

HULTDINS **MultiGrip**



MultiGrip MG

User's manual

This publication contains instructions for the installation and handling of the *MultiGrip MG* grapples. The instructions cover both general information for all models, and procedures or specifications applicable to individual models. If doubt should arise concerning the validity of the instructions please consult the nearest dealer for more detailed information.

Illustrations, technical information and specifications were, as far as we have been able to judge, correct at the time of print. However, we reserve the right to, without prior notice, revise specifications, instructions, equipment, etc. as a result of ongoing product improvement activities.

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Caution!

The parts and components used in HULTDIN SYSTEM AB's products are specifically chosen. Therefore original spare parts are always the best alternative in a possible need of repairs or upgrading.

All service and repairs should be carried out by qualified service personnel or an authorized repair shop with suitable tools and lifting devices.

This publication is published by: HULTDIN SYSTEM AB
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This publication applies to the following models:

MultiGrip 12	S/N 059-0001 & up
MultiGrip 16	S/N 060-0001 & up
MultiGrip 20	S/N 061-0001 & up

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Safety instructions

General safety

- This page describes important safety instructions, which the operator should have a good knowledge of before the equipment is used.
- This product should only be used by operators with proper knowledge and training.
- The owner and the operator are responsible for following all safety regulations and that the machine is safely equipped.
- The owner and the operator are responsible for following National and local laws, regulations and other instructions when using the product.
- The owner and the operator are responsible for replacing damaged parts and/or unreadable warning signs.
- The manual should be available at all times so that the operator is able to follow safety regulations and the procedures of maintenance activities.



Meaning of safety messages

 **Danger!**

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death, serious injury and/or serious property damage.

 **Warning!**

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death, serious injury and/or serious property damage.

 **Caution!**

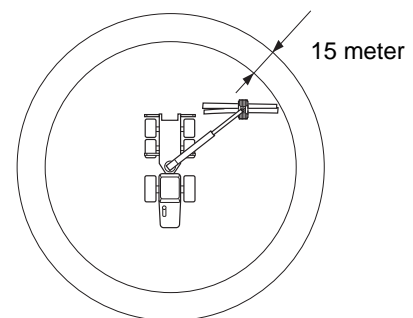
Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury and/or property damage

Operational Safety

- Check the grapple for damages at the beginning of each shift. Tighten all fasteners regularly.
- Make sure that the hydraulic pressure in the grapple cylinder is adjusted according to the specifications. If the pressure is too low the grapple will not be able to carry its load. If the pressure is too high, the grapple will be overloaded, which could cause a structural failure, resulting in injury and/or property damage.
- The grapple must not be used for lifting personnel.
- *MultiGrip MG* is not designed for handling rocks, heavy spare parts, etc.

If used as described above the grapple arms or other parts of the grapple could fail, resulting in injury and/or property damage.

- The load of the grapple must not exceed the recommended maximum rating as structural failure could occur, resulting in injury and/or property damage.
- When operating this equipment ensure all unauthorized persons remain at least 15 meters clear of the machine.
- The operator must immediately evict unauthorized persons who are in the danger zone or are heading towards the danger zone
- Personnel inside the danger zone must be well protected against falling load.
- Personnel inside the danger zone must keep clear of hanging load.
- The operator should be aware that the load, or parts of the load, could fall from the grapple at any time.



Maintenance safety

- The machine's condition must be checked regularly, daily inspections shall be performed and any deficiencies must be corrected. The machine shall be maintained in such condition that the operator or other persons not exposed to danger or accidents.
- Never commit any service on the equipment without proper knowledge. All service and repairs in electrical and hydraulic systems should be carried out by qualified personnel only.
- Repair any damages immediate when discovered. Do not use the equipment until any damages are rectified.
- Before performing any maintenance or service work, lower the grapple to the ground and shut off the engine. Turn off any master shut-offs and do not allow personnel in the cab.
- Use safety glasses and protective gloves when servicing the equipment. Hydraulic oil or lubricants in contact with skin or eyes may cause irritations or allergies.
- Use hard hat and safety boots when servicing the equipment. Leakage of hydraulic oil or lubricants will increase the risk of slipping or falling.
- The grapple has sharp edges. Use proper wrenches and protective gloves when working on the grapple
- Hydraulic hoses and adapters may be pressurized even with the engine shut off. Loosen any parts with caution.
- Always make sure that the system is depressurized before committing any service on the equipment.
- Always secure movable parts mechanically before any hydraulic hose is loosened.
- Never try to stop a leakage in the hydraulic system with you hand. Pressurized hydraulic oil can be injected under the skin and cause death or severe damage.



Welding

In case of a structural repair of the equipment, when welding may be needed, consult the dealer for recommended instructions.

When welding on the grapple the following steps must be taken:

- Make sure that fire-extinguishing equipment is available.
- Clean the area around the welding area to eliminate any fire hazard.
- Connect the ground wire so the welding current does not pass over any bushings.
- Place the ground wire as close to the welding area as possible.
- When welding close to bushings, disassemble the bushings as they are made of a plastic compound-material which high temperatures may damage.

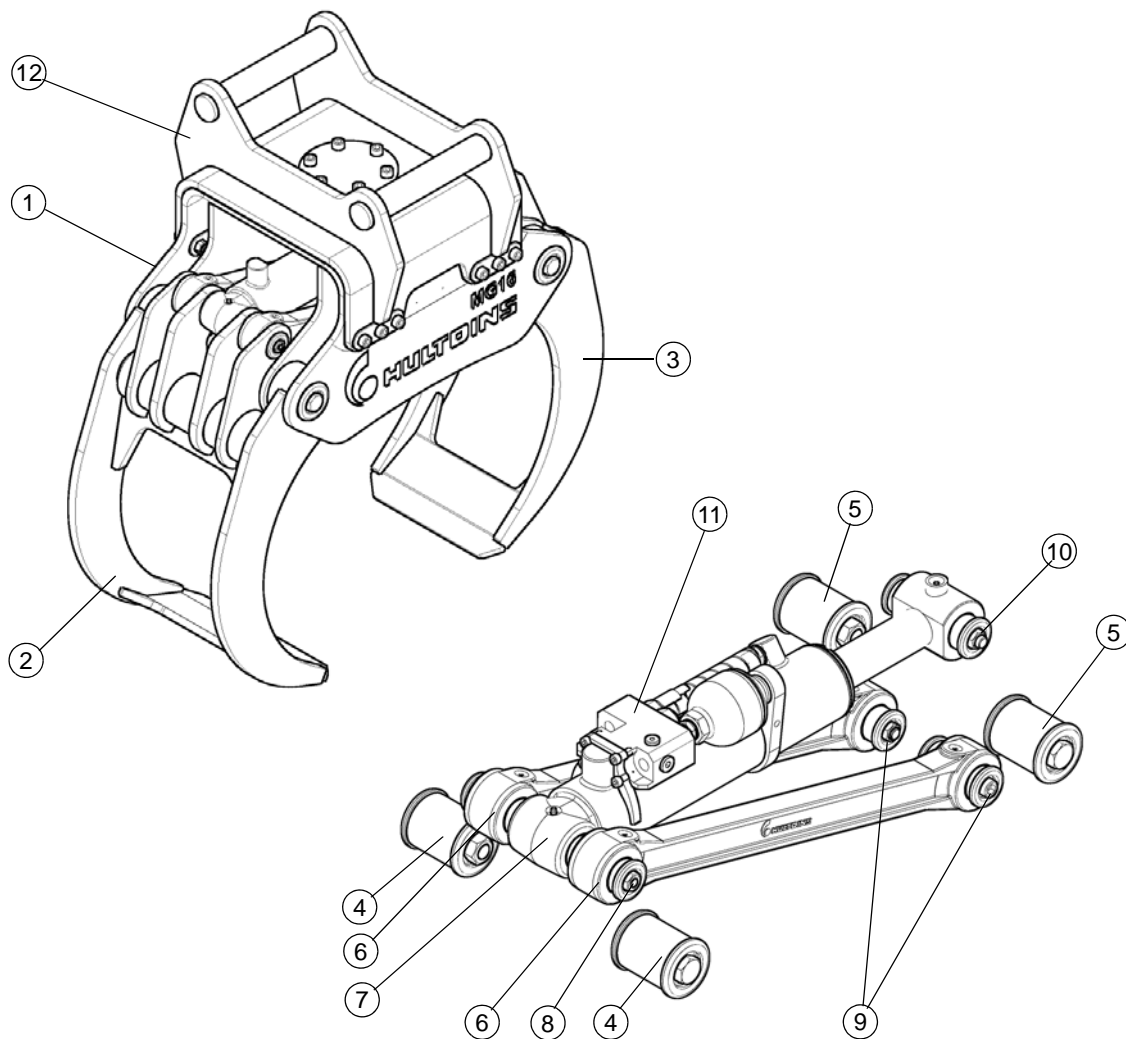
Modifying the equipment

It is not approved to:

- Modify the grapple without the consent of HULTDIN SYSTEM AB.
- Alter the function of the grapple without the consent of HULTDIN SYSTEM AB.
- Use spare parts other than original HULTDINS parts.

Main Parts

MultiGrip MG is made up of the following main parts. All parts are replaceable.



- | | | | |
|---|-------------------------------------|----|--|
| 1 | Frame | 8 | Pin-joint, female grapple arm-rod-hydraulic cylinder |
| 2 | Female grapple arm | 9 | Pin-joint, rod-male grapple arm |
| 3 | Male grapple arm | 10 | Pin-joint, piston rod-male grapple arm |
| 4 | Pin-joint, frame-female grapple arm | 11 | Manifold with valves and accumulator * |
| 5 | Pin-joint, frame-male grapple arm | 12 | Excavator bracket * |
| 6 | Rod | | |
| 7 | Hydraulic cylinder | | |

* option, design may be different from illustration

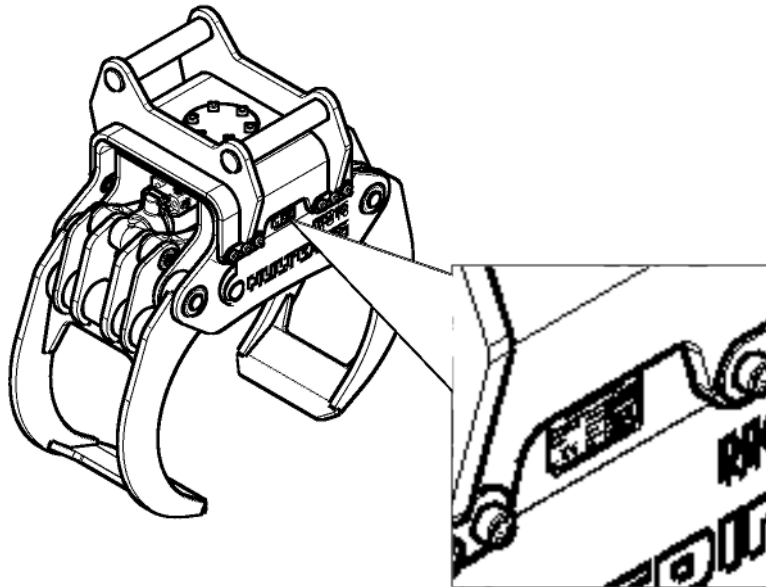
Product description

MultiGrip MG is a grapple that is generally mounted on excavators. *MultiGrip MG* is intended to be used for demolition of masonry and timber structures. *MultiGrip MG* is also intended to be used for sorting and loading of timber-, cut-to-length, whole-tree-and waste wood systems.

MultiGrip MG must not be used when lifting rocks or when performing equivalent lifts as there is a risk that the grapple arms or other parts of the grapple may fail, which could result in injury or damaged equipment.

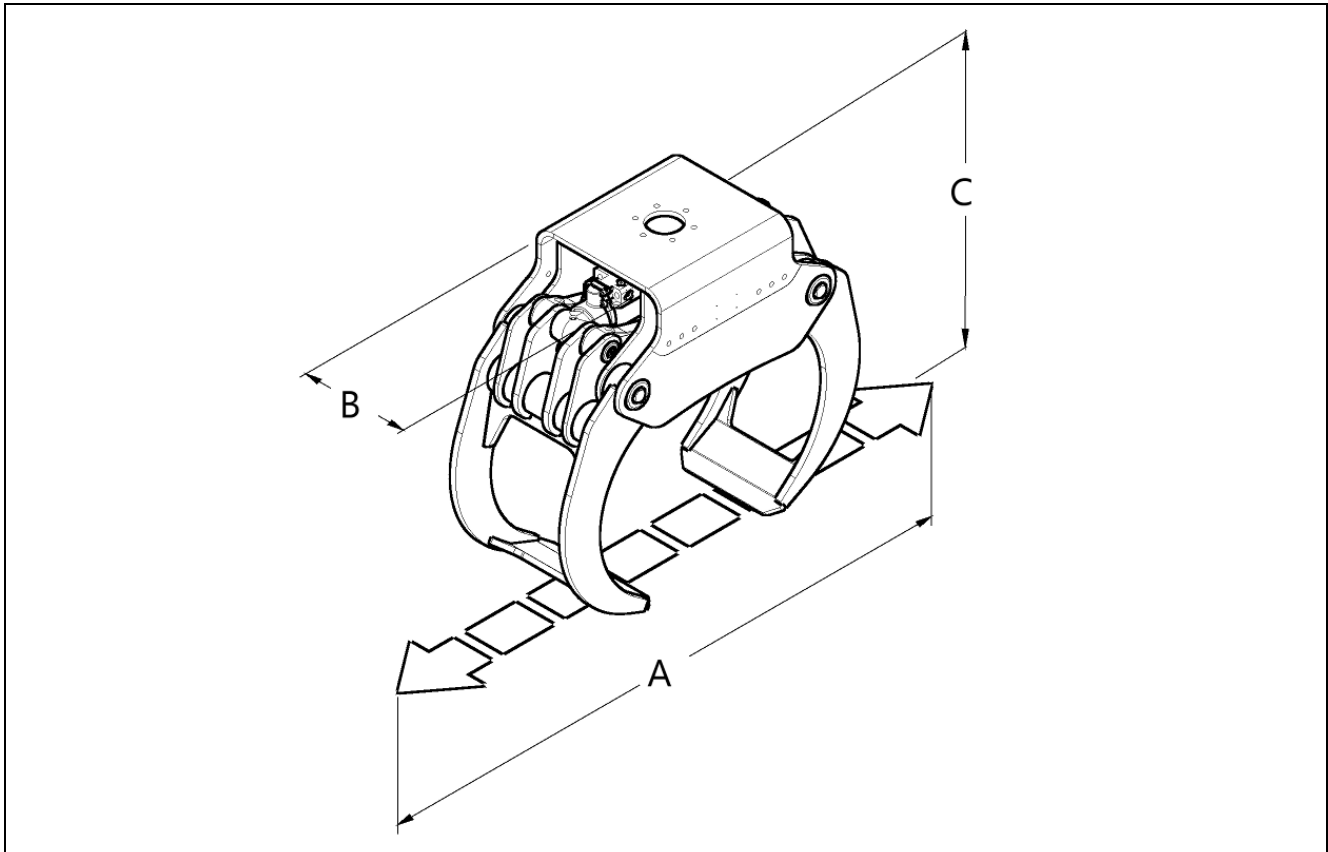
Labeling

MultiGrip MG is labeled with serial number, model number, max.load, max.pressure and a CE-label according to the following figure.



Technical data

MultiGrip MG



		MG 12	MG 16	MG 20
Gripping area, arms tip-tip .	m ²	0,26	0,36	0,52
Max. gripping width (A).....	mm	1 496	1 822	2 279
Min. gripping diameter	mm	82	94	179
Overall grapple width (B)...	mm	454	531	531
Height, arms tip-tip (C)	mm	910	1 016	1 163
Height, arms closed	mm	597	674	766
Weight, excl. bracket	kg	299	435	510
Max. load.....	kg	6 000	8 000	10 000
Cylinder size	mm	ø80/56	ø90/56	ø100/63
Max. working pressure	MPa	25	25	25

Functional description

MultiGrip MG is made up of one frame (1) and two grapple arms, female grapple arm (2) and male grapple arm (3). The frame and the grapple arms are fixed together in four pin-joint systems (4).

The design is equipped with two rods (5) that are mounted in two pin-joint systems (6) and (10). The rods transfer a controlled movement between the male and female grapple arm.

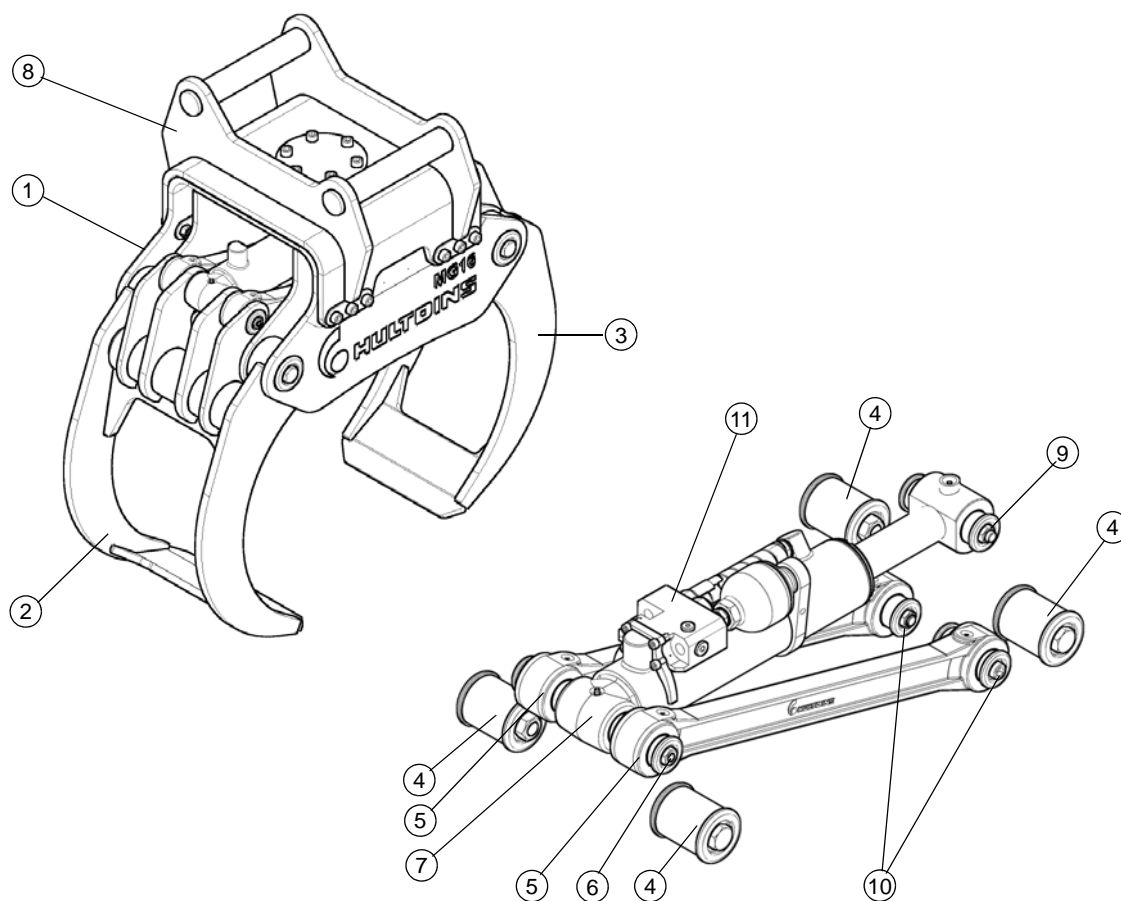
A cylinder (7), connected with hydraulic pressure and flow, transfers power to the grapple arms. The hydraulic cylinder is equipped with hydraulic dampening for "Soft Stop" to eliminate shock loads. The hydraulic cylinder is mounted in pin-joint systems on the barrel side (6) and the piston rod side (9).

The cylinder works as a mechanical stop for max. opening of the grapple arms. The grapple arms work as a mechanical stop for min. opening of the grapple arms..

The grapple can be equipped with most excavator brackets (8) on the market.

All bushings in the grapple are made from a plastic compound-material with self-lubricating abilities. The bushings are designed with a built in lip seal for an effective protection against dust and dirt.

Load-check valve and an accumulator (11) that ensures and maintains the proper gripping force are available as option.



- | | | |
|----------------------------------|---|---|
| 1 Frame | 6 Pin-joint system ,
grapple arm-rod-hydraulic
cylinder | 9 Pin-joint system, piston rod |
| 2 Female grapple arm | 7 Hydraulic cylinder | 10 Pin-joint system, rod |
| 3 Male grapple arm | 8 Excavator bracket | 11 Manifold with valve and
accumulator |
| 4 Pin-joint system, grapple arms | | |
| 5 Rod | | |

Installation and upstart

Caution!

All service and repairs should be carried out by qualified personnel or an authorized repair shop with suitable tools and lifting devices.

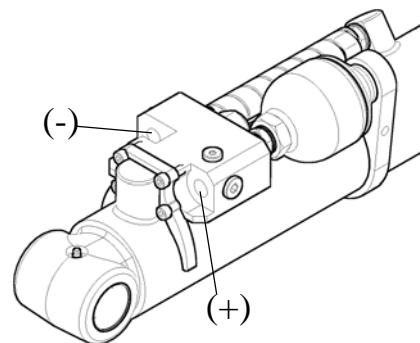
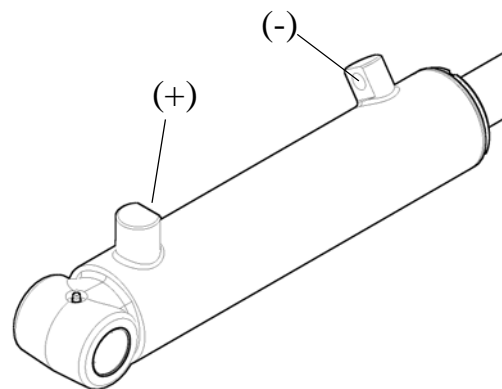
Hydraulic installation

Warning!

The grapple has sharp edges. Use proper wrenches and protective gloves when working on the grapple.

1. Place the grapple on a firm base.
2. Make sure that the pressure of the grapple function is according to specifications. See *Technical data*.
Adjust the pressure if needed..
3. Connect the hydraulic hoses.
 - 1 Connect function 'grapple close' to the base end of the cylinder (+).
 - 2 Connect function 'grapple open' to the rod side of the cylinder (-).

Note! The cylinder hoses should be 1/2" (13,0 mm) according to DIN 20022; SAE 100 R2AT rating. Hose assemblies should be sized for burst pressure with at least a triple safety factor (three times the working pressure).




4. Make sure that the grapple functions corresponds with the order of the joysticks at the operator seat.
5. Cautiously operate all functions to make sure that everything performs normally.


Maintenance instructions


Every 10 hours of operation (every day)


- Clear the grapple so that snow, bark or any other debris does not limit the function of the grapple.
- Make sure that the hydraulic hoses are not damaged
- Make sure that there is no damages or crackings on the grapple.
- Make sure that there is no leakage on the grapple.

Tighten any loose items and repair any damages.

 **Caution!**
Check the equipment for damages at the beginning of each shift.

 **Caution!**
All service and repairs should be performed by qualified personnel only

 **Caution!**
Never adjust any hydraulic pressures without using a pressure gauge

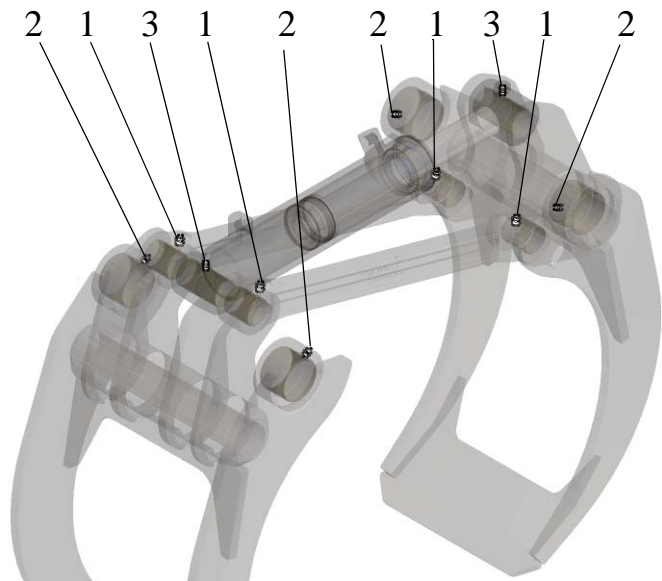
 **Warning!**
Never try to stop a hydraulic leakage from a broken hose or any other component with your hand. Oil injection into the body can cause death or severe injury

Every 50 hours of operation (every week)

Lubrication

The grapple should be lubricated every 50 hours of operation as shown in the adjoining illustration.

Note! Use a mineral oil based grease thickened with, or mixable with a lithium soap. The grease should be classified as L-XCCIB2 according to ISO 6743-9. Molybdendisulfid content max 3 %. Base fluid viscosity 170 to 220 cSt at 40°C. NLGI class 1-2.



1. Rods, 4 pcs.
2. Grapple arms, 4 pcs.
3. Hydraulic cylinder, 2 pcs.

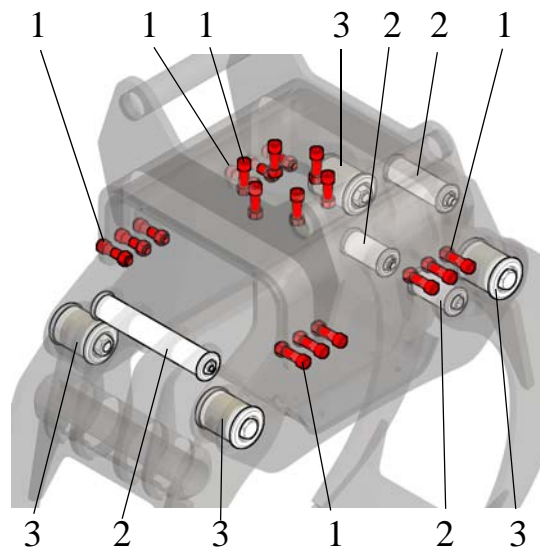
The first month of operation

Fasteners

Tightening of the pin-joints and the fasteners for the excavator bracket should be made after approx. 50 to 75 hours of operating.

Torque

Thread	Torque	pcs.
M16	330 Nm	18 pcs.(MG12) 22 pcs. (MG16/20)
M20	500 Nm	4 pcs. (MG12)
M24	900 Nm	4 pcs. (MG16/20)



1. Excavator bracket M16
2. Pin-joint system M16
3. Pin-joint system M20/M24

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