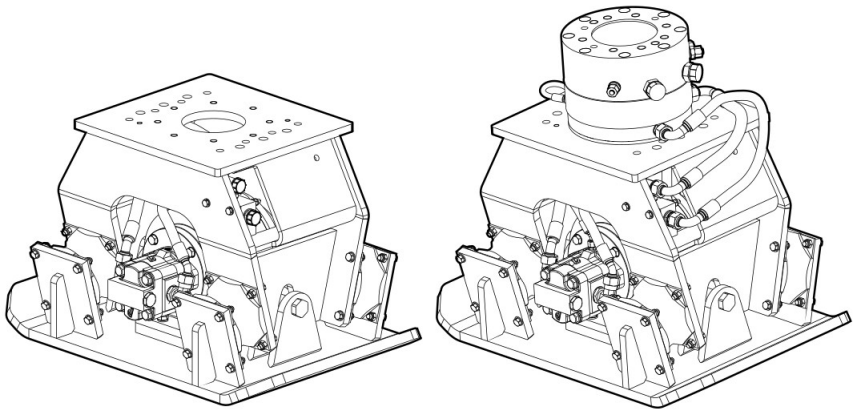
HC

350, 350 R, 450, 450 R, 850, 850 R, 1050, 1050 R

Safety and operating instructions

Hydraulic compactor



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www.epiroc.com/technicaldocumentation

Original Instructions

Epiroc

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1 Introduction

Epiroc is a leading productivity partner for the mining, infrastructure and natural resources industries. With cutting-edge technology, Epiroc develops and produces innovative drill rigs, rock excavation and construction equipment, and provides world-class service and consumables.

The company was founded in Stockholm, Sweden, and has passionate people supporting and collaborating with customers in more than 150 countries.

Construction Tools PC AB

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1.1 About these Safety and Operating Instructions

The aim of these Instructions is to familiarise you with the safe and effective operation of the hydraulic attachment. You will also find instructions for regular maintenance activities for the hydraulic attachment in this document.

Please read these Instructions carefully prior to the first attachment and use of the hydraulic attachment.

The different designation of the texts means as follows:

►	Action step in a safety instruction
♦	Action step
1. 2.	Established operation process
A B C	Explanation of the elements of a drawing
• • •	Listing

Symbols used in illustrations have the following meanings:

	permitted operation
	prohibited operation

2 Safety instructions

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Read these Safety and operating instructions and specifically all safety instructions before using the hydraulic attachment. This will:

- prevent the risk of injuries and fatal accidents for yourself and others,
- protect the environment against environmental damage.
- protect the hydraulic attachment and other property against material damage,

Follow all instructions in these Safety and operating instructions.

Store these Safety and operating instructions in the document compartment of the carrier cab.

Anyone

- transporting,
- installing or removing,
- operating,
- maintaining,
- repairing,
- storing or
- disposing of

the hydraulic attachment must have read and understood these Safety and operating instructions.

These Safety and operating instructions belong to the hydraulic attachment. Keep it for the life of the product. Ensure, if applicable, that any received amendment is incorporated in the instructions. Hand over the Safety and operating instructions if ever you lend, rent out or sell the hydraulic attachment.

All safety regulations listed in this manual comply with the laws and regulations of the European Union. Also observe the additional national/regional regulations.

Hydraulic attachment operation outside the European Union is subject to the laws and regulations valid in the country of use. Please observe any other, more stringent regional regulations and legislation.

Read the carrier manufacturer's Safety and operating Instructions before attaching the hydraulic attachment to the carrier and operating it. Observe all instructions.

2.1 Signal words

The signal words Danger, Warning, Caution, and Notice are used as follows in these Safety and operating instructions:

DANGER	indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	The signal word NOTICE is used to address practices related to possible property damage but not related to personal injury.

2.2 Qualification

Transporting the hydraulic attachment is only permitted if carried out by people who:

- are authorised to operate a crane or a forklift truck according to the applicable national provisions,
- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood the safety and transport chapter of these Safety and operating instructions.

Installing, maintaining, storing and **disposing** of the hydraulic attachment are only permitted if carried out by people who:

- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood these Safety and operating instructions.

Operating the hydraulic attachment is only permitted if carried out by qualified carrier drivers. Carrier drivers are qualified if they:

- have been trained to operate a carrier according to the national regulations,
- know all the relevant national/regional safety provisions and accident prevention rules,
- have read and understood these Safety and operating instructions.

Testing the hydraulic installation is only permitted if carried out by professionals. Professionals are people who are authorised to approve a hydraulic installation for operation according to the national regulations.

Repairing the hydraulic attachment is only permitted if carried out by professionals trained by Construction Tools GmbH. These professionals must have read and understood these Safety and operating instructions. They must follow all safety instructions and guidelines for repair. Otherwise the operational safety of the hydraulic attachment is not guaranteed.

2.3 Intended use

Only attach the hydraulic compactor to a hydraulic carrier of a suitable load-bearing capacity. Read the carrier manufacturer's Safety and Operating Instructions before attaching the hydraulic compactor to the carrier and operating it. Observe all instructions.

Only use the hydraulic compactor for the following work:

- Compact hard core (granulate material), clay soil or organic soils.
- Driving in sheeting, supports and uprights.

Intended use also implies observing all instructions in these Safety and Operating Instructions.

2.4 Use other than intended

Never use the hydraulic compactor

- to transport or lift objects

This damages the hydraulic compactor.

- in explosion-hazard environments

Explosions cause serious injury or death.

- under water

This damages the hydraulic compactor.

2.5 Protective equipment

Personal protective equipment must comply with the applicable health and safety regulations.

Always wear the following personal protective equipment:

- protective helmet
- safety glasses with side protectors
- protective gloves
- protective shoes
- warning vest

2.6 Carrier, precautions

⚠ WARNING Falling carrier

If the load-bearing capacity of the carrier used is insufficient, the carrier will not be stable. It can topple over and cause injuries and damage.

Using a carrier whose load-bearing capacity is too high will greatly burden the hydraulic attachment causing it to wear faster.

- ▶ Only attach the hydraulic attachment to a hydraulic carrier of a suitable load-bearing capacity.
- ▶ The carrier must remain stable at all times.
- ▶ Read the carrier manufacturer's Safety and operating Instructions before attaching the hydraulic attachment to the carrier and operating it. Observe all instructions.

2.7 Transport, precautions

⚠ WARNING Risk of death due to suspended loads

When lifting loads these can swing out and fall. This can result in serious injuries or even death.

- ▶ Never stand underneath or in the swinging range of suspended loads.
- ▶ Only move loads under supervision.
- ▶ Only use approved lifting equipment and lifting gear with sufficient load bearing capacity.
- ▶ Do not use worn lifting gear (ropes, belts, chains, shackles etc.).
- ▶ Do not place lifting gear such as ropes and belts on sharp edges or corners, do not knot these or twist them.
- ▶ When leaving the workplace, set down the load.

⚠ WARNING Injury due to swivelling load

When transporting the load by crane it can swivel and cause severe injuries and considerable damage to property.

- ▶ Ensure that no personnel, objects or obstacles are located in the swivel range of the load.

NOTICE Air freight restrictions

HATCON contains an activated SIM card (radio transmitting device) and an encased lithium ion battery after activation step has been finalized. Both parts are regulated for air transport.

- ▶ Consult your forwarder or local customer center/ dealer about any restrictions for air freight.

2.8 Hydraulic installation, precautions

⚠ WARNING Hydraulic pressure too high

If the hydraulic pressure is too high, the parts of the hydraulic attachment will be exposed to excessively high loads. Parts can break loose or burst causing serious injuries.

- ▶ Check the relief pressure. If it is higher than 10 bar, a drain line is required.
- ▶ Lay the drain line of the pressure relief valve directly in the tank to ensure the safe functioning of the pressure relief valve!
- ▶ The pressure relief valve must be set at the maximum static pressure.
- ▶ The pressure relief valve setting must be checked to ensure that the maximum static pressure (see chapter **Technical specifications**) of the hydraulic installation is not exceeded at any time. Attach a lead seal to the pressure relief valve.
- ▶ Prior to their first use, the safety facilities on the hydraulic installation must be checked by a professional/authorised monitoring body for their quality (CE mark etc.), suitability and proper functioning.
- ▶ If any significant changes are made to the hydraulic installation, a new acceptance inspection is to be carried out in accordance with the relevant national safety provisions.

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. Hydraulic lines may spring a leak or burst. Hydraulic oil squirting out can lead to serious injury.

- ▶ When attaching the hydraulic attachment do not lay any hydraulic lines through the carrier's cab.
- ▶ Only use hydraulic lines which comply with the following quality requirements:
  - For the function open and close
  - Hydraulic hoses with 2 reinforcement steel wires according to DIN EN 856 4SH,
  - Hydraulic pipes, seamless cold-drawn steel pipes according to DIN EN 10305
  - For the function turn
  - Hydraulic hoses with 2 steel plaitings according to DIN EN 853 2SN,
  - Hydraulic pipes, seamless cold-drawn steel pipes according to DIN EN 10305.

2.9 Media/consumables, precautions

⚠ WARNING Hot hydraulic oil under high pressure

Hydraulic oil will squirt out under high pressure if there is a leakage. The jet of oil might penetrate people's skin and cause permanent damage. Hot hydraulic oil can cause burns.

- ▶ Never use your hands to find leaks.
- ▶ Always keep your face away from a possible leak.
- ▶ If hydraulic oil has penetrated your skin consult a doctor immediately.

⚠ WARNING Hydraulic oil spills

Spilt hydraulic oil can make a floor slippery. If people slip they can be injured. Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Make sure not to spill any hydraulic oil.
- ▶ Immediately clean the floor if you have spilt hydraulic oil.
- ▶ Observe all safety and environmental protection provisions when handling hydraulic oil.

⚠ WARNING Skin infections/diseases due to oil and grease

Hydraulic oil and grease can cause rashes (or even eczema) if they come into contact with the skin.

- ▶ Avoid all skin contact with hydraulic oil and grease.
- ▶ Use a suitable skin protection product.
- ▶ Always wear safety gloves when working with hydraulic oil or grease.
- ▶ Immediately clean any skin that has been contaminated by oil or grease with water and soap.

2.10 Explosion and fire, precautions

⚠ DANGER Explosion and fire

Explosions cause serious injury or death. If the hydraulic compactor damages an underground gas pipe, this may lead to an explosion.

- ▶ Never operate the hydraulic compactor in the direct vicinity of gas pipes.
- ▶ Check gas line position plans of the complete construction area.

⚠ DANGER Explosion and fire

Operating the hydraulic compactor may create sparks which ignite highly flammable gases. This may lead to fire or an explosion.

- ▶ Never work in an environment with highly flammable substances.
- ▶ Make sure that there are no hidden sources of gas in the work area.
- ▶ Check gas line position plans of the complete construction area.

⚠ WARNING Risk of explosion

If the hydraulic attachment is equipped with HATCON explosion may occur when the contained lithium batteries are penetrated by pieces of steel or reinforcing bars.

- ▶ Avoid impact of reinforcement, flying rocks or even explosives on HATCON.
- ▶ Check the HATCON before operating.

2.11 Electrical shock, precautions

⚠ DANGER Electrical shock

Any contact of the hydraulic attachment with electric circuits or other sources of electricity will lead to an electric shock, resulting in serious injury or death. The hydraulic attachment is not electrically insulated.

- ▶ Never work in the vicinity of electric circuits or other sources of electricity.
- ▶ Make sure that there are no hidden circuits in the work area.
- ▶ Check wiring diagrams.

2.12 Falling stones, precautions

⚠ WARNING Fragments flying around

Fragments of material which come loose while operating the hydraulic attachment may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

During hydraulic attachment operation the danger zone is considerably greater than during the excavation operation due to fragments of stone and pieces of steel flying around, and for this reason the danger zone must, de-

pending on the type of material to be worked on, be enlarged correspondingly, or secured in a suitable manner through corresponding measures.

- ▶ Secure the danger zone.
- ▶ Stop the hydraulic attachment immediately if anyone enters the danger zone.
- ▶ Close the windscreen and the side windows of the driver's cab.

2.13 Emissions, precautions

⚠ WARNING Lung disease

Dust may be generated when operating the hydraulic attachment. If dust from rocks or silica dust, produced when operating the hydraulic attachment on rocks, concrete, asphalt or other such materials, is inhaled this may lead to silicosis (dust lungs, a severe lung disease). Silicosis is a chronic disease which may lead cancer and death.

- ▶ Wear a suitable breathing mask.

2.14 Handling machines, precautions

⚠ WARNING Narcotics, alcohol and drugs

Narcotics, alcohol and medicinal drugs make their users less alert and affect their ability to concentrate. Negligence and incorrectly assessing a situation can result in serious injury or death.

- ▶ Never work on or with the hydraulic attachment when under the influence of narcotics, alcohol or drugs which affect your alertness.
- ▶ Never allow other people who are under the influence of narcotics, alcohol or drugs which affect their alertness to work on or with the hydraulic attachment.

2.15 Changes to the hydraulic attachment, precautions

⚠ WARNING Changes to the hydraulic attachment

Changes to the hydraulic attachment or the adapter plate may lead to serious injury.

- ▶ Never carry out any changes to the hydraulic attachment or the adapter plate.
- ▶ Only use original parts or accessories approved by Epiroc.
- ▶ Modifications that entail new hazards may require a new procedure for assessing conformity.

2.16 Environmental pollution, precautions

NOTICE Environmental pollution due to hydraulic oil

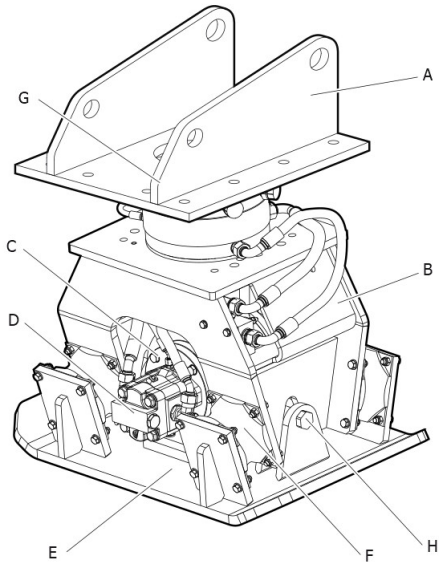
Hydraulic oil is permanently environmentally harmful. Escaped hydraulic oil will lead to groundwater and soil contamination. Organisms may die.

- ▶ Collect any hydraulic oil which escapes to avoid environmental pollution. For minor volumes use an absorbing medium (in case of an emergency use soil). In case of major leakages contain the hydraulic oil. It must not drain off and penetrate the ground or enter the water table or water supplies.
- ▶ Collect contaminated absorbing medium or soil in a watertight box/container and close it tight.
- ▶ Contact an authorized waste management company.
- ▶ Dispose of all contaminated material in accordance with the applicable environmental regulations.

3 Overview

3.1 Equipment description

The illustration gives an overview of the main parts and components of the hydraulic attachment. Actual details may differ.



A. The hydraulic compactor is connected to the carrier by the adapter plate. The **adapter plate** is not included in the scope of supply of the hydraulic compactor.
B. The **outer housing** protects the hydraulic motor and the rotor housing. The adapter plate is connected to the outer housing.
C. The rotor runs inside the **rotor housing**.
D. The **hydraulic motor** drives the rotor.
E. The **tamper plate** is fitted to the rotor housing. It transfers the force to the material to be compacted.
F. The rotor housing is suspended in the outer housing through the rubber isolators. The **rubber isolators** dampen the impact force being transferred to the carrier and the carrier driver.
G. The **rotating mechanism** enables the hydraulic compactor to be rotated endlessly in a clockwise and/or anticlockwise direction. The rotating mechanism is not included in the scope of supply of the hydraulic compactor.
H. The housing and the tamper plate are secured with two **protection bolts** which avoid damage to the hydraulic compactor.

3.2 Function

The hydraulic compactor compacts hard core (granulate material), clay soil and organic soils. The impact force is transferred to the ground by means of the tamper plate working at a high frequency. Any enclosed water and air are pressed out to compact the ground.

Its construction enables the hydraulic compactor to be used in trenches and on slopes where roll-type compactors cannot be used.

The impact force of the hydraulic compactor can also be used to drive sheeting, supports or uprights into the ground.

Hydraulic compactors HC 350 to HC 1050 can be rotated endlessly if they are fitted with rotating mechanisms (optionally available).

The carrier driver activates the carrier function **»Turn«**. Oil is supplied to the hydraulic motor of the rotating mechanism, causing the hydraulic compactor to turn.

The endless rotation is enabled by a rotary transmission.

3.3 Signs / labels

⚠ WARNING Missing warnings

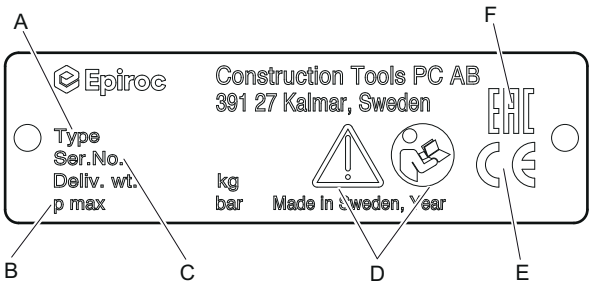
The name plate and the labels on the hydraulic attachment contain important information about the hydraulic attachment and for personal safety. A missing warning can lead to overlooking or misinterpretation of possible risks and cause personal hazards. The signs and labels must always be clearly legible.

- ▶ Immediately replace any defective name plates and labels.
- ▶ Use the spare parts list to order new name plates and labels.

3.3.1 Labels

Back pressure label

3.3.2 Data plate



A. Machine type
B. Maximum hydraulic oil pressure
C. Serial number
D. The warning symbol together with the book symbol means that the user must read the safety and operating instructions before the machine is used for the first time.
E. The CE symbol means that the machine is EC-approved. See the EC Declaration of Conformity which is delivered with the machine for more information.
F. The EAC symbol means that the machine is EAC approved.

3.4 Applications

- Hollow, soil and slope compression
- Driving in formwork, sheet pile profiles, posts, etc.
- Pulling out formwork, sheet pile profiles, posts, etc.

3.5 Guarantee

The guarantee or product liability will be invalidated by the following:

- Use other than intended
- Maintenance work not being carried out or being carried out incorrectly
- The use of incorrect consumables
- The use of non-approved parts
- Damage due to wear
- Damage due to improper storage
- Changes not carried out by or in consultation with the manufacturer

3.6 Removing the packaging

- Remove all the packaging material.
- Dispose of it in accordance with the applicable provisions.
- Check that the delivery is complete.
- Check the delivery for visual damage.
- If any defects are found, consult the Epiroc Customer Center / dealer in your area.

3.7 Scope of delivery

The hydraulic compactor is delivered complete with:

- Hydraulic compactor
- Safety and Operating Instructions
- EC Declaration of Conformity

Accessories as ordered:

- Hoses

Special accessories as ordered:

- e.g. rotating mechanism with adapter kit and fastening screws
- e.g. adapter plate with Allen screws and pairs of lock washers
- e.g. base plate to construct an adapter plate with Allen screws and pairs of lock washers
- e.g. bump key to tighten the Allen screws of the adapter plate
- e.g. hydraulic fittings for the carrier

4 Transport

⚠ WARNING Hoist tipping over / hydraulic attachment falling

The hydraulic attachment is heavy. The hoist/lifting equipment and/or hydraulic attachment tipping over or falling may cause serious injury and material damage.

- ▶ Only transport the hydraulic attachment with lifting equipment with the right load-bearing capacity for the weight of the hydraulic attachment.
- ▶ Only lift and secure the hydraulic attachment with lifting gear (ropes, chains, shackles etc.) with the right load-bearing capacity for the weight to be lifted.
- ▶ Make sure that there is nobody near or under the suspended hydraulic attachment.

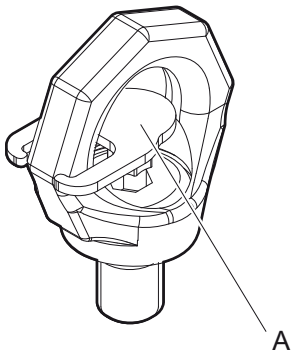
- For transporting use only the adjustable eyebolts with star profile keys (see table) as lifting lugs. Standard eyebolts (DIN 580) are not permissible.

Model	Weight[1] [kg] (lbs)	Adjustable eyebolt/ RUD[2]	Max. load weight [kg] (lbs)
HC 350	286 (631)	VRS-F-M12	750 (1654)
HC 450	400 (882)	VRS-F-M12	750 (1654)
HC 850	828 (1825)	VRS-F-M16	1500 (3307)
HC 1050	1044 (2302)	VRS-F-M16	1500 (3307)

[1] Hydraulic compactor without adapter plate
[2] For more information and ordering visit supplier's web page: http://www.rud.com

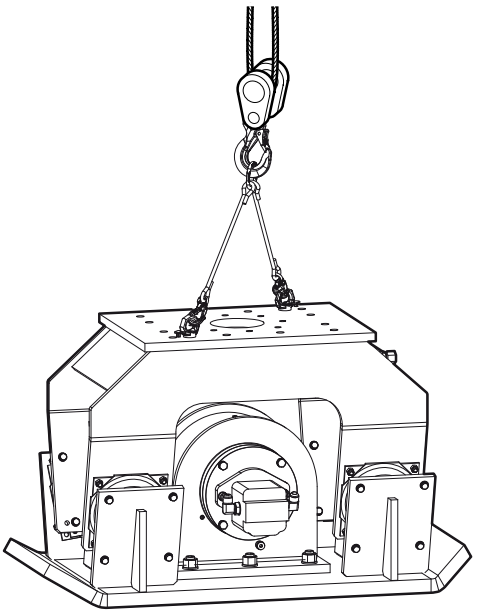
4.1 Transport using a crane

Adjustable eyebolt



A. Star profile key

- Engage the star profile key in the hexagonal socket screw.
- Screw in the two adjustable eyebolts by hand diagonally to the connecting plate of the outer housing.
- Disengage the star profile key again before attaching the lifting gear. When firmly screwed in with the star profile key disengaged, the ring body must be able to rotate by 360°.
- Set the ring bodies in the direction of force, before attaching the lifting gear. The adjustable eyebolts are not designed for turning under load.
- Note the weight (see table).
- Attach ropes or chains to the adjustable eyebolts as shown in the following illustration.



- Slowly lift the hydraulic attachment.
- Deposit the hydraulic attachment on level ground.
- After transporting, re-engage the star profile key in the hexagonal socket screw.
- Unscrew the adjustable eyebolts again.
- Store the adjustable eyebolts in a safe place.

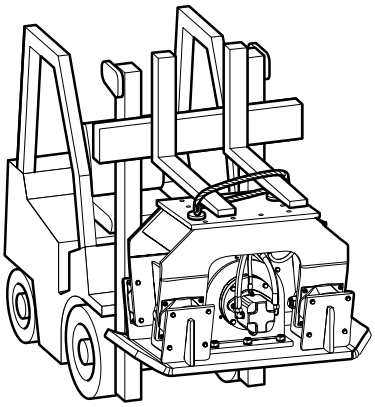
4.2 Transport using a forklift truck

⚠ WARNING Hydraulic attachment tipping over

The hydraulic attachment tipping off the fork of the forklift truck or the pallet may cause serious injury.

- ▶ Do not transport the hydraulic attachment lying on the fork of the forklift truck.
- ▶ Use a rope to hang the hydraulic attachment from the fork of the forklift truck.

- Screw in two adjustable eyebolts diagonally to the connecting plate of the outer housing (see chapter **Transport using a crane**).
- Attach ropes or chains to the eyebolts as shown in the following illustration.



- Hang the rope/chain from the fork of the forklift truck.
- Slowly lift the fork until the hydraulic tool is free from the ground.
- Transport the hydraulic attachment to its intended destination.
- Deposit the hydraulic attachment on level ground.

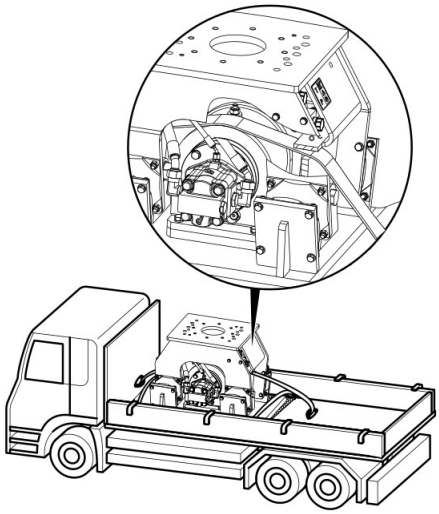
4.3 Transport using a truck

⚠ WARNING Hydraulic attachment tipping over / slipping

The hydraulic attachment slipping or tipping over and falling from the loading area of a lorry may cause serious injury.

- ▶ Place the hydraulic attachment on an anti-slip mat.
- ▶ Secure the hydraulic attachment to the loading area with ropes or chains; use any available transport lugs.

- Secure the hydraulic attachment to the loading area as shown in the following illustration.
- Observe all the applicable national/regional regulations on securing loads.



5 Installation

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. If hydraulic connections come loose or are disconnected, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

▶ Depressurise the hydraulic system before connecting or disconnecting the hydraulic circuits of the hydraulic attachment (see chapter **Depressurising the hydraulic system**).

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

▶ Collect any hydraulic oil which escapes.

▶ Dispose of it in accordance with the applicable environmental regulations.

5.1 Media/consumables

The following consumables are used when operating the hydraulic attachment:

5.1.1 Mineral hydraulic oil

All hydraulic oil brands prescribed by the carrier manufacturer are also suitable for use when operating the hydraulic attachment.

However, the oil should comply with viscosity class HLP 32 or higher.

In summer and in hot climates, oils of viscosity class HLP 68 or higher should be used.

In all other respects the regulations of the carrier manufacturer are to be taken into consideration.

Optimum viscosity range	= 30 - 60 cSt
Max. start viscosity	= 2000 cSt
Max. oil temperature	= 80 °C

Special conditions apply to using the hydraulic attachment at low temperatures (see chapter **Low ambient temperature**).

- Check the oil filter!

  An oil filter must be integrated in the tank line of the hydraulic system. The maximum mesh width allowed for the oil filter is 50 microns; it must have a magnetic separator.

5.1.2 Non-mineral hydraulic oil

NOTICE Mixed hydraulic oil

Never mix mineral and non-mineral hydraulic oils! Even small traces of mineral oil mixed in with non-mineral oil can result in damage to both the hydraulic attachment and the carrier. Non-mineral oil loses its biodegradability.

▶ Only use one type of hydraulic oil.

If you are using non-mineral oil it is imperative that the name of the oil in use be indicated when returning the hydraulic attachment for repair.

In order to protect the environment or on technical grounds, hydraulic oils are currently being used which are not classified as HLP mineral oils.

Before using hydraulic oils of this kind it is imperative to ask the carrier manufacturer whether operations with such fluids are possible.

Our hydraulic attachments are basically designed for use with mineral oils. Consult the Epiroc Customer Center / Dealer in your area before using other hydraulic oils approved by the carrier manufacturer. Following initial assembly and after any workshop repairs, our hydraulic attachments are subjected to a test run on a test bed powered by **mineral oil**.

5.1.3 Lubrication oil

- When handling oils observe the safety instructions that apply to these products.
- Replace the oil in the PermanentLube system by engine oil SAE classification 15W-40 (Shell Rimula R4L 15W40).

5.2 Installing the protection bolts

The housing and the tamper plate are secured with two **protection bolts** which avoid damage to the hydraulic compactor.

NOTICE Damage to the hydraulic compactor

Working without the protection bolts may cause damage to the hydraulic compactor.

Pressing the hydraulic compactor too hard on the ground will lead to damage on the outer housing, the hoses and the rubber isolators.

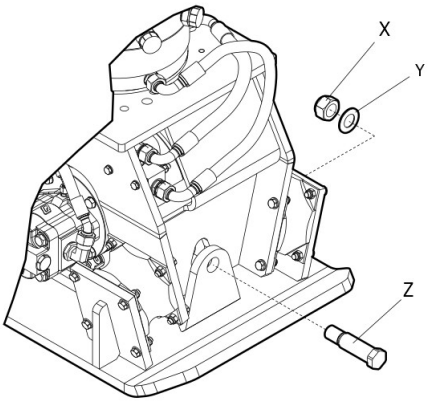
A vacuum can form between tamper plate and the ground. During operation the vacuum will damage the rubber isolators.

▶ Before operation mount the protections bolts at both sides of the hydraulic compactor.

Protection bolts, washers and lock nuts are enclosed.

We strongly recommend to mount the protection bolts before using the hydraulic compactor.

Note: Working with mounted protection bolts could cause some noise. This is not precarious.



- Mount the protection bolts (Z) on both sides of the hydraulic compactor.
- Fix the protection bolts with the enclosed washers (Y) and lock nuts (X).
- Screw handtight.

5.3 Installing the rotating mechanism

Hydraulic compactors HC 350 to HC 1050 can be fitted with a rotating mechanism. Install the rotating mechanism in a workshop.

Note: Before attaching the rotation mechanism check that the additional weight does not exceed the load-bearing capacity of your carrier.

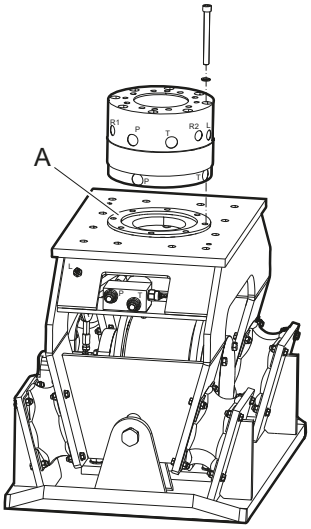
- Unpack the rotating mechanism and all parts enclosed with the delivery.
- Remove all the packaging material.
- Separate the packaging materials (wood, metal, plastic, …) and hand them in for recycling.
- Check that the delivery is complete.
- Check the delivery for visual damage.
- If any defects are found, consult the Epiroc Customer Center / dealer in your area.
- Remove the hydraulic compactor from the carrier (see chapter **Removing the hydraulic attachment from the carrier**).

⚠ WARNING Hands and fingers being cut off or hurt

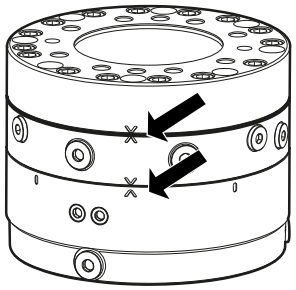
Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

▶ Never use your fingers to check bores or fitting surfaces.

- Place the ring (A) on the outer housing and align the borings.



- Align the rotating mechanism according to the markings to make sure the screws can slide through the rotation mechanism into the holes in the outer housing.

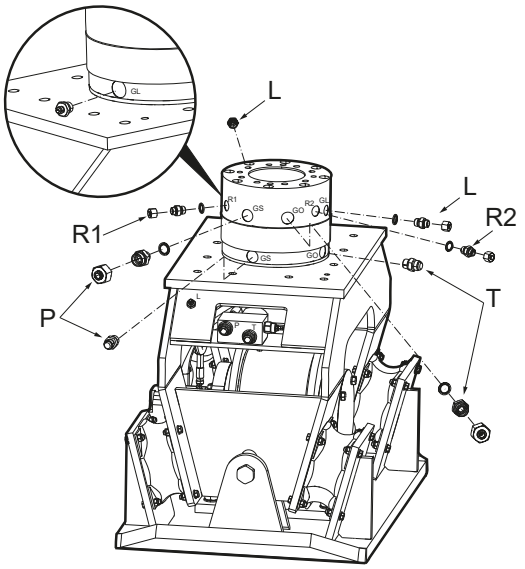


- Align the rotating mechanism so that the connections on hydraulic compactor and on the rotation mechanism point to the same direction.
- Fit a pair of lock washers onto every screw.
- Insert the screws from above through the holes in the rotating mechanism.
- Put a pair of lock washers on every screw.

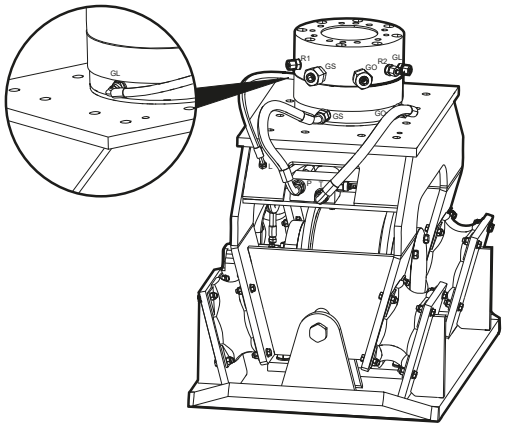
- Tighten the screws with the required tightening torque.

Type	Spanner size	Tightening torque
HC 350	14 / 24 mm (0.55 / 0.95 in.)	295 Nm (218 ft lbs)
HC 450	14 / 24 mm (0.55 / 0.95 in.)	295 Nm (218 ft lbs)
HC 850	14 / 24 mm (0.55 / 0.95 in.)	295 Nm (218 ft lbs)
HC 1050	17 / 30 mm (0.67 / 0.95 in.)	580 Nm (428 ft lbs)

- Screw the connecting fittings **»P«**, **»T«** and **»L«** (Leakage oil hose) and both **»Rotate«** (R1 = anti-clockwise rotation, R2 = clockwise rotation) connecting fittings into the rotating mechanism.



- Install the hoses at the connections **»P«**, **»T«** and **»L«** as shown below.



5.4 Manufacturing the adapter plate

Construction Tools GmbH also supplies base plates to manufacture adapter plates alternatively to the adapter plates supplied.

NOTICE Adapter plate cracking

The adapter plate may crack if it is not designed for the high load.

▶ Take not only the weight of the hydraulic attachment but also the crowd force of the carrier, possible vibration etc. into account when dimensioning the adapter plate.

▶ Ensure that the design conforms to the state of the art.

▶ Have the web plates welded to the adapter plate base plate by a qualified welding specialist.

The base plate is made of the material EN10025-S355 J2G3.

- Have the web plates designed and manufactured or procure web plates to fit your carrier.
- Ensure that the web plates are welded to the base plate side marked "TOP".

The adapter plate must not strike in any position during operation of the hydraulic attachment.

Construction Tools GmbH does not design, manufacture or sell web plates for adapter plates.

5.5 Installing the adapter plate

NOTICE The adapter plate can come loose

The adapter plate can come loose if the fastening screws are not designed for local high loads.

▶ Only use the Allen screws of strength category 8.8 and the pairs of lock washers included in the delivery to attach the adapter plate or the base plate.

⚠ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

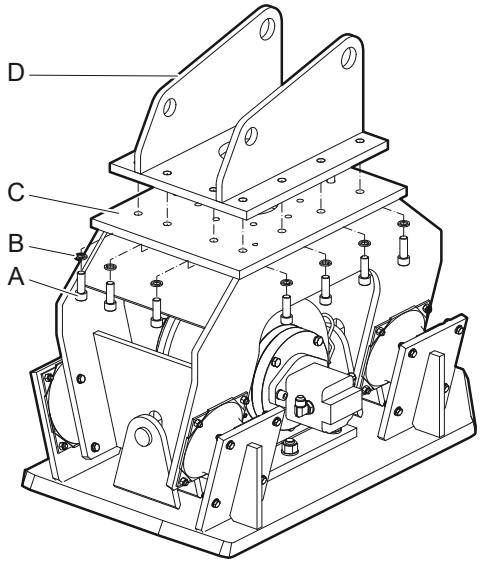
▶ Never use your fingers to check bores or fitting surfaces.

- Place the hydraulic compactor within the range of the carrier.
- Apply anti-seize compound to the Allen screw threads (A) before inserting them.

The contact faces of the screw head and the lock washers (B) must not be lubricated.

without a rotating mechanism:

- Install the adapter plate (D) to the compactor (C) as shown.



- Fit a pair of lock washers (B) onto every screw (A).
- Tighten the Allen screws (A) with an Allen key.
- Tighten the Allen screws (A) with the required tightening torque.

Type	Spanner size	Tightening torque
HC 350	17 mm (0.67 in.)	410 Nm (302 ft lbs)
HC 450	17 mm (0.67 in.)	410 Nm (302 ft lbs)
HC 850	17 mm (0.67 in.)	410 Nm (302 ft lbs)
HC 1050	22 mm (0.87 in.)	1500 Nm (1106 ft lbs)

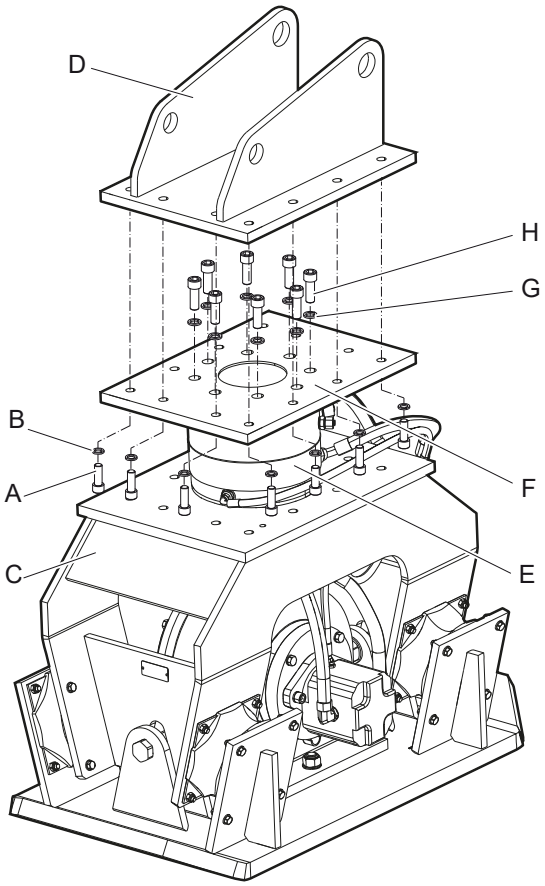
with a rotating mechanism:

Note: The plate (F) is an optional part.

HC 350, HC 450	30 kg (66 lbs)
HC 850	80 kg (176 lbs)
HC 1050	110 kg (243 lbs)

If you don't want to install it you can alternatively prepare your adapter plate with the required borings. A drawing of the hole pattern is supplied with the rotation unit.

- Install the plate (F) on the rotating mechanism (E) as shown.



- Fit a pair of lock washers (G) onto every screw (H).
- Tighten the Allen screws (H) with an Allen key.
- Tighten the Allen screws (H) with the required tightening torque.

Type	Spanner size	Tightening torque
HC 350	14 mm (0.55 in.)	219 Nm (162 ft lbs)
HC 450	14 mm (0.55 in.)	219 Nm (162 ft lbs)
HC 850	14 mm (0.55 in.)	219 Nm (162 ft lbs)
HC 1050	17 mm (0.67 in.)	410 Nm (302 ft lbs)

- Place the adapter plate (D) onto the plate (F) as shown.
- Fit a pair of lock washers (B) onto every screw (A).
- Tighten the Allen screws (A) with an Allen key.
- Tighten the Allen screws (A) with the required tightening torque.

Type	Spanner size	Tightening torque
HC 350	17 mm (0.67 in.)	410 Nm (302 ft lbs)
HC 450	17 mm (0.67 in.)	410 Nm (302 ft lbs)

Type	Spanner size	Tightening torque
HC 850	17 mm (0.67 in.)	410 Nm (302 ft lbs)
HC 1050	22 mm (0.87 in.)	1500 Nm (1106 ft lbs)

5.6 Attaching the hydraulic attachment to the carrier

5.6.1 Mechanical mounting aspects

You need an assistant to attach the hydraulic attachment to the carrier.

- Agree on hand signals with your assistant, to enable him to help you place the carrier in the proper position to attach the hydraulic attachment.
- Lower the stick of the carrier into the holder provided on the adapter plate.

⚠ WARNING Injury by impacts

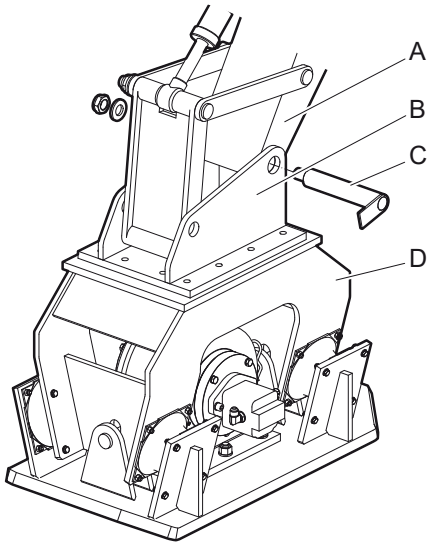
A sudden movement of the carrier may cause your assistant to be hit and injured by the boom or the hydraulic attachment.

- ▶ Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.
- ▶ Always keep sight of your assistant.

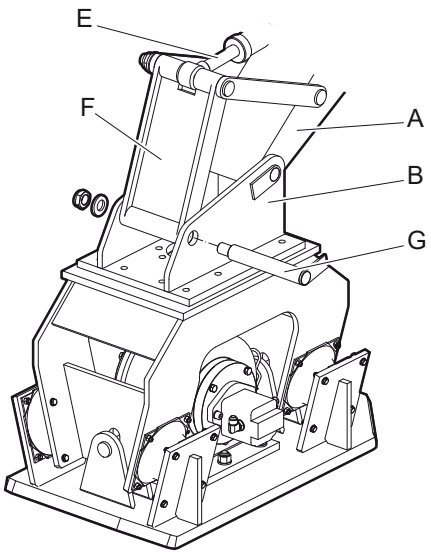
⚠ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

- ▶ Never use your fingers to check bores or fitting surfaces.
- Let your assistant instruct you until the bores in the adapter plate (B) and in the stick (A) are properly aligned.
- Install the stick bolt (C) and lock it.



- Lift the hydraulic attachment (D).



- Extend the bucket cylinder (E) until the bore in the linkage (F) aligns with the bore in the adapter plate (B).
- Install the linkage bolt (G) and lock it.
- Carefully move the bucket cylinder (E) into both end positions.

The adapter plate must not be stopped by the mechanical stops in either position. Consult the Epiroc Customer Center / Dealer in your area if the adapter plate is stopped by a mechanical stop.

5.6.2 First installation

⚠ WARNING Risk of death due to defective first installation

Faults during the first installation or commissioning can lead to life-threatening situations and may cause considerable damage to property.

- ▶ Have the first installation exclusively conducted by authorised specialist personnel.
- ▶ Do not undertake unauthorised first installation.

⚠ WARNING Unexpected movement

Sudden movements of the carrier may cause serious injury.

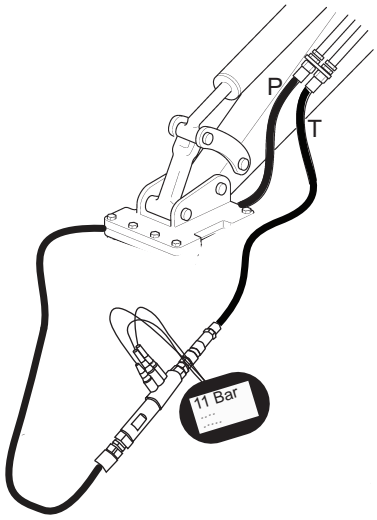
- ▶ Secure the carrier such that it cannot move unexpectedly.
- ▶ Observe the carrier manufacturer's instructions.

NOTICE Damage due to incorrect oil pressure setting

Incorrect oil pressure setting can result in severe damage to property and the environment.

- ▶ Before installing the hydraulic attachment to the carrier check the oil pressure setting of pressure line **»P«** with a hydraulic flow tester.
- ▶ Check the tank/return line pressure with an additional manometer mounted between hydraulic flow tester and tank line **»T«**.
- ▶ Ensure the technical specifications are fulfilled (see chapter **Technical specifications**).

1. Use a suitable gauge to measure the pressure and flow between **»P«** and **»T«**



2. Check to max pressure (see chapter **Technical specifications**).
3. If the back-pressure is lower than the allowed 14 bar, no actions has to be taken. The operator can install the compactor and use it.

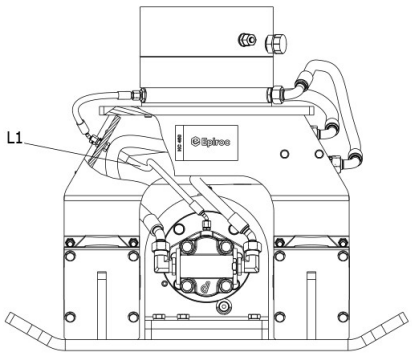
If the back-pressure exceeds the allowed pressure 14 bar there are two options:

A. Arrange a separate return-line on the carrier that goes directly to the tank. The internal diameter shall be according to technical specifications. Check again that the back-pressure is less than the allowed 14 bar. Then go ahead with the installation-
B. Arrange a separate leakage oil-line according to chapter **Install separate leakage oil line**.

> ! ***NOTE:*** *An internal leakage hose must also be installed inside the compactor. The leakage hose can be ordered as an accessory from Epiroc.*

5.6.3 Install separate leakage oil line

Leakage oil line inside the compactor



- ■ Install the leakage oli line **»L1«** as shown inside the compactor.

Leakage oil line from the shut-off valve to the tank

The separate leakage oil line including separate leakage oil filter must be installed from the shut-off valve on the boom to the carrier's hydraulic oil tank. The operator must pre-install a suitable connection on the carrier's hydraulic oil tank for the leakage oil line.

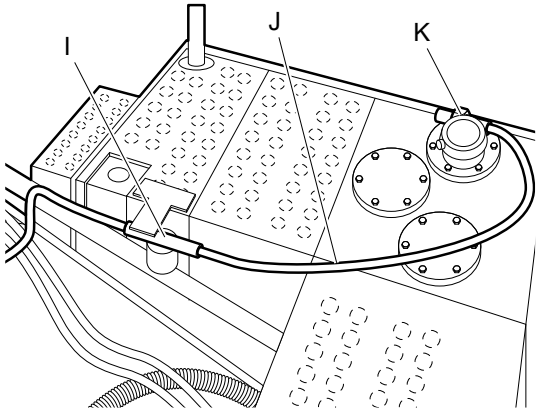
NOTICE Damage due to incorrect installed hydraulic hoses

Incorrectly installed hydraulic hoses can result in severe damage to property and the environment. The maximum pressure of the leakage oil line is 10 bar.

- ▶ Install hydraulic hoses such that they always possess sufficient play for turning and rotating motions of the boom.
- ▶ Always check the leakage oil line pressure when mounting the hydraulic attachment to a carrier.

- ■ Install a separate leakage oil line along the hydraulic hoses on the boom and secure with cable ties.

- ■ Install the separate leakage oil line (J) with leakage oil filter (I) to the connection on the carrier's hydraulic oil tank (K).



  Follow the safety and operating instructions of the carrier when connecting the leakage oil line to the hydraulic oil tank.

- ■ Attach the leakage oil line to the pre-installed connection on the hydraulic oil tank and tighten with the required tightening torque.

- ■ Install the leakage oil filter at an appropriate location on the carrier.

5.6.4 Making the hydraulic connections

⚠ WARNING Whipping hydraulic hose

Hydraulic hoses under pressure can whip uncontrollably if screws loosen or are loosened. A whipping hydraulic hose can cause severe injuries.

- ▶ Depressurize the hydraulic system before loosening the connection of a hydraulic hose.
- ▶ Tighten the nuts on the connections of the hydraulic hoses to the required torque.

NOTICE Faulty hydraulic installation

The carrier must have a suitable hydraulic installation to operate the hydraulic attachment. Improperly installed lines and incorrectly rated sizes may cause the oil to heat up and the hydraulic attachment to be damaged.

- ▶ Only use hydraulic lines of the rated sizes as instructed (see chapter **Technical Specifications**).
- ▶ Check the rated size of the hydraulic lines on existing hydraulic installations! All supply and return lines for the hydraulic oil must have a sufficient inside diameter and wall thickness.
- ▶ Route all hydraulic hoses in a torsion-free manner.

- ■ Switch off the carrier.

- ■ Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.

- ■ Close all shut-off valves in the installation at the boom, if no quick couplings are used.

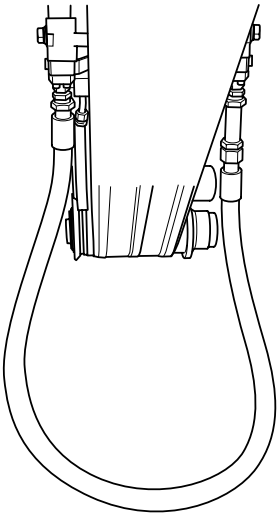
NOTICE Total damage to the hydraulic attachment

Polluted hydraulic lines and connections may enable sand, fragments of material and dirt to penetrate the hydraulic attachment and damage it completely.

- ▶ Clean the hydraulic lines and connections before connecting the hydraulic hoses. Lay all hydraulic hoses so that they are torsion-free.

- ■ Install the pressure and tank hoses.

- ■ Connect the pressure and tank hoses.



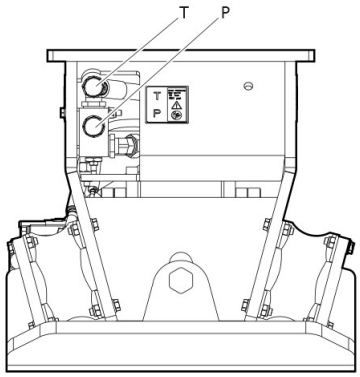
- ■ If no quick couplings are used, open the shut-off valves in the installation at the boom.

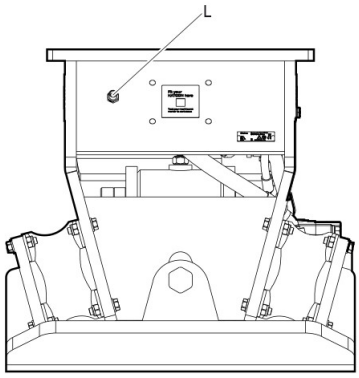
- ■ Switch on the carrier.

- Let the hydraulic oil run through the carrier oil filter for approx. three minutes to make sure that the hoses are clean.
- Switch off the carrier.
- Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.
- If no quick couplings are used, close all shut-off valves in the installation at the boom.
- Disconnect the pressure and tank hoses.
- Remove the screw covers from the ports »P« and »T« and save them for future use.
- Make sure that the connections to the hydraulic compactor and/or the carrier are not damaged.
- Replace any damaged connections.

without a rotating mechanism

- Connect the pressure hose to port **»P«**, making sure it is torsion-free.
- Connect the tank hose to port **»T«**, making sure it is torsion-free.

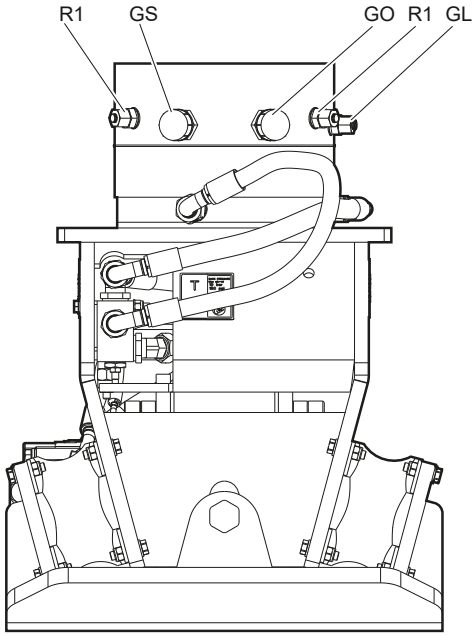




- Connect the leakage oil hose to port **»L«**, making sure it is torsion-free.

with a rotating mechanism

- Connect the pressure hose to connection **»GS«** of the rotating mechanism motor, making sure it is torsion-free.
- Connect the tank hose to connection **»GO«** of the rotating mechanism motor, making sure it is torsion-free.



- Connect the leakage oil hose to port **»GL«**, making sure it is torsion-free.
- Remove the cap nuts and plugs from the **»Rotate«** connections and save them for future use. (R1 = anticlockwise rotation, R2 = clockwise rotation).
- Connect the hoses to the connections of the **»Rotate«** function.
- Connect both hoses for the **»Rotate«** function, making sure they are torsion-free.

all models:

- Tighten the connections with the right tightening torques (see section **Screw connections / Torques**).
- Lift the hydraulic attachment a bit and move it. Check the positions of the hydraulic hoses.

If the hydraulic hoses are too long, they may get stuck; if they are too short they may affect the manoeuvrability of the hydraulic attachment.

- Replace any hydraulic hoses which are not of the right length.

5.7 Removing the hydraulic attachment from the carrier

- Place the hydraulic attachment on timber support blocks.

5.7.1 Dismantling the hydraulic connections

⚠ WARNING Unexpected movement

Sudden movements of the carrier may cause serious injury.

- ▶ Secure the carrier such that it cannot move unexpectedly.
- ▶ Observe the carrier manufacturer's instructions.

⚠ WARNING Hydraulic hose flailing about

Pressurised hydraulic hoses will flail about when bolted connections have come loose or have been loosened. A hydraulic hose flailing about may cause serious injuries.

- ▶ Depressurise the hydraulic system before disconnecting a hydraulic hose (see chapter **Depressurising the hydraulic system**).

⚠ WARNING Hot parts

Parts of the hydraulic compactor, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.
- Close all shut-off valves in the installation at the boom if no quick couplings are used.
- Disconnect the hose lines to and from the hydraulic attachment at the boom side.
- Close off all open hose ends.

5.7.2 Mechanical disassembly

- You need an assistant to remove the hydraulic attachment.
- Agree on hand signals with your assistant, to enable him to help you move the boom.

⚠ WARNING Injury by impacts

A sudden movement of the carrier may cause your assistant to be hit and injured by the boom or the hydraulic attachment.

- ▶ Only move the boom very slowly and in a controlled manner while an assistant is within the danger zone.
- ▶ Always keep sight of your assistant.

⚠ WARNING Metal chips shooting off

When hammering out bolts, chips may shoot off and cause serious eye injuries.

- ▶ Wear safety glasses when hammering out the bolts.
- Remove the bolt locks from the stick and linkage bolts.
- Drive out the linkage bolt with a steel arbor and a hammer.
- Switch on the carrier.
- Retract the bucket cylinder.
- Drive out the stick bolt with a steel arbor and a hammer.
- Move the carrier stick out of the adapter plate.

5.8 Removing the adapter plate

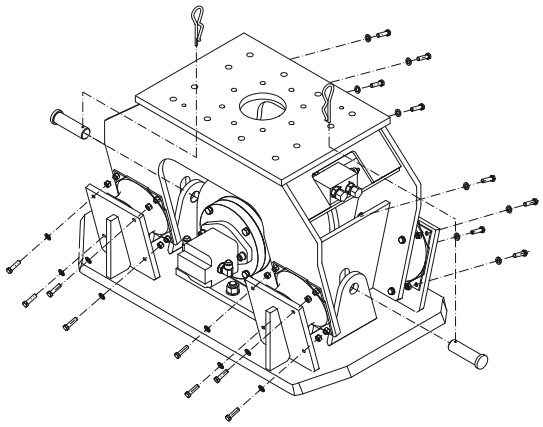
- Loosen the fastening screws of the adapter plate.
- Lift the adapter plate with a suitable lifting equipment and put it down on timber support blocks.
- Save the fastening screws and the pairs of lock washers for future use.

5.9 Removing the rotating mechanism

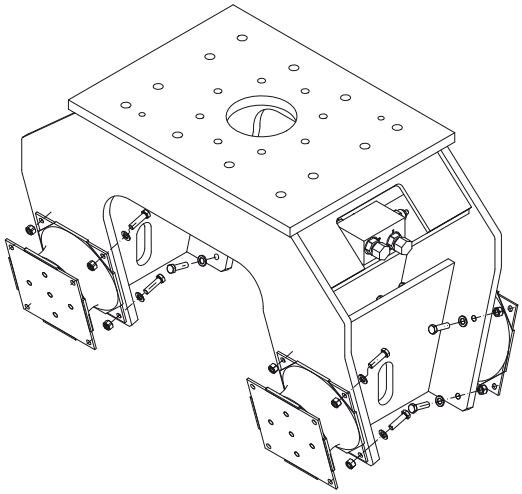
The rotating mechanism is removed in reversed order of installing (see chapter **Installing the rotating mechanism**).

5.10 Replacing worn rubber isolators

- Disconnect the hydraulic hoses between the motor and the valve block from the hydraulic motor.



- Loosen the nuts from the rubber isolator plates screws.
- Remove the screws from the rubber isolators.
- Lift away the outer housing with rubber isolators still fitted.



- Loosen the nuts from the outer housing screws.
- Remove the screws.
- Replace any worn rubber isolators.
- Fit a new lock nut onto each screw.
- Insert the screws through the rubber buffer and outer bracket holes.
- Secure the screws with the nuts.
- Tighten the nuts with the right tightening torques (see chapter **Screw connections / Tightening torques**).
- Fit the rubber isolators.
- Fit a new lock nut and a washer onto each screw.
- Insert the screws through the rubber isolator plates holes.
- Secure the screws with the nuts.
- Tighten the nuts with the right tightening torques (see chapter **Screw connections / Tightening torques**).
- Reconnect the hydraulic hoses between the motor and the valve block to the hydraulic motor.

6 Operation

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. If hydraulic connections come loose, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

⚠ WARNING Hot parts

Parts of the hydraulic compactor, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any hydraulic oil which escapes.
- ▶ Dispose of it in accordance with the applicable environmental regulations.

NOTICE Hydraulic oil too hot

The temperature of the hydraulic oil must not exceed 80 °C (176 °F). Higher temperature will damage the seals of the hydraulic parts.

- ▶ Monitor the oil temperature.
- ▶ Shut off the hydraulic attachment and the carrier if you measure an increased temperature in the tank.
- ▶ Check the hydraulic installation and the pressure relief valve.

⚠ WARNING Risk of explosion

If the hydraulic attachment is equipped with HATCON explosion may occur when the contained lithium batteries are penetrated by pieces of steel or reinforcing bars.

- ▶ Avoid impact of reinforcement, flying rocks or even explosives on HATCON.
- ▶ Check the HATCON before operating.

6.1 Preparations before starting

⚠ WARNING Falling carrier

A carrier falling or tipping over due to the surface not being level may cause serious injury and material damage.

- ▶ Always observe great care when moving the carrier.
- ▶ Do not use the hydraulic attachment until the carrier is positioned stably.

⚠ WARNING Fragments flying around

Fragments of material which come loose while operating the hydraulic attachment may be flung away and can cause serious injury if people are hit by them. Small objects falling from a great height can also cause serious damage.

During hydraulic attachment operation the danger zone is considerably greater than during the excavation operation due to fragments of stone and pieces of steel flying around, and for this reason the danger zone must, depending on the type of material to be worked on, be enlarged correspondingly, or secured in a suitable manner through corresponding measures.

- ▶ Secure the danger zone.
- ▶ Stop the hydraulic attachment immediately if anyone enters the danger zone.
- ▶ Close the windscreen and the side windows of the driver's cab.

⚠ DANGER Explosion and fire

Explosions cause serious injury or death. If the hydraulic compactor damages an underground gas pipe, this may lead to an explosion.

- ▶ Never operate the hydraulic compactor in the direct vicinity of gas pipes.
- ▶ Check gas line position plans of the complete construction area.

NOTICE Damage to underground cables or pipes

The hydraulic compactor can cause damage to underground cables or water mains.

- ▶ Obtain information on the locations of any underground cables or mains.

■ Before starting the hydraulic attachment, ensure that

- the hydraulic attachment and adapter plate do not have any cracks,
- and none of the hydraulic line connections leak.

The preparations required prior to starting the hydraulic attachment depend on the ambient temperature:

- Ambient temperature below 20 °C (68 °F) (see chapter **Low ambient temperature**).

- Ambient temperature above 30 °C (86 °F) (see chapter **High ambient temperature**).

The oil temperature in the hydraulic attachment must be between 0 °C (32 °F) and +80 °C (176 °F) during operation.

The full capacity of the hydraulic attachment can be achieved when the oil temperature is approx. 60 °C (140 °F).

- Make sure that there are no people in the danger zone.
- Start the carrier as instructed by the carrier manufacturer.
- Let the carrier warm up until the operating temperature prescribed by the carrier manufacturer has been reached.
- Put the carrier in its working position.

NOTICE Damage to the hydraulic compactor

Working without the protection bolts may cause damage to the hydraulic compactor.

Pressing the hydraulic compactor too hard on the ground will lead to damage on the outer housing, the hoses and the rubber isolators.

A vacuum can form between tamper plate and the ground. During operation the vacuum will damage the rubber isolators.

▶ Before operation mount the protections bolts at both sides of the hydraulic compactor.
Protection bolts, washers and lock nuts are enclosed.

6.2 Switching the hydraulic attachment on and off

After properly attaching the hydraulic attachment to the carrier, the hydraulic attachment can be operated using the carrier's hydraulic system. All functions for normal carrier operation remain intact.

The hydraulic attachment is switched on and off using electrical and hydraulic signals.If you have any questions about electric/hydraulic commands, consult the carrier manufacturer and/or the Epiroc Customer Center / Dealer in your area.

- Switch the hydraulic attachment on and off, as described in the carrier's operating instructions.
- When leaving the driver's cab, set the safety switch/ lever for the electrical/hydraulic attachment installation to the "OFF" position.
Carry out the above actions to prevent any unintended start-up of the hydraulic attachment.

6.3 Functional test

Always carry out a functional test before putting the hydraulic attachment into use to check that all hydraulic lines and connections are tight and that the hydraulic attachment works without any problems.

- Position the hydraulic attachment on the ground.
- Briefly switch on the hydraulic attachment and exert light pressure on it.
- Check the hydraulic lines and make sure that the hydraulic attachment works without any problems.

with a rotating mechanism:

- Switch off the tamper plate.
- Using the carrier boom function, raise the hydraulic attachment so that it is suspended in a vertical direction.
- Rotate the hydraulic attachment in clockwise and anticlockwise directions using the connected carrier function **»Rotate«**.

all models:

- Immediately switch off the hydraulic attachment if oil escapes from the hydraulic lines or if other function defects occur.
- Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- Only use the hydraulic attachment again after having repaired all leaks and functional defects.

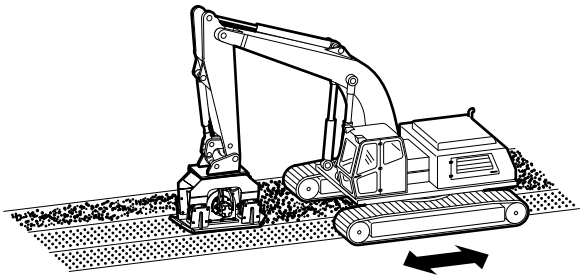
6.4 Correct operation

6.4.1 Compacting

Water and air are pressed out of the material to be compacted during the compaction action. The degree to which a material can be compacted mainly depends on the following characteristics:

- Form and size: e.g. grit of a uniform size cannot be compacted like hard core of different shapes and sizes

- Water content
- Depth of the layer to be compacted:the compaction result can be increased if the layer height is less

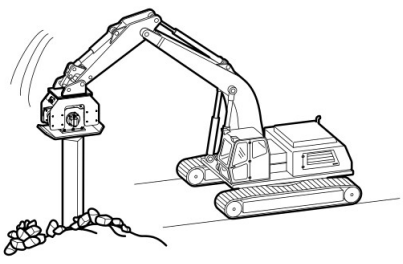


- Place the hydraulic compactor on the ground.
- Make sure that the entire tamper plate makes contact with the ground.
- Switch on the hydraulic compactor.
- Exert slight pressure on the hydraulic compactor and move it slowly along a straight line.

The ground/soil is compacted by the frequency of the tamper plate. Exerting excessive pressure with the carrier does not improve the working result.

- Switch off the hydraulic compactor, lift it and put it back on the ground elsewhere to compact the next section.
- Try the compactor on a short test distance to determine the suitable layer depth and to find out how long the hydraulic compactor has to work on any single point to achieve the compaction required.
- If necessary, recompact a section that you have already worked on.

6.4.2 Driving something into the ground



- Check that the tamper plate makes contact with any sheeting or post that has to be driven into the ground.
- Switch on the hydraulic compactor.
- Exert slight pressure on the hydraulic compactor and have it impact the sheeting or post a couple of times.
- Switch off the hydraulic compactor, lift it and put it back on the ground elsewhere.

6.4.3 High ambient temperature

- Only use hydraulic oils of sufficient viscosity.

  In summer and in tropical climates, the minimum requirement is a hydraulic oil of type HLP 68.

6.4.4 Low ambient temperature

Ambient temperature below -20 °C (-4 °F):

You must heat up the hydraulic attachment and the carrier when working in ambient temperatures of below -20 °C (-4 °F).

Preferably park the carrier and the hydraulic attachment in a heated, sheltered space while not using it.

NOTICE Hydraulic oil too cold

Operating the hydraulic attachment while hydraulic oil is still cold will damage the seals of the hydraulic parts.

▶ Do not operate the hydraulic attachment until the temperature of the hydraulic oil it at least 0 °C (32 °F).

- Start the carrier as instructed by the carrier manufacturer.
- Let the carrier warm up until the operating temperature required by the manufacturer has been reached.
- Lift the hydraulic attachment using the boom function so that it hangs vertically.
- Close, open and turn the hydraulic attachment during the carrier warming-up phase.

NOTICE Damage to hydraulic parts

Hot hydraulic oil causes damage to subcooled hydraulic attachments.

▶ Do not fill the hydraulic system with hot hydraulic oil.

The temperature of the hydraulic oil of the carrier must be at least 0 °C (32 °F).

- Start the hydraulic attachment, once the temperature has reached 0 °C (32 °F).

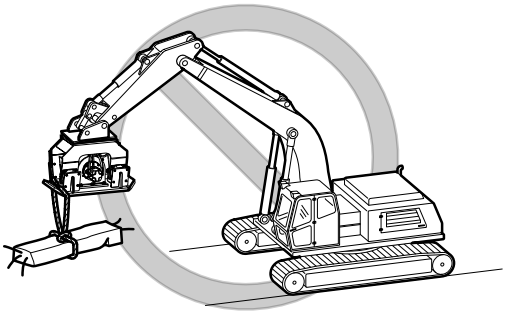
- During operations, leave the carrier engine and pumps running even during breaks.

6.5 Prohibited operation

6.5.1 Lifting/Transporting

- Never use the hydraulic attachment to lift or transport loads.

  The hydraulic attachment was not constructed to lift or transport loads. This would damage the hydraulic attachment.

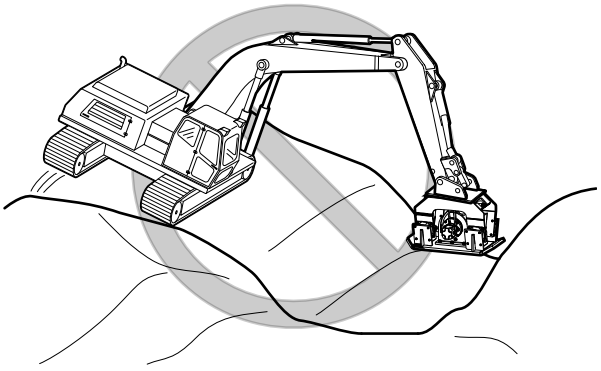


6.5.2 Unsafe base

⚠ WARNING Danger of tipping

The carrier can topple over and cause injuries and damage.

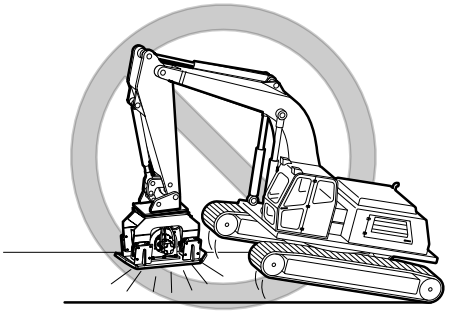
▶ Only work with the hydraulic attachment when the carrier is on a safe base.



6.5.3 Moving the carrier

- Never relocate the carrier sideways by placing the hydraulic attachment on the ground to lift the carrier.

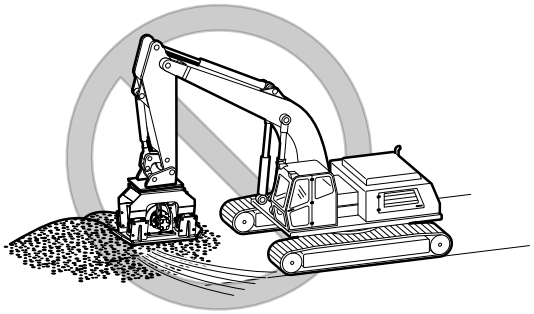
  This would seriously damage the hydraulic attachment.



6.5.4 Moving objects

- Never use the hydraulic compactor to move rocks, sand or hard core material aside!

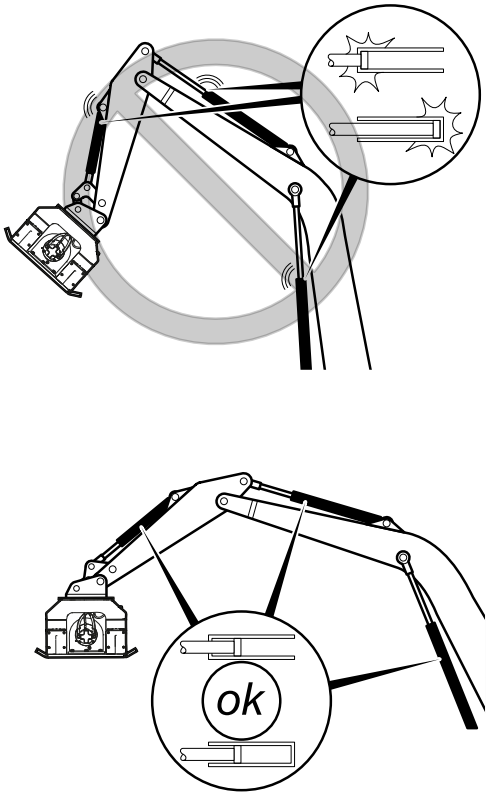
  This would damage the hydraulic compactor.



6.5.5 Cylinder end positions

- Reposition the carrier to avoid working with the cylinder in its end positions.

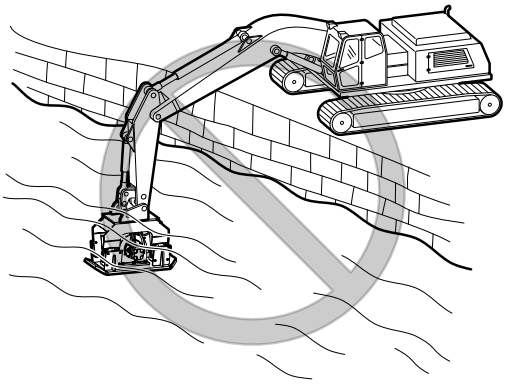
  Avoid operating the hydraulic attachment when the carrier stick and bucket cylinder are in one of their end positions. These end positions have damping facilities; the hydraulic cylinder may be damaged by prolonged use while in its end positions.



6.5.6 Use under water

- Never use the hydraulic attachment under water.

  This would seriously damage the hydraulic attachment and may damage the whole hydraulic installation.



7 Maintenance

The maintenance activities are carried out by the carrier driver.

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. If hydraulic connections come loose, hydraulic oil will squirt out under high pressure. Hydraulic oil squirting out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. Hydraulic oil escaping out can lead to serious injury.

- ▶ Immediately switch off the hydraulic attachment and the carrier if you detect any leaks in the hydraulic circuits.
- ▶ Do not inspect for possible leaks with your fingers or other parts of the body, but use a piece of cardboard instead, holding it up to the suspected leakage site.
- ▶ Examine the cardboard for traces of liquid.
- ▶ Depressurise the hydraulic system (see chapter **Depressurising the hydraulic system**).
- ▶ Repair any leaks before operating the hydraulic attachment again.

⚠ WARNING Hot parts

Parts of the hydraulic compactor, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

- ▶ Never touch hot parts.
- ▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

⚠ WARNING Accidental start

If the hydraulic attachment is started by accident this may lead to serious injury.

- ▶ Follow the instructions in the Operating Instructions of the carrier to prevent the hydraulic attachment starting by accident.

⚠ WARNING Unexpected movement

Sudden movements of the carrier may cause serious injury.

- ▶ Secure the carrier such that it cannot move unexpectedly.
- ▶ Observe the carrier manufacturer’s instructions.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect any hydraulic oil which escapes.
- ▶ Dispose of it in accordance with the applicable environmental regulations.

7.1 Maintenance schedule

daily	Check the hydraulic lines for leaks Check that the pipe clamps on the carrier are tight Tighten the screw connection to the adapter plate Check the connection to the carrier (bolts, lock pins) Check the rubber isolators for cracks
during and after the first 50 operating hours	Tighten the screw connections every day
weekly	Check the screw connections and tighten as required Check the outer and rotor housings and the adapter plate for cracks
if necessary	Cleaning Replace damaged hoses Check the adapter plate bolts for wear
once a year	Change the oil in the PermanentLube system

7.2 Depressurising the hydraulic system

Even when you have switched off the carrier, a considerable residual pressure can still be present in the hydraulic system.

A residual pressure can still be present in the hydraulic attachment even after you have disconnected the quick-release couplings or closed the shut-off valves.

The hydraulic attachment can only be depressurized using the hydraulic system of the carrier, by allowing hydraulic oil to drain to the tank via the return connection.

Depending on the type of hydraulic attachment, the internal leaks, the oil temperature, the type of hydraulic oil and the design of the hydraulic installation of the carrier, the time required to relieve the pressure can vary.

Observe the following steps in order to depressurise the hydraulic attachment:

1. Ensure that the hydraulic oil in the hydraulic attachment and in the carrier has a temperature of at least 0 °C (32 °F). If necessary, pre-heat it to at least 0 °C (32 °F).
2. The hydraulic attachment must be connected to the hydraulic system of the carrier device, i.e. the hydraulic hoses must be connected up and the respective shut-off valves in the supply pipe and in the connection to the tank must be opened.
3. Place the hydraulic attachment on timber support blocks laying on the ground.
4. Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.
5. You must wait at least another 60 minutes until the pressure has been relieved through leakages.
6. When you have made sure that no more pressure is present in the hydraulic system, you must disconnect the hydraulic connection to the carrier. Close the shut-off valves or disconnect the quick-release couplings, so that no hydraulic oil can flow back from the carrier.

7.3 Cleaning

- Clean the hydraulic compactor if dirt adhering to the tool impedes visual checks of the parts (hoses, rubber isolators etc.).

NOTICE Environmental damage due to polluted water

Hydraulic oil and cutter grease are environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

- ▶ Collect the water used for cleaning if it has been contaminated by hydraulic oil and cutter grease.
- ▶ Dispose of the water in accordance with the applicable regulations to avoid environmental hazards.

7.3.1 Preparations

Hydraulic compactor attached:

- Locate the hydraulic compactor on level ground.
- Secure the carrier such that it cannot move unexpectedly.

Hydraulic compactor not attached:

- Plug up all hydraulic ports.

7.3.2 Procedure

- Use a pressure cleaner to remove dirt from the hydraulic compactor.

7.4 Checking the adapter plate and the outer and rotor housings for cracks and/or wear

- Check the adapter plate and the outer and rotor housings for cracks every week.
- Have rework activities or repairs carried out in time to avoid major damage.
- Consult the Epiroc Customer Center / Dealer in your area.

7.5 Checking the rubber isolators for cracks

- Check the rubber isolators for wear every day.
- Have repairs carried out in time to avoid major damage.

7.6 Checking hydraulic lines

- Secure the carrier such that it cannot move unexpectedly.
- Perform a visual inspection of all lines (pipes and hoses) from the pump to the hydraulic attachment and back to the tank, before starting work.
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter **Bolted connections / tightening torques**).
- Replace damaged pipes and/or hoses.

7.7 Checking bolted connections

- Secure the carrier such that it cannot move unexpectedly.
- Check all bolted connections regularly for tight fit (see Chapter **Bolted connections / Tightening torques**).
- Tighten loose bolted connections and hose clamps to the torque required (see Chapter **Bolted connections / Tightening torques**).

7.8 Checking the adapter plate bolts for wear

- Carry out this visual check whenever the hydraulic attachment has been removed from the carrier.
- Check the adapter plate bolts for excessive wear such as cracks, pitting or severe erosion.
- Rework or replace worn bolts.

7.9 Checking and cleaning the hydraulic oil filter of the carrier

An oil filter must be integrated in the return circuit of the hydraulic system. The maximum mesh width allowed for the oil filter is 50 microns; it must have a magnetic separator.

- Secure the carrier such that it cannot move unexpectedly.
- Change the oil filter cartridge after the first 50 operating hours.
- Check the oil filter **every** 500 operating hours and replace if it is necessary.

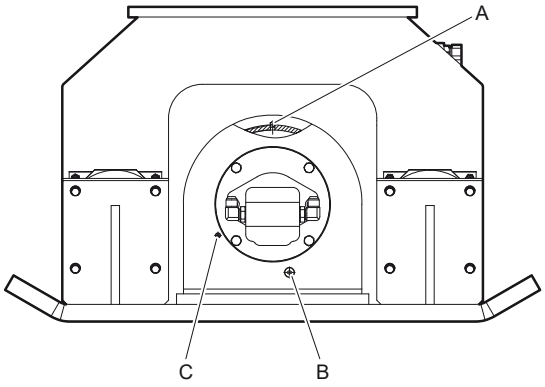
7.10 Changing the oil in the PermanentLube system

The oil in the PermanentLube system must be changed once a year.

- Place timber support blocks on an oil pan.
- Position the hydraulic compactor on timber support blocks.

  NOTICE Environmental damage due to consumables

  Motor oil is environmentally harmful and must not penetrate the ground or enter water table or water supplies.
  - ▶ Collect any dumped waste oil.
  - ▶ Ensure that containers filled with motor oil cannot topple over and flow out, so that your working area will not be polluted.
  - ▶ Observe all Safety and environmental protection provisions when handling motor oil.



- Remove the air breather valve (A) and drain plug with seal (B) from rotor housing.
- Tip the rotor housing and rest it on its side, so that the oil runs out.
- Restore the rotor housing to its upright position.
- Fit the drain plug and seal (B) back in the rotor housing. Required tightening torque see chapter **Bolt connections / Tightening torques**.
- Remove the oil level indicating plug (C) and fill with new oil via hole (A) until oil trickles from hole (C).

Type	Quantity
HC 350	0.8 l (0.21 gal)
HC 450	0.9 l (0.24 gal)
HC 850	3.7 l (0.98 gal)

Type	Quantity
HC 1050	3.7 l (0.98 gal)

- Fit both oil level indicating plug (C) and air breather valve (A) back in the rotor housing. Required tightening torques see chapter **Bolt connections / Tightening torques**.

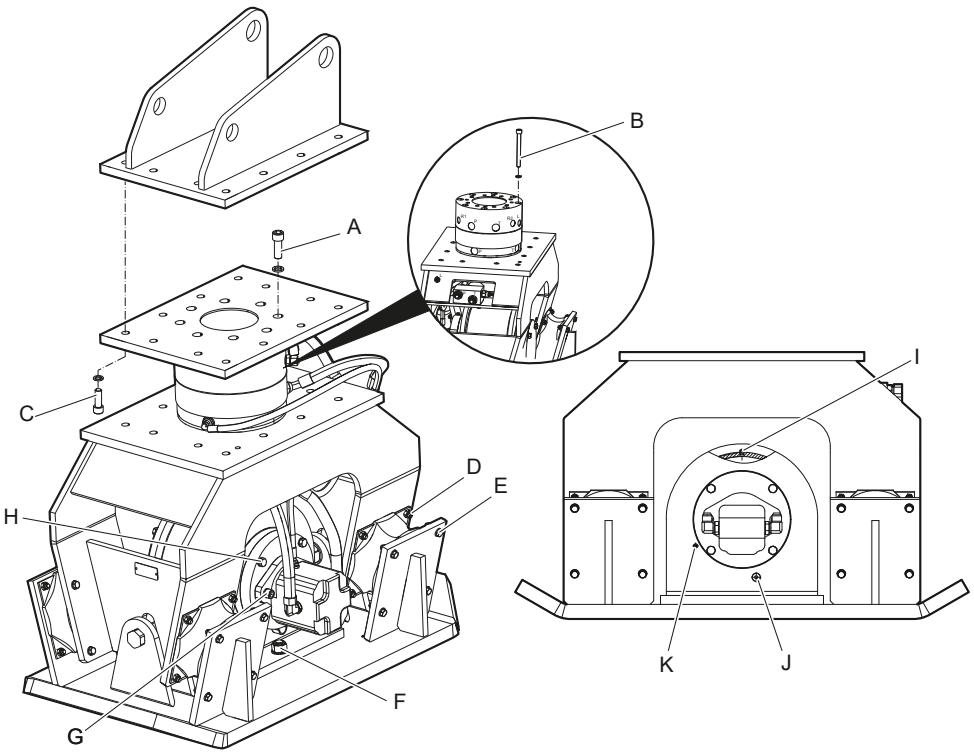
7.11 Bolt connections / Tightening torques HC 350 - HC 450

The bolt connections of hydraulic compactors are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		HC 350	HC 450
Rotating mechanism (fixing bolts*)	A	Allen key / 14 mm (0.55 in.) 219 Nm (162 ft lbs)	
Rotating mechanism (fixing bolts / nuts)	B	Allen key / open-ended wrench 14 mm (0.55 in.) / 24 mm (0.95 in.) 295 Nm (218 ft lbs)	
Adapter plate* (fixing bolts)	C	Allen key / 17 mm (0.67 in.) 410 Nm (302 ft lbs)	
Rubber isolators (fixing bolts / nuts)	D/E	open-ended wrench / 19 mm (0.75 in.) 93 Nm (69 ft lbs)	
Tamper plate (fixing bolts / nuts)	F	open-ended wrench / 24 mm (0.95 in.) 230 Nm (170 ft lbs)	
Hydraulic motor (fixing bolts)	G	open-ended wrench / 19 mm (0.75 in.) 93 Nm (69 ft lbs)	
Cover (fixing bolts)	H	open-ended wrench / 22 mm (0.87 in.) 148 Nm (109 ft lbs)	
Air breather valve	I	open-ended wrench / 15 mm (0.59 in.) pretighten finger tight, then 1 - 2 turns tighten with the open-ended wrench	
Drain plug	J	Allen key / 8 mm (0.32 in.) 30.5 Nm (23 ft lbs)	
Oil level indicating plug	K	Allen key / 7 mm (0.28 in.) pretighten finger tight, then 1 - 2 turns tighten with the Allen key	

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in. The contact face of the screw head and the lock washers must not be lubricated.



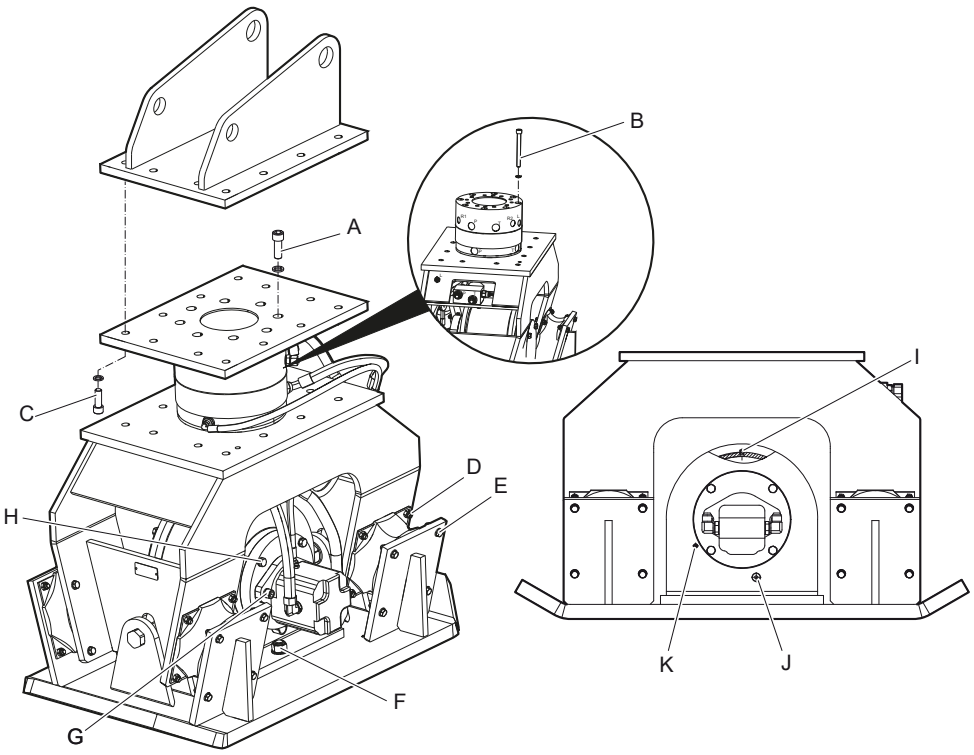
7.12 Bolt connections / Tightening torques HC 850 - HC 1050

The bolt connections of hydraulic compactors are subjected to very high loads.

- Tighten any loose connections without exceeding the recommended tightening torques.

Connection point		HC 850	HC 1050
Rotating mechanism (fixing bolts*)	A	Allen key / 14 mm (0.55 in.) 219 Nm (162 ft lbs)	Allen key / 17 mm (0.67 in.) 410 Nm (302 ft lbs)
Rotating mechanism (fixing bolts / nuts)	B	Allen key / open-ended wrench 14 mm (0.55 in.) / 24 mm (0.95 in.) 295 Nm (218 ft lbs)	Allen key / open-ended wrench 17 mm (0.67 in.) / 30 mm (1.18 in.) 580 Nm (428 ft lbs)
Adapter plate* (fixing bolts)	C	Allen key / 17 mm (0.67 in.) 410 Nm (302 ft lbs)	Allen key / 22 mm (0.87 in.) 1500 Nm (1106 ft lbs)
Rubber isolators (fixing bolts / nuts)	D/E	open-ended wrench / 19 mm (0.75 in.) 329 Nm (243 ft lbs)	open-ended wrench / 27 mm (1.06 in.) 329 Nm (243 ft lbs)
Tamper plate (fixing bolts / nuts)	F	open-ended wrench / 36 mm (1.42 in.) 798 Nm (589 ft lbs)	
Hydraulic motor (fixing bolts)	G	open-ended wrench / 24 mm (0.95 in.) 230 Nm (170 ft lbs)	
Cover (fixing bolts)	H	open-ended wrench / 22 mm (0.87 in.) 148 Nm (109 ft lbs)	
Air breather valve	I	open-ended wrench / 15 mm (0.59 in.) pretighten finger tight, then 1 - 2 turns tighten with the open-ended wrench	
Drain plug	J	Allen key / 8 mm (0.32 in.) 30.5 Nm (23 ft lbs)	
Oil level indicating plug	K	Allen key / 7 mm (0.28 in.) pretighten finger tight, then 1 - 2 turns tighten with the Allen key	

* Treat the threads of the Allen screws with Anti-seize prior to screwing them in.The contact face of the screw head and the lock washers must not be lubricated.



8 Troubleshooting

8.1 Hydraulic attachment does not work

Cause	Remedy	By
Pressure and tank lines swapped	Connect the hydraulic hoses correctly (see chapter **Hydraulic connections**)	Carrier driver
Check valve in pressure and/or tank line closed	Open the check valve	Carrier driver
Oil level in tank too low	Top up oil	Carrier driver
Defective couplings blocking pressure and tank lines	Replace defective coupling halves	Workshop
Faults in the electrical system of the hydraulic attachment installation	Check electrical system of hydraulic attachment cutter installation and remedy defects	Workshop
Magnet on switch-on valve damaged	Replace the magnet	Workshop
Operating pressure too low	Check the carrier engine speed, the pump delivery and the pressure relief valve; check the operating pressure	Carrier driver or Epiroc Customer Center / Dealer in your area

8.2 Tamper plate frequency too low

Cause	Remedy	By
Insufficient hydraulic oil delivery volume	Correct the carrier engine speed, check the operation pressure, check the carrier mode stages	Carrier driver
The connecting fitting in the pressure and tank line has come loose	Check the connecting fitting and tighten as required	Carrier driver
Check valve in pressure and/or tank line partly closed	Open the check valve	Carrier driver
Flow resistance on oil filter or oil cooler too high	Check the oil filter and oil cooler, clean or renew them	Carrier driver
Inside diameter of tank line too small	Change the inside diameter: Observe the minimum inside diameter! (see chapter **Technical specifications**)	Workshop
Return pressure too high	Check and lower the return pressure	Epiroc Customer Center / Dealer in your area
Hydraulic oil return to the tank via a valve section**Not allowed!**	**Note:** The hydraulic oil return circuit must always be connected directly to the tank or filter	Carrier driver or Epiroc Customer Center / Dealer in your area
Hydraulic oil temperature in the tank higher than 80 °C	Check the oil level in the hydraulic tank and top up as required	Carrier driver
Hydraulic oil pressure too low	Check the pressure; adjust as required; Fit new type-tested pressure relief cartridges where necessary	Workshop

8.3 Insufficient impact force

Cause	Remedy	By
The pump of the hydraulic installation does not deliver sufficient oil	Check the pump characteristic with a measuring device and compare it to the original details; renew the pump if required	**Checking:** Epiroc Customer Center / Dealer in your area **Replacing:** by carrier manufacturer‘s customer service

8.4 Oil leaks from the hydraulic motor (rotor and rotating mechanism)

Cause	Remedy	By
Motor damaged	Seal the motor Replace the motor	Epiroc Customer Center / Dealer in your area Workshop

8.5 Oil leaks from hydraulic ports

Cause	Remedy	By
Cap nuts are loose	Check and tighten cap nuts (see chapter **Bolt connections / Tightening torques**)	Carrier driver

8.6 Oil leaks from parts of the hydraulic attachment installation (connecting fittings, hoses etc.)

Cause	Remedy	By
Connecting fittings are loose	Tighten the connecting fittings; replace any defective parts; check the hydraulic attachment installation, replace any damaged parts, only use original parts (see section **Screw connections / Tightening torques**)	Carrier driver or workshop

8.7 Oil leaks from the hydraulic attachment

Cause	Remedy	By
Covers are loose	Tighten the covers see chapter (**Screw connections / Tightening torques**)	Workshop
O-rings of covers defective	Replace the O-rings (see chapter **Replacing rotor and/or O-rings of covers**)	Workshop

8.8 Operating temperature too high

Cause	Remedy	By
Oil level in tank too low	Check oil level and top up oil	Carrier driver or workshop

Cause	Remedy	By
Carrier pump delivery too high; a constant volume of oil is squirted out of the pressure relief valve	Check and correct motor speed of carrier Drive the pump	Epiroc Customer Center / Dealer in your area
Pressure relief valve defective or valve with poor characteristics	Fit new type-tested pressure relief cartridges or a more precise pressure-limiting valve	Workshop or Epiroc Customer Center / Dealer in your area

8.9 The hydraulic compactor cannot be rotated

Cause	Remedy	By
Rotation motor/transmission defective	Replace the defective parts	Epiroc Customer Center / Dealer in your area
Carrier defective	Check the **»Turn«** function of the carrier (Observe the Operating Instructions for the carrier)	Carrier driver or Service Department of carrier manufacturer

8.10 Hydraulic compactor rotates by itself

Cause	Remedy	By
Internal leaks in hydraulic system	Check and repair the hydraulic system	Workshop

9 Repair

- For technical support contact the Epiroc Customer Center / Dealer in your area.

- Remove the hydraulic compactor from the carrier (see chapter **Removing the hydraulic attachment from the carrier**) to carry out repairs.

⚠ WARNING Hydraulic system under high pressure

Carrying out repairs on the pressurised hydraulic attachment may lead to serious injury. Connections may come loose unexpectedly, parts may move suddenly and hydraulic oil may squirt out.

▶ Depressurise the hydraulic system before carrying out repairs to the hydraulic attachment or the carrier (see chapter **Depressurising the hydraulic system**).

⚠ WARNING Hot hydraulic oil squirting out

The hydraulic system is under high pressure. If hydraulic connections come loose or are disconnected, hydraulic oil will squirt out under high pressure. Hydraulic lines may spring a leak or burst. Hydraulic oil squirting out can lead to serious injury.

▶ Depressurise the hydraulic system before carrying out repairs to the hydraulic attachment or the carrier (see chapter **Depressurising the hydraulic system**).

▶ Depressurise the hydraulic system according to the manufacturer's safety and operating instructions for the carrier.

⚠ WARNING Hot parts

Parts of the hydraulic compactor, hoses, pipes and fittings become very hot during operation. Touching them may lead to burns.

▶ Never touch hot parts.

▶ If you have to carry out activities where you have to touch the parts, wait for them to cool down first.

⚠ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

▶ Never use your fingers to check bores or fitting surfaces.

NOTICE Environmental damage due to hydraulic oil

Hydraulic oil is environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

▶ Collect any hydraulic oil which escapes.

▶ Dispose of it in accordance with the applicable environmental regulations.

9.1 Sending in the hydraulic attachment for repairs

NOTICE Mixed hydraulic oil

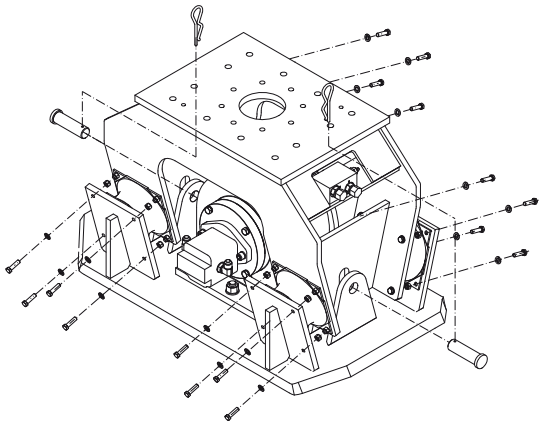
Never mix mineral and non-mineral hydraulic oils! Even small traces of mineral oil mixed in with non-mineral oil can result in damage to both the hydraulic attachment and the carrier. Non-mineral oil loses its biodegradability.

▶ Only use one type of hydraulic oil.

- Always specify which hydraulic oil has been used when sending in the hydraulic attachment to have it repaired.

9.2 Replacing worn rubber isolators

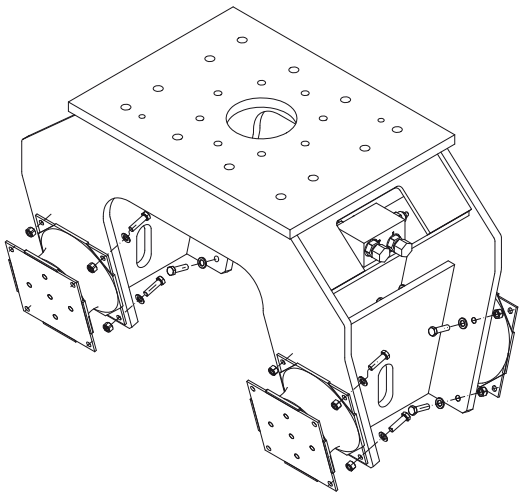
- Disconnect the hydraulic hoses between the motor and the valve block from the hydraulic motor.



- Loosen the nuts from the rubber isolator plates screws.

- Remove the screws from the rubber isolators.

- Lift away the outer housing with rubber isolators still fitted.



- Loosen the nuts from the outer housing screws.
- Remove the screws.
- Replace any worn rubber isolators.
- Fit a new lock nut onto each screw.
- Insert the screws through the rubber buffer and outer bracket holes.
- Secure the screws with the nuts.
- Tighten the nuts with the right tightening torques (see chapter **Screw connections / Tightening torques**).
- Fit the rubber isolators.
- Fit a new lock nut and a washer onto each screw.
- Insert the screws through the rubber isolator plates holes.
- Secure the screws with the nuts.
- Tighten the nuts with the right tightening torques (see chapter **Screw connections / Tightening torques**).
- Reconnect the hydraulic hoses between the motor and the valve block to the hydraulic motor.

9.3 Replacing rotor

- For technical support contact the Epiroc Customer Center / Dealer in your area.

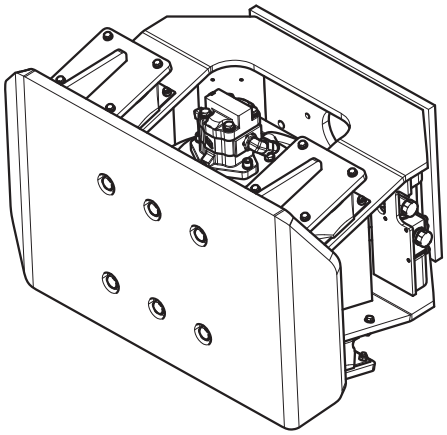
9.4 Replacing the bearing

⚠ WARNING Metal chips shooting off

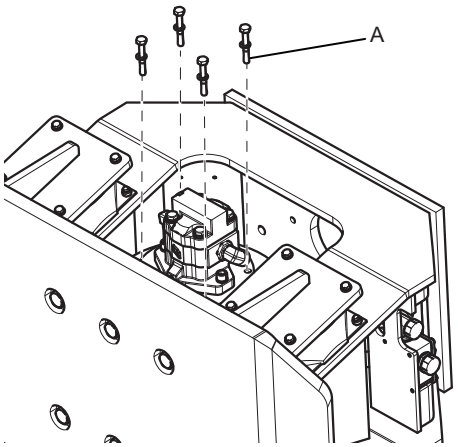
When pressing out the bearing, chips may shoot off and cause serious eye injuries.

▶ Wear safety glasses when pressing out the bearing.

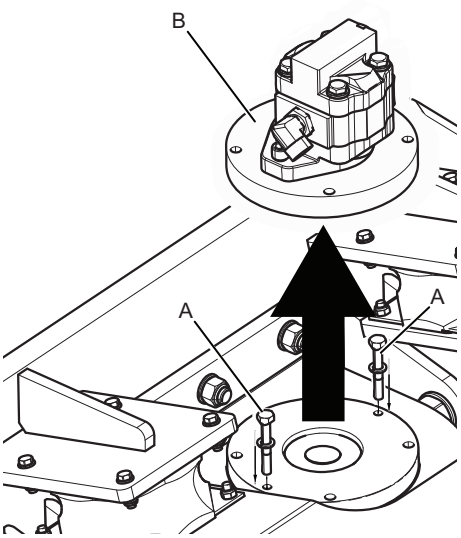
1. Drain oil.
2. Place the hydraulic compactor on a safe side position, where it can not fall over and cause damage.



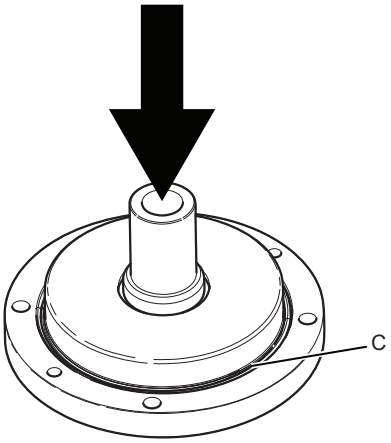
3. Disconnect hydraulic hoses so they do not stand in the way.
4. Loosen screws (A) (4x).



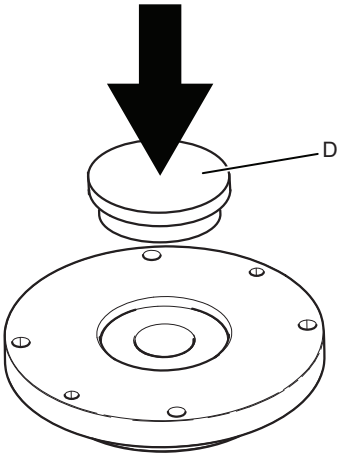
5. Remove motor (B), and assemble 2 screws (A) , same screws from previous step, in order to lift bearing cover.



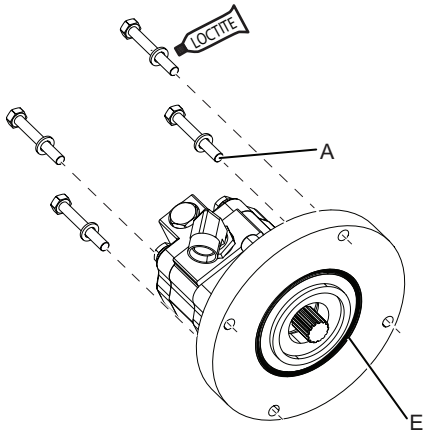
6. Use a press to press out the bearing. Inspect o-ring (C), replace if damaged, and use grease to secure the o-ring in it's groove..



7. Grease outer ring of the new bearing, use a press and an adaptor (D) to press on the outer ring of the new bearing.



8. Inspect o-ring (E), replace if damaged, and use grease to secure the o-ring in it's groove. Tighten screws (A) (4x), use LOCTITE 577 and torque with correct tightening torques.



9. There is a same bearing on the other side of hydraulic compactor, turn the hydraulic compactor over to the other side. Repeat the previous steps to replace the bearing.

10. Refill oil.

9.5 Replacing the tamper plate

HC 850, HC 1050

- Locate the hydraulic compactor on timber support blocks.
- Loosen the nuts of the screws securing the tamper plate to the rotor housing.
- Remove the screws.
- Use the adjustable eyebolts for lifting the hydraulic compactor (see chapter **Transport**).
- Lift the hydraulic compactor with a suitable lifting device.

⚠ WARNING Injury by impacts

A sudden movement of the lifting device may cause the person carrying out the repair to be hit and injured by the hydraulic compactor.

▶ Only move the lifting device very slowly and in a controlled manner while there is someone within the danger zone.

▶ Always keep sight of the other person.

- Remove the old tamper plate.
- Deposit the new tamper plate on the timber support blocks.

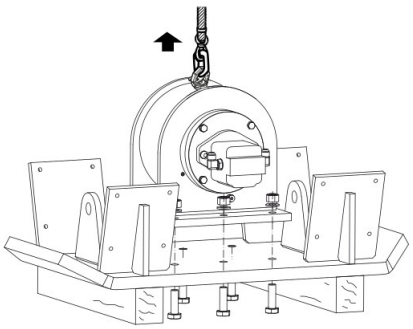
- Secure the new tamper plate with the new screws and washers enclosed with the new tamper plate.
- Fit a washer onto every screw.
- Position the hydraulic compactor over the new tamper plate.

⚠ WARNING Hands and fingers being cut off or hurt

Bores and surfaces can act like a pair of scissors and cut off or hurt parts of your body.

▶ Never use your fingers to check bores or fitting surfaces.

- Insert the screws from below through the holes in the tamper plate and the rotor housing.
- Screw the nuts onto the screws.
- Put the hydraulic compactor down on the tamper plate.
- Tighten the nuts with the right tightening torques (see chapter **Screw connections / Tightening torques**).



10 Storage

10.1 Hydraulic compactor

⚠ WARNING Falling hydraulic compactor

The hydraulic compactor is heavy. If it tilts over where it is stored, it may cause injury.

▶ Store the hydraulic compactor on level ground so that it cannot fall.

The following procedure applies to storage:

- Remove the hydraulic compactor from the carrier (see chapter **Removing the hydraulic attachment from the carrier**).
- Store the hydraulic compactor in a dry, well-ventilated room.
- If storage is only possible outdoors, then the hydraulic compactor is to be protected from the weather with plastic film or tarpaulins.
- Store the hydraulic compactor on level ground so that it cannot fall.

11 Disposal

NOTICE Environmental damage due to consumables

Hydraulic oil and cutter grease are environmentally harmful and must not penetrate the ground or enter the water table or water supplies.

▶ Collect any such consumables which may escape.
▶ Dispose of them in accordance with the applicable environmental regulations.

11.1 Hydraulic attachment

- Remove the hydraulic attachment from the carrier (see chapter **Removing the hydraulic attachment from the carrier**).
- Remove the adapter plate (see chapter **Removing the adapter plate**).
- Remove the hydraulic hoses from the hydraulic attachment.
- Clean the hydraulic attachment (see chapter **Cleaning**).
- Dispose of the hydraulic attachment in line with all applicable regulations or consult an authorised and specialised recycling company.

11.2 Hydraulic hoses

- Drain the hydraulic oil from the hydraulic hoses and collect it.
- Dispose of the hydraulic hoses in accordance with the applicable regulations to avoid environmental hazards.

11.3 Hydraulic oil

- Collect any hydraulic oil that escapes.
- Dispose of it in accordance with the applicable environmental regulations.

11.4 Lubrication oil and oil containers

- Dispose of lubrication oil and not completely emptied oil containers (canisters, tins, etc.) in accordance with the applicable regulations.
- Completely emptied oil containers can be recycled.

12 Technical specifications

12.1 Hydraulic compactor HC 350, HC 450

Model	**HC 350, HC 350 R**	**HC 450, HC 450 R**
Carrier weight class[1]	3 - 8 t (6614 - 17637 lbs)	4 - 9 t (8818 - 19842 lbs)
Service weight[2]	HC 350: 330 kg (727 lbs) HC 350 R: 450 kg (992 lbs)	HC 450: 450 kg (992 lbs) HC 450 R: 570 kg (1256 lbs)
Product weight	HC 350: 296 kg (641 lbs) HC 350 R: 416 kg (917 lbs)	HC 450: 408 kg (899 lbs) HC 450 R: 528 kg (1164 lbs)
Dimensions Height Plate (width x length) Plate coverage	 HC 350: 623 mm (24.53 in.) HC 350 R: 781 mm (30.75 in.) 475 x 846 mm (18.70 x 33.31 in.) 0,31 m^2 (480.50 $in.^2$)	 HC 450: 622 mm (24.49 in.) HC 450 R: 793 mm (31.22 in.) 610 x 929 mm (24.02 x 36.57 in.) 0,40 m^2 (620.00 $in.^2$)
Impact force	2,3 t (5071 lbs)	3,6 t (7937 lbs)
Centrifugal force	23 kN (5170 lbf)	36 kN (8093 lbf)
Number of revolutions	2100 rpm	2200 rpm
Vibration frequency	35 Hz	37 Hz
Operating pressure	160 bar (2320 psi)	160 bar (2320 psi)
Leak oil pressure	max. 14 bar (max. 203 psi)	max. 14 bar (max. 203 psi)
Operating oil flow	57 l/min (15.1 gal (US)/min)	76 l/min (20.1 gal (US)/min)
Motor oil quantity (in rotor housing)	0,8 l (0.21 gal (US)/min)	0,8 l (0.24 gal (US)/min)
Connecting thread (»P« and »T«)	DIN 18 L /M26	DIN 22 L /M30
Port connectors (type: male thread)	DIN 18 L /M26	DIN 22 L /M30
Min. inside diameter Hoses Pipes	 12 mm (0.47 in.) 12 mm (0.47 in.)	 20 mm (0.79 in.) 20 mm (0.79 in.)
Pipework Diameter and wall thickness	 15 x 1.5 mm (0.59 x 0.06 in.)	 25 x 2.5 mm (0.98 x 0.10 in.)
Hole pattern (group)	4	4

[1] Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer prior to attachment.

[2] Hydraulic compactor including adapter plate of medium size. Please note that the service weight can be considerably higher, depending on the adapter plate.

12.2 Hydraulic compactor HC 850 - HC 1050

Model	HC 850, HC 850 R	HC 1050, HC 1050 R
Carrier weight class[1]	9 - 20 t (19842 - 44092 lbs)	20 - 40 t (44092 - 88185 lbs)
Service weight[2]	HC 850: 890 kg (1962 lbs) HC 850 R: 1010 kg (2226 lbs)	HC 1050: 1130 kg (2491 lbs) HC 1050 R: 1320 kg (2910 lbs)
Product weight	HC 850: 832 kg (1834 lbs) HC 850 R: 952 kg (2098 lbs)	HC 1050: 1040 kg (2293 lbs) HC 1050 R: 1225 kg (2700 lbs)
Dimensions Height Plate (width x length) Plate coverage	 HC 850: 764 mm (30.08 in.) HC 850 R: 978 mm (38.50 in.) 710 x 1272 mm (27.95 x 50.08 in.) 0.68 m^2 (1054.00 $in.^2$)	 HC 1050: 786 mm (30.94 in.) HC 1050 R: 1055 mm (41.54 in.) 864 x 1364 mm (34.02 x 53.70 in.) 0.90 m^2 (1395.00 $in.^2$)
Impact force	7.3 t (16094 lbs)	10.5 t (23149 lbs)
Centrifugal force	73 kN (16411 lbf)	105 kN (23604 lbf)
Number of revolutions	2200 rpm	2200 rpm
Vibration frequency	37 Hz	37 Hz
Operating pressure	200 bar (2900 psi)	200 bar (2900 psi)
Leak oil pressure	max. 14 bar (max. 203 psi)	max. 14 bar (max. 203 psi)
Operating oil flow	120 l/min (31.7 gal (US)/min)	150 l/min (39.6 gal (US)/min)
Motor oil quantity (in rotor housing)	3.7 l (0.98 gal (US))	3.7 l (0.98 gal (US))
Connecting thread (»P« and »T«)	DIN25S / M36 and DIN28L / M36	DIN25S / M36 and DIN28L / M36
Port connectors (type: male thread)	DIN25S / M36 and DIN28L / M36	DIN25S / M36 and DIN28L / M36
Min. inside diameter Hoses Pipes	 25 mm (0.98 in.) 25 mm (0.98 in.)	 25 mm (0.98 in.) 25 mm (0.98 in.)
Pipework Diameter and wall thickness	 35 x 3 mm (1.37 x 0.11 in.)	 35 x 3 mm (1.37 x 0.11 in.)
Hole pattern (group)	8	9

[1] Weight apply to standard carriers only. Any variations must be agreed with Epiroc and / or the carrier manufacturer prior to attachment.
[2] Hydraulic compactor including adapter plate of medium size. Please note that the service weight can be considerably higher, depending on the adapter plate.

12.3 Rotation device HC 350 - HC 450 (optional add-on kit)

Model	HC 350	HC 450
Weight	120 kg 264 lbs	120 kg 264 lbs
Number of r.p.m.	18 n/min	18 n/min
Max. operating pressure (rotation)	320 bar 4641 psi	320 bar 4641 psi
Oil flow (rotation) Minimum Optimum	15 l/min 3.96 gal (US)/min 25 l/min 6.60 gal (US)/min	15 l/min 3.96 gal (US)/min 25 l/min 6.60 gal (US)/min
Min. inside hose diameter (rotation)	8 mm 0.31 in.	8 mm 0.31 in.

12.4 Rotation device HC 850 - HC 1050 (optional add-on kit)

Model	HC 850	HC 1050
Weight	120 kg 264 lbs	185 kg 407 lbs
Number of r.p.m.	18 n/min	18 n/min
Max. operating pressure (rotation)	320 bar 4641 psi	320 bar 4641 psi
Oil flow (rotation) Minimum Optimum	15 l/min 3.96 gal (US) 25 l/min 6.60 gal (US)	15 l/min 3.96 gal (US) 25 l/min 6.60 gal (US)
Min. inside hose diameter (rotation)	8 mm 0.31 in.	8 mm 0.31 in.

13 EC Declaration of Conformity (EC Directive 2006/42/EC)

We, Construction Tools PC AB, hereby declare that the machines listed below conform to the provisions of EC Directive 2006/42/EC (Machinery Directive), and the harmonised standards mentioned below.

Hydraulic Compactor
HC 350
HC 350 R
HC 450
HC 450 R
HC 850
HC 850 R
HC 1050
HC 1050 R

Following harmonised standards were applied:

- EN ISO 12100

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