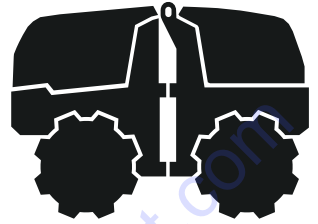




Husqvarna®



LP 9505

EN Operator's manual

2-49

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Introduction

California Proposition 65

**WARNING!**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

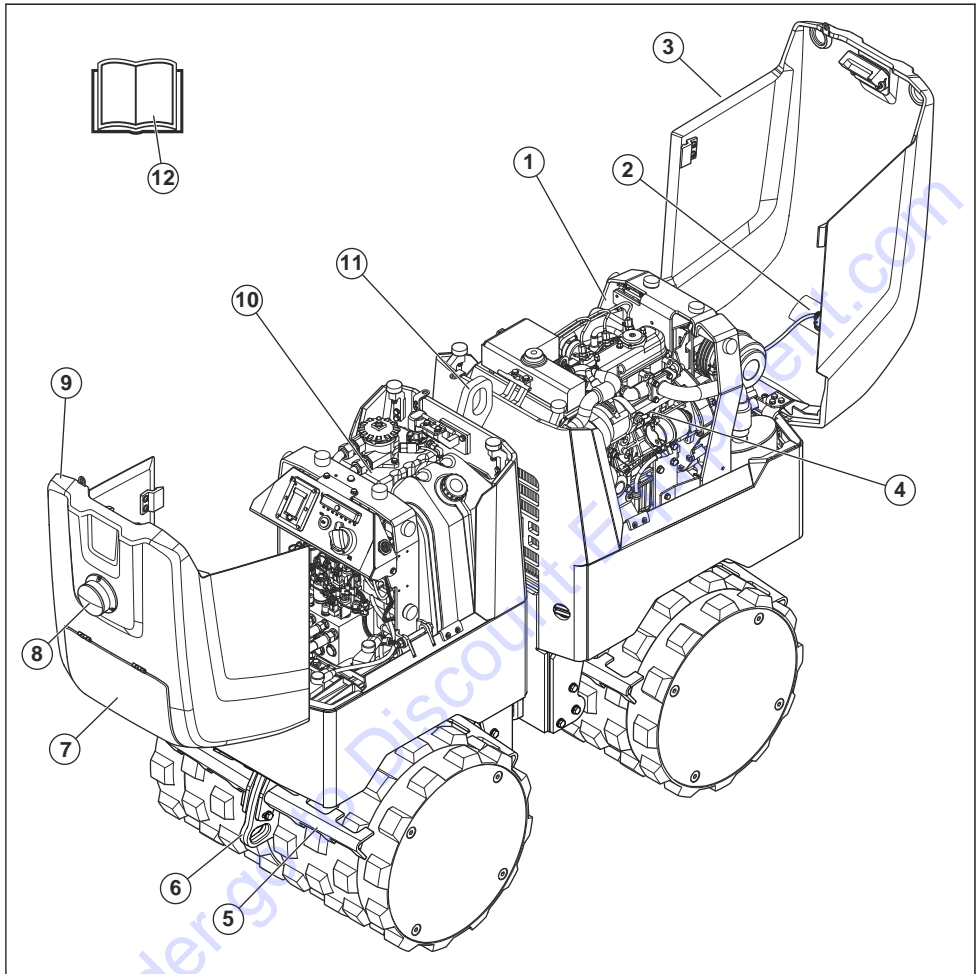
Product description

The product is a trench compactor with articulation joints. The product has a combustion engine and it is operated with a remote control.

Intended use

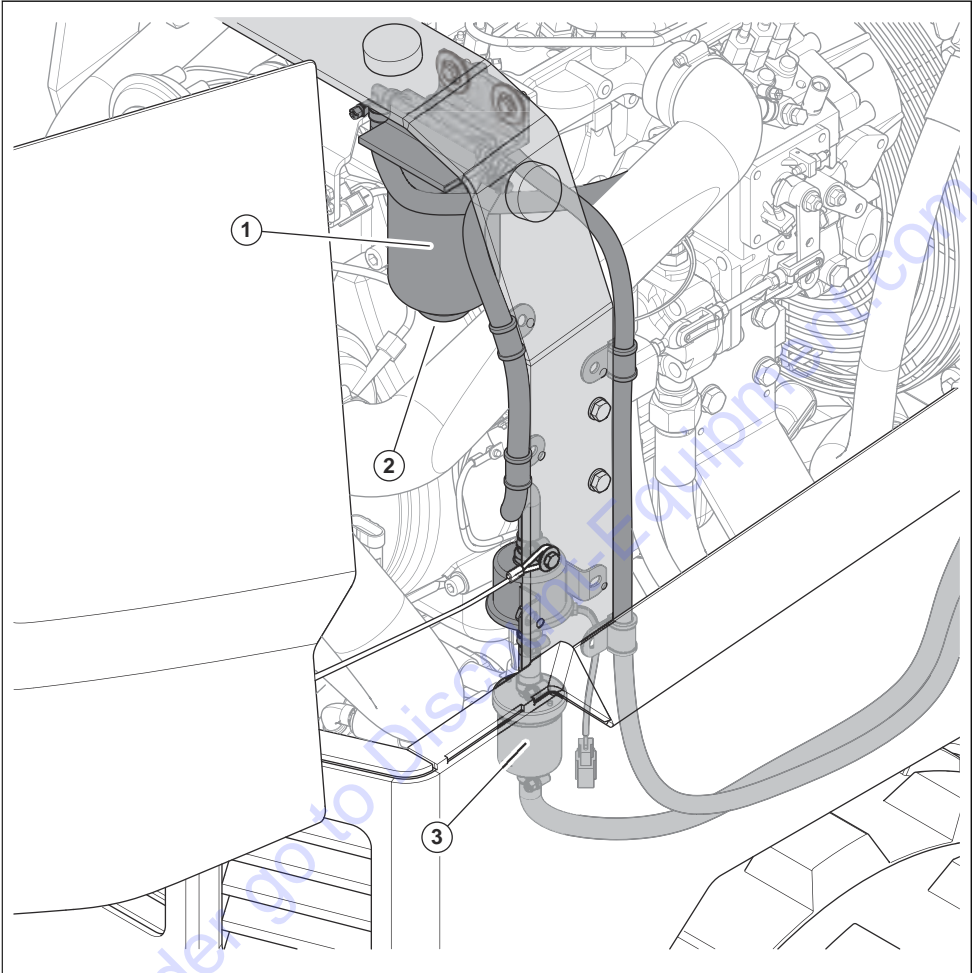
The product is for professional operation only. The product is used for compaction of moderately thick layers to layers of larger depth of granular soils. Use the product to make the surface smooth. Examples of such work are in trenches and on roads.

Product overview



1. Fuel filters. Refer to *Product overview, fuel filters on page 4*.
2. Front machine distance sensor (MDS)
3. Front cover
4. Front parts. Refer to *Product overview, front parts on page 5*.
5. Scrapers
6. Tie-down bracket
7. Rear hatch. Refer to *Product overview, rear hatch on page 6*.
8. Warning light
9. Rear cover
10. Rear parts. Refer to *Product overview, rear parts on page 7*.
11. Lifting eye
12. Operator's manual

Product overview, fuel filters

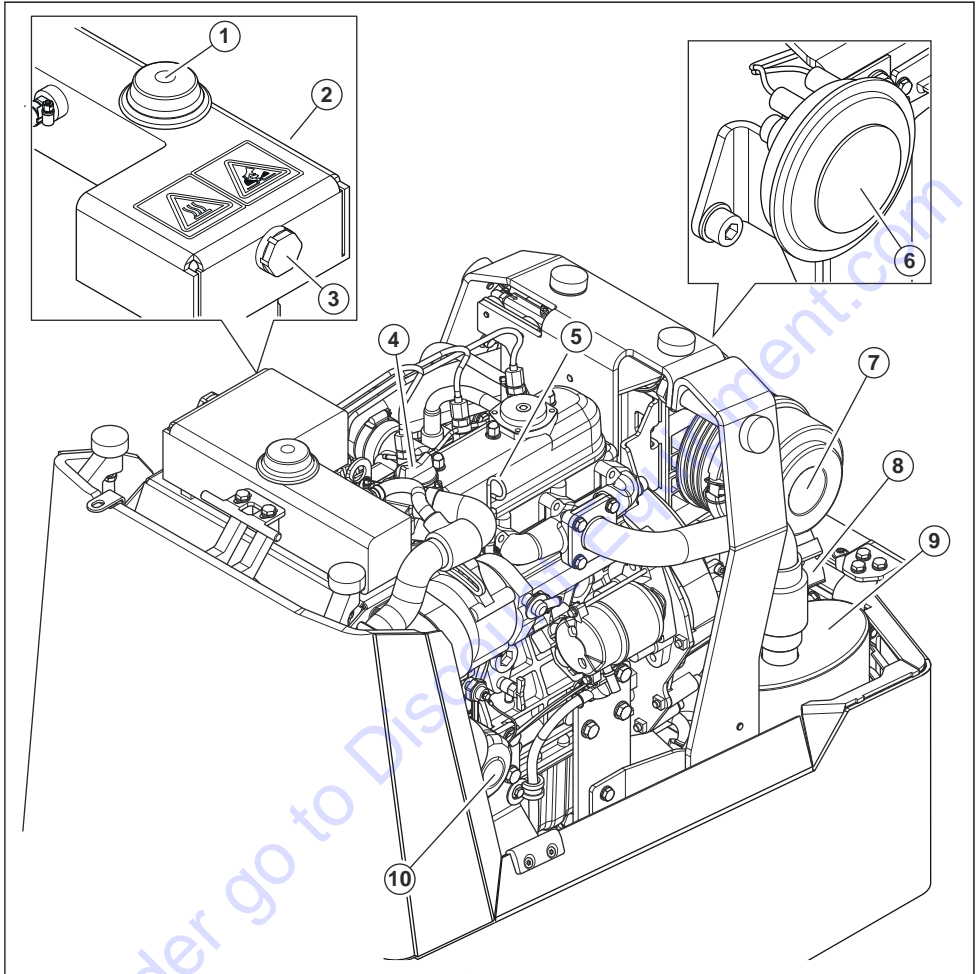


1. Fuel filter

2. Drain plug for the water separator

3. Fuel prefilter

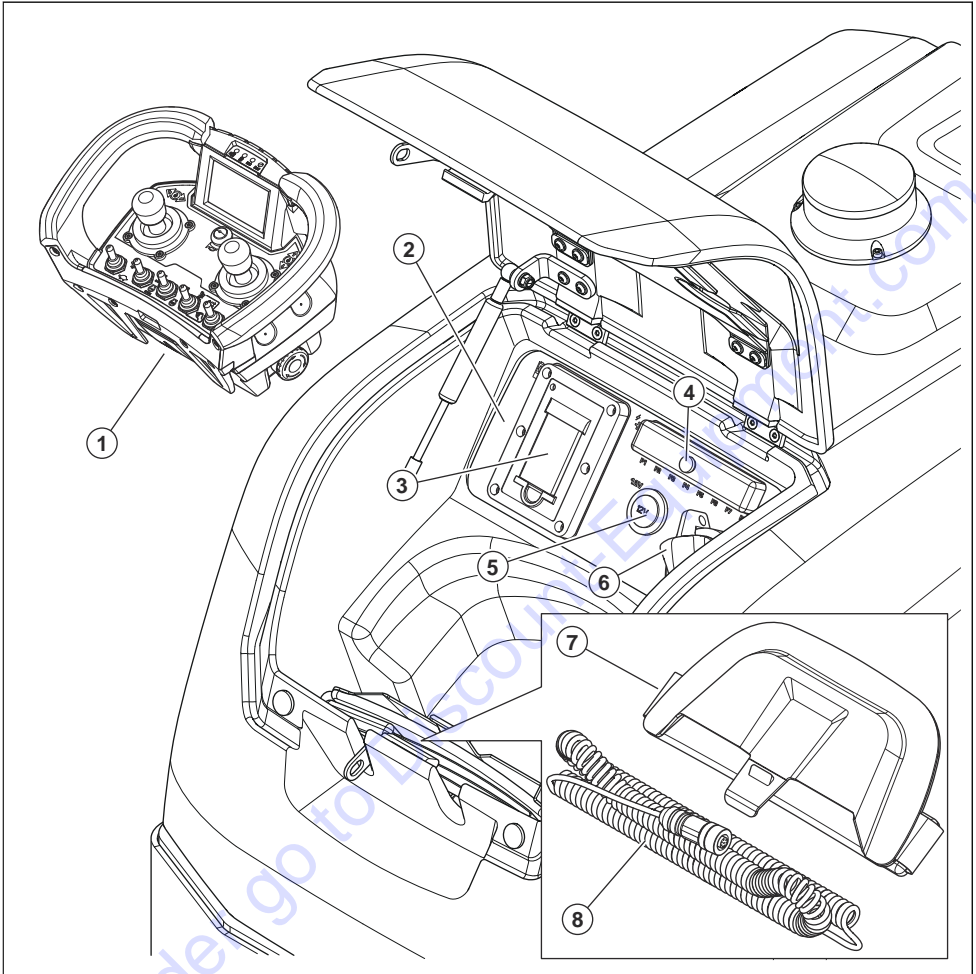
Product overview, front parts



1. Radiator coolant cap
2. Radiator coolant tank
3. Sight glass for radiator coolant level
4. Engine oil cap
5. Oil dipstick

6. Loudspeaker
7. Air filter
8. Vacuator valve
9. Muffler
10. Engine oil filter

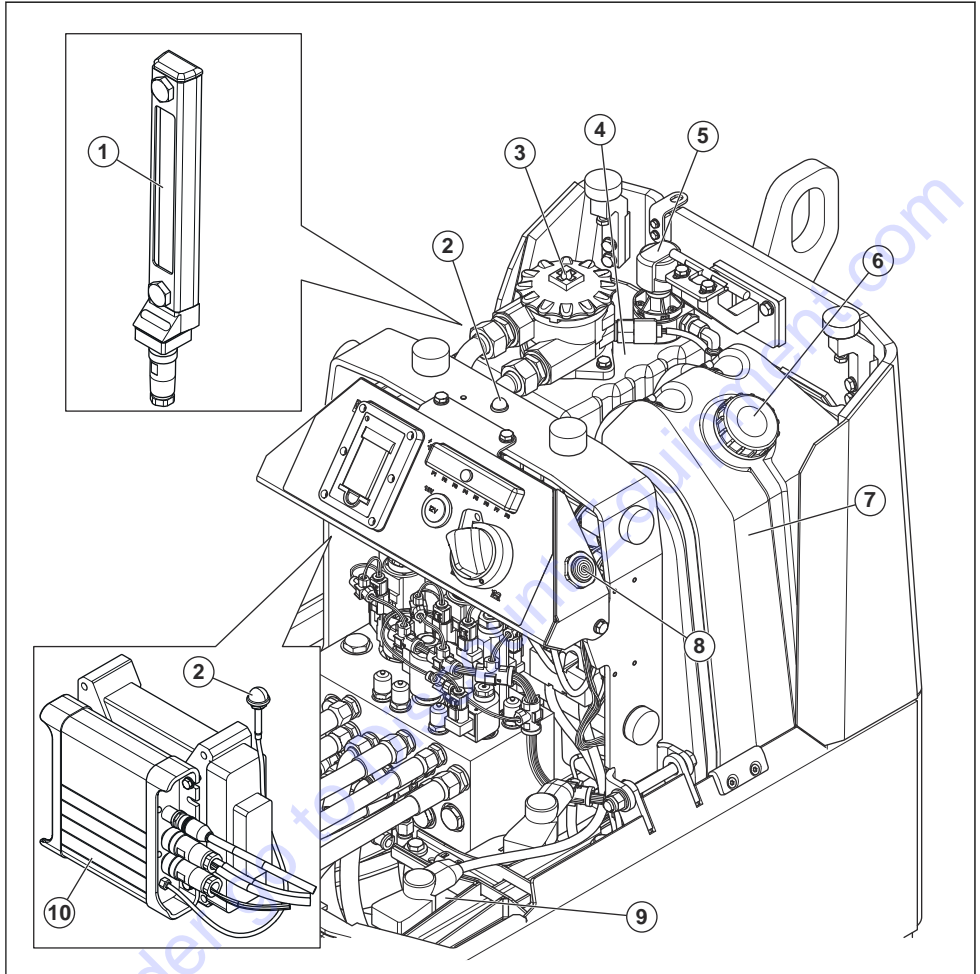
Product overview, rear hatch



1. Remote control. Refer to *Product overview, remote control on page 8* and *Symbols on the remote control on page 12*.
2. Electrical panel. Refer to *Symbols on the electrical panel on page 13*.
3. Battery charger for remote control battery

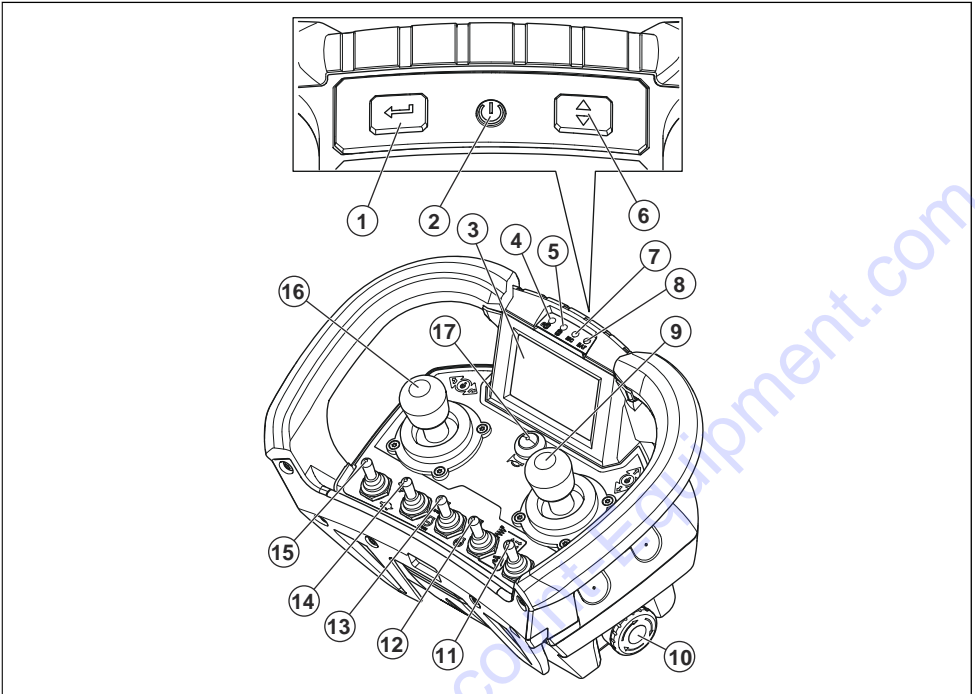
4. Fuse box
5. 12 V power socket
6. Battery switch
7. Remote control belt
8. CAN bus cable

Product overview, rear parts



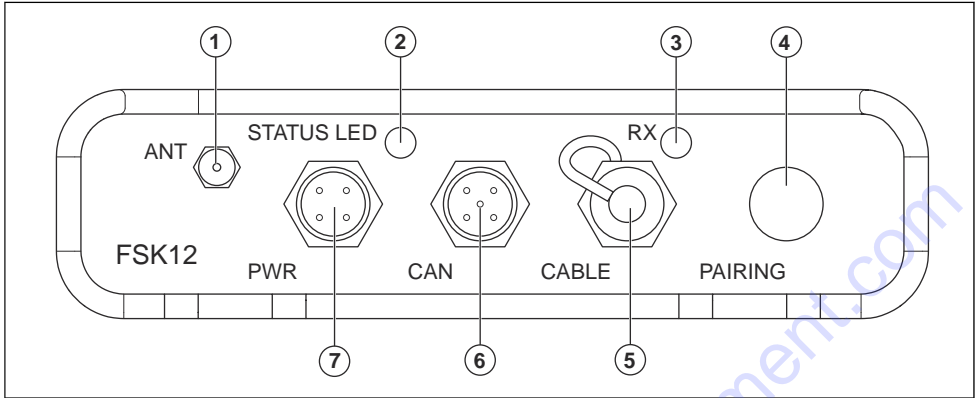
1. Sight glass for hydraulic oil level
2. Antenna
3. Cover for the hydraulic oil filter
4. Hydraulic oil tank
5. Cap for the hydraulic oil tank and breather filter
6. Fuel tank cap
7. Fuel tank
8. Buzzer
9. Starter battery
10. Receiver. Refer to *Product overview, receiver on page 9*.

Product overview, remote control



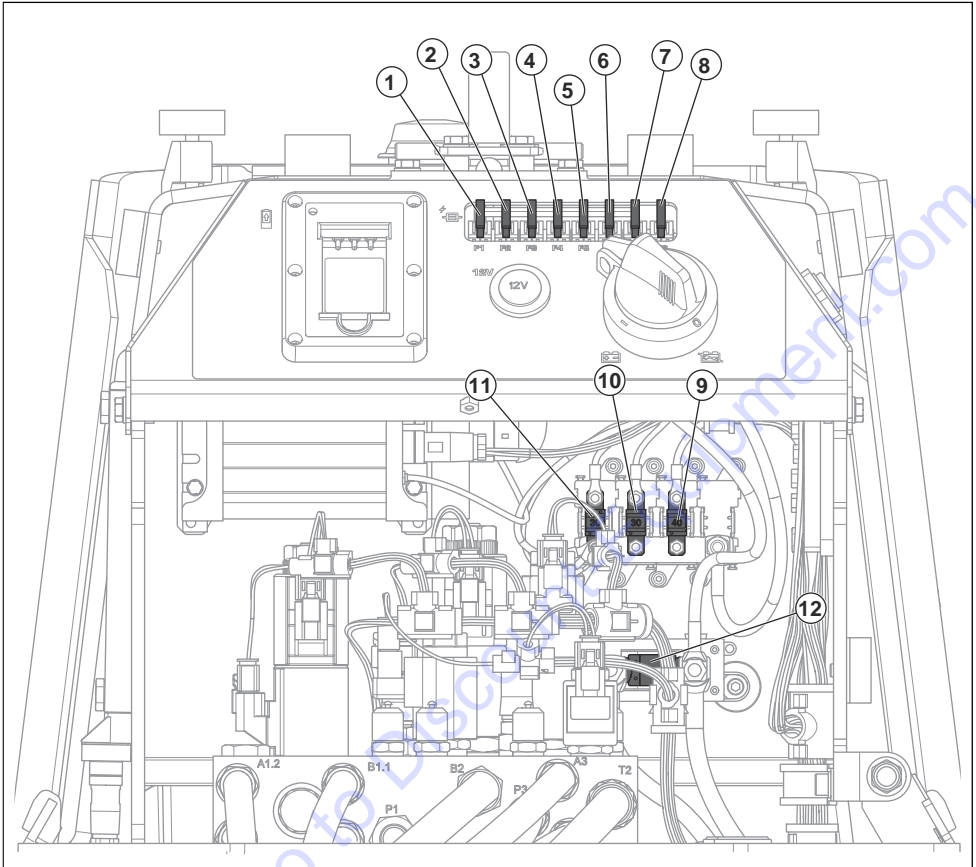
1. Button to make selections in the menus
2. ON/OFF button
3. Display
4. Indicator for front machine distance sensor
5. Indicator for rear machine distance sensor
6. Button to scroll in the menus
7. Indicator for main contactor
8. Indicator for battery voltage
9. Joystick, move forward/rearward
10. Emergency stop button
11. Switch for high/low amplitude for vibration
12. Switch for manual/automatic vibration
13. Switch for engine start/stop
14. Switch for engine speed
15. Switch for operation speed
16. Joystick, move left/right
17. Horn button/radio communication button

Product overview, receiver



1. Antenna
2. Status indicator
3. "RX" indicator
4. Pairing operation button
5. Connector for cable remote control
6. Connector for CAN bus cable
7. Connector for power

Product overview, fuses



1. F1: 7.5 A, electronic control unit
2. F2: 7.5 A, electronic control unit
3. F3: 7.5 A, electronic control unit
4. F4: 7.5 A, electronic control unit
5. F5: 7.5 A, electronic control unit
6. F6: 5 A, fuel pump and fuel level switch
7. F7: 5 A, charger for the remote control battery
8. F8: 10 A, 12 V power socket
9. F9: 40 A, throttle solenoid
10. F10: 30 A, starter and shut-off solenoid
11. F11: 30 A, glow plugs
12. F0: 150 A, starter

Symbols on the product



WARNING: This product can be dangerous and cause serious injury or death to the operator or others. Be careful and use the product correctly.



Read the manual carefully and make sure that you understand the instructions before you use the product.



Use a protective helmet in locations where objects can fall on you. Use approved hearing protection. Use approved eye protection.



Use protective boots.



Maximum slope angle.



The product is remote control operated. Always be careful and use your common sense when you operate the product.



Keep a minimum of 10 m/33 ft distance to persons and animals during operation of the product.



Keep distance to the product during operation.



Moving parts. Risk of crush injury.



Risk of injury. Keep your hands away from the fan blades and other rotating parts.



Keep body parts away from rotating parts.



The caps on the product can eject and cause injury.



Hot surface.



DIESEL Ultra-low-sulfur diesel fuel only.



Lifting point and tie-down brackets on the product.



Lifting point on the product.



Tie-down bracket.



Engage the articulation joint lock before you lift the product. Engage the articulation joint lock when you attach the product to a transportation vehicle.



Do not spray with water.



Do not use high pressure washer.



Noise emission to the environment as referred to in the EC directive. The emission of the product is specified in *Technical data on page 44* and on the label.



This product is in compliance with applicable EC directives.

Note: Other symbols/decals on the product refer to special certification requirements for some markets.

Symbols on the product



WARNING: This product can be dangerous and cause serious injury or death to the operator or others. Be careful and use the product correctly.



Read the manual carefully and make sure that you understand the instructions before you use the product.



Use a protective helmet in locations where objects can fall on you. Use approved hearing protection. Use approved eye protection.



Use protective boots.



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Lifting point on the product.



Tie-down bracket.



Engage the articulation joint lock before you lift the product. Engage the articulation joint lock when you attach the product to a transportation vehicle.



Do not spray with water.



Do not use high pressure washer.

Note: Other symbols/decals on the product refer to special certification requirements for some markets.

Symbols on the remote control



Move the product left and right.



Pairing operation.



Move the product forward and rearward.



Maximum operation speed.



Minimum operation speed.



N/MIN Maximum engine speed.



N/MIN Minimum engine speed.



Engine start.



Engine stop.



Vibration.



Automatic vibration.



Manual vibration.



Vibration high amplitude.



Vibration off.



Vibration low amplitude.

Symbols on the electrical panel



Battery charger for remote control battery.



Fuse box.

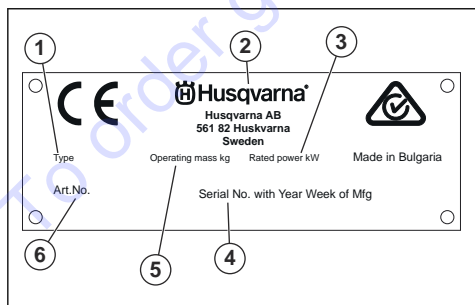


Battery switch ON.



Battery switch OFF.

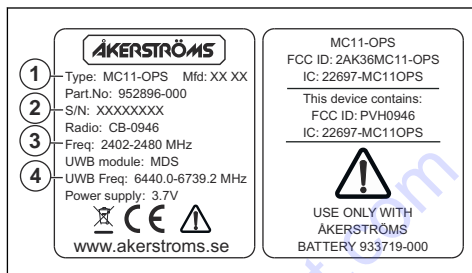
Type plate



1. Product type
2. Manufacturer and address
3. Rated power
4. Serial number with production year and week

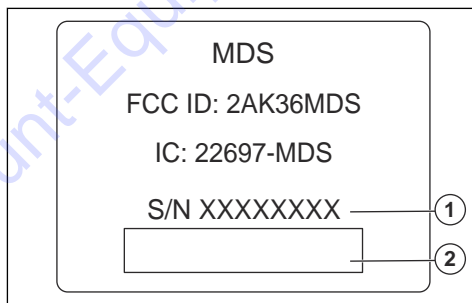
5. Weight
6. Product number

Label for remote control



1. Product designation
2. Serial number
3. Frequency
4. Frequency, UWB module

Label for machine distance sensor



1. Serial number
2. Bar code

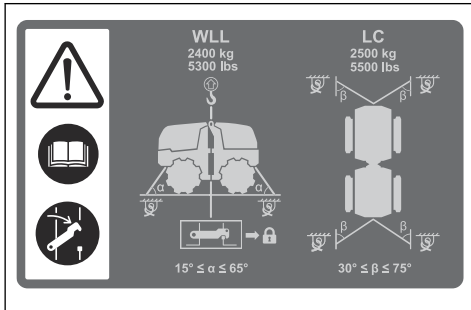
Start instruction decal

The start instruction decal on the product shows the start procedure.



Lift and tie-down decal

This decal shows how to lift and safety the product.



Product liability

As referred to in the product liability laws, we are not liable for damages that our product causes if:

- the product is incorrectly repaired.
- the product is repaired with parts that are not from the manufacturer or not approved by the manufacturer.
- the product has an accessory that is not from the manufacturer or not approved by the manufacturer.
- the product is not repaired at an approved service center or by an approved authority.

Safety

Safety definitions

Warnings, cautions and notes are used to point out specially important parts of the manual.



WARNING: Used if there is a risk of injury or death for the operator or bystanders if the instructions in the manual are not obeyed.



CAUTION: Used if there is a risk of damage to the product, other materials or the adjacent area if the instructions in the manual are not obeyed.

Note: Used to give more information that is necessary in a given situation.

General safety instructions



WARNING: Read the warning instructions that follow before you use the product.

- This product is a dangerous tool if you are not careful or if you use the product incorrectly. This product can cause serious injury or death to the operator or others. Before you use the product, you must read and understand the contents of this operator's manual.
- Save all warnings and instructions.
- Comply with all applicable laws and regulations.
- The operator and the employer of the operator must know and prevent the risks during operation of the product.
- Do not let a person operate the product unless they read and understand the contents of the operator's manual.

- Do not operate the product unless you receive training before use. Make sure that all operators receive training.
- Do not let a child operate the product.
- Only let approved persons operate the product.
- The operator is responsible for accidents that occur to other persons or their property.
- Do not use the product if you are tired, ill, or under the influence of alcohol, drugs or medicine.
- Always be careful and use your common sense.
- This product produces an electromagnetic field during operation. This field can under some circumstances interfere with active or passive medical implants. To decrease the risk of serious injury or death, we recommend persons with medical implants to speak to their physician and the medical implant manufacturer before operating this product.
- Keep the product clean. Make sure that you can clearly read signs and decals.
- Do not use the product if it is defective.
- Do not do modifications to this product.
- Do not operate the product if it is possible that other persons have done modifications to the product.

Safety instructions for operation



WARNING: Read the warning instructions that follow before you use the product.

- Make sure that you know how to stop the engine quickly in an emergency.
- The operator must have the physical strength that is necessary to operate the product safely.
- Do not operate the product without all protective covers installed.
- Use personal protective equipment. Refer to *Personal protective equipment on page 16*.

- Make sure that only approved persons are in the work area.
- Keep the work area clean and bright.
- Make sure that you are in a safe and stable position during operation.
- Make sure that there is no risk that you or the product can fall from a height.
- Do not use the product in areas where fire or explosions can occur.
- The product can cause objects to eject at high speed. Make sure that all persons in the work area use approved personal protective equipment. Remove loose objects from the work area.
- Before you go away from the product, stop the engine and make sure that there is no risk of accidental start.
- Make sure that clothes, long hair and jewelry do not get caught in moving parts.
- Do not sit on the product.
- Do not hit the product.
- Do not operate the product near electrical cables. The product does not have electrical insulation and injury or death can occur.
- Before you operate the product, find out if there are hidden wires, cables and pipes in the work area. If the product hits a hidden object, stop the engine immediately and examine the product and the object. Do not start to operate the product again until you know that it is safe to continue.

Remote control safety



WARNING: Read the warning instructions that follow before you use the product.

- The product can be operated by a remote control for long distances. Do not operate the product unless you have clear view of the product and its risk area. Cordon off the work area to prevent injury to bystanders.
- Do not operate the product from a longer distance than 20 m/66 ft.
- Do not let a person operate the remote control unless they read and understand the contents of the operator's manual.
- Do not operate the remote control unless you receive training before use. Make sure that all operators receive training in the operation of the remote control and the control system of the product. If the operator does not know the control system, sudden movements in the product can occur and cause injuries.
- Before you go away from the product, stop the engine and the remote control. Put the remote control in the transport position behind the rear cover. Lock the rear cover with a padlock. This makes sure that the product cannot be used by persons that are not approved.

- If an error occurs in the control system, push the emergency stop button on the remote control and disconnect the battery. Let an approved service center repair the product.

Dust safety



WARNING: Read the warning instructions that follow before you use the product.

- Operation of the product can cause dust in the air. Dust can cause serious injury and permanent health problems. Silica dust is regulated as harmful by several authorities. These are examples of such health problems:
 - The fatal lung diseases chronic bronchitis, silicosis and pulmonary fibrosis
 - Cancer
 - Birth defects
 - Skin inflammation
- Use correct equipment to decrease the quantity of dust and fumes in the air and to decrease dust on work equipment, surfaces, clothing and body parts. Examples of controls are dust collection systems and water sprays to bind dust. Decrease dust at the source where possible. Make sure that the equipment is correctly installed and used and that regular maintenance is done.
- Use approved respiratory protection. Make sure that the respiratory protection is applicable for the dangerous materials in the work area.
- Make sure that the airflow is sufficient in the work area.
- If it is possible, point the exhaust of the product where it cannot cause dust to go into the air.

Exhaust fumes safety



WARNING: Read the warning instructions that follow before you use the product.

- The exhaust fumes from the engine contain carbon monoxide which is an odourless, poisonous and very dangerous gas. To breathe carbon monoxide can cause death. Because carbon monoxide is odourless and cannot be seen, it is not possible to sense it. A symptom of carbon monoxide poisoning is dizziness, but it is possible that a person becomes unconscious without warning if the quantity or concentration of carbon monoxide is sufficient.
- Exhaust fumes also contain unburned hydrocarbons including benzene. Long-term inhalation can cause health problems.
- Exhaust fumes that you can see or smell also contain carbon monoxide.
- Do not use a combustion engine product indoors or in areas that do not have sufficient airflow.

- Do not breathe the exhaust fumes.
- Make sure that the airflow in the work area is sufficient. This is very important when you operate the product in trenches or other small work areas where exhaust fumes can easily collect.

Noise safety



WARNING: Read the warning instructions that follow before you use the product.

- High noise levels and long-term exposure to noise can cause noise-induced hearing loss.
- To keep the noise level to a minimum, do maintenance on and operate the product as given in the operator's manual.
- Examine the muffler for damages and defects. Make sure that the muffler is correctly attached to the product.
- Use approved hearing protection while you operate the product.
- Listen for warning signals and voices when you use hearing protection. Remove the hearing protection when the product is stopped, unless hearing protection is necessary for the noise level in the work area.

Personal protective equipment



WARNING: Read the warning instructions that follow before you use the product.

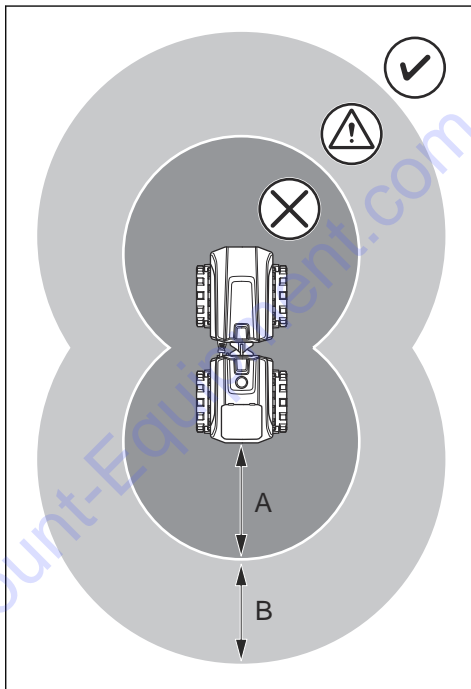
- Always use approved personal protective equipment when you operate the product. Personal protective equipment cannot fully prevent injury but it decreases the degree of injury if an accident does occur. Let your dealer help you select the correct personal protective equipment.
- Regularly do a check of the condition of the personal protective equipment.
- Use an approved protective helmet.
- Use approved hearing protection.
- Use approved respiratory protection.
- Use approved eye protection with side protection.
- Use protective gloves.
- Use boots with steel toe-cap and non-slip sole.
- Use approved work clothing or equivalent close-fitting clothing that has long sleeves and long legs.

Fire extinguisher

- Keep a fire extinguisher near during operation.
- Use a powder fire extinguisher of "ABE" class or a carbon dioxide fire extinguisher of "BE" type.

Work area safety

- During operation, no one is permitted to be in the area (A) shown in the illustration. This applies to bystanders and the operator. The area is between 0 and 2 m/6.6 ft from the product.



- During operation, make sure that no bystanders are in the area (B) shown in the illustration. The area is between 2-10 m/6.6-33 ft from the product.
- Do not operate the product from a longer distance than 20 m/66 ft.
- Make sure that the machine distance sensors operate correctly. The product must stop automatically when the remote control is in the area (A).
- Do not operate the product unless you have clear view of the product and the work area.
- Make sure that only approved persons are in the work area.
- Clear the work area of obstacles.
- Do not use the product in fog, rain, strong winds, cold weather, risk of lightning or other bad weather conditions. To use the product in bad weather or in wet locations can have a negative effect on your alertness. Bad weather can cause dangerous work conditions.
- Keep the work area sufficiently illuminated.
- Do not use the product in areas where fire or explosions can occur.

Safety devices on the product



WARNING: Read the warning instructions that follow before you use the product.

- Do not use a product with defective safety devices.
- Do a check of the safety devices regularly. If the safety devices are defective, speak to Discount-equipment.

Muffler

The muffler keeps the noise levels to a minimum and sends the exhaust fumes away from the operator.

Do not use the product if the muffler is missing or defective. A defective muffler increases the noise level and the risk of fire.



WARNING: The muffler becomes very hot during and after use and when the engine operates at idle speed. Be careful near flammable materials and/or fumes to prevent fire.

To do a check of the muffler

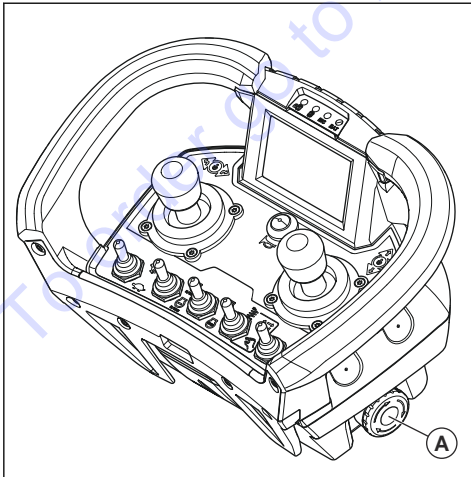
- Examine the muffler regularly to make sure that it is attached correctly and not damaged.

Emergency stop button

The emergency stop button is used to quickly stop the engine.

To do a check of the emergency stop button

1. Release the emergency stop button (A).



2. Start the product. Refer to *To start the product on page 25*.

3. Push the emergency stop button.
4. Make sure that the engine stops.

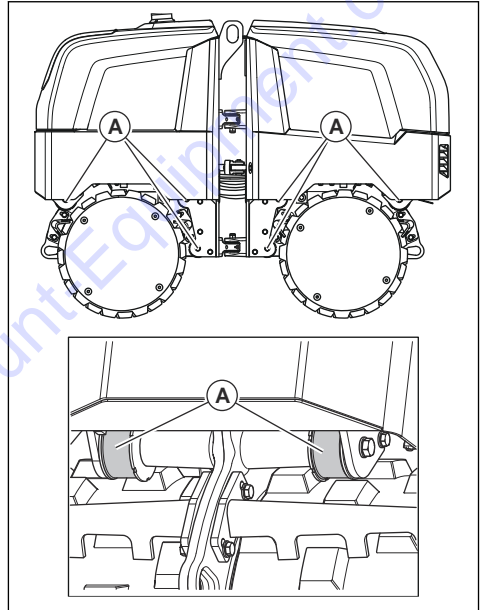
Vibration damping units

The vibration damping units decrease vibration in the product. The vibration damping units decrease harmful vibrations to prevent damage to the product.

To do a check of the vibration damping units

There are 12 vibration damping units, 6 on the left side and 6 on the right side of the product.

- Make sure that the vibration damping units (A) are correctly installed.



- Examine the vibration damping units for damages and wear.
- Replace the vibration damping units if it is necessary.

Fuel safety



WARNING: Read the warning instructions that follow before you use the product.

- Fuel is flammable and the fumes are explosive. Be careful with fuel to prevent injury, fire and explosion.
- Do not breathe in the fuel fumes. The fuel fumes are poisonous and can cause injury. Make sure that the airflow is sufficient.
- Do not remove the fuel tank cap or fill the fuel tank when the engine is on.

- Let the engine become cool before you refuel.
- Do not fill fuel in an indoor area. Not sufficient airflow can cause injury or death because of asphyxiation or carbon monoxide.
- Do not smoke near the fuel or the engine.
- Do not put hot objects near the fuel or the engine.
- Do not fill fuel near sparks or flames.
- Before you refuel, open the fuel tank cap slowly and release the pressure carefully.
- Fuel on your skin can cause injury. If you get fuel on your skin, use soap and water to remove the fuel.
- If you spill fuel on your clothing, change clothing immediately.
- Do not fill the fuel tank fully. Heat causes the fuel to expand. Keep a space at the top of the fuel tank.
- Tighten the fuel tank cap fully. If the fuel tank cap is not tightened, there is a risk of fire.
- Before you start the product, move the product to a minimum of 3 m/10 ft from where you refueled.
- Do not start the product if there is fuel or engine oil on the product. Remove the unwanted fuel and engine oil and let the product dry before you start the engine.
- Examine the engine for leaks regularly. If there are leaks in the fuel system, do not start the engine until the leaks are repaired.
- Do not use your fingers to examine the engine for leaks.
- Keep fuel in approved containers only.
- When the product and fuel is in storage, make sure that fuel and fuel fumes cannot cause damage.
- Drain the fuel in an approved container outdoors and away from sparks and flames.

Battery safety



WARNING: A damaged battery can cause an explosion and cause injury. If the battery has a deformation or is damaged, speak Discount-equipment.



WARNING: Read the warning instructions that follow before you use the product.

- Keep the battery away from sunlight, heat or open flame. The battery can cause an explosion and cause burns and/or chemical burns.
- If the battery leaks, do not let the liquid touch your body, clothes or the product. If you touch the liquid, clean the area with a large quantity of water and get medical aid.
- Use protective glasses when you are near batteries. If you get liquid in your eyes, do not rub but flush with water for a minimum of 15 minutes. Get medical aid.
- Keep the battery away from children.
- Do not use a defective or damaged battery.

- Make sure to attach the battery correctly. An incorrectly attached battery can cause a short circuit of the battery.

Safety instructions for operation on slopes



WARNING: Read the warning instructions that follow before you use the product.

- Make sure that the work area is safe. Be very careful on slopes and rough surfaces. Wet and loose soil increases the risk of an accident.
- Make sure that all persons in the work area are above the product on the slope.
- Operate the product up and down the slope, not from side to side.
- The maximum slope angle is 24° (45%) in these conditions:
 - The product is stationary with its rear in the direction of the slope.
 - The vibration is ON.
 - All tanks are full.
 - The surface is hard.
- The maximum slope angle is 29° (55%) in these conditions:
 - The product is stationary with its rear in the direction of the slope.
 - The vibration is OFF.
 - All tanks are full.
 - The surface is hard.
- The maximum slope angle is 14° (25%) in these conditions:
 - The product is stationary with its front in the direction of the slope.
 - The vibration is OFF.
 - All tanks are full.
 - The surface is hard.
- The maximum slope angle is 20° (36%) in these conditions:
 - The product is stationary with its side in direction of the slope.
 - The vibration is OFF.
 - All tanks are full.
 - The surface is hard.
- Do not operate the product on slopes with larger slope angle than recommended.
- Loose ground, vibrations and the operation speed can cause the product to fall on a slope with a smaller angle.
- Make sure that the product cannot fall during the operation. There is a risk of injury and damage.

Safety instructions for operation near edges



WARNING: Read the warning instructions that follow before you use the product.

- There is a risk that the product falls when you operate it near an edge. Always keep a minimum of $\frac{2}{3}$ of the product on a surface that is sufficiently stable to hold the product weight.
- If the product falls, stop the engine before you lift the product back to a surface that is sufficiently stable. Refer to *To do if the product falls on its side on page 29*.

Safety instructions for maintenance



WARNING: Read the warning instructions that follow before you use the product.

- If the maintenance is not done correctly and regularly, the risk of injury and damage to the product increases.
- Use personal protective equipment. Refer to *Personal protective equipment on page 16*.
- Stop the engine and make sure that all parts of the product are cool before you do the maintenance.

- Clean the product to remove dangerous material before you do the maintenance.
- Disconnect the spark plug cap before you do the maintenance.
- The exhaust fumes from the engine are hot and can contain sparks. Do not operate the product in indoor areas or near flammable material.
- Do not change the product. Modifications that are not approved by the manufacturer, can cause serious injury or death.
- Always use original accessories and spare parts. Accessories and spare parts that are not approved by the manufacturer, can cause serious injury or death.
- Replace damaged, worn or broken parts.
- Only do the maintenance as given in this operator's manual. Let an approved service center do all other servicing.
- Remove all tools from the product before you start the engine after maintenance. Loose tools or tools attached to rotating parts can eject and cause injury.
- After maintenance, do a check of the vibration level in the product. If it is not correct, speak to an approved service center.
- Let an approved service center do servicing on the product regularly.

Operation

Introduction



WARNING: Before you operate the product, you must read and understand the safety chapter.



CAUTION: The articulation joint lock must always be disengaged during operation to prevent damage to the product.

To do before you operate the product

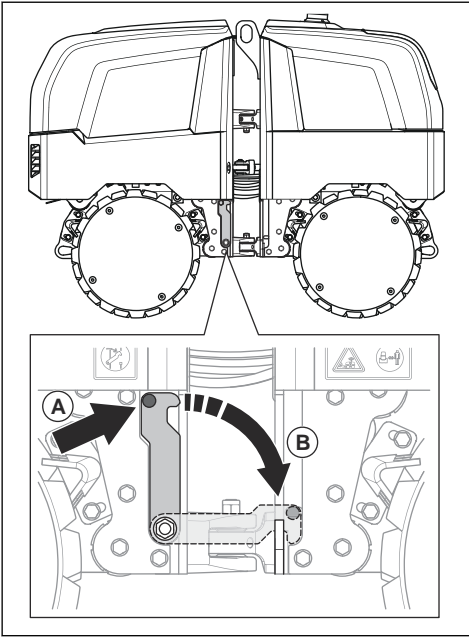
- Read the operator's manual carefully and make sure that you understand the instructions.
- Read the engine manual that is supplied by the engine manufacturer.
- Do the daily maintenance. Refer to *Maintenance schedule on page 30*.
- Disengage the articulation joint lock. Refer to *To engage and disengage the articulation joint lock on page 19*.

To engage and disengage the articulation joint lock



WARNING: The articulation joint lock must always be engaged when the product is lifted and attached to a transportation vehicle.

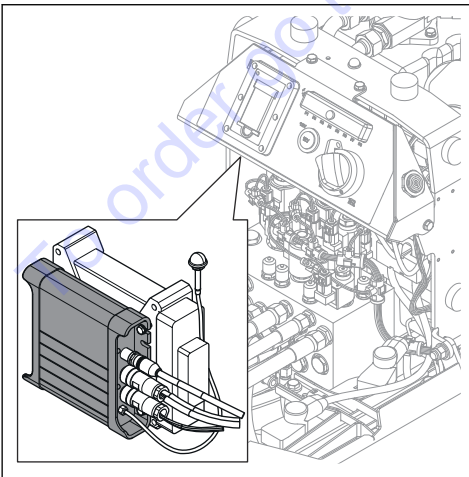
1. Pull out the locking pin (A).



2. Fold down the articulation joint lock (B) to engage the articulation joint lock. Fold down until you hear a click.
3. Disengage the articulation joint lock in the opposite sequence.

Receiver

The receiver is found behind the rear cover of the product.



"RX" indicator on the receiver

The "RX" indicator on the receiver shows the state of connection to the remote control.

LED indicator	Cause
Flashes green quickly.	The remote control is not connected to the receiver.
Flashes green slowly.	The remote control is connected to the receiver. The safety relay (RCSS) is on.
On with a green light.	The remote control is connected to the receiver. The safety relay (RCSS) is off.
On with a yellow light.	Unsatisfactory receiver connection.
On with a red light.	Internal error in the receiver.
Flashes red quickly.	Internal error in the remote control.

Remote control



CAUTION: Do not lift the remote control by the joystick.

The remote control can operate by radio communication. To operate the remote control by radio communication, it is necessary to do a pairing operation. Refer to *To do a pairing operation between the remote control and the product on page 21*.

The remote control can also operate with a cable connected between the remote control and the product. The cable can for example be used when the state of charge in the remote control battery is low. For instructions on how to connect the remote control to the product with a cable. Refer to *To connect the remote control to the product with a CAN bus cable on page 23*.

The remote control has all controls that are necessary to operate the product. The remote control has a digital display that shows system information. Refer to *Product overview, remote control on page 8*.

The range for the remote control is between 2 m/6 ft to approximately 20 m/66 ft. Refer to *Work area safety on page 16*.

Note: The serial number is found on a label behind the remote control battery.

Remote control battery

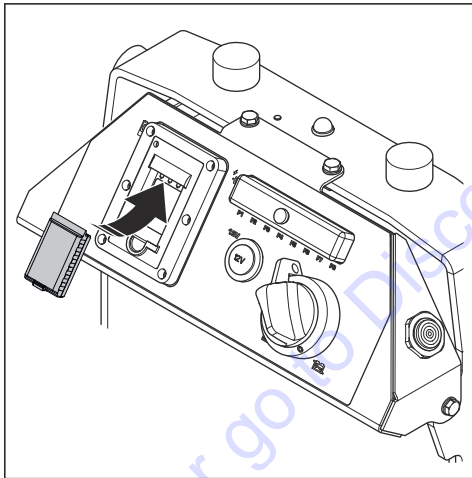
2 Li-Ion batteries are supplied with the product. The second battery can be charged in the battery charger on the product during operation or in the optional desktop charger.

It is necessary to do a trickle charging of the remote control battery each 4 weeks if the remote control is not used.

The operation time for a fully charged battery is approximately 8 hours. When the "BAT" indicator flashes yellow and the remote control gives a sound, it is necessary to charge the battery. But the battery can be used for 15 more minutes.

To charge a remote control battery during operation

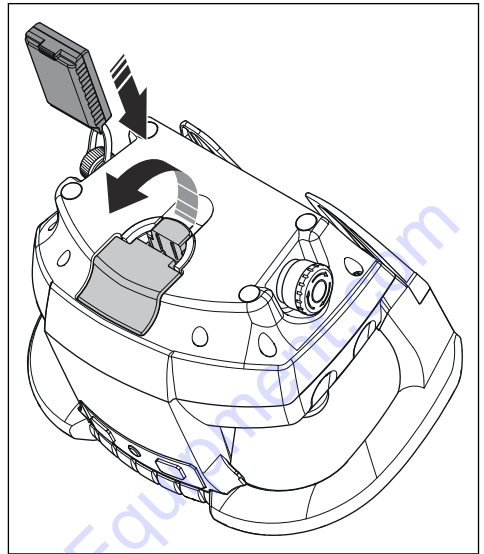
1. Clean the contact surfaces of the battery.
2. Open the rear hatch on the product.
3. Clean the battery charger behind the rear hatch.
4. Put the battery into the battery charger. The battery charges during operation.



To install and remove a remote control battery

1. Open the battery hatch below the remote control.
2. Clean the contact surfaces of the battery and the battery slot in the remote control.

3. Put the battery into the battery slot and close the battery hatch.



4. To remove the battery, open the battery hatch and remove the battery.

PIN codes

The "PIN (user)" code is necessary to start the remote control. The "PIN (user)" code is set in the configuration menu. The remote control can be started without the a "PIN (user)" code if the value 0000 is entered in the configuration menu.

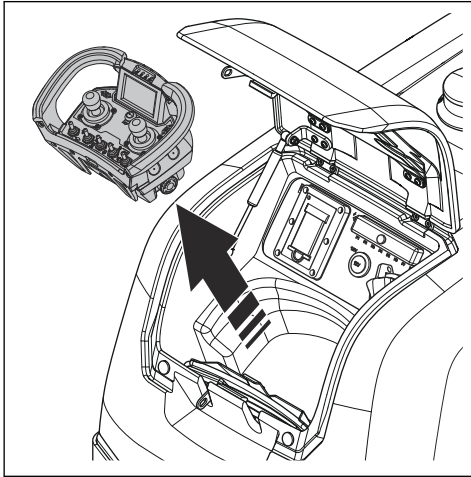
The "PIN (admin)" code is necessary to open the configuration menu "Misc. Config.1 (1)". Refer to *To get access to the configuration menus on page 25*. The "PIN (admin)" code also starts the remote control and is used to reset or change the "PIN (user)" code. The standard PIN code is 0000.

To do a pairing operation between the remote control and the product

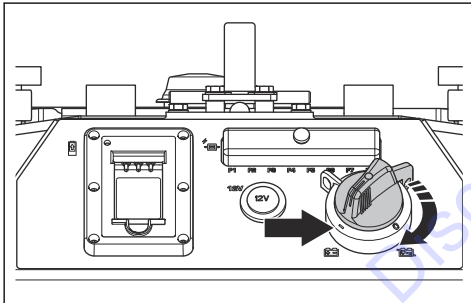
The first time the remote control is used together with the product, a pairing operation is necessary.

A pairing operation is also necessary if the remote control is replaced or if you change remote controls between products.

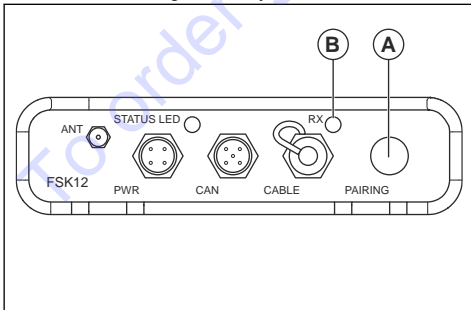
1. Open the rear hatch on the product and remove the remote control.



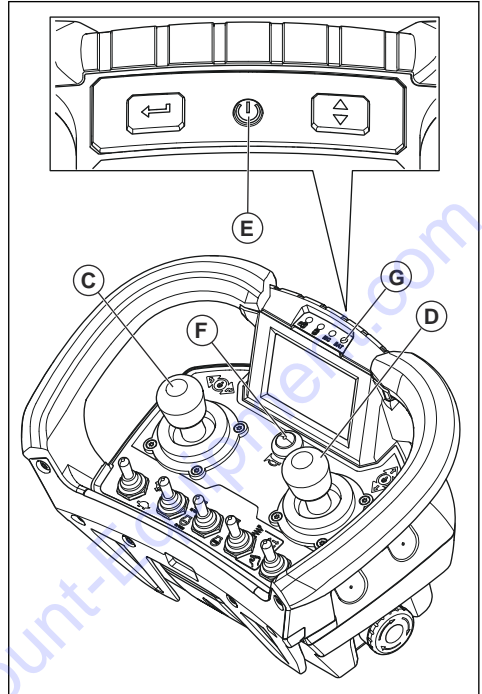
2. Turn the battery switch to "1".



3. Close the rear hatch.
4. Open the rear cover on the product.
5. Push the pairing operation button (A) on the receiver to start the pairing operation. The "RX" indicator (B) starts to flash in green and yellow.



6. Push and hold 1 of the joysticks (C or D) on the remote control away from center position.

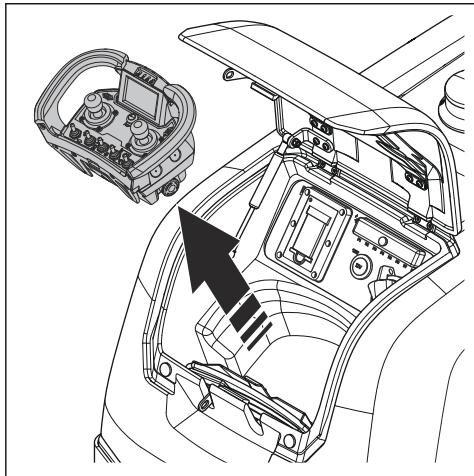


7. Push the ON/OFF button (E) on the remote control to start the remote control.
8. Keep the joystick away from center position. Push the radio communication button (F) for approximately 10 seconds until the "BAT" indicator (G) starts to flash and the display shows the pairing operation. Refer to *System information on the remote control display on page 25*.
9. Release the joystick and the radio communication button. The "RX" indicator on the receiver and the "BAT" indicator on the remote control has a green light.
10. If the "RX" indicator and "BAT" indicator do not have a green light, the pairing operation was not done correctly. Do the procedure again.
11. When the pairing operation is done, push the ON/OFF button on the remote control to restart the remote control.
12. Turn the battery switch to "0" and then to "1" to restart the receiver. The "BAT" indicator on the remote control starts to flash in green.
13. If there is no indication of correct pairing operation in 30 seconds, do the procedure again. If the problem stays, speak to an approved service agent.

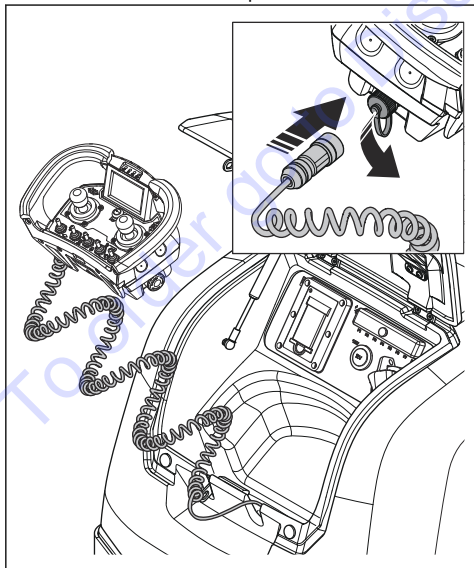
To connect the remote control to the product with a CAN bus cable

When a CAN bus cable is used, the remote control battery is not necessary. The remote control receives power through the CAN bus cable. The CAN bus cable is always connected to the product. Keep the CAN bus cable behind the rear hatch when it is not used.

1. Open the rear hatch and remove the remote control.



2. Pull out the loose end of the CAN bus cable from the rear hatch.
3. Remove the connector cap on the remote control.

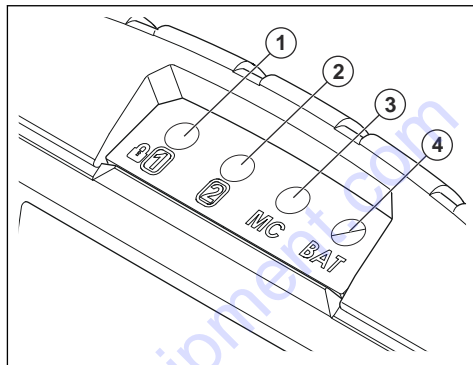


4. Put the loose end of the CAN bus cable in the connector on the remote control.

5. Tighten the connector screw for the CAN bus cable by hand.

LED indicators on the remote control

The LED indicators show the state of charge and if there are problems with the remote control.



LED indicator	Indication	Cause
1	On with a yellow light.	The front machine distance sensor is not in operation.
2	On with a yellow light.	The rear machine distance sensor is not in operation.

LED indicator	Indication	Cause
3	Off.	The remote control is not connected to the receiver.
	Flashes green.	The remote control is connected to the receiver. The main contactor safety relay is off.
	On with a green light.	The remote control is connected to the receiver. The main contactor is on.
	On with a yellow light.	The main contactor is on. The movement of the product is disabled because the remote control is tilted.
	On with a red light.	The main contactor is locked. 1 of these causes prevent operation of the main contactor: <ul style="list-style-type: none"> • The emergency stop button is engaged. • The remote control is tilted. • The joysticks are not in the center. • The configurations menu is open.
4	Flashes green.	The remote control operates correctly.
	Flashes yellow.	The remote control battery charge is low, but the remote control battery can be used for 15 more minutes.
	On with a yellow light.	The battery is empty. The remote control stops the operation.
	On with a red light.	Hardware fault. The remote control found a fault during the start or the operation. The remote control prevents operation.



Alarm. The hydraulic oil temperature is too high. The engine stops.



Alarm. The hydraulic oil level is too low. The engine stops.



Alarm. Radio communication connection does not operate correctly. The engine stops.



Alarm. CAN bus 0.
Alarm. Radio communication connection does not operate correctly. The engine stops.



Warning. CAN bus 1.
Warning. The machine distance sensors do not operate correctly. The product movement and the vibration stops.



Warning. No signal from front or rear machine distance sensor. The safety distance increases to 4 m/157 in.



Warning. The remote control is not in the operation range. The remote control is too close or too far from the product. The product movement and the vibration stops.



Warning. The remote control is tilted too much. The product movement and the vibration stops.



Information. The glow plugs are in operation.



Information. The hydraulic oil filter must be replaced.



Information. The air filter must be cleaned or replaced.



Information. The fuel level is too low.

Symbols on the display



Alarm. The engine oil pressure is low. The engine stops.



Alarm. The engine temperature is too high. The engine stops.



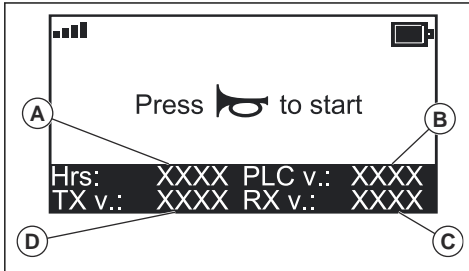
Information. It is necessary to do servicing on the product.



Information. The remote control is connected to the product with the CAN bus cable. The operation speed is low.

System information on the remote control display

When the remote control starts, this information shows on the display:



- Hour meter for engine operation (A).
- Software version for the electronic control unit (ECU) (B).
- Software version for the receiver (C).
- Software version for the remote control (D).

During pairing operation, these messages can be shown on the display:

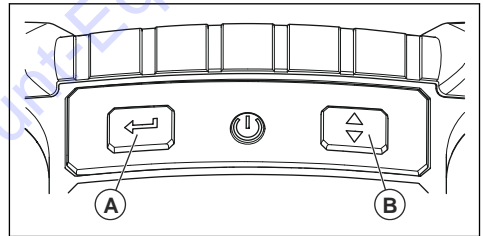
Pairing operation indications	Messages on the display
The pairing operation is correctly done.	"Pairing mode" "***Pairing***"
The pairing operation can be done.	"Pairing mode" "***Pairing***" "BT connected" "Pairing ready!" "Restart unit"

Pairing operation indications	Messages on the display
The pairing operation is not correctly done.	"Pairing mode" "***Pairing***" "BT ERROR" "Pairing failed!" "Restart unit!"

To get access to the configuration menus

There are 2 configuration menus: "User Config.1 (1)" and "Misc Config. 1 (1)". "User Config.1 (1)" is used during operation and "Misc Config. 1 (1)" is used during servicing.

1. Start the remote control. A PIN code can be necessary to start the remote control. Refer to *PIN codes on page 21*.
2. To open the "User Config.1 (1)" menu, push and hold the button (A) approximately 2 seconds.

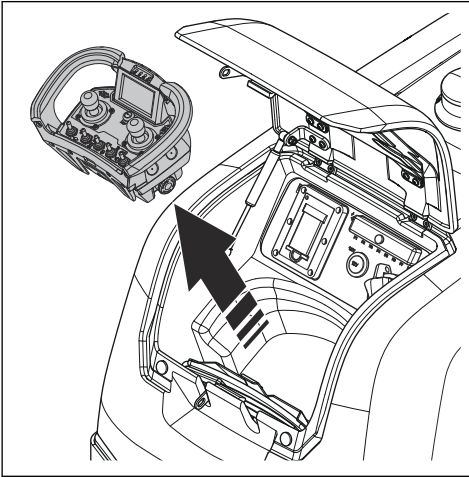


3. To open the "Misc Config. 1 (1)":
 - a) Push and hold the button (A) and at the same time push and hold the button (B) approximately 2 seconds.
 - b) Enter the PIN code. Refer to *PIN codes on page 21*.
4. To change the configurations, push the button (B) to scroll up or down in the menu. Push the button (A) to make a selection.

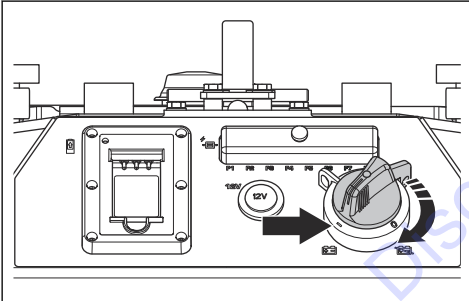
To start the product

1. Make sure that the articulation joint lock is disengaged. Refer to *To engage and disengage the articulation joint lock on page 19*.

- Open the rear hatch on the product and remove the remote control.

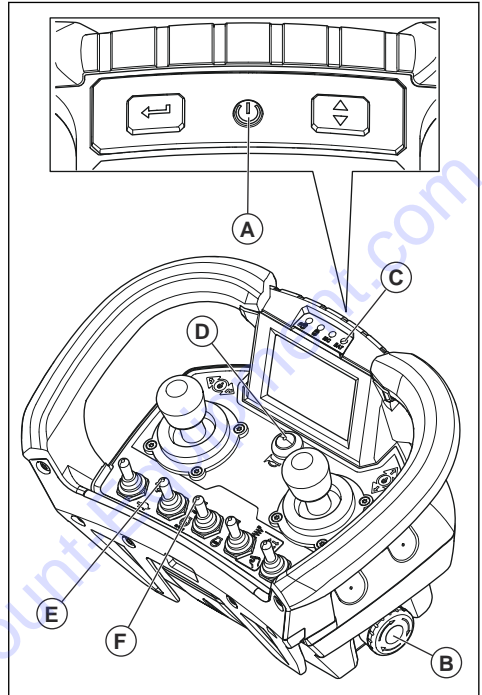


- Turn the battery switch to "1".



- Make sure that the buzzer starts and the warning light at the rear side of the product comes on.

- Push the ON/OFF button (A) on the remote control to start the remote control. A PIN code can be necessary to start the remote control. Refer to *PIN codes on page 21*.



- Turn the emergency stop button (B) on the remote control to make sure that the emergency stop button is disengaged. The indicator for the battery voltage (C) flashes.
- Push the radio communication button (D) to connect the remote control with the product.
- Make sure that there is a sound each time you push the radio communication button.
- Push the switch for engine speed (E) down to set low engine speed.
- Push the switch for engine start/stop (F) up to start the engine. When the engine starts, immediately release the switch. The buzzer sound stops.



CAUTION: Do not try to start the engine for more than 20 seconds at a time. If the engine does not start, wait 3 seconds before you try again.

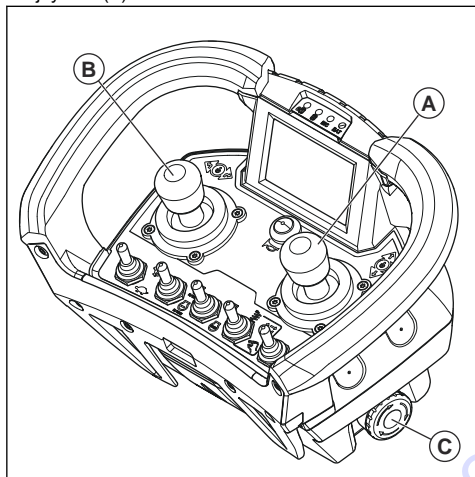
- Do a check of the remote control battery status. If the indicator for remote control battery is yellow or red, change the battery. Refer to *To install and remove a remote control battery on page 21*.

To operate the product



WARNING: Make sure that you can see the product at all times when you operate the product. The operation range of the remote control makes it possible to move the product also when you cannot see it. Risk of injury and damage.

- To operate the product forward, push the right joystick (A) forward.



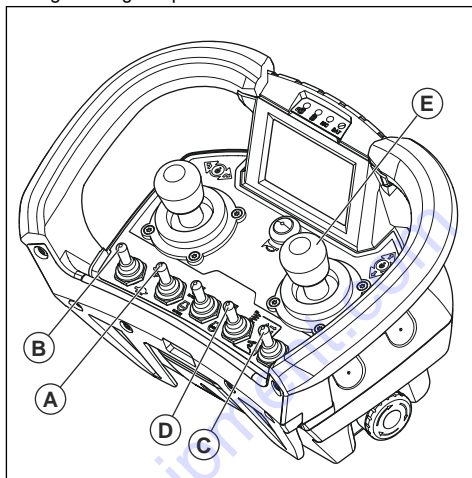
- To operate the product rearward, push the right joystick (A) rearward.
- To operate the product right, push the left joystick (B) to the right.
- To operate the product left, push the left joystick (B) to the left.
- To start the vibration, refer to *To operate with automatic vibration on page 27* and *To operate with manual vibration on page 27*.
- To stop the movement of the product, release the joysticks (A and B).
- To stop the movement of the product in an emergency, push the emergency stop button (C).

To operate with automatic vibration



CAUTION: Do not use the automatic vibration when the engine is at idle speed.

1. Push the switch for engine speed (A) up to set the highest engine speed.



2. Push the switch for operation speed (B) down to set low operation speed.
3. Push the switch for high/low amplitude (C) to the "0" position.
4. Push the switch for manual/automatic vibration (D) up for automatic vibration.
5. Push the switch for high/low amplitude up or down to select high or low amplitude.

Note: The automatic vibration is in operation when the joystick (E) is used forward or rearward. The product speed must be at low speed.

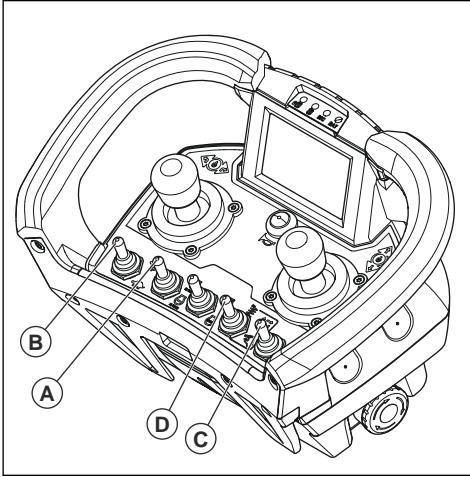
6. To stop the automatic vibration, push the switch for high/low amplitude to the "0" position.

To operate with manual vibration

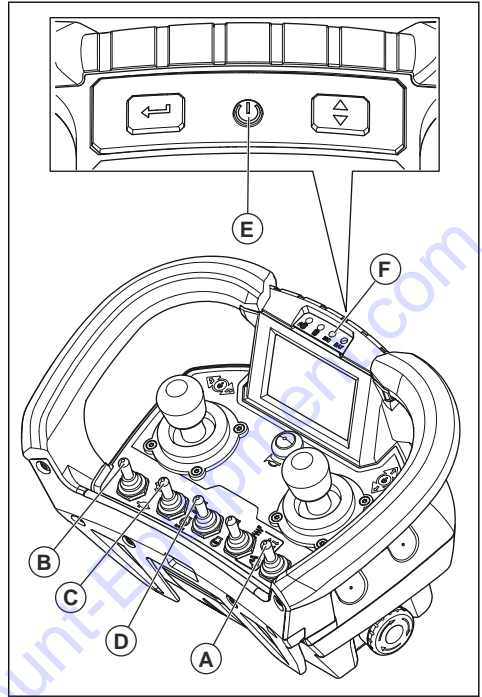


CAUTION: Do not use the manual vibration when the engine is at idle speed.

1. Push the switch for engine speed (A) up to set the highest engine speed.



2. Set the vibration switch (A) to the "0" position.



2. Push the switch for operation speed (B) down to set low operation speed.
3. Push the switch for high/low amplitude (C) to the "0" position.
4. Push the switch for manual/automatic vibration (D) down for manual vibration.
5. Push the switch for high/low amplitude up or down to select high or low amplitude.
6. To stop the manual vibration, push the switch for high/low amplitude to the "0" position.

3. Push the switch for operation speed (B) down to minimum operation speed.
4. Push the switch for engine speed (C) down to idle speed.
5. Let the engine operate at idle speed for some minutes.
6. Push the switch for engine start/stop (D) down to stop the engine. The buzzer starts when the engine stops.
7. Open the rear hatch on the product.
8. Turn the battery switch to "0". The buzzer stops.

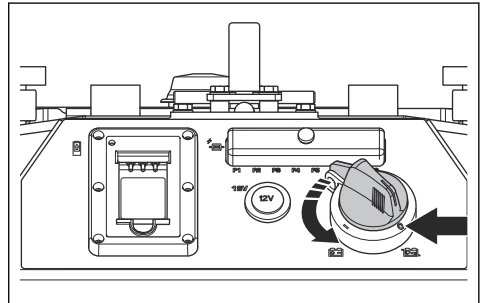
Automatic hydraulic brakes

The automatic hydraulic brakes on the product engage in these situations:

- The joysticks on the remote control are released.
- The engine speed is set to low speed.
- The emergency stop button on the remote control is engaged.
- The remote control is tilted.

To stop the product

1. Park the product on level ground.



9. Lock the battery switch with a padlock.

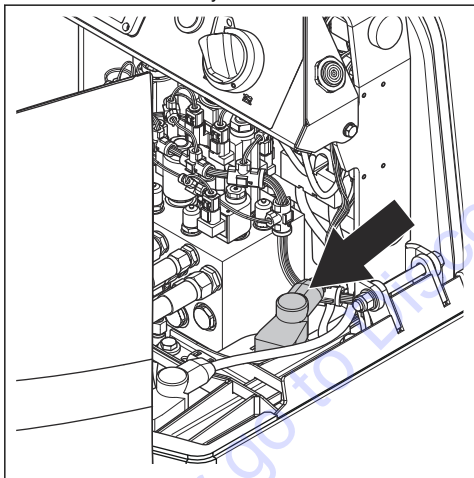
10. Push the ON/OFF button (E) on the remote control. The indicator for main contactor (F) goes off.
11. Put the remote control behind the rear hatch on the product.
12. Close the rear hatch and lock the rear hatch with a padlock.

To do if the product falls on its side

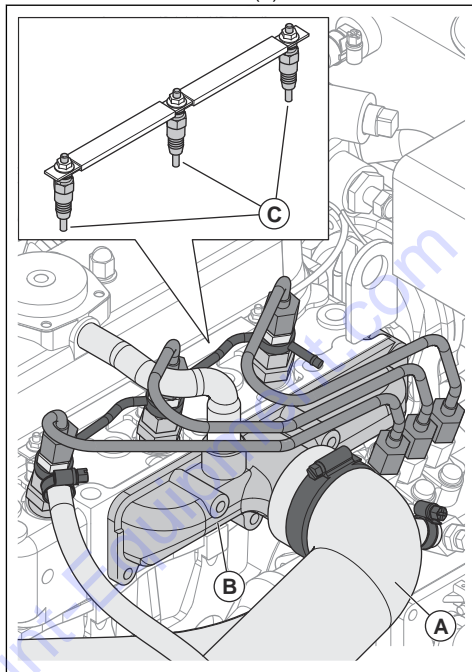


CAUTION: Do these steps before you start the product again.

1. If the product falls on its side, stop the engine immediately. Refer to *To stop the product on page 28*.
2. Lift the product and put it on level ground in an upright position. Refer to *To lift the product on page 42*.
3. Disconnect the battery cable from the negative (-) terminal on the battery.



4. Remove the air filter hose (A).



5. Remove the inlet manifold (B). Do a check of the oil quantity in the inlet manifold. The oil quantity is correct if there is a thin layer of engine oil on the wall in the inlet manifold.
6. If there is more engine oil than usual, do these steps:
 - a) Remove all 3 glow plugs (C).
 - b) Turn the crankshaft slowly by hand on the front pulley bolt. As an alternative if you cannot get access to the crankshaft, turn the fan more than 5 turns.
 - c) Examine the glow plug holes. If engine oil comes out of the glow plug holes, turn the crankshaft or the fan until no more engine oil comes out.
 - d) Clean the inlet manifold and the air filter hose.
 - e) Examine the air filter system for engine oil. If there is engine oil, clean the air filter cover and replace the air filter elements.
 - f) Install the 3 glow plugs and the air filter cover.
7. Install the inlet manifold and the air filter hose.
8. Connect the battery cable to the negative (-) terminal on the battery.
9. Do a check of the engine oil level. Refer to *To do a check of the engine oil level on page 32*.
10. Start the engine. Refer to *To start the product on page 25*. The first minutes of operation after a fall, black smoke can come from the product.

Maintenance

Introduction



WARNING: Read and understand the safety chapter before you do maintenance on the product.

X = The instructions are given in this operator's manual.

O = Refer to the instructions in the engine manual supplied by the engine manufacturer.

Maintenance schedule

* = General maintenance done by the operator. The instructions are not given in this operator's manual.

General product maintenance	Before use, each 10 h	After the first 50 h	Each 50 h	Each 250 h	Each 500 h	Each 1000 h	Each 1500 h	Each 3000 h
Make sure that there are no fuel or oil leaks.	*							
Clean the product.	X							
Make sure that nuts and screws are tightened.	*							
Do a check of the engine oil level.	X							
Do a check of the radiator coolant level.	X							
Do a check of the vacuator valve on the air filter.	X							
Clean and do a check of the air filter.	X			X				
Do a check of the fuel level.	*							
Drain the water separator in the fuel filter.	X							
Do a check of the hydraulic oil level.	X							
Make sure that the scrapers do not touch the drums.	X							
Examine the functions of the remote control and the receiver. If there is a problem, speak to an approved service center.	*							
Do a check of the machine distance sensors.	X							
Do a check of the articulation joints.	*							
Replace the engine oil and oil filter.		X		X				
Replace the hydraulic oil filter.		X		X	X			
Do a check of the fuel pipes and the clamps.			O					
Do a check of the air filter system. Examine the hoses, the cable strips, the clamps, the bolts and the connections for leaks and damages. Replace damaged parts.			*					

General product maintenance	Before use, each 10 h	After the first 50 h	Each 50 h	Each 250 h	Each 500 h	Each 1000 h	Each 1500 h	Each 3000 h
Do a check of the fan belt tension.			X					
Do a check of the radiator coolant hoses and the clamps.			O					
Do a check of the vibration damping units.				X				
Do a check of the battery connections.				X				
Clean the external of the radiator coolant core.				*				
Do a check of the cover for the hydraulic oil filter.					*			
Replace the oil in the eccentric element.					X			
Clean the fuel tank.					X			
Replace the fuel prefilter and the fuel filter.					X			
Make sure that radiator coolant freezing point is between -30°C/-22 °F and -38°C/-36°F.					*			
Clean the radiator coolant internally.					O			
Replace the fan belt.					X			
Replace the air filter element.					X			
Do a check of damage in the electric wires and loose connections.					O			
Do a check of the valve clearance.					O			
Replace the radiator coolant hoses and clamps.						O		
Replace the radiator coolant.						O		
Replace the fuel pipes and clamps. Speak to an approved service agent.						O		
Do a check of the pressure in fuel injection nozzle. Speak to an approved service agent.							O	
Do a check of fuel injection pump. Speak to an approved service agent.								O

To clean the product



CAUTION: Before you clean the product, attach a plastic bag tightly around the fuel tank cap. This is to make sure that water does not go into the venthole in the fuel tank cap.

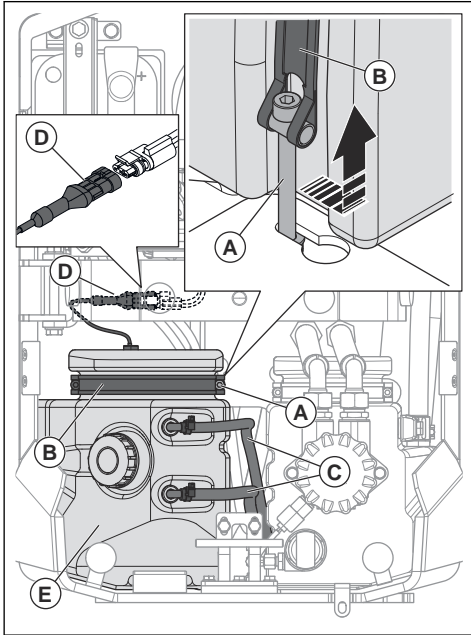


CAUTION: Do not point the water directly at the fuel tank cap, electrical components, the remote control or the engine.

- Use running water from a hose or a high-pressure washer to clean the product.

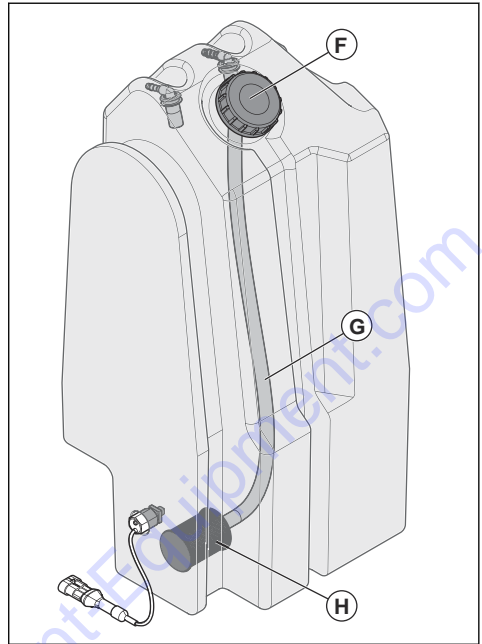
To clean the fuel tank

1. Release the lock (A) to for the fuel tank strap (B).



2. Disconnect the 2 fuel hoses (C).
3. Disconnect the fuel sensor (D).
4. Remove the fuel tank (E) from the product.

5. Open the fuel tank cap (F).



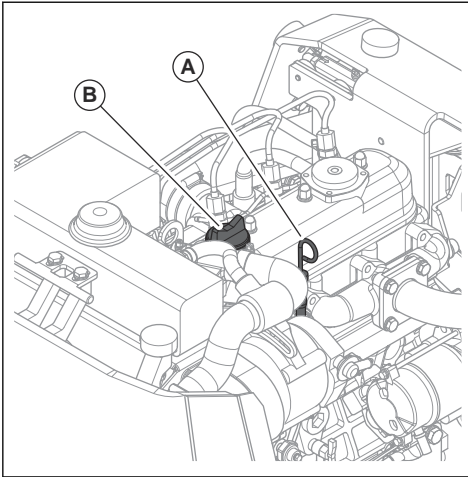
6. Drain the fuel tank.
7. Use a fuel filter hook to pull out the fuel hose (G) and the fuel strainer (H).
8. Clean the fuel tank and fuel strainer.
9. Install the fuel strainer in the fuel tank.
10. Install the fuel tank on the product.
11. Connect the fuel sensor.
12. Connect the 2 fuel hoses.
13. Attach the fuel tank strap.
14. Fill the fuel tank. Refer to *Fuel safety on page 17*.
15. Make sure that there are no leaks from the fuel tank and the fuel hoses.

Refer to the engine manual for more information.

To do a check of the engine oil level

1. Park the product on level ground and stop the engine. Refer to *To stop the product on page 28*.

2. Pull out the oil dipstick (A).



3. Clean the oil from the oil dipstick.
4. Put the oil dipstick back in.
5. Pull out the oil dipstick again and read the oil level.
6. If the oil level is low, open the engine oil cap (B). Fill with engine oil and do a check of the oil level again.

Refer to the engine manual for more information.

To replace the engine oil and oil filter

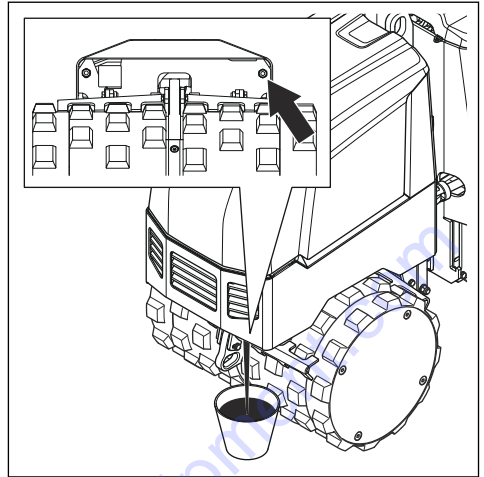
If the engine is cold, start the engine for 1–2 minutes before you drain the engine oil. This makes the engine oil warm and easier to drain.



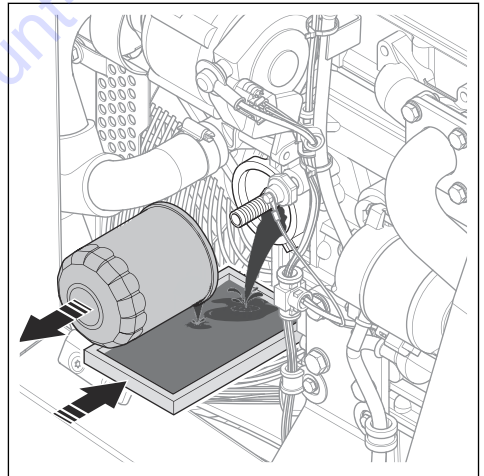
WARNING: Engine oil is very hot directly after the engine stops. Let the engine become cool before you drain the engine oil. If you spill engine oil on your skin, clean with soap and water.

1. Put a container below the oil drain plug. The container must have a capacity minimum of 5.5 l / 1.45 gal.

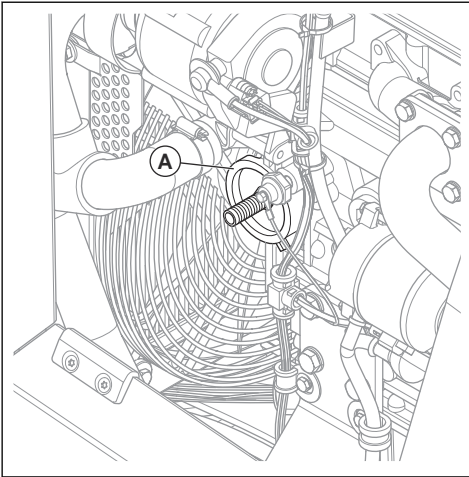
2. Remove the oil drain plug.



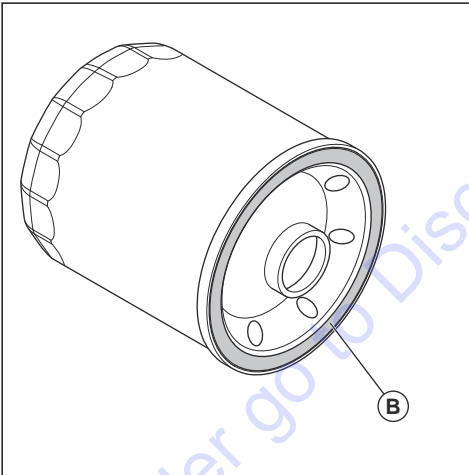
3. Let the engine oil run out into the container.
4. Install the oil drain plug and tighten it. Make sure that there is no leakage.
5. Put a container below the oil filter and remove the oil filter with a strap wrench.



6. Clean the surfaces (A) carefully.



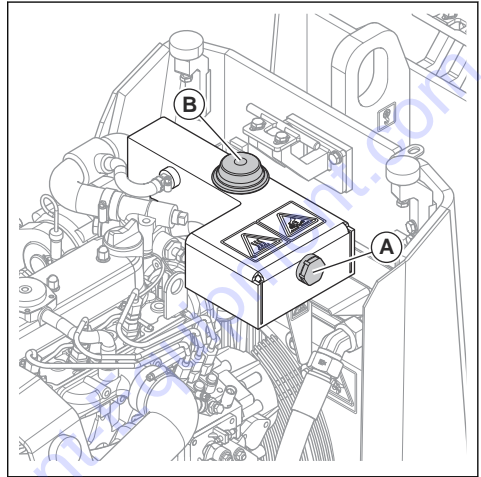
7. Lightly lubricate the rubber seal (B) with new engine oil.



8. Install the new oil filter and tighten by hand.
9. Fill with new engine oil as given in *Technical data on page 44*.
10. Do a check of the engine oil level. Refer to *To do a check of the engine oil level on page 32*.
11. Start the engine and let it operate for some minutes.
12. Stop the engine and make sure that there are no leaks.
13. Fill with engine oil to make up for the engine oil held in the new engine oil filter.

To do a check of the radiator coolant level

1. Park the product on level ground and stop the engine. Refer to *To stop the product on page 28*.
2. Examine the sight glass for radiator coolant level (A). The radiator coolant level is correct when it is in the middle of the sight glass.



3. If the radiator coolant level is too low, remove the cap for radiator coolant (B). Fill with radiator coolant until the level is correct.

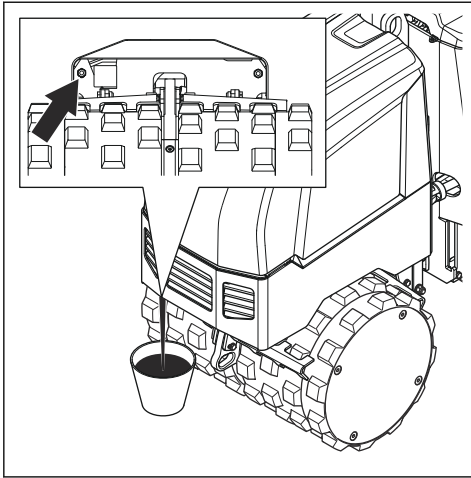
To replace the radiator coolant



WARNING: There is a risk of burn injury. Let the engine become cool before you replace the radiator coolant.

1. Put a container below the drain plug for the radiator coolant. The container must have a capacity minimum of 5.5 l/1.45 gal.

2. Remove the drain plug for the radiator coolant.



3. Let the radiator coolant water drain into the container.
4. Install the drain plug for the radiator coolant and tighten it. Make sure that there is no leakage.
5. Fill new radiator coolant. While you fill with new radiator coolant, compress the radiator coolant hose to supply the system with air.
6. Do a check of the radiator coolant level. Refer to *To do a check of the radiator coolant level on page 34.*
7. Start the engine and let the engine operate for some minutes. Refer to *To start the product on page 25.*
8. Stop the engine and make sure that there are no leaks. Refer to *To stop the product on page 28.*
9. If it is necessary, fill with radiator coolant.

Refer to the engine manual for more information.

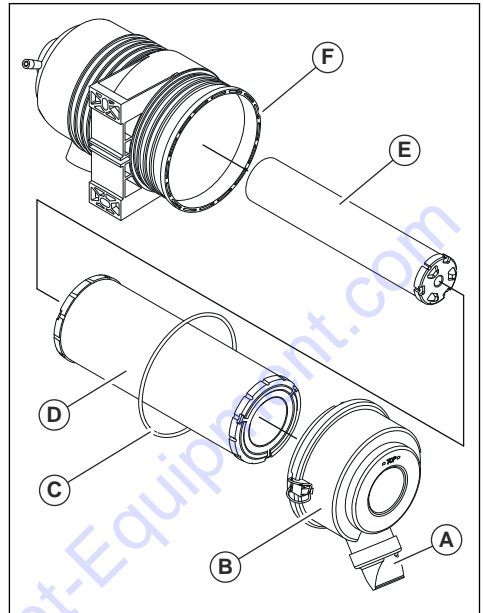
To clean and replace the air filter

Clean or replace the air filter immediately when the air filter symbol shows on the remote control display.



CAUTION: Do not install damaged air filters. A damaged air filter can cause damage to the engine.

1. Loosen the clamps and remove the air filter cover (B) with the vacuator valve (A).



2. Make sure that the O-ring (C) is in the air filter cover and that it is not damaged. Replace the O-ring if it is damaged.
3. To remove the primary filter (D) carefully move it from side to side. Then turn the primary filter while you pull it straight out.



CAUTION: Do not hit the primary filter against the filter housing (F).

4. Do a check of the primary filter.
 - a) If it is necessary, clean the primary filter. Hit the primary filter against your hand to clean it.
 - b) Replace the primary filter if it is damaged, wet or has oil on it. The primary filter must be replaced each 6 times it is cleaned.
5. Do a check of the safety filter (E). Do not remove the safety filter unless it is damaged or must be replaced. The safety filter must be replaced each 3 times you change the primary filter.
6. If it is necessary, replace the safety filter. To remove the safety filter carefully move it from side to side. Then turn the safety filter while you pull it straight out.



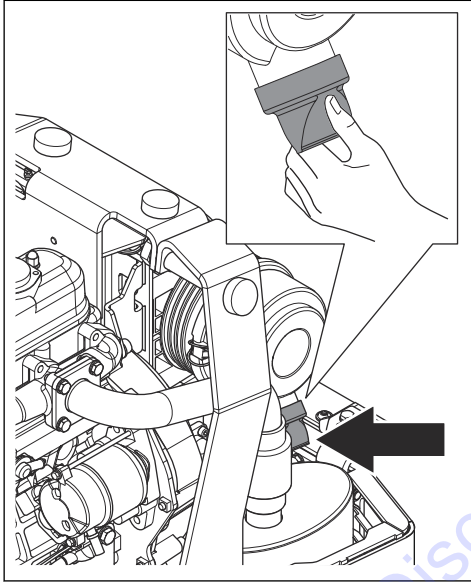
CAUTION: Do not hit the safety filter against the filter housing (F).

7. Clean the surface of the air filter seal and the inner side of the filter housing with a clean cloth.
8. Install the air filter in the opposite sequence.

Refer to the engine manual for more information.

To do a check of the vacuator valve on the air filter

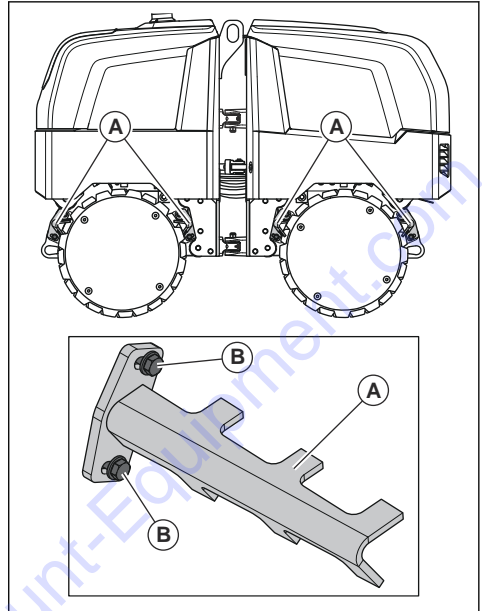
- Make sure that the vacuator valve has free flow.



- Make sure that the vacuator valve is flexible.
- Make sure that the vacuator valve is not damaged or blocked.

To do a check of the scrapers

1. Make sure that the scraper blades (A) do not touch the drums.



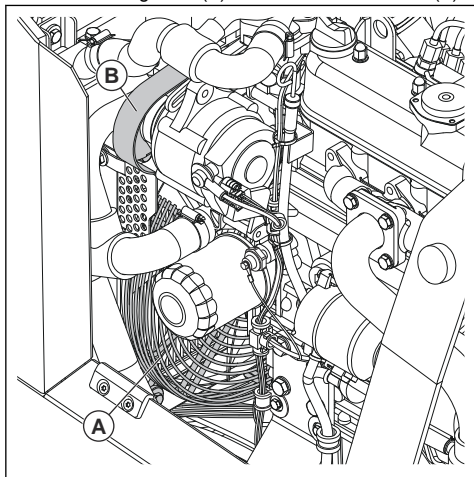
2. If it is necessary, adjust the screws (B) for clearance.

To do a check of the machine distance sensors (MDS)

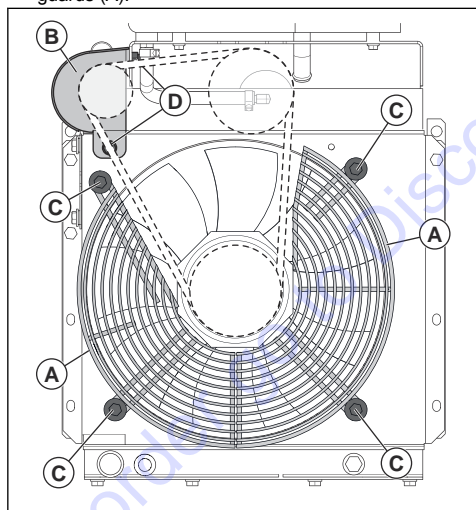
1. Start the product. Refer to *To start the product on page 25*.
2. Hold the remote control and walk in the direction of the product.
3. Make sure that the product stops when the remote control is 2 m/6.6 ft from the product.
4. If there is a problem with the machine distance sensors, speak to an approved service center.

To do a check of the fan belt tension

1. Find the fan guards (A) and the alternator cover (B).

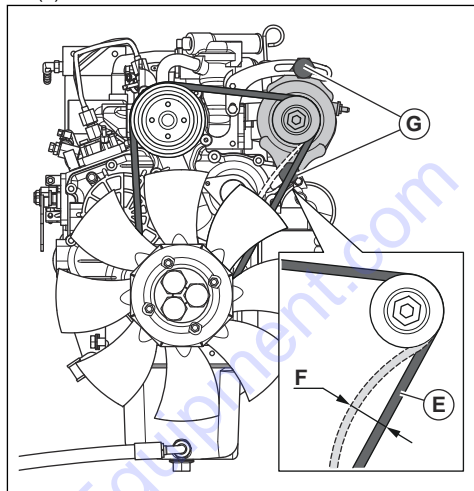


2. Remove the 4 screws (C) and remove the 2 fan guards (A).



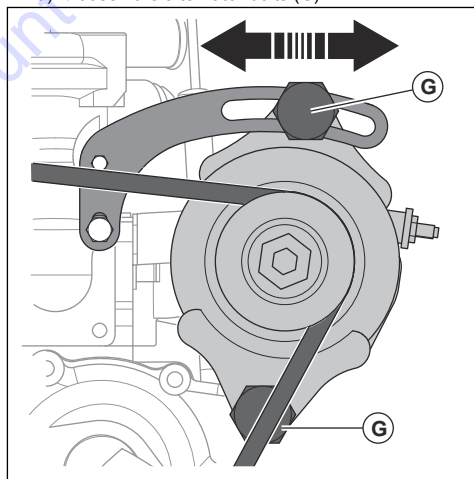
3. Remove the 2 screws (D) and remove the alternator cover (B).

4. Push the fan belt (E) between the pulleys. The tension is correct if the fan belt moves between 7-9 mm/0.28-0.35 in. during pressure in the middle span (F).



5. If it is necessary, adjust the tension. Do these steps:

- a) Loosen the alternator bolts (G).



- b) Put a lever between the alternator and the engine block.
- c) Pull out the alternator until the fan belt can move between 7-9 mm/0.28-0.35 in.
- d) Tighten the alternator bolts.

6. If it is necessary, replace the fan belt. Do these steps:

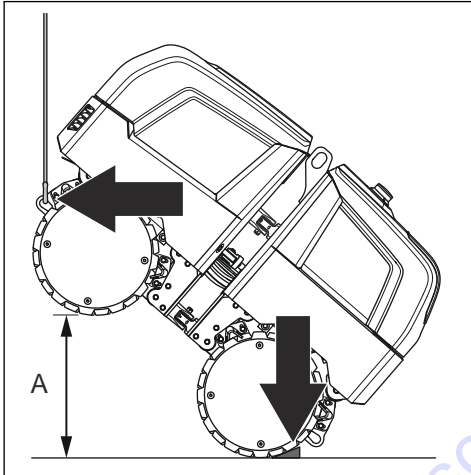
- a) Remove the defective fan belt.
- b) Install the new fan belt.

- c) Pull out the alternator until the fan belt can move between 7-9 mm/0.28-0.35 in.
 - d) Tighten the alternator bolts.
7. Install the alternator cover and tighten the 2 screws.
 8. Install the 2 fan guards and tighten the 4 screws.

Refer to the engine manual for more information.

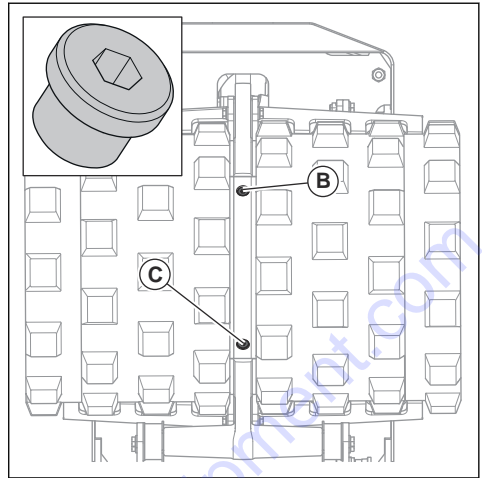
To replace the oil in the eccentric element

1. Attach the lifting equipment at the tie-down bracket on 1 end of the product.

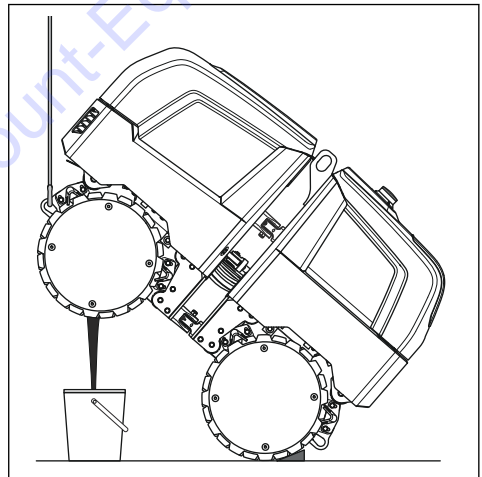


2. Lift the product to a height of 675-775 mm/26.6-30.5 in (A). Put a wheel chock behind the wheel on the ground.
3. Put a container below the oil drain plug for the eccentric element. The container must have a capacity minimum of 1 1/2.11 gal.

4. Remove the oil fill plug for the eccentric element (B).

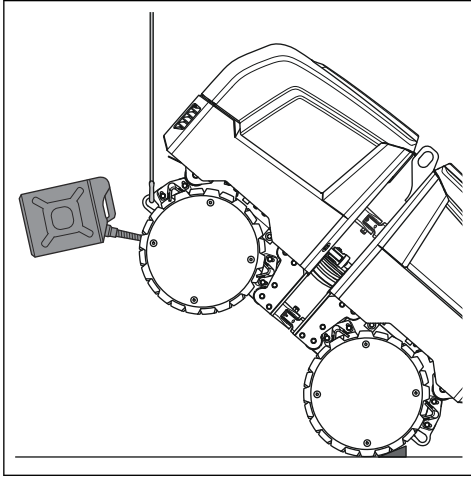


5. Remove the oil drain plug for the eccentric element (C).
6. Let the oil run out into the container.



7. Install the oil drain plug for the eccentric element and tighten it.

8. Fill the eccentric element with oil. Refer to *Technical data on page 44* for correct quantity and type of oil.



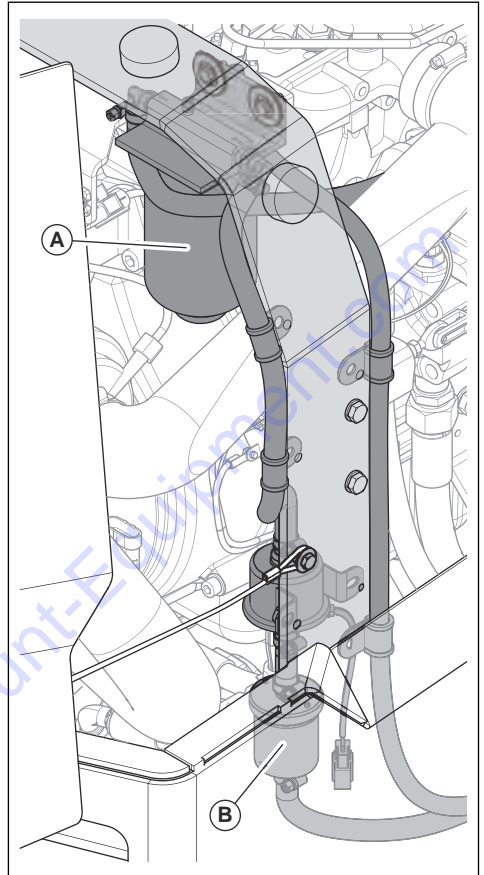
9. Install the oil fill plug for the eccentric element.
10. Do the same procedure for the other end of the product.

To replace the fuel prefilter and fuel filter



WARNING: Use protective gloves to prevent skin irritation. Fuel can come from the fuel filter and onto your skin.

1. Remove the fuel filter (A) with a wrench.



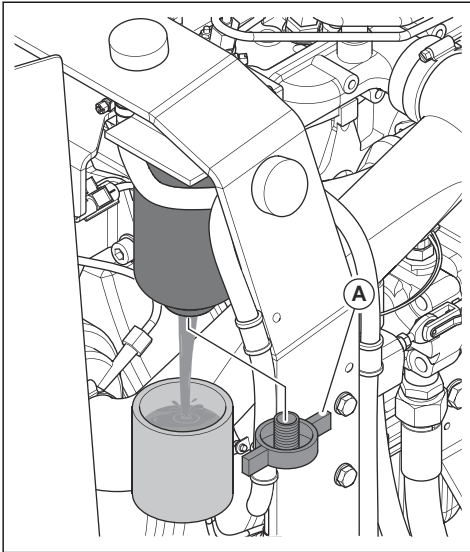
2. Install a new fuel filter.
3. Disconnect the hoses on each side of the fuel prefilter (B).
4. Install a new fuel prefilter. Make sure that the arrow on the fuel prefilter agrees with the direction of the fuel flow.

Refer to the engine manual for more information.

To drain the water separator in the fuel filter

1. Put a bowl below the drain plug for the water separator (A).

- Remove the drain plug for the water separator.



- Drain until there is only clean fuel in the bowl.
- Install the drain plug for the water separator.
- Discard the water as chemical waste. Refer to *Disposal on page 43*.

Refer to the engine manual for more information.

To do a check of the battery

- Disconnect the battery cables.
- Examine the battery for damages. Replace the battery if it is damaged.
- Clean the battery terminals and the battery cable connectors.
- Lubricate the battery terminals and the battery cable connectors with grease that does not contain acid.
- Connect the battery cables.
- Make sure that the battery is correctly attached.

To charge the battery

- If the battery is not used for a long period of time, charge it fully before you use it.
- Use a battery charger that automatically adjusts the voltage. We recommend a 2-stage charger with constant voltage that automatically decreases to trickle charging when the battery is fully charged. Speak to Discount-equipment for information about the correct battery charger.
- Do a trickle charging 1-2 times during the winter season when the product is in storage.

Hydraulic system

To do a check of the hydraulic hoses

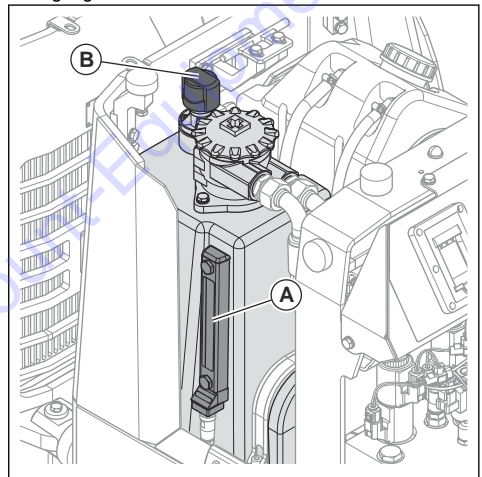
- Examine the hydraulic hoses regularly. Replace worn or damaged hydraulic hoses.



WARNING: Hydraulic oil is dangerous. The rubber in the hydraulic hoses wears with time. Worn or damaged hydraulic hoses can break and the hydraulic oil can cause injury. If you cannot tell if the hydraulic hoses are worn, always replace the hydraulic hoses.

To do a check of the hydraulic oil level

- Examine the hydraulic oil level at the sight glass for the hydraulic oil tank (A). The hydraulic oil level must be approximately 10 mm/0.39 in. from the top of the sight glass.



- If the hydraulic oil level is low, open the cap for the hydraulic oil tank (B). Fill with hydraulic oil and examine the hydraulic oil level again.

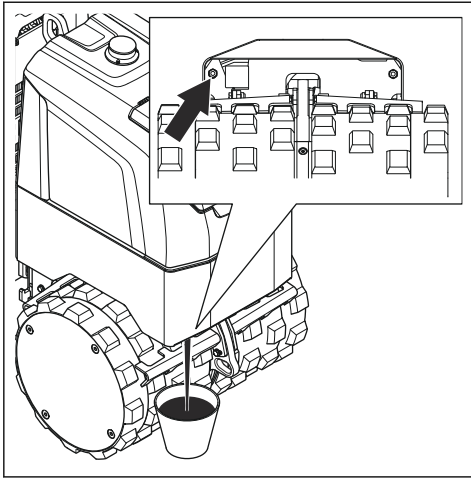
To replace the hydraulic oil



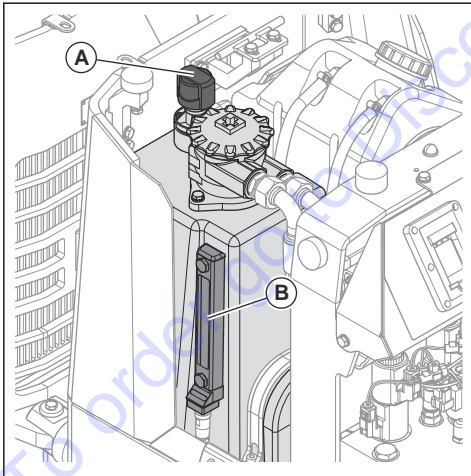
WARNING: There is a risk of burn injury. The hydraulic oil becomes hot during operation of the product. Let the product become cool before you replace the hydraulic oil.

- Put a container below the drain plug for the hydraulic oil. The container must have a capacity minimum of 15 1/4 gal.

- Remove the drain plug for the hydraulic oil.



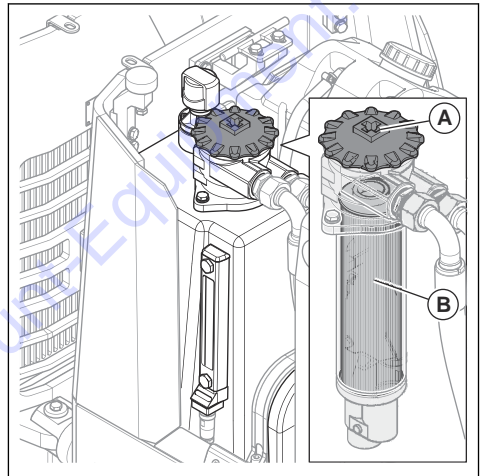
- Let the hydraulic oil run out into the container.
- If it is necessary, replace the hydraulic oil filter. Refer to *To replace the hydraulic oil filter on page 41*.
- Install the drain plug for the hydraulic oil and tighten it. Replace the seal if it is damaged.
- Fill with new hydraulic oil (A) as given in *Technical data on page 44*.



- Examine the hydraulic oil level at the sight glass for the hydraulic oil tank (B). The hydraulic oil level is correct when it is 10 mm/0.39 in. from the top of the sight glass.
- Start the engine and let the engine operate for some minutes.
- Stop the engine and make sure that there are no leaks.
- Examine the hydraulic oil level at the sight glass for the hydraulic oil tank. If it is necessary, fill with hydraulic oil.

To replace the hydraulic oil filter

- Clean the area around the cover for the hydraulic oil filter (A).



- Remove the cover for the hydraulic oil filter.
- Remove the hydraulic oil filter (B).
- Discard the hydraulic oil filter as chemical waste. Refer to *Disposal on page 43*.
- Install the new hydraulic oil filter.
- Examine the O-ring in the cover for the hydraulic oil filter. Replace it if it is damaged.
- Install the cover for the hydraulic oil filter. Make sure that the cover is installed correctly.
- Make sure that there is no leakage.
- Do a check of the hydraulic oil level. Refer to *To do a check of the hydraulic oil level on page 40*.

Transportation, storage and disposal

Transportation



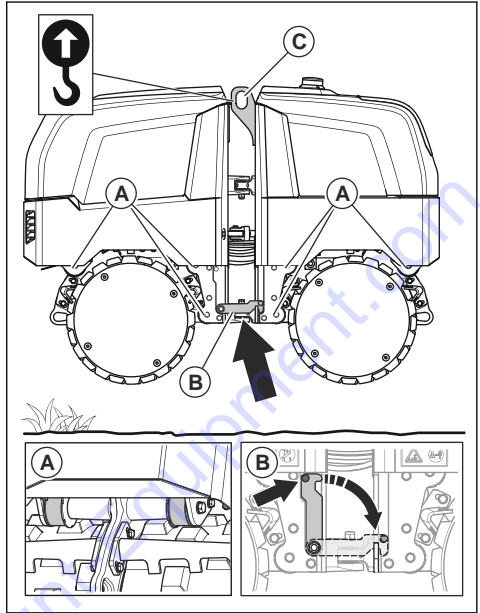
WARNING: Be careful during transportation. The product is heavy and can cause injury

or damage if it falls or moves during transportation.

- Stop the engine before you lift or move the product.

- Make sure that the load area on the transportation vehicle and wheels on the product is clean.
- Remove ice and snow on the load area on the transportation vehicle and the wheels on the product.
- Do not tow the product behind a vehicle.
- Make sure that the articulation joint lock is engaged. Refer to *To engage and disengage the articulation joint lock on page 19.*

1. Make sure that the vibration damping units (A) are correctly installed and not damaged. Refer to *To do a check of the vibration damping units on page 17.*



2. Engage the articulation joint lock (B). Refer to *To engage and disengage the articulation joint lock on page 19.*
3. Make sure that the lifting eye (C) is correctly installed and not damaged.
4. Attach the lifting equipment to the lifting eye.



WARNING: Do not use metal hooks, chains or other lifting equipment with rough edges that can cause damage to the lifting eye.

5. Lift the product gradually to prevent impact loads on the product.

To safety the product to a transportation vehicle

Note: The decal on the product shows how to safety the product to a transportation vehicle. Refer to *Lift and tie-down decal on page 14.*

1. Make sure that the articulation joint lock is engaged. Refer to *To engage and disengage the articulation joint lock on page 19.*

To lift the product



WARNING: Make sure that the lifting equipment has the correct specification to lift the product safely. The type plate on the product shows the product weight. The decal on the product shows how to lift the product. Refer to *Lift and tie-down decal on page 14.*



WARNING: Do not lift a damaged product. Make sure that the lifting eye, the vibration damping units and the safety straps are correctly installed and not damaged.

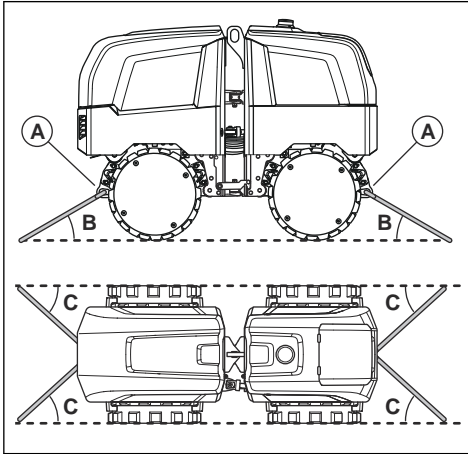


WARNING: Do not lift the product at the lifting eye on the engine. Lift the product at the lifting eye on the product only.



WARNING: Do not walk or stay below or near a lifted product.

2. Make sure that the tie-down brackets (A), 1 at each end of the product, are not damaged.



3. Put straps at the tie-down brackets and attach the straps to the transportation vehicle. The straps angles must be between 15°-65° in height (B) and 30°-75° laterally (C).

Storage

- Remove all fuel from the fuel tank before you put the product in storage for a long period of time. Discard the fuel at an applicable disposal location.
- Fully charge the product battery before storage. An empty battery freezes at approximately $-7^{\circ}\text{C}/19^{\circ}\text{F}$. A fully charged battery freezes at approximately $-67^{\circ}\text{C}/89^{\circ}\text{F}$.
- Remove the battery from the remote control before long-term storage .
- Clean the product before storage. Remove oil and dust from the rubber parts.
- Clean the air filter before storage.
- Put a protective cover on the product.
- Keep the product in a dry and frost-free area.
- Keep the product in a locked area to prevent access for children or persons that are not approved.

Disposal


- Chemicals can be dangerous and must not be discarded on the ground. Always discard used chemicals at a service center or an applicable disposal location.
- When the product is worn out, send it to the dealer or to an applicable recycling location.
- Oil, oil filters, fuel and the battery can have negative effects on the environment. Obey the local recycling requirements and applicable regulations.
- Do not discard the battery as domestic waste.
- Send the battery to Discount-equipment or discard it at a disposal location for used batteries.

Technical data

Technical data

Net weight, kg/lb	1660/3660
Operation weight (EN500), kg/lb	1675/3693
Engine type	Kubota D1105, 3-cylinder Diesel
Engine power, kW/hp @rpm ¹	18/24.1 @2800
Cooling system	Combined water/hydraulic oil cooler and fan
Air filter	Dry type
Pump traction system	Gear type
Engines traction system	Radial Piston
Relief valve traction system, MPa/psi	25/3626
Vibration frequency, Hz/rpm	42/2520
Pump vibration system	Gear type
Motor vibration system	Gear type
Safety valve vibration system, MPa/psi	21/3.046
Centrifugal force low, kN/lbf	36/8093
Centrifugal force high, kN/lbf	72/16186
Amplitude low, mm/in.	0.55/0.02
Amplitude high, mm/in.	1.1/0.04
Centrifugal force, kN/lbf	21.8/4900
Operation speed, m/min or ft./min	24 or 79
Transport speed, m/min or ft./min	48 or 157
Max. tilt, degrees/%	20/36
Gradeability with vibration, degrees/%	55/45
Gradeability without vibration, degrees/%	29/24
Max. slope angle for operation downhill, degrees/%	14/25
Operation temperature, °C/°F	-6/+45
Fuel tank capacity, l/qt	30/31.7
Crankcase oil capacity, l/qt	5.1/5.39
Hydraulic oil, l/qt	21.5/22.7

¹ As specified by the engine manufacturer. The power rating of the engine indicated is the average net power output (at specified rpm) of a typical production engine for the engine model measured to SAE J1995. Mass production engines may differ from this value. Actual power output for the engine installed on the final product will depend on the operating speed, environmental conditions and other values.

Eccentric element, l/qt	0.8/0.84
Water tank, l/gal	58/12.75
Fuel consumption, l/h or qt/h	3.5 or 3.7
Engine oil *	Shell Rimula R4 L 15W-40
Eccentric element oil	Shell Omala S4 GX 150
Hydraulic oil	Shell Tellus S2 V 46
Fuel *	<p>Only use ultra-low-sulfur diesel fuel (0.0015% or 15 p.p.m) that complies with EN 560 or DIN 51601</p> <hr/>  <p>CAUTION: Do not use bio-diesel. Bio-diesel will damage the fuel hoses</p> <hr/>
Battery voltage, V	12
Generator capacity, A	40
Fuses, A	2x5, 6x10, 2x30, 1x40, 1x150
Generator, W	360
Starter motor, kW/hp	1.2/1.6

* = For further information and questions about this specific engine, refer to the engine manual or the web site of the engine manufacturer.

Radio communication equipment	
Operation frequency, MHz FHSS	2402-2480
Remote control	
Battery specification	3.7 V Li-Ion, 1.95 Ah
Operating time	Up to 8 hours with a new battery
Battery	2 x Li-Ion batteries supplied with the product. The remote control can be operated without battery via CAN bus cable.
Data display	Graphical LCD, resolution 128 x 64
Indicator on CAN status	Single-colour LED, Yellow
Indicator on main contact	Triple-colour LED, Red/Green/Yellow
Indicator on battery	Triple-colour LED, Red/Green/Yellow
Dimensions, mm/in.	260x165x150/10x6.5x5.9
Weight, kg/lb	1.3/2.9
Protection class	IP 67
Operating temperature with battery, °C/°F	Between -20/-4 and 55/131
Operating temperature without battery, °C/°F	Between -25/-13 and 85/185
Storage temperature with battery, °C/°F	Between -20/-4 and 35/95

Storage temperature without battery, °C/°F	Between -40/-40 and 85/185
Charge temperature for battery, °C/°F	Between 10/50 and 45/113
Receiver	
Operating voltage, V DC	12/24, negative grounded system
General consumption	100 mA, without external charging at 12 V DC
Processor	2 CPU design, 2 solid state safety switches (RCSS). Designed to fulfill ISO 13849-1, Cat3, Pl d.
Indication, receiver	Triple-colour LED, Red/Green/Yellow
Indication, CAN status	Twin-colour LED Red/Green
Dimensions, mm/in.	152x141x36/6x5.5x1.4
Weight, kg/lb	0.65/1.43
Protection class	IP 67
Operating temperature, °C/°F	Between -25/-13 and 70/158
Storage temperature, °C/°F	Between -40/-40 and 85/185

Noise emissions	
Sound power level, measured dB (A)	103
Sound power level, guaranteed L_{WA} dB (A) ²	106
Sound pressure level at the operator's ear, L_P , dB (A) ³	83
Vibration level, a_{hv} , m/s^2 ⁴	N/A (remote control)

Noise and vibration declaration statement

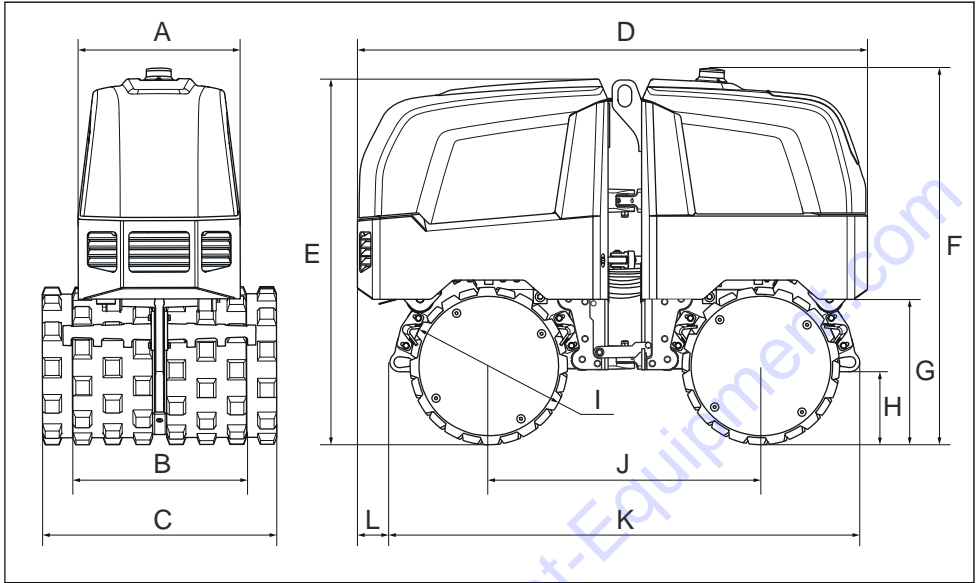
These declared values were obtained by laboratory type testing in accordance with the stated directive or standards and are suitable for comparison with the declared values of other products tested in accordance with the same directive or standards. These declared values are not suitable for use in risk assessments and values measured in individual work places may be higher. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, in what material the product is used, as well as upon the exposure time and the physical condition of the user, and the condition of the product.

² Noise emissions in the environment measured as sound power (L_{WA}) as per EN ISO 3744 in conformity with EC directive 2000/14/EC. The difference between guaranteed and measured sound power is that the guaranteed sound power also includes dispersion in the measurement result and the variations between different machines of the same model according to Directive 2000/14/EC.

³ Sound pressure level L_P according to EN ISO 11201, EN 500-4. Uncertainty K_{PA} 3.0 dB (A).

⁴ Vibration value according to EN 500-4. Reported data for vibration level has a typical statistical dispersion (standard deviation) of $1.5 m/s^2$.

Product dimensions



A	Width, mm/in.	589/23	G	Distance between product and ground, mm/in.	529/21
B	Drum width inner, mm/in.	630/25	H	Drum radius, mm/in.	226/10
C	Drum width outer, mm/in.	850/33	I	Drum diameter, mm/in.	573/23
D	Length, mm/in.	1856/73	J	Distance between front and rear drum axles, mm/in.	990/39
E	Height without warning light and drum, mm/in.	1330/52	K	Distance between front and rear tie-down brackets, mm/in.	1710/67
F	Height with warning light without drum, mm/in.	1369/54	L	Distance between front bracket and front of the product, mm/in.	118/5

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Husqvarna®



Original instructions

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2020-04-15