

HIAB J14S J24S

Operator's Manual GB

This operator ' s manual is an Original Instruction and applies for loaders from serial number:
BJ14S0000001, BJ24S0000001

2020-07

Congratulations with your new loader!

You are now the owner of a quality product from Cargotec, built to the highest standards of safety and quality.

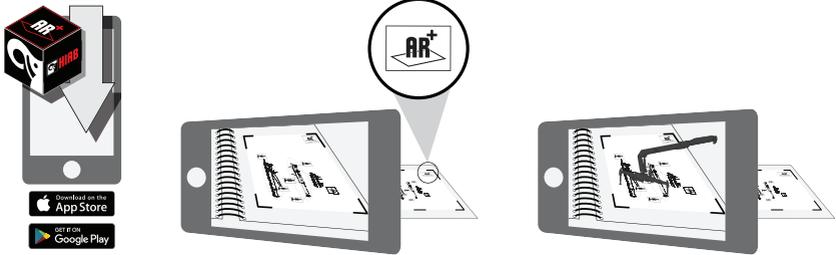
The aim of this manual is to help you handle your loader safely and with full satisfaction.

Please read the complete manual. It provides detailed information about the loader, control system and the practical management and maintenance of the loader.

We advise you to read it carefully and familiarize yourself with your loader before you start to use it.

 Help us to improve this manual. Please send your comments and suggestions to documentation@hiab.com

 This manual includes interactive contents.



Download the **'Hiab AR+ App'** for the interactive content in this manual. Look for the **AR+** symbol. Use your device to scan the image next to the symbol.

The interactive contents in the Hiab AR+ App will display suggestions to make the loader operation easier for you to understand. However, note that some of the content included in the 'Hiab AR+ App' may differ from the actual configuration of your loader and is subject to updates and changes from Hiab without prior notice.

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1. Introduction

1.1. This Operator's Manual is intended for operators of this loader.

The aim of this manual is to help you handle your loader safely and with full satisfaction. Please read the complete manual. It provides detailed information about the loader, control system and the practical management and maintenance of the loader. We advise you to read it carefully and familiarize yourself with your loader before you start to use it.



DANGER

Study these instructions carefully

If you do not study the complete Operator's Manual for your loader carefully, it could lead to fatal accidents or serious damage.

Therefore you should:

- Study the entire Operator's Manual carefully.
- Study the operating manuals for other add-on equipment, if fitted.
- Use the loader only after having done so.
- Follow the directions for use, operation and maintenance of the loader and add on equipment exactly.
- Store the Operator's Manual for your type of loader, the Technical Data and manuals from the Installer, together with this Operator's manual.

This manual describes:

- Operation
- Safety precautions and warnings
- The loader control system
- Maintenance and troubleshooting

Enclosed to this manual the Installer will provide:

- Technical Data for your loader
- Technical Data and manuals for add on equipment if fitted

Therefore you should:

- Study the entire Operator's Manual carefully.
- Study the operating manuals for other add-on equipment, if fitted.
- Use the loader only after having done so.
- Follow the directions for use, operation and maintenance of the loader and add on equipment exactly.
- Store the Technical Data and manuals from the Installer, together with this Operator's manual.

**NOTE**

The manufacturer reserves the right to change specifications, equipment, operating instructions and maintenance instructions without prior notice.

Study these instructions carefully**DANGER**

If you do not study the complete Operator's Manual for your loader carefully, it could lead to fatal accidents or serious damage.

1.1.1. Cleanliness certificate

All Hiab equipment has been tested and certified at the factory according to the Hiab Standard C250.52 that defines the Cleanliness Requirements for Hydraulic Systems. This means that they fulfil the cleanliness class **20/18/14** measured by the ISO 4406 standard.

All hydraulic functions have been individually tested and fully comply with the defined requirements.



**NOTE**

Hiab shall at all times have the right to:

- install, maintain and dismantle remote diagnostics tools or similar sensor-based connectivity capabilities (“Connectivity”) in and from the Equipment; and
- access, send, receive, collect, store and use any and all information and data gathered through the Connectivity, including but not limited to, information concerning efficiency, availability, downtime, operation, operating environment, movement, condition, logon, location and similar information relating to the Equipment (the “Information”). Such Information may be used for optimizing the Equipment, or any related equipment or services as well as for Hiab's internal business and/or operating purposes. Hiab shall be responsible for complying with applicable laws and regulations related to such Information.

The customer/user shall not in any way remove, disable, or interfere with the Connectivity or the Information. Any intellectual property rights or other right and title in and to the Connectivity features and the Information and all their further developments shall at all times be and remain the exclusive property of Hiab.

1.1.2. Description of Hiab J14S and J24S

The Hiab J14S and J24S utility loaders manufactured by Hiab are designed for several truck mounted applications where grapple type attachment is to be utilized. Typical applications would include railroad Hi-Rail trucks or grapple trucks for waste and recycling material handling. Installation can be done either as rear mounted or behind the cab. Utility loaders are not intended for hook operation .

The Hiab J14S and J24S are available for various applications in different boom versions and with wide range of options and accessories

On the serial number plate, you can find information on the loader type and on the manufacturer.

**NOTE**

The exact technical information for your loader is shown in "Technical Data".

1.2. Indications in the Operator’s Manual

What must you do and not do?

The following indications are used in the Operator’s Manual:

**DANGER**

Danger to life for yourself or to bystanders.

Follow the instructions carefully!

**WARNING**

Danger of injury to yourself or to bystanders, or danger of serious damage to the loader or other objects.

Follow the instructions carefully.

**CAUTION**

Hazard for the loader or loader components. Follow the instructions carefully.

Important:

If actions are numbered

1. Do this
2. Do that
3.
4.
5.

you should carry them out in numerical order!

**NOTE**

Extra information that can prevent problems.

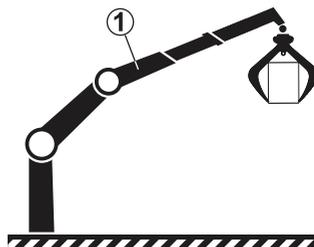
**TIP**

Tip to make the work easier to carry out.

Symbol for reference to a component in an illustration.

(1) Refers to a component in an illustration.

[option]: Indication for parts that are not-standard for the loader, but are an option. Not all [option] are available for your loader.

**DANGER**

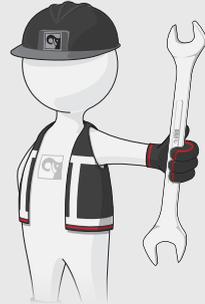
Only persons with the requisite knowledge and experience with loaders may use the loader. Never operate the loader when you are sick, tired, under the influence of medicines, alcohol or other drugs.

- Take the delivery instructions from your HIAB Service workshop, or receive instruction from an experienced person from your own company. Only then should you operate your loader.
- Ensure that you comply with the statutory requirements of the country in which you use the loader (for example, certificate, obligatory safety-helmet).



DANGER

- Carry out yourself only the service and maintenance work you have the requisite knowledge and experience of.
- All other maintenance work may only be carried out by a HIAB service workshop.
- Ensure that every defect is rectified immediately, according to the instructions.
- Follow the instructions exactly!
- All other work to rectify faults must be performed by personnel in a HIAB service workshop!



WARNING

- Never clean the electronic system, plastic components, signs or bearings with a high-pressure jet cleaner. It could cause damage.
- Never expose the electronic system to high electrical voltages. This could damage the control system.
- Never immerse the controller in water or other liquid. This will make the controller unusable.

If your loader is equipped with add-on lifting equipment (hoist, rotator, etc.):

- The operation of the loader with add-on lifting equipment can differ from the operation as described in this manual.
- You should therefore study the Operating Manual for the add-on equipment carefully, before you use the loader.
- Take particular note when placing the loader in to or out of transport position.

1.3. Identification of the utility loader

Description and identification of the utility loader:

Mark:

Type:

Serial number:

Manufact. year:

Mark:
Type:
Serial number:
Manufact. year:

2. Structure and parts of the loader

2.1. Main groups

This HIAB loader consists of the following main groups:

- Loader base with column and slewing system
- Stabiliser system
- Boom system
- Operating system - hydraulic components

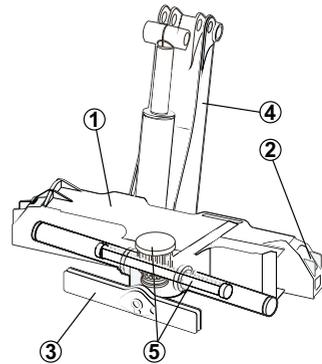
Some accessories can be fitted depending on your loader configuration:

- Add-on lifting accessories [option]
- Separate lifting accessories [option]

2.2. Loader base with column and slewing system

The loader base, column and the slewing system consist of the following components:

- (1) Loader base.
- (2) Stabiliser beams.
- (3) Three-point bridge.
- (4) Column.
- (5) Rack and pinion slewing system.

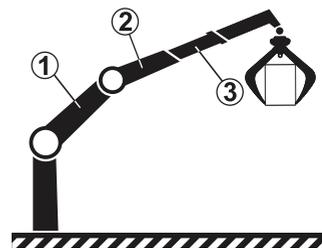


2.3. Boom system and add-on lifting accessories

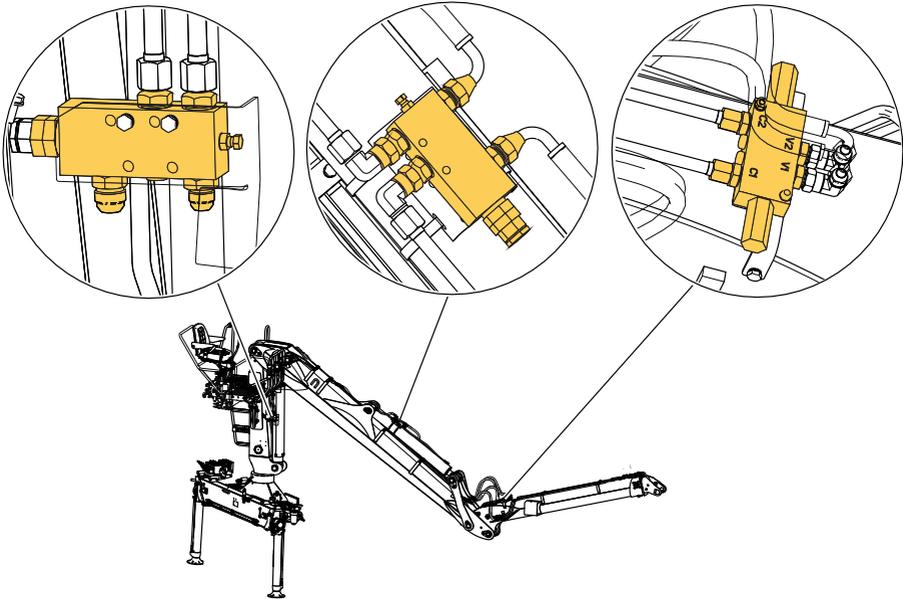
The boom system consists of the following components:

- (1) 1st boom
- (2) 2nd boom
- (3) Hydraulic extensions, the length of the hydraulic extension depends on the type of loader.

Add-on lifting accessory is placed between the boom tip and the load.



2.4. LHV Load Holding Valves (option)



Cylinders can be optionally equipped with Load Holding Valves (LHV) as a safety device. After a loader movement they hold the loader in position, also in the unlikely event of a burst hose.

If there is a leak or a component fractures, such as a pipe, hose or a coupling, the LHV will stop the booms from collapsing down, even when the hydraulic system is switched off and you operate a particular loader function.

To operate a hydraulic cylinder equipped with a LHV, an opening pressure is required.



DANGER

Overloading could result of damage to the loader or in the worst case, personal injury or death.

Never increase a hanging load, since that may cause a Load Holding Valve to open and/or the vehicle to turn over.



NOTE

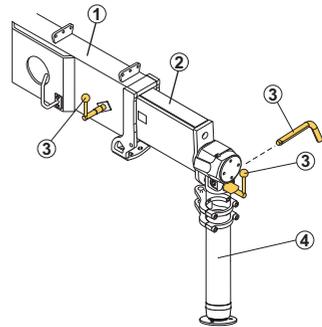
The extra weight of the lifting accessories has to be added to the load. Thus, with lifting accessories the load you can lift is less heavy.

Load Holding Valves are not mandatory. The installation is based on the application and regulatory requirements.

2.5. Stabiliser system

Every loader is equipped with two stabiliser extensions and two stabiliser legs. Auxiliary stabiliser systems may be needed for heavy loaders.

- (1) Stabiliser beam. The stabiliser beam is a part of the loader base.
- (2) Stabiliser extensions.
- (3) Stabiliser locking device.
- (4) Stabiliser legs.

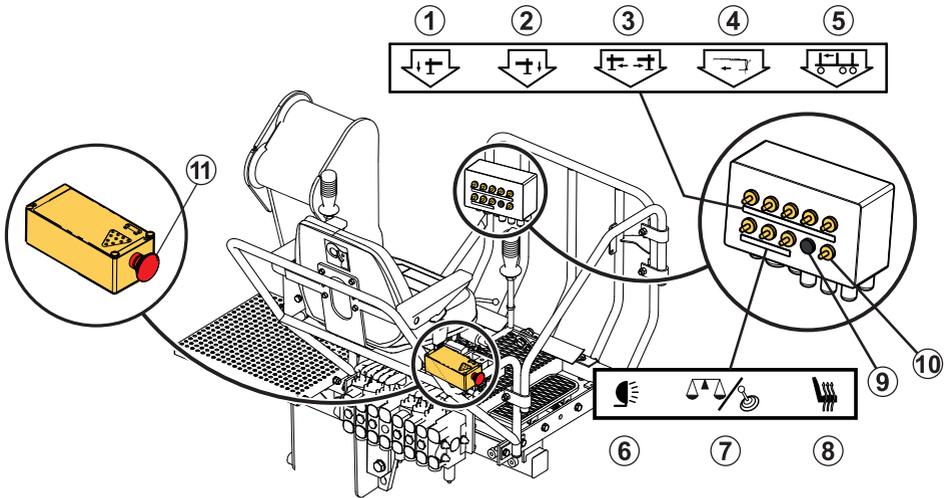


2.6. Operating system - hydraulic components

The operating system consists of the following hydraulic components:

- oil tank
- hydraulic pump
- oil cooler [option on some loaders]
- main control valve
- stabiliser control valve
- hydraulic hoses and lines
- actuators:
 - first boom cylinder
 - second boom cylinder
 - extension cylinder/s
 - slewing cylinders
- return filter/oil tank
- pressure filter

2.7. Buttons on the control panel



The loader and the stabiliser system can be operated from the high seat.

- (1) Stabiliser leg, left
- (2) Stabiliser leg, right
- (3) Stabiliser extension out/in
- (4) Console or optional function
- (5) Optional function
- (6) Lights
- (7) Activation of the extension control
- (8) Seat heat [option]
- (9) Button to be used together with (1), (2), (3)
- (10) Optional button
- (11) Emergency STOP button

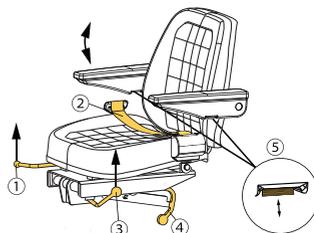


DANGER

Take care not to put your foot on the pedals when entering in the high seat. Unintentional loader movements can occur.

2.8. Premium high seat

- (1) Handle to adjust seat forward/backward
- (2) Seat belt (not mandatory feature)
- (3) Handle to adjust height of the seat
- (4) Locking device for seat tilting
- (5) Handle to adjust armrest



DANGER

Take care not to put your foot on the pedals when entering in the high seat. Unintentional loader movements can occur.

2.9. Main control valve

Near each lever there is a sticker with a symbol. The symbol illustrates the function of the lever. Always operate the lever according to the symbol sign.

The speed of a function corresponds to the extent of the lever movement, regardless of the load and other functions, as long as the oil flow is sufficient. When the oil flow is insufficient, one or more functions might reduce their speed.

2.10. Stabiliser control valve

The loader is equipped with a stabiliser control valve. The valve can be operated with the levers on the valve and from the high seat.

There are several types of stabiliser control valves. Always operate the lever according to the function on the symbol sign.

The symbol is shown either on the lever knob or on a separate sign placed vertical/horizontal next to the lever.

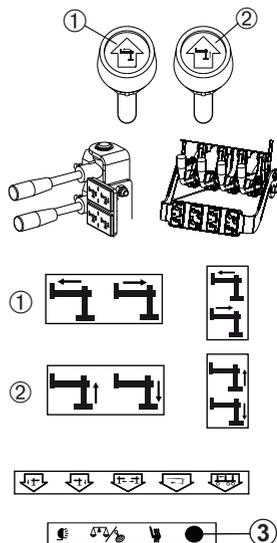
- **Stabiliser extension** (1) out/in
- **Stabiliser leg** (2) upward/downward

The stop button affects the oil supply to this valve.

Operate the stabiliser extensions and stabiliser legs.

From the high seat:

Press and hold the button (3) at the same time.



3. Safety precautions and warnings

3.1. Operating conditions

You may only use the loader under the following conditions:

- In the open air, or in spaces with sufficient ventilation.
- With a mean wind velocity less than 13.3 m/sec (approx. 29.7 mph).



DANGER

- If you use the loader in a confined space you could suffocate from the exhaust gases from the vehicle.
- **Never** use the loader at temperatures below -40°C (-40°F), as the steel's properties deteriorate below this temperature.



WARNING

- If the temperature is below 0°C (32°F) we recommend you to wait a few minutes before you operate the levers
- When starting in cold weather, the wear on the hydraulic system is greater than at normal working temperatures.



To minimise wear, the loader should be started as follows:

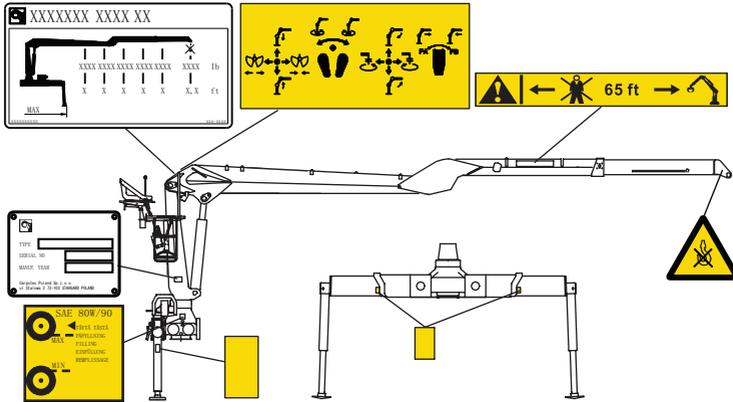
- Engage the power take-off at low rpm.
- Allow the system to idle for a few minutes.
- Fixed pump:
Operate the stabiliser leg up for one minute in order to warm up the oil.
- Variable pump:
Operate stabiliser legs up and down for one minute, in order to warm up the oil.

3.2. Wind speeds

Wind speed averaged over 10 minutes at a height of 32 ft 9.7 in

Wind Force	Above flat ground		Characteristics
	mph	Wind type	
0	0.0 - 0.4	Calm	Calm, smoke rises vertically or nearly vertically
1	0.5 - 3.4	Slight breeze	Wind direction recognisable from smoke plumes, the wind begins to be noticeable on the face; leaves begin to rustle and weather vanes can start to move.
2	3.5 - 7.4		
3	7.5 - 12.0	Moderate wind	Leaves and twigs in continuous movement, small branches begin to move. Dust and paper begin to move over the ground.
4	12.1 - 18.0		
5	18.1 - 24.0	Fairly strong wind	Small leaved branches make swaying movements; crested waves form on lakes and canals.
6	24.1 - 31.0	Strong wind	Large branches move; you can hear the wind whistling in telephone wires; umbrellas can only be held with difficulty.
7	31.1 - 38.0	Severe wind	Entire trees move; the wind causes difficulty when you walk into it.
8	38.1 - 46.0	Stormy wind	Twigs break off, walking is difficult.
9	46.1 - 55.0	Storm	Causes superficial damage to buildings (chimney pots, roof-tiles, and TV antennae are blown off).
10	55.1 - 64.0	Severe storm	Uprooted trees; considerable damage to buildings etc. (occurs infrequently on land).
11	64.1 - 73.0	Very severe storm	Causes extensive damage (occurs very infrequently on land).
12	> 73.0	Hurricane	

3.3. Signs on the loader



NOTE

The signs may vary depending on the country. Always make sure that you comply with the statutory requirements of the country in which you use the loader.

3.4. Maximum load

Lifting capacity

Your loader has a certain lifting capacity, expressed in kNm or tm. This lifting capacity is also known as the load moment. The lifting capacity is: the payload multiplied by the outreach in metres that the loader can operate at different positions. The lifting capacity of your loader determines the maximum load your loader may lift within its working zone. However take careful note; the greater the operating radius of the loader, the lower the lifting capacity will be because of the weight of the boom system itself. The load plate and the load diagram on your loader show the maximum loads you may lift in the operating reach of your loader.



DANGER

Overloading could result of damage to the loader or in the worst case, personal injury or death.

Never increase a hanging load, since that may cause a Load Holding Valve to open and/or the vehicle to turn over.



NOTE

The extra weight of the lifting accessories has to be added to the load. Thus, with lifting accessories the load you can lift is less heavy.

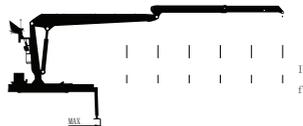


NOTE

Load Holding Valves are not mandatory, the installation is based on the application and regulatory requirements.

Load plate

On the plate is the maximum weight that you may lift at a given reach, with the 1st boom in the optimum position. In chapter Technical Data in this manual you will find these values for your loader.



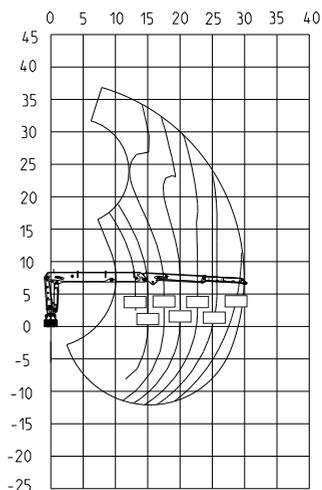
DANGER

Never exceed the maximum weight on the load plate.

Load diagram

The load diagram shows the maximum load your loader may lift in the entire working zone.

The load curves show the maximum load that may be lifted at a given reach and height. For a given maximum load, the possible working zone is to the left of the load curve. The lifting capacity for some loaders is limited in the high lifting area.



WARNING

Care must be taken when handling loads in the high lifting area, so the load/tool does not come into contact with the boom system.

3.5. Signals when using a loader [AR+]



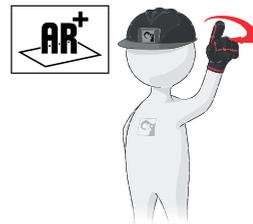
DANGER

- If it is not possible to see the load and the entire working area clearly the loader operator is obliged to follow the instructions and signals given by a qualified person qualified.
- The country-specific regulations for loader operator signals are to be used.

Signals in this manual give a number of standard signals that can be used.

Lift

Raised arm and index finger raised. Circular motion with hand.



Lower

Arm pointing downwards and index finger down. Circular motion with hand.



Stop all loader movements / Hold the load in position

Raise the open hand, with the palm clearly visible, and arm at shoulder height.

Keep the hand still.



Emergency stop for all movements by the loader

Raise the hands and the arms to an oblique angle.



Very short movement

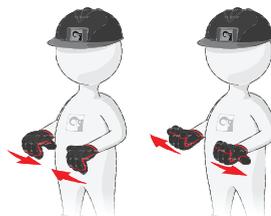
Place the hands a very short distance apart, with the palms facing each other. The hands may be held either horizontally or vertically. The next movement may be: Lift, lower, move the lifting gear, change the reach, or turn.



Change the reach

Signal with your hands.

- Sideways movement outwards with both hands. Thumbs outwards.
- Sideways movement inwards with both hands. Thumbs inwards.



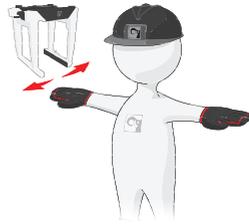
Turn in the direction indicated

Indicate the direction with the hands.



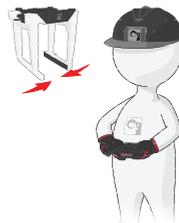
Open the grapple

Extend the arms at shoulder height, with the palms facing downwards.



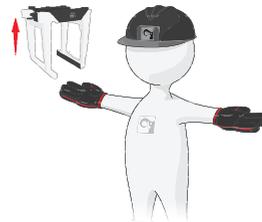
Close the grapple

Move both hands close together.



Lift the open grapple a little

Extend both arms at shoulder height, with the palms facing upwards. Make vertical movements with both arms outstretched.



Keep the grapple in position briefly

Raise the hand drooping slightly, with the fist clenched.



3.6. Use of the loader

Starting loader operation



DANGER



- Wear a safety helmet (compulsory in some countries!).
- Check that the ground is sufficiently flat and firm.
- To ensure that the vehicle stays in its position, always engage the parking brake and place chocks under the wheels.
- Check that the ground is not undermined. Look out for sewers, cellars, excavations etc.
- The stabiliser legs must not be able to sink in! Use support plates that are large and firm enough for your loader. The plates must not bend under load. Check that the support plate as it comes under load, is not pushed into the ground.
- Ensure you can see the stabiliser legs and stabiliser extensions when you are operating them.
- Do not lower the stabiliser legs on the edge of an embankment, soft shoulder, slope etc.
Lower the stabiliser legs only on to a flat and firm surface.



DANGER

- Do not stand in front of the hydraulically operated stabiliser legs when you are operating them!
- Never use the stabiliser legs as a parking brake, since the vehicle could start to slide.
- Slide the stabiliser extension, on both sides of the vehicle, out completely if possible. Then lower the stabiliser legs for support.
- Never operate the stabiliser legs, while the loader has a load!





WARNING

- Use low force when placing the stabiliser legs on the ground.
- Do not raise the vehicle with the stabiliser legs!
If you raise the vehicle with the stabiliser legs, this may damage the stabiliser legs.



DANGER

Do not stand in front of the boom system when operating the loader out of the parking position.



Preparation for use



WARNING

Make sure that there are no unauthorised persons within the operating range of your loader!



WARNING

- If a part of the loader comes in contact with an electricity line, you will be electrocuted!
- Maintain the following minimum distances between the loader and overhead electricity lines, unless otherwise prescribed by national rules.

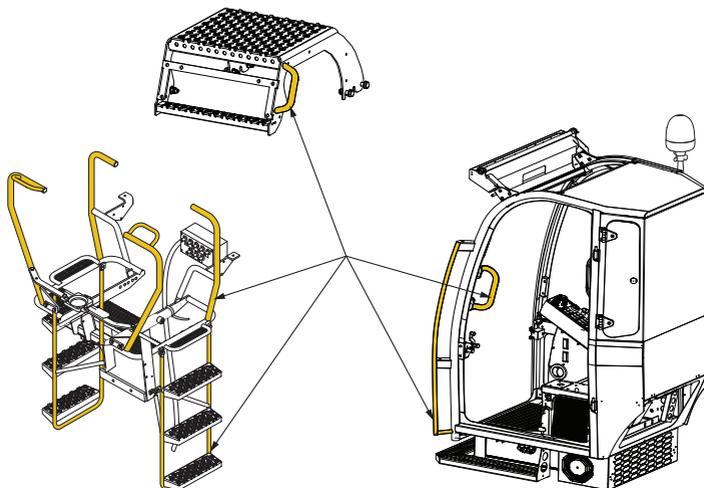


Minimum distance between loader and overhead electricity lines:		
Voltage (V)	Minimum distance to an insulated conductor	Minimum distance to an uninsulated conductor
<500 V	1 ft 7.6 in	6 ft 6.7 in
500-40000 V	4 ft 11.0 in	13 ft 1.4 in
>40000 V	6 ft 6.7 in	19 ft 8.2 in
Voltages are found:		
up to 500 V:		to buildings
500-40000 V:		trams, trains
over 40000 V:		power transmission



DANGER

When you enter or exit from the control station, use only handles and supports on the loader that were specifically made to help the operator to enter or exit from the control station.



DANGER

When you go into the control station (high-seat, cabin, platform) remove all jewellery, loose clothing or other hanging items from your body (for example, rings, scarfs, bracelets...). Jewellery, loose clothes and other hanging items can be caught in some parts of the loader.

Safety when starting loader operation



DANGER

- Ensure you can see the stabiliser legs and stabiliser extensions when you are operating them.
- Do not stand in front of the hydraulically operated stabiliser legs when you are operating them!
- Where the ground is not firm enough, use support plates under the stabiliser legs for additional support.

Use support plates that are large and firm enough for your loader.

Check that the support plate as it comes under load, is not pushed into the ground.

Check that the support plate does not bend under load.

- Do not lower the stabiliser legs on the edge of an embankment, soft shoulder, slope etc.
Lower the stabiliser legs only on to a flat surface.
- Slide the stabiliser extension, on both sides of the vehicle, out completely if possible. Then lower the stabiliser legs for support.
- Never operate the stabiliser legs, while the loader has a load!



WARNING

- Use low force when placing the stabiliser legs on the ground.
- Do not raise the vehicle with the stabiliser legs, if the loader is equipped with only two stabiliser legs!

If you raise the vehicle with the stabiliser legs, this may damage the stabiliser legs.

Safety during loader operation



DANGER

Your loader has a safety devices like Load Holding Valves, (LHV; optional equipment), load warning indicator and stop button.

The safety devices will help you to work safely. Nevertheless, you remain responsible for safe use of the loader!

Therefore, always work according to the operating instructions!



DANGER

Overloading could result of damage to the loader or in the worst case, personal injury or death.

Never increase a hanging load, since that may cause a Load Holding Valve to open and/or the vehicle to turn over.



NOTE

The extra weight of the lifting accessories has to be added to the load. Thus, with lifting accessories the load you can lift is less heavy.

Load Holding Valves are not mandatory. The installation is based on the application and regulatory requirements.

In an emergency immediately switch off all loader movements!

- Press a **stop button**.

To avoid unexpected load movements and at every interruption in loader operation.

- Press a **stop button**



DANGER

- Keep checking that there are no unauthorised persons within the operating reach of the loader!
- Make certain that you can always see the load!
- Never move the vehicle, if you have a freely-suspended load on the loader!
- Never walk or stand under a suspended load!
During operation, never stand below the boom system or load!
- Do not slew the loader, nor lift the first boom, nor lift the second boom into their ends positions at full speed. This can damage the loader.



WARNING

- Never use the extension boom as a jack. This could damage the slewing bearings and the connection between the loader column and the loader base.
- Do not lift a load over yourself or the cab
- When loading the vehicle:
Take the load off the stabiliser legs by withdrawing them slightly. The stabiliser legs must remain in light contact with the ground.



CAUTION

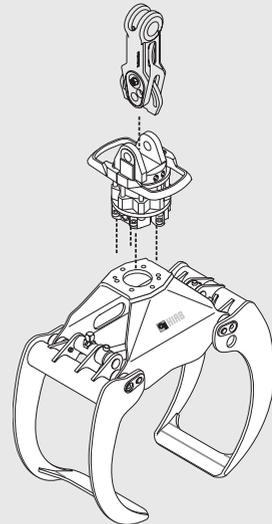
- Operate the loader using smooth and gentle lever movements.
- If a cylinder is at its end position, free the operating lever. Otherwise overheating can occur.

3.6.1. Use of lifting equipment



DANGER

- Only use lifting accessories that are suitable for your loader. Contact a HIAB service workshop.
- Never attempt to install add-on lifting accessories yourself!
- Add-on lifting accessories may only be installed by an authorised HIAB service workshop.
- When using lifting accessories, follow the instructions supplied with the equipment!
- Watch out for hazards!
- Never try to adjust lifting accessories when you are working on the loader!



After the lifting accessories have been fitted:

1. Check that the lifting accessories are securely fixed.
2. Only after this should you use your loader.

**WARNING**

- Clean the couplings, when connecting and disconnecting lifting accessories. Dirt can damage the hydraulic system.
- Take care that your fingers are not trapped.

Safety when ending loader operation**DANGER**

Always end loader operation as follows:

- After use, always place the loader in the transport position!
- When you have to park the boom on the load space or over the load; secure the boom and the lifting accessories to prevent any movement of the loader and the lifting accessories.
- Withdraw the stabiliser legs and stabiliser extensions.
- Lock tiltable stabiliser legs and manual operated stabiliser extensions in transport position.
- Check that the locking mechanisms are properly locked.
- Switch off the operating system.
- Disengage the PTO or power supply after work.
- If you drive with the PTO or power supply engaged, this will cause serious damage to the PTO/gearbox combination.

Only after doing the above, should you drive the vehicle away.

Driving with the loader mounted



DANGER

- Never drive the vehicle if there is a load suspended from the loader.
- Before you move the vehicle:
Check that there is no pump flow to the main control valve. The PTO or power supply must be disengaged. The operating system must be switched off!
- Pay attention to the width and height of the loader in the transport position. The loader has to stay within the width of the truck. Make sure the parked loader can not hit bridges, tunnels etc.
- Pay attention to overhead power lines! Make sure that no part of the loader ever comes in contact with overhead power lines.



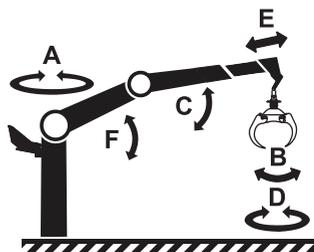
For further instructions see vehicle's manual(s).

4. Manual control system

4.1. Operation from the high seat

The high seat is equipped for using tools and operated by control levers and foot pedals.

For safety reasons, it is necessary to sit down on the seat to operate the controls.

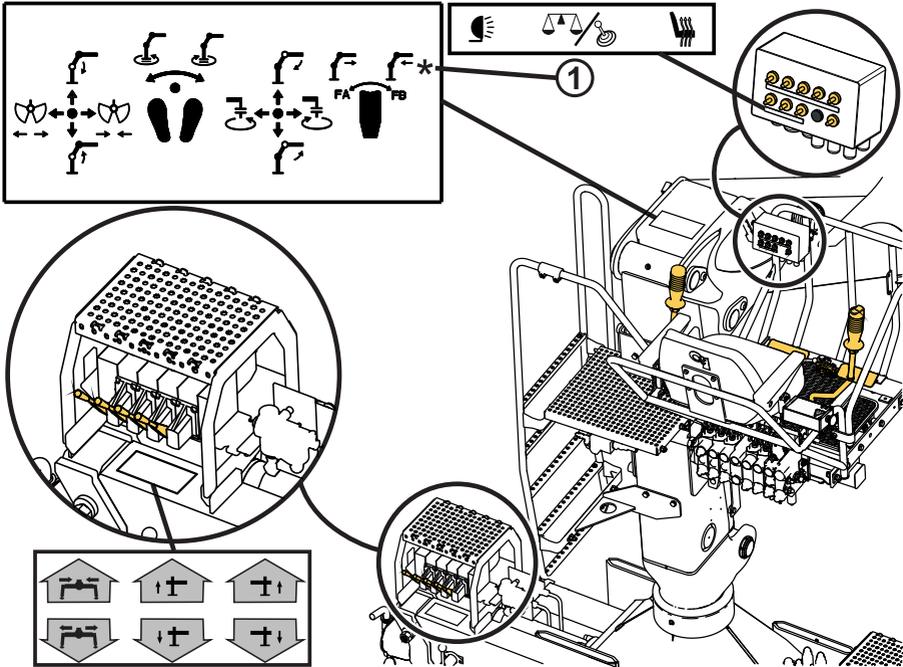


A	Slewing		D	Rotator	
B	Grapple		E	Extension	
C	2nd boom		F	1st boom	



DANGER

Take care not to put your foot on the pedals when taking place in the high seat. Unintentional loader movements can occur.



* - for activate extension control, turn on button (1) on the control box.



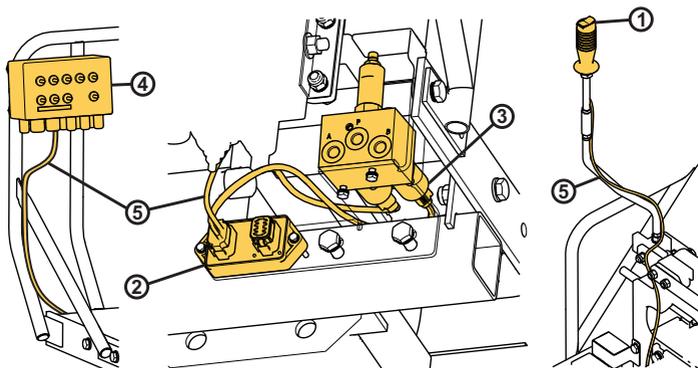
IMPORTANT

After ending operate the extension, turn off extension control by button from the control box.

Hydraulic stabiliser extensions and legs are controlled by an additional control valve installed on the stabiliser beam. Stabiliser legs can also be operated from the high seat.

4.2. Extension boom control system

System structure and connections



(1) Proportional button

(2) Valve driver ECU

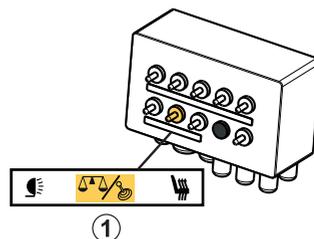
(3) Solenoid valves

(4) Control box

(5) Wiring harness

Operating the extension boom system

Extension boom system can be controlled on/off with a switch (1) located in the control box.



Valve driver ECU

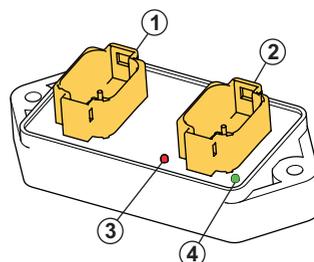
Valve drive unit ECU is designed to control proportional solenoid valves. Valve driver provides flexible I/O configuration in compact package, specially designed to resist water, temperature, humidity and high vibrations typical for harsh environments.

(1) Connector 1.

(2) Connector 2.

(3) LED red (error flashes).

(4) LED green (power supply on).

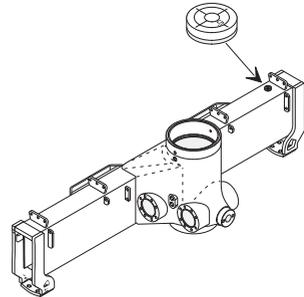


5. Starting loader operation

5.1. Starting operations

Placing the vehicle

- Place the vehicle on a flat surface. The maximum permissible slope for your loader is 5°. To determine the incline of the truck check the spirit level, on the loader. When the bubble in the middle of the gauge, the loader is in horizontal position. When the bubble is between the two circles, the loaders inclination is between 0 ° and 5 °. If the slope exceed 5° unintentional loader movements can occur.



Engage the PTO

- Engage the PTO (Power Take Off).
- Bring the vehicle's engine to the correct rpm.



NOTE

- Rpm too high: the oil in the hydraulic system might overheat. Rpm too low: during loader operation, the vehicle's engine could stall.
- The maximum rpm may depend upon a governor on your PTO combination.

5.2. Extend stabiliser extensions and set stabiliser legs

To ensure the full loader capacity, all the stabiliser extensions and legs must be fully extended and set to the ground.



WARNING

Take care not to lower the stabiliser leg to your foot.

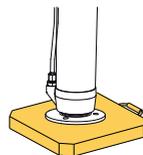


5.2.1. Stabiliser system and ground conditions

Always:

- Make sure that the ground can support the load that the stabiliser leg imposes on the ground. (*)
- Make sure that the ground is not undermined.
- Use the extra support plates that are large and firm enough for your loader model.

The maximum permitted ground inclination under the stabiliser leg plate is 5°.



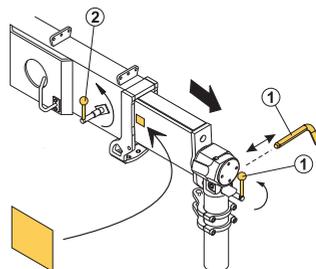
DANGER

Check that the extra support plates do not bend or sink into the ground.

Do not lower the stabiliser legs on the edge of an embankment, soft ground, hollows, etc... Lower the stabiliser legs only on to a flat, firm and stable surface.

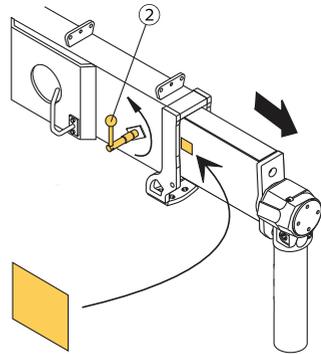
Loader with tiltable stabiliser legs

1. If the stabiliser extensions are equipped with a separate lock (2), release it before the stabiliser extension can be extended.
2. Make sure the stabiliser extensions are extended a little, so the stabiliser leg can be rotated freely of the vehicle.
3. Unlock the stabiliser leg lock (1).
4. To tilt the stabiliser leg use lever or button for stabiliser leg. Make sure that you have full control of the movement to avoid risk of crushing.
5. Lock the stabiliser leg lock (1).
6. Extend the stabiliser extension until the yellow mark is visible. If the stabiliser extensions are equipped with a separate lock, lock it with the handle (2).
7. Operate the stabiliser leg downwards until it is set to the ground.



Loader with non-tiltable stabiliser legs:

1. If the stabiliser extensions are equipped with a separate lock, unlock it with the handle (2).
2. Extend the stabiliser extension until the yellow mark is visible. If the stabiliser extensions are equipped with a separate lock, lock it with the handle (2).
3. Operate the stabiliser leg downwards until it is set to the ground.

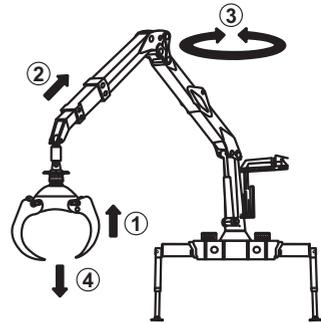


6. During operation

6.1. Operate the loader

Lifting should be carried out in the following order:

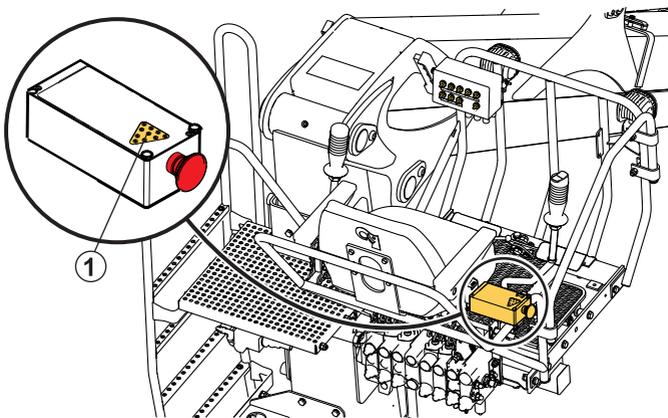
1. Lift the load.
2. Move load closer to the loader.
3. Slew.
4. Lower the load.



WARNING

- Never go underneath a hanging load or move a load over people.
- The loader may not be used for lifting personnel and people.

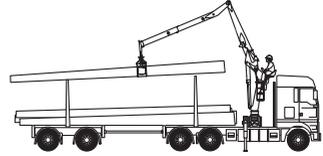
Comply with the values listed on the load plate; do not overload the loader. Follow the operation of the load warning indicator (1). The warning lights will flash when the load exceeds 90 % of the maximum allowed value.



If possible, lift the load from its center of gravity. Do not lift a log from its top end.

Do not lift a load over yourself or the cab

- Never drive the cylinders to their extreme positions at full speed.
- Never operate the stabiliser system while the loader is loaded.
- Ensure that the weight of the load and the vehicle does not rest solely on the stabiliser system. Adjust the stabiliser leg if necessary.
- Do not load from in front of the vehicle: there is a risk of the vehicle tilting over!



DANGER

Be especially careful when working near electricity lines. Also beware of overhead lines for electrified rail roads. Maintain a distance of at least five meters.

If an accident occurs

- do not touch metallic parts of the loader (the stabiliser legs will ground the loader, and you will be connected to an electric circuit).
- warn others, ask them to move farther away, forbid them from touching the load, loader, vehicle or ground near the loader.
- request that power is turned off from the electricity line.

7. Ending loader operation

7.1. Placing the stabiliser system in transport position



DANGER

Do not stand in the stabiliser legs, tilting area.



WARNING

Do not put your foot under the stabiliser leg

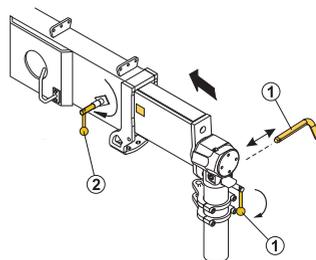


DANGER

Always ensure that the stabiliser legs and the stabiliser extensions are in transport position and securely locked.

Loader with tiltable stabiliser legs

1. Raise the stabiliser leg carefully slightly from the ground.
2. Unlock the stabiliser leg lock (1). Make sure that it remains in the released position.



WARNING

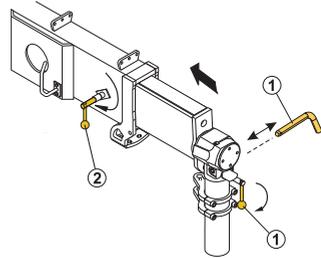
Do not stand behind the stabiliser leg. Do not touch the stabiliser leg either.

3. Raise the stabiliser leg slowly until the plate touches the bar on the "inside" of the stabiliser leg.
4. Stop the operation as soon as the stabiliser leg is tilt back to transport position (transport angle depends of the design), lock the stabiliser leg lock (1).

5. If manual operated stabiliser extension: unlock the stabiliser extension with the handle (2) and retract the stabiliser extension completely.
6. If manual operated stabiliser extension: lock the stabiliser extension with the handle (2).

Loader with tiltable stabiliser legs - Power lift

1. Raise the stabiliser leg carefully slightly from the ground.
2. Unlock the stabiliser leg lock (1). Make sure that it remains in the released position.



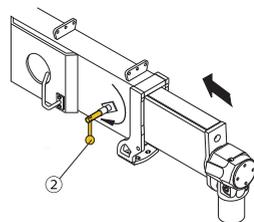
WARNING

Do not stand behind the stabiliser leg. Do not touch the stabiliser leg either.

3. Raise the stabiliser leg slowly until the plate touches the bar on the “inside” of the stabiliser leg.
4. Continue raising the stabiliser leg carefully. It will now move backwards and perform a rotary movement.
5. Stop the operation as soon as the stabiliser leg is almost vertical, lock the stabiliser leg lock (1).
6. If manual operated stabiliser extension: unlock the stabiliser extension with the handle (2) and retract the stabiliser extension completely.
7. If manual operated stabiliser extension: lock the stabiliser extension with the handle (2).

Loader with non-tiltable legs

1. Raise the stabiliser leg.
2. Retract the stabiliser extension completely. (If manual operated stabiliser extension: unlock the handle (2). Retract the stabiliser extension and lock with the handle (2).



7.2. Operate the boom system into transport position

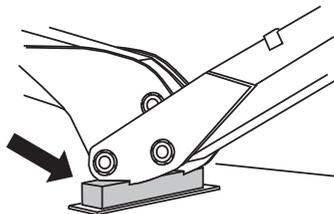
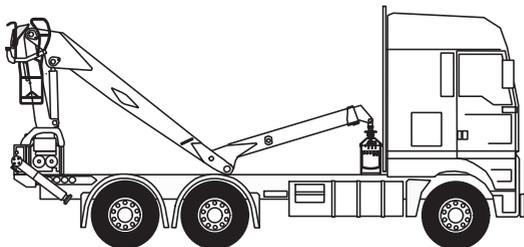


WARNING

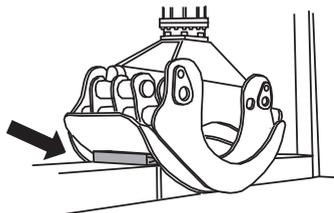
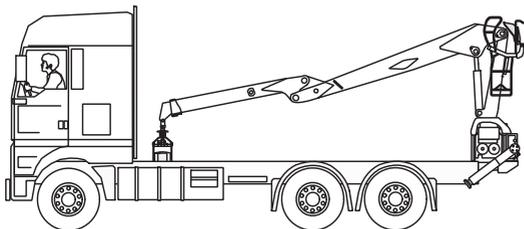
- When you finish loading, always stop the hydraulic pump
- Disengage the PTO of the pump and its gear.

Moving the loader

- Moving the vehicle is strictly forbidden when the loader is loaded or the boom assembly turned to the side.
- During transportation, the loader must always be in its proper transport position, and the boom system must be supported also in lateral direction.



Use a separate support to support the boom system.



Use a separate support to support the grapple.



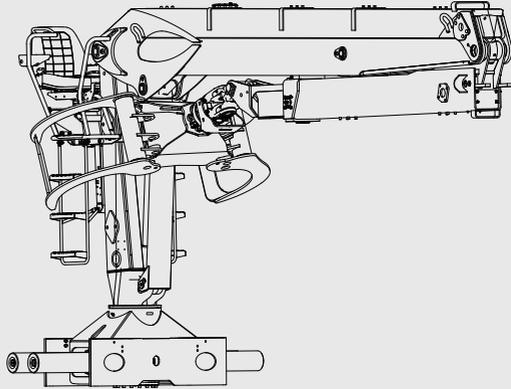
IMPORTANT

- Lock the boom assembly for transport so that the loader will not move by itself
- Operate the boom system into a parking position that prevents free swinging of the grapple during transportation.
- Operate the boom system into a parking position that prevents the grapple from hitting the operator's control station in case of accidental operation of the loader.



WARNING

Do not park the grapple horizontally (an example of incorrect position is shown in the picture).



- Take the total height of the loader and the load into consideration! Be especially careful around electricity lines. If your loader is equipped with a height warning light for the first boom, do not drive the vehicle while the warning light is on.
- When moving the vehicle, ensure that there is nobody at the loaders control position.
- When the loader is installed on a detachable console at the rear of the vehicle, be especially cautious when uncoupling or recoupling the loader. At such times, nobody is allowed at or near the loaders control position.
- Ensure that the load is properly tied.

7.3. Transport Warning Interface (TWI)



WARNING

If you switch off the safety system when manual operated stabiliser extensions/tiltable legs are not locked in the transport position, and/or if the first boom angle exceeds a certain specified angle, the system will give you a warning.

The vehicle must not be moved.



- Cabin Warning Interface (CWI) is connected to TWI and mounted in the cabin to warn the driver, visible and audible from the driving position for transport, indicates when the loader height exceeds a predetermined maximum and when the manual operated stabiliser extensions/tiltable legs are not locked in the transport position.
- The audible warning can be silenced by an acknowledgement button [option] or by a signal indicating that the parking brake of the vehicle is engaged.



The vehicle must not be moved

1. Switch the system on, put the loader into the transport position.
2. Switch off the system. The vehicle may be moved.



DANGER

After use always put the loader into the transport position! When you have to park the boom on the load space, or over the load, secure the boom and the lifting accessories to prevent any unintentional movement of the loader and the lifting accessories.

7.4. Emergency operation of the dump valve

In event of a failure in the safety system the oil is dumped immediately to the tank. To be able to operate the loader to parked position when it is unserviceable follow these steps.

1. Unscrew the domed nut and break the security sealing on the dump valve
2. Use a screwdriver to turn the screw into a position preventing the normal operation of the loader. Pressurized oil will now enter the system.
3. Operate the loader into parking position.



WARNING

Operate the loader with the utmost care. This emergency operation is only allowed to operate the loader to transport position. All other actions is strictly forbidden! The loader may only be taken back in use once the damage has been repaired by an HIAB authorized service workshop.

7.5. Emergency operation of the boom extension

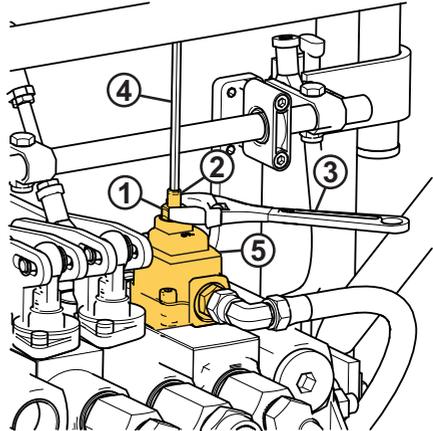
In the event of a failure in the electric system or proportional valve, it's necessary to retract the boom extension manually. To be able to retract boom extension follow these steps:

1. Loose locknut (1) which counter the screw (2). Use a wrench 13mm (3).
2. Start tightening slowly the screw (2) with the Allen key - 4mm (4) until the boom extension is fully retracted. Check the pictures.

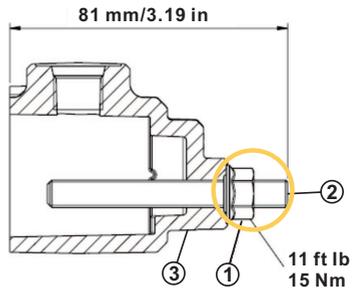
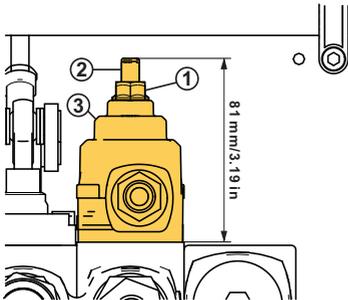


WARNING

Be careful with tightening the screw (2). Avoid fully tightening the screw (2) as it might be fall the screw into the housing (5).



3. After retracting the boom extension, untighten the screw (2) to the starting position. Check that the distance to the top of the screw is the same as in the picture below. It should be 3.19in/81mm.



4. Tighten locknut (1) to torque 11 ft lb/15 Nm.
5. Operate the loader into parking position.



WARNING

Operate the loader with the utmost care. This emergency operation is only allowed to operate the loader to transport position. All other actions are strictly forbidden! The loader may only be taken back in use once the damage has been repaired by an HIAB authorized service workshop.

8. Maintenance and Service

8.1. Warranty

HIAB only provides a warranty if:

- The "Warranty – Terms and Conditions" specified in the "Service & Warranty Manual" are fulfilled.
- The loader is inspected and maintained, at least once a year, by a Hiab service workshop as specified in the "Service & Warranty Manual".
- HIAB parts are used for every repair or maintenance work.
- All security seal wires on the valves are still intact.

Always use original HIAB parts and tools.

8.2. Service



DANGER

- Do not do any welding work on the loader yourself! Welding work on the loader may only be carried out by, or in close consultation with, a HIAB service workshop.
- Do not drill into the loader yourself. Drilling work on the loader may only be carried out by, or in close consultation with, a HIAB service workshop.
- Never try to reinstall the loader. Only a HIAB Dealer may reinstall the loader.



Before carrying out any welding on the vehicle

1. Disconnect all electric power to the loader.
2. Contact the manufacture of the vehicle.

Leakage



DANGER

- Keep well away from an oil leak on the hydraulic system! The oil spraying out can cause serious injury. The oil in the hydraulic system is under high pressure.
- Do not replace any hydraulic hoses or lines yourself: Precautions shall be taken when disconnecting hydraulic lines and hoses to ensure that no hydraulic pressure is retained in the line when the power supply to the system is switched off. Pressure may be retained in the hydraulic lines when the power supply has been switched off.
- Always contact a HIAB service workshop.

Deal with an oil leak as follows:

1. Rest the loader on the floor or on the truck platform.
2. Switch off the operating system.
3. Disengage the PTO.
4. Leaking coupling:
 - Tighten the coupling with a spanner.
 - If tightening does not help: contact a HIAB service workshop.
5. Small leak on a line or hose:
 - Determine if you can still park the loader.
 - If you can: park the loader and go to a HIAB service workshop. If you cannot: contact a HIAB service workshop.
6. In all other cases, contact a HIAB service workshop.

8.3. Follow the maintenance instructions!

Check the loader, at least once a year, by a HIAB service workshop for inspection and maintenance. Maintain lifting accessories according to the supplier's instructions.



WARNING

- Ensure that faults in the loader are corrected immediately!
- Never correct faults yourself that may only be corrected by a HIAB service workshop.
- Carry out yourself only the service and maintenance work you have the requisite knowledge and experience of.

If the loader is not be used for 1 month or longer:

- Lubricate the loader thoroughly according to the lubrication schedule and instructions.
- Fold the loader in the parked/transport position.

Filters

Replace the filter cartridge:

- after the first 50 hours operation
- then after every 500 hours operation

- or at least twice a year.

Cleaning

Clean your loader and accessories regularly, but:

- Do not use aggressive cleaning agents.
- Use only cleaning agents with pH between 5-9.
- Use Max water temperature: 122 F
- Use Max pressure: 2030 psi
- Minimum distance between nozzle and the surface: 1 ft 3.7 in
- Never use a high pressure jet cleaner on electronic parts, plastic components, signs, bearings, control valves, cylinders or the oil tank. Only the loaders surface may be cleaned with a high-pressure jet cleaner.

8.3.1. Daily inspection

Stop buttons and stop functions

- Use the loader and its safety system to make sure that the stop buttons, motor stop, dump valve, tilt sensor, TWI and CWI (Cabin Warning Interface) are undamaged and working properly.

POL - Protection Over Load [option]

- Operate the POL function and verify that is working correctly.

Control levers, joysticks, pedals and control rods

- Check that they are undamaged and working properly.

Hydraulic system

- Check that there are no leaks from the hydraulic hoses, cylinders, valves, bottom of the base, joint of the column, lines and connections of the base.

Oil tank level

- To check the level in the oil tank:
Put the vehicle on level ground with the loader in transport position.
- If necessary, top up.

Base oil level

- Check the oil level in the base.
- If necessary, top up.

Add-on equipment

- Check the cables, cable connections, the cable guides and the attachment points for the add-on equipment.
- Maintain all add-on equipment, auxiliary equipment etc. according to the instructions supplied with it.

8.3.2. Weekly inspection and maintenance

Shafts and pins

- Check the lockings of shafts and pins.

Steps, passageways and the seat/cab

- Check the steps, passageways and the seat/cab.
- Check the fastening of the seat.

Hydraulic pump

- Check the fastenings of the hydraulic pump.

Hose connections

- Check that the hoses, lines, connectors, cylinders and valves are tight.

Suction hose

- Tighten the suction hose connectors if necessary.

Hydraulic system

- Bleed air from the hydraulic system. Air must be bled from the hydraulic system, if:
 - the system has been under maintenance or repairs.
 - the loader has not been used for a long time.
 - inadvertent movements occur during operation of the loader or the controls are slow or inaccurate.

Bearings and joints

Refer to the lubrication schedule to lubricate the following components:

- Base bearing
- Cylinder bearings
- Control lever joints
- Boom system bearings.

Boom extension and the stabiliser beam

- Use spray vaseline or chain oil to lubricate the surface of the second boom and extension.
- Use spray vaseline to lubricate the surface of the stabiliser beam.

Levers

- Lubricate the levers with a grease gun. Note the positions of the levers before greasing.

Chain in extension

- Lubricate with a grease gun.

8.3.3. Monthly inspection and maintenance

In addition to the daily and weekly inspection, carry out the following each month.

Loader structure

- Clean the loader structure and check for damage (for example, any formation of cracks).

In the event of damage that presents a safety risk:

- Do not use the loader.
- Have the damage repaired immediately by a HIAB service workshop.

Presence of load plates and notices

- Check that the symbols near the levers for the main control valve and stabiliser control valve are in position.
- Refer to the chapter "Signs on the loader" and check that all other notices and stickers are in position: load plates, warning symbols.

Boom bearing and cylinders

- Check the fastening.

Bolts and screw fixings on loader, cabin, cabin lifting device and the grapple

- Examine the condition of the bolts and make sure that bolt and screw fixings are tightened. Tighten them if necessary.

Lateral clearance of the boom and/or hydraulic extension

- Adjust the lateral clearance of the boom and/or hydraulic extension.

Chain in extensions

- Check the condition and adjust the telescope chain if necessary.

Grapple

- Lubricate the grapple with a grease gun according to the operator's manual for your grapple.

8.3.4. Twice a year maintenance

Take the loader, at least twice per year, to a Hiab service workshop for inspection and maintenance. Carry out the following maintenance:

Oil tank

- Remove condensed water from the oil tank.

Loader base

- Check the oil in the loader base and drain it for condensed water via the drain plug

Spring cups

- Clean spring cups and grease them.

8.3.5. Annual maintenance

Take the loader, at least twice a year, to a Hiab service workshop for inspection and maintenance.

Carry out the following maintenance at least once a year.

Hydraulic system

- Change the oil tank filler cap.
- Change the hydraulic oil.
- Change the oil in the slewing system.
- Replace filters.



NOTE

If the loader is being used in hot climates the oil might need to be changed more often.

Extension

- Check and adjust the vertical clearance of the extensions.

You can adjust the clearance of the extensions (1 or 2 depending on loader type) by adding shims underneath the slide pads.

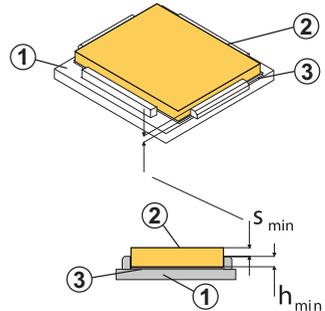
(1) Bearing housing

(2) Sliding pad

(3) Shim

s_{\min} - distance between top surface of the pad and top surface of the bearing housing ribs (slide pads must be replaced when 2mm wear surface is left).

h_{\min} - distance between top surface of the shim and top surface of the bearing housing ribs.



Loader base

- Change the oil in the loader base.

8.4. Lubrication



WARNING

Follow the lubrication schedule exactly. If you do not do so, you can cause serious damage to the loader and to add-on equipment.

Type of grease

Use lithium based grease containing EP additives (consistencies 2 and 3 are recommended, depending on the climate).

Recommended greases:

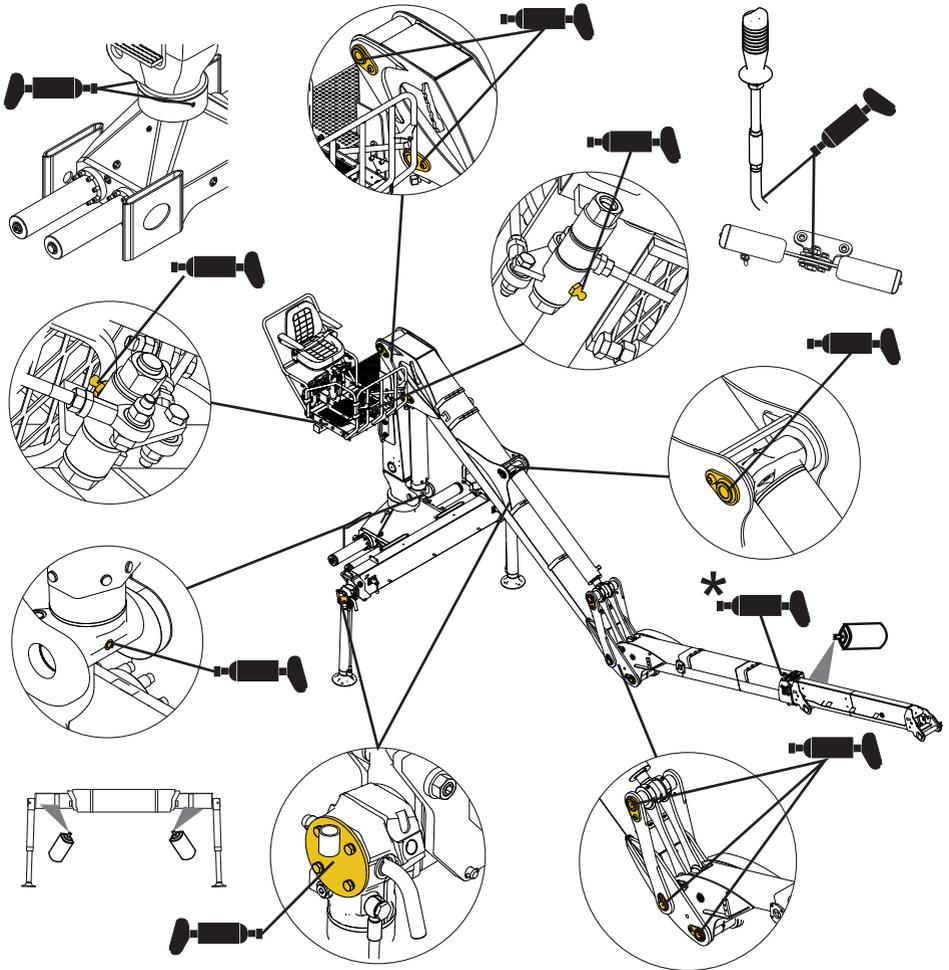
BP LS EP 2, ESSO UNIWAY EP2 N, AGIP GR MU/EP3, NYNÄS UNIFETT EP.



NOTE

Avoid grease with graphite or molybdenum-disulphide additives.

8.4.1. Lubrication



*Only for telescopic booms with 2 extensions.

The location and the number of greasing points can vary from the illustrations.

8.4.2. Lubrication of the upper column bearing

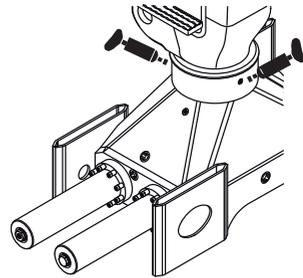


DANGER

The upper column bearing must be lubricated while the loader is slewed. If one person lubricates the upper column bearing, while another is slewing the loader: Take care that the person lubricating the bearing does not come into contact or get crushed by the loader!

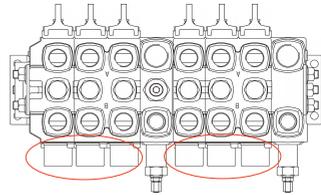
If you are lubricating the upper column bearing without help:

- Lubricate the upper bearing with a little grease.
- Slew the loader a little.
- Again lubricate with a little grease. Repeat, until the column has been slewed round completely.



8.4.3. Clean and grease the spring cups.

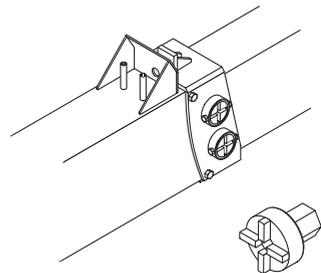
1. Open the spool spring cups,
2. Clean the springs
3. Fill with grease.



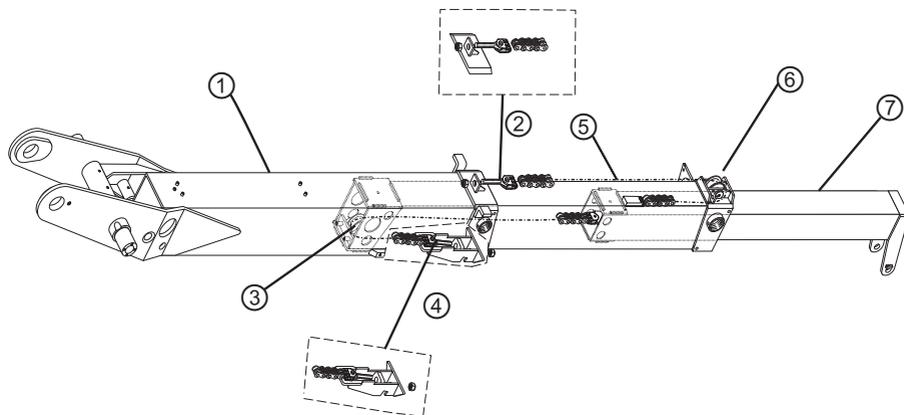
8.5. Adjust the lateral clearance of the boom and/or hydraulic extension

Turn the bearing covers an equal amount on both sides.

Turn the covers all the way closed. Then open them one quarter of a turn.



8.6. Adjust the chain in the telescope



- (1) 2nd boom
- (2) Chain tensioner
- (3) Roller
- (4) Chain tensioner
- (5) Extension 1
- (6) Roller
- (7) Extension 2

The correct tightness prevents the chains from overloading and wearing out too quickly. Correct adjusted chains will also not jump off the groove in the roller.

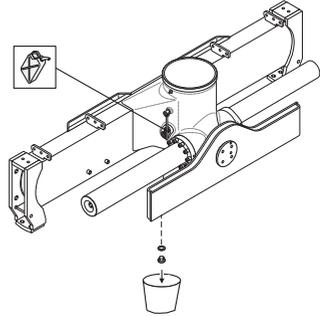
1. Retract the extensions. Lower the grapple to the ground.
2. Loosen the adjustment screw of the top chain fastener until the chain is visibly loose.
3. Tighten the adjustment screw of the bottom chain. Extension 2 will retract until the extensions come in contact with each other. Check that the top chain is still loose. Loosen the adjustment screw of the bottom fastener until a small gap is created between the nut and the second boom and extra chain tension is removed.
4. Raise the 2nd boom until it is level and keep the grapple near the ground. Extend the extensions. Slightly retract the extensions (0.8 to 2 in) to loosen the top chain. Leave the 2nd boom in the air to avoid the top chain from tighten.
5. Tighten the top chain with the adjustment screw. The correct tension is achieved when it is possible to move the chain vertically about 0.5 to 1 in from its center by hand.
6. Check the chain adjustments by extending and retracting the extensions a couple of times.

8.7. Hydraulics

8.7.1. Loader base: checking the oil level/oil change

Checking the oil level in the loader base

1. The oil level must reach the bottom edge of the top oil level eye. the loader slewing system and the lower bearing of the column must be fully submerged in oil bath.
2. If the oil level is below the minimum level, top up through the filling hole with transmission oil of type MIL-L-2105C or API-GL-5, viscosity SAE-80W-90



Changing oil in the slewing housing

Change the oil in the slewing house yearly!

1. Use a container with sufficient capacity to receive the oil. Drain off the oil through the drain plug.
2. Refill through the hole for the measuring stick, with transmission oil of type MIL-L-2105C or API-GL-5, viscosity SAE-80W-90.
3. Slew the loader, after filling to the end positions, three times.
4. Check the oil level. If necessary top up again.

8.7.2. Bleeding air from the hydraulic system

Bleed the air from the hydraulic system:

- after changing the hydraulic oil
- after working on the hydraulic system
- if your loader works slowly or jerkily



WARNING

Air in the hydraulic system can lead to faults and damage

To bleed air from the hydraulic system, proceed as follows:

Move each loader cylinder and each hydraulically operated piece of add-on equipment at least twice to its end positions (slowly).

8.7.3. Replacing the cartridge in return oil filter

Return oil filter with clogging indicator



NOTE

Do not clean the filter.

Replace the breathing filter of the filler cap at the same time as the return filter cartridge.

When clogging indicator turns red or filter time is reached (whichever is the sooner), the cartridge must be replaced. **If indicator is not fitted, replace the cartridge periodically as recommended by Hiab.**

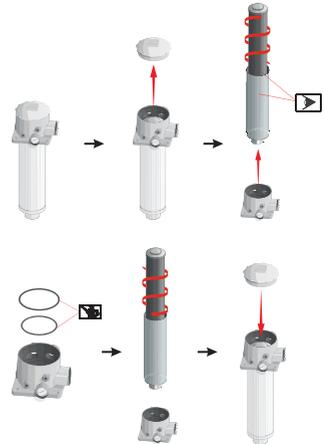


WARNING

Dirt will damage the hydraulic system

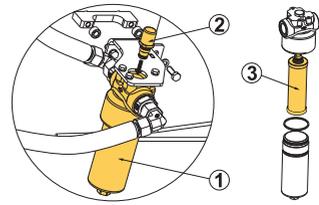
Make sure that the area around the filter is clean to prevent contamination of the hydraulic oil.

1. Switch off the hydraulic system and release the filter of pressure.
2. Clean the immediate surrounding area of the filter.
3. Remove the cover.
4. Remove the filter cartridge with attached filter housing by using the handle.
5. Examine the surface of the filter cartridge for dirt residue and larger particles; these can indicate damage to the components.
6. Examine the filter housing for any possible mechanical damage.
7. Replace the filter cartridge with a new one.
8. Remove old O-rings and replace (oil before assembling).
9. Place the filter cartridge carefully into the filter housing and screw. Pay attention to the position of the handle.
10. Install the filter cartridge with attached filter housing.
11. Refit the cover.
12. Replace the breathing filter in the filler cap.
13. Switch on hydraulic system and check the filter for leakage.



8.7.4. Replacing the cartridge in high pressure filter

- (1) High pressure filter
- (2) Optical indicator
- (3) Cartridge



WARNING

Dirt will damage the hydraulic system

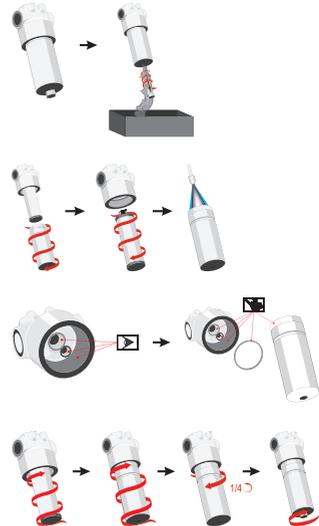


NOTE

DO NOT clean the filter cartridge.

When clogging indicator turns red or filter time is reached (which ever is the sooner), the cartridge must be replaced. **If indicator is not fitted, replace the cartridge periodically as recommended by Hiab.**

1. Switch off hydraulic system. Release filter of pressure.
2. Clean the immediate surrounding area of the filter.
3. Remove the oil drain plug. Collect oil in a suitable container.
4. Unscrew the filter housing. Collect oil in a suitable container and clean or dispose of it in accordance with environmental regulations.
5. Remove the filter cartridge. Examine the surface of the cartridge for dirt residue and larger particles; these can indicate damage to the components.
6. Clean the filter housing.
7. Examine the filter housing and head segment, especially sealing surfaces and thread, for mechanical damage.
8. Always replace the O-ring of the filter housing.
9. Oil the threads and sealing surfaces on the filter housing and head segment, as well as the O-ring.
10. Replace the filter cartridge with the new one and screw carefully.
11. Fully tighten the filter housing. Then, unscrew it 1/4-turn back.
12. Screw the oil drain plug.
13. Switch on hydraulic system and check the filter for leakage.



8.7.5. Checking the oil tank level

1. Place the loader and stabiliser legs in the transport position.
2. Place the vehicle on level ground.
3. Check the oil level in the tank.
4. Oil level too low:
Top up with hydraulic oil.



8.7.6. Changing the hydraulic oil



WARNING

The oil can be hot and cause injury.

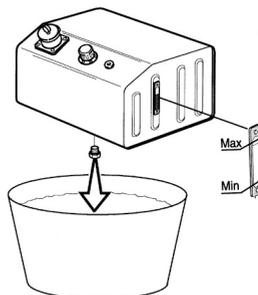
1. Operate the loader for a while to warm the oil. Place the loader in the parked position. Take care that the temperature of the oil does not exceed the point where you can handle it safely. If this occurs allow the oil to cool before moving to the next step.



WARNING

- Suitable eye and hand protection must be worn while carrying out this operation, and if there is a risk for inhalation of oil mist, a mask as well.
- Inhalation of oil mist: Contact a doctor.
- Skin contact: Remove polluted clothing, wash with soap and water. In the event of high pressure injection of the product, see a doctor without delay.
- Eye contact: Rinse eyes with plenty of water, see a doctor if irritation persists.

2. Drain the oil tank through the drain plug. Make sure the system contains as little as possible.
Use a container with sufficient capacity.
3. Change at the same time:
- all filters
4. Refit the drain plug.



NOTE

Ensure the waste oil is disposed of safely and in accordance with local environmental regulations.

Filling the oil tank with hydraulic oil

The oil used for filling must be clean. Do not mix different oils.

Hydraulic oils must have been dealt with according to cleanliness requirements ISO 4406: -/16/13.

Hydraulic oil that is approved for HIAB products must comply with one of the following standards or equivalents:

- ISO 11158 HV
- DIN 51524 part 3 HVLP
- ISO 6743/4 L-HV

Suppliers of hydraulic oil must verify that the quality and performance of the oil complies with the above standards.

When changing from mineral oil to a non-polluting synthetic oil, or when changing to biodegradable oil, contact a HIAB service workshop.

Viscosity of oil

The viscosity of the oil is of great importance to achieve high efficiency of the hydraulic system.

The naming of the oil in the table below: 32, 46 or 68 tells the viscosity of that oil at 104°F (reference temperature).

Viscosity of oil at 104°F	Temperature range
32	-13°F to 167°F
46	5°F to 194°F
68	23°F to 194°F

The recommended viscosity during normal working conditions is between 16 and 40cSt.

HIAB strongly recommend an oil working temperature below 158°F. If necessary consider an oil cooler or heater.



NOTE

When working in arctic condition consider an oil with lower viscosity than the 32 oil in the table above.

Environmentally Friendly Oil

The environmentally friendly oils recommended for HIAB products are ester based synthetic hydraulic fluids (synthetic ester).



NOTE

Vegetable oils do not meet HIAB's requirements and must not be used.

After filling the tank

1. Operate each loader function to its end positions.
2. Operate the loader to parking position.
3. Check and top up the oil tank to max level on the tank gauge.
4. Bleed the system.

8.8. Troubleshooting

8.8.1. Faults in the loader

Faults in the loader must be rectified immediately.



DANGER

- Only correct yourself the faults that according to the table you may rectify.
- Follow the instructions exactly!
- All other faults may be dealt with only by personnel in a HIAB service workshop!

Fault	Probable cause	Action
The hydraulic pump makes a noise. Three causes: Warning! Stop using the loader immediately!	Oil tank filler cap air filter is blocked.	Clear the blockage or replace the entire filler cap.
	Oil level in the tank is too low.	Top up the oil tank and bleed the hydraulic system.
	The pump is faulty.	Go to a HIAB service workshop.
The stabiliser extensions do not slide out.	The extensions are still locked.	Unlock the extensions.
	Hydraulic fault.	Go to a HIAB service workshop.
The slewing movements are irregular or cause abnormal noises.	Insufficient oil in the hydraulic system.	Top up the oil tank.
	Insufficient oil in the gear box.	Top up the oil in the gear box to the required level.
	Bearing assemblies and pinion are not properly lubricated.	Lubricate the bearing while slewing.
	Bearing assemblies or pinion are damaged.	Go to a HIAB service workshop.
Add-on equipment does not work properly.	Connectors not properly connected.	Reconnect the add-on equipment according to the instructions.
	Other defect.	Go to a HIAB service workshop.

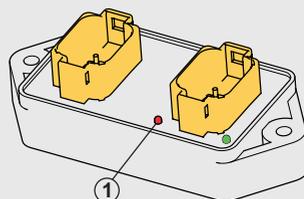
Fault	Probable cause	Action
Leak on hydraulic system: leaking coupling, hose or line. Danger! Keep well away from an oil leak.		1. Disengage the PTO. 2. Contact a HIAB service workshop.

8.8.2. Troubleshooting of the boom extension control



NOTE

The red LED light (1) on the controller indicates an error in the system.



DANGER

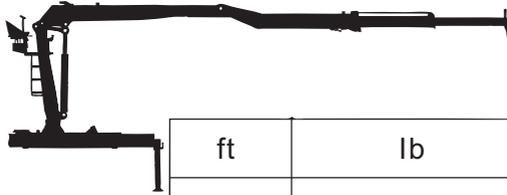
All issues must be repaired or replaced by personnel in a HIAB service workshop!

Issue	Solution	Remark
Loosen mechanical thumb rocker.	Check joystick or replace.	
Damaged harness or connectors from joystick.	Check harness and connectors for damage.	
Damaged harness or connectors to valves.	Check harness and connectors for damage.	Red light flashing in ECU.
Problems with valve operation while using joystick.	Check the quality and cleanliness of the connectors (e.g. water).	Red light flashing in ECU.
No electrical power supply (24V).	Check the quality and cleanliness of the connectors (e.g. water). Check fuse.	No green light flashing in ECU.
Unintended movement of boom extension.	Check ECU and replace if necessary.	

9. Technical Data

9.1. Load plate table

The Installer must fill in the valid foots (**ft**) and pounds (**lb**) in this table, following instructions given in the Installation instructions manual.



ft	lb

The enclosed Technical Data must be stored together with this Operator's manual.

10. Decommissioning

10.1. Decommissioning a loader

Loaders are designed and manufactured taking the environment into consideration. Environmental requirements and soundness have been considered when selecting the raw materials. The metal parts are designed to achieve a light and durable construction, this includes the selection of higher-quality grades of steel. When the loader is decommissioned at the end of its service life, years from now, waste will be created, which must be utilized and disposed of correctly. The loader must be decommissioned properly. Most of the loader's raw materials can be recycled.

Follow the regulations of the local authorities!

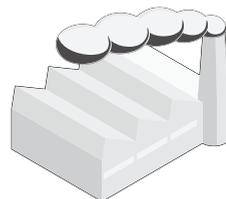
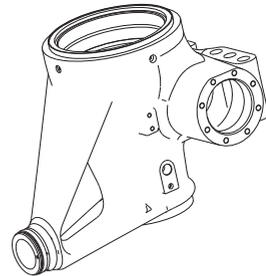
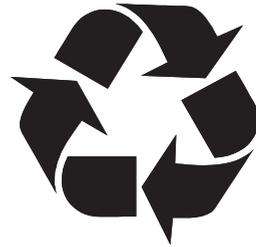
- Oil and grease must not be spilled on to the ground or released into the environment!
- Drain the oil from hydraulic cylinders, valves and hoses.

Sort the waste

- Deliver the metal parts for recycling, for reuse as raw material. These are load-bearing, structures manufactured from steel or cast iron, hydraulic cylinders and lines drained of oil, directional control valves, shafts, bearing bushes, control levers, small parts.

Energy waste can be utilized by incinerating it at a proper waste incineration plant

- spiral wraps, manufactured from polyethylene, plastic, bearings (cleaned of lubricants) used in the column, beam system etc, manufactured from polyamide plastic.



Unsorted waste should be delivered to a landfill

- drained hydraulic hoses, electrical wires, control cables, seat, hydraulic cylinder seals, lights, small plastic and rubber parts.

Hazardous waste is delivered to a collection point for hazardous waste

- oils: hydraulic oil, transmission oil from the slewing system
- solid lubricants: greases from the joints and journal bearings
- other waste containing oils and greases: hydraulic oil filters.

