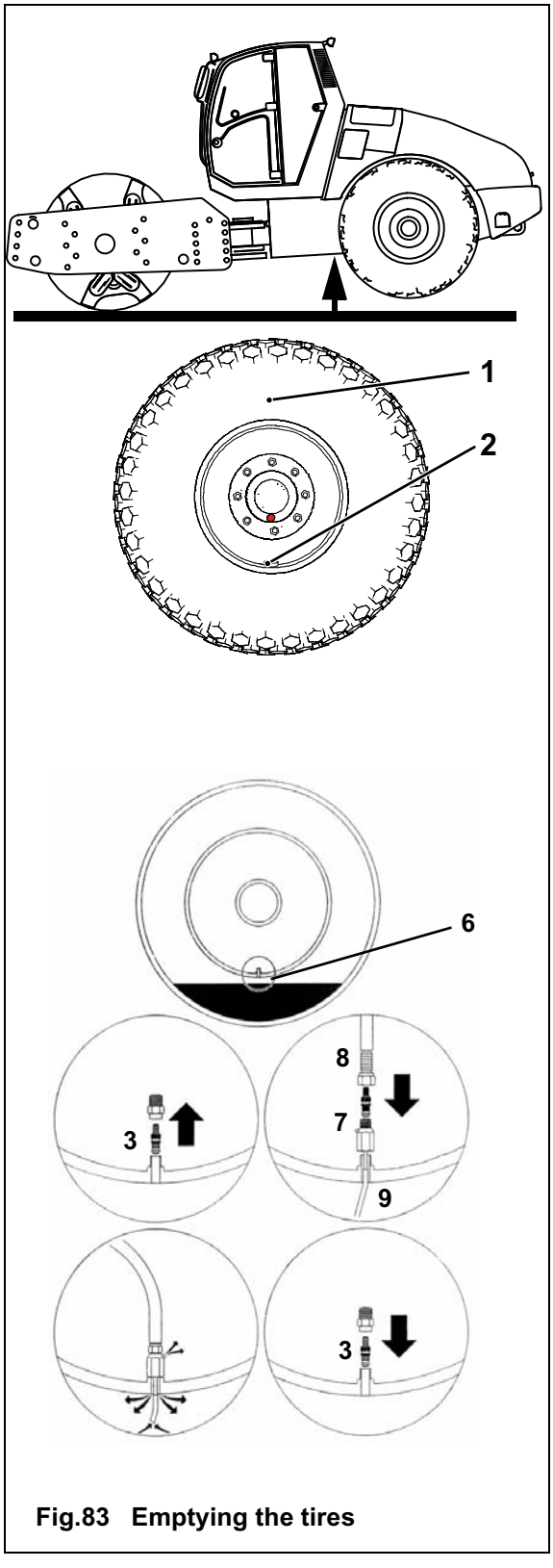


Fig.83 Emptying the tires

Lift the compaction roller at the rear axle by means of a sufficiently dimensioned hydraulic jack.

- Turn the tire (1) until the charge valve (2) is in the **lowest** position.
- Slowly unscrew the valve core (3).
- Due to the overpressure in the tire, water will pour out of the tire down to the level of the charge valve (6).
- Extend the vent pipe of the composite valve (7) by means of a thin rubber hose (9).
- In order to remove the remaining quantity of water from inside the tire, screw the composite valve (7) onto the charging valve (2) and charge with compressed air (8).
- The compressed air drives the remaining water out of the tire via the rubber hose (9) until it finally leaks from an opening at the side of the composite valve.
- As soon as the tire is empty, attach the valve core (3) and fill the tire (1) with compressed air.
  Prescribed pressure: **1.2 - 1.6 bar (for standard tires)**.

15.1.4 Filling procedure: Using the “Hanauer Maus“

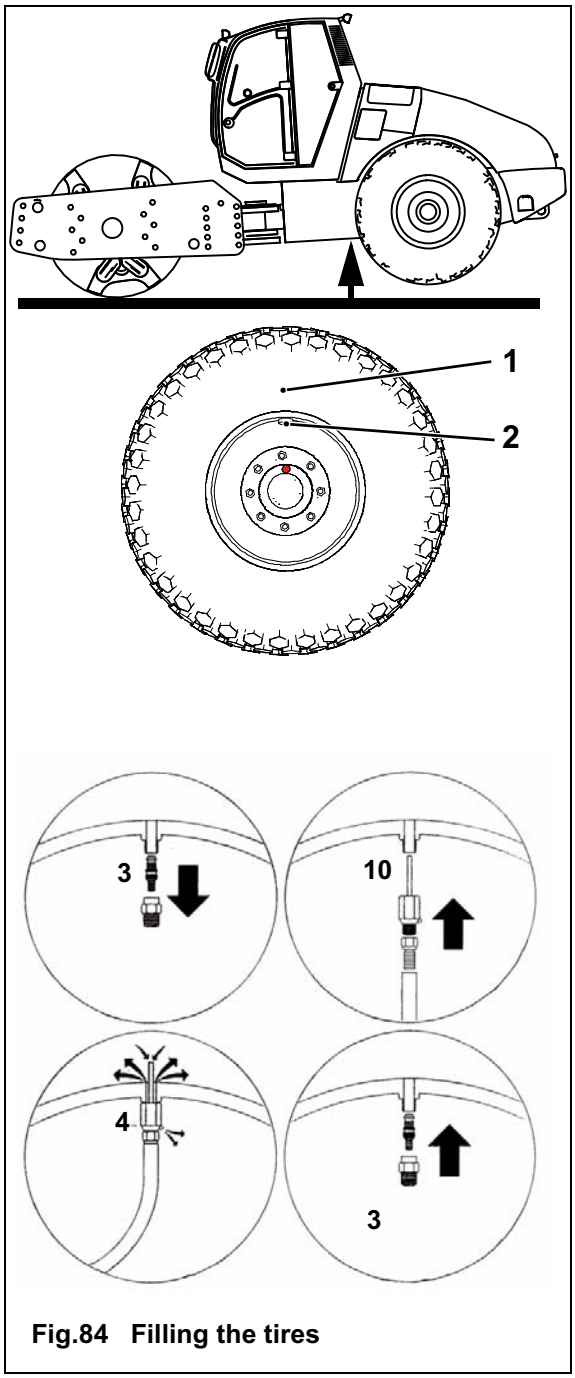


Fig.84 Filling the tires

In order to fill or empty a tire by means of the so-called “Hanauer Maus“, carry out the following instructions:

- Use a sufficiently dimensioned hydraulic jack to lift the compaction roller at the rear axle.
- Turn the tire (1) until the charge valve (2) is in the **top** position.
- Slowly screw off the valve core (3).
- Screw the fill valve (10) into the charge valve (2).
- Screw a hose line (4) onto the fill valve (10).
- The air escapes from the tube and the opening at the side of the fill valve (10).

NOTE

- The filling procedure is complete as soon as a constant jet of water exits the opening.

- Twist off the fill valve (10) and tighten the valve core (3).
- At the end of the filling procedure, unscrew the fill valve (10) and screw in the valve core (3).
- Fill the tire (1) with compressed air until the required pressure of **1.2 - 1.6 bar (for standard tires)** has been established.

15.2 Checking the tire inflation pressure

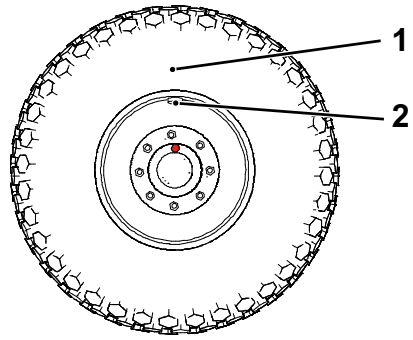


Fig.85 Checking the tire pressure

DANGER!

Risk of injuries!

- Antifreeze may leak from the tire while its tire pressure is being checked.
- This can lead to chemical burns. Wear protective clothing to protect your skin!

- Check the tire pressure once a week:

Type of tires	min. pressure	max. pressure	
Standard tires	1.2 bar	1.6 bar	water filling
Special tires	Please ask your HYUNDAI dealer for information on the required tire filling.		

Checking the tire pressure

- In order to check the tire inflation pressure, the charge valve (2) needs to be in the top (“12 o‘clock“) position.
- Drive the compaction roller forward and backward to establish this position of the tires (1).
- Unscrew the safety cap of the charge valve.
- Press the charge valve until the saline solution stops leaking from the charge valve (2).

WARNING!

Material damage!

- Always empty the tire and make sure no water and saline solution can leak from the charge valve before checking the tire inflation pressure.
- Moisture destroys the tire gauge.

- Attach the tire gauge and check the tire inflation pressure.
- If necessary, adjust the tire pressure.

15.3 Mounting the tires

WARNING!

Material damage!

- Have tires replaced or mounted by an authorized HYUNDAI dealer or a trained expert only.
- In order to prevent the tire from sliding on the wheel rim, the tire must not be mounted with the aid of lubricants.

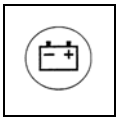
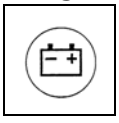
- Tightening torque of the wheel nuts (2): **500 Nm.**

16 FAILURES AND TROUBLE SHOOTING

16.1 Detecting faults and failures

NOTE
In case faults or failures occur which you cannot detect or repair yourself, contact the service staff immediately.

16.1.1 Faults and failures during operation

Fault/Failure	Possible causes	Trouble shooting
Diesel engine does not start. 	Environmental temperature too low.	Preheat sufficiently, repeat the starting procedure.
	The fuel (Diesel) tank is empty.	Add Diesel. Have the fuel system ventilated by the service staff, if required. See sections on maintenance.
	The fuel filter is plugged.	Clean or replace the fuel filter.
	Cold weather causes paraffine to leak.	Add fuel (winter Diesel) with the necessary specifications for use in cold weather.
	Leaking fuel pipes or connections.	**Immediate action is required to prevent fuel from penetrating the ground!** Contact the service staff.
	After activating the ignition, the control lamp for the battery does not light up.	Check the charge condition of the battery; if necessary, charge the battery. If required, carry out a jump-start. **ATTENTION!** The compaction roller disposes of an electrical system with an **operating voltage of 12 V.** Be sure to take this into account when jump-starting the vehicle!
	The starter does not turn.	Contact the service staff.
After starting the engine, the battery charge lamp does not go out. 	Defective contact in the electrical system.	Cable connections or plug-in connections are loose or defective. Contact the service staff.
	The engine speed of the generator is too low.	Insufficient V-belt tension; tension the V-belts, if required. See Perkins 1104D-44 operating manual.
	The generator is defective or a V-belt torn.	Replace the V-belt. See maintenance instructions for service staff and Perkins 1104D-44 operating manual.
	The generator is activated but the battery is not charged.	Contact the HYUNDAI service team or the service staff.
After starting the Diesel engine, the compaction roller does not move. 	The parking brake is applied.	Release the parking brake by means of the switch.
	The desired direction of motion has been set (joystick) but the compaction roller does not move.	Contact the HYUNDAI service team or the service staff.
	The compaction roller does not move after a towing process.	HP valves not screwed in, see chapter Towing the compaction roller.
	Driving hydraulics not activated.	Contact the HYUNDAI service team or the service staff.

Fault/Failure	Possible causes	Trouble shooting
The warning lamp for the air filter lights up. 	The air filter cartridge is dirty.	The dual display only indicates the accumulation of dirt at the air filter. Clean the air filter and the filter cartridge. For operation with a high formation of dust, insert a new filter cartridge and be sure to store a sufficient amount of filter cartridges.
The warning lamp for the coolant temperature lights up. 	The coolant temperature is too high.	**Immediately stop the compaction roller!** Let the Diesel engine idle in order to cause the coolant to cool down. **For all work relating to the Diesel engine, exercise extra caution - hot surfaces!** As soon as the warning lamp goes out, stop the Diesel engine and check the coolant fill level. Add coolant, if necessary. See maintenance instructions. If it takes a long time for the coolant to cool down, clean the cooler. See maintenance instructions.
The warning lamp for engine oil pressure lights up. 	Insufficient engine oil pressure or pressure does not build up after starting the Diesel engine.	**Immediately stop the Diesel engine!** Check the fill level of the engine oil. In case it is insufficient, add engine oil according to the specifications in this manual. If the engine oil level turns out to be correct, **stop the compaction roller and do not start it again.** Immediately contact the HYUNDAI service team.

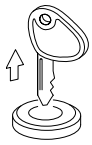
17 MAINTENANCE INSTRUCTIONS

17.1 Safety instructions referring to maintenance work

WARNING!
Be sure to take all safety precautions and to observe all instructions regarding the operation of the compaction roller when carrying out maintenance work!

WARNING!
Read the safety instructions and warnings in this operating manual before starting any maintenance work and follow them!

Use signs and warning notices to point out that maintenance work is being carried out.



WARNING!
Prevent the compaction roller from unintentionally starting by removing the ignition key from the ignition lock.

17.1.1 Safety precautions to be taken prior to maintenance work

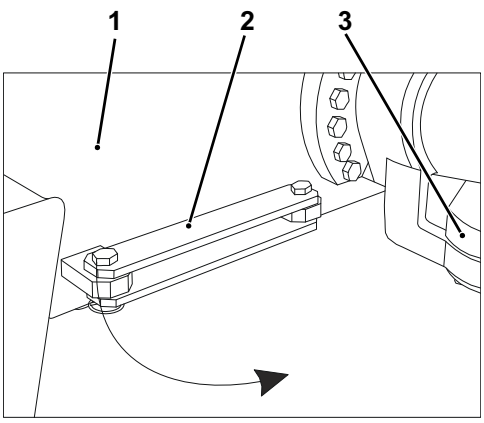


Fig.86 Installing the anti-buckling device

- Secure the compaction roller before starting work.
- Stop the Diesel engine and secure it against unintentional activation by pulling out the ignition key.
- Activate the parking brake.
- Secure the wheels at the rear axle by means by means of wheel chocks.
- In case the maintenance work needs to be carried out in the work zone, be sure to create a safe working environment.
- Ensure the compaction roller´s stability.
- Protect the work area against moisture and dirt.
- Check whether the hydraulic system is depressurized.
- For work at the roller drum, the roller frame or the steering system, always install the anti-buckling device (2) between the roller frame (3) and the rear end (1).
- Use only tools and accessories which are described in this operating and maintenance manual.

17.1.2 After completing the maintenance work

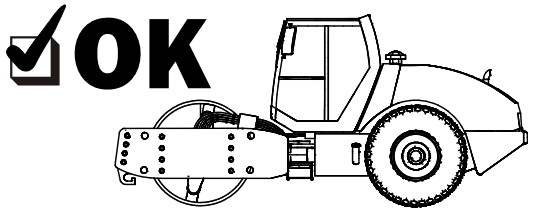


Fig.87 Checking the compaction roller

- Ascertain that the compaction roller is in a safe operating condition.
- Check the hydraulic system of the compaction roller for leaks after starting it.
- Test the roller functions.
- Do not resume your work with the compaction roller before thoroughly checking the vehicle.

17.2 Overview: Maintenance

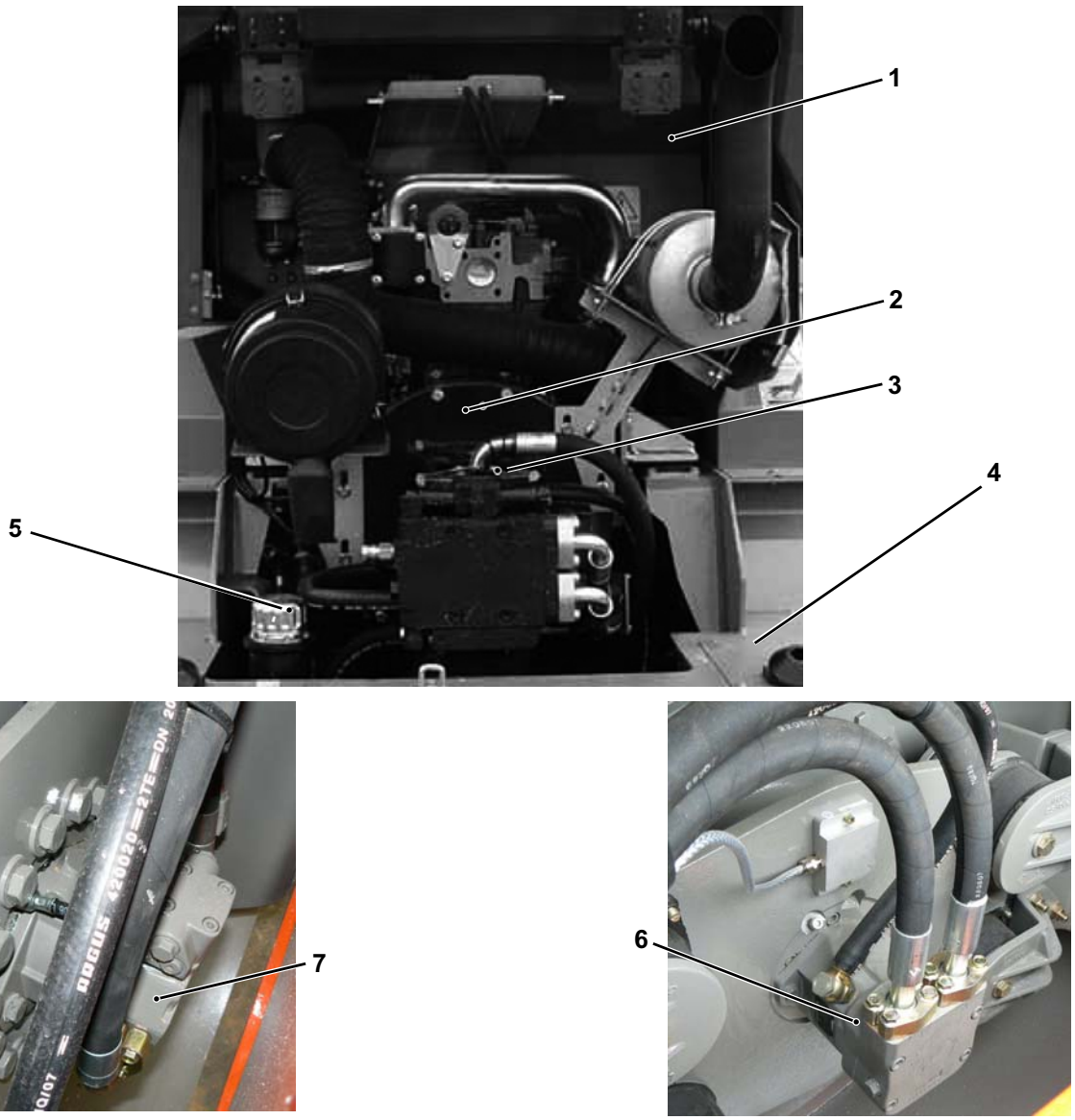


Fig.88 Engine compartment, drum and vibration drive

Captions Engine compartment, drum and vibration drive

1 Engine compartment
2 Diesel engine
3 Hydraulic pump assembly
4 Battery
5 Hydraulic tank
6 Vibration drive
7 Drum drive

17.3 Maintenance instructions for the driver

17.3.1 Required maintenance measures

NOTE

Before taking any maintenance measures at the compaction roller, be sure to consult the chapters on safety instructions and safety precautions for maintenance work.

WARNING!

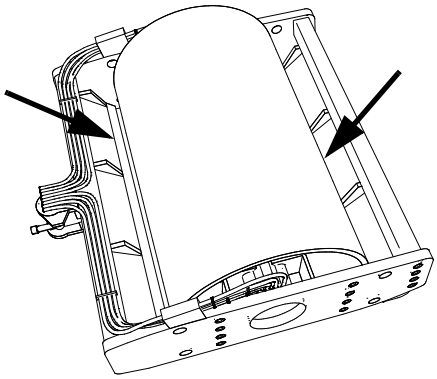
If you do not have the skills and knowledge required to perform the maintenance work, have it carried out by qualified service staff.
Never neglect the required maintenance work!
Neglecting the required maintenance work results in the expiry of our warranty (see chapter 1).

17.3.2 Table of lubricants

Greasing point	Lubricant	Viscosity	Equivalent standard
Diesel engine	API classification	SAE 10 W	
Arctic climate	CG 4/CH 4	SAE 20 W - 20	
Temperate climate		SAE 30	
Tropical climate		SAE 40	
All climes		SAE 15 W - 40	New machine
Axles, Gear box, Floating bearing	HLS		Approved: Fuchs Renogear HLS 90, Shell rear axle oil LS-BMW, ELF Tranself BM-LS 90
Vibration drive	Engine oil	SAE 15 W - 40	
Hydraulic oil	ATRAS Spezial 46	ISO VG 32 ISO VG 46 ISO VG 68	New machine Pay particular attention to the specifications referring to operation with temperatures below 0° C. Be sure to preheat the hydraulic oil sufficiently.

17.3.3 Checks and work to be carried out on a daily basis, before starting work with the compaction roller (Maintenance certificate A)

Illustration	Daily work

	• Conduct a visual inspection to check the exterior of the compaction roller. Clean it, if necessary.
	  • Check the hydraulic components and the hoses for leakage.
	  • Check the distance of the scrapers to the drum.
	  • Check the scrapers for damage.
	  • Remove coarse dirt from the roller drum and the scrapers.
	  • Watch out for damage at the vehicle.

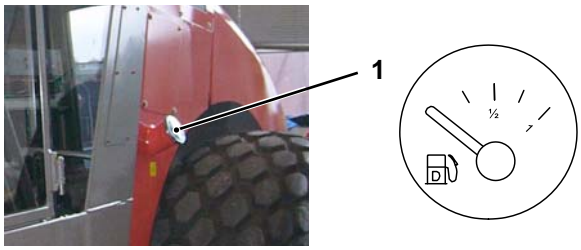
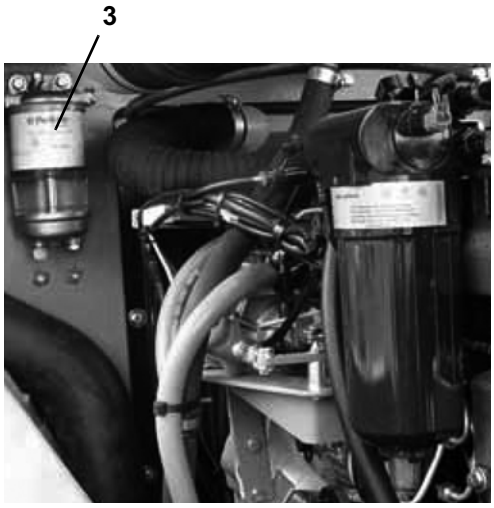
	• Check the fuel level. • Before starting work, check the fuel level and add Diesel, if required. See chapter Before starting the compaction roller.
	• Check the preliminary fuel filter. • The preliminary fuel filter is situated at the stiffener wall to the cabin (on the left, in the direction of motion). • Open the cover of the ventilation grills and drain the preliminary fuel filter (3).

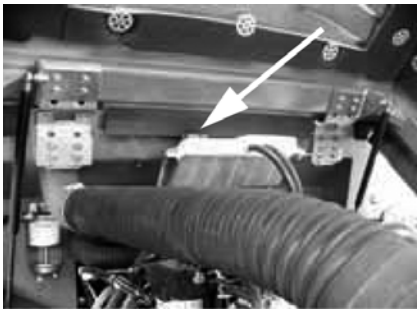
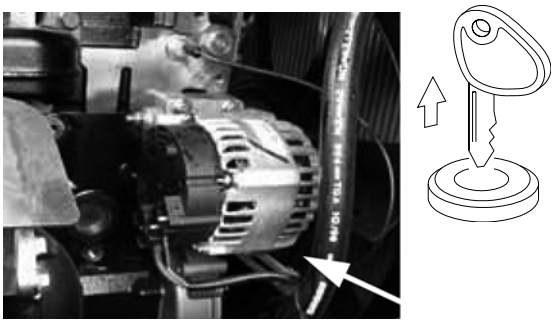
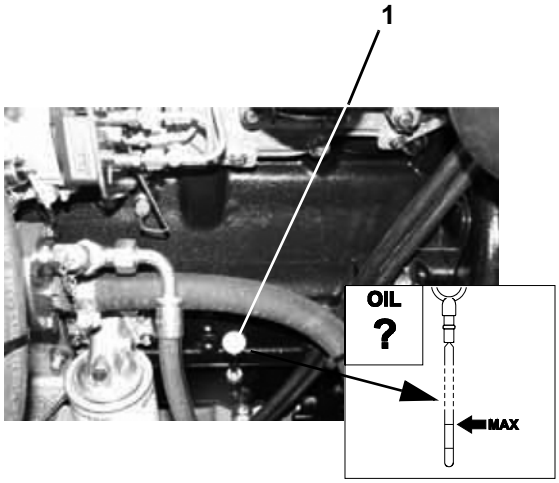
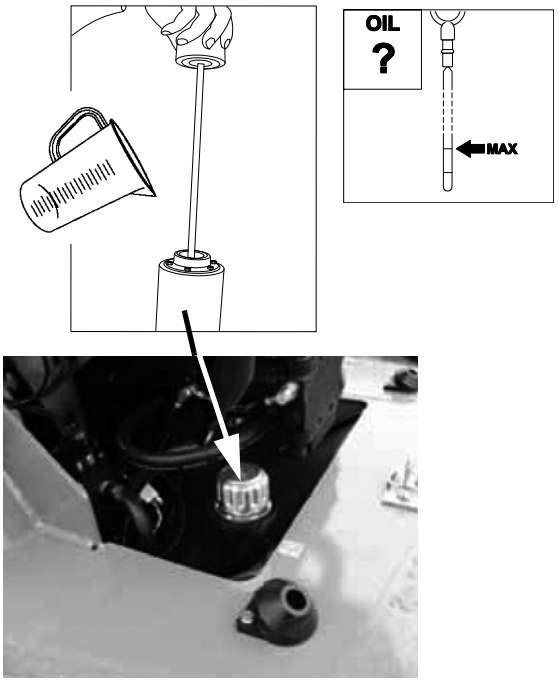
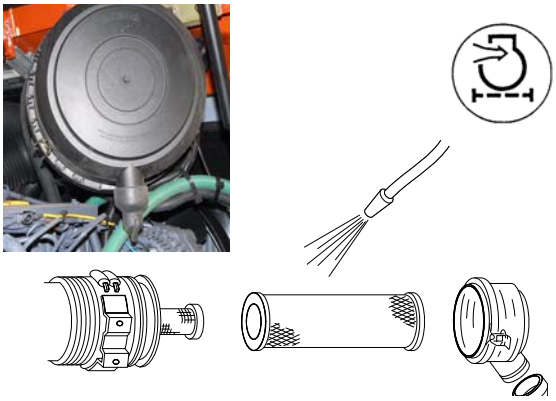
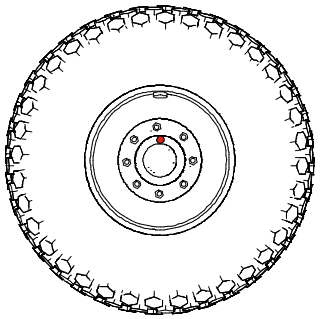
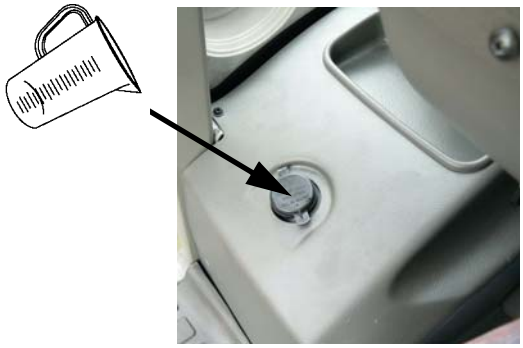
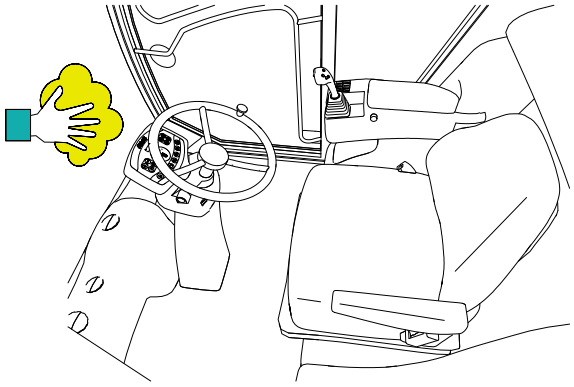
Illustration	Daily work
	• Check the coolant level. **DANGER!** ***Risk of burns caused by hot coolant!*** Make sure the engine has cooled down before you open the lid. • Open the cover of the ventilation grill and twist off the lid of the combination cooler. • Check the coolant level. • Add coolant, if required. • Ascertain the correct mixing ratio of the coolant.
	• Check the V-belt tension and check for damage. **WARNING!** • The V-belt tension may only be checked with the Diesel engine stopped. • Turn off the Diesel engine and remove the ignition key. *NOTE* For information on tensioning and replacing the V-belt, please refer to the Perkins 1104D-44 operating manual.
	• Check the engine oil level of the Diesel engine at the oil dipstick (1). • If necessary, use the filler neck to add engine oil. • Unscrew the lid of the filler neck and carefully fill in engine oil. *NOTE* • Pay attention to the information on the engine oil to be used in the engine compartment. • If no information is displayed in the engine compartment, consult the table of lubricants for the required specifications. **CAUTION!** Never mix different types of oil! • After adding oil, screw the lid back on.

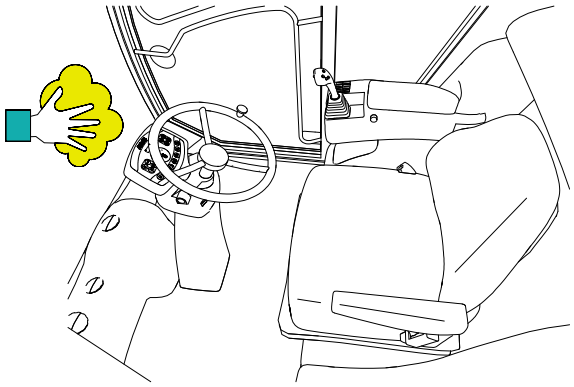
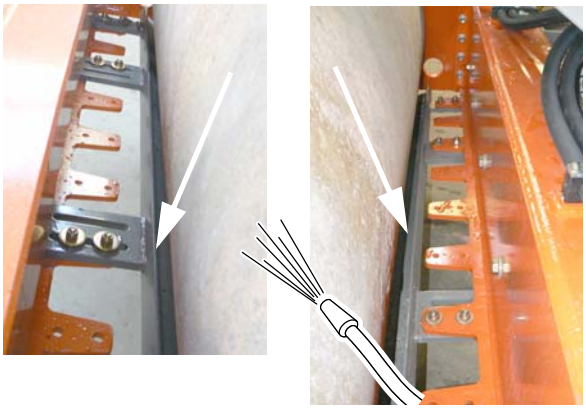
Illustration	Daily work
	*NOTE* In order to check the hydraulic oil level, the compaction roller needs to be parked on level ground. • Unscrew the filler neck with the oil dipstick (1) and check the oil level. • Add hydraulic oil, if necessary. **CAUTION!** ***Be sure to exercise extreme cleanliness when filling in hydraulic oil!*** Inform yourself of the type of hydraulic oil in the hydraulic system. Please refer to the table of lubricants for the required specifications. **CAUTION!** ***Damage to the hydraulic system!*** Never mix different types of hydraulic oil! • Fill in hydraulic oil by means of the filler neck.
	*NOTE* If the respective lamp on the dashboard indicates an accumulation of dirt at the air filter for the combustion air of the Diesel engine, clean or replace the air filter. After a maximum of five cleanings by means of compressed air, replace the filter cartridge. Wash the interior of the air filter housing and clean it; if necessary, vacuum it. **CAUTION!** ***Damage to the Diesel engine!*** • Never attempt to clean the air filter housing by blowing air into it!
	• Check the tire inflation pressure.

Type of tires	min. pressure	max. pressure	
Standard tires	1.2 bar	1.6 bar	water filling
Special tires	Please ask your HYUNDAI dealer for information on the required tire filling.		

• Check the tire inflation pressure and adjust it, see chapter Tires at the rear axle.

Illustration	Daily work
	• Check the fill level of the washing water container. • If you need to add water, use an appropriate can to fill it in. *NOTE* Depending on the season, antifreeze may have to be added to the washing water.
	• Check the cabin by performing a visual inspection and clean it, if required.

17.3.4 Daily checks and work to be carried out after compaction roller operation

Illustration	Daily work
	• Check the cabin by performing a visual inspection and clean it, if required.
	• After parking the compaction roller and closing the doors, clean the exterior of the vehicle. If necessary, use a high-pressure washer. **CAUTION!** Make sure the high-pressure washer is not directed at one of the following components: • the seals of the cabin doors, • ventilation grills and slots. • Be sure to clean the steps to prevent dirt from accumulating there. • Clean the scrapers of the roller drum before the dirt can harden.

17.4 Maintenance instructions for the service staff

17.4.1 Required maintenance work referring to the Diesel engine, the hydraulic system and the electrical system

NOTE

Consult the chapter Maintenance instructions for the service staff for a description of the required work.

17.4.2 Work to be carried out at intervals of 500 operating hours (Maintenance certificate C)

NOTE

These maintenance measures need to be taken in a workshop. They may be carried out by the trained service staff of an authorized HYUNDAI dealer only.

18 MAINTENANCE INSTRUCTIONS FOR THE SERVICE STAFF

18.1 Required maintenance measures

NOTE
Before taking any maintenance measures at the compaction roller, be sure to consult the chapters on safety instructions and safety precautions for maintenance work.

WARNING!
If you do not have the skills and knowledge required to perform the maintenance work, have it carried out by qualified service staff.
Never neglect the required maintenance work!

DANGER!
Risk of burns!
If you need to perform any work related to the Diesel engine or the engine compartment, make sure all components have cooled down before you start.

18.1.1 Lubricants for maintenance work

18.1.2 Table of lubricants

NOTE
The table of lubricants can be found in the chapter Maintenance instructions for the driver.

18.1.3 Maintenance work referring to the Diesel engine

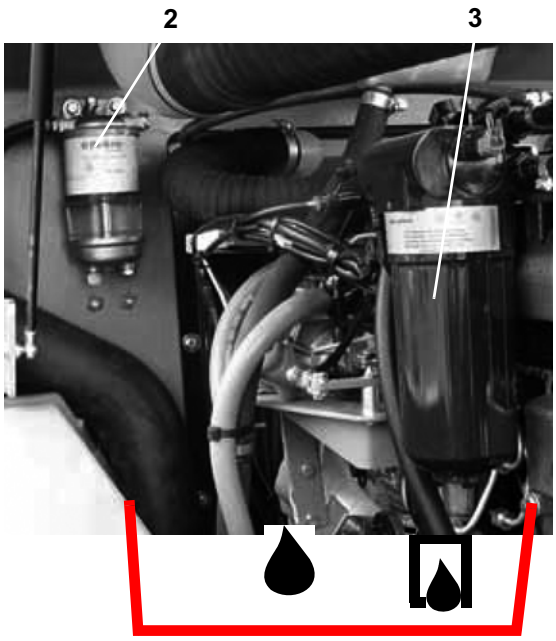
NOTE
Before carrying out any maintenance work related to the Diesel engine, read and observe the Perkins 1104D-44 operating manual.

Maintenance intervals Diesel engine

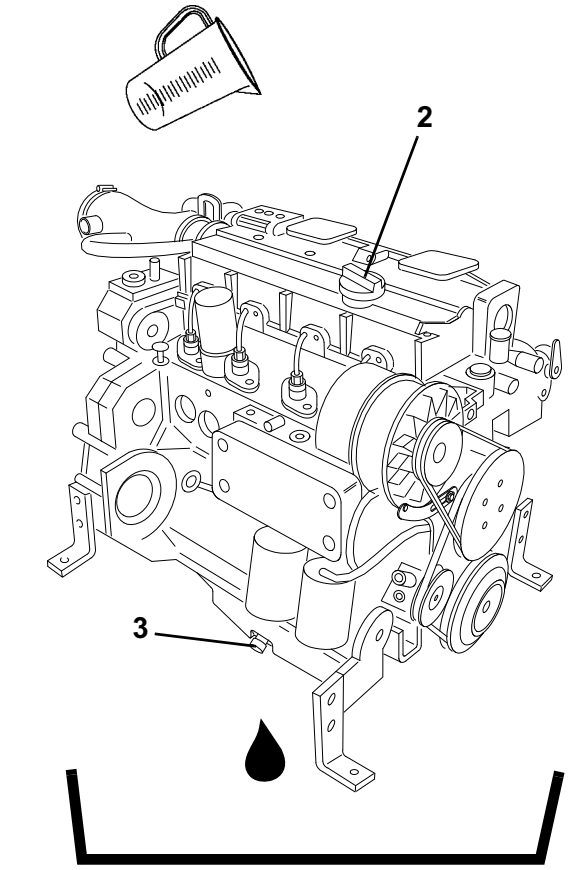
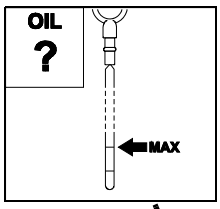
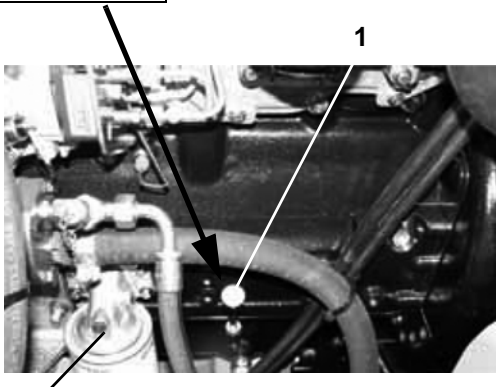
- After the initial operation, the first inspection of the vehicle needs to be conducted after 50 operating hours.
- All subsequent maintenance work has to be carried out according to the maintenance instructions in this manual (see tables) and the Perkins 1104D-44 operating manual.

Fuel system

Illustration	Maintenance work and intervals

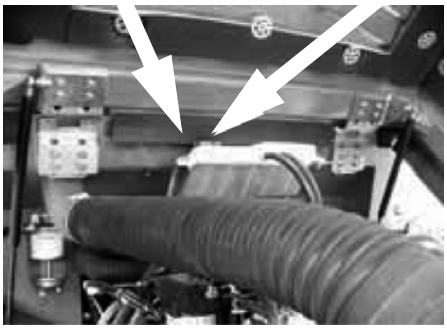
	**Weekly or at intervals of 100 operating hours**
	• Before the fuel enters the Diesel engine, the fuel is cleaned and water is filtered from it.
	• Checking the fuel-water separator:
	  • The water-fuel separator (3) is to be found at the stiffener wall to the cabin (left, in the direction of motion).
	  • Open the engine cover.
	  • Drain the fuel-water separator (3) by means of the drain plug below the separator.
	
	50 operating hours after the initial operation; subsequently, at intervals of 500 operating hours
	• Checking the fuel filter:
	  • At intervals of 500 operating hours or of 12 months, replace the cartridges of the fuel filter (2).
	  • Open the engine cover.
	  • Place a receptacle under the fuel filter, in order to collect leaking fuel.
	  • Unscrew both filter cartridges and dispose of them in an environmentally friendly way.
	  • Waste disposal key in the EU:150299 (EU).
	  • Use clean oil to lubricate the surface of the filter sealing.
	  • Attach the filter cartridges and screw them on manually.
	  • Let the Diesel engine turn via the starter.
	  • Open the fuel vent plug and ventilate the fuel system, see Perkins 1104D-44 operating manual.

Engine oil system

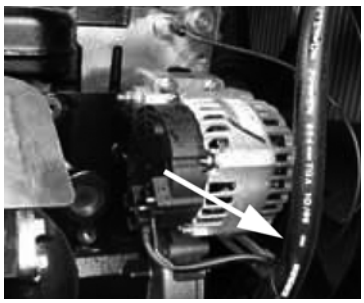
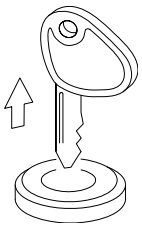
Illustration	Maintenance work and intervals
  	**50 operating hours after the initial operation; subsequently, at intervals of 500 operating hours.** Oil change Diesel engine: *NOTE* Take the compaction roller to a workshop in order to carry out the oil change. **WARNING!** ***Environmental protection!*** • The engine oil must not penetrate the ground, pollute water or leak into the sewer system. Be sure to collect it in sufficiently dimensioned receptacles and dispose of it in an environmentally friendly way (EU waste disposal key 130202). • Start the Diesel engine and wait until it has reached operating temperature. • Stop the Diesel engine and pull out the ignition key. • Place a sufficiently dimensioned receptacle under the exterior drain plug of the Diesel engine. **DANGER!** ***Risk of burns caused by hot engine oil!*** Be sure to wear adequate protective clothing! Unscrew the oil drain plug (3), pull out the oil dipstick (1) and drain the oil. • Dispose of the waste oil in an environmentally friendly way, according to the applicable regulations. • EU waste disposal key: 130202 (EU). • Screw in the oil drain plug (3) with a new o-ring. **Replacing the oil filter**: • Place a receptacle under the oil filter in order to collect leaking oil. • Unscrew the filter cartridge and dispose of it in an environmentally friendly way, according to the applicable regulations. • EU waste disposal key:150299 (EU). • Use clean oil to lubricate the surface of the filter sealing. • Attach the filter cartridge and screw it on manually. **Adding oil:** *NOTE* • Refer to the table of lubricants for specifications of the oil to be used. • Add a sufficient amount of engine oil (approx. 10 l) by means of the filler neck (2). • After filling in the engine oil, screw off the lid and let the Diesel engine turn via the starter. • Check the oil level at the oil dipstick and add oil, if necessary. • Start the Diesel engine and let it idle to reach operating temperature.

Cooling system

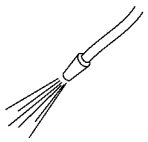
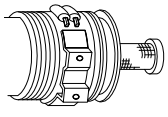
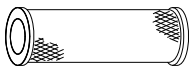
Illustration	Maintenance work and intervals


2
 
	To be carried out if the warning lamp lights up or after repair work
	• **Adding coolant:**
	WARNING!
	Risk of burns caused by hot coolant!
	• Before you open the lid of the cooler, make sure that the Diesel engine and the cooling system have cooled down.
	• Carefully screw off the lid (2) of the combination cooler.
	• Check the coolant level.
	• If coolant needs to be added or after repair work, the following mixing ratio is required:
	  • Capacity of the cooling system: approx. 15 liters. 40% coolant for 1 liter of water
	  • Mixing ratio: 0.6 liter of water and 0.4 liter of coolant.

Checking the V-belts

Illustration	Maintenance work and intervals
 	• Check the V-belt tension and watch out for damage. **WARNING!** • Never check the V-belt tension with the Diesel engine running! • Turn off the Diesel engine and pull out the ignition key. *NOTE* Refer to the Perkins 1104D-44 operating manual for instructions on tensioning and replacing the V-belt.

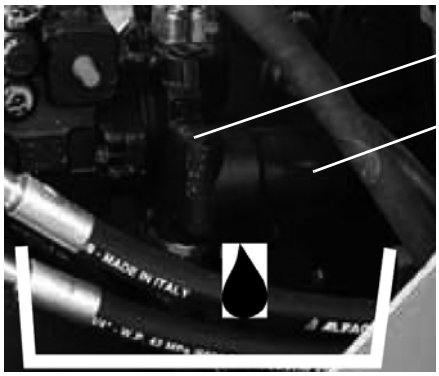
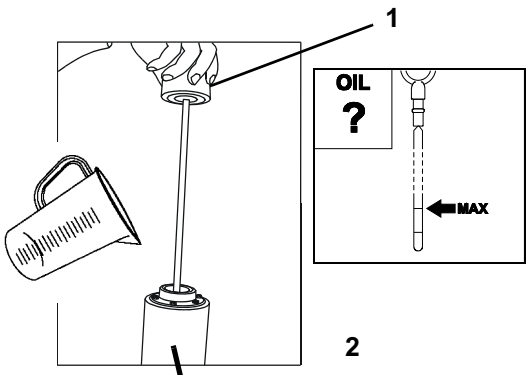
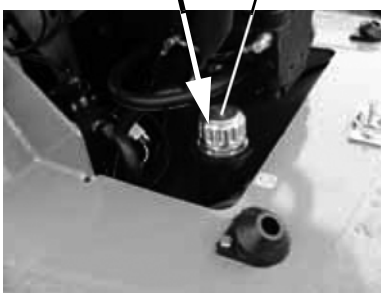
Replacing the combustion air filter

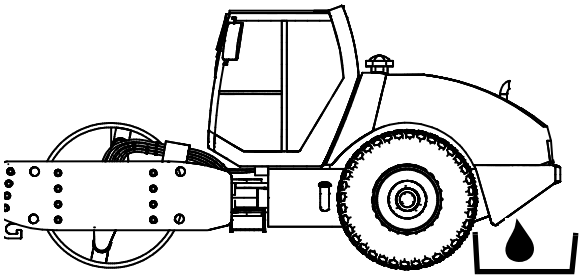
Illustration	Maintenance work and intervals
     	*NOTE* • If the respective lamp on the dashboard indicates an accumulation of dirt at the air filter for the combustion air of the Diesel engine, clean or replace the air filter. After a maximum of five cleanings by means of compressed air, replace the filter cartridge. Wash the interior of the air filter housing and clean it; if necessary, vacuum it. **CAUTION!** ***Damage to the Diesel engine!*** Never attempt to clean the air filter housing by blowing air into it!

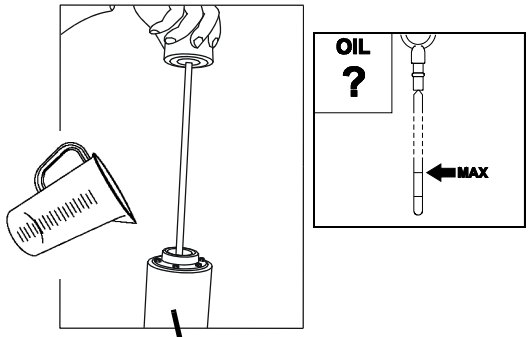
18.1.4 Maintenance work referring to the hydraulic system

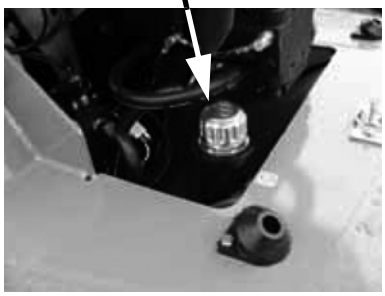
NOTE
Before carrying out any maintenance work related to the hydraulic system, refer to the table of lubricants for information on the required type of hydraulic oil.

Replacing the hydraulic oil and the oil filter cartridge

Illustration	Maintenance work and intervals
  	**Replace the oil filter cartridge for the hydraulic oil 50 hours after the initial operation and subsequently, at intervals of 500 operating hours** *NOTE* Prior to replacing the filter cartridge (3), place an oilpan under the hydraulic pump. • Slightly loosen the filter cartridge (3) by means of a tension band or a similar tool, but do not screw it off yet. *NOTE* In order to prevent the contents of the suction pipe from leaking, stop loosening the filter cartridge as soon as a suction sound is audible. The air intake causes the oil in the suction pipe to flow back into the tank. • As soon as the suction sound stops, unscrew the oil filter cartridge and remove it in an environmentally friendly way. • EU waste disposal key: 150299 (EU). • Use clean oil to lubricate the sealing of the filter head (4). • Lubricate the new oil filter cartridge (3) with clean hydraulic oil. • Attach the new oil filter cartridge and screw it on manually. *NOTE* • Do not use a tension band to tighten the filter cartridge! Checking the hydraulic oil level: • Unscrew the filler neck with the oil dipstick (1) and check the oil level. • If necessary, add hydraulic oil. • Clean the ventilation head (2). • In case hydraulic oil needs to be added, observe the required specifications in the table of lubricants.







Replace the hydraulic oil at intervals of 2000 operating hours or if another type of oil is to be used.

NOTE

Take the compaction roller to a workshop in order to carry out the oil change.

WARNING!

Environmental protection!

- The engine oil must not penetrate the ground, pollute water or leak into the sewer system. Collect it in sufficiently dimensioned receptacles and dispose of it in an environmentally friendly way (EU waste disposal key 130202).

- Start the Diesel engine and let it run until the hydraulic oil has warmed up.
- Stop the Diesel engine and pull out the ignition key.
- Place an oil receptacle under the hydraulic tank.
- Unscrew the filler neck with the oil dipstick (1).

NOTE

- Take the amount of hydraulic oil to be drained into account and be sure to choose a sufficiently dimensioned oil receptacle.

- Unscrew the oil drain plug, remove the oil dipstick and drain the hydraulic oil.
  - Dispose of the waste oil in an environmentally friendly way.
  - EU waste disposal key: 130202 (EU).
- Replace the oil filter cartridge, see description above.
- Screw in the oil drain plug with a new O-ring.
- Add hydraulic oil.

CAUTION!

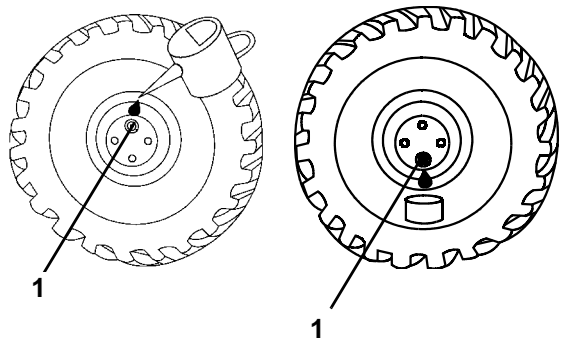
Be sure to exercise extreme cleanliness when filling in hydraulic oil!

- Inform yourself of the type of hydraulic oil in the hydraulic system. Please refer to the table of lubricants for the required specifications.

- Add hydraulic oil via the filler neck.
- Start the Diesel engine and let it run until the hydraulic oil has warmed up.
- Stop the Diesel engine and pull out the ignition key.
- Check the hydraulic oil level again.

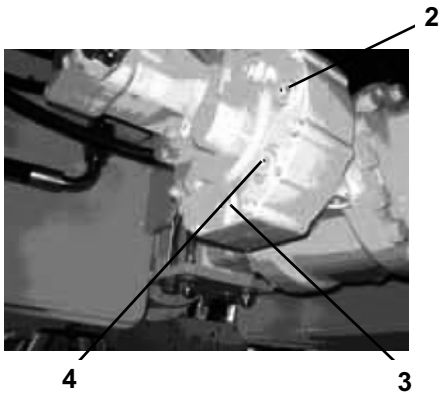
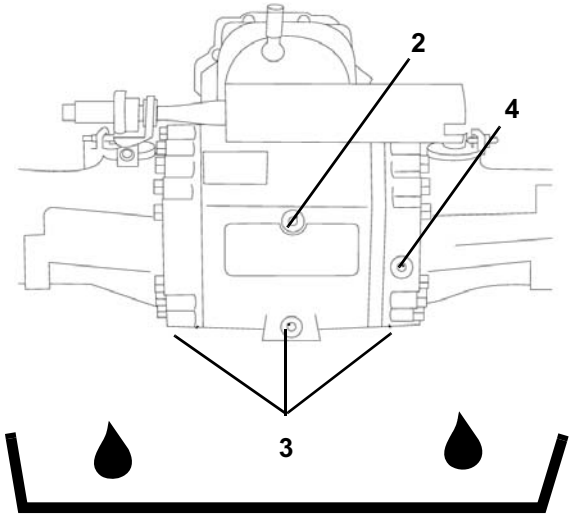
18.1.5 Maintenance work referring to the rear axle

NOTE
Before carrying out any maintenance work related to the rear axle, refer to the table of lubricants for information on the required type of axle oil.

Illustration	Maintenance work and intervals
	**Check the oil level in the rear axle and in the wheel drives after the 50 initial operating hours and subsequently, at intervals of 500 operating hours**. *NOTE* • Take the compaction roller to a workshop in order to carry out the oil check. • Before carrying out any work related to the rear axle, secure the compaction roller against rolling. Apply the parking brake and put wheel chocks under the tires. **Checking the oil level in the wheel drives:** • Advance the compaction roller until the oil drain plug (1) is in the correct position (see illustration on the left). • Unscrew the oil drain plug (1). • The oil level should be barely visible underneath the opening or tangible with a finger. • In case oil needs to be added, be sure to consult the table of lubricants for information on the required specifications. • Screw the oil drain plug (1) back in. **Oil change in the wheel drives:** • In order to replace the oil in the wheel drives, advance the compaction roller until the oil drain plug (1) is in the lowest position (6 o‘clock). • Place a sufficiently dimensioned receptacle under the respective wheel drive. • Unscrew the oil drain plug (1) and drain the oil. • Screw the oil drain plug (1) back in and add axle oil by following the instructions above.

Checking the oil level in the rear axle and changing oil

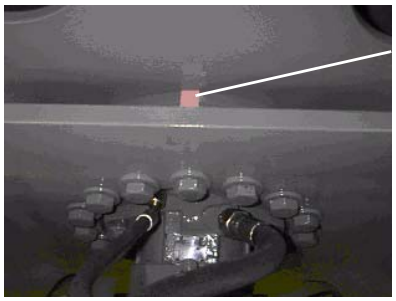
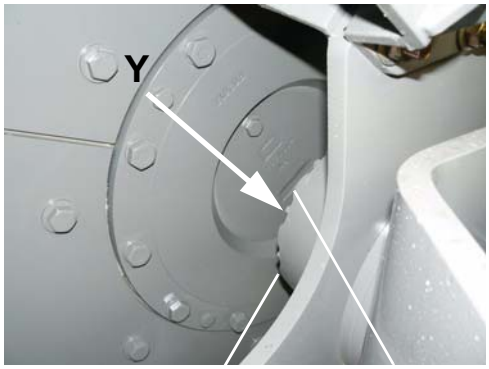
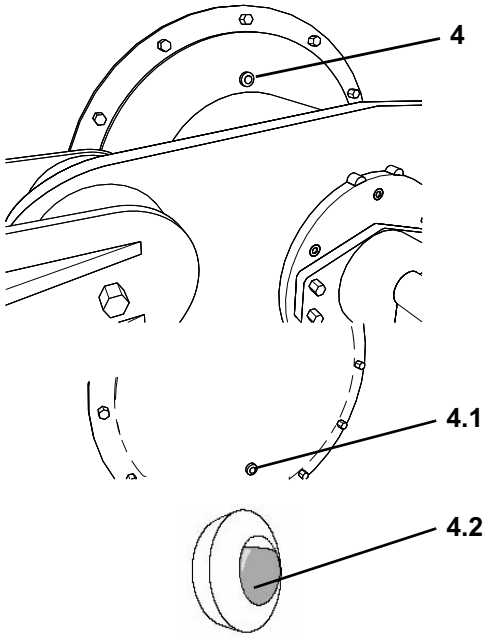
Illustration	Maintenance work and intervals


 
	Check the oil level in the rear axle after the initial 50 operating hours and subsequently, at intervals of 500 operating hours.
	NOTE
	• Take the compaction roller to a workshop in order to carry out the oil check.
	• Before carrying out any work related to the rear axle, secure the compaction roller against rolling. Apply the parking brake and put wheel chocks under the tires.
	Checking the oil level in the axle housing:
	NOTE
	• The filler screws (2), the oil drain plugs (3) and the control screw (4) are to be found at the front and the back of the axle housing.
	• Remove the control screw (4) from the axle housing.
	• The oil level should be barely visible underneath the opening or tangible with a finger.
	• Screw the control screw (4) back in.
	Replacing the oil in the axle housing:
	• Place a sufficiently dimensioned oil receptacle under the oil drain plugs (3).
	• Unscrew the oil drain plugs (3) and drain the oil.
	  • Dispose of the waste oil in an environmentally friendly way.
	  • EU waste disposal key: 130202 (EU).
	• Screw the oil drain plugs (3) back in.
	• Refer to the table of lubricants for information on the required specifications of the axle oil.
	• Provide the axle housing with new axle oil via the filler screws (2).
	• Attach and tighten the filler screws (2).

18.1.6 Maintenance work referring to the drum and vibration drive

NOTE
Before carrying out any maintenance work related to the components of the drum, be sure to consult the table of lubricants for information on the specifications of the required type of oil. In addition, clean the drum area to prevent dirt from contaminating the oil.

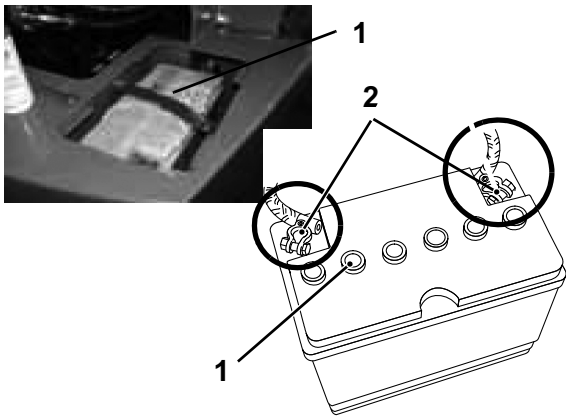
Checking the oil level

Illustration	Maintenance work and intervals
  	**Check the oil level at the drum drive after the initial 50 operating hours and subsequently, at intervals of 500 operating hours**. *NOTE* • Take the compaction roller to a workshop in order to carry out the oil check. • Before carrying out any work related to the drum drive, secure the compaction roller against rolling. Apply the parking brake and put wheel chocks under the tires. • Advance the compaction roller until the labeling (1) at the gear flange is visible and points upward. • The filler and the oil drain screw (2, 3) are both situated on the interior gear side Y. • If the labeling (1) is in the correct position, the control screw (2) is on the left side and the drain screw (3) points downward. • Remove the filler screw (2) from the gear box. • The oil level should be tangible with a finger underneath the opening. • If required, add the necessary amount of gear oil. • Be sure to consult the table of lubricants for information on the specifications of the required gear oil. **Check the oil level at the vibration drive after the initial 50 operating hours and subsequently, at intervals of 500 operating hours.** • Advance the compaction roller until the inspection glass (4) is in the lowest position (6 o‘clock) (4.1). • This implies that the filler screw (4) is in the top position (12 o‘clock). • If, in this position, the gear oil level does not correspond to the illustration (4.2), oil needs to be added. • Be sure to consult the table of lubricants for information on the specifications of the required oil. • Remove the filler screw (2) from the housing. • Add oil until the correct oil level is reached, see illustration. • Screw the filler screw (2) back in.

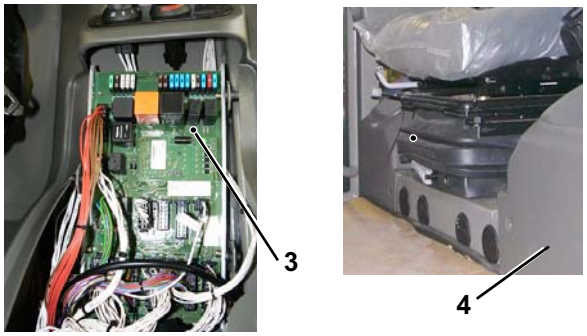
18.2 Maintenance work referring to the electrical system

18.2.1 Maintenance work related to the battery

CAUTION!
Risk of explosions!
Keep away sparks and open fire from the battery. Do not smoke.

Illustration	Monthly maintenance work
	• Check the battery poles (2) for the accumulation of dirt and for signs of corrosion. • Lubricate the poles and terminals. • Open the cover caps (1) of the battery and check the fill level above the cells. • Make sure the fill level is sufficient, i.e. above the cells. **CAUTION!** Add distilled water only!

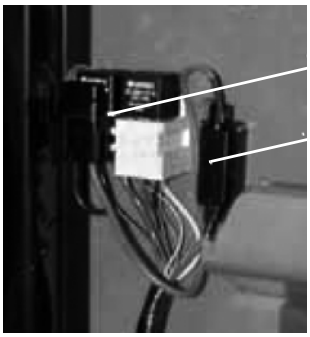
18.2.2 Printed circuit board, fuses and relays

Illustration	Monthly maintenance work
	• Check the printed circuit board, the fuses and relays on the printed circuit board. • The printed circuit board is installed next to the driver‘s seat (on the left) and is covered by a faceplate. • Open the faceplate (4) covering the printed circuit board (3) and check the printed circuit board by conducting a visual inspection (3). • Check the fuses and relays for the accumulation of dirt and damage. • Always replace defective fuses by new ones, see chapter Maintenance instructions for the service staff.

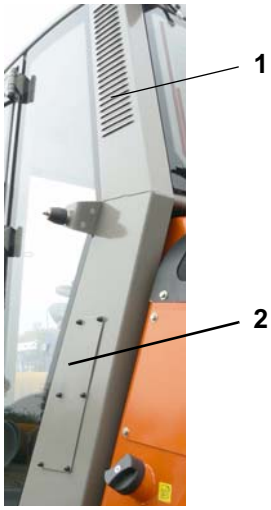
18.2.3 Allocation of the fuses on the printed circuit board

No.	Ampere	Function	No.	Ampere	Function
F1	30 A	Ignition lock	**F10**	15 A	Rotating light, front work lights
F2	7.5 A	Terminal 30 - Radio	**F11**	15 A	Rear work lights
F3	25 A	Option: (K08)	**F12**	25 A	Fan (heating and ventilation)
F4	25 A	Rear window heating	**F13**	7.5 A	Option: air-conditioning
F5	25	Option: air conditioning	**F14**	15 A	Connection for socket, engine speed sensor, compaction measurement (option)
F6	7.5 A	Sensors, control lights H01, 02, 05, 09, 10, 11, 12, 13, 16, fuel gauge, D+	**F15**	10 A	Emergency stop, parking brake, drive control
F7	7.5	Gearshift axle, Overmodulation drum	**F16**	15 A	Drive control, vibration, excess quantity valve, fuel pump, fuel valve, control lever, joystick, backup warner
F8	15 A	Horn, control rear window heating, radio, interior lighting, electrical equipment driver‘s seat	**F 17**	80 A	Preheat (engine compartment)
F9	15 A	front/rear wipers & windscreen washer system			

18.2.4 Fuses and relays in the engine compartment

Illustration	Monthly maintenance work
	• Check the fuses (F18) and relays (K11) in the engine compartment for the accumulation of dirt and damage. • Always replace defective fuses, see previous page for information on the allocation of the fuses on the printed circuit board.

18.3 Maintenance work referring to the ventilation system

Illustration	Maintenance work and intervals
	The filter units of the ventilation system need to be replaced at intervals of 500 operating hours or in the event of a high accumulation of dirt. **Note!** • Do not clean the ventilation slots (1) by means of water jets or a high-pressure washer. • Instead, clean the ventilation slots (1) with an industrial vacuum cleaner. • Open the cover plate (2) of the filter unit and replace the filter unit.

19 MAINTENANCE INSTRUCTIONS REFERRING TO THE INITIAL OPERATION

19.1 Delivery receipt of the HYUNDAI compaction roller

NOTE
Make sure all checks and maintenance measures required for the initial operation are carried out in the presence of the customer or his/her staff. Obtain a written confirmation.

- Ascertain the completeness of the delivery (including all accessories and the compaction roller documentation).
- Make a note of any damage found.
- Refer to the chapter Note of delivery and verification of inspections for information on the default maintenance intervals (maintenance certificates).

19.1.1 Checking the operating state of the compaction roller

NOTE
Carry out the maintenance work described below in the presence of the operating staff (i.e. the driver of the compaction roller) and the service staff of the customer. Refer to the corresponding sections in this operating and maintenance manual.

Checking the fill levels

- Ensure that the following fill levels correspond to the required levels as stated in the maintenance manual:
  - Engine oil level
  - Hydraulic oil level
  - Oil level, drum drive
  - Oil level, vibration drive
- Check the tire inflation pressure, see chapter Tires at the rear axle.

Screw connections

- Tighten the wheel nuts by means of a torque key (tightening torque: **500 Nm**).
- Check all screw connections.

Hydraulic system

- Check the hydraulic hoses and screw connections for leakage.

19.1.2 Instruction and demonstration at the machine

NOTE
Perform the instruction in the presence of the operating staff (i.e. the driver) and the service staff of the customer. Make sure that your instruction is understood and that the individuals in question will read and comprehend the operating and maintenance manual.

Vehicle documents and operating manual

- Hand out the documents related to the compaction roller and point out their relevance.
- Explain the structure and the contents of the operating and maintenance manual.
- Be sure to refer to the safety instructions and stress the importance of observing them.
- Explain the operation and the functions of the compaction roller, based on the instructions in this manual.

NOTE
Bear in mind that, after your initial instruction and demonstration, the operating and maintenance manual will be the only resource for obtaining information on the operation of the vehicle.

Operating elements and displays in the cabin

- When giving the operating staff instructions related to the controls and displays in the cabin, adhere to the sequence provided by the operating and maintenance manual:
  - Begin by explaining the adjustment of the driver‘s seat.
  - Explain the functions of the switches, the buttons and the symbols of the dashboard and the steering column.
  - Point out the connections between certain functions, e.g. the parking brake and engine start.
  - Explain the joystick control.
  - Point to the specifications of the required hydraulic - , gear - , axle - and engine oil types and the brake fluid. **Point out that the use of supplies and substances other than the ones approved by the manufacturer inevitably leads to the expiry of the warranty**.

Working with the compaction roller

- Soil compaction modes
- Vibration modes
- Roller drum types
- Driving on slopes

Driving the compaction roller

- Transporting the compaction roller.
- Refer to the corresponding instructions in the operating and maintenance manual when explaining the towing process.

Maintenance work

- Filling the tires
- Checking the tire inflation pressure
- After a practical demonstration, eliminate any signs of leakage and check the function of the brakes and the electrical system.
- Provide information on maintenance measures and intervals.
- Check list 1st inspection (see p.97).

Diesel engine

NOTE
In addition to the measures stated here, refer to the operating manual of the Diesel engine manufacturer and observe the instructions.

Checking the fill levels

- Check the engine oil level.
- Check the hydraulic oil level.
- Check the fill level in the wheel drives of the rear axle.
- Check the fill level in the axle housing of the rear axle.
- Replace the breather of the rear axle.
- Check the oil level of the drum drive.
- Check the oil level of the vibration drive.
- Check the water filling in the tires, see section on filling the tires.
- Check the tire inflation pressure, see chapter Tires at the rear axle.

Screw connections

- Check the screw connections of the engine mounting at the Diesel engine.
- Tighten the screw connections at the basic frame / rear axle (tightening torque: **600 Nm**).
- Tighten the screw connections at the articulated pendulum joint
  - Screws in the articulation bolt: tightening torque **115 Nm**,
  - Screws between the articulated pendulum joint and the basic frame: **560 Nm**.
- Check all other screw connections.

Hydraulic system

- Replace the filter cartridge at the pump assembly.
- Check the ventilation filter of the hydraulic tank.
- Check the hydraulic hoses and screw connections for leakage.

Diesel engine

- Replace the air filter cartridge of the Diesel engine. Clean the air filter housing, if required.
- Tighten the fastening screws of the air intake system.
- Tighten the fastening screws of the exhaust system.
- Follow the instructions in the operating and maintenance manual of the Diesel engine manufacturer in order to carry out any maintenance work related to the Diesel engine!

21 ANNEX

21.1 Index

21.2 Table of figures