INTRODUCTION

The ripper is a demolition tool developed with the latest advances in demolition systems in mind. It meets the highest standards. It was patented by Xcentric Ripper International/Grado Cero Sistemas, S.L.U., a trailblazer in the industry. Through its design, outstanding performance has been achieved, allowing more efficient work.

Made completely of wear-resistant steel, this attachment device is maintenance free, less noisy than other demolition tools, can be used under water without loss of performance, and adapted to countless work sites. The ripper is ideal for tunnel construction, working on walls and ceilings, and for other jobs. Thanks to its uncomplicated mechanical design, which has no pricey components and no impact or friction areas, high operating safety is guaranteed.

This instruction manual must be read and understood to ensure that the ripper is correctly used and provides peak performance and a long life. You will also find important advice on correct handling of the attachment device, so that you can make maximum use of your ripper’s technical advantages.

The contents of this manual are the “Original Instructions”.
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WARRANTY

Warranty conditions

On the date of delivery, the attachment device carries a warranty of **one year or 1,500 operating hours** (whichever comes first). For this, the following conditions must be fulfilled:

1) The warranty duration applies to operation in a single daily shift of eight hours. If the duration of daily operation is above the given value, the warranty period shortens proportionally.

2) Depending on the case, specific warranty conditions must be established for special uses.

3) Within the warranty period, *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* replaces free of charge all components whose damage or failure *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* acknowledges as being due to defects in material or design.

4) If the installation guidelines for the ripper are not observed, the attachment device’s operational safety can be considerably affected. This results in *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* rejecting any sort of warranty claim.

5) Replacement of a component during the warranty period does not cause an extension of the total warranty period for the unit.

6) For all warranty claims, contact *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* with the serial number found on the data on the model plate.

7) Parts that have been replaced free of charge must be sent to *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* within two weeks after the affected replacement part has been sent. This allows *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* to decide whether or not the affected parts come under the warranty. After the appropriate period has expired, the parts will be invoiced. The customer bears the freight charge.

8) Parts that have been replaced free of charge are the property of *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.*

9) To apply for replacement under warranty, the ripper’s serial number and model must be provided to *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.*

10) During the warranty period, the installation costs for the defective parts affected are born by *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* The customer must bear the corresponding transport costs.

11) The warranty does not apply to parts whose wear, damage or breakages have been caused by faulty operation and/or faulty maintenance of the ripper.

12) The warranty does not apply to parts subject to consumption or wear.

13) Only original equipment parts from *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* can be used. Infringement automatically voids this warranty.

14) All modifications to the device that are made without the prior approval of *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.* result in automatic forfeiture of the warranty.

15) During the warranty period, no work can be done to the ripper without the prior consent of *Xcentric Ripper International/Grado Cero Sistemas, S.L.U.*

★★ NOTICE

The tooth and pin are not subject to warranty.
Acceptance inspection

When taking delivery of the ripper, the receiver must perform an acceptance inspection. If there is any damage, the transport driver and the transport company must be informed. Furthermore, it is necessary to inform the manufacturer, *Xcentric Ripper International/Grado Cero Sistemas S.L.U.*, and the ripper dealer.

The following documents are delivered with the ripper:
- Instruction manual
- List of replacement parts
- Warranty registration form
- EC declaration of conformity

Within 30 days after installation of the ripper, the warranty registration must be completely filled out and sent to *Xcentric Ripper International/Grado Cero Sistemas S.L.U.* Not sending it back means loss of the warranty.

*Xcentric Ripper International/Grado Cero Sistemas, S.L.U* reserves the right to change or expand the contents of this manual.
Model plate

The model plate is on the ripper housing.
This plate contains the following data (examples in the illustration):

1. Type
2. Model
3. Year of manufacture
4. Total weight
5. Working pressure
6. Load capacity (always corresponds to the weight)
EC DECLARATION OF CONFORMITY

We, Xcentric Ripper International/Grado Cero Sistemas, S.L.U., declare that the Ripper of the indicated make and model fulfils the conditions according to EC Machinery Directive 2006/42/EC and Pressure Equipment Directive 97/23/EC.

Make: .............................................................................................................................................. XCENTRIC RIPPER
Accessory: .......................................................................................................................................... RIPPER
Model: ..................................................................................................................................................
Serial No: .............................................................................................................................................
Year of Manufacture: ....................................................................................................................... 120 dB(A)

The following harmonised standards are applied:
EN 12001-1: Safety of machinery - Basic terminology.
EN ISO 14121-1: Safety of machinery - Risk assessment.

SCOPE AND LIMITATIONS OF THIS EC DECLARATION

This EC declaration covers the Ripper when it is mounted on the machine for which it is designed. In addition, the use of the Ripper must be that anticipated in work for the breakage of materials. It must not be used as a crane for handling loads or for inappropriate work.

Any modification made to this assembly or to any of its components, without express authorisation in writing from XCENTRIC RIPPER INTERNATIONAL/GRADO CERO SISTEMAS, S.L.U., invalidates this EC certification and, therefore, the use in service of the Ripper.

Authorised technical file representative:
Javier Aracama
Xcentric Ripper International/Grado Cero Sistemas, S.L.U
C/Arangubtxi, 15
01015 Vitoria (Alava), Spain.

Manufacturer:
Grado Cero Sistemas, S.L.U
C/Arangubtxi, 15
01015 Vitoria (Alava), Spain.

Place and date of issue: ...................................................................................................................... Vitoria,
Authorised by: ................................................................................................................................. Javier Aracama
Signature:

File:
Original for the CUSTOMER
### Warranty registration form

| **Model** | : | **Serial number** | : | **Delivery Date** | :
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**Customer details:**

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<tr>
<th><strong>Measured oil flow to ripper at working pressure</strong></th>
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<tr>
<th><strong>Measured ripper operating pressure</strong></th>
<th>bar:</th>
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**Pre-operation details:**

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<th><strong>Signature end user:</strong></th>
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This form must be returned to Xcentric Ripper International/Grado Cero Sistemas within 30 days of the installation date.

**Original:** End user  **First copy:** Xcentric Ripper International  **Second copy:** Dealer
SAFETY INFORMATION AND PRECAUTIONS

Safety information

Before beginning work with or on the ripper, it is obligatory to read and understand this manual. The manufacturer assumes no legal liability for improper operation.

Xcentric Ripper International/Grado Cero Sistemas, S.L.U. assumes no liability if the owner of the ripper, without the prior written consent of Xcentric Ripper International/Grado Cero Sistemas, S.L.U., undertakes any modifications to the device or uses it in violation of the instructions in this manual. In both cases, the warranty is void.

Place this manual or a copy of it in the excavator’s operator cab, so that it is always on hand as a reference for questions and problems. Observe all local laws and regulations applicable to the use and operation of your work equipment.

Because there are various models of the ripper, it is possible that some illustrations in this manual will not correspond to your attachment device. These illustrations are merely to be taken as examples.

The activities described in the following sections require no special skills; personnel performing them must merely be familiar with the handling of the device.

This instruction manual must be read and understood to ensure that the ripper is correctly used and provides peak performance and a long life. You will also find important advice on correct handling of the attachment device, so that you can make maximum use of your ripper’s technical advantages.

If the manual is lost or damaged order a new one from your local Xcentric Ripper International distributor.

Observe all relevant safety standards and use your device accordingly.

⚠️ DANGER
Never stand under the ripper.

If the ripper is disconnected from the machine, use special caution during handling. There is a danger of tilting.

When the ripper is operating, there is a danger of flying particles and fragments.

In areas where there is a risk of explosion, use of the ripper is absolutely prohibited.

⚠️ WARNING
Use ear protection.

Beware of hot surfaces.
Safety information and precautions

**General safety instructions**

Always give special attention to operating the equipment safely. Important points that must be heeded are mentioned below:

- Observe all applicable standards for personal safety and fire protection. Perform the activities described in the manual only while using proper personal protection gear: safety boots, safety glasses, suitable gloves and ear protection.
- There is a tipping hazard if the ripper is removed from the excavator during loading and transport. Always set the ripper on a firm, even, horizontal surface that can bear the weight to the support points.
- There is a crushing hazard when handling, transporting, installing and removing the ripper. Maintain an appropriate safety distance.
- Make sure that the ripper is correctly mounted and fastened on the excavator.
- Defective or worn components must always be replaced with new original replacement parts.
- Use of defective, worn, deformed or corroded components, etc., is prohibited.
- While the excavator’s engine is running, do not perform activities such as maintenance, inspection, cleaning, repair or inspection.
- Do not use any defective tools (hammers, wrenches, etc.), as these could lead to accidents.
- Always stay at least 20 metres away from the ripper’s work area when it is in use; flying particles and fragments pose a hazard.
- Before opening the hydraulic connections, take all necessary safety precautions. Wear both safety glasses and safety gloves, because the connections may be under pressure, even if the excavator’s engine is shut off.
- Avoid, long, excessive or repeated skin contact with the oil.
  - Protect your skin with appropriate safety gear and safety gloves.
  - Clean skin areas that come into contact with the oil:
    - Wash thoroughly with soap and water.
    - A nail brush is effective here.
    - Special hand cleaners make cleaning soiled hands easier.
    - Do not use petrol, thinners or solvents.
  - After washing, protect your hands with moisturizing cream.
- Some of the ripper’s components get quite hot during operation, especially the tooth and the fixing pin. This increases the risk of burns.
- Check the hydraulic hoses to the maximum permissible pressure and for correct connection and fastening.
- Excess pressure poses an explosion hazard in the pressure accumulator. Always follow the instructions in this manual.
- Always use great caution when moving around the demolition area, especially when the surface is wet.
Correct and incorrect use of the ripper

Correct use

The ripper is designed for tearing, breaking apart and demolishing stone, concrete, asphalt, etc. It can perform both horizontal and vertical demolition.
It can also be used for moving away the demolition material, thus leaving behind a clean work area.
It can be used as support for moving the excavator, which is then supported only on the ripper arm,
and never on the ripper housing, because the structure permits that it be done only that way.

Incorrect use

Any application for which the ripper was not designed is considered incorrect use.
When using the ripper, never exceed its limit values.
All actions that violate legal rules for personal safety and fire protection are considered improper use.
Demolition work must be performed only if the tooth is in perfect condition.
To use the ripper correctly, carefully read the section on its operation.
Never use the ripper housing as a support when moving the excavator.
The ripper housing must never be used for moving or displacing demolition materials.
Never use the ripper on excavators that are larger than those for which it is designed. This could damage its structure, mechanics or the pressure accumulator.
Never use the ripper on excavators that are smaller than those for which it is designed. Read the excavator manufacturer's documentation to be sure that it can be operated with the ripper’s weight.

- Wear ear protection while the ripper is operating.
Safety information and precautions

Safety instruction stickers

On the ripper, there are stickers with safety instructions and notes on safety precautions. If a sticker becomes damaged or soiled, a new sticker is available from the dealer or manufacturer. They are located on the upper part of the ripper housing.

Read this instruction manual thoroughly. It is obligatory that all information be understood.

Noise level: 120 dB. Use ear protection.

During operation, maintain at least a 20 m safety distance from the ripper. Beware of flying fragments.

Attention! Contains compressed air. Danger! Crushing hazard! Danger! High pressure system.
Work, inspection and safety areas

Working area
The ripper can only be controlled from the excavator’s operator cab. Always remain outside the working area.

Safety zone
When the ripper is operating, maintain at least a 20 m safety distance. When working in high places, the work area expands in relation to the height.

Danger zone during excavator operation
This includes all distances closer than the safety distance mentioned above. For work in high places, a rollover protection structure and/or protection structure (ROPS/FOPS) may be required.

Danger zone during maintenance, cleaning, etc. (excavator stopped)
The area under the ripper, when it is still connected to the excavator.
The area in the immediate vicinity of the excavator when it is disconnected from the ripper, because there is a tilting hazard. Always set the ripper on a firm, even, horizontal surface that can bear the weight at the support points.
Some of the ripper’s surfaces and components may be very hot after use, especially the tooth, the pin and the ripper arm. Therefore take protective measures to prevent burning.
Safety information and precautions

Maintenance area
- The entire ripper arm, including the housing and tooth.
- The ripper housing: Hydraulic block, support element and pivot arms.
- The hydraulic hoses.
- The pneumatic pressure accumulator.
- Fastening the ripper to the machine. The ripper produces vibrations that can loosen or move the bolts or quick-connect coupling, if the machine is equipped with one. Make a regular visual check of that area. Sudden, unintentional or accidental release of the attachment device poses a crushing hazard.
  Keep the quick-connect coupling system in perfect operating condition, and find out from the manufacturer if the coupling is capable of supporting the ripper.

Hazards
The continuous movement that the pivot arms cause in the ripper can throw pieces, fragments or particles around.
During operation, the machine operator must make sure that no danger is posed to people or materials that are within the safety zone around the machine.
Use personal protective gear.

Hydraulic components
Broken or leaky hydraulic hoses pose a hazard.
Use extra caution when handing all hydraulic connections. Make sure that the machine’s engine is stopped and that there is no hydraulic pressure within the system.

Pneumatic components
There is compressed air inside the pneumatic pressure accumulator. Therefore it must be handled with extreme caution and in observance of the specific instructions in this manual (see page 3-25).
If the pressure inside the pressure accumulator exceeds a value of 6 bars for the XR 10, 5 bars for the XR 20 - XR 40 or 2 bars for the XR 60, there is risk of an explosion.

Prolonged contact with hydraulic oil
Prolonged or repeated skin contact with any kind of hydraulic oil leads to loss of fat content in the skin. That can lead to dryness, irritation or skin inflammations. Hydraulic oil also contains dangerous substances that can cause skin cancer. If the basic safety and hygiene standards are observed during work, handling hydraulic oil should not cause health problems.

Hot surfaces and hot hydraulic oil
Be aware that the hydraulic circuit can get very hot.
Afterwards, some of the ripper’s components get very hot. There is a slight burn risk.

Risk of hearing loss
It is mandatory to wear ear protection.

Generated vibrations
During operation, the ripper can transfer strong vibrations to the subsurface. Secure yourself against unintentional falls and prevent any damage to construction, plumbing, cables, etc.
Crushing hazard
Be especially cautious when installing, removing and handling the ripper, to prevent it from tipping or falling over.
Under no circumstances should you reach through the opening of the ripper's lower stop, because, as the illustration shows, any unexpected movement by the ripper can cause a crushing hazard.
Let others know the safety precautions and consistently follow the instructions described in this manual for replacing the lower spring stop. Not following the instructions can result in an increased risk of crushing.

Crushing hazard!
Operation
NAME OF COMPONENTS AND SPECIFICATIONS

Name of components
1) **Ripper arm**
The ripper arm is a basic component that takes kinetic energy from the pivot arms and creates the striking motions needed for demolition.

2) **Eccentric gear housing**
This housing contains the eccentric gears that create the ripper arm’s striking motions and are synchronized in the housing.

3) **Front and rear pivot arms**
They guide the ripper arm on its work path.

4) **Ripper housing**
This holds the unit made up of the ripper arm, pivot arms and pressure accumulator and has a threaded base plate for fastening the top bracket to the ripper.

5) **Pressure accumulator**
This is a pneumatic bag that directs the ripper arm’s striking power to the tooth.

6) **Pivot arm pins**
They guide the pivot arms, the ripper housing and the ripper arm.

7) **Pivot arm pin covers**
These fasten the pivot arms to the ripper arm and to the ripper housing.

8) **Hydraulic motor**
An axial piston motor that sets the pivot arms moving.

9) **Control block**
A hydraulic system that starts and stops the hydraulic motor and controls it.

10) **Top bracket**
A component bolted to the ripper housing for attachment to the excavator.

11) **Lower stop**
An elastomer part to cushion the ripper arm at the lower stop.

12) **Tooth**
A tool for striking the material to be demolished.

13) **Pin**
A component for fastening the tooth to the ripper arm.

14) **Model plate**
Contains information on the model, production date, serial number, etc.

15) **Safety instruction sticker**
Safety instructions and precautions.

16) **Internal pressure relief valve**
A relief valve to relieve the overpressure that can arise inside the eccentric gear housing.
# Standard specifications

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<th>XR 15</th>
<th>XR 20</th>
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<td><strong>XR 15</strong></td>
<td><strong>XR 20</strong></td>
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<td>18 - 22</td>
<td>23 - 31</td>
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<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Hydraulic oil flow L/min</td>
<td>60 - 100</td>
<td>150 - 220</td>
<td>180 - 240</td>
<td></td>
</tr>
<tr>
<td>Frequency 1/min</td>
<td>1500</td>
<td>1400</td>
<td>1300</td>
<td></td>
</tr>
<tr>
<td>Dimensions L x W x H cm</td>
<td>167.5x50x115.6</td>
<td>227x78x175</td>
<td>261x65x177</td>
<td></td>
</tr>
<tr>
<td>Dimension A cm</td>
<td>102.3</td>
<td>149</td>
<td>179.1</td>
<td></td>
</tr>
<tr>
<td>Dimension B cm</td>
<td>75.8</td>
<td>111.2</td>
<td>139.1</td>
<td></td>
</tr>
<tr>
<td>Accumulator pressure MPa</td>
<td>0.6</td>
<td>0.5</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Model</strong></th>
<th><strong>XR 40</strong></th>
<th><strong>XR 50</strong></th>
<th><strong>XR 60</strong></th>
<th><strong>XR 80</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
<td><strong>XR 40</strong></td>
<td><strong>XR 50</strong></td>
<td><strong>XR 60</strong></td>
<td><strong>XR 80</strong></td>
</tr>
<tr>
<td>Hydraulic excavator tons</td>
<td>32 - 44</td>
<td>48 - 69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass of ripper (incl. top bracket) kg</td>
<td>4100</td>
<td>6603</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass of ripper (less top bracket) kg</td>
<td>3600</td>
<td>5670</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic working pressure MPa</td>
<td>20 - 24</td>
<td>23 - 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic return pressure MPa</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic oil flow L/min</td>
<td>200 - 250</td>
<td>250 - 300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency 1/min</td>
<td>1200</td>
<td>1200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions L x W x H cm</td>
<td>288x93x164</td>
<td>335x113x207</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension A cm</td>
<td>198.7</td>
<td>223.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension B cm</td>
<td>155.2</td>
<td>168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accumulator pressure MPa</td>
<td>0.5</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TOP BRACKET MOUNTING DIMENSIONS

Relative position between the machine and the top bracket

Point of intersection of two faces

XR 10 Top bracket mounting dimensions
XR 20 Top bracket mounting dimensions
Top bracket mounting dimensions

Use minimum 3 holes on each side.

Use minimum 6 holes on each side.

Use all holes.
Top bracket mounting dimensions

XR 40 Top bracket mounting dimensions

Use minimum 6 holes
Use minimum 6 holes
Use minimum 6 holes
Use minimum 6 holes
Use minimum 3 holes
Use all holes
Hole for accumulator valve

Ø34

Ø34

661,08

465,96

627,8

80,82

180

230

365

860
Top bracket mounting dimensions

Coordinates from the intersection of two faces

Hole for accumulator valve

XR 60 Top bracket mounting dimensions
GENERAL DESCRIPTION

General description

The ripper is an excavator attachment device for demolition work, such as tearing down and breaking apart stone, concrete and asphalt, etc. It has been patented by Xcentric Ripper International/Grado Cero Sistemas S.L.U. and is made completely of wear-resistant steel. Hydraulics provide this demolition device with the power to tear and break materials more easily. Because of its strong penetrating power, the ripper is specially designed for high productivity. The ripper consists of the following components:

Working area

The ripper can work in any position and has no problems with idle strokes. This characteristic makes the ripper ideal for tunnel construction, working on walls and ceilings, and for other similar jobs.
Technical characteristics

Scope of use

The RQD value (Rock Quality Designation), which relates to the quality and pressure resistance (RC) of rock, gives rise to the following classification.

![Classification of soils and rocks with regard to excavation work](image)

<table>
<thead>
<tr>
<th>HYDRAULIC HAMMER</th>
<th>G0-ripper</th>
<th>BULLDOZER RIPPER</th>
<th>CONVENTIONAL RIPPER</th>
<th>CRUSHER BUCKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
<td>NOT SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>B</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>C</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>D</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>E</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>F</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>NOT SUITABLE</td>
</tr>
<tr>
<td>G</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
<td>SUITABLE</td>
</tr>
</tbody>
</table>
Production and performance

Use under water
Without any special adjustments or modifications, the ripper is also safe and suitable for use under water, in fresh and salt water, with no loss of performance.

Low noise pollution
The noise level created by the ripper rises in proportion to the solidity of the area to be worked. When it is used on plaster or marl, the ripper’s sound production is negligible. During use on hard material such as limestone, the noise level rises considerably, but it still remains 10 dB below that of a hydraulic hammer.

No daily maintenance needed
Because of the ripper’s mechanical design, neither daily maintenance nor lubrication is necessary. Only the maintenance intervals in this manual need to be observed.
INSTALLING AND REMOVING THE RIPPER

Installation on the excavator
Check to see that the top bracket and the excavator boom fit together.
Position the ripper according to the illustration.
Install the ripper only on an even surface with the elements to be connected standing across from each other and the ripper arm’s tooth pointing in the direction of the excavator.

Additional adapters or mounting brackets must not be welded to the ripper. This will void both the warranty and the EC declaration of conformity.

Hoses and hydraulic connections
A total of three hoses must be connected from the ripper to the excavator. The first two hoses, pressure and return, must be designed for a continuous pressure of at least 300 bar and withstand additional pressure peaks. We recommend the use of a 4SH hose for the pressure hose, and a 2-wire hose for the return hose. The connections to the Ripper must be of the type SAE 6000 ¾” for the XR 10 to XR 20 and SAE 6000 1¼” for the XR 30 to XR 60. The drain line hose should be a single wire hose with a ½” hose connection.
It is recommended that the hoses be sealed with appropriate accessories (available for purchase) when the ripper is not operating.

⚠️ CAUTION
To avoid or reduce damage to the hydraulic motor or its seals, Xcentric Ripper International/Grado Cero Sistemas, S.L.U. advise to always install the drain line from the drain line connection on the ripper directly to the hydraulic tank. This drain line will lead eventual peak pressure spikes directly to the tank.

⭐️ NOTICE
The hydraulic hoses are not delivered with the ripper. They must be installed and inspected by technicians authorized by Xcentric Ripper International/Grado Cero Sistemas, S.L.U.
Make sure that the bends in the hydraulic hoses in all ripper positions exceed the minimum radius specified by the manufacturer and that the hoses have no contact with other components.
The hydraulic hoses are connected as follows:

- Remove the plugs.
- Before connecting the hoses, make sure that the connections and hoses are clean.
- Fit the hoses to the connections carefully.
- Check the position of the pressure and return hose. Installing the hoses on the wrong connections can damage the ripper.

**Hoses parameters**

**XR 10**

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Return</th>
<th>Drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>NONE</td>
<td>Hose union nut ½” + tension disk M22x1.5 with 1-wire hose. L = 930 mm</td>
</tr>
</tbody>
</table>

**XR 20**

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Return</th>
<th>Drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hose flange SAE 6000 ¾” 90° + flange SAE 6000 ¾” 90° with 4SH hose. L = 600 mm. α = 10°</td>
<td>Hose flange SAE 6000 ¾” 90° + flange SAE 6000 ¾” 90° with 4SH hose. L = 600 mm. α = 10°</td>
<td>Hose union nut ½” + tension disk M22x1.5 with 1-wire hose. L = 800 mm L with 1-wire hose L = 250 mm</td>
</tr>
</tbody>
</table>

**XR 30 - XR 60**

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Return</th>
<th>Drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hose flange SAE 6000 1¼” 90° + flange SAE 6000 1¼” 90° with 4SH hose. L = 740 mm. α = 10°</td>
<td>Hose flange SAE 6000 1¼” 90° + flange SAE 6000 1¼” 90° with 4SH hose. L = 740 mm. α = 10°</td>
<td>Hose union nut ½” + tension disk M22x1.5 with 1-wire hose. L = 930 mm</td>
</tr>
</tbody>
</table>

The above pressure and return hoses are between the control valve block and the hydraulic motor.
Excavator hydraulics

Check to make sure that the quality of the hydraulic oil and the excavator’s filter comply with the manufacturer’s specified requirements.

(ISO 4406 purity class 18/13).
Start-up and first use

Start-up and first operation of the ripper are always performed by a technician authorized by Xcentric Ripper International/Grado Cero Sistemas, S.L.U. After all of the previously described tasks have been performed, the ripper is put into operation as follows:

- When the attachment device is connected, make sure that the excavator is in the “single-acting” position (hammer mode). The ripper’s return pipe must be connected directly to the hydraulic tank, without passing through the excavator valve block.

![Diagram showing working modes](image)

**WARNING**

Use of hydraulic quick-connect couplings can reduce the ripper’s performance and damage the hydraulic motor.

- Open the hose shut off valves on the excavator arm to the ripper. Start with the return line (right side of the boom) and then open the pressure line.

![Diagram showing opening the shut off valves](image)

- Start the excavator’s engine.
Installing and removing the ripper

- Move the ripper into all possible positions, while bringing the excavator’s cylinders into the two extreme positions to make sure that there is no collision between the ripper and parts of the excavator. Pay special attention to the opening process. Also pay special attention to the closing movement, especially because some excavators have a specific arm and boom configuration with which the tooth can hit the arm, cylinders or cab.

- If the ripper is lifted off the ground and the excavator’s engine is idling or running at a low RPM, press the ripper’s pedal for about 2 minutes to let the air out of the hydraulic system and at the same time to check the system for leaks. If leaks occur, seal them right away.

- Bring the ripper into the vertical position and support the tooth on the ground. Activate the excavator arm until the tracks or wheels lift off the ground, in order to check the pressure in the ripper’s pressure accumulator. If necessary, raise or lower the pressure.

- After all of the listed tests and adjustments have been performed, the ripper is ready to use.
Removing the ripper

Remove the ripper as follows:
- Close the shut off valve on the pressure line.
- Close the shut off valve on the return line.
- Disconnect both hydraulic hoses.
- Attach the appropriate sealing plugs on the ripper hoses as well as on the pipes on the excavator arm.
- Position the ripper on a horizontal surface to prevent tipping over and to ease subsequent removal.
- Remove the ripper.

★ NOTICE

When detaching the ripper from the excavator, close the hydraulic hoses and connections with plugs to prevent oil from dripping out and dirt from getting into the hydraulic system.
OPERATION

Instructions for using the ripper

Even though the ripper requires no daily maintenance, for a long life it still must be kept clean and shock free. Before starting work with the ripper, a daily visual inspection must be made.

Handling the ripper

The best way to learn to handle the ripper is to operate it. Here you will find some tips to make your first attempts easier.

It is worth repeating that, although the ripper is used for similar purposes to those of a demolition hammer, its operation is completely different. Keep in mind that the tip of the ripper arm must maintain a specific angle to the surface to be worked, as if one were digging with a pickaxe.

The optimal demolition distance is 4 to 5 metres from the machine to the tip of the ripper.

The machine must stand as stably as possible on the ground. For demolition work, the machine’s tracks should be directed as precisely as possible in line with the excavator arm in order to achieve the greatest possible stability and not to damage the transmission.
To begin demolition, support the tooth firmly on the material so that the ripper arm is compressed. In so doing, make sure that the lower stop is always open. Let the ripper pound appropriately into the material. Swing the arm to the machine and activate the bucket cylinder or press "close bucket" to ease breakage of the material. It is decisive that the ripper arm remains compressed throughout the entire process, as long as the material is breaking off.

The work area must absolutely be kept clean, so that you can see where to set the ripper. Therefore it is advisable to haul away the demolition material constantly.

Make sure that the ripper arm does not lie on the ground and is not supported on the rear part, which would result in weak or no impact.

Also pay attention to the route of the contact vein for optimal performance.

The ripper can only strike if it is properly supported, because otherwise it cannot work correctly and high impacts are transferred to the excavator.

The demolition process must continually follow the rock layer. If the material doesn't break, it may be helpful to change the angle or gripping point or make shorter tears. From this it follows that depending on the solidity of the material; the layer has a more or less unified structure. This means that in hard or very hard areas, the demolition edge must be set short.

Never forget to stop the oil flow to the ripper before it is lifted from the ground. Not doing so will lead to a very loud noise and excessive impact to the machine arm.
Operation

Work interruption

When interrupting work, place the ripper on the ripper arm in a horizontal position. Make the recommended visual inspection. Keep in mind that there are areas that are very hot, such as the tooth.

⚠️ WARNING
After operation, the ripper’s tooth and pin can be very hot and pose a burn hazard. Do not touch these parts until they have cooled down.

Cleaning

Clean the ripper after operation. Avoid directing the high-pressure water jet from a short distance at the hydraulic hoses, seals, stickers, pressure accumulator and other components, as this may damage them.
TRANSPORT

⚠️ WARNING
Due to its characteristics, there is a tipping hazard if the ripper is uncoupled during loading and transport. Always set the ripper on a firm, even, horizontal surface that can bear the weight to the support points.

Lifting
- Check the lifting elements to be inserted for their maximum allowable load. Because of the sharp-edged metal sheets, use of a chain or padded strap is recommended.
- The ripper can be transported both vertically and horizontally.
- For lifting, use the upper holder, which is provided for this purpose, because the centre of gravity is in the upper part of the ripper.

Tie down the ripper for transport. Lashing and transport of the ripper are the sole responsibility of the transporter.

Transport with the excavator
The ripper can be transported while attached to an excavator if the weight and dimensions of the machine and attachment device are considered and applicable regulations are observed. The ripper can be transported both vertically and horizontally.
LONG TERM STORAGE

Before long-term storage:
- Carefully clean and lubricate the ripper.
- Remove rust and paint vulnerable areas.
- Cover all unprotected metal surfaces with a rust inhibitor.
- If possible, store the ripper in a warm, dry place.

Storage conditions:
- Temperature: -40°C/+80°C (NOTE! Operating temperature varies from these values.)
- Relative air humidity: below 60%

★ NOTICE
For restarting the ripper, it is recommended that the instructions above be followed.
## TROUBLESHOOTING

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low impact from the hammer face.</td>
<td>The machine does not accelerate properly or transfers little power to the ripper.</td>
<td>Accelerate to a suitable RPM.</td>
</tr>
<tr>
<td></td>
<td>The operating pressure is below the recommended value.</td>
<td>Check the operating pressure at the ripper connection.</td>
</tr>
<tr>
<td></td>
<td>Too much oil in the eccentric gear housing due to a defective motor seal.</td>
<td>Check the return pressure and replace the motor. Completely drain the oil from the housing and refill with the recommended amount.</td>
</tr>
<tr>
<td></td>
<td>Low pressure in the pressure accumulator.</td>
<td>Check for leaks and then recharge to the recommended pressure.</td>
</tr>
<tr>
<td>Does not strike.</td>
<td>Shut off valves closed.</td>
<td>Open the valves.</td>
</tr>
<tr>
<td></td>
<td>Ripper is connected wrongly.</td>
<td>Check the connections.</td>
</tr>
<tr>
<td></td>
<td>Motor malfunction</td>
<td>Replace.</td>
</tr>
<tr>
<td></td>
<td>No pressure at the ripper’s outlet.</td>
<td>Correctly program the machine outlet.</td>
</tr>
<tr>
<td></td>
<td>Eccentric gear housing malfunction.</td>
<td>Contact a service technician.</td>
</tr>
<tr>
<td>Low ripper productivity</td>
<td>Tooth is blunt.</td>
<td>Replace.</td>
</tr>
<tr>
<td></td>
<td>Excess hydraulic oil in the eccentric gear housing.</td>
<td>Drain the oil and fill it to the prescribed level.</td>
</tr>
<tr>
<td>Strange sound during operation.</td>
<td>Eccentric gear housing malfunction.</td>
<td>Contact a service technician.</td>
</tr>
<tr>
<td>Transmission oil leak in the seals.</td>
<td>Soil or wear on the valve seat surfaces. O-ring damaged.</td>
<td>Fill up the oil and notify a service technician.</td>
</tr>
<tr>
<td>Leak at the bolt.</td>
<td>Closure seal damaged.</td>
<td>Fill up the oil and notify a service technician.</td>
</tr>
<tr>
<td>Leak in the pressure accumulator.</td>
<td>Tear in the membrane or a leak in the load valve.</td>
<td>Replace the pressure accumulator or valve.</td>
</tr>
<tr>
<td>Leak in the eccentric gear housing.</td>
<td>Defective motor seal ring or damaged seal.</td>
<td>Stop immediately. Contact a service technician.</td>
</tr>
<tr>
<td>Leak in the relief valve on the eccentric gear housing.</td>
<td>Defective motor seal ring.</td>
<td>Stop immediately. Contact a service technician.</td>
</tr>
<tr>
<td>Leak in the hydraulic motor.</td>
<td>Screws or union nuts loose.</td>
<td>Retighten.</td>
</tr>
<tr>
<td>Loud noise at the front stop.</td>
<td>Spring stop is worn.</td>
<td>Replace.</td>
</tr>
</tbody>
</table>
Maintenance
MAINTENANCE, INSPECTION AND REPAIR

Periodical inspection and repair

Daily inspection

Before starting work with the ripper, a daily visual inspection must be made for the following:

- Possible oil leaks:
  - Hydraulic motor
  - Control block
  - Eccentric gear housing
  - Relief valve on the eccentric gear housing
- Possible transmission oil leaks:
  - Pivot arms
  - Seals
- Condition of hoses (abrasion, wear or kinks).
- Wear to the tooth and mounting pin.
- Condition of the pressure accumulator (leaks, tears, membrane distortion).
- Tightness of the screws and bolts.
- Possible deformations and cracking.
- General condition of the ripper.
- Attachment between the ripper and the excavator.
- Condition of the lubricant filler plugs.

The following illustrations are for simple location of the points.
Maintenance, inspection and repair
The complete check can be done in just a few minutes. If you detect one of the problems mentioned above, take appropriate measures to resolve it. This saves time and money.

If the lubricant plugs appear to be damaged, replace them as quickly as possible. Negligence of these problems can void the warranty.
Maintenance, inspection and repair

**Maintenance plan**

The working hours mentioned below are those of the excavator. These are maximum values for normal operation under normal working conditions. If there is a defect that is not shown in the chart, contact a service technician.

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check the connection of the ripper to the excavator.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the hydraulic circuit for leaks (hoses, motor, control block).</td>
<td>8 hours</td>
</tr>
<tr>
<td>Make sure that the seals do not leak gear oil.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Make sure that the pins do not leak gear oil.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Make sure that the ripper arm housing does not leak oil.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Make sure that the internal pressure relief valve on the ripper arm housing has no leaks.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the ripper housing for distortion and breakage.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the top bracket for distortion and breakage.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the safety instruction stickers.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the pressure accumulator for leaks, distortion and cracks.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the condition of the tooth and its pin.</td>
<td>8 hours</td>
</tr>
<tr>
<td>Check the condition of the front spring stop.</td>
<td>40 hours</td>
</tr>
<tr>
<td>Check the condition of the tooth holder on the ripper arm.</td>
<td>40 hours</td>
</tr>
<tr>
<td>Change the hydraulic oil in the eccentric gear housing.</td>
<td>500 hours</td>
</tr>
<tr>
<td>Check the attachment device for rust.</td>
<td>500 hours</td>
</tr>
<tr>
<td>On the four pivot arm lubrication chambers, top up the gear oil as prescribed.</td>
<td>2,000 hours</td>
</tr>
</tbody>
</table>

1) If the lubricant sealing plugs appear to be damaged, replace them as soon as possible.
2) Observe the fill levels given in this manual. Too much hydraulic oil in the eccentric gear housing causes severe loss of performance in the ripper.
Hydraulic oil

The motor manufacturer recommends using high-quality, mineral-based premium hydraulic oil with additives to prevent wear, oxidation and blistering, as well as for increasing pressure resistance.

★ NOTICE

Without the prior approval of Xcentric Ripper International/Grado Cero Sistemas, S.L.U. no fire-resistant oils or vegetable-based oils can be used.

Below are the strict values provided by the hydraulic motor manufacturer. These values refer to hydraulic oil based on premium mineral oil.

Temperature range of permissible oil: -20ºC/+80ºC (depending on the oil used).
Permissible oil viscosity: 25 cSt–150 cSt.
Ideal oil viscosity: 40 cSt–60 cSt.

The mineral-based hydraulic oil must be selected in such a way that the viscosity precisely corresponds to the ideal viscosity values under normal operating conditions. If the oil viscosity is below permissible values, it will shorten the life of the motor.

<table>
<thead>
<tr>
<th>OIL TEMPERATURE</th>
<th>ISO VALUE</th>
<th>REPSOL</th>
<th>ESSO</th>
<th>SHELL</th>
<th>MOBIL</th>
<th>CEPSA</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-40ºC</td>
<td>32</td>
<td>Telex E32</td>
<td>NUTO H32</td>
<td>TELLUS 37</td>
<td>DTE 24</td>
<td>Hidráulico HM32</td>
<td>HLP32</td>
</tr>
<tr>
<td>40-50ºC</td>
<td>46</td>
<td>Telex E46</td>
<td>NUTO H46</td>
<td>TELLUS 46</td>
<td>DTE 25</td>
<td>Hidráulico HM46</td>
<td>HLP46</td>
</tr>
<tr>
<td>50-60ºC</td>
<td>68</td>
<td>Telex E68</td>
<td>NUTO H68</td>
<td>TELLUS 68</td>
<td>DTE 26</td>
<td>Hidráulico HM68</td>
<td>HLP68</td>
</tr>
<tr>
<td>60-70ºC</td>
<td>100</td>
<td>Telex E100</td>
<td>NUTO H100</td>
<td>TELLUS 100</td>
<td>DTE 26</td>
<td>Hidráulico HM100</td>
<td>HLP100</td>
</tr>
</tbody>
</table>

The excavator’s hydraulic oil must be changed according to the manufacturer’s instructions.

Oil filter on the excavator

The hydraulic motor’s manufacturer recommends using filters with a fineness of at least 20 µm, but it is preferable to use 10 µm filters to ensure trouble-free operation. The filter type and position are shown in the excavator’s manual.
Replace the hydraulic filter after the first 50 operating hours and then with every oil change.
Lubricants and hydraulic system

**Eccentric gear housing lubricant**

The housing contains ISO-VG46 hydraulic oil. It is recommended that this oil be changed for the first time after 50 operating hours, and then every 500 hours or once a year.

Oil quantities:
- XR 10: 0.6 litres
- XR 20 - XR 60: 1.5 litres.

<table>
<thead>
<tr>
<th>OIL TEMPERATURE</th>
<th>ISO VALUE</th>
<th>REPSOL</th>
<th>ESSO</th>
<th>SHELL</th>
<th>MOBIL</th>
<th>CEPSA</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>40–50ºC</td>
<td>46</td>
<td>Telex E46</td>
<td>NUTO H46</td>
<td>TELLUS 46</td>
<td>DTE 25</td>
<td>Hidráulico HM46</td>
<td>HLP46</td>
</tr>
</tbody>
</table>

**Oil change eccentric gear housing**

To change the oil, turn the ripper until the drain plug is at the bottom of the housing.

Loosen the plug slightly and let the remaining pressure built up in the housing reduce before you completely remove the plug.

Remove the plug and let the oil drain into a receptacle for later recycling. Let the oil drain completely.

Turn the ripper until the plug is at half height.
Fill the oil to the level shown in the manual for your particular ripper model. Put the plug back in and turn it tight. If the plug is damaged, it must be replaced with a new plug. Always be sure that the plug’s plastic seal is in perfect condition.

If metal particles are found in the removed oil, notify your authorized service technician, so that he can determine whether bearings need to be replaced or if it is just a matter of cleaning the eccentric gear housing.

**Pivot arm lubricant**

Use SAE-90 gear oil to lubricate the pivot arm pins. It is recommended that you check the lubricant level every 2,000 operating hours or once per year.

<table>
<thead>
<tr>
<th>VISCOSITY AT 100°C, cSt</th>
<th>VISCOSITY AT 40°C, cSt</th>
<th>VISCOSITY INDEX</th>
<th>FLASH POINT, °C</th>
<th>POUR POINT, °C</th>
<th>THICKNESS AT 15°C, kg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.7</td>
<td>220</td>
<td>95</td>
<td>240</td>
<td>-20</td>
<td>0.895</td>
</tr>
</tbody>
</table>

The fill quantity of the appropriate lubrication oil in each pivot arm is given in the following table:

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CHAMBER (see the following drawings)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>XR 10</td>
<td>0.5</td>
</tr>
<tr>
<td>XR 20</td>
<td>1</td>
</tr>
<tr>
<td>XR 30</td>
<td>1.5</td>
</tr>
<tr>
<td>XR 40</td>
<td>2</td>
</tr>
<tr>
<td>XR 60</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Lubricants and hydraulic system

**Changing the pivot arm lubricant**

It is recommended that lubricant be changed at least once a year. Position the ripper so that all four filler plugs can be removed and the contents can be emptied. Fill the pivot arms with the amount of lubricant shown in the manual for your particular ripper model. If metal particles are found in the removed lubricant, notify your authorized service technician.
Control valve block
TOOTH REPLACEMENT

Removing the tooth

⚠️ CAUTION
You must wear personal safety equipment when replacing the tooth. These include safety glasses, safety boots and gloves.

After operation, the ripper’s tooth and pin can be very hot. They pose a burn hazard.

⭐ NOTICE
Use only original equipment parts for the tooth.

XR 10 - XR 20:

PROCEDURE
1. Remove the pin by hammering it, with a punch and heavy hammer, on its left-hand side as shown in the figure, as the pin can only be removed from one side.
2. Remove the tooth.

3. Remove the ring from the recess in the ripper arm.

**XR 30 - XR 60:**

★ NOTICE

*Xcentric Ripper International/Grado Cero Sistemas S.L.U.* provides a special wrench for replacing the tooth, which is set on the head of the pin bolt like a small drill drift.
Tooth replacement

PROCEDURE

1. Insert the special wrench into the pin bolt.

2. Remove the screw in the pin socket with an Allen wrench.

3. As shown on the corresponding interior view, the pin bolt and socket join into one another in a specific position. It can therefore be difficult to separate them. Insert a drift through the hole of the screw in the socket and hit it until the pin bolt can be pulled out.

4. Pull out the pin socket.

5. Remove the tooth.
6. Remove the ring from its receiving hole in the ripper arm.

**XR 60 (Type 2 tooth):**

**PROCEDURE**

1. Remove the elastic block.
Tooth replacement

2. Remove the lock plate.

3. Unscrew the bolt with the special hammer wrench, supplied in the tool kit, until the pin is in the centre of the hole in the tooth.

4. Remove the pin.
5. Remove the tooth.

6. Remove the bolt and tension piece assembly from the ripper arm. Unscrew the bolt from the tension piece.

7. Inspect all removed pieces for wear and if any piece shows sign of excessive wear replace it with a new part.

**Problems when removing the tooth**

**All models:**
It may happen that the tooth is hard to remove. In that case, strike with a hammer and punch on its ends until it can be pulled off. *(Never hit the tooth directly with a hammer as this will damage the tooth.)*
Tooth replacement

The problem is that the tooth supplied by Xcentric Ripper International/Grado Cero Sistemas S.L.U. is made of cast steel, and therefore when it is installed onto the tooth holder, there can be a certain amount of play, as can be seen in the illustration.

With hard stone, the ripper tends to accelerate and thus create a lot of force, which heats up the tooth considerably. This distorts the tooth holder, which takes on the inner shape of the tooth.

The following illustration shows the process with a cutaway from a different perspective:

★ NOTICE
Distortion of the tooth holder is a sign of wear from operation of the ripper, and therefore its repair and maintenance do not come under the attachment device’s warranty.
SOLUTION

If the tooth has been removed, check the tooth holder for deformation. Chamfer the tooth holder with a grinding machine and rebuild the ripper arm to its original shape by reworking the profile. Fit a new tooth.

Checking the fit of the tooth on the ripper arm

All models:

If the tooth has been removed, check both the condition of the pin opening in the ripper arm and the fit of the tooth on the ripper arm. When installing a new tooth, make sure that the tooth rocks only minimally on the ripper arm. Afterward, if the tooth is on the ripper arm on the stop, make sure that the hole in the tooth is placed over the opening for the pin and that there is some play in the front area.

If the pin in the tooth receiving hole is lying toward the front part of the hole, this is a sign that the ripper arm is worn. Working under these circumstances is not recommended, because it can bend the pin. Let your supplier know about it.

If installation of the tooth is incorrect, the tooth holder must be repaired. Contact your authorized service department.
Tooth replacement

Installing the tooth

XR 10 - XR 20:
1. Place the ring in the corresponding receiving hole in the ripper arm.

2. Position the tooth correctly on the tooth holder.

⚠️ CAUTION
The tooth from Xcentric Ripper International/Grado Cero Sistemas S.L.U. is made of wear-resistant steel and minimal play can occur when it is placed on the tooth holder.

3. Insert the pin with a hammer and punch, as shown in the figure. Remember that the pin can only be installed from the right hand side.
Tooth replacement

Tooth holder

Tooth

Ring

Pin

Tooth holder

Tooth
Tooth replacement

**XR 30 - XR 60:**

1. Place the ring in the corresponding receiving hole in the ripper arm.

2. Position the tooth correctly on the tooth holder.

---

**CAUTION**

The tooth from Xcentric Ripper International/Grado Cero Sistemas S.L.U. is made of wear-resistant steel and minimal play can occur when it is placed on the tooth holder.

3. Install the pin bolt and pin socket. Due to their inner shaping, the two parts can join in only one way. Turn both components until the indentation and the adjusting key fit correctly into one another.
Tooth replacement

CAUTION
Do not pull out the ceramic insert inside the pin or clean it.

4. Install the screw and Nord-Lock disc washer in the pin using an Allen wrench for the screw and the special wrench from Xcentric Ripper International/Grado Cero Sistemas, S.L.U. for the head of the pin bolt.
Tooth replacement

XR 60 (Type 2 tooth):

1. Assemble the bolt, tension piece and support plate and insert the assembly in the recess in the ripper arm.

2. Position the tooth correctly on the tooth holder.
3. Insert the pin, centring it in the tension piece.

4. Tighten the bolt using a hammer wrench (supplied in the tool kit).

5. Fit the lock plate with the concave side up.
Tooth replacement

6. Install the elastic block.

★ NOTICE
After the first few minutes of working, the tooth adjusts to the tooth holder and it is necessary to retighten the bolt.

Keep clean and lightly greased for assembly.
PRESSURE ACCUMULATOR

Caring for the pressure accumulator

- Replace the pressure accumulator if it is defective, if it has cracks or if the membrane is perforated or distorted.
- Clean it only with water.

Important: Rest position — working position

The pressure accumulator changes its pressure depending on the condition: Rest position or working position.

Rest position

![Rest position diagram]

- Rest position: The ripper is swivelled in and supported lengthwise on the ripper arm.

Working position

![Working position diagram]
Pressure Accumulator

**WARNING**
In the rest position the pressure accumulator is charged and discharged. The air pressure value of 6 bars for the XR 10, 5 bars for the XR 20 to XR 40 and 2 bars for XR 60 must never be exceeded.

- **Working position**: The ripper is supported in such a way that the ripper arm is pressed into the ripper housing.

![Diagram of Pressure Accumulator](image)

**WARNING**
In the working position the pressure accumulator must never be worked upon. Here the pressure increases considerably. The pressure accumulator may explode.

### Setting the pressure
Always adjust the pressure in the rest position when the ripper is swivelled in.

The pressure accumulator’s pressure changes depending on the excavator model on which the ripper is installed. The more powerful it is, the more pressure the pressure accumulator needs.

This setting is made using a rough calculation.

1. **First the pressure accumulator is charged with air to... (see specifications).**
2. Now bring the ripper to the ground in the vertical position, while the excavator’s boom also is in the vertical position.
3. Press the ripper into the subsurface until the excavator tracks or wheels at the front of the excavator are raised from the ground.
4. In this position, check the opening of the spring stop. Here the opening must be between 6 and 8 cm.

**WARNING**

THE AIR PRESSURE VALUE OF 6 BARS (XR 10), 5 BARS (XR 20 - XR 40) OR 2 BARS (XR 60) MUST NEVER BE EXCEEDED. IF SO THE PRESSURE ACCUMULATOR MAY EXPLODE.
Pressure accumulator

5. Always make the adjustment by charging or releasing the air in the pressure accumulator in the rest position.

6. If the working height is regulated, check the tightness of the valves and put on their protective cover.

This adjustment does not need to be checked, unless you have determined that the large opening on the spring stop has changed.

Keep in mind that the power with which the excavator presses the ripper changes according to the position of the excavator arm. Therefore be aware that the opening on the spring stop is smaller if the ripper is farther from the cab than when it is moving closer to the cab.

Charging and discharging of the accumulator must always be done with an officially approved manometer.

---

**WARNING**

If the pressure accumulator is being replaced, it must always be completely pressure-free.

The valve must never be struck or unscrewed when the pressure accumulator is under pressure. Make absolutely sure in this case as there is a danger of the valve being blown out.
INTERNAL PRESSURE RELIEF VALVE

XR 20 - XR 60

The pressure relief valve is located on the bearing cover of the eccentric gear housing. The valve will reduce the overpressure that can arise inside the eccentric gear housing. This only happens if the seal ring on the hydraulic motor shaft is damaged.

Possible reasons for damage to the motor seal ring:
- Excess pressure in the excavator’s return line.
- Starting up the ripper with a closed or partially closed return shut off valve.
- Possible obstructions in the hose, hydraulic quick-connect coupling, in the lines of the return circuit, the return filter of the excavator clogged, etc.

⚠️ CAUTION
The recommended maximum value for the return flow is 6 bars.

If you see that this valve has begun discharging oil, stop the ripper immediately, close the excavator's shut off valves and contact your authorized customer service.

Operating the ripper in this condition creates excess heat in the eccentric gear housing and results in considerable loss of performance.
LOWER SPRING STOP

XR 20 - XR 60

Replacing the lower spring stop

To perform this operation, you must be appropriately qualified and have perfect knowledge of the ripper’s mechanics.

You must also intervene in other areas of the ripper, such as the pressure accumulator. For this, perfect knowledge of the loading/unloading process and height adjustment is necessary.

Do not take any unnecessary risks when working on this component. There is a high risk of crushing if the following instructions are not followed correctly.

1. For removing and installing the spring stop, the flat stop of the ripper arm must be separated from the spring stop, as in the illustration. For this the ripper housing and the ripper arm are pressed together.
2. To perform this operation safely, it is recommended that the ripper be mounted on the machine and supported in a vertical position against the ground while the machine’s engine is stopped, as shown in the illustration.

3. In this position, all of the compressed air can be drained from the pressure accumulator through an officially approved manometer.

4. After discharging the pressure accumulator, once again check the ripper arm’s firm position against the ground.

5. In this position, the ripper arm’s flat stop is about 150 mm away from the spring stop. With this space available, start to loosen the screws of the flange that hold the spring stop.

6. As soon as the flange is loose, replace the stop with a new one. Place the screws correctly and tighten them to the proper torque. Make sure that the condition and position of the Nord-Lock disc washers are correct.

7. Proceed to charge the pressure accumulator according to the instructions in this manual.

---

**CAUTION**

Remember that it is important to recycle the used stop.
BOLT TIGHTENING TORQUES

MAX. TIGHTENING TORQUE FOR BOLTS STEEL QUALITY 8.8

<table>
<thead>
<tr>
<th>Bolt diameter x Thread pitch (mm)</th>
<th>Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>M4 x 0.7</td>
<td>3</td>
</tr>
<tr>
<td>M5 x 0.8</td>
<td>5.5</td>
</tr>
<tr>
<td>M6 x 1</td>
<td>10</td>
</tr>
<tr>
<td>M7 x 1</td>
<td>16</td>
</tr>
<tr>
<td>M8 x 1.25</td>
<td>22</td>
</tr>
<tr>
<td>M8 x 1</td>
<td>23</td>
</tr>
<tr>
<td>M10 x 1.5</td>
<td>45</td>
</tr>
<tr>
<td>M10 x 1.25</td>
<td>50</td>
</tr>
<tr>
<td>M10 x 1</td>
<td>53</td>
</tr>
<tr>
<td>M12 x 1.5</td>
<td>78</td>
</tr>
<tr>
<td>M12 x 1.25</td>
<td>94</td>
</tr>
<tr>
<td>M12 x 1.75</td>
<td>119</td>
</tr>
<tr>
<td>M14 x 1.5</td>
<td>120</td>
</tr>
<tr>
<td>M16 x 1.5</td>
<td>185</td>
</tr>
<tr>
<td>M18 x 1.5</td>
<td>265</td>
</tr>
<tr>
<td>M20 x 1.5</td>
<td>360</td>
</tr>
<tr>
<td>M22 x 1.5</td>
<td>480</td>
</tr>
<tr>
<td>M24 x 2</td>
<td>610</td>
</tr>
</tbody>
</table>

The above bolt torques are for dry bolts. If the threads are lubricated before assembly reduce the torque setting by 10%.