EFFER Hoists

Operator's Manual GB

This manual applies to hoists mounted on a crane from serial number:

ME175.200001- ME0021500001-ME0026500001-ME0031500001-ME315CW00001-
ME0039500001- ME0052500001-ME525CW00001-ME0068500001-ME0095500001-
ME0100000001- ME0125500001-ME0140500001-ME0185500001-ME0205500001-100029701

2021-11

Help us to improve this manual. Please send your comments and suggestions to **contact@effer.com**

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1. Knowledge required

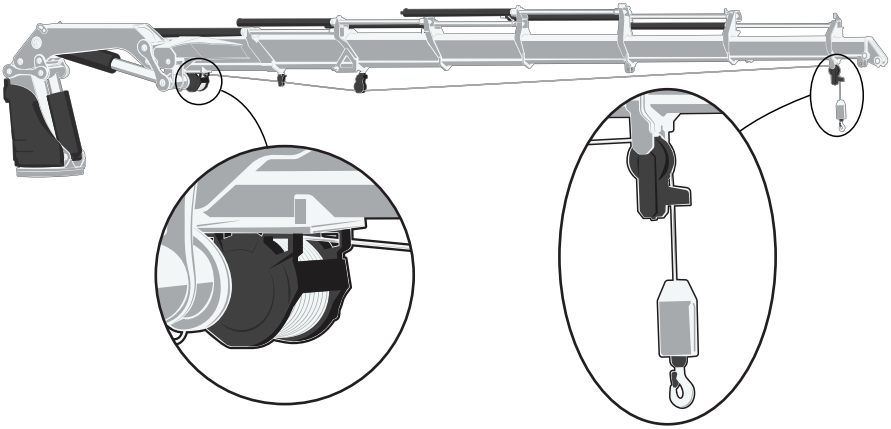
1.1. Hoist models

This manual covers these DINAMIC OIL hoist models:

- 900/1100 daN (P9-Series)
- 1570/2000 daN (S15-Series)
- 1900/2500 daN (S19-S19L-Series)
- 2750/3600 daN (A80-Series)
- 3500/4500 daN (S35/2-Series)
- 3600/4600 daN (S35V/2-Series)
- 4500/5700 daN (S45/2-Series)

The hoist, designed for an EFFER crane, is installed on the 2nd boom.

The hoist fulfills the European Machine Directive and is marked with the CE sign.



1.2. Introduction for Hoists

Always study the Operator's Manual for both crane and hoist.

Always study the Hoist manual from the supplier for further information.

These instructions contain important recommendations for the operation and maintenance of the DINAMIC OIL hoists and are especially meant for the operating and maintenance personnel.

Only authorised experts are allowed to install, operate, maintain and repair the DINAMIC OIL hoists. All instructions have to be read, understood and noted by the operating and maintenance personnel before installation, initial operation and maintenance.

We would like to point out especially the safety notes mentioned in chapter: Safety precautions and warnings.

Long operation safety can only be guaranteed when installation and operation of the hoist system is made according to instructions and when you keep to the maintenance intervals and the operating material.

These instructions have to be kept together with the crane operator's manual and any other accessory manual (like JIBs...), and have to be accessible to the operating and maintenance personnel.

Operation faults and poor care can lead to failures and unnecessary repairs.

Ensure that you comply with the statutory requirements of the country in which you use the crane and lifting accessories.

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

1.3. Determination - Hoist

The DINAMIC OIL hoists belong to the group of hoisting winches. The use as determined is hoisting and lowering of loads as specified for each hoist type and under the attention of the given installation regulations as well as of the safety notes.

DANGER
Transportation of passengers with the hoist is not permitted.

The use as determined also includes the related equipment manufacturer's recommendations regarding installation, operation and maintenance.

Machine safety is guaranteed only if it is used for its intended purpose and according to instructions in this manual.

1.4. Working safety symbol

Please pay attention to the following instructions and use extra caution in these cases. Inform other users about these working safety symbols. In addition to the safety symbols and recommendations contained herein, the rules and regulations regarding safety and accident prevention of the country of application must be followed.

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 crane or other objects.

Follow the instructions carefully.

CAUTION

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

Important:

If actions are numbered, do them in numerical order!

1. Do this
2. Do that
3. .....

NOTE

Extra information that can prevent problems.

TIP

Tip to make the work easier to carry out.

1.5. Temperature range

The DINAMIC OIL hoists are designed for operation in a temperature range / ambient temperature of -10°C up to +40°C (14°F up to 104°F), unless otherwise specified in the hoist data sheet.

NOTE
Please contact us regarding extreme temperatures, vibrations, jerks, sand, dust or sea water or any other extreme environmental condition.

1.6. Warranty

The Seller only provides Warranty if the conditions specified in the "Service and Warranty Manual" are fulfilled.

Refer to the Service and Warranty Manual of your Product.

2. Safety precautions and warnings

2.1. General safety instructions

The DINAMIC OIL hoists have to be used according to the determination. Each use which is exceeding this, is understood as use as not determined.

Plates with notes, which are fixed on the hoist system and on the accessories, have to be noted and must not be removed.

During the hoist operation the operator has to watch the movements of the load as well as the entire danger zone. In uncertain situations, observation by additional personnel or by means of radio equipment must be guaranteed.

Modifications and changes without any authorization, which jeopardize the safety of the hoist system, are forbidden.

Lubrication points on the hoist have to be lubricated once a month.

The hoist system must be stopped during maintenance works.

2.2. Safety notes to hoist operation

Towing works and passenger transports with the hoist system are not allowed.

During hoist operation the rope must not be pulled off the hoist drum completely. Three or five safety windings have to remain on the drum.

Hot oil can cause danger of burning in case of change of gear oil or hydraulic oil!

The parts which are necessary for the complete function of the hoist system, must not be treated on their surface (lacquered, glued etc.). These are most of all ropes, rope guide parts, valve activators, operating units, optical indications and indication labels as well as ventilations (sintered bush) on electronic units and operating units.

2.3. Safety recommendations hoist

Study the entire Operator's Manuals for the crane and hoist carefully.

DANGER

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

WARNING

Before the hoist is to be used a thorough check of the following is necessary:

- hoses, pipes and connections
- rope and pulleys
- lifting accessories

Make sure that everything is in acceptable condition, that no visual damage or oil leaks exist.

DANGER

- Never walk or stand under a suspended load.
- Ensure that there are no unauthorised persons within the operating range of your crane! No persons are allowed close to the crane working zone.
- In case of oil leakage, do not go close to the leak. Fluid under high pressure may cause serious injury to persons.

TIP

Mark out the working range, e.g. with cones. Put on your vehicle's warning lights.

WARNING

- Do not drag or tow loads with the hoist rope or the crane.
- To avoid swinging loads additional guiding ropes from the ground are to be used.
- Do not handle loads containing unattached components.
- Use the appropriate lifting attachment for each type of goods to be handled.
- Do not handle goods which are not properly fastened.
- If daylight is not sufficient, use suitable artificial light to work under safe conditions.

2.4. Use of the Hoist

The hoist is a crane accessory that permits load handling without any or only limited boom movement. An obvious advantage is that the hoist makes it possible to handle loads far below ground level. Lifting and lowering are achieved by winding/ unwinding the rope. A number of auxiliary components are needed, such as intermediate pulleys and a hook pulley. As an option, a snatch block can be installed to multiply the lifting capacity.

DANGER

- Watch out for hazards!
- Always stay clear of the rope, top-roller and the counterweight when operating the hoist.

WARNING

During operation:

- When using the hoist, follow the instructions carefully!
- The counterweight should not touch the top-roller. A safety device is placed between counterweight and the top roller. Make sure that it has the correct installation, position and connection.
- When working with the extensions retracted, keep a minimum distance as indicated in the load diagram between the crane slewing axle and the rope guide. This to avoid incorrect winding of the rope onto the drum.

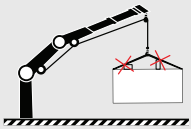
2.5. Lifting loads with hoist

DANGER

- Use only Hiab original ropes or a rope that meets Hiab's specifications.
- Check and clean hoist rope regularly but not using high pressure fluid jets neither steam jets.
- Replace the rope if it is damaged.
- Always use safety gloves when handling ropes or slings.
- Never guide a moving rope with your hands!

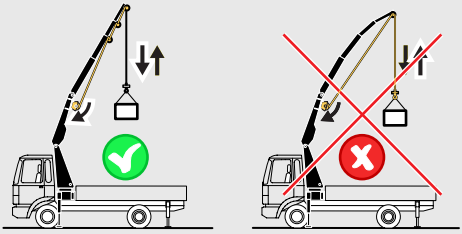
WARNING

- Make sure that ropes do not touch or slide over corners, cutting edges or other obstacles.



CAUTION

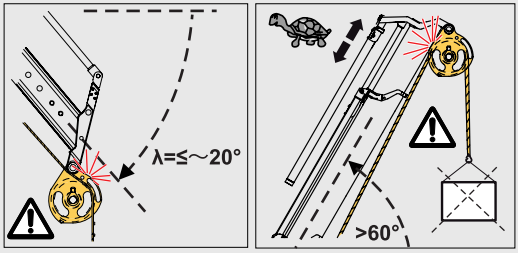
- You may cause structural damages if you don't follow the allowed configurations: number of pulls, position and number of intermediate pulleys described.



- You may cause damage to the rope and hoist if you don't wind/unwind the rope with an appropriate angle and following the order of the layers.

CAUTION

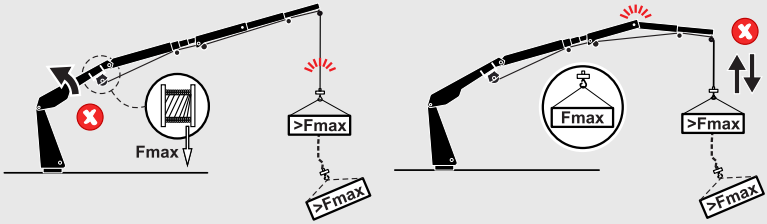
Always do a check of the boom angles that you can reach with an oscillating top-roller. It could interfere with other parts of the crane and cause serious damages.



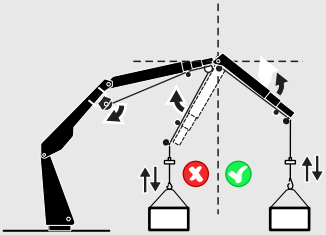
DANGER

These situations are supervised by safety devices:

- Do not use the crane and/or JIB to lift greater loads than the permitted by the hoist.
- Do not use the hoist to lift greater loads than the permitted by the crane and/or JIB.

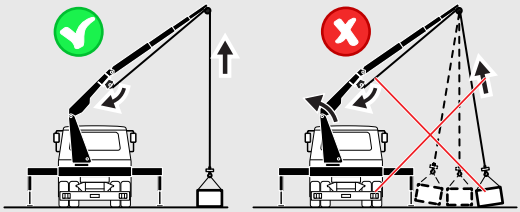


- You must not lift loads with the hoist with the wrong side of the boom system.



DANGER

Always try to lift the load from the vertical position, carefully and operating only the hoist, not the crane.



2.6. Safety devices

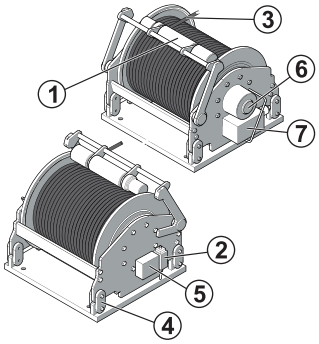
- **Overload device**
  This device prevents the hoist from overloading if its maximum permitted pull is exceeded.
  When this situation occurs, the following movements are allowed: unwinding the hoist rope, retracting crane and jib extensions, crane and jib lowering and slewing.
- **Rope limit stop device**
  - This device prevents the impact or interference between the top-roller and the hook/ counterweight.
    When this situation occurs, the following movements are allowed: unwinding the hoist rope, retracting crane and jib extensions, jib lowering and the other movements of basic crane.
  - This device also stops the movement of the hoist when few rope layers are left in the drum of the hoist. When this situation occurs, only unwinding the hoist rope is stopped.

NOTE
Contact an authorised service workshop if you are not able to correct any of these situations.

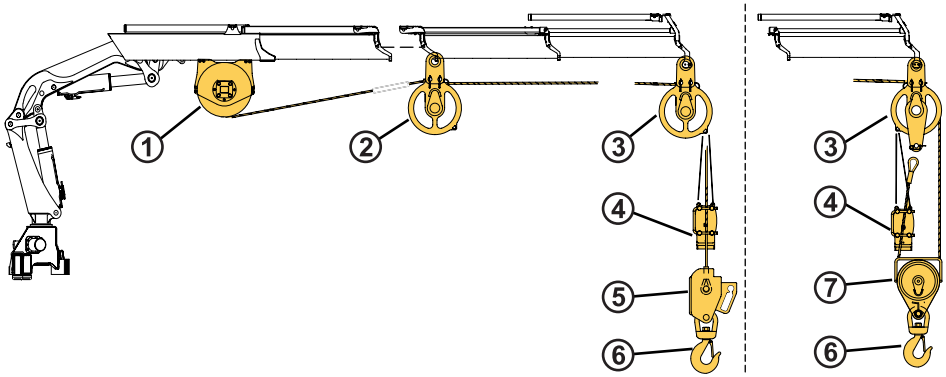
3. Structure and parts of hoist

The hoist consists of the following components:

(1) Pressure roller
(2) Switch (for rope-end-monitoring)
(3) Rope
(4) Load sensor
(5) Electronic box
(6) Motor
(7) Hydraulic valve



The Hoist consists of the following components:



(1) Hoist
(2) Intermediate pulleys (placed on certain extensions of the crane to guide the rope properly) They may not be supplied.
(3) Top-roller (pulley on the tip of the crane to guide the rope vertically to the load)
(4) Electrical end-stroke device
(5) Counterweight
(6) Hook
(7) Snatch block (allows lifting with a number of pulls greater than one). The number of pulls 1, 2, 3, etc...is the number of cable lines of the rope 1,2,3, etc...in the snatch block.

NOTE
If top-roller, intermediate pulleys and snatch block are more than 30 kg, use an appropriate lifting device.

4. Electrical connections

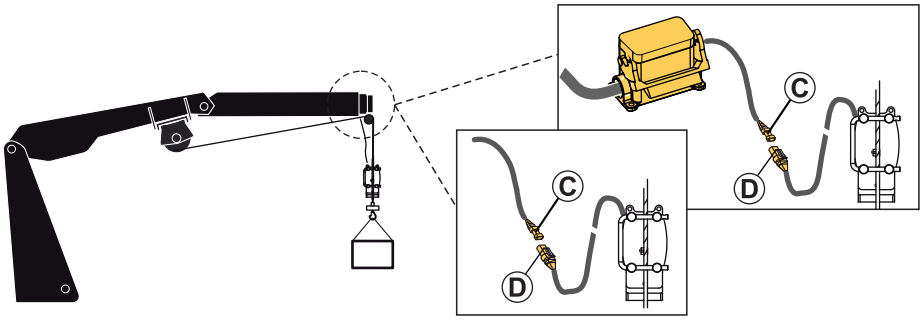
WARNING

- Switch off the control system before connecting or disconnecting the connectors.
- Keep the electrical protection caps and bypass in good conditions and store them in a safe place.

4.1. Electrical connection of the electrical end-stroke device

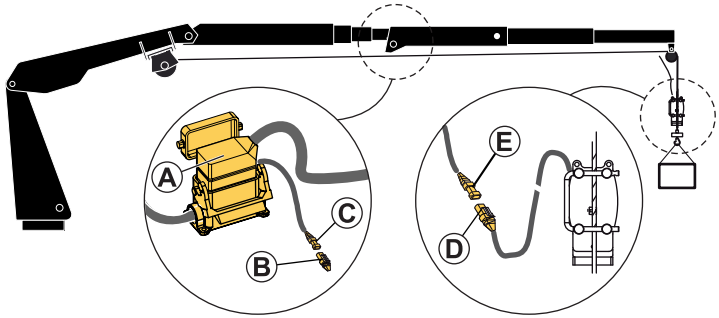
Crane and hoist connection

Connect the hoist limit switch **(D)** to the socket **(C)** on the crane extensions.



JIB and hoist connection

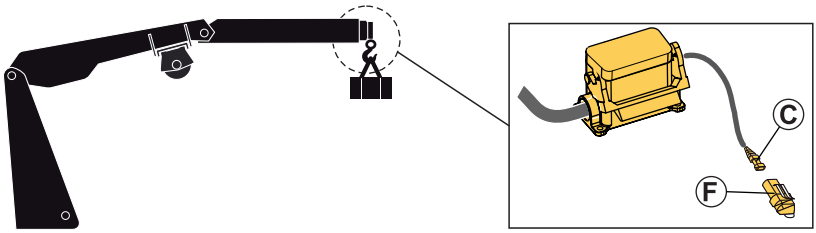
- On the crane:
  - Connect the JIB electrically through the connector **(A)**.
  - Fit the safety plug **(B)** into the socket **(C)** on the crane extensions.
- On the JIB:
  - Connect the hoist limit switch **(D)** to the socket **(E)** on the JIB extensions.



4.2. Electrical connection when using the hook instead of the hoist

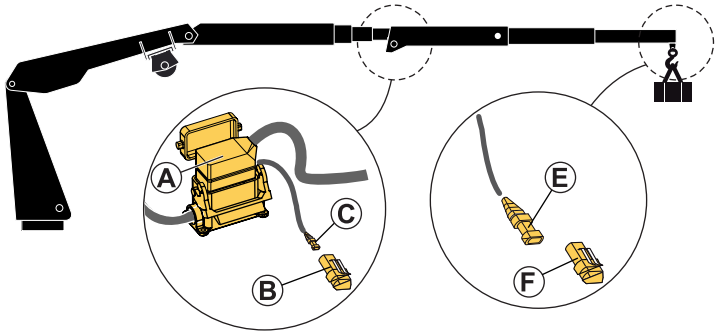
Crane

Fit the safety plug **(F)** into the socket **(C)** on the crane extensions.



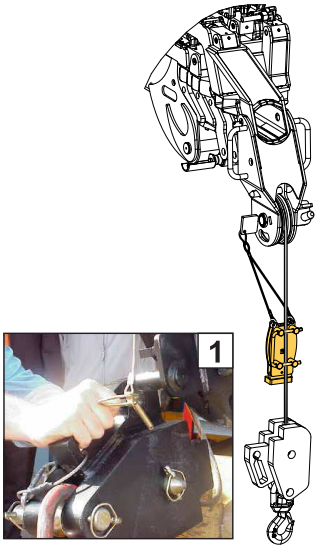
JIB

- On the crane:
  - Connect the JIB electrically through the connector **(A)**.
  - Fit the safety plug **(B)** into the socket **(C)** on the crane extensions.
- On the JIB:
  - Fit the safety plug **(F)** into the socket **(E)** on the JIB extensions.



4.3. How to install an electrical end-stroke device for the hoist rope

1. Operate the crane carefully until the counterweight is almost laying on the ground.
2. Remove the cotter-pin from the pin on the top-roller and remove the counterweight **[1]**.
3. Operate the crane carefully to reach the top-roller easily.
4. Leave the hoist rope free (1.5 m approx.), between the end of the rope and the top-roller.
5. Assemble the electrical end stroke device and connect the electrical cable to the socket on the top-roller. Refer to the content: electrical connections.
6. Unlock the handle on the end stroke and guide the rope inside the end stroke device.
7. Reinstall the handle.



5. Operation

5.1. General operation

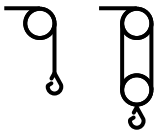
The hoist is a crane accessory which permits load handling without any or only limited boom movement. An obvious advantage is that the hoist makes it possible to handle loads far below ground level.

Lifting and lowering is achieved by winding/unwinding the rope. A number of auxiliary components are needed, such as intermediate pulleys and a hook pulley. As an option, a snatch block can be installed to multiply the lifting capacity.

Follow the operating instructions for hoist and crane, containing the safety recommendations, as well as the safety instructions.

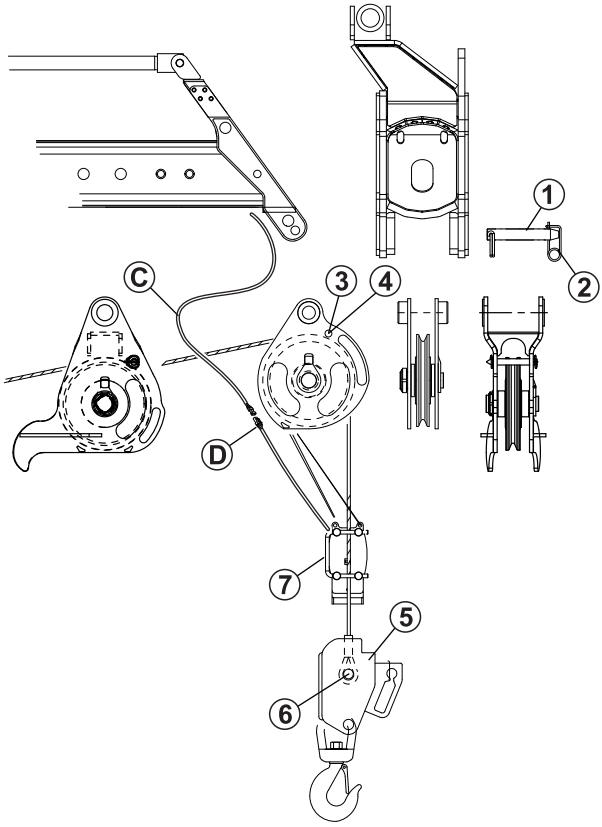
Load diagram and configurations

It is necessary to observe the load diagram for lifting with the hoist. Do a check of the pulls number of the cable, the position of the intermediate pulleys, the configuration and the outreaches allowed. It is the operator's responsibility to ensure that the configuration with hoist coincides with the requirements given.



5.2. Top-roller assembly on the last crane extension

1. Attach the top-roller to the crane lifting lugs with the pin **(1)** and cotter-pin **(2)**.
2. Guide and pass the rope through the top-roller unlocking and disassembling the cotter-pin **(3)** and the pin **(4)**. Reinstall and lock the pin.
3. Attach the counterweight **(5)** to the rope with the pin **(6)** and lock it with the cotter-pin.
4. Connect the hoist limit switch **(D)** to the socket **(C)** on the crane extensions.
5. Unlock the handle **(8)** and let the rope pass through the internal part of the end stroke device.
6. Lock the handle again in the appropriate position.



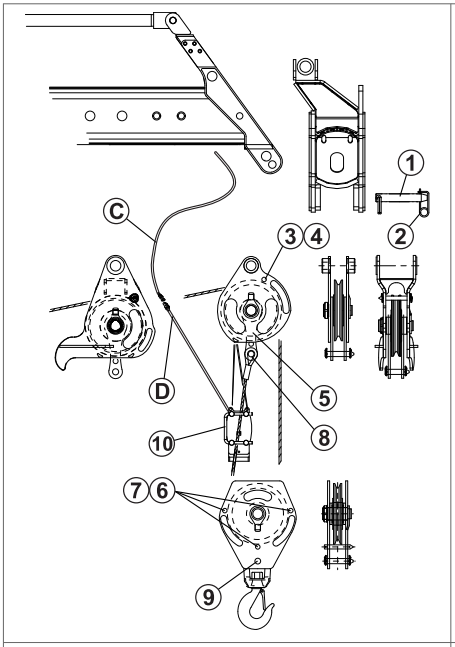
To dismount it, carefully follow the same instructions in the opposite way.

CAUTION

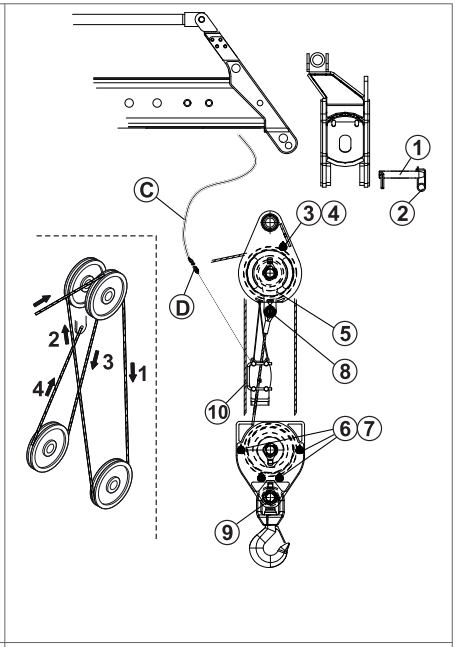
- Top-roller must be removed when operating the crane into transport position.
- Fit the safety plug **(B)** into the socket **(C)** on the crane extensions if you disassemble the electrical end-stroke device.

5.3. Top-roller with two/four pulls assembly on the last crane extension

1. Attach the top-roller to the crane lifting lugs with the pin **(1)** and cotter-pin **(2)**.
2. Guide and pass the rope through the top-roller, unlock and disassemble the cotter-pin **(3)** and the pin **(4)**, and rotate the link **(5)**. Reinstall and lock the pin.
3. Guide and pass the rope through the snatch block, unlock and disassemble cotter-pins **(6)** and pins **(7)**. Reinstall and lock the pins.
4. Attach the rope to the link on the top-roller with the pin and cotter-pin **(8)**.
5. Attach the hook to the snatch block with the pin and cotter-pin **(9)**.
6. Connect the hoist limit switch **(D)** to the socket **(C)** on the crane extensions.
7. Unlock the handle **(10)** and let the rope pass through the internal part of the end stroke device.
8. Lock the handle again in the appropriate position.



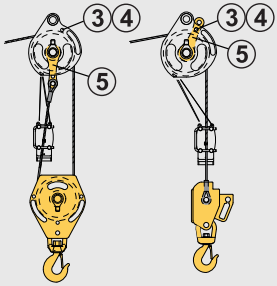
Two pulls



Four pulls

NOTE

To use the top-roller with two pulls as a top-roller with a single pull, move the link **(5)** and attach with the pins **(3)** and **(4)** to the upper position. Attach the rope to the counterweight.



To dismount it, carefully follow the same instructions in the opposite way.

CAUTION

- Top-roller must be removed when operating the crane into transport position.
- Fit the safety plug **(B)** into the socket **(C)** on the crane extensions if you disassemble the electrical end-stroke device.

5.4. Top-roller assembly on the last JIB extension

Refer to your JIB operator's manual.

5.5. Operating the crane into/out of transport position with a hoist

The procedure to operate the crane into/out of transport position remains the same. Make sure that there are no interferences between the crane and the hoist components and keep the rope loose during these operations. In addition, once the extensions have been retracted, you must fasten the end of the rope to an applicable support and keep it slightly taut.

NOTE

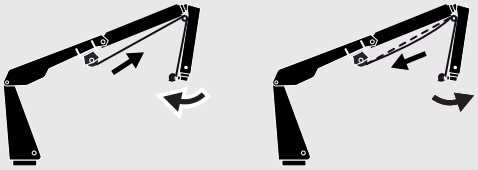
Keep the rope loose:

- Move the selector to the hoist mode on your controller.
- Use the controller to roll/unroll the rope while you are operating the crane into transport position.

CAUTION

Pay careful attention to the rope tension when folding and unfolding the boom system/JIB:

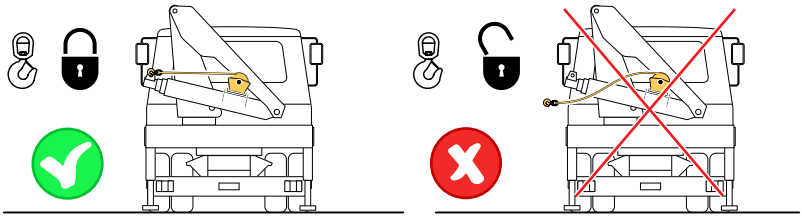
- When folding the boom system/JIB, be careful not to give an excessive tension to the rope, carefully unroll the hoist rope, if needed.
- When unfolding the boom system/JIB, be careful not to keep too loose the rope, carefully roll the hoist rope, if needed.



6. Driving on roads

Before driving on roads, make sure that the end of the cable is carefully fastened to the applicable support, and slightly taut.

Snatch block, top-roller, intermediate pulleys and pins must be stored and carefully fastened to avoid creating a hazard. The possibility of keeping these parts connected to the crane while driving depends on the configuration and the maximum overall dimensions allowed by current regulations. It is the operator's responsibility to ensure compliance with these regulations and make sure that the driving configuration is correct and safe.



7. Maintenance and service

7.1. Hoist maintenance plan

Interval	Action	Comments
At every use	Visual and acoustic check-up of the complete hoist system	
After every use	Visual control of the rope	Refer to the content: Check rope
	Visual control of leaks	
When required	Cleaning of rope	Refer to the content: Cleaning the rope
	Rope care	
	Change of rope	By an authorised service workshop
Monthly	Visual control of pressure roller	
	Screws tightness check	If you find loosen screws, contact immediately an authorised service workshop.
	Components maintenance	
	Check-up of the fixing elements	
Every 3 months	Oil level checking and top up	Refer to the content: Oil level checking and top up
After first 500 operating hours	Change of gear oil	By an authorised service workshop
Yearly	Change of gear oil	
	Complete hoist and safety devices check	

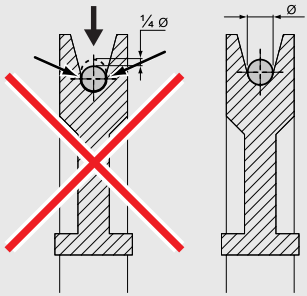
7.2. Hoist inspection

- Do a check of the main components and other components for damage, correct fastening, cracks, corrosion, wear, electric/electronic connections or hydraulic leakages.
- Make sure that the hoist screws are not broken or loose. Check that they are in good condition and in place.
- Make sure that the rope in the snatch block with more than one pull is as vertical as possible, without crossing or hitting each other.
- Do an inspection of the hoist rope. A rope has to be discarded, when there are number of ruptures in the outer layers according to DIN 15020; ISO 4309.
- Make sure that the locking pins are in good condition and in place. They must lock the affected parts and work properly.

- Make sure that the safety devices on the hoist are working properly.
- Make sure that the brake is working properly. If the hoist can not hold the load and the load moves itself downwards, contact immediately an authorised service workshop.
- Make sure that the intermediate pulleys, top-roller, snatch block, etc...are in good condition (without excessive clearance, signs of wear and tear, cracks, splits ...) and in place.

NOTE

The wear and tear of the rope groove must not exceed ¼ of the rope diameter.



DANGER

In the event of finding damaged parts or malfunctions:

- Do not use the hoist.
- Have the damage repaired immediately by an authorised service workshop.

7.3. Gear oil

Before delivery, the DINAMIC OIL hoists were filled with gear oil HLP ISO VG 46.

NOTE

For further information, refer to the manufacturer hoist user manual.

For maintenance intervals respectively change and control the gear oil (see Regular maintenance and works).

If an oil leakage occur or if a gear repair is necessary, fill up the oil.

WARNING

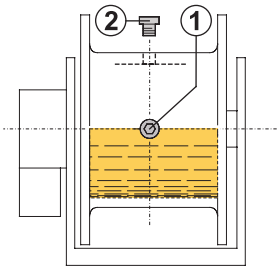
The gear oil must not be mixed with synthetic oil.

7.3.1. Oil level checking and top up

The hoist should be in horizontal position.

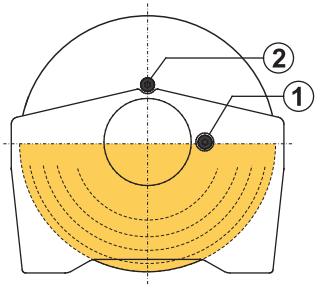
Option A

1. Unwind the rope till the level screw **(1)** and the topping up screw **(2)** are visible.
2. Turn the level screw **(1)** to check if oil is leaking.
3. If the oil is leaking, tighten the level screw **(1)**.
4. If no oil is leaking, unscrew the topping up screw **(2)**.
5. Top up with the applicable oil through the topping up hole.
6. When the oil is leaking through the level hole **(1)**, firmly tighten the level screw again.
7. Firmly tighten the topping up screw.



Option B

1. Turn the level screw **(1)** to check if oil is leaking.
2. If the oil is leaking, tighten the level screw **(1)**.
3. If no oil is leaking, unscrew the topping up screw **(2)**.
4. Top up with the applicable oil through the topping up hole.
5. When the oil is leaking through the level hole **(1)**, firmly tighten the level screw again.
6. Firmly tighten the topping up screw.



Gear oil quantity:

Hoist	Quantity
2750/3600 daN (A80-Series) 3500/4500 daN (S35/2-Series) 3600/4600 daN (S35V/2-Series)	3.5 l
1570/2000 daN (S15-Series) 1900/2500 daN (S19-S19L-Series)	1 l
4500/5700 daN (S45/2-Series)	6 l

7.4. Hydraulic oil

Recommended Hydraulic Oil, see Crane Operator's Manual

7.5. Rope maintenance

7.5.1. Clean the hoist rope

If the rope is extremely dirty:

1. Unwind the rope until the end.
2. Clean the rope with clear water and a brush.
3. Let the rope dry.
4. After each wet cleaning, lubricate the rope.

NOTE

Do not clean the rope with steam jet blower or high pressure cleaner.

7.5.2. Check rope

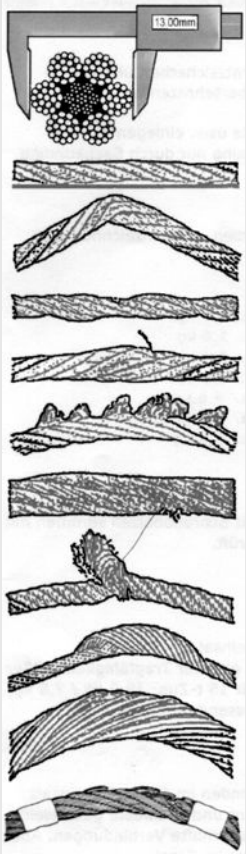
WARNING

As ropes undergo very heavy strain and are not of permanent durability, it is important for the safety of the hoist system and like this for their operating personnel, to carry out a thorough check-up and to renew the rope in time.

After every use the rope has to be checked for damage according to the national regulations of the country of application.

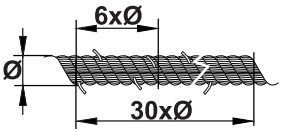
Various types of damage are illustrated on the right that indicate when the rope needs to be replaced:

- Reduction of rope nominal diameter by more than 10%
- Corkscrew-type deformation
- Kinked rope
- Contractioned rope
- Flattening rope
- Loop formation of wires on the rope
- Knots on the rope
- Splicing on the rope
- Basket formation on the rope
- Loose wires in the rope
- Individual wire breakages.



A rope has to be discarded, when there are number of ruptures in the outer layers according to DIN 15020; ISO 4309:

Type of non-turning cables	Maximum nr. of broken wires along a length equal to	
	6 Ø	30 Ø
A4/ALC-A5-A6-A6L-A7 ≤ Ø24 mm	1	2
A6-A7 ALC ≥ Ø 24 mm	2	4



NOTE

The values indicated in the table are obtained from the rope manufacturer by adapting the values of ISO 4309.

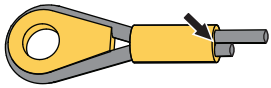
Take into account that these types of ropes (swivel lock) can have damage to the inner threads which are invisible.

The type of cable is indicated in the technical data.

7.5.3. Hoist rope ferrule

Do a check of the rope ferrule for damage, correct fastening, cracks, corrosion or wear.

Pay careful attention at the place where the rope is attached to the ferrule.



WARNING

Replace the rope when the rope ferrule is damaged.

7.6. Lubrication

7.6.1. General greasing of the cranes

Incorrect or insufficient lubrication of a crane is the number one cause of premature failure.

Lubricate all parts in the crane marked with the symbol

WARNING

Before and after a long stop of the crane, lubrication is necessary (especially after a winter shutdown).

WARNING

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

Procedure:

1. Shut down the crane.
2. Make sure that all the lubrication points are clean before lubricating. Dirt can damage the parts.
3. Lubricate all points in each section.
4. Operate the crane through the full cycle for each section. Moving the lubricated parts is very important to get the full and correct lubrication of all moving components.
5. Shut down the crane and repeat the lubrication.
6. Lubrication is finished when the grease spills out from the ends. Clean the excess grease.

WARNING
Personnel must not try to work on a moving/activated crane as there is a risk of serious injury or death.

You will need different tools based on the area to lubricate: a pressure grease pump  , an oiler  , a brush  .

CAUTION
When you use pressure grease pumps, open the plastic safety guard of the nipple and close it at the end.

Greases

- Use molybdenum-disulfide grease (for bronze-made components).
- Use lithium-based grease AGIP MUEP2 or equivalent, for the booms, JIB, and stabiliser extensions.

CAUTION
Do not mix greases with different characteristics. If you change from one kind to another, fully remove the old grease by applying a large quantity of the new one.

Recommended greases:

Use Nilex 2 (Nils) or grease type NILS ATOMIC RH for cranes equipped with centralised or automatic greasing system.

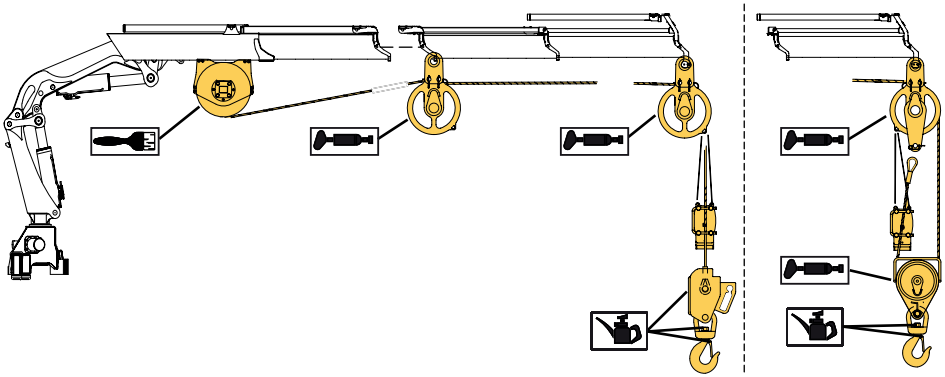
Alternative:

FUCHS LUBRITECK: STABYL AX 2, AGIP: ROCOL SAPPHIRE AQUA 2, AGIP: AC 2.

Lubricating oil:

For oil lubrication, use class SAE 30 (maximum ambient temperature 20 ºC) and class SAE 90 (for ambient temperatures higher than 20 ºC).

7.6.2. Lubrication schedule



7.6.3. Lubricate the hoist rope

CAUTION

For the maintenance of the rope, do not use motor oil, machine oil or grease.

As rope maintenance material, which has to be applied after each wet cleaning, we recommend a wire rope spray lubricant. This lubricant is especially easy in use and penetrates deeply into the rope layers due to its creeping ability.

Lubrication can only be carried out in dry weather.

1. Verify that the rope is clean and dry.
2. Observe the application instructions on the container of the rope preservative.
3. Apply sufficient rope protection agent to provide good penetration.

WARNING

Be careful, your hands must not touch the agent.

4. Re-lubricate the rope at least yearly, or before the previously applied rope preservative loses its softness or even becomes dried out.

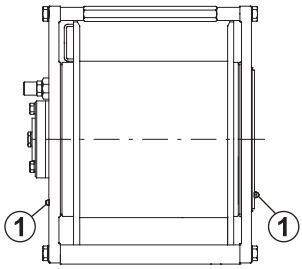
7.6.4. Gearbox lubrication with grease (Hoist P Series)

The operator has to grease the internal parts of the drum approximately every 250 working hours.

Grease through the grease nipples on the supports **(1)**.

Greases:

Use Renbrand EP/2 - Q8 lithium gear grease or equivalent.



7.7. Faults in the hoist

Faults in the hoist must be rectified immediately.

DANGER
In case of any fault, contact an authorised service workshop!

8. Technical data

The installer must deliver the manual from the supplier DINAMIC OIL and print all the necessary technical data to fulfill the local regulations.

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