

BS 2/C-..., BS 2/R-...

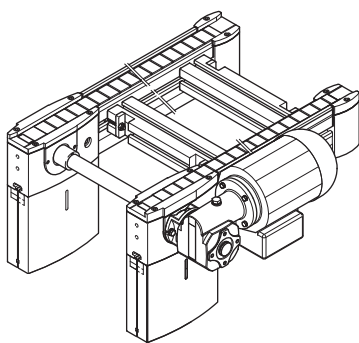
Belt sections

Applies to the following types:

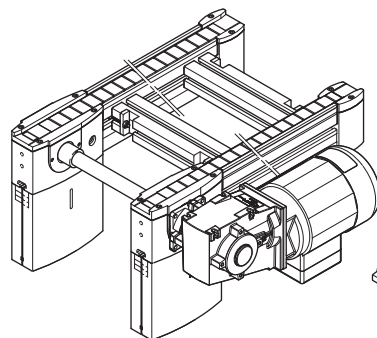
- | | |
|-------------------------------|----------------------------|
| 3 842 998 096 , BS 2/R-700 | 3 842 999 901 , BS 4/R-700 |
| 3 842 998 097 , BS 4/R-300 | 3 842 999 904 , BS 2/R-300 |
| 3 842 998 238 , BS 2/R-H | 3 842 999 917 , BS 2/C-100 |
| 3 842 998 239 , BS 2/C-H | 3 842 999 985 , BS 2/C-250 |
| 3 842 998 492 , BS 2/R-V-1200 | |

Assembly instructions
3 842 358 724/2013-04

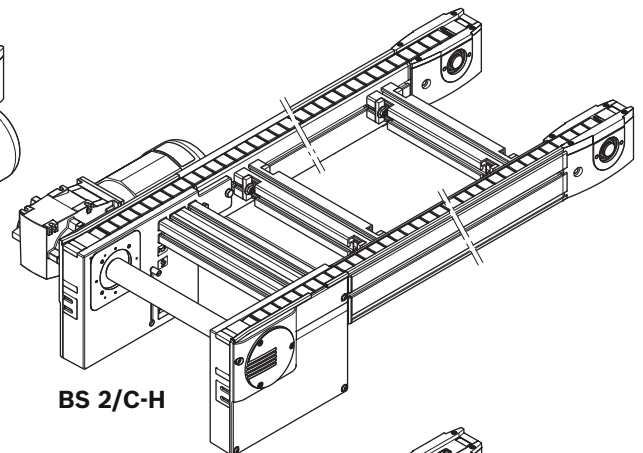
Replaces: –
English



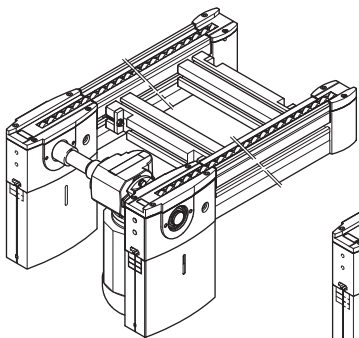
BS 2/C-100



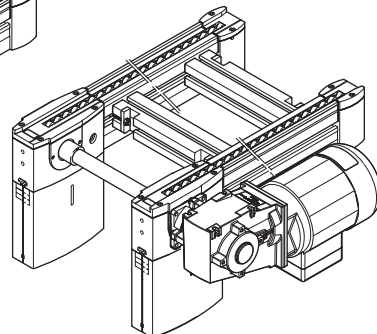
BS 2/C-250



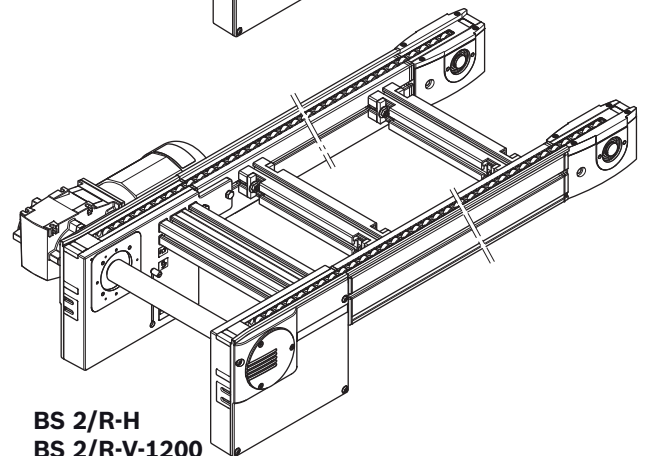
BS 2/C-H



BS 2/R-300
BS 4/R-300



BS 2/R-700
BS 4/R-700



BS 2/R-H
BS 2/R-V-1200

The data specified only serve to describe the product. The information provided in the instructions on how to use the supplied product should only be considered application examples and suggestions. Catalog information is not binding. The information given does not release the user from the obligation of own judgment and verification. Our products are subject to a natural process of wear and aging.

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An example configuration is shown on the title page. The delivered product may thus vary from the illustration.

The original assembly instructions were generated in German.

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- EN These assembly instructions are available in the languages indicated here. They come in a hard copy (print) or a PDF file (media) that can be downloaded at: www.boschrexroth.com/mediadirectory
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1. 在搜索窗口 (右上角, “Search” 窗口) 内输入编号 **3 842 358 729**。2. 点击 “►Search”。
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- PL Dana instrukcja montażu jest dostępna w podanych tutaj językach. W postaci wydrukowanej lub w wersji pdf (media) do pobrania ze strony: www.boschrexroth.com/mediadirectory
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3 842 358 723	print	media	Bandstrecke BS 2/C-... + BS 2/R-...	DE Deutsch
3 842 358 724	print	media	Belt sections BS 2/C-... + BS 2/R-...	EN English
3 842 358 725	print	media	Section à bande BS 2/C-... + BS 2/R-...	FR Français
3 842 358 726	print	media	Tratto a nastro BS 2/C-... + BS 2/R-...	IT Italiano
3 842 358 727	print	media	Tramo de cinta BS 2/C-... + BS 2/R-...	ES Español
3 842 358 728	print	media	Via de esteira BS 2/C-... + BS 2/R-...	PT Português
3 842 358 729	print	media	皮带输送段 BS 2/C-... + BS 2/R-...	ZH 中文
MTCS 358 723		media	Dopravníková trať BS 2/C-... + BS 2/R-...	CS Česky
MTPL 358 723		media	Przenośnik BS 2/C-... + BS 2/R-...	PL Polski

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1 About This Documentation

1.1 Scope of documentation

This documentation applies to the following products:

- 3 842 998 096, BS 4/R-700
- 3 842 998 097, BS 4/R-300
- 3 842 998 238, BS 2/R-H
- 3 842 998 239, BS 2/C-H
- 3 842 998 492, BS 2/R-V
- 3 842 999 901, BS 2/R-700
- 3 842 999 904, BS 2/R-300
- 3 842 999 917, BS 2/C-100
- 3 842 999 985, BS 2/C-250

This documentation is intended for installers, operators, service technicians, and system owners.

This documentation contains important information on the safe and appropriate assembly, transportation, commissioning, operation, use, maintenance, disassembly, and simple troubleshooting of the product.

- ▶ Read this documentation completely, especially chapter 2 “Notes on Safety” and chapter 3 “General Notes on Equipment and Product Damage”, before working with the belt section.

1.2 Required and supplementary documentation



- ▶ Only commission the product once you have obtained the system documentation that is marked with a book symbol  and understood and complied with its contents.

Table 1: Required and supplementary documentation

Title	Document number	Document type
 Instructions for Employees on Safety	3 842 527 147	
MTparts	3 842 529 770	Spare parts list on CD

1.3 Presentation of information

Uniform safety instructions, symbols, terms, and abbreviations have been used in this documentation in order to ensure that you can get to work quickly and safely with your product. They are discussed in more detail in the following sections.

1.3.1 Safety instructions




This documentation contains safety instructions in section 2.6 “Product-specific safety instructions” and chapter 3 “General Notes on Equipment and Product Damage” and before any actions or steps whenever there is a danger of personal injury or damage to the equipment. The measures described to avoid these hazards must be observed.

Safety instructions are set out as follows:

 SIGNAL WORD
Hazard type and source Consequences Precautions: ...

- **Safety sign:** draws attention to the risk
- **Signal word:** identifies the degree of hazard
- **Type and source of the risk:** identifies the type and source of the hazard
- **Consequences:** describes what occurs when the safety instructions are not complied with
- **Precautions:** states how the hazard can be avoided


Table 2: Hazard classes acc. to ANSI Z535.6-2006

Safety sign, signal word	Meaning
 DANGER	Indicates an imminently hazardous situation which, if not avoided, will certainly result in death or serious injury.
 WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Damage to equipment: The product or surrounding equipment may be damaged.

1.3.2 Symbols

The following symbols identify information that is not relevant for safety, but which increases the comprehensibility of the documentation.

Table 3: Meaning of the symbols

Symbol	Meaning
	If this information is disregarded, the operating procedure may be impaired.
▶	Individual, independent action
1.	Numbered steps: The numbers indicate the order for the steps.
2.	
3.	

1.3.3 Designations

This documentation uses the following designations:

Table 4: Designations

Designation	Meaning
BS 2/C-100	BS 2: Belt section from the Rexroth TS <i>2plus</i> transfer system
BS 2/C-250	/C: Conveyor medium: flat top chain
BS 2/C-H	-100: Permissible load, cumulative load [kg] -250: Permissible load, cumulative load [kg] -H: Heavy load version, permissible load, cumulative load 400 kg
BS 2/R-300	BS 2: Belt section from the Rexroth TS <i>2plus</i> transfer system
BS 2/R-700	/R: Conveyor medium: accumulation roller chain
BS 2/R-H	-300: Permissible load, cumulative load [kg]
BS 2/R-V-1200	-700: Permissible load, cumulative load [kg] -H: Heavy load version, permissible load, cumulative load 1200 kg -V: Conveyor medium accumulation roller chain <i>Vplus</i> , permissible load, cumulative load 1200 kg

1.3.4 Abbreviations

This documentation uses the following abbreviations:

Table 5: Abbreviations

Abbreviation	Meaning
Chain	Conveyor chain with conveyor medium: <ul style="list-style-type: none"> • Flat top chain (.../C-...) • Accumulation roller chain (.../R-...) • Accumulation roller chain <i>Vplus</i> (.../R-V-...)

2 Notes on Safety

2.1 About this chapter

The product has been manufactured according to the accepted rules of current technology. Even so, there is a risk of injury or damage if this chapter and the safety information in these instructions are not observed.

- ▶ Read these instructions completely and thoroughly before working with the product.
- ▶ Keep this documentation in a location where it is accessible to all users at all times.
- ▶ Always include the operating instructions when you pass the product on to third parties.

2.2 Intended use

This product is an incomplete machine.

The product may be used as follows:

- For installation in a Rexroth TS *2plus* transfer system
- For transporting Rexroth WT 2 workpiece pallets.
- Maximum load/section load: see Technical data on page 75.
- For ambient conditions, see page 75.

The product is intended exclusively for professional applications and not designed for private use.

Intended use includes having read and understood these instructions, especially chapter 2 “Notes on Safety”.

2.3 Improper use

Any use other than that described in section “Intended use” is considered improper and is not permitted.

Bosch Rexroth AG is not liable for any damages resulting from improper use.

The user alone bears the risks of improper use of the product.

The following foreseeable cases of misuse are also considered improper use:

- Transport of goods other than those specified.
- Persons riding on the product or transported material.
- Persons climbing on the product
 - walking on the product is not permitted.
- Operation of the product without a safety device to prevent toppling.
- Personal use of the product.

2.4 Personnel qualifications

The work described in this documentation requires basic mechanical, electrical, and pneumatics knowledge, as well as knowledge of the appropriate technical terms. Additional knowledge of the lifting device’s usage and of the associated lifting equipment are necessary to transport and handle the product. In order to ensure operating safety, these activities may therefore only be carried out by qualified technical personnel or an instructed person under the direction and supervision of qualified personnel.

Qualified personnel are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge, and experience, as well as their understanding of the relevant conditions pertaining to the work to be done. Qualified personnel must observe the rules relevant to the subject area and carry the necessary technical expertise.

For pneumatic products such expertise would, for example, involve:

- Being able to read and fully understand pneumatic diagrams,
- Especially understanding completely the complexity and interactions of safety equipment, and
- Having knowledge of the function and structure of pneumatic components.



Bosch Rexroth offers training for special fields. You can find an overview of the training contents on the Internet at <http://www.boschrexroth.de/didactic>

2.5 General safety instructions

- Observe the regulations for accident prevention and environmental protection.
- Observe the safety instructions and regulations applicable in the country in which the product is used.
- Exclusively use Rexroth products in good technical order and condition.
- Follow all instructions printed on the product.
- Persons who assemble, operate, disassemble or maintain Rexroth products must not consume any alcohol, drugs, or pharmaceuticals that may affect their ability to respond.
- To avoid injuries due to unsuitable parts, only use original accessories and spare parts from Rexroth.
- Comply with the technical data and ambient conditions listed in the product documentation.
- The installation or use of unsuitable products in safety-relevant applications can result in unanticipated operating states in the application that can lead to personal injury or damage to equipment. The product should thus only be used in applications relevant to safety if this use is explicitly specified and permitted in the product documentation, for example in explosion protection areas or safety-related control components (functional safety).
- Only commission the product after verifying that the end product (e.g. machine or system) in which Rexroth products are installed complies with national regulations, safety guidelines, and norms.

2.6 Product-specific safety instructions

The following safety instructions apply to chapters 6 to 14.

General

- Do not modify or convert the product.
- Do not expose the product to any mechanical loads under any circumstances. Never use the product as a handle or step. Do not place any objects on the product.
- Always secure the product to prevent toppling.

During transport

- Observe the transport instructions on the packaging.

During assembly

- Check the product for visible transport damage.
- Lay cables and lines so that they cannot be damaged and no one can trip over them.
- Make sure the relevant system component is not under pressure or voltage before assembling the product or when connecting and disconnecting plugs.
- Protect the system component against being switched on.
- Before commissioning, make sure that all seals and caps for the screwed connections are correctly installed and undamaged to prevent fluids and foreign bodies from penetrating the product.

During commissioning

- Let the product acclimate itself for several hours before commissioning, otherwise water may condense in the housing.
- Make sure that all electrical and pneumatic connections are either used or covered.
- Check the safety requirements in accordance with DIN EN 619.
- Commission the product only if it is installed completely.
- Make sure that all safety equipment belonging to the product is present, has been installed properly, and is fully functional. Do not modify the position of, bypass, or disable the safety equipment.

- Do not reach into moving parts.
 - Check the product for malfunctions.
- During operation**
- Ensure that only authorized personnel do the following within the scope of intended product use
 - Start or operate the system, or intervene in its normal functioning
 - Activate adjustment devices on components.
 - Only allow persons who are authorized by the system owner to access the product's direct operating area. This also applies when the product is standing still.
 - Make sure that
 - There are no obstacles preventing access to the EMERGENCY STOP command devices.
 - All delivery points, workstations and passages remain freely accessible.
 - Do not use EMERGENCY STOP command devices for routine stops.
 - Regularly check the proper functioning of the EMERGENCY STOP command devices.
 - After an EMERGENCY STOP, in the case of a fault, or any other anomalies, switch the product off and protect it against being switched on again.
 - Do not reach into moving parts.
 - An idle system is not a safe system, as stored energy can be released unintentionally or through improper maintenance procedures.
- EMERGENCY STOPS, malfunctions**
- During maintenance and repair**
- After an EMERGENCY STOP or a malfunction, only switch on the system once the cause of the fault has been determined and the error resolved.
 - Make sure that there are no obstacles blocking access to maintenance and inspection points.
 - Perform the prescribed maintenance work at the intervals specified in section 10.3, Maintenance.
 - Make sure that no lines, connectors, or components are disconnected as long as the system is under pressure and voltage. Protect the system against being switched on.
- During disposal**
- Dispose of the product in accordance with the currently applicable national regulations in your country.

2.7 Personal protective equipment

- Wear appropriate protective equipment (e.g. safety shoes, tight clothing, hairnets for those with long hair) when working with the product.
- As a plant operator, you are responsible for appropriate protective equipment when working with the product.
- All personal protective equipment must be intact.

2.8 Obligations of the system owner

- Perform a risk assessment in accordance with DIN EN ISO 12100 before initial commissioning or recommissioning of a conveyor system.
- Instruct operating personnel on safety before initial commissioning or recommissioning and afterwards regularly.

3 General Notes on Equipment and Product Damage

The warranty only applies to the delivered configuration.

- The warranty will not apply if the product is incorrectly assembled, commissioned, or operated, and/or if it is not handled or not used as intended.
- The following safety instructions apply to chapters 6 to 14.

During operation

- Ensure that there is sufficient lubrication on the conveyor chain, see page 39.
 - Maintain a maintenance schedule.
 - Keep grease-dissolving or aggressive cleaning agents away from the conveyor chain.

During maintenance and repair

- Deformations such as folds and/or the chain twisting, e.g. due to the chain coil tipping while the chain is being mounted, cause the conveyor chain to fail and can lead to a crash.
 - Ensure that the chain is lying evenly and that it runs smoothly from the chain coil during mounting.
 - Ensure that the chain coil does not tip over during assembly.
 - If the chain coil has tipped over during assembly and the chain is deformed: Use the disassembly tool to remove all of the affected area.

During cleaning

- Prevent cleaning agents from entering the system.
- Never use solvents or aggressive detergents.
- Do not use a high-pressure cleaner for cleaning.

4 Scope of Delivery

The scope of delivery includes:

- 1 BS 2/ belt section...
- 1 “Belt section BS 2/C-... + BS 2/R-...” assembly instructions.

Leg sets and fastening material for connecting to other belt sections or the floor must be ordered separately, see the TS *2plus* sales catalogue, **3 842 531 138**.

4.1 Condition on delivery

- Assembled on a pallet.

5 About This Product

5.1 Performance description

5.1.1 BS 2 belt section application...

- Longitudinal conveyor for WT 2 workpiece pallets on conveyor sections of up to 6000 mm.
- Transverse conveyor for WT 2 workpiece pallets between parallel conveyor sections (in conjunction with two HQ 2 lift transverse units)

5.1.2 BS 2 belt section version...

- Ready-for-operation conveyor section.
- Section load: see Technical data on page 75.
- Conveyor medium:
 - BS 2/C... : Polyamide flat top chain.
 - BS 2/R... : Accumulation roller chain.
 - BS 2/R-V-1200 : Accumulation roller chain *Vplus*.
- Motor mounting depending on the version, right side (MA = R), left side (MA = L) or center (MA = M)
- Motor connection optionally with cable/plug or terminal box.

5.2 Product description

- A:** Gear
- B:** Motor
- C:** Gear motor
- D:** Flat top chains
- E:** Accumulation roller chain
- F:** *Vplus* accumulation roller chain
- G:** Only with: BS 2/R-H, reversible
- H:** Accelerating element for:
 - BS 2/R-300, -700
 - BS 4/R-300, -700
 For safe bridging of the conveyor trench without accumulation operation.
 Only for $l_{WT} = 160$,
 $l_{WT} = 240$.

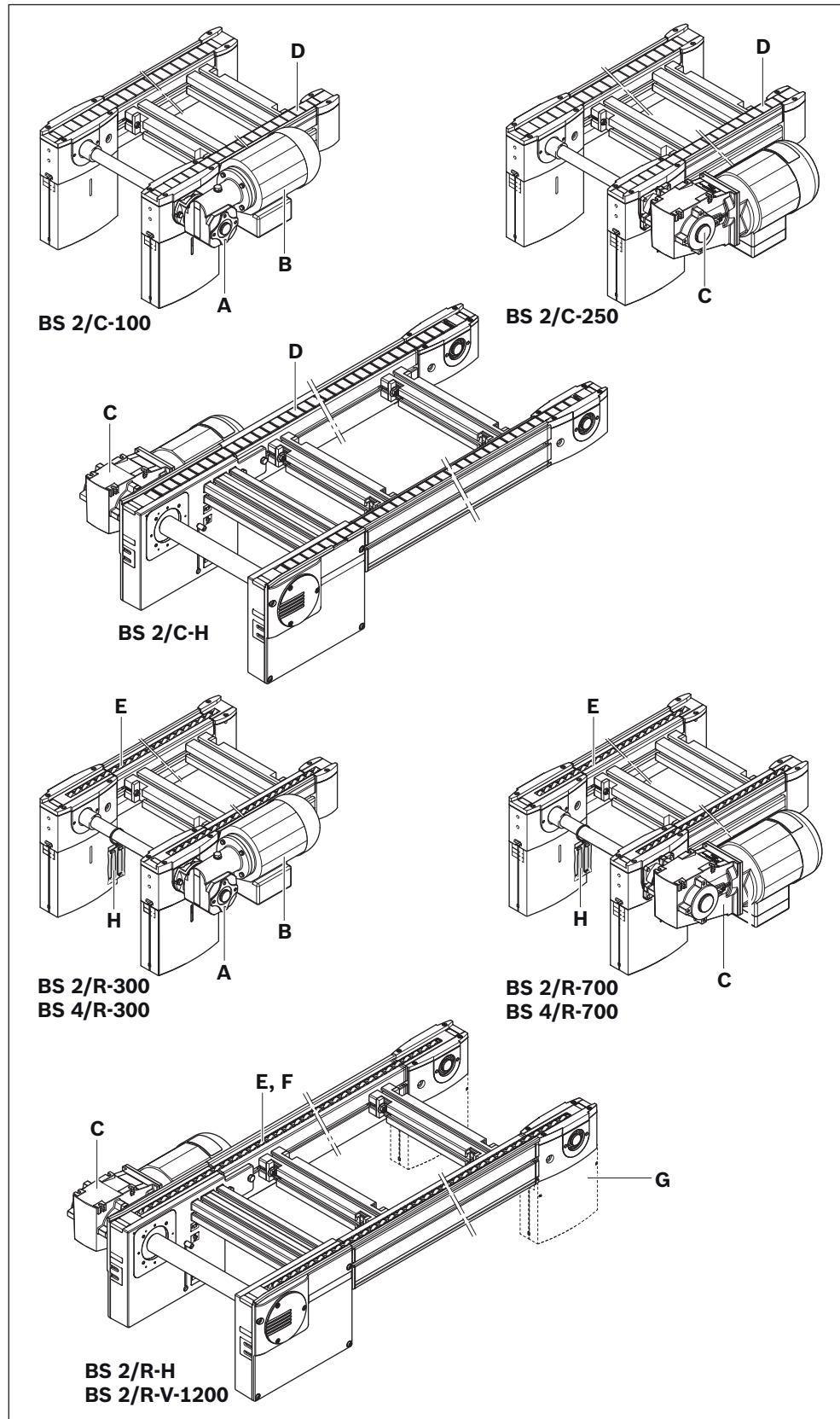
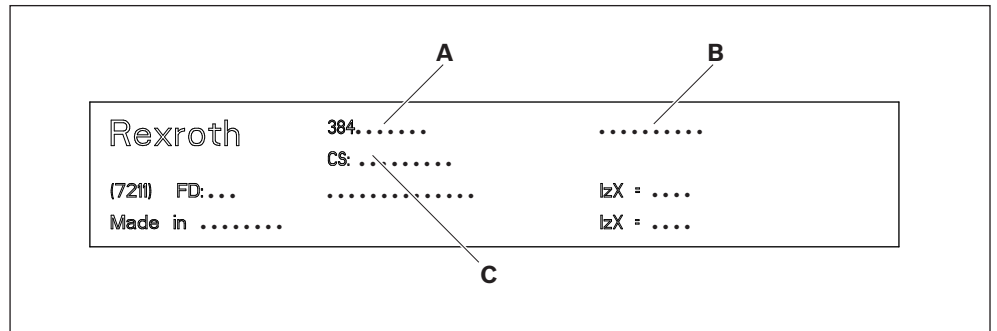


Fig. 1: Belt sections BS 2/C-... + BS 2/R-...

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5.3 Product identification

- A:** Part number
(order number)
- B:** Designation
- C:** Information about version
and dimensions



Typschild

Fig. 2: Name plate

6 Transport and Storage

- Observe the transport instructions on the packaging.
- See the shipping documents for transport weight.
- Secure the product to prevent toppling!
- When storing and transporting the product, always observe the ambient conditions, see page 75.

6.1 Transporting the product

WARNING

Lifted loads may fall!

Falling objects may result in severe injuries (or even death).

Always use lifting equipment with a sufficiently high load bearing capacity (see the shipping documents for product weight).

Before lifting the product, make sure that the lifting equipment is correctly fastened!

Secure the product to prevent toppling while lifting!

Make sure that no one is in the danger area when raising and lowering, with the exception of the operator!

6.2 Storing the product

- Only store the product on a firm, flat surface.
- Protect the product against mechanical influences.
- Protect the product against environmental influences such as contamination and humidity.
- Observe the ambient conditions, see page 75.
- Support the product so that suspended, there is no load on motors assembled.

7 Assembly

7.1 Unpacking

- ▶ Lift the product out of the packaging.
- ▶ Dispose of the packaging in accordance with the currently applicable national regulations in your country.

7.2 Installation requirements

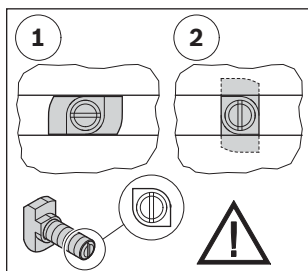
- ▶ When installing the product, always observe the ambient conditions specified in the Technical Data (see page 75).

7.2.1 Mounting orientation

- ▶ The product should be aligned and level at right angles and parallel to the axis. This ensures correct functioning and prevents premature wear.

7.2.2 Mounting with T-bolts

- ▶ Mount the transfer systems TS 1, TS *2plus*, TS *2pv*, TS *4plus*, TS 5 and chain conveyor systems VarioFlow and VarioFlow S with T-bolts and flange nuts.
- ▶ Make sure the T-bolt is in the correct position when inserting and tightening in the slot. The notch at the end of the bolt indicates the T-bolt orientation.
- ▶ 1 = T-bolt insertion orientation in the slot.
- ▶ 2 = T-bolt clamping position in the slot.
- ▶ Maximum tightening torque: 25 Nm.



7.3 Required tools

- ▶ Hexagon wrenches (open-end):
WS8, WS10, WS13, WS19, WS24.
- ▶ Hex socket wrench: WS4.
- ▶ Water level
- ▶ Combination pliers
- ▶ Flat smooth file

7.4 Required accessories

- Leg sets to carry the belt section.

Note: Support the belt section in the direct vicinity of the drive and return unit.
The distance between two leg sets must not exceed 2000 mm.

 - For BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700:
 - SZ 2, **3 842 999 816**
 - SZ 2/U, **3 842 999 817**
 - SZ 2/T, **3 842 999 818**
 - For BS 2/C-H, BS 2/R-H, BS 2/R-V:
 - SZ 2-H, **3 842 998 235**
 - SZ 2/U-H, **3 842 9998 236**
 - SZ 2/T-H, **3 842 998 237**
- To fasten the leg sets to the floor, each connection requires:
 - 1x foundation bracket, **3 842 146 815**
 - 1x dowel, **3 842 526 560**
 - 2x T-bolts, **3 842 528 718**
 - 2x flange nuts, **3 842 345 081**
- Connection kits for the transverse conveyor when using the belt section in lateral transverse transport (drive head to section).
 - BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700 with:
 - ST 2/B, ST 2/B-100, ST 2/C-100, ST 2/R-100, **3 842 528 192**
 - BS 2/C-400, BS 2/C-700, BS 2/R-1200, BS 2/R-2200 with:
 - ST 2/B, ST 2/B-100, ST 2/C-100, ST 2/R-100, **3 842 518 828**
 - BS 2/C-H, BS 2/R-H, BS 2/R-V with:
 - ST 2/C-H, ST 2/R-H, ST 2/R-V, **3 842 530 868**
- Connection kits for the longitudinal conveyor (drive head to return unit)
 - BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700 with:
 - BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700, **3 842 529 881**
 - BS 2/C-400, BS 2/C-700, BS 2/R-1200, BS 2/R-2200
 - BS 2/C-H, BS 2/R-H, BS 2/R-V with:
 - BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700
 - BS 2/C-400, BS 2/C-700, BS 2/R-1200, BS 2/R-2200
 - BS 2/C-H, BS 2/R-H, BS 2/R-V, **3 842 530 871**

7.5 Symbols used

Table 6: Symbols used

	<p>Connect with T-bolt and flange nut. Make sure the T-bolt is in the correct position when inserting and tightening in the slot. The notch at the end of the bolt indicates the T-bolt orientation. 1 = T-bolt insertion orientation in the slot. 2 = T-bolt clamping position in the slot. Maximum tightening torque: 25 Nm.</p>
<p>SW13 $M_D = 20\text{Nm}$</p>	<p>Wrench for hexagonal screw SW = wrench size (WS) ... mm M_D = required tightening torque ... Nm</p>
<p>SW5 $M_D = 8\text{Nm}$</p>	<p>Wrench for hex-socket screw SW = wrench size (WS) ... mm M_D = required tightening torque ... Nm</p>
<p>PZ2 PH3</p>	<p>Screwdriver for recessed head screws PZ ... = Pozidriv recessed head, size ... PH ... = Phillips recessed head, size ...</p>
	<p>Lubricate with Structovis GHD, 0 842 904 229.</p>
<p>gleitmo 585 K Anti-Seize</p>	<p>Grease/grease with specified lubricant:</p> <ul style="list-style-type: none"> • gleitmo 585 K: gleitmo 585 K, www.fuchs-lubritech.com • Anti-Seize: Food Grade Anti-Seize/Loctite 8014, www.henkel.com
<p>Loctite 243 Loctite 601</p>	<p>Secure the screws with:</p> <ul style="list-style-type: none"> • Loctite 243: medium strength adhesive (detachable), www.loctite.de • Loctite 601: high strength adhesive (permanent), www.loctite.de
	<p>The identified parts are not required for the assembly situation described. Use the parts in another application or dispose of them.</p>
	<p>Sequence of assembly steps in the graphics. The numbers correspond with the order of the assembly steps according to the instructions in the accompanying text.</p>
	<p>Designation of components in graphics. The letters identify the components specified in the instructions.</p>

7.6 Assembling the product

7.6.1 Assembling the belt section on leg sets

1. Assemble the belt section on 2 to 4 leg sets.



Note:

- Assemble one leg set each in the direct vicinity of the drive and return unit.
- Assemble the leg sets under the cross connectors of the belt section.
- Maximum distance between 2 leg sets: 2000 mm.

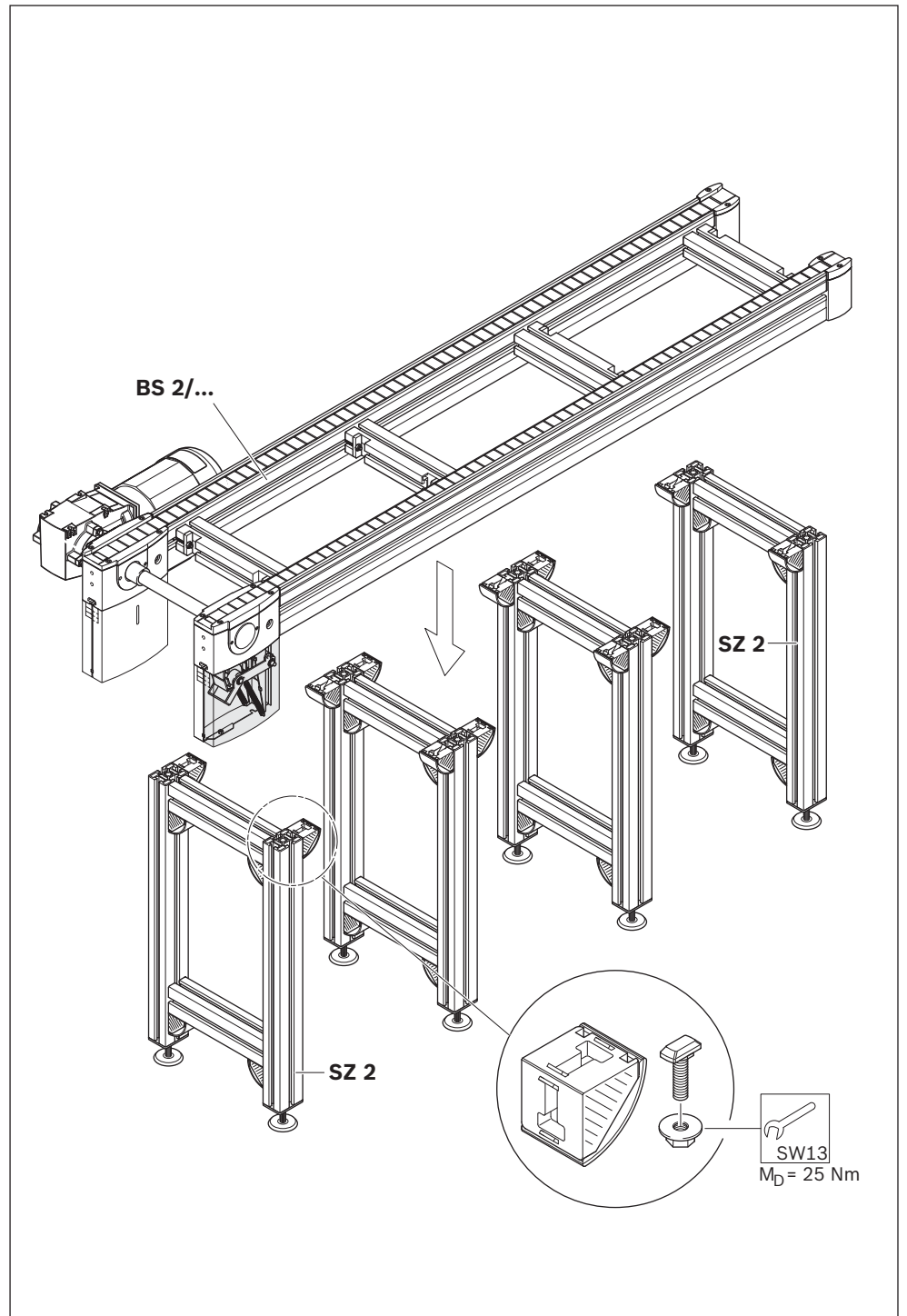


Fig. 3: Assembling the belt section on leg sets (1/2)

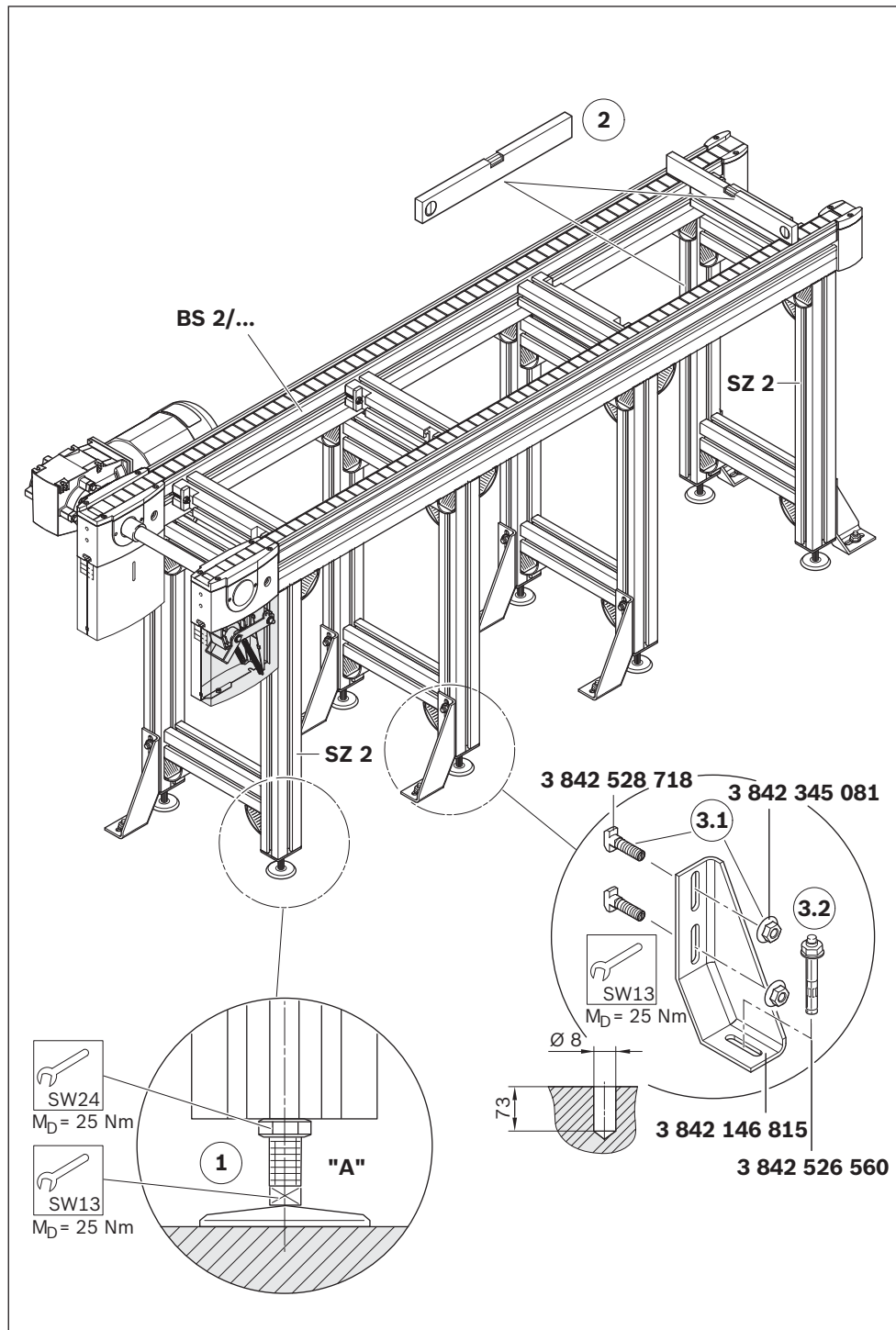
547 601-02

2. Align the belt section at the same height and level as the adjacent components.

3. Bolt the belt section to the floor.

The following is required per connection:

- 1x foundation bracket, **3 842 146 815**
- 1x dowel, **3 842 526 560**
- 2x T-bolts, **3 842 528 718**
- 2x flange nuts, **3 842 345 081**

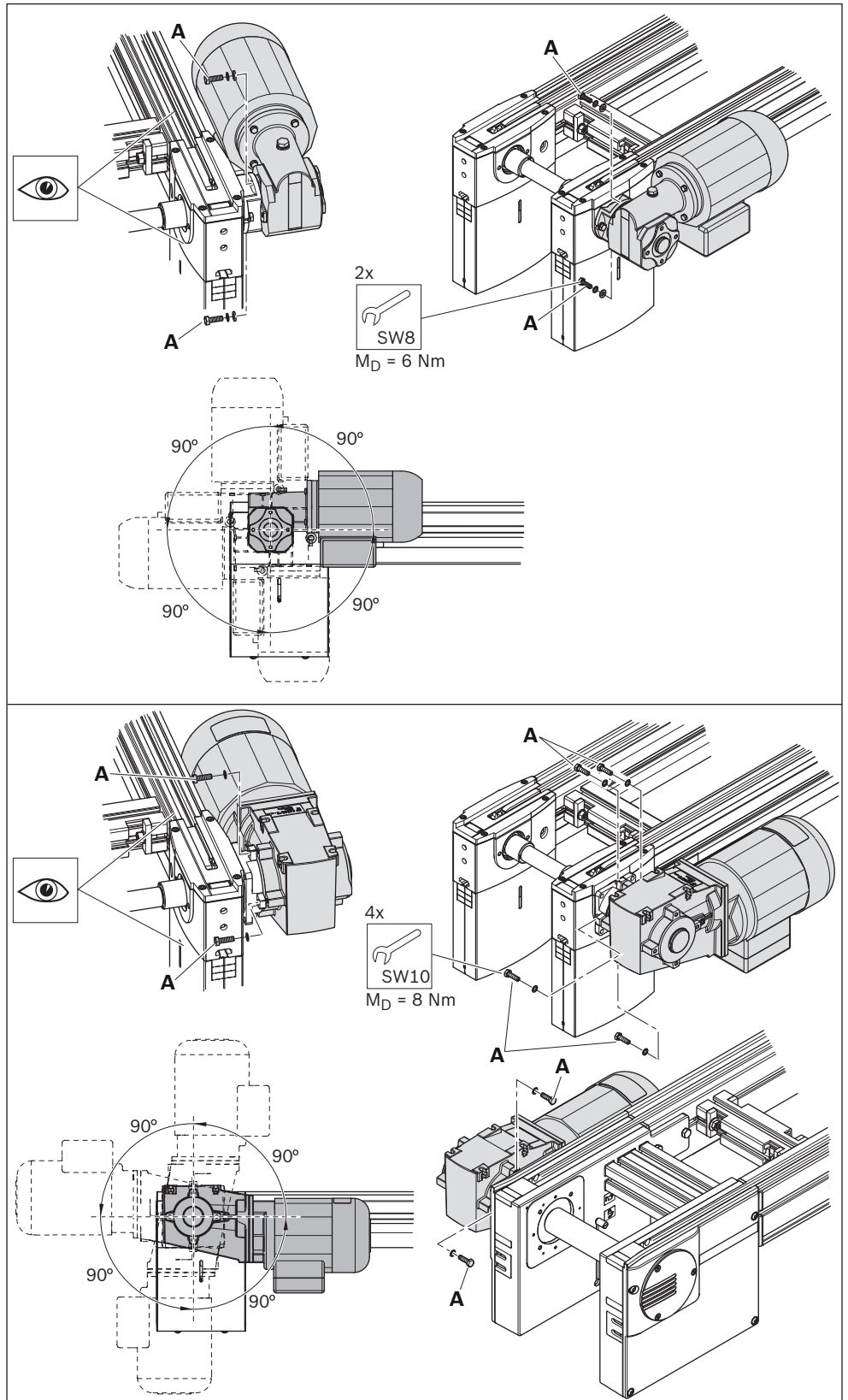


547 601-03

Fig. 4: Assembling the belt section on leg sets (2/2)

7.6.2 Changing the mounting position of the motor/gear combination or the gear motor

1. Disassemble the screws (A/B).
2. Swivel the motor/gear combination or the gear motor in 90° increments around the drive axle.
3. Assemble the screws (A/B).



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Fig. 5: Swiveling the motor/gear combination or the gear motor around the drive axle.

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**7.6.3 BS 2/C-100, -250, BS 2/R-300, -700, BS 4/R-300, -700:
Assembling the belt section between two sections**

Required accessories:

- Connection kit
3 842 528 192 (1x)

Note:

- Support the belt section with leg sets, if necessary (see page 19).

1. Disassemble the external housing element halves.
2. Break off an opening for the connection kit corresponding to your application type on all housing element halves at the perforated area (X).
3. Smooth the resulting burr.
4. Mount the connection kit (4x).
5. Mount the external housing element halves.

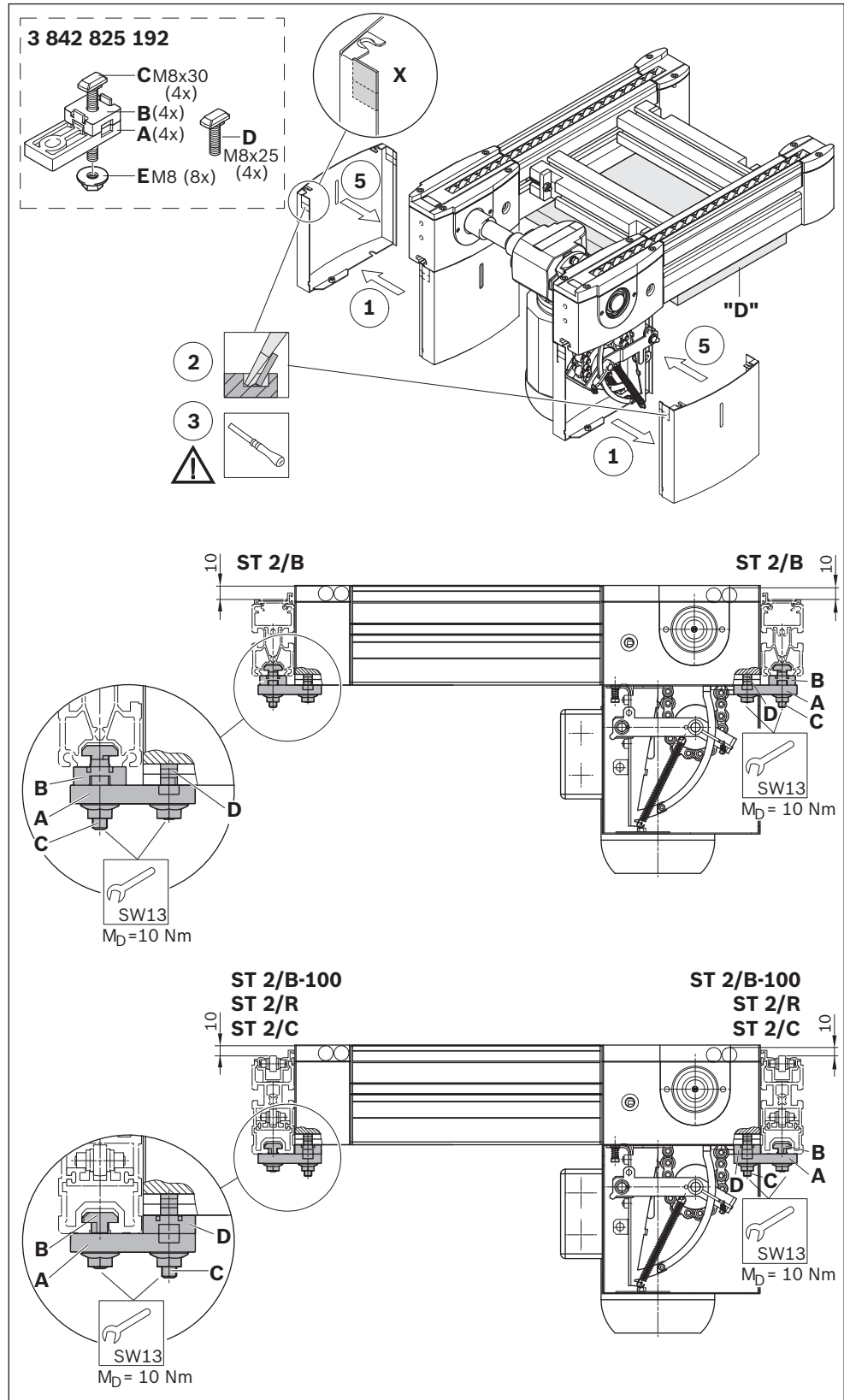


Fig. 6: BS 2/C-100, ... : Assembling the belt section between two sections

547 601-04

7.6.4 BS 2/C-H, BS 2/R-H, BS 4/R-V-1200:
Assembling the belt section between two sections

Required accessories:

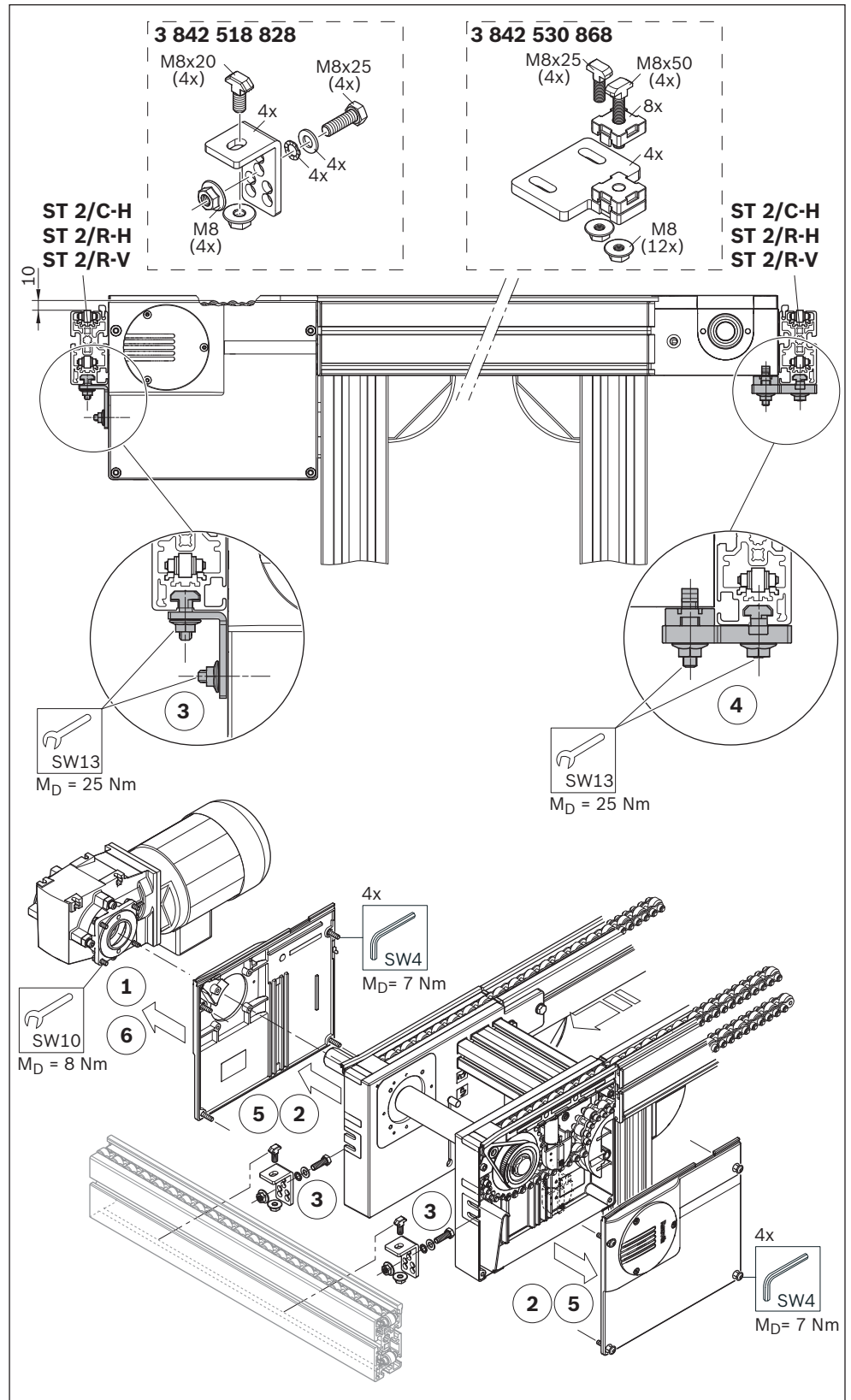
- Connection kit
3 842 518 828 (0.5x)
- Connection kit
3 842 530 868 (0.5x)



Note:

- Support the belt section with leg sets, if necessary (see page 19).

1. Dismount the gear motor.
2. Disassemble the side cover plates.
3. Mount the connection kit **3 842 518 828** (2x).
4. Mount the connection kit **3 842 530 868** (2x).
5. Mount the side cover plates.
6. Mount the gear motor.



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Fig. 7: BS 2/C-H, ... : Assembling the belt section between two sections

547 601-05

**7.6.5 BS 2/R-H, reversible:
Assembling the belt section between two sections**

Required accessories:

- Connection kit **3 842 518 828** (0.5x)
- Connection kit **3 842 528 192** (0.5x)

1. Dismount the gear motor.
2. Disassemble the side cover plates.
3. Mount the connection kit **3 842 518 828** (2x).
4. Disassemble the external housing element halves.
5. Break off an opening for the connection kit corresponding to your application type on all housing element halves on the perforated area (X).
6. Smooth the resulting burr.
7. Mount the connection kit **3 842 528 192** (2x).
8. Mount the external housing element halves.
9. Mount the side cover plates.
10. Mount the gear motor.

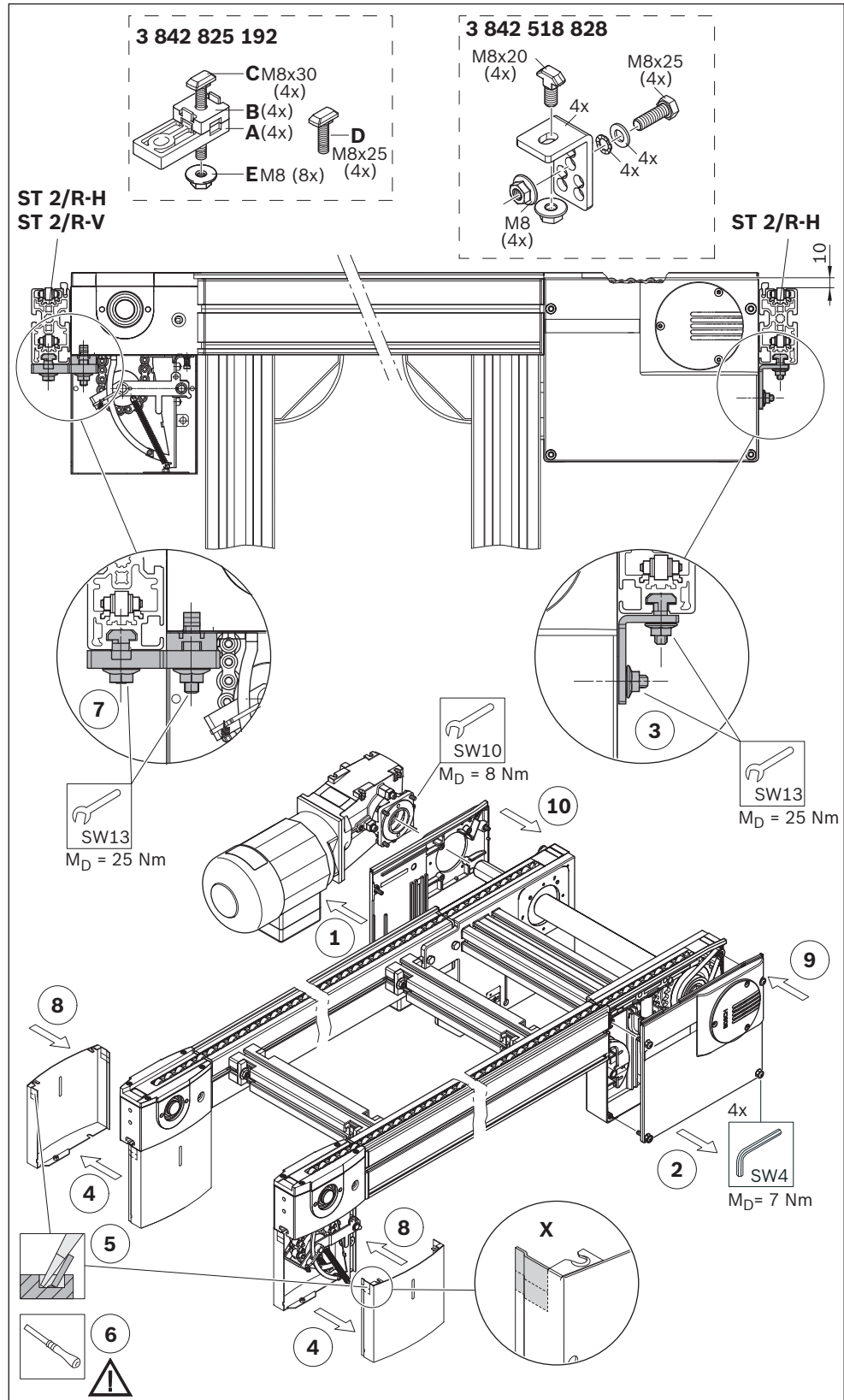


Fig. 8: BS 2/R-H, reversible: Assembling the belt section between two sections

547 601-06

**7.6.6 BS 2/C-100, -250, BS 2/R-300, -700, BS 4/R-300, -700:
Assembling two belt sections, drive head to return unit**

Required accessories:

- Connection kit
3 842 529 881 (1x)

1. Disassemble the external housing element halves.
2. Slide the connection kit into the T-slot on the drive head.
3. Position the return unit of the connecting belt section without gap at the same height and level as the drive head.
4. Mount the connection kit in the center between the drive head and the return unit.
5. Mount the external housing element halves.

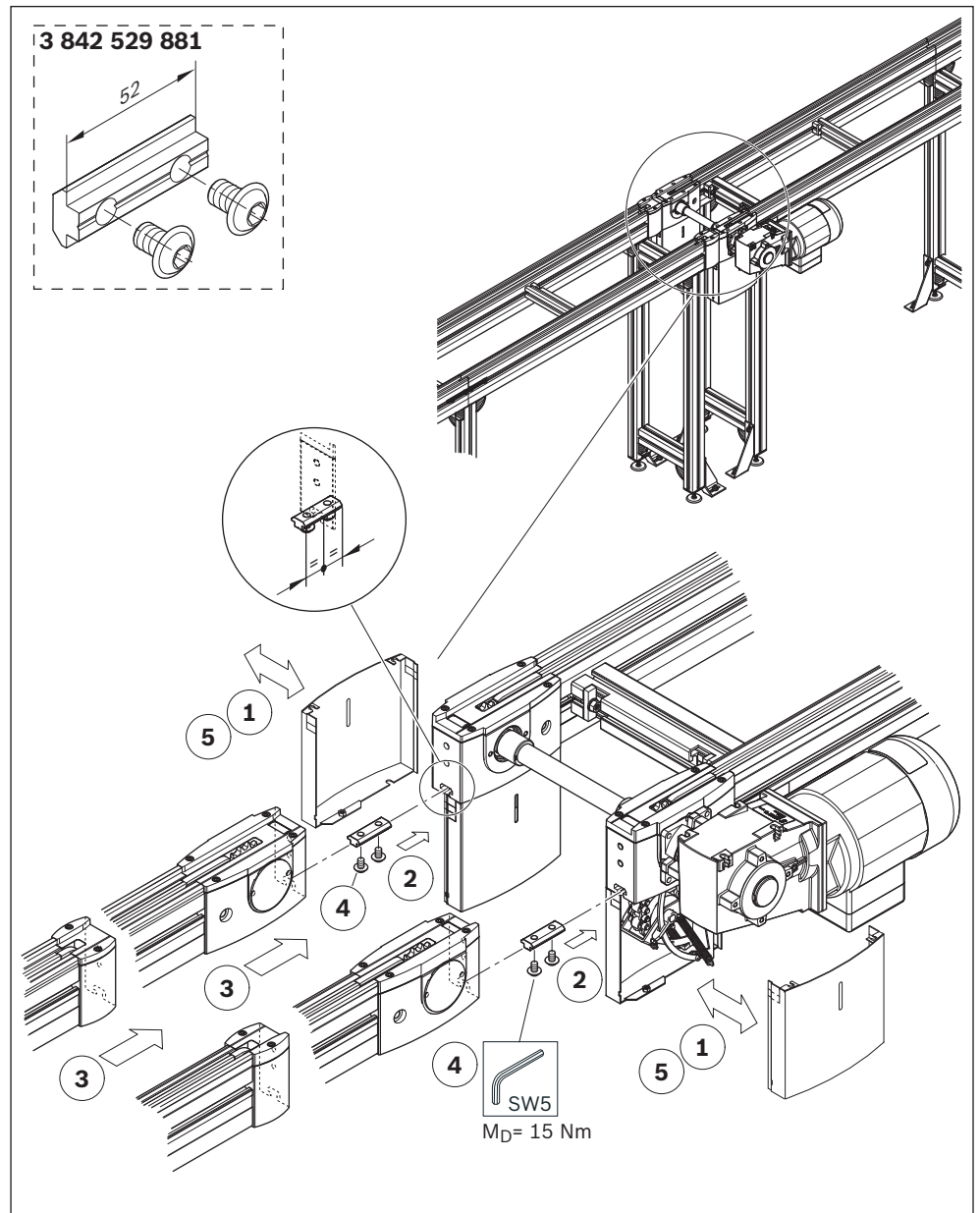


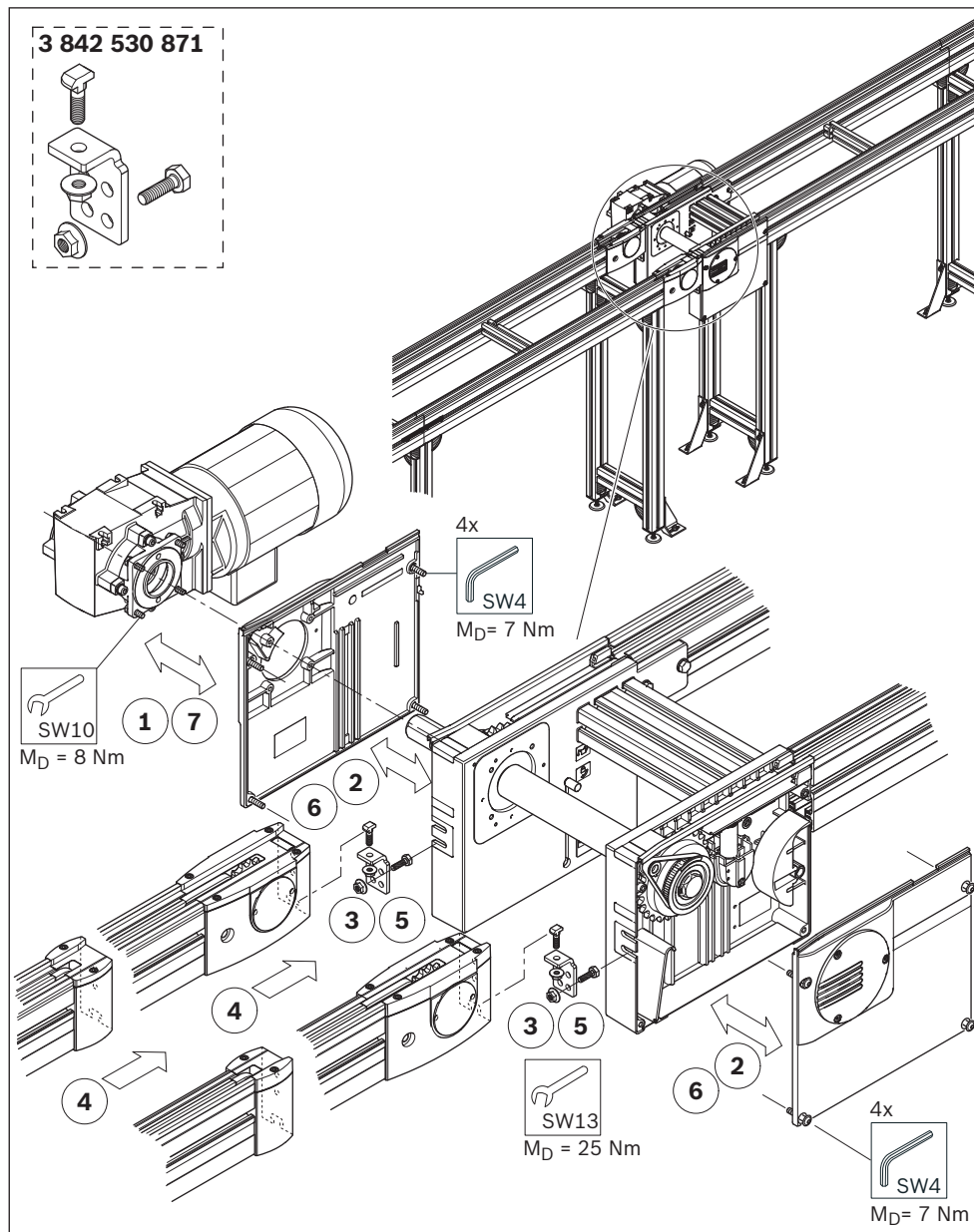
Fig. 9: BS 2/C-100, ... : Assembling two belt sections, drive head to return unit

7.6.7 BS 2/C-H, BS 2/R-H, BS 4/R-V-1200: Assembling two belt sections, drive head to return unit

Required accessories:

- Connection kit
3 842 530 871 (1x)

1. Dismount the gear motor.
2. Disassemble the side cover plates.
3. Mount the connection kit on the drive head.
4. Position the return unit of the connecting belt section without gap at the same height and level as the drive head. Mount the connection kit on the return unit.
5. Mount the side cover plates.
6. Mount the gear motor.



547 601-73

Fig. 10: BS 2/C-H, ... : Assembling two belt sections, drive head to return unit

7.6.8 Checking the chain elongation
BS 2/C-100, -250, BS 2/R-300, -700, BS 4/R-300, -700

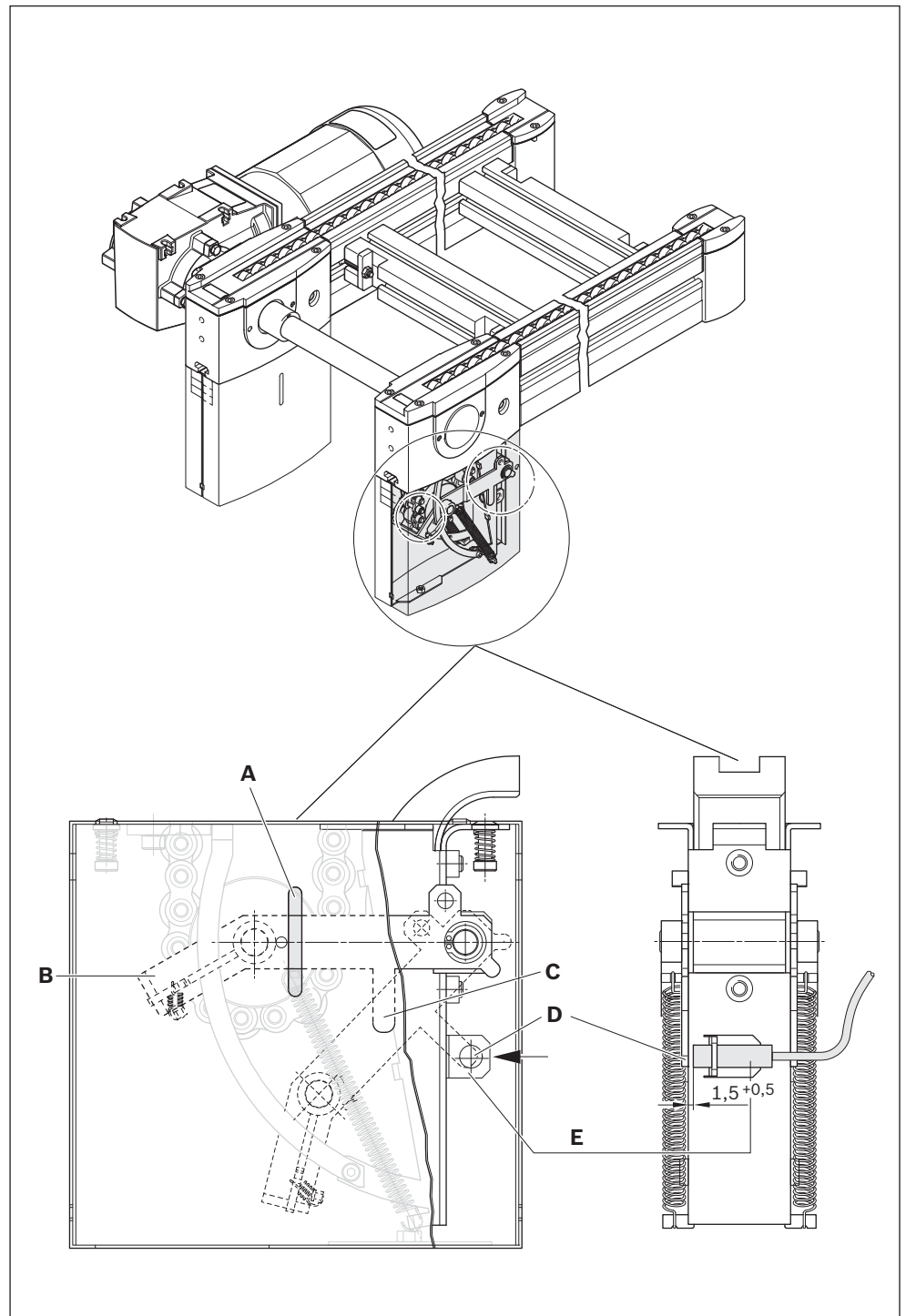
You can check the elongation of the chain through the slot (A) in the housing element. The lever of the chain tensioner moves down as the chain length increases, from top (new/short chain) to bottom (elongated chain). The chain must be shortened once the lever in the slot is no longer visible.

As an alternative, mount a proximity switch (E, $\varnothing 8$ mm, max. length incl. the turn radius of the cable: 45 mm) in the fastening clip. Switch distance: $1.5 + 0.5$ mm. The tab (C) activates the proximity switch when the max. admissible chain elongation is reached.



Note:

- Always observe the switch distance, otherwise the proximity switch will be mechanically destroyed.
- Lead the cable through the break in the housing element to the control unit.



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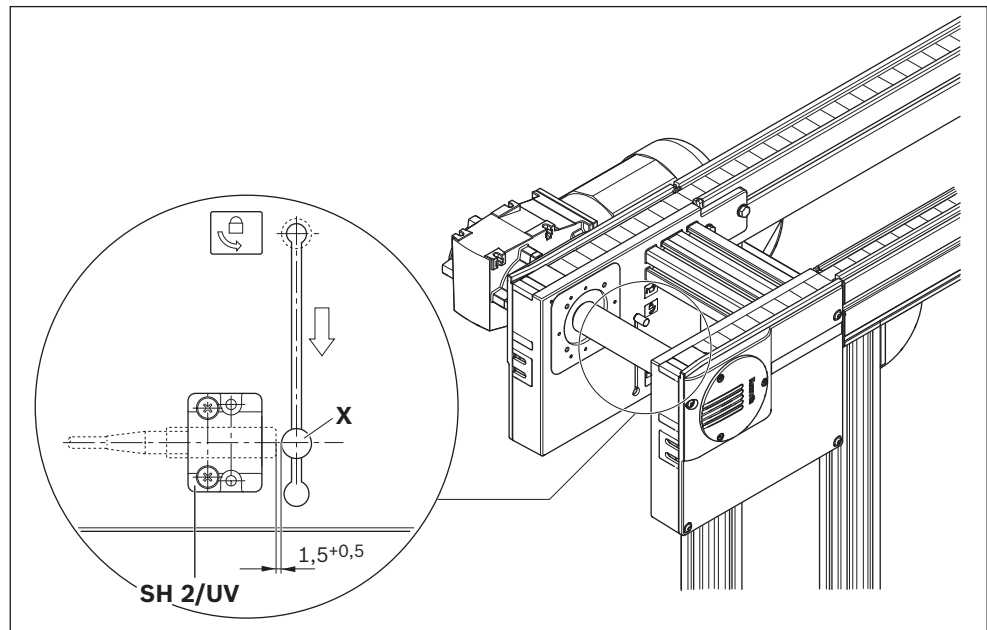
Fig. 11: Checking the chain elongation, “small” drive head

7.6.9 Checking the chain elongation BS 2/C-H, BS 2/R-H, BS 4/R-V-1200

You can check the elongation of the chain based on the state of the tension lever (X) of the chain tensioner. The tension lever (X) moves down as the chain length increases, from top (new/short chain) to bottom (elongated chain). The chain must be shortened once the tension lever (X) is in the lowest position.

As an alternative, mount a proximity switch to query the lowest position of the tension lever (X).

- SH 2/UV switch bracket, **3 842 168 600**.
- Proximity switch, **3 842 537 995**.



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Fig. 12: Checking the of chain elongation, “large” drive head

7.6.10 BS 2/R-300, -700, BS 4/R-300, -700:

Assembling the accelerating element (only if $l_{WT} = 160/240$)

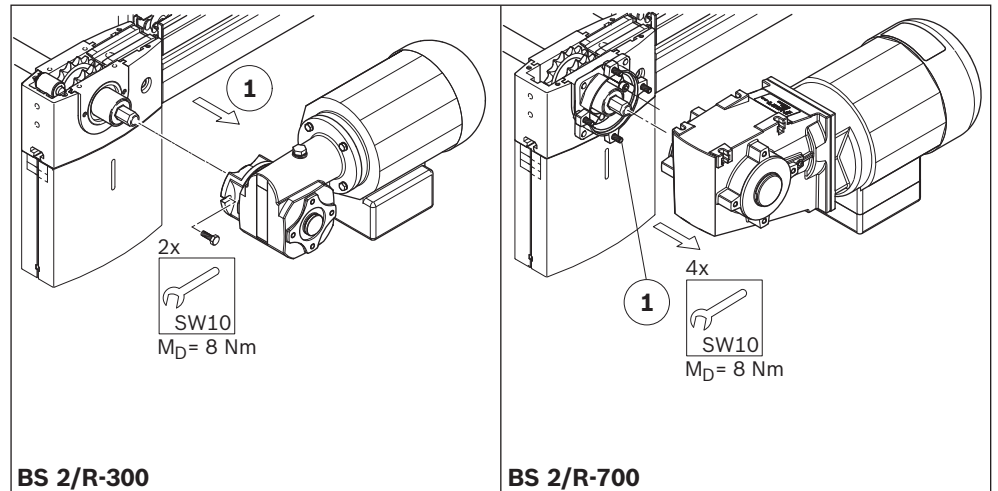
For short, light workpiece pallets ($l_{WT} = 160, 240$) it may be required to ensure they pass of the conveyor trench by installing an acceleration elements.



Note:

Perform the work steps on both sides at the same time.

1. Dismount the gear motor.
2. Remove the external housing element halves.
3. Turn the drive shaft with the help of a wrench in the transport direction until the master link appears on the chain tensioner.



The master link of the accumulation roller chain can be recognized through the galvanized link plate ²⁾.

4. Pull the chain tensioner upwards³⁾ and secure it in its final position with a pin or a screwdriver.
- ³⁾ BS..., reversible: unlatch the chain tensioner by lifting the "latches" ⁴⁾ Fig. 13, pos. 4.
5. Open the chain at the master link.
6. Disassemble the covers on the drive head.
7. Pull the chain back until the slider is exposed in the drive head.
8. Clip the acceleration element onto the slider.

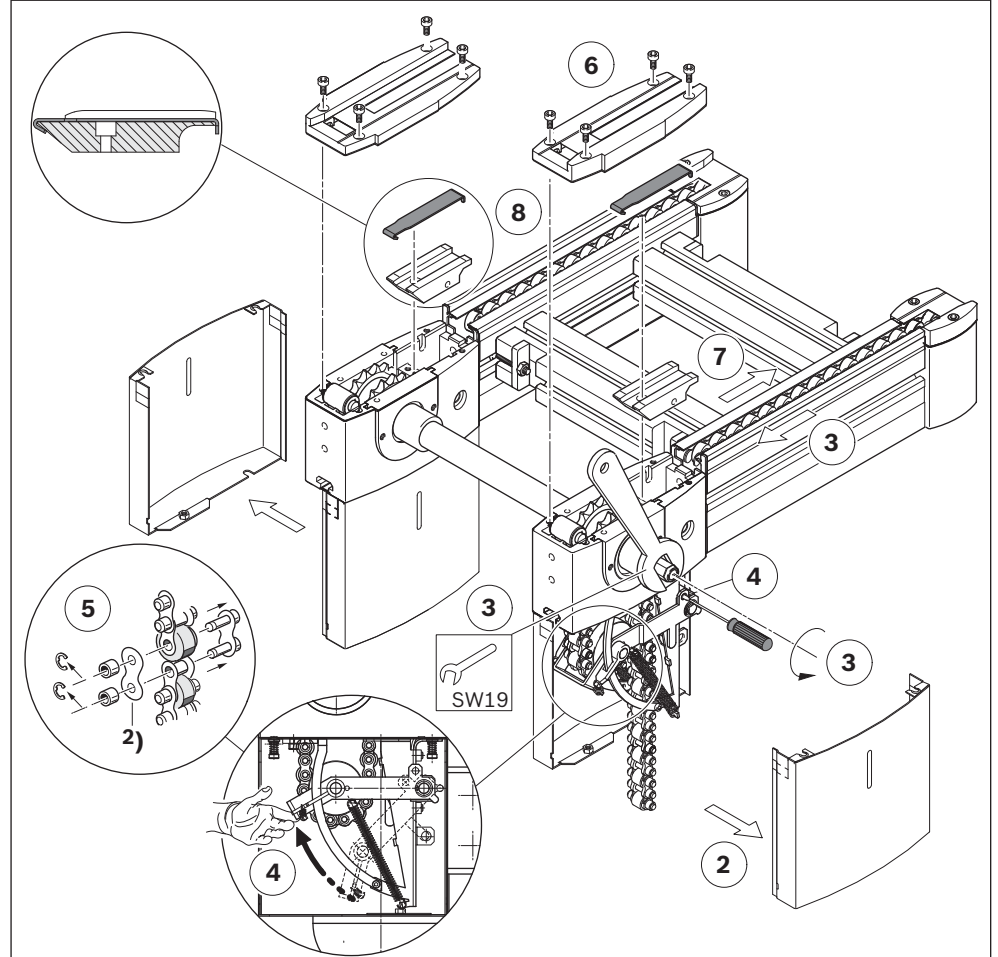


Fig. 13: Assemble acceleration element (1/2)

547 601-09

9. Pull the chain in the top guide profile up to the drive head.
10. Position the chain on the drive wheel.
Turn the drive wheels in the transport direction until the chain appears on the chain tensioner.
11. Close the chain.
12. Release the chain tensioner.
Check the tension of the chain.
13. Mount the external housing element halves.
14. Assemble the gear motor.

i Note:

- Avoid accumulation over the acceleration element! Accumulation over the acceleration element causes heavy wear on the rollers and shortens the lifespan of the chain.

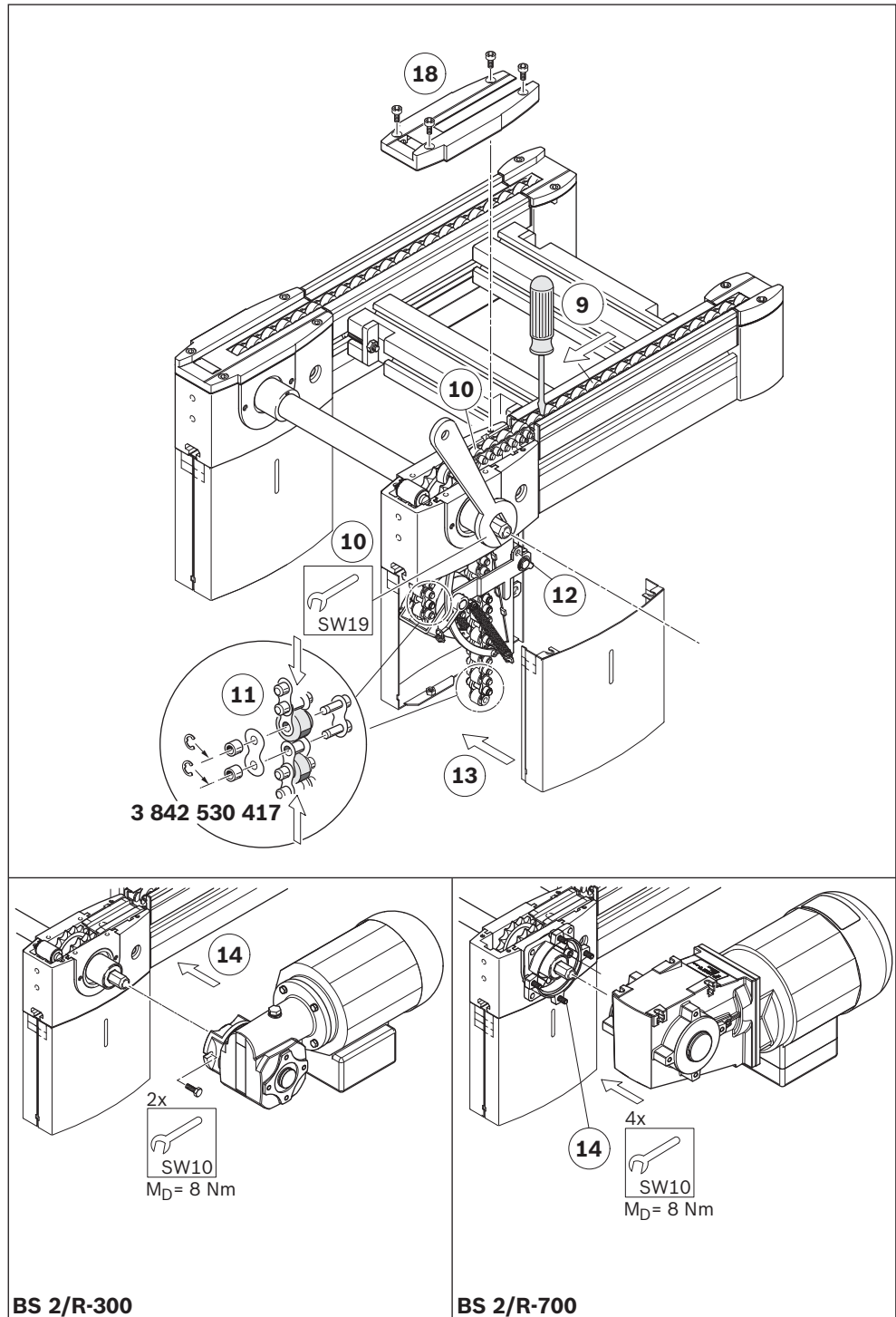


Fig. 14: Assembling the acceleration element (2/2)

547 601-10

7.6.11 Electrically connecting the product

WARNING

High electrical voltage!

Danger of severe injuries or death due to electric shock.

Make sure the relevant system component is not under pressure or voltage before performing any maintenance or repair work.

Protect the system against being switched on.

- Select the control and sensor elements in accordance with EN ISO 13849. Observe the load to be conveyed and the transportation speed.
- Only trained specialists are permitted to connect the motor!
- Observe regulation VDE 0100 for Germany or the appropriate regulations for the country where the product is used.

Motor connection

- Note the existing line voltage!
- Note the electrical connection parameters on the motor rating plate, see Fig. 15 on page 32.
- Connect the motor as a Y-connection or a delta connection in accordance with the connection plans, see Fig. 16 on page 32 and the connection plan in the terminal box.
- The motor is equipped with a bi-metal switch (potential-free thermal contact, 230 V AC, 300 mA) to monitor the temperature. Connect the motor in such a manner that it becomes currentless when the switch is actuated.
- Select a cable entry that prevents damage to the cable during operation.
- Connection cable option: 3 842 409 645, see Fig. 17 on page 32. Pay attention to the ballast fuse!

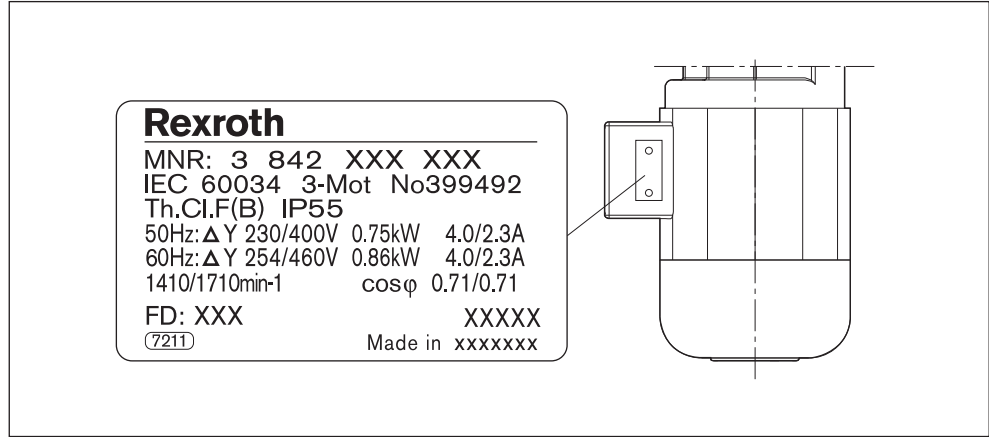
Checking the motor's rotational direction

- Start the system for a maximum of 2 s and check that the motor is rotating in the correct direction.
- Exchange any two wires (L1, L2, or L3, see Fig. 16 on page 32) to change the motor's rotational direction.



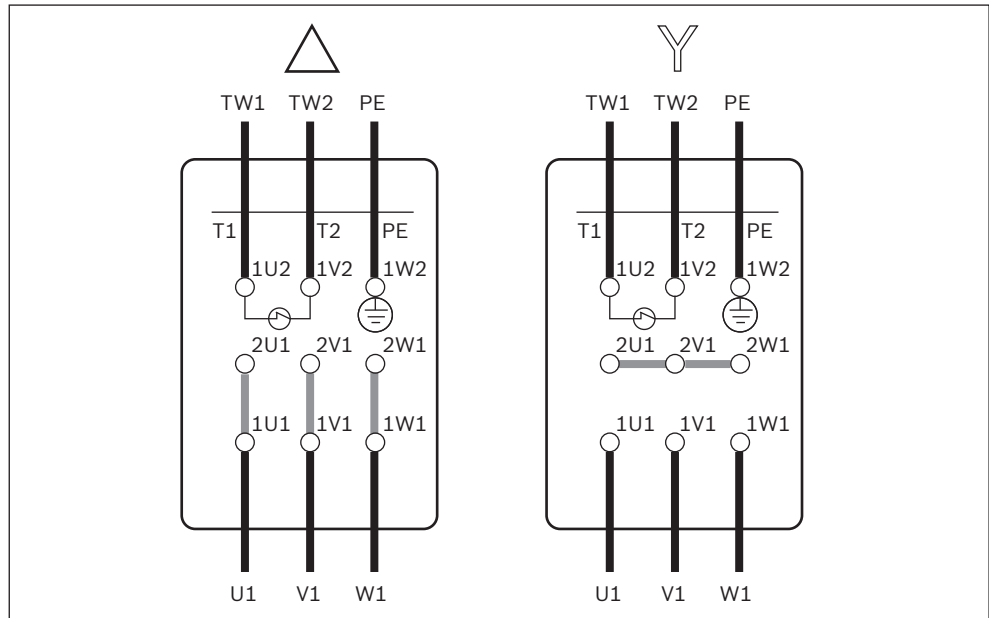
Note:

In motors with a factory-installed plug, correct the rotational direction in the switch cabinet or at the plug coupling (socket side). This will simplify exchanges.



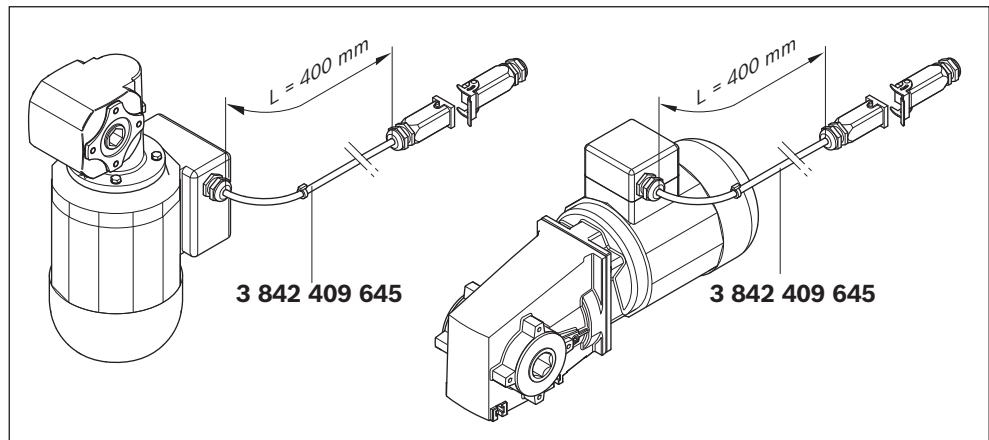
Installation_A

Fig. 15: Motor rating plate (example)



Installation_DY

Fig. 16: Connection plans: delta connection/Y-connection



Installation_C

Fig. 17: Connection cable option

8 Commissioning

8.1 Commissioning for the first time

CAUTION

Unexpected movements, falling workpiece pallets

Injuries due to falling objects.

Before commissioning, make sure that the product has been correctly assembled by qualified personnel (see page 9).

NOTICE

Malfunctions due to incorrect assembly and commissioning

The product may be damaged or its service life shortened.

Commissioning requires basic mechanical, pneumatic, and electrical knowledge.

The product may only be commissioned by qualified personnel (see page 9).

Conveyor chain malfunction (flat top chain/accumulation roller chain)

Lack of lubrication will lead to conveyor chain malfunctions and can lead to a crash. There is a danger of damage to property.






Lubricate the conveyor chain before commissioning and afterwards every 1000 h with Structovis GHD, **0 842 904 229**, see pages 39, 40.

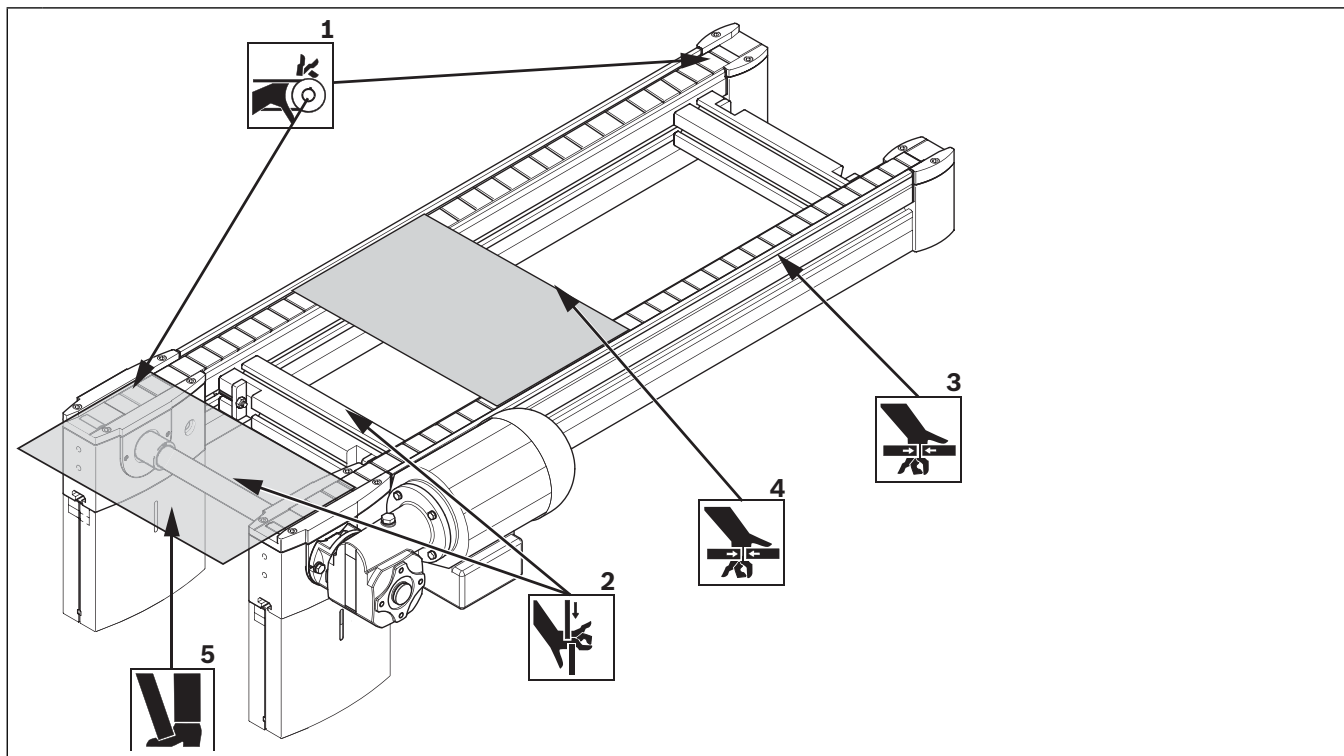
Lubricate the conveyor chain after downtimes > 6 months (e.g. if set-up took a very long time or if the system was temporarily decommissioned).

- Perform a risk assessment in accordance with DIN EN ISO 12100 before initial commissioning or recommissioning of a conveyor system.
- According to EU Machinery Directive 2006/42/EC, you must provide the transfer system with an EMERGENCY STOP command device.
- The surfaces of motors and gears can reach temperatures of over 65°C under certain load and operating conditions. In such cases, the valid accident prevention regulations (in Germany: UVV) must be met by corresponding constructive measures (safety devices) or safety warning signs!
- Make sure that all electrical and pneumatic connections are either used or covered. Check to see that all threaded and push-in fittings are securely mounted. All relevant protective covers must be in place.
- Continuous conveyors that are in motion or operation may only be inspected or adjusted if protective devices are present and correctly positioned.
- Observe DIN EN ISO 13857 when removing or replacing protective devices and/or deactivating safety devices.
- Test runs with open housings are only permitted when they are performed by skilled workers using hold-to-run controls and when the influence of all other switching devices can be excluded.
- Only commission the belt section if all safety devices have been installed in the system and are functional.
- Commission the product only if it is installed completely.

8.2 Residual hazards

Table 7: Residual hazards

	Location	Situation	Hazard	Measure
1	Infeed point for conveyor medium	Drawing in of clothing or long hair	 Crushing, tearing hair out	Do not reach into the system during operation. Wear suitable protective clothing.
2	Cross connector; drive shaft: Between component and workpiece pallet	Catching of body parts	 Cutting off	Do not reach into the system during operation. Design solutions are necessary in the service area and at transport speeds $v > 15$ m/min, e.g. a protective fence.
3	Conveyor medium: Between running conveyor medium and standing workpiece pallet (e.g. during separation)	Catching of body parts	 Crushing	Do not reach into the system during operation.
4	Between workpiece pallet and workpiece pallet	Crushing of body parts	 Crushing	Do not reach into the system during operation. Design solutions are necessary in the service area and at transport speeds of $v > 15$ m/min, e.g. separation of workpiece pallets.
5	End of the belt section	Crushing of body parts due to falling parts	 Crushing	Design solution required, e.g. stopper



8.3 Recommissioning after shutdowns

Follow the same procedure used for initial commissioning.

9 Operation

CAUTION

Hot electric motor surfaces during operation!

Possible burns if the hot surfaces (over 65°C) are touched.

Provide appropriate safety devices to seal off the motors.

Let the system cool off for at least 30 min. before performing any maintenance or repair work.

NOTICE

Belt section malfunction in reverse operation

Operating the belt section exclusively contrary to the preferred direction (workpiece pallet travelling towards drive head) causes the chain tensioner to fail and can lead to a crash. There is a danger of damage to property.

Comply with the preferred direction (workpiece pallet travelling towards the drive head).

If used exclusively in sliding operation, change the conveyor direction after every 1000 h for one chain circuit to ensure the proper function of the chain tensioner.

Wear due to accumulation on the connection roller

Accumulation on the connection roller (BS 2/C-H, ...R-H, ...R-V) leads to increased wear on the workpiece pallet. There is a danger of damage to property.

Avoid accumulation on the connection roller.

9.1 Notes on operation

9.1.1 Wear

- Wear is caused by the basic principle of this system and cannot be avoided on individual components. By taking constructive measures and selecting proper materials we strive to ensure that functional safety lasts for the lifetime of the system. However, wear depends on the operating, maintenance, and ambient conditions of the system and the location (resistance, contamination).
- Overloading the conveyor sections may damage the conveying medium and cause the motor and gears to fail.
- Function cannot be guaranteed if the pneumatic components are overloaded.

9.1.2 Measures to reduce wear

The following measures reduce wear:

- Switch off conveyor sections when the system is not running, e.g. during breaks, over night, on the weekend.
- Only select speeds that correspond with the particular function.
- Especially important: Avoid contamination by abrasive media; reduce contamination through regular cleaning.

9.1.3 Loading the workpiece pallet

When setting up and testing the modular units, the workpieces pallets should not all have the same weight on the conveyor sections. Full and empty pallets should all come through the circuit.

Extreme differences in weight may, however, require special measures to avoid functional disruptions. This applies to:

- Permissible accumulation length before stop gates.
- Damper function.
- Dampened stop gates.

9.1.4 Ambient influences

- Resistant to many common media used in production such as water, mineral oil, grease, and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, such as test oil, doped oils, aggressive detergents, solvents, or brake fluid.
- Avoid long-term contact with strong acidic or basic reacting materials.
- Wear may increase dramatically if the system is contaminated due to environmental factors, particularly with abrasive media such as sand and silicates, but also due to processes running on the transfer system (e.g. welding beads, pumice dust, glass shards, shavings, or lost parts...). In such cases, maintenance intervals should be substantially shortened.
- Resistance to media and contamination does not mean that functional safety is guaranteed in every case.
 - Liquids that thicken on evaporation and are highly viscous or adhesive (sticky) could lead to a disruption in function.
 - Media with lubricating properties may reduce the driving power that is caused by friction if they are carried over onto systems with rollers.Such cases require special attention when planning the system and the maintenance intervals need to be shortened accordingly.

10 Maintenance and Repair

WARNING

High electrical voltage!

Danger of severe injuries or death due to electric shock.

Make sure the relevant system component is not under pressure or voltage before performing any maintenance or repair work.

Protect the system against being switched on.

High pneumatic pressure!

Danger of severe injuries or death.

Switch off the compressed air supply on the relevant system component before performing any maintenance or repair work.

Protect the system against being switched on.

CAUTION

Hot electric motor surfaces during operation!

Possible burns if the hot surfaces (over 65°C) are touched.

Provide appropriate safety devices to seal off the motors.

Let the system cool off for at least 30 min. before performing any maintenance or repair work.

- Continuous conveyors that are in motion or operation may only be inspected or adjusted if protective devices are present and correctly positioned.
- Observe DIN EN ISO 13857 when removing or replacing protective devices and/or deactivating safety devices.
- Test runs with open housings are only permitted when they are performed by skilled workers using hold-to-run controls and when the influence of all other switching devices can be excluded.

10.1 Cleaning and care

NOTICE

Bearing malfunctions

Moistening of the bearings with grease-dissolving substances, e.g. for cleaning purposes, will lead to bearing malfunctions. There is a danger of damage to property; the service life may be shortened.

Keep grease-dissolving or aggressive cleaning agents away from the bearings!
Only use a slightly damp cloth to clean the product.

Conveyor chain malfunction (flat top chain/accumulation roller chain)

Lack of lubrication or moistening of the conveyor chain with grease-dissolving substances, e.g. for cleaning purposes, will lead to conveyor chain malfunctions and can lead to a crash. There is a danger of damage to property.

Always comply with the maintenance intervals.

Maintain a maintenance schedule.

Keep grease-dissolving or aggressive cleaning agents away from the conveyor chain!

Only use a slightly damp cloth to clean the product.

10.2 Inspection

10.2.1 Conveyor chain (flat top chain/accumulation roller chain)

Conduct regular visual inspections of the conveyor chain for wear and sufficient lubrication.

10.3 Maintenance

10.3.1 Bearings

All bearings are provided with lifelong lubrication and are maintenance-free under normal conditions.

10.3.2 Gears

The gears are maintenance-free.

10.3.3 Motor

To ensure adequate motor cooling, dirt and dust must be removed at regular intervals from the:

- Motor surface
- Fan housing inlets
- Interior surfaces of the cooling fins

The cleaning intervals are based on the ambient conditions and operating conditions.

10.3.4 Conveyor chain (flat top chain/accumulation roller chain)

The conveyor chain used in this product has already been lubricated at the factory before delivery.

Before commissioning for the first time, lubricate the conveyor chain with 1 to 2 g oil per chain meter, and afterwards every 1000 operating hours with 2 to 3 g oil/m, using Structovis GHD (0 842 904 229).

For system-related reasons, the lubricant can spread.

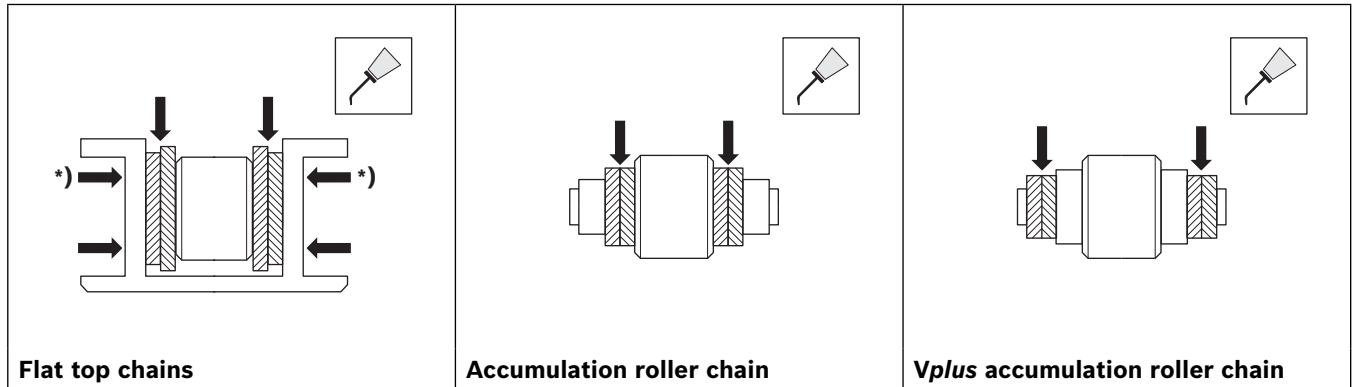


Fig. 18: Lubrication points

*) Also lubricate the flat top chain on the side (in curves and sections).

NOTE!

- ▶ Always comply with the maintenance intervals, as a lack of lubrication will result in operational disruptions due to a chain malfunction, up to a system crash with substantial damage to property.
- ▶ Maintain a maintenance schedule.
- ▶ The running times during set-up and commissioning of the system count as a part of the first maintenance interval.
- ▶ If you do not know how long the system ran during set-up and commissioning, lubricate the conveyor chain before starting production.
- ▶ Lubricate the chain after downtimes > 6 months (e.g. if set-up took a very long time or if the system was temporarily decommissioned).
- ▶ Before lubricating the chain, clean off any excess grease, dirt, or other contamination. While doing so, also check the conveyor chain for wear and elongation.



We recommend: The LU 2 automatic lubrication unit enables an optimally defined, uniform lubrication of the conveyor chain during operation. See page 41.

10.3.5 Options to lubricate the conveyor chain manually

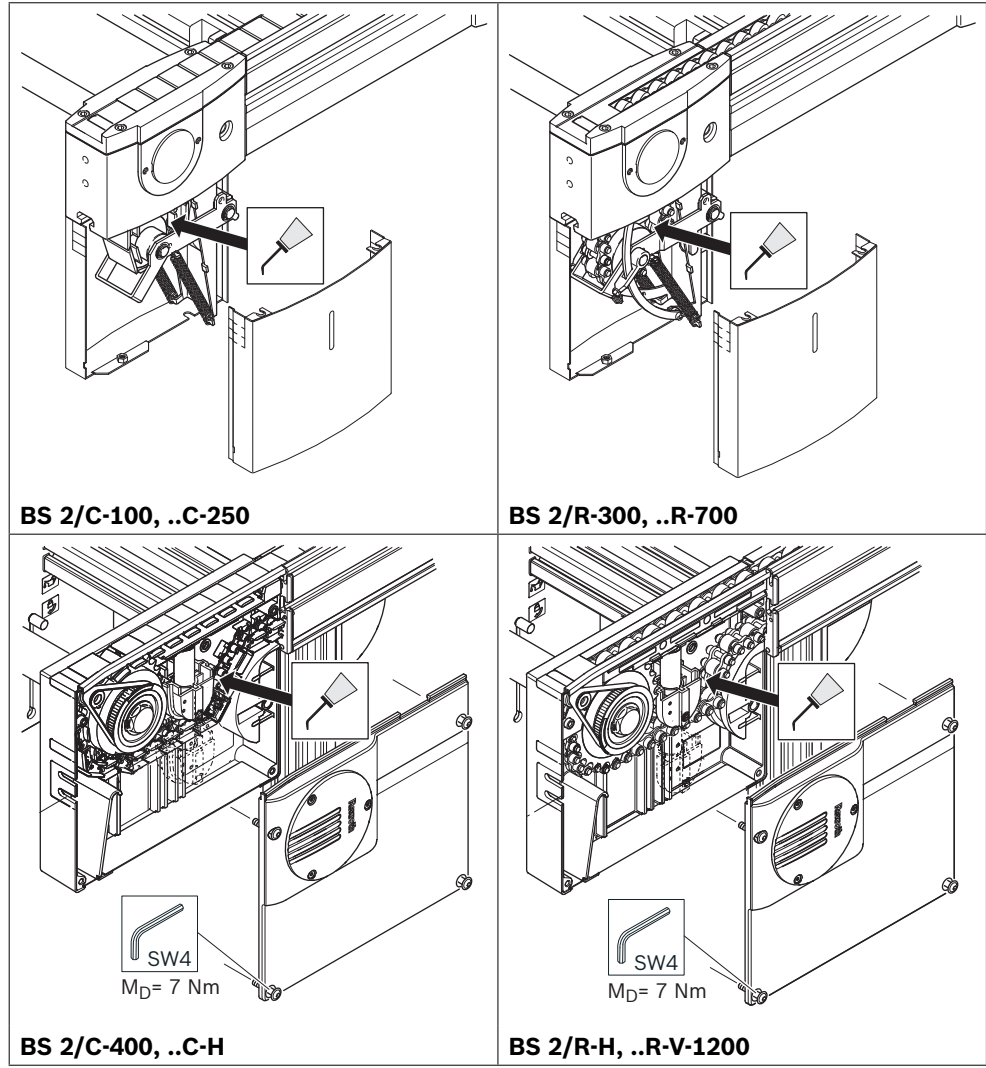


Fig. 19: Lubricating the conveyor chain in the drive module

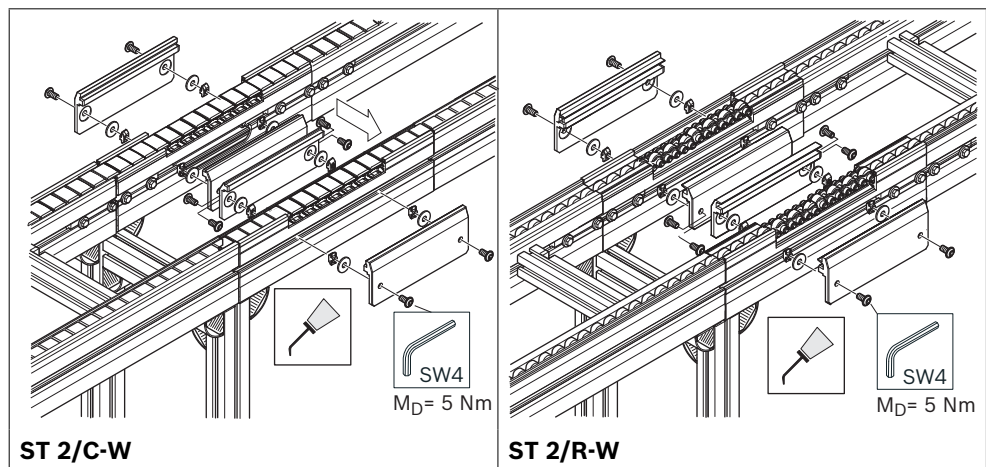


Fig. 20: Lubricating the conveyor chain in the maintenance section

10.3.6 LU 2 automatic lubrication unit

The LU 2 automatic lubrication unit enables chain lubrication during operation. The chain can only be lubricated at the drive module.

The LU 2 automatic lubrication unit consists of the following components:

- LU 2 lubrication unit, **3 842 543 482**
- LC 2 oil container, **3 842 543 469**
- AS 2/C-100, -250 adapter set, **3 842 543 483**¹⁾
- AS 2/C-400, adapter set, **3 842 543 484**
- AS 2/R-300, -700 adapter set, **3 842 543 485**¹⁾
- AS 2/R-1200, -2200 adapter set, **3 842 543 486**
- AS 2/R-V-1200 adapter set, **3 842 543 487**

¹⁾ An additional LU 2 retrofit kit **3 842 546 725** is required for retrofitting older transfer systems without lube hole.

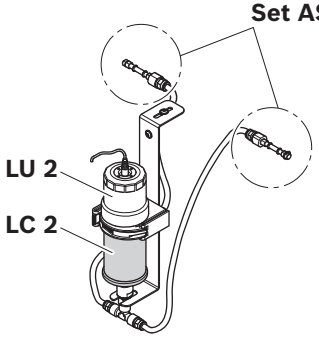
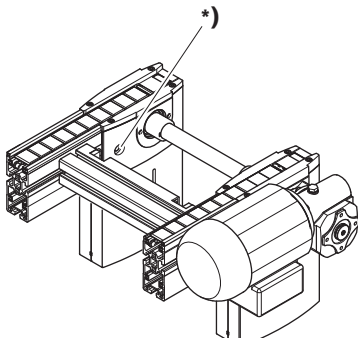
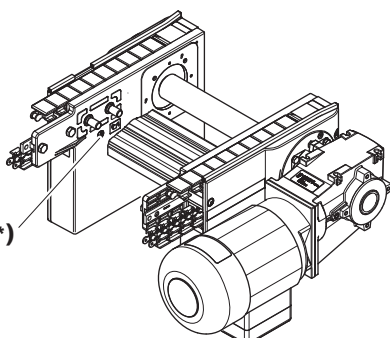
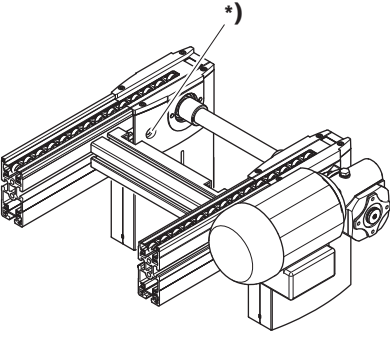
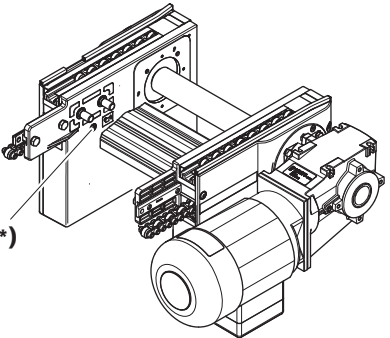
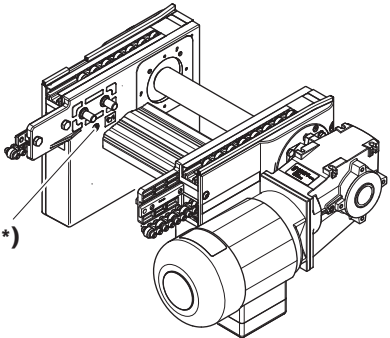
<p>LU 2</p>  <p>3 842 543 482, LU 2 + 3 842 543 469, LC 2</p>	<p>AS 2/C-100, AS 2/C-250</p>  <p>+ 3 842 543 483, AS 2/C-100, -250 set</p>	<p>AS 2/C-400, AS 2/C-700</p>  <p>+ 3 842 543 484, AS 2/C-400, -700 set</p>
<p>AS 2/R-300, AS 2/R-700</p>  <p>+ 3 842 543 485, AS 2/R-300, -700 set</p>	<p>AS 2/R-1200, AS 2/R-2200</p>  <p>+ 3 842 543 486, AS 2/R-1200, -2200 set</p>	<p>AS 2/R-V-1200, AS 2/R-V-2200</p>  <p>+ 3 842 543 487, AS 2/R-V set</p>

Fig. 21: LU 2 automatic lubrication unit, overview

The holes identified with *) are used to connect the LU 2 automatic lubrication unit.

10.4 Replacing wear parts

10.4.1 Designations

This documentation uses the following designations:

Table 8: Designations

Designation	Meaning
Chain	Conveyor chain with conveyor medium: <ul style="list-style-type: none"> • Flat top chain (.../C-...) • Accumulation roller chain (.../R-...) • Accumulation roller chain <i>Vplus</i> (.../R-V-...)

10.4.2 Required tools

- Hexagon wrenches (open-end):
WS8, WS10, WS13, WS19, WS27.
- Hex socket wrenches:
WS4.
- Water level
- Combination pliers

10.4.3 Required accessories

- For the flat top chain:
 - Disassembly tool: **3 842 010 510**
 - Master link: **3 842 535 333**
- For the accumulation roller chain:
 - Disassembly tool: **3 842 010 511**
 - Master link: **3 842 530 417**
- For the *Vplus* accumulation roller chain:
 - Disassembly tool: **3 842 539 357**
 - Master link: **3 842 538 872**

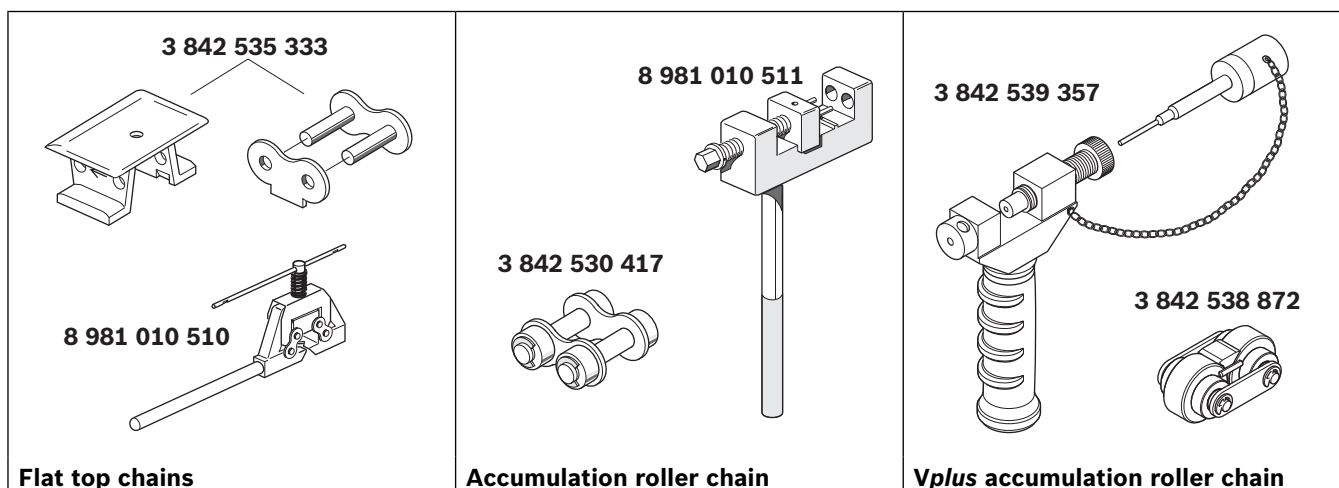


Fig. 22: Required accessories



10.4.4 Notes for mounting: Finding the master link on a functional chain

CAUTION!

- ▶ Observe DIN EN ISO 13857 when removing or replacing protective devices and/or deactivating safety devices.
- ▶ Test runs with open housings are only permitted when they are performed by skilled workers using hold-to-run controls and when the influence of all other switching devices can be excluded.

1. On the side without the motor either remove the external housing element half (BS 2/C-100, ...-250, BS 2/R-300, ...-700, BS 4/R-300, ...-700) or unscrew the cover plate on the side (BS 2/C-H, BS 2/R-H, BS 2/R-V-1200).
2. Use the hold-to-run control to run the belt section until the master link appears in the chain tensioner.

The master link can be recognized through:

- The gray flat plate with hole on the gray flat top chain (☞ ¹⁾).
- The galvanized link plate on the accumulation roller chain (☞ ²⁾).

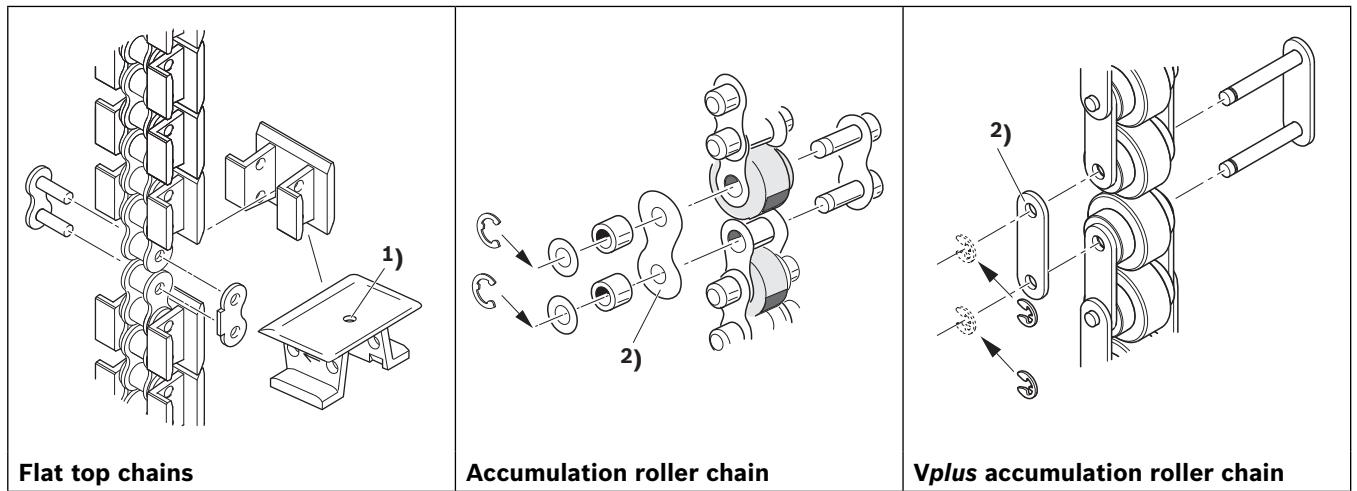


Fig. 23: Master link



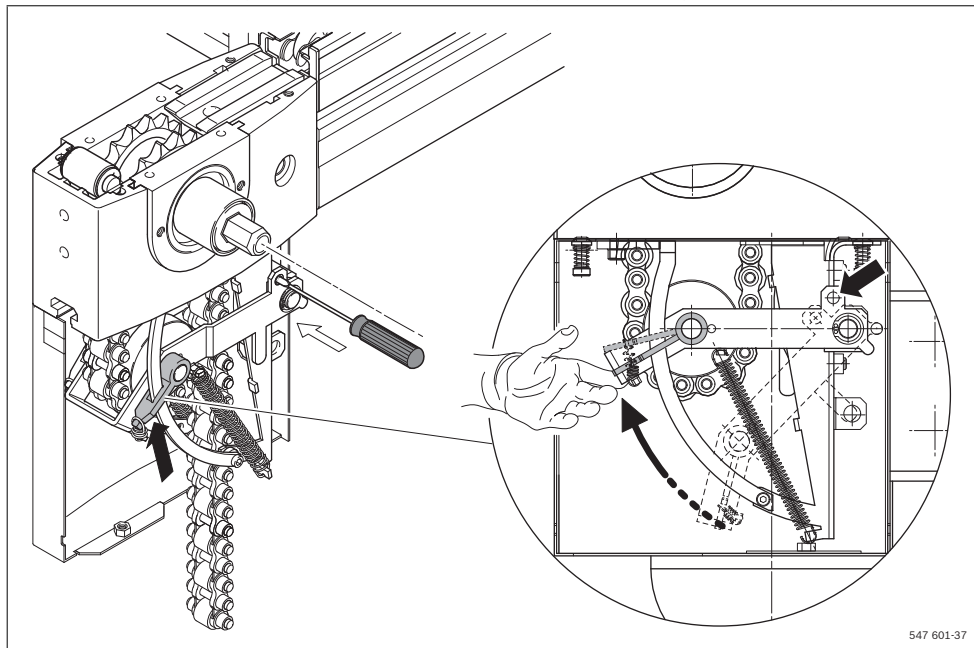
10.4.5 Notes for mounting: securing the chain tensioner for BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700

BS 2/C..., BS 2/R...:

- ▶ Pull the chain tensioner upwards and secure it in its final position with a pin or a screwdriver.

BS 2/R..., reversible:

- ▶ Unlatch the chain tensioner by lifting the "latches" (☞ Fig. 24). Pull the chain tensioner upwards and secure it in its final position with a pin or a screwdriver.



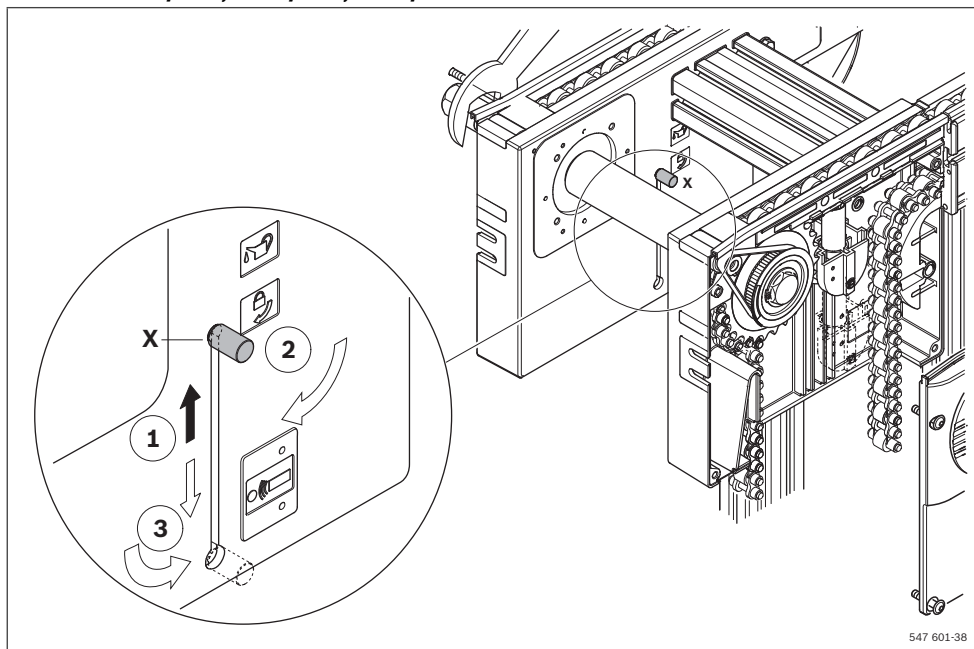
547 601-37

Fig. 24: Securing the chain tensioner: "small" drive head, reversible chain tensioner



10.4.6 Notes for mounting: Securing the chain tensioner for BS 2/C-H, BS 2/R-H, BS 2/R-V-1200

- ▶ Pull the chain tensioner (X) upwards and secure it in its final position by turning it 90° clockwise. (☞ Fig. 25, pos. 2).
- ▶ Loosen the chain tensioner by turning it 90° counter-clockwise. (☞ Fig. 25, pos. 3).



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Fig. 25: Securing the chain tensioner: "large" drive head



10.4.7 Checking the chain elongation for BS 2/C-100, BS 2/C-250, BS 2/R-300, BS 4/R-300, BS 2/R-700, BS 4/R-700

You can check the elongation of the chain through the slot (A) in the housing element. The lever of the chain tensioner moves down as the chain length increases, from top (new/short chain) to bottom (elongated chain). The chain must be shortened once the lever in the slot is no longer visible. Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.

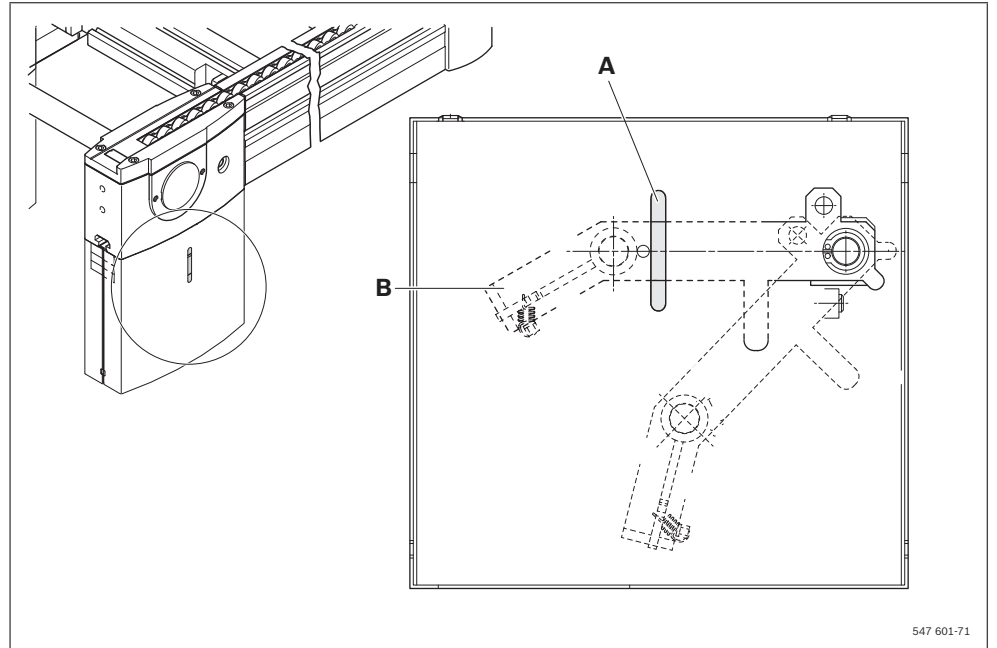


Fig. 26: Checking the chain elongation for “small” drive head



10.4.8 Checking the chain elongation for BS 2/C-H, BS 2/R-H, BS 2/R-V-1200

You can check the elongation of the chain based on the state of the tension lever (X) of the chain tensioner. The tension lever (X) moves down as the chain length increases, from top (new/short chain) to bottom (elongated chain). The chain must be shortened once the tension lever (X) is in the lowest position. Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.

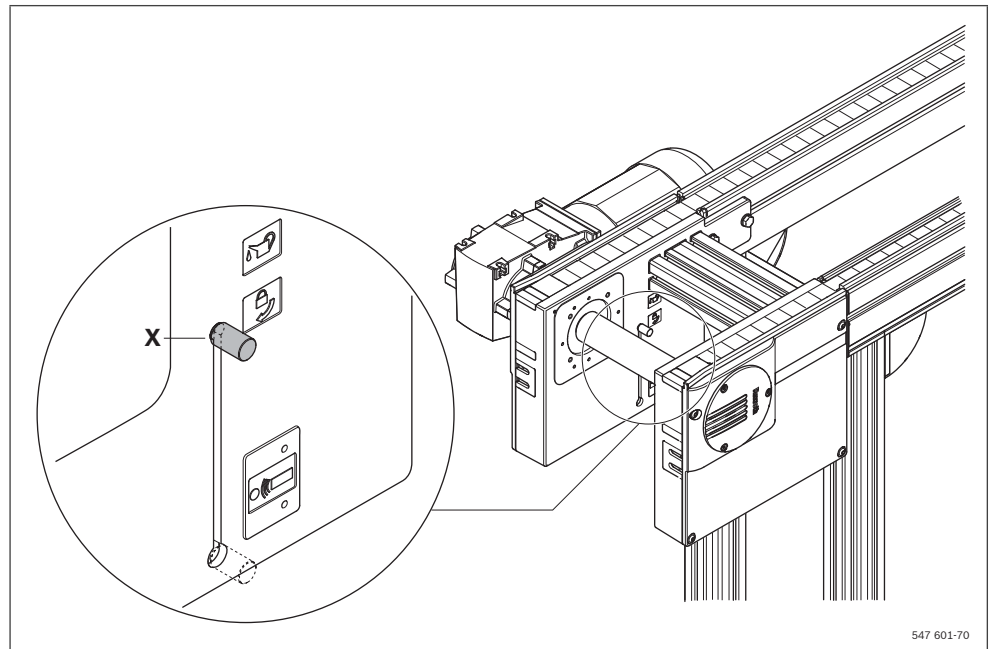


Fig. 27: Checking the chain elongation for “large” drive head

10.4.9 Shortening the conveyor chain:

**BS 2/C-100, BS 2/R-300, BS 4/R-300, BS 2/C-250, BS 2/R-700, BS 4/R-700
motor mounting (MA) = R/L**



Note:

Perform the work steps on both sides at the same time.

1. Dismount the gear motor.
2. Disassemble the external housing element halves.
3. Turn the drive shaft with the help of a wrench in the transport direction until the master link appears on the chain tensioner.



The master link can be recognized through:

- The gray flat plate with hole on the gray flat top chain (1).
- The galvanized link plate on the accumulation roller chain (2).

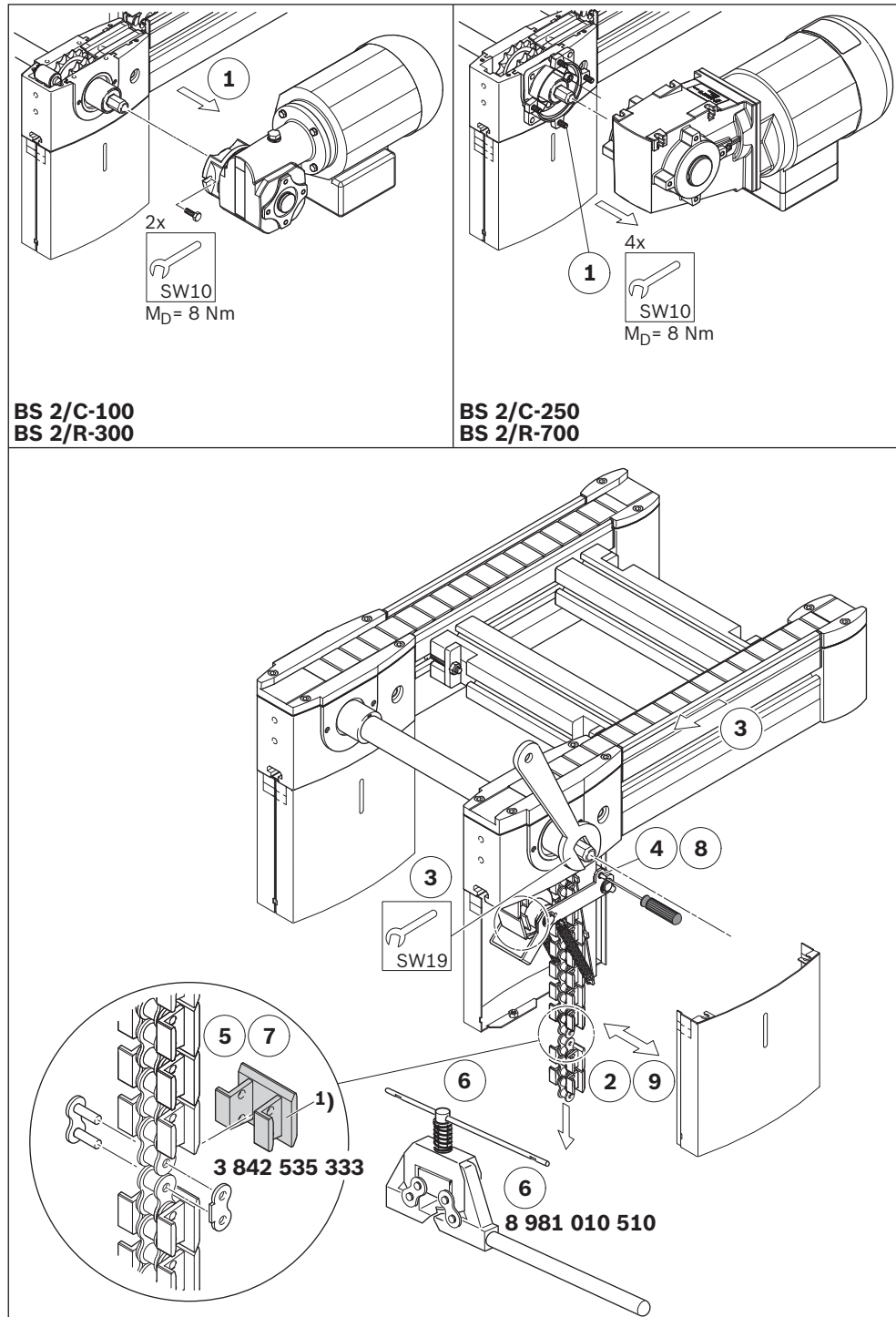


Fig. 28: Shortening the conveyor chain: BS 2/C-100, ...-250, BS 2/R-300, ...-700, MA = R/L (1/2)

4. Secure the chain tensioner.
5. Open the chain at the master link.
6. With the disassembly tool³⁾ remove enough chain links to be able to close the chain as tightly as possible at the tension wheel.

³⁾ Disassembly tool:

– For the flat top chain:

3 842 010 510

– For the accumulation roller chain:

3 842 010 511



Note:

- Remove the same number of chain links from both chains.
- Note the number of chain links removed in the service plan.
- Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.

7. Close the chain.
8. Release the chain tensioner. Check the tension of the chain.
9. Mount the external housing element halves.
10. Mount the gear motor.

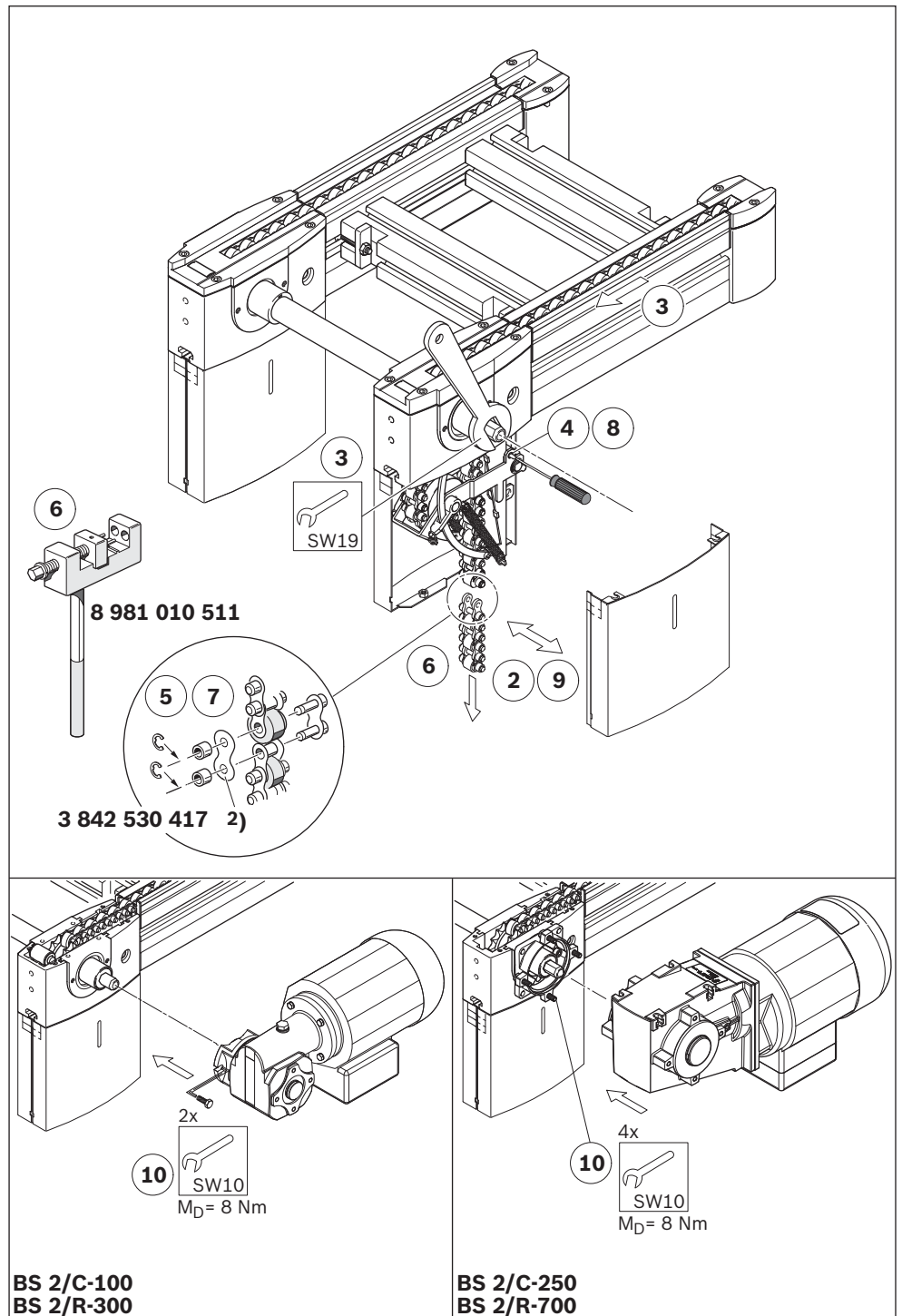


Fig. 29: Shortening the conveyor chain: BS 2/C-100, ...-250, BS 2/R-300, ...-700, MA = R/L (2/2)

547 601-42

10.4.10 Shorten conveyor chain:**BS 2/C-100, BS 2/R-300, BS 4/R-300, motor mounting (MA) = M****Note:**

- An additional master link is required for each chain⁴⁾.

⁴⁾ Master link:

- For the flat top chain:

3 842 535 333

- For the accumulation roller chain:

3 842 530 417

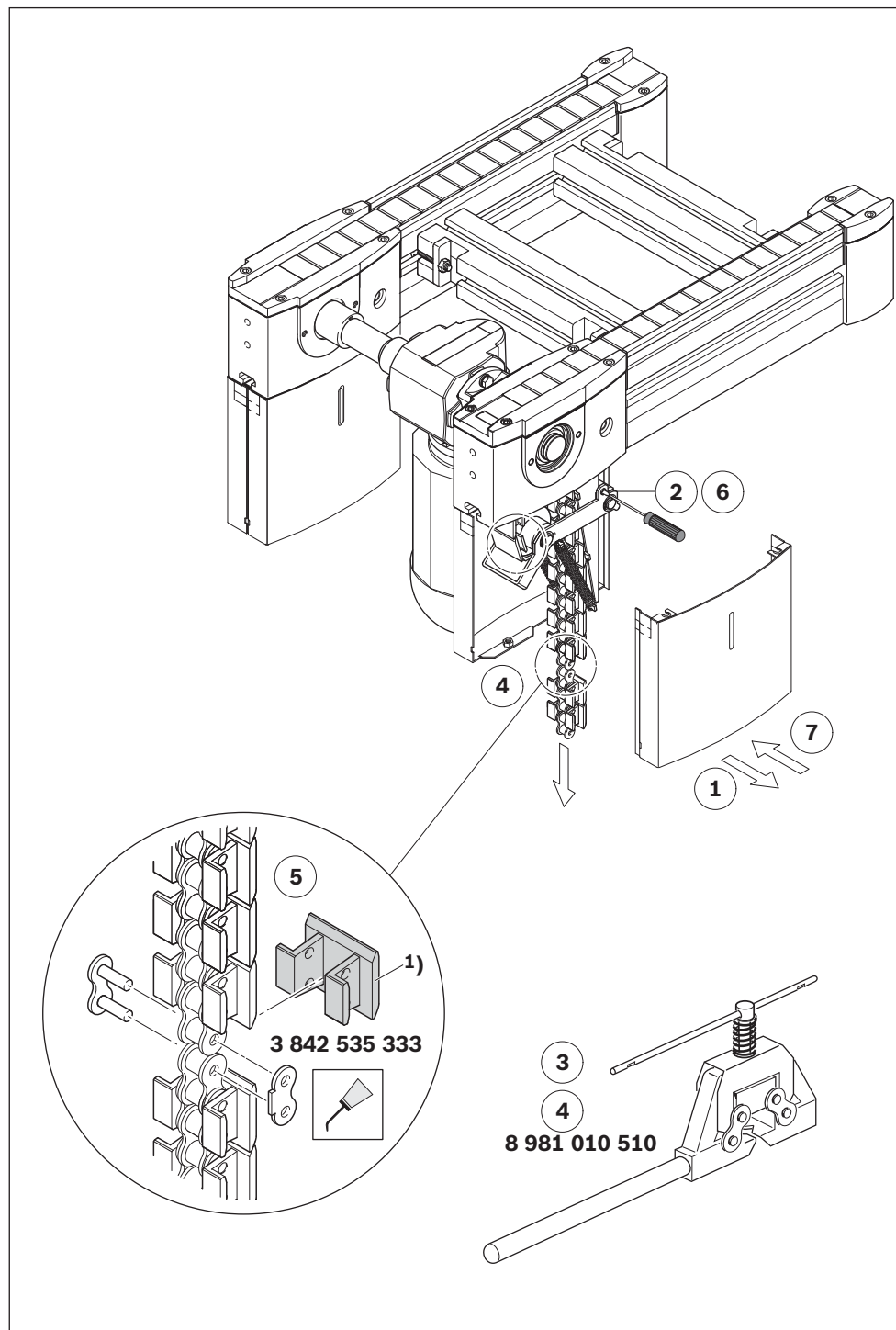
- Perform the work steps on both sides at the same time.

1. Disassemble the external housing element halves.**2.** Secure the chain tensioner.**3.** Open the chain with the disassembly tool³⁾.³⁾ Disassembly tool:

- For the flat top chain:

3 842 010 510

- For the accumulation roller chain:

3 842 010 511**Fig. 30: Shortening the conveyor chain: BS 2/C-100, BS 2/R-300, MA = M (1/2)**

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4. With the disassembly tool remove enough chain links to be able to close the chain as tightly as possible at the tension wheel.

**Note:**

- Remove the same number of chain links from both chains.
 - Note the number of chain links removed in the service plan.
 - Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.
5. Lubricate the master link and close the chain.
6. Release the chain tensioner. Check the tension of the chain.
7. Mount the external housing element halves.

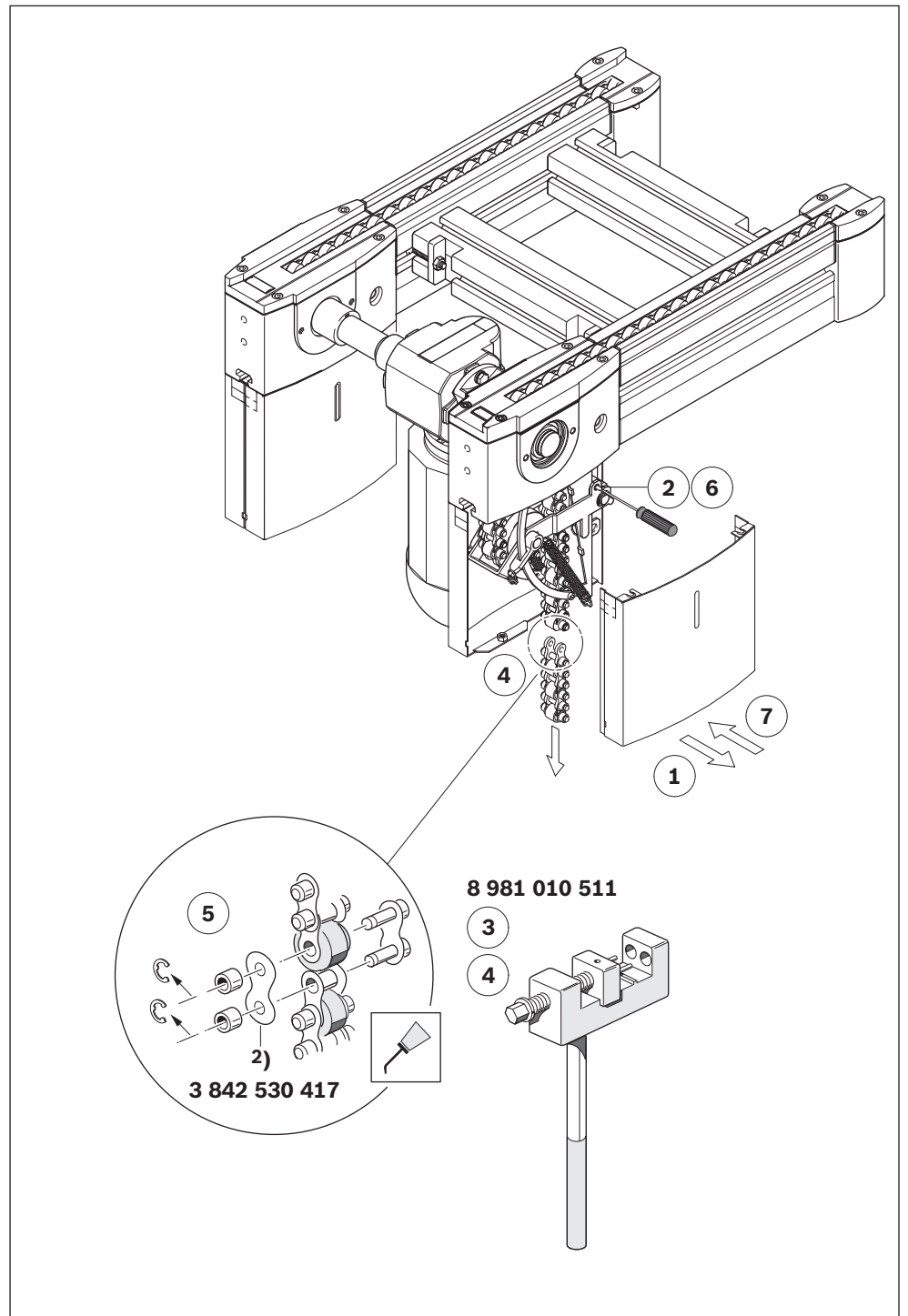


Fig. 31: Shortening the conveyor chain: BS 2/C-100, BS 2/R-300, MA = M (2/2)

547 601-44

10.4.11 Shortening the conveyor chain:

BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, motor mounting (MA) = R/L



Note:

Perform the work steps on both sides at the same time.

1. Dismount the gear motor.
2. Disassemble the side cover plates, remove the bottom cover sheets.
3. Turn the drive shaft with the help of a wrench in the transport direction until the master link appears on the chain tensioner.



- The master link can be recognized through:
- The gray flat plate with hole on the gray flat top chain (1).
 - The galvanized link plate on the accumulation roller chain (2).

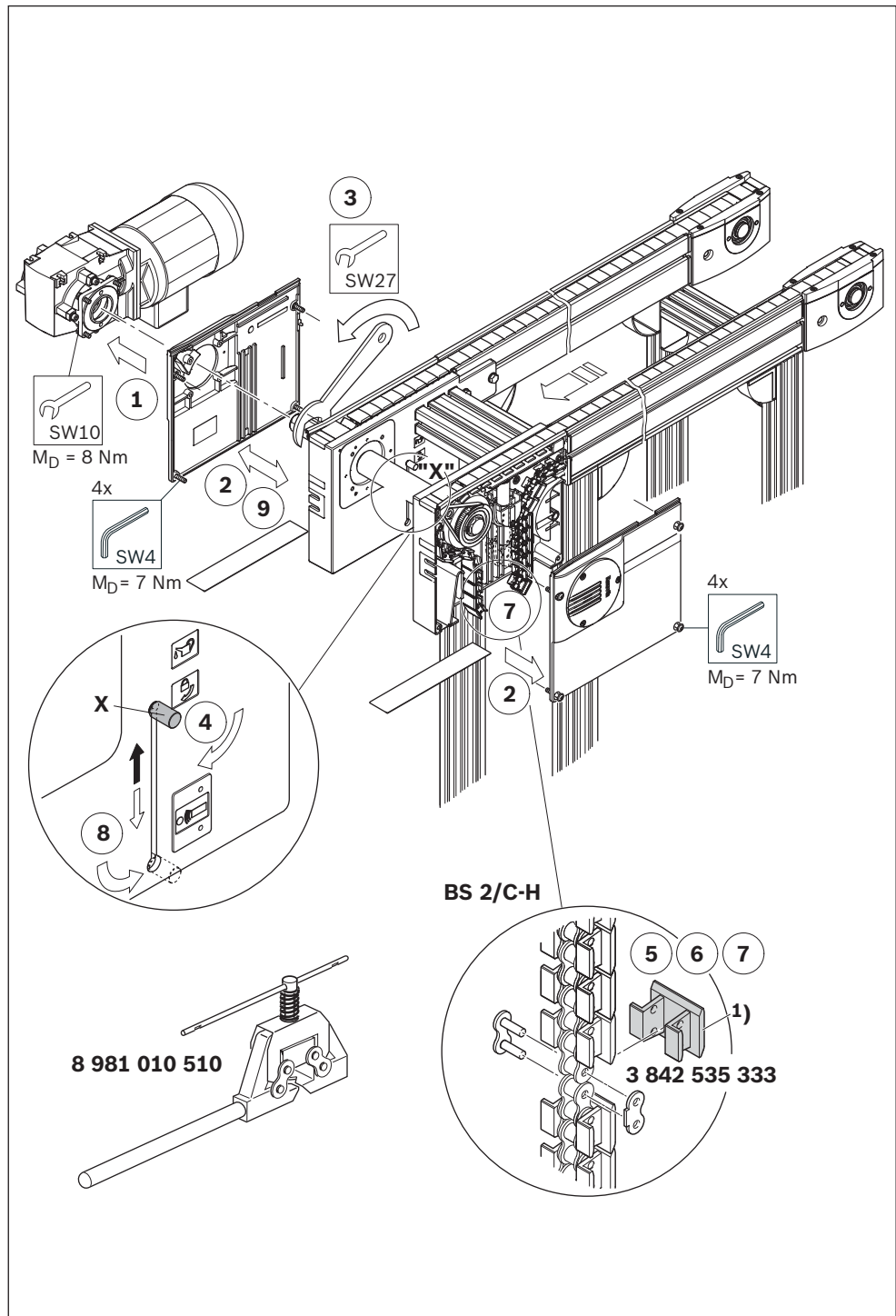


Fig. 32: Shortening the conveyor chain: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, MA = R/L (1/2)

547 601-45

4. Secure the chain tensioner.
5. Open the chain at the master link.
6. With the disassembly tool³⁾ remove enough chain links to be able to close the chain as tightly as possible at the chain tensioner.

³⁾ Disassembly tool:

- For the flat top chain:

3 842 010 510

- For the accumulation roller chain:

3 842 010 511



Note:

- Remove the same number of chain links from both chains.
- Note the number of chain links removed in the service plan.
- Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.

7. Close the chain.
8. Release the chain tensioner.
Check the tension of the chain.
9. Mount the bottom cover sheets and the side cover plates.
10. Mount the gear motor.

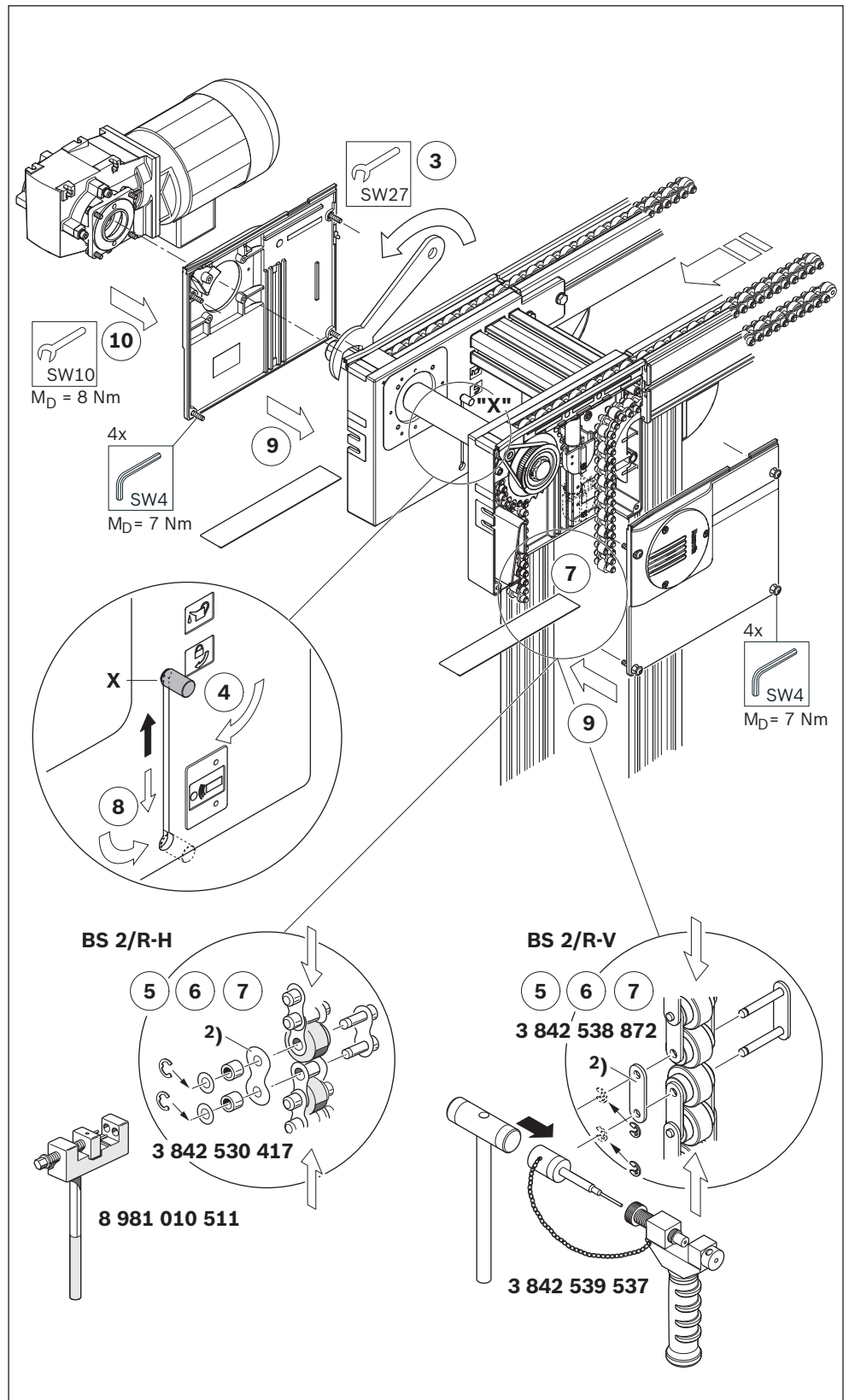


Fig. 33: Shortening the conveyor chain: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, MA = R/L (2/2)

547 601-46

10.4.12 Shortening the conveyor chain:

BS 2/R-H, reversible, BS 2/R-V, reversible, motor mounting (MA) = R/L

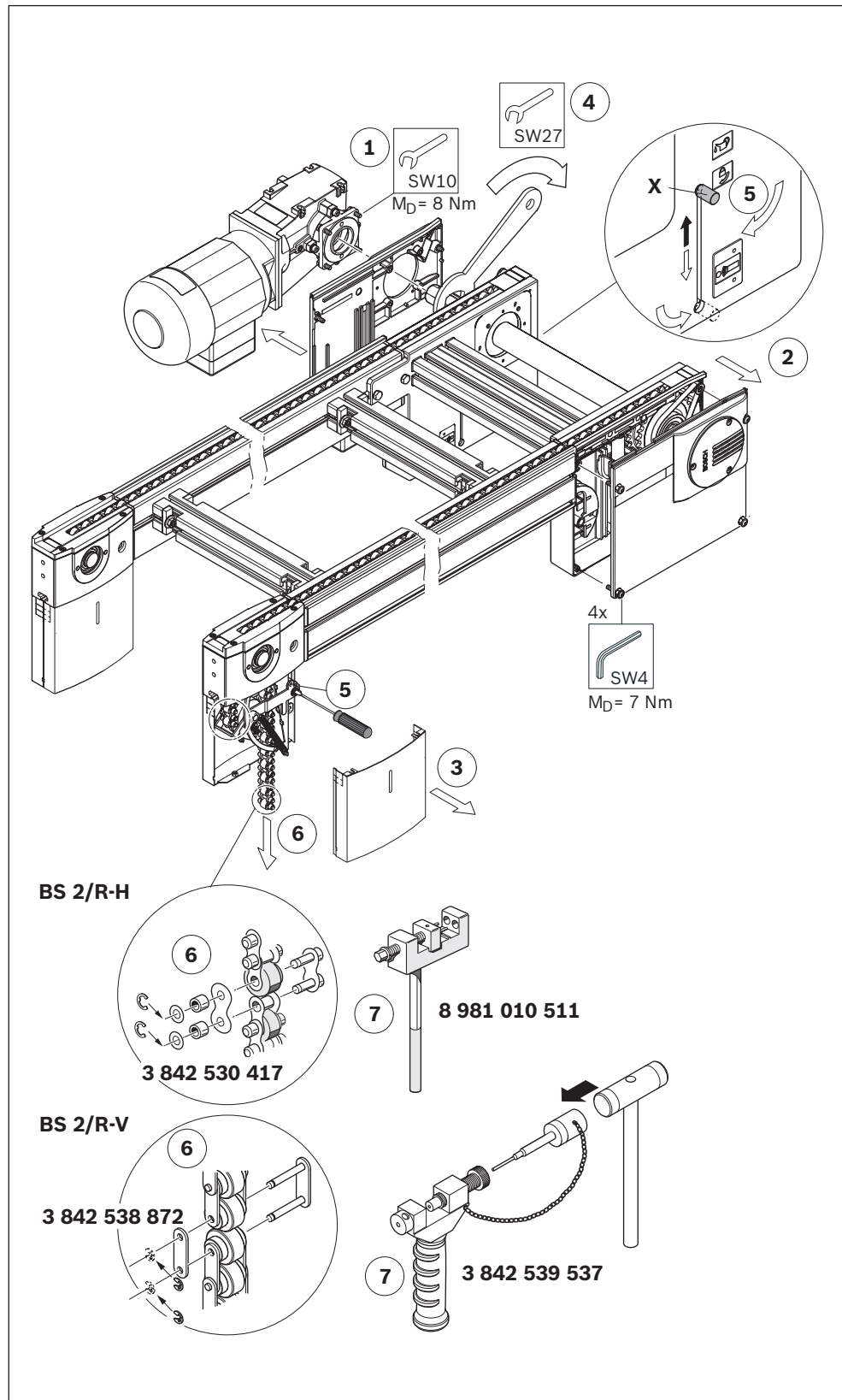
i Note:

Perform the work steps on both sides at the same time.

1. Dismount the gear motor.
2. Disassemble the side cover plates, remove the bottom cover sheets.
3. Disassemble the external housing element halves.
4. Turn the drive shaft with the help of a wrench in the transport direction until the master link appears on the return unit's chain tensioner.

i The master link can be recognized through:

- The galvanized link plate on the accumulation roller chain (2).
5. Secure the chain tensioner on the drive and the return unit.
 6. Open the chain at the master link.



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Fig. 34: Shorten conveyor chain BS 2/R-H, reversible, BS 2/R-V, reversible (1/2)

7. With the disassembly tool³⁾ remove enough chain links to be able to close the chain as tightly as possible at the tension wheel.

³⁾ Disassembly tool:

- For the accumulation roller chain:
3 842 010 511
- For *Vplus* accumulation roller chain:
3 842 539 357



Note:

- Remove the same number of chain links from both chains.
- Note the number of chain links removed in the service plan.
- Exchange the chain if the admissible elongation of the chain (= 3% of the original length) is exceeded.

8. Close the chain.

9. Release the chain tensioner.
Check the tension of the chain.

10. Mount the bottom cover sheets and the side cover plates.

11. Mount the external housing element halves.

12. Mount the gear motor.

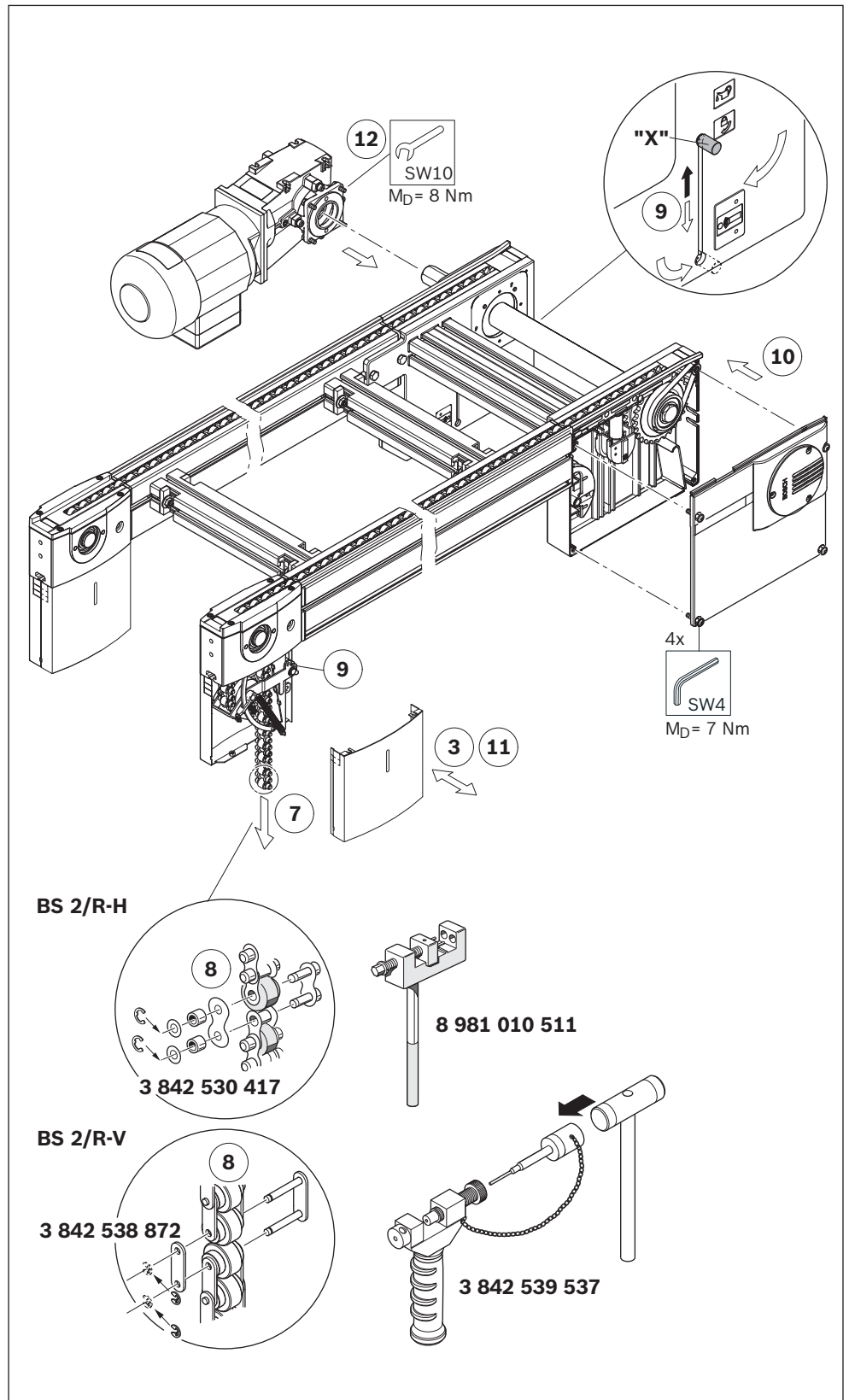


Fig. 35: Shortening the conveyor chain BS 2/R-H, reversible, BS 2/R-V, reversible (2/2)

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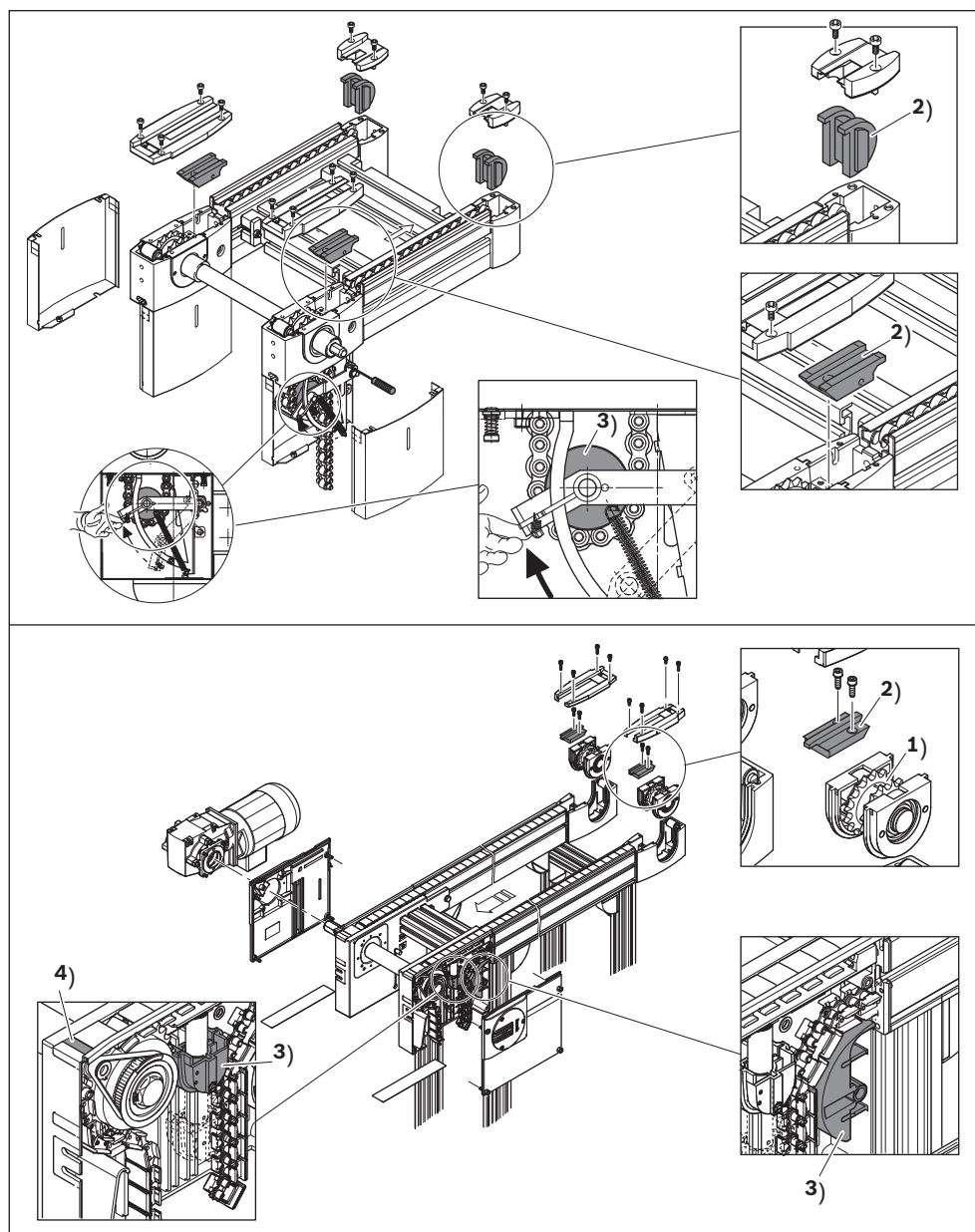
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10.4.13 Notes for mounting: Exchanging the chain and wear parts

NOTE!

- Before mounting the new chain, clean any excess grease, dirt or other contamination off the chain guides. While doing this, check the chain wheels¹⁾, the glide profiles, the guide elements²⁾ in the drive and return unit, the chain tensioner³⁾, the connection roller⁴⁾ and the corresponding toothed belt for wear. Exchange the worn out parts.



547 601-63

Fig. 36: Wear parts

We recommend:

- When exchanging the flat top chain, always exchange the glide profiles at the same time.

NOTICE

Conveyor chain malfunction (flat top chain/accumulation roller chain)

Deformations such as folds and/or the chain twisting, e.g. due to the chain coil tipping while the chain is being mounted, will lead to conveyor chain malfunctions and can lead to a crash. There is a danger of damage to property.

Ensure that the chain is lying evenly and that it runs smoothly from the chain coil.

Ensure that the chain coil does not tip over during assembly.

If the chain coil has tipped over during assembly and the chain is deformed:

Use the disassembly tool to remove all of the affected area.

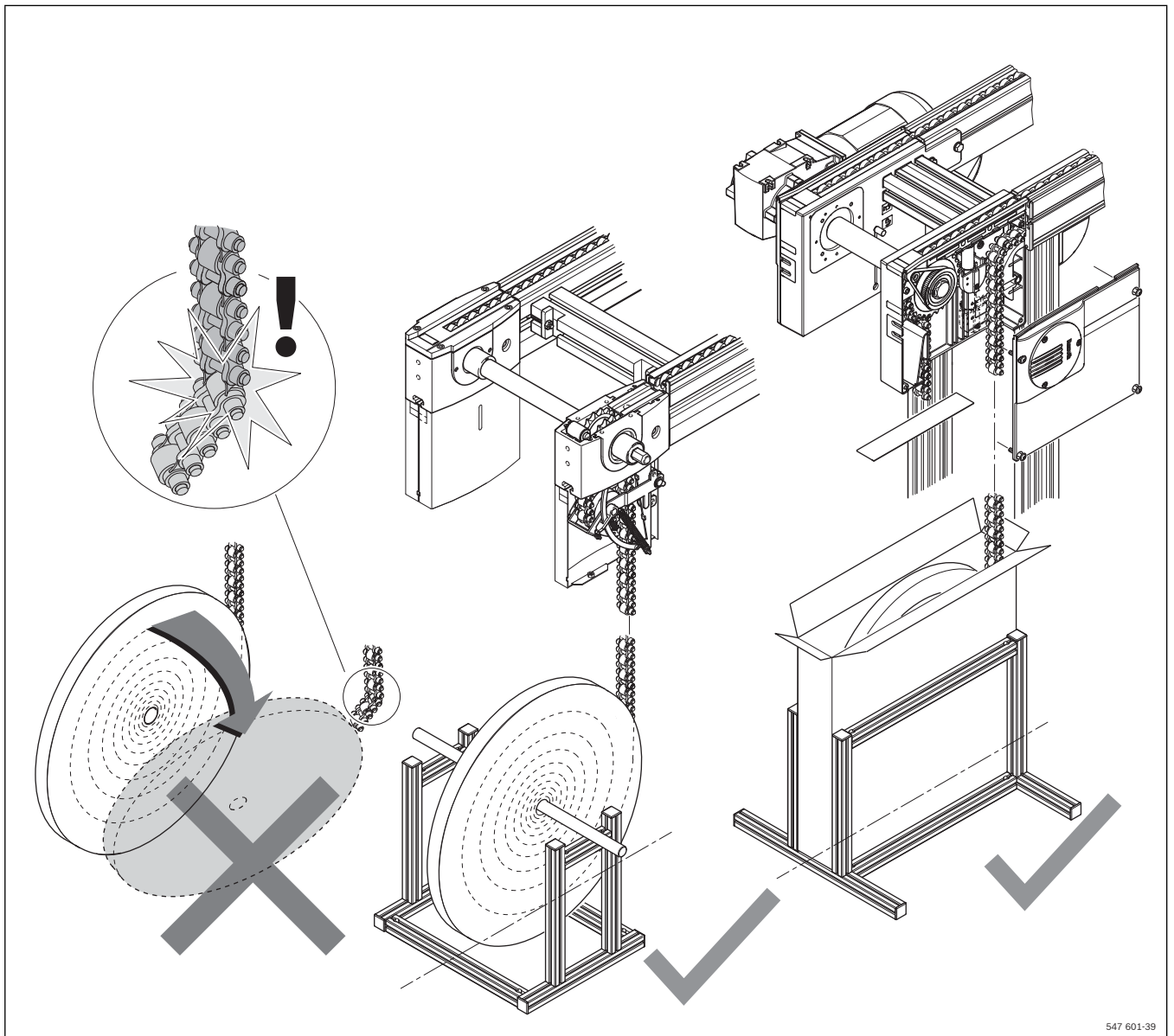


Fig. 37: Uncoiling the chain from the chain coil



10.4.14 Notes for mounting: Direction of movement of the chain

<h2>NOTICE</h2>
<p>Conveyor chain malfunction (flat top chain/accumulation roller chain with small parts trap)</p> <p>Operation of the chain against the direction of movement will lead to conveyor chain malfunctions and can lead to a crash. There is a danger of damage to property</p> <p>Make sure that the chain is mounted in its correct direction of movement.</p>

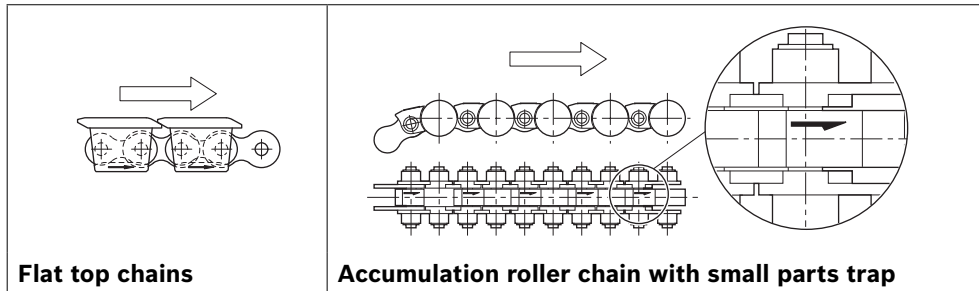


Fig. 38: Direction of movement of the chain



10.4.15 Notes for mounting: Lubrication points

<h2>NOTICE</h2>
<p>Conveyor chain malfunction (flat top chain/accumulation roller chain)</p> <p>Lack of lubrication on the conveyor chain will lead to conveyor chain malfunctions and can lead to a crash. There is a danger of damage to property.</p> <p>The conveyor chain used in this product has already been lubricated at the factory before delivery.</p> <p>Before commissioning, lubricate the conveyor chain with 1 to 2 g oil per chain meter, and afterwards every 1000 operating hours with 2 to 3 g oil/m, using Structovis GHD, 0 842 904 229.</p>

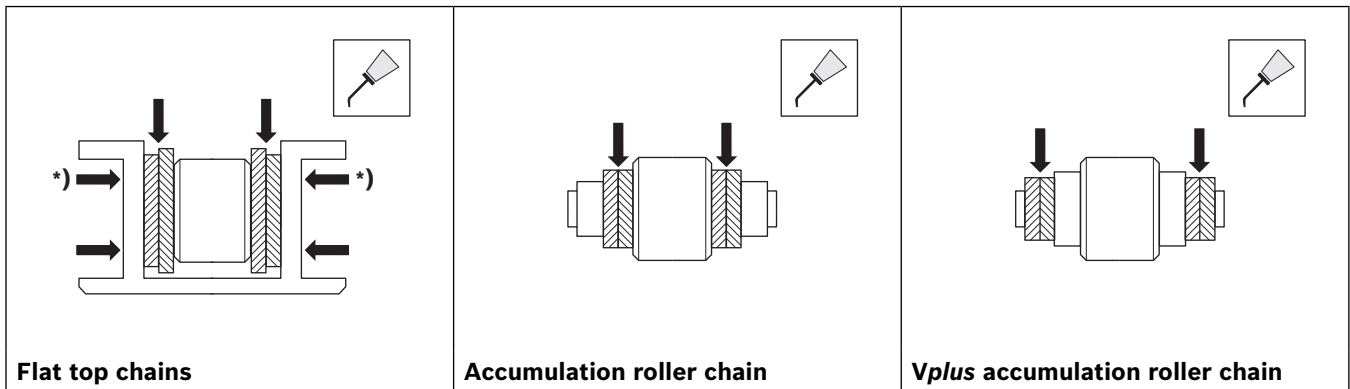


Fig. 39: Lubrication points

*) Also lubricate the flat top chain on the side (curves and sections)
 For system-related reasons, the lubricant can spread.

10.4.16 Exchanging the conveyor chain:**BS 2/C-100, BS 2/R-300, BS 4/R-300****BS 2/C-250, BS 2/R-700, BS 4/R-700, motor mounting (MA) = R/L****Note:**

Perform the work steps on both sides at the same time.

Dismount the chain:

1. Dismount the gear motor.
2. Disassemble the external housing element halves.
3. Secure the chain tensioner.
4. Open the chain with the disassembly tool³⁾.

³⁾ Disassembly tool:

– For the flat top chain:

3 842 010 510

– For the accumulation roller chain:

3 842 010 511

5. Disassemble the covers on the drive and return head.

6. Pull the used chain downwards from the BS 2....

7. Remove the slider from the return head.

Mount the chain:

8. Pull the new chain⁵⁾ up to the return head with a pulling aid.

⁵⁾ **BS 2/C..., BS 2/R...**:

Note the direction of movement of the chain Fig. 38, page 56.

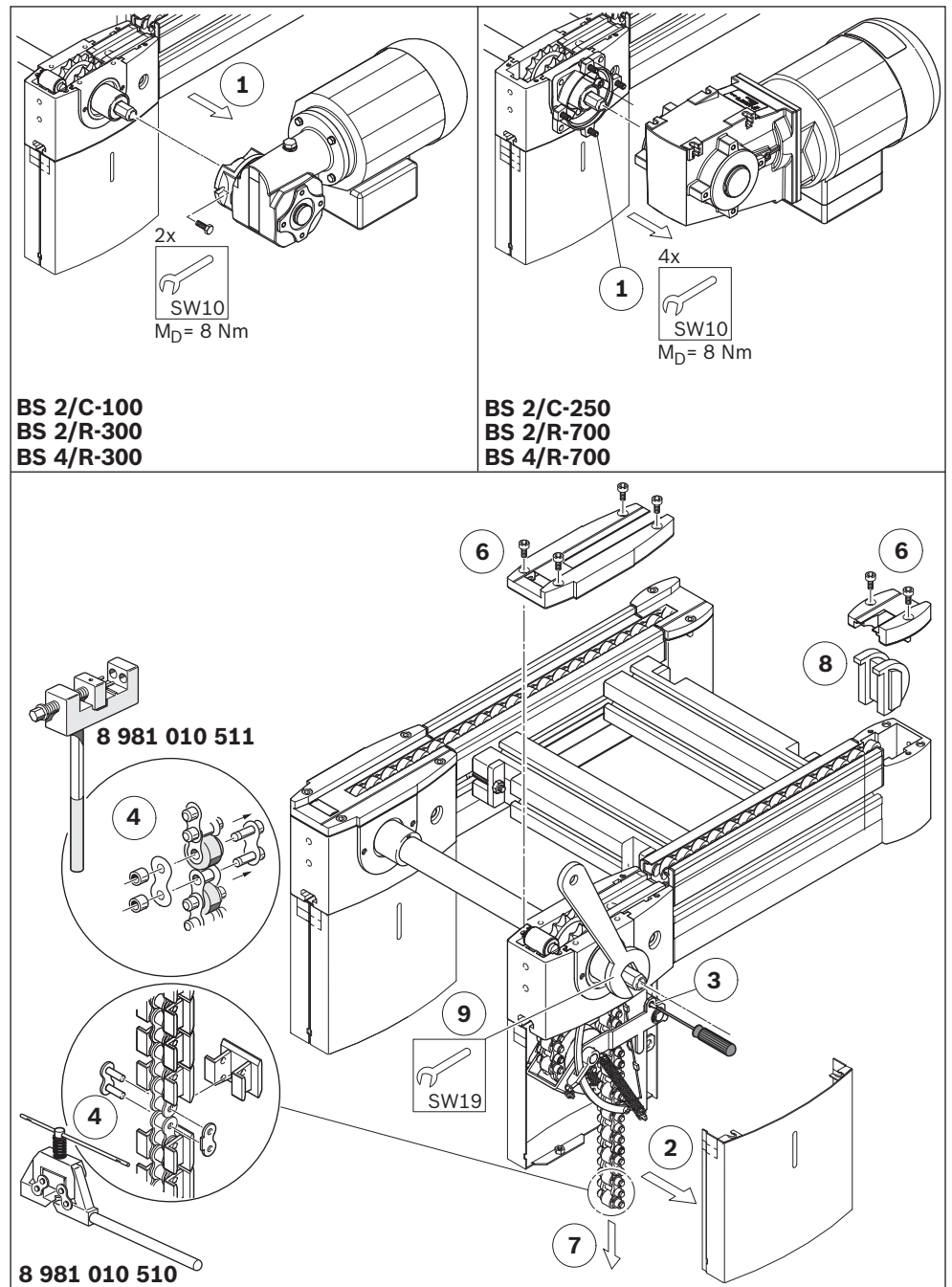
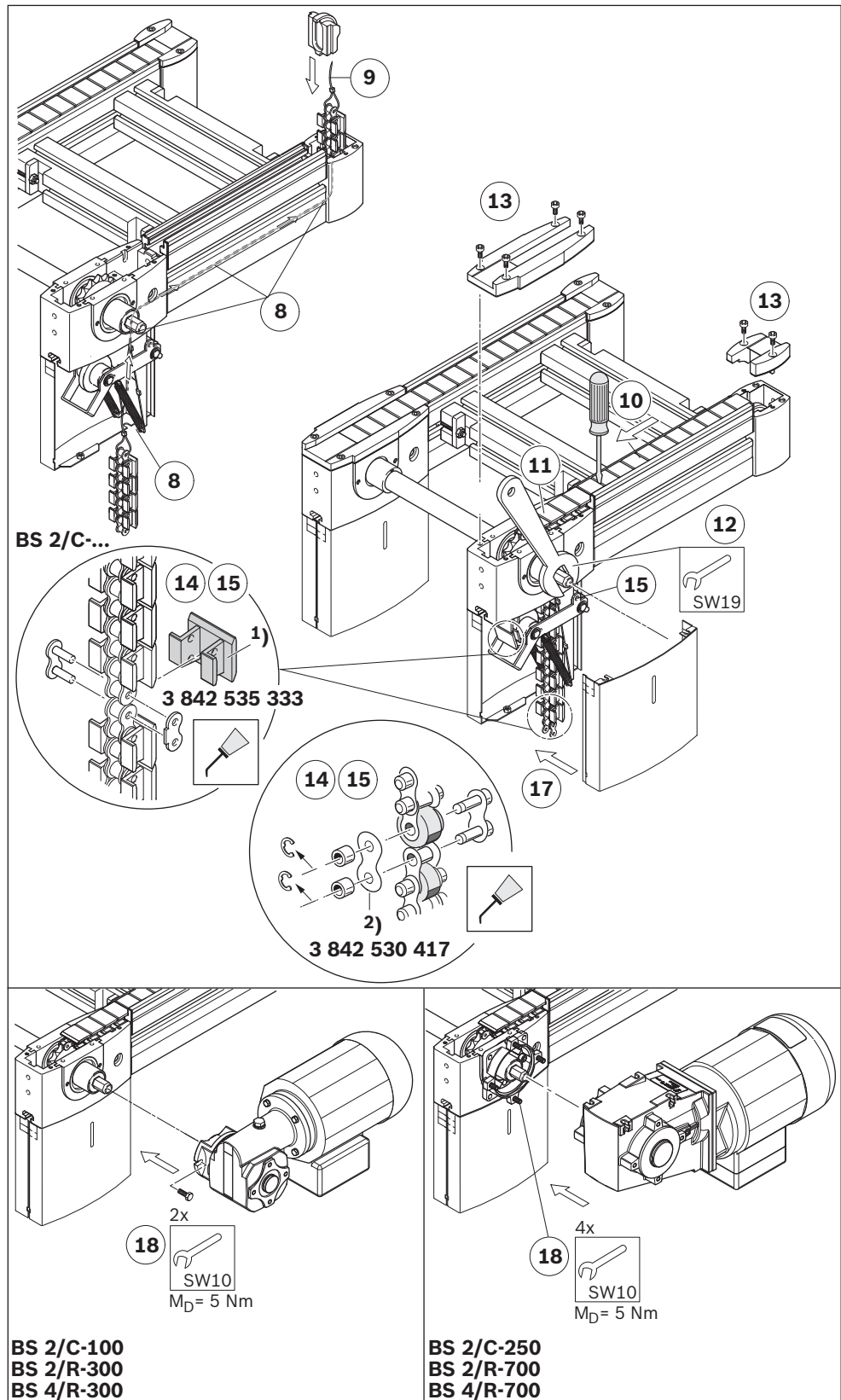


Fig. 40: Exchanging conveyor chain: BS 2/C-100, ...-250, BS 2/R-300, ...-700, MA = R/L (1/2)

9. Hold the chain up perpendicularly and insert the slider into the return head.
10. Pull the chain in the top guide profile up to the drive head.
11. Position the chain on the drive wheel.
12. Turn the drive wheels in the transport direction until the chain appears on the chain tensioner.
13. Mount the covers on the drive and return heads.
14. With the disassembly tool remove enough excess chain links to be able to close the chain as tightly as possible at the tension wheel.
15. Lubricate the master link and close the chain.
16. Release the chain tensioner. Check the tension of the chain.
17. Mount the external housing element halves.
18. Mount the gear motor.



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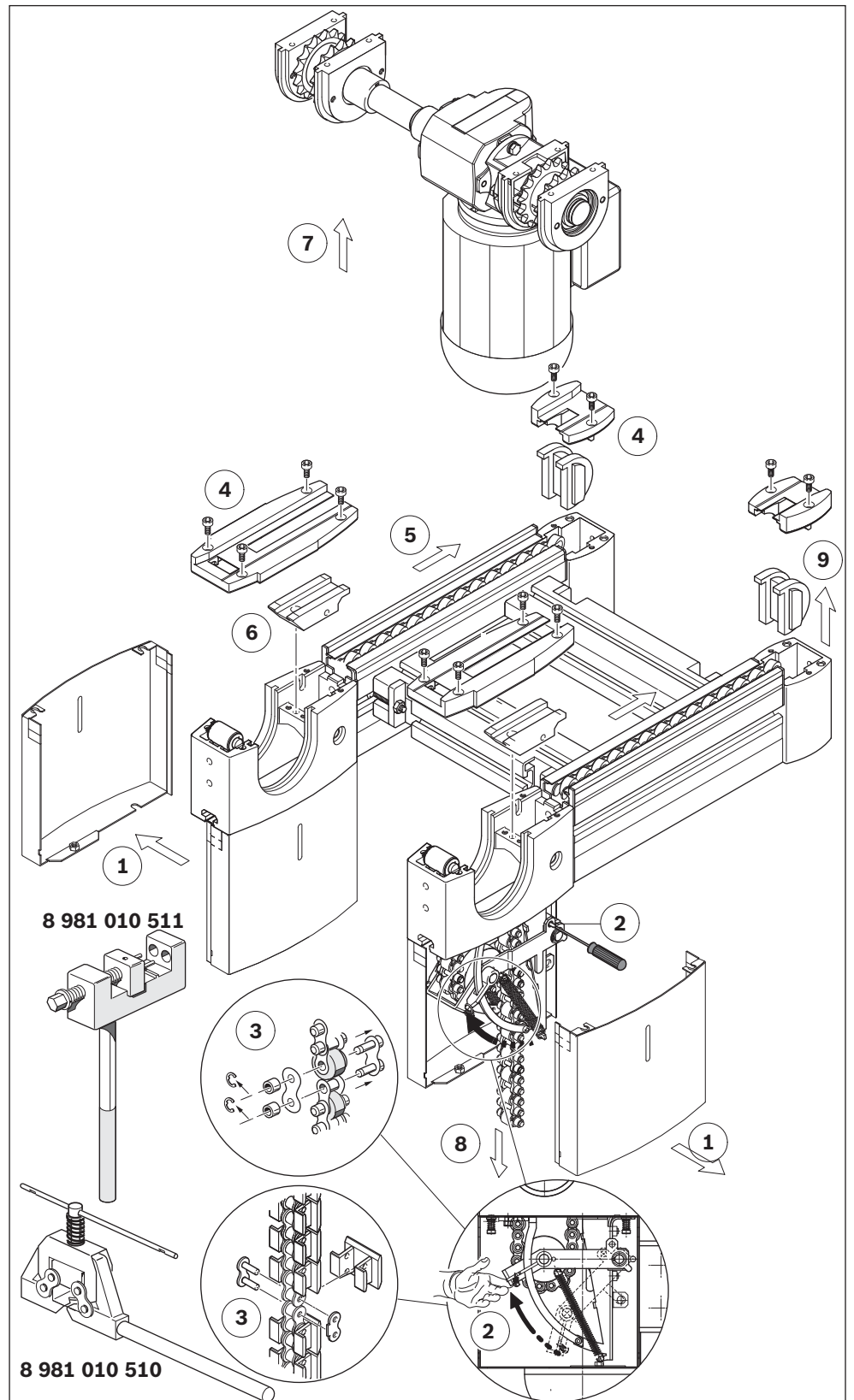
Fig. 41: Exchanging the conveyor chain: BS 2/C-100, ...-250, BS 2/R-300, ...-700, MA = R/L (2/2)

10.4.17 Exchanging the conveyor chain:**BS 2/C-100, BS 2/R-300, BS 4/R-300 motor mounting (MA) = M****Note:**

Perform the work steps on both sides at the same time.

Dismount the chain:

1. Disassemble the external housing element halves.
2. Secure the chain tensioner.
3. Open the chain with the disassembly tool³⁾.
- ³⁾ Disassembly tool:
 - For the flat top chain: **3 842 010 510**
 - For the accumulation roller chain: **3 842 010 511**
4. Disassemble the covers on the drive and return heads.
5. Pull the chain back until the drive head is exposed.
6. Remove the slider.
7. Dismount the drive train.
8. Pull the used chain downwards from the BS 2....
9. Remove the slider from the return head.

**Fig. 42: Exchanging the conveyor chain BS 2/C-100, BS 2/R-300, MA = M (1/3)**

Mount the chain:

10. Pull the new chain⁵⁾ up to the return head with a pulling aid.

⁵⁾ **BS 2/C..., BS 2/R...:**

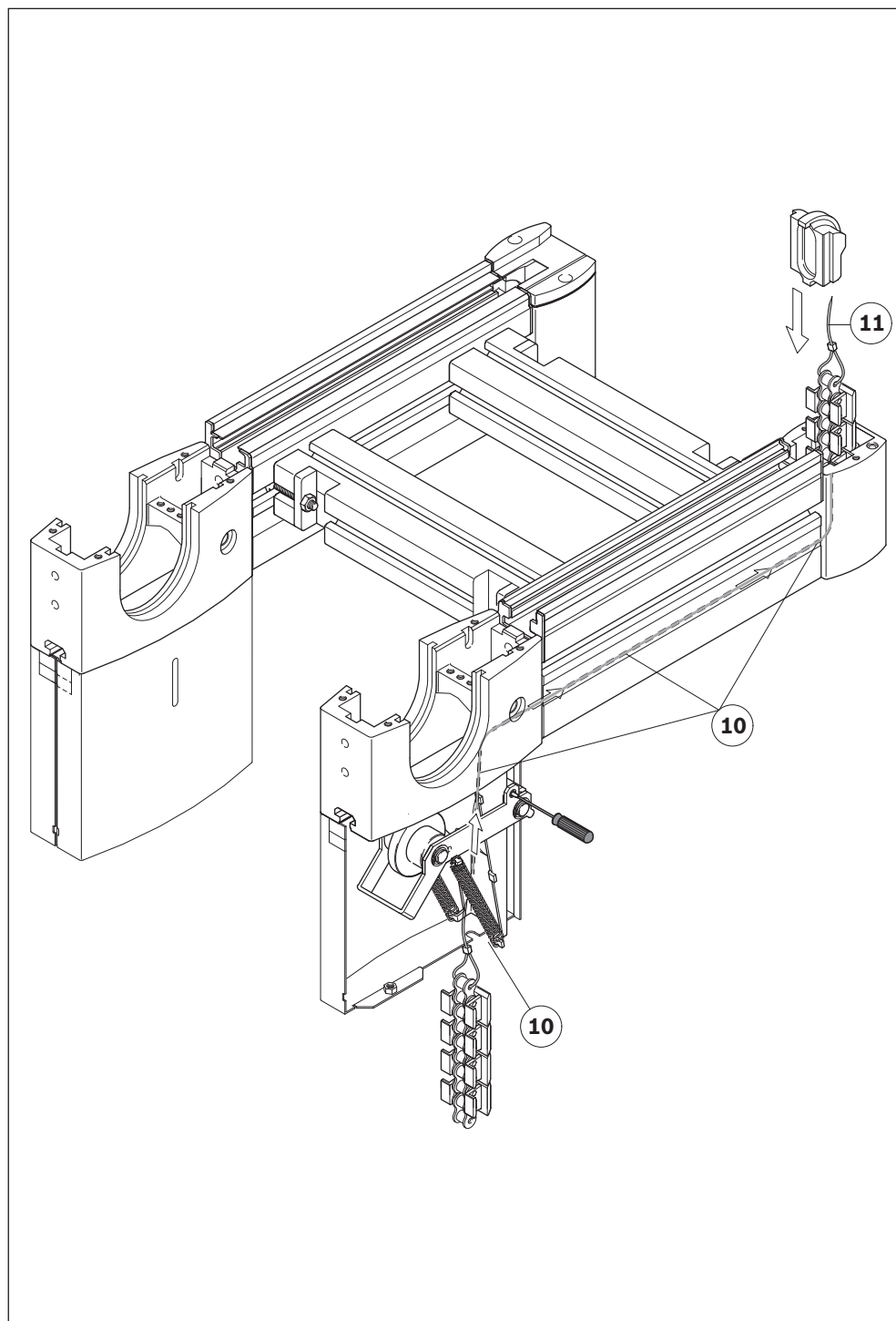
Note the direction of movement of the chain ↻ Fig. 38, page 56.

11. Hold the chain up perpendicularly and insert the slider into the return head.



Note:

For the next assembly step you will need a helper or a lift aid.



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Fig. 43: Exchanging the conveyor aid: BS 2/C-100, BS 2/R-300, MA = M (2/3)

12. Pull the chain in the top guide profile up to the drive head.
13. Hold the drive train over the drive heads.
14. Lead the chain over the drive wheels through the drive head downwards to the chain tensioner.
15. Insert the drive train into the drive heads.
16. Lift the chain up slightly and place the slider into the drive heads.
17. Mount the covers on the drive and return head
18. With the disassembly tool remove enough excess chain links to be able to close the chain as tightly as possible at the tension wheel.
19. Lubricate the master link and close the chain.
20. Release the chain tensioner.
Check the tension of the chain.
21. Mount the external housing element halves.

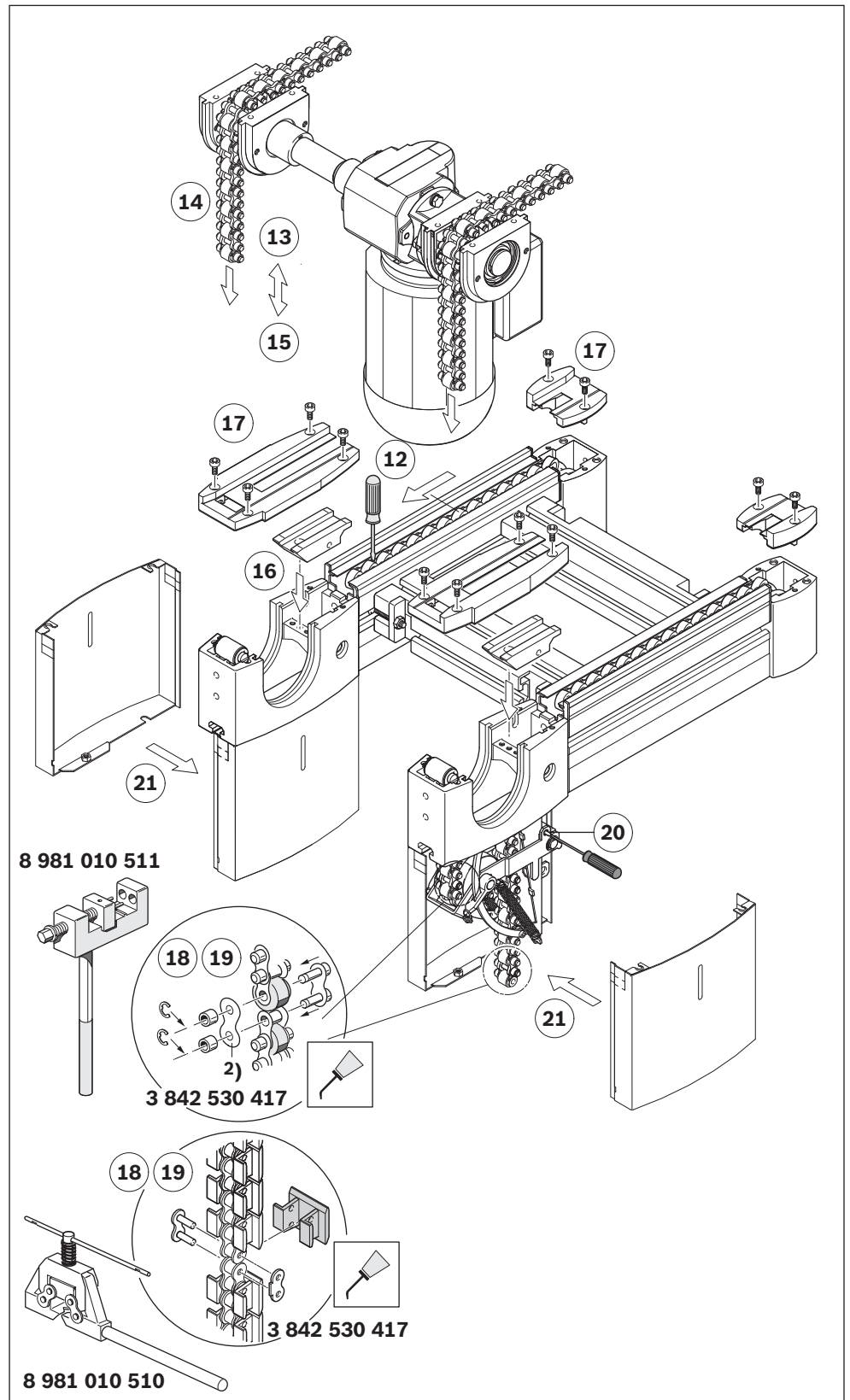
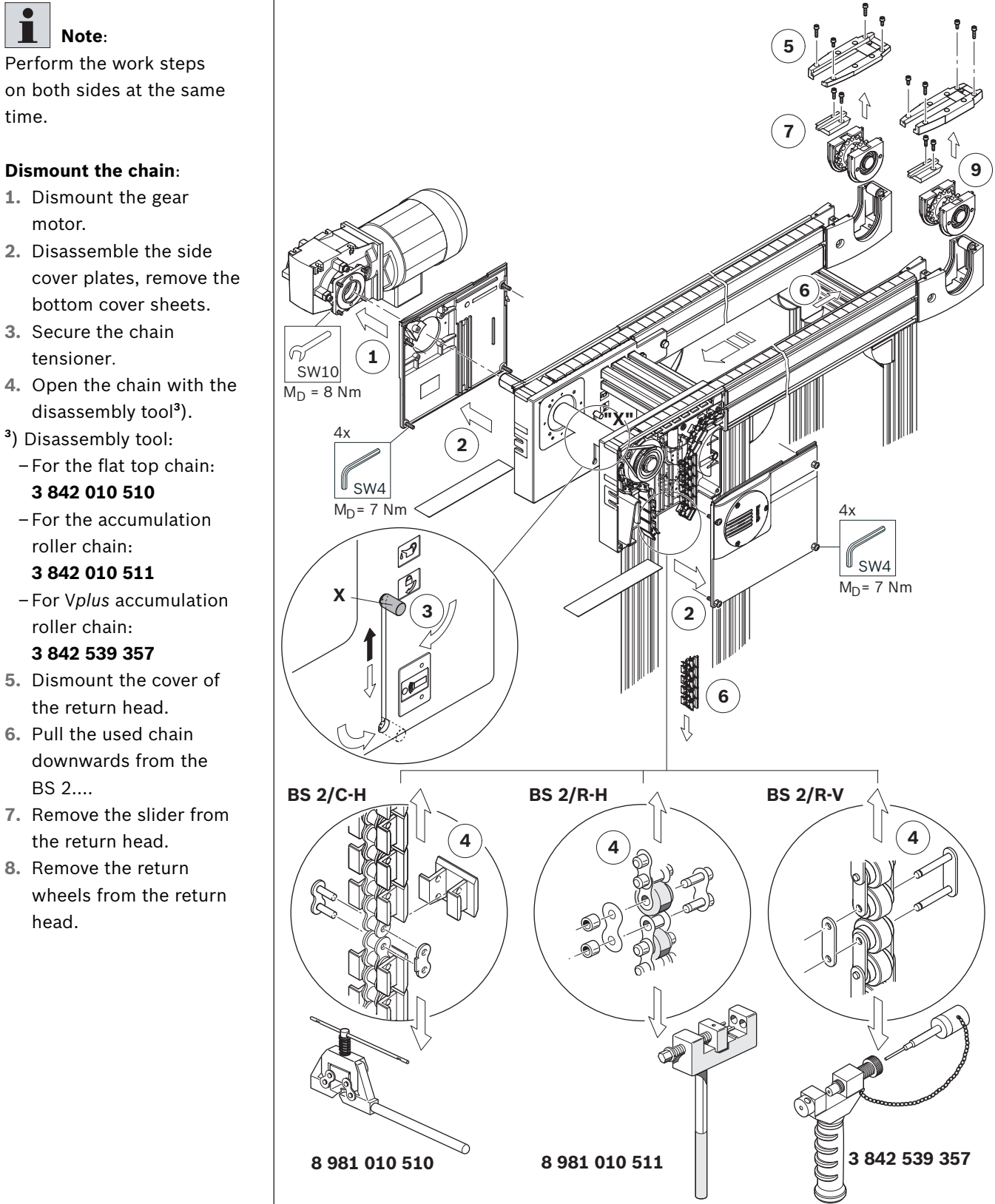


Fig. 44: Exchanging the conveyor chain: BS 2/C-100, BS 2/R-300, MA = M (3/3)

10.4.18 Exchanging the conveyor chain:**BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, motor mounting (MA) = R/L**

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Fig. 45: Exchanging the conveyor chain: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, MA = R/L (1/3)

Mounting the chain:

9. Pull the new chain⁵⁾ up to the return head with a pulling aid.

⁵⁾ **BS 2/C..., BS 2/R...**

Note the direction of movement of the chain → Fig. 38, page 56.

10. Lay the chain around the return wheel in the return head.

11. Mount the slider into the return head.

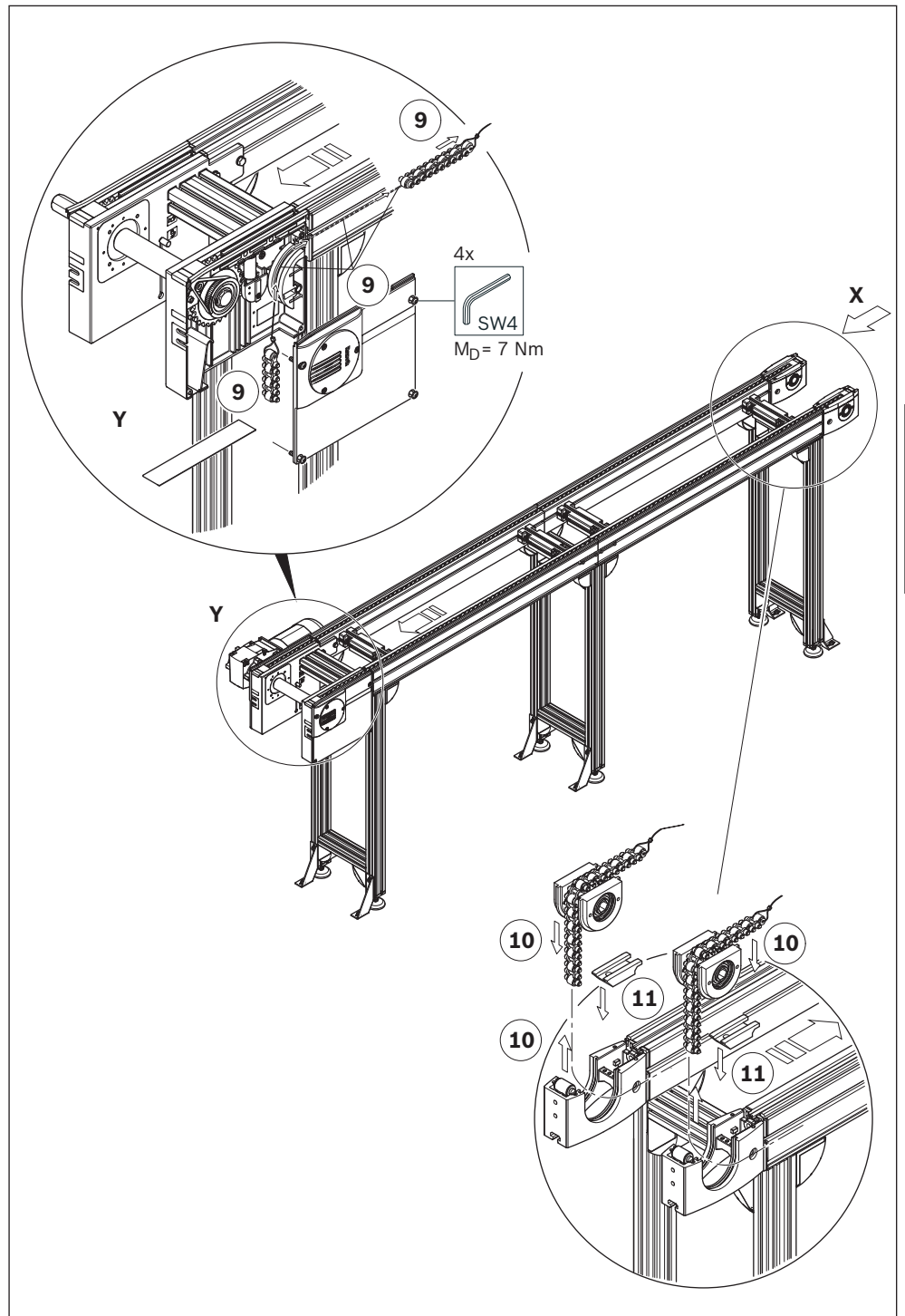


Fig. 46: Exchanging the conveyor chain: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, MA = R/L (2/3)

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12. Pull the chain in the top guide profile up to the drive head.
13. Position the chain on the drive wheel.
14. Turn the drive wheels in the transport direction until the chain appears on the chain tensioner.
15. With the disassembly tool remove enough excess chain links to be able to close the chain as tightly as possible at the chain tensioner.
16. Lubricate the master link and close the chain.
17. Release the chain tensioner.
18. Mount the bottom cover sheets and the side cover plates.
19. Mount the gear motor.

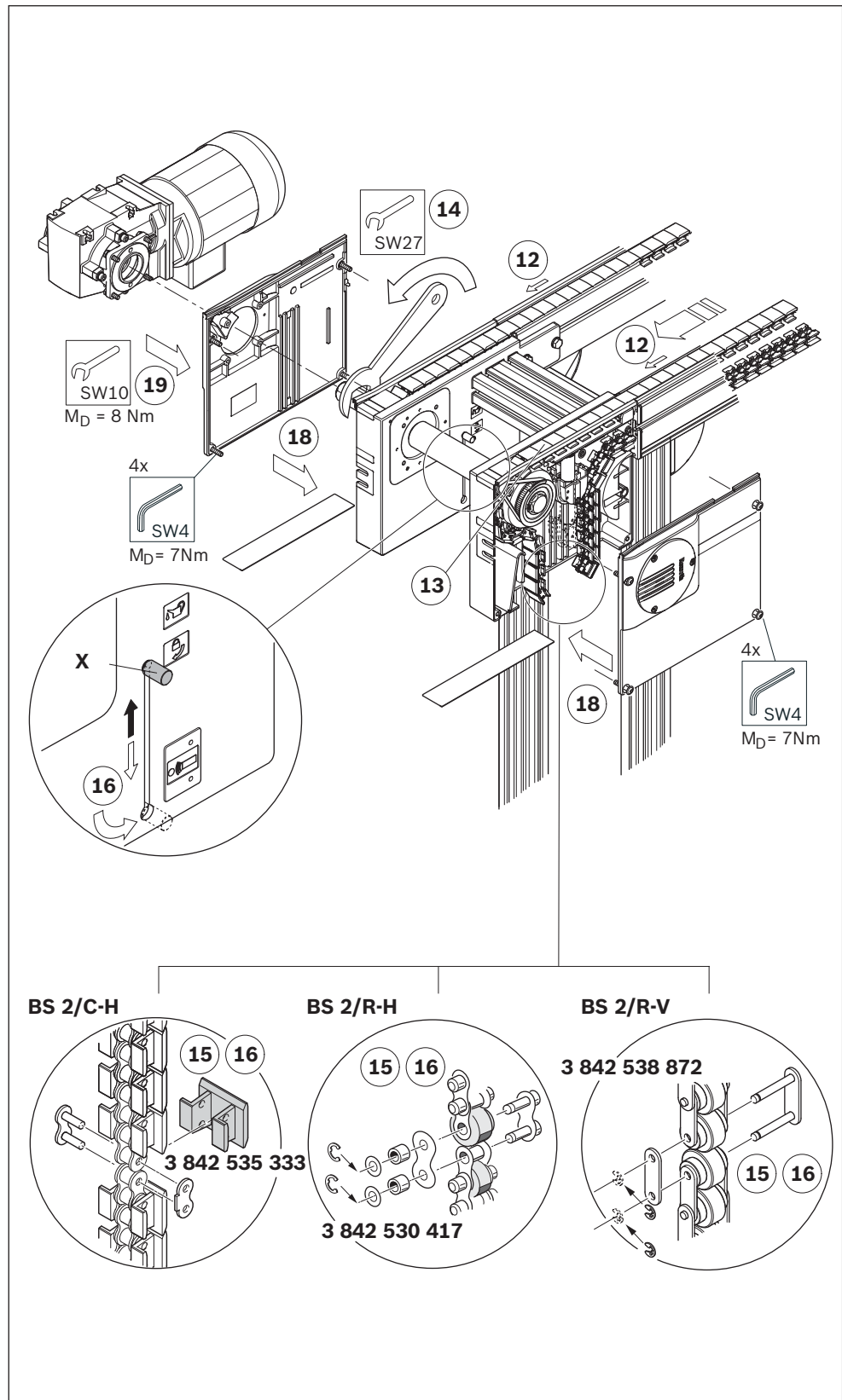


Fig. 47: Exchanging the conveyor chain: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, MA = R/L (3/3)

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10.4.19 Exchanging the conveyor chain:

BS 2/R-H, reversible, BS 2/R-V, reversible, motor mounting (MA) = R/L

**Note:**

Perform the work steps on both sides at the same time.

Dismount the chain:

1. Dismount the gear motor.
 2. Disassemble the side cover plates, remove the bottom cover sheets.
 3. Disassemble the external housing element halves.
 4. Secure the chain tensioners to the drive and the return unit.
 5. Open the chain with the disassembly tool³⁾ on the return unit.
- ³⁾ Disassembly tool:
- For the accumulation roller chain:
3 842 010 511
 - For *Vplus* accumulation roller chain:
3 842 539 357
6. Dismount the cover of the return head.
 7. Pull the used chain downwards from the BS 2....
 8. Remove the slider from the return head.

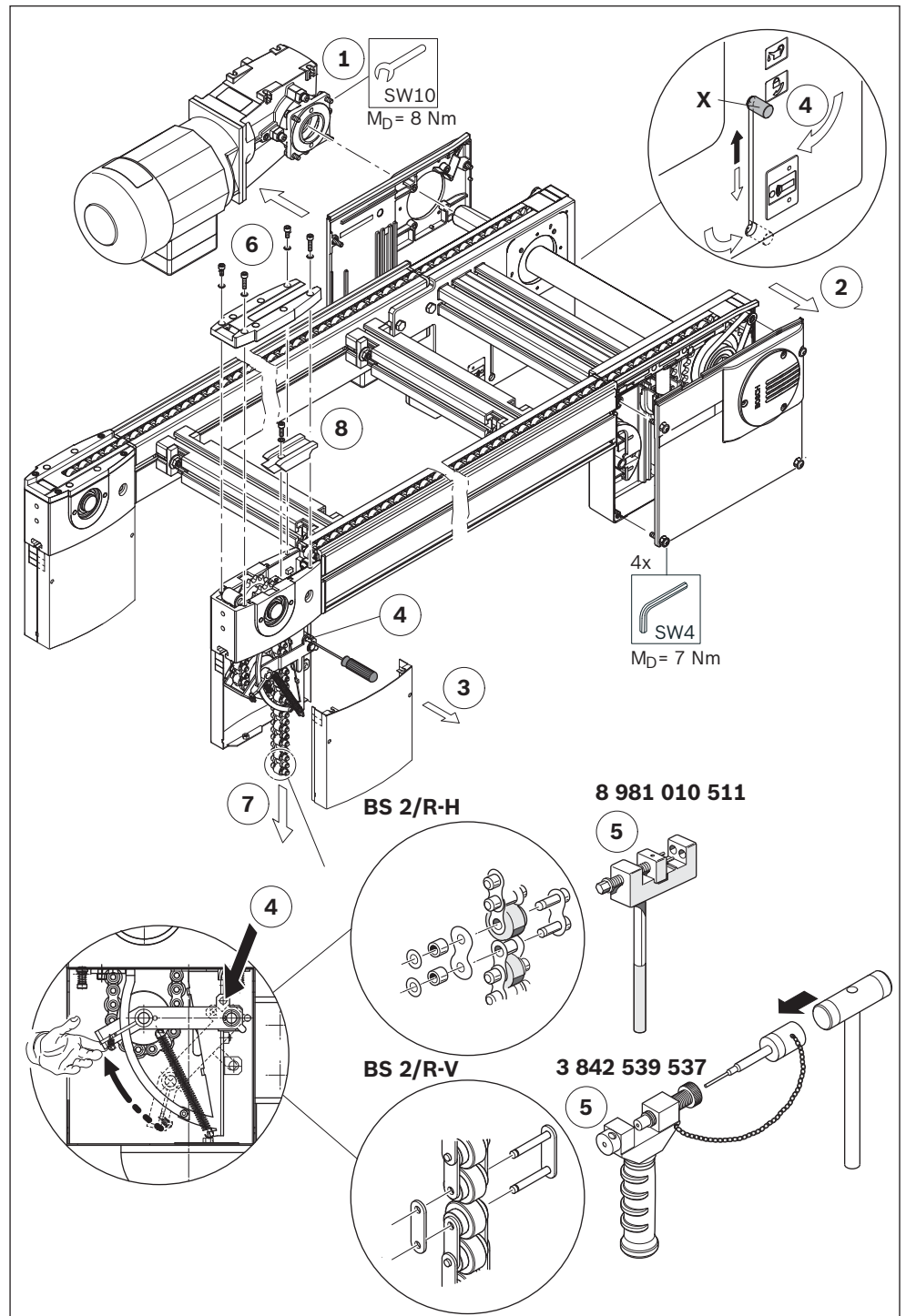


Fig. 48: Exchanging the conveyor chain: BS 2/R-H, reversible, BS 2/R-V, reversible (1/2)

Mount the chain:

9. Pull the new chain⁶⁾ up to the return head with a pulling aid.

⁵⁾ **BS 2/C..., BS 2/R...:**

Note the direction of movement of the chain → Fig. 38, page 56.

10. Lay the chain around the chain tensioner and the drive wheel and pull it in the top guide profile up to the return head.

11. With the disassembly tool remove enough chain links to be able to close the chain as tightly as possible at the tension wheel.

12. Lubricate the master link and close the chain.

13. Release the chain tensioner. Check the tension of the chain.

14. Mount the external housing element halves.

15. Mount the bottom cover sheets and the side cover plates.

16. Mount the gear motor.

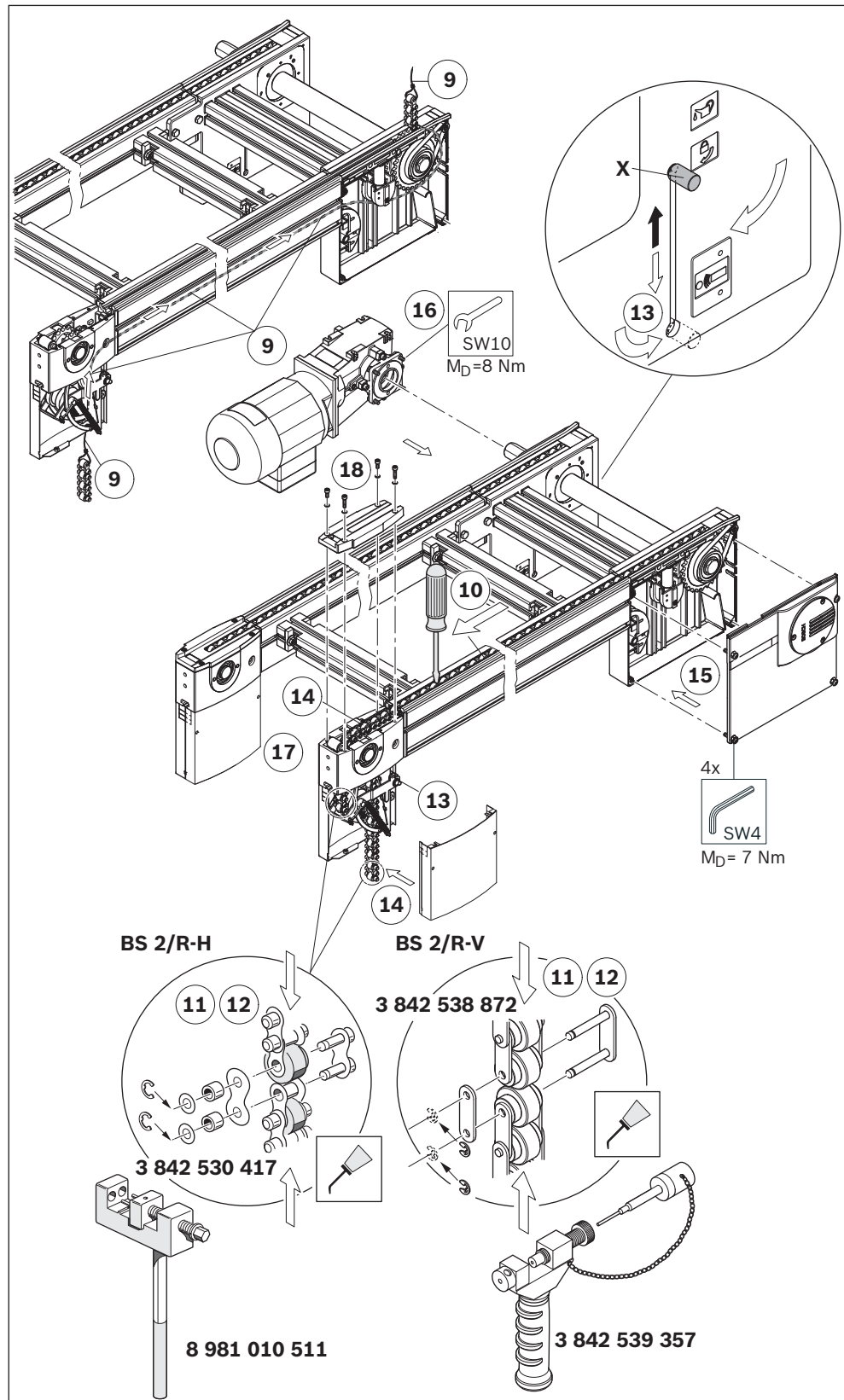


Fig. 49: Exchanging the conveyor chain: BS 2/R-H, reversible, BS 2/R-V, reversible (2/2)

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10.4.20 Exchanging the relief roller/connection roller toothed belt: BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, motor mounting (MA) = R/L



Note:

Perform the work steps on both sides at the same time.

1. Dismount the gear motor.
2. Disassemble the side cover plates.
3. Disassemble the toothed belt.
Check the connection roller for wear and exchange if necessary: Pull the connection roller off the axle, first insert the new contact plate, then the new connection roller on the axle.
4. Position the new toothed belt over the toothed belt wheel.
5. Turn the drive wheels in the transport direction, at the same time position the toothed belt over the pinion of the connection roller.
6. Mount the side cover plates.
7. Mount the gear motor.

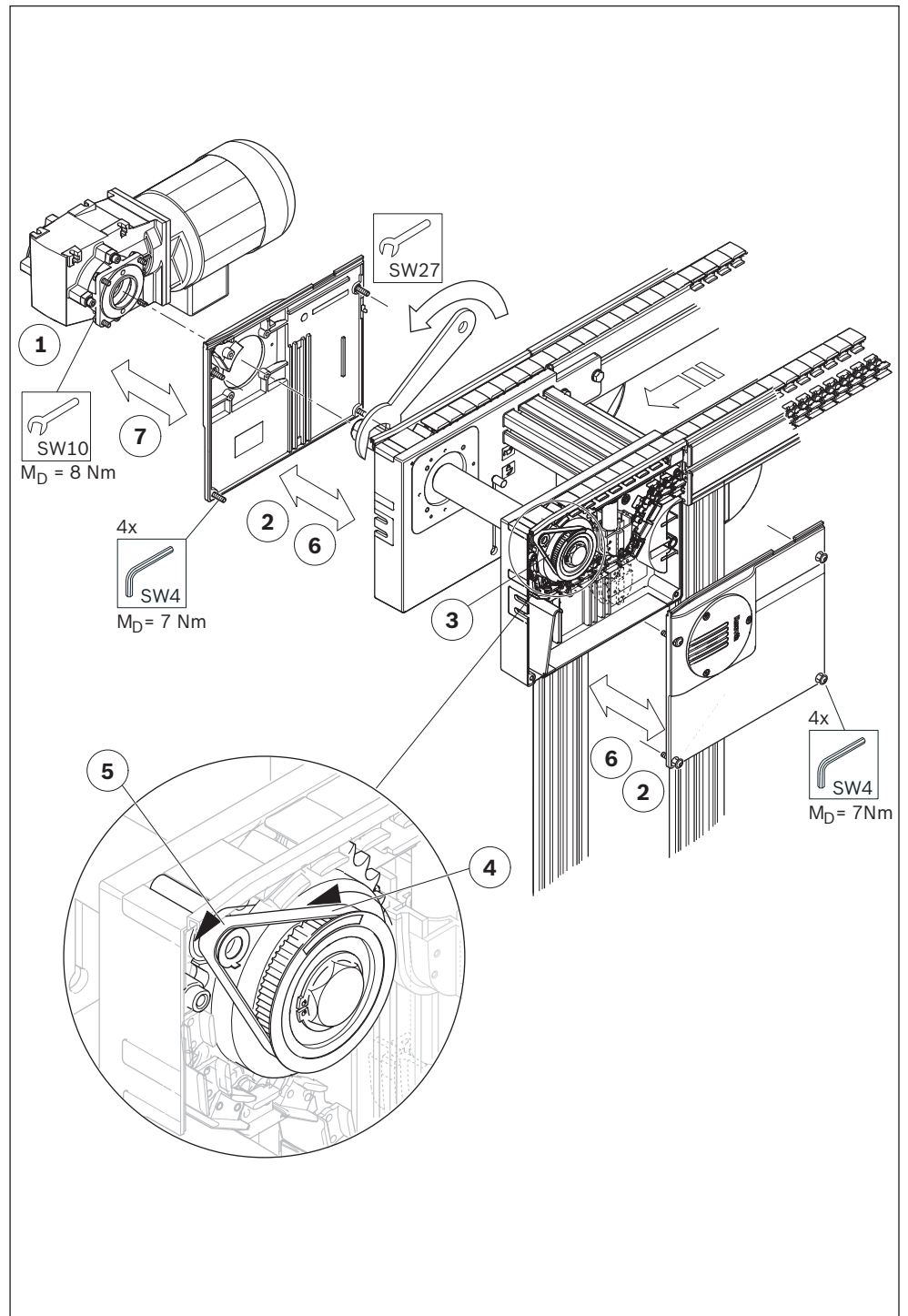
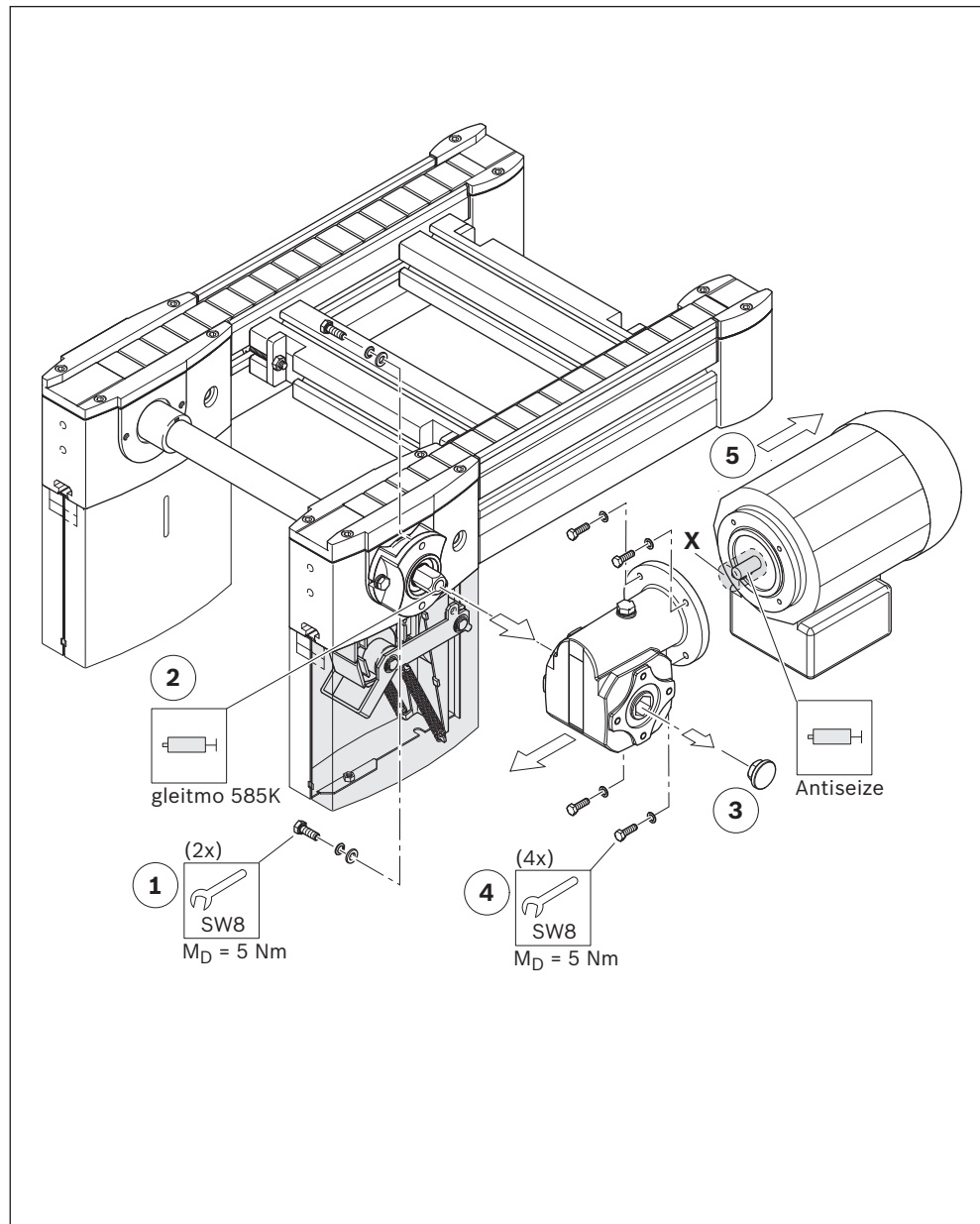


Fig. 50: Exchanging the connection roller/connection roller toothed belt

10.4.21 Exchanging the motor and/or gear:**BS 2/C-100, BS 2/R-300, BS 4/R-300, motor mounting (MA) = R/L**

If only the motor is to be exchanged, begin with step 4.

1. Loosen the hexagonal screws on the flange.
2. Remove the motor gear combination from the hexagonal shaft.
3. Remove the cover plugs from the faulty gear and fit onto the new gear.
4. Loosen the hexagonal screws on the gear flange.
5. Disconnect the faulty gear from the motor.
6. Remove the yellow protective cap (X) from the shaft on the new motor.
Grease the motor shaft.
7. Mount the motor.
8. Assemble the motor/gear combination.



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Fig. 51: Exchanging the motor and/or gear, motor mounting (MA) = R/L**Note:**

- The plane surfaces on the motor and gear must be undamaged.
- The hub of the gear has already been greased with 'Anti-Seize' at the factory.
- Do **not** tilt the motor, make sure there is enough clearance for assembling the motor.
- Position the motor correctly (terminal box!) and mount the motor in the gear.
If the motor is not properly positioned: do **NOT** turn it. Disconnect the motor from the gear and assemble it again.

10.4.22 Exchanging the motor and/or gear:**BS 2/C-100, BS 2/R-300, BS 4/R-300, motor mounting (MA) = M**

For dismantling the drive train see Exchanging the conveyor chain, page 59, step 1 to step 7.

The drive train does not have to be dismantled if only the motor has to be replaced.

In that case begin with step 4.

1. Loosen the hexagonal screws on the flange.
2. Disconnect the motor/gear combination from the drive train.
3. Loosen the hexagonal screws on the gear flange.
4. Disconnect the faulty gear from the motor.
5. Remove the yellow protective cap (X) from the shaft on the new motor.
Grease the motor shaft.
6. Assemble the motor.
7. Assemble the drive train.

For assembling the drive train see Exchanging the conveyor chain, page 61, step 12 to step 21.

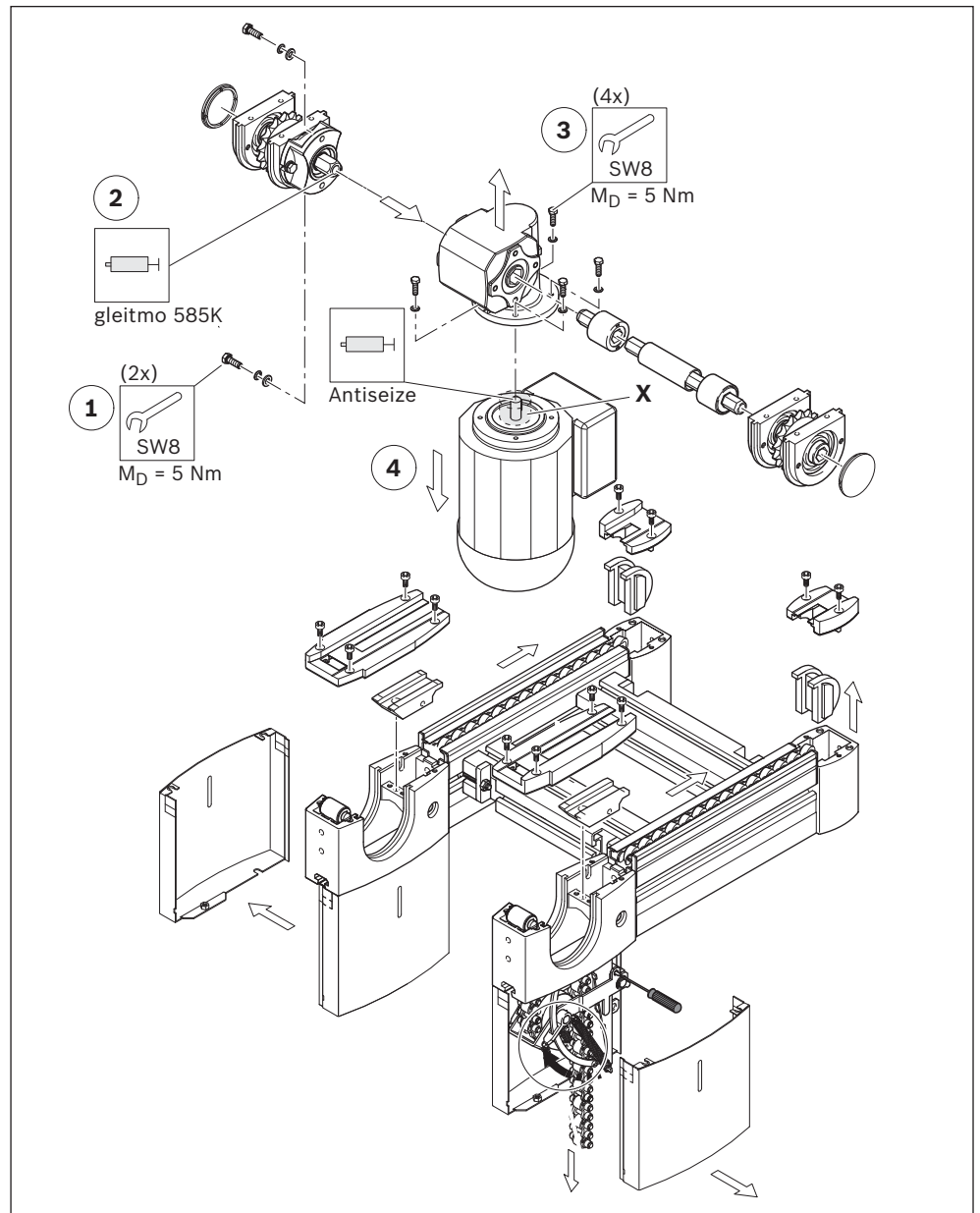


Fig. 52: Exchanging the motor and/or gear, motor mounting (MA) = M

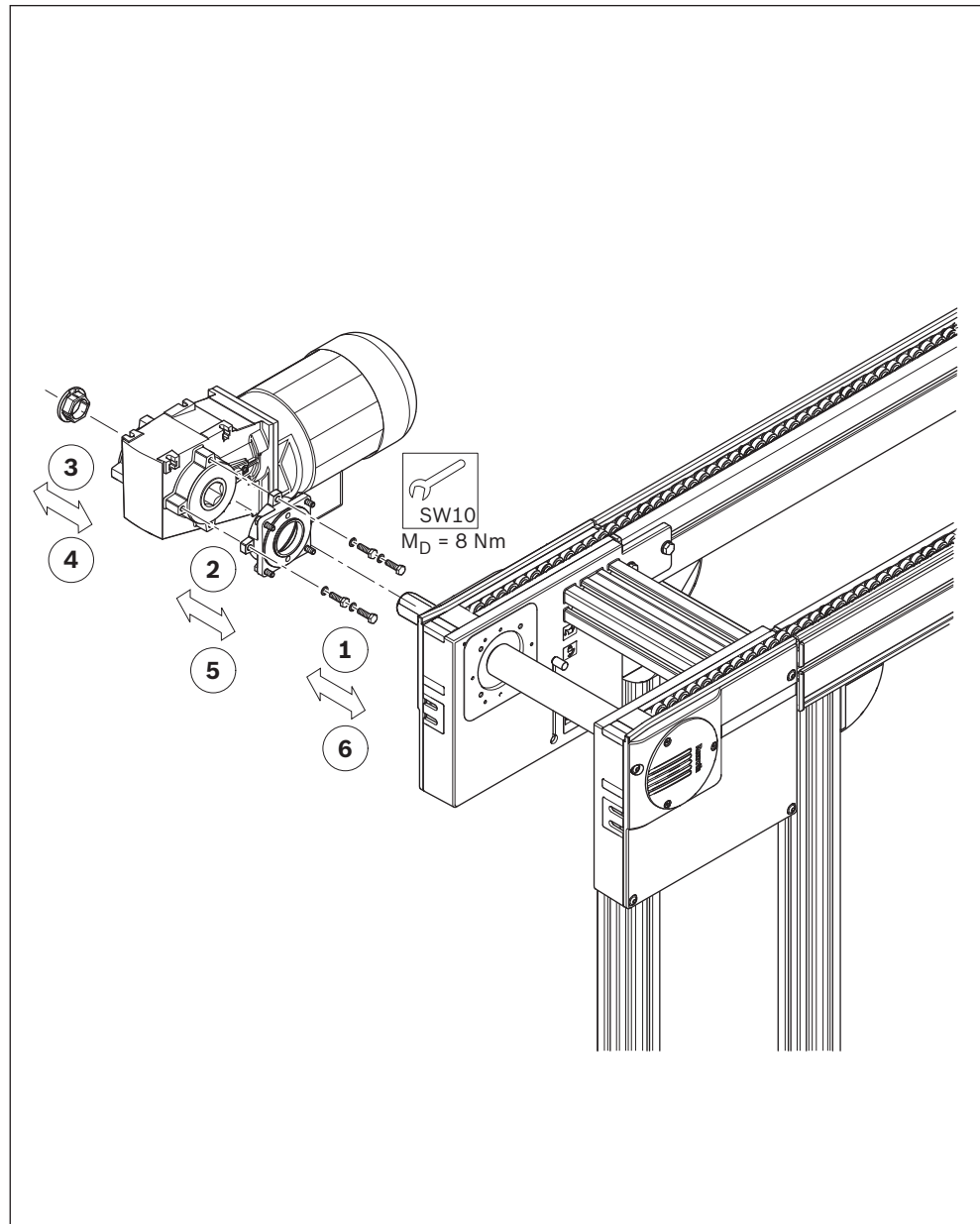
**Note:**

- The plane surfaces on the motor and gear must be undamaged.
- The hub of the gear has already been greased with 'Anti-Seize' at the factory.
- Do **not** tilt the motor, make sure there is enough clearance for assembling the motor.
- Position the motor correctly (terminal box!) and mount the motor in the gear.
If the motor is not properly positioned: do **NOT** turn it. Disconnect the motor from the gear and assemble it again.

10.4.23 Exchanging the gear motor:**BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, motor mounting (MA) = R/L****Note:**

The gear motor can only be exchanged completely. Separating the motor from the gear is not permitted!

1. Dismount the gear motor.
2. Disassemble the flange from the gear motor.
3. Disassemble the blanking plug.
4. Assemble the blanking plug on the new gear motor.
5. Assemble the flange on the new gear motor.
6. Mount the gear motor.



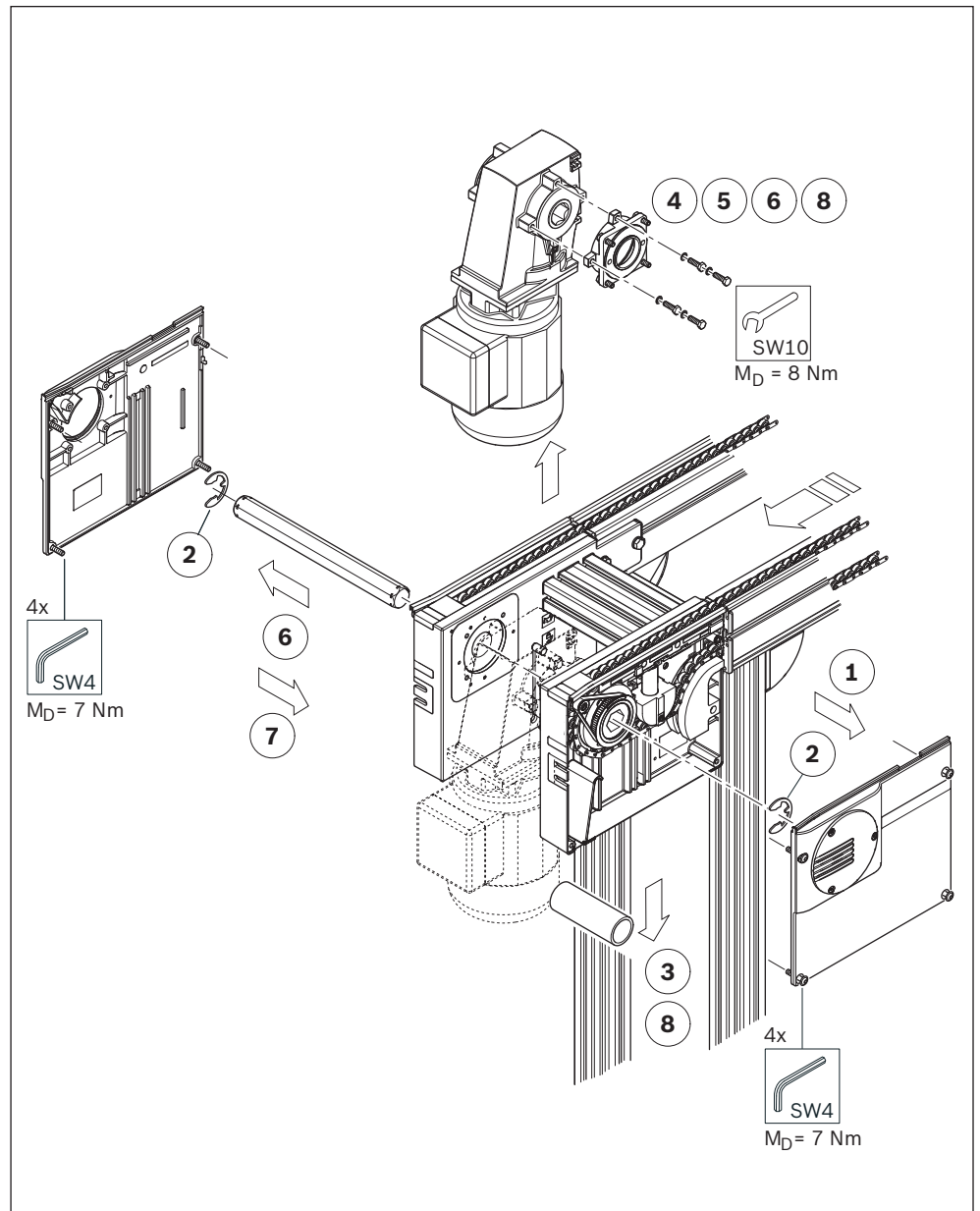
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Fig. 53: Exchanging the gear motor, motor mounting (MA) = R/L

10.4.24 Exchanging the gear motor:**BS 2/C-H, BS 2/R-H, BS 2/R-V-1200, motor mounting (MA) = M****Note:**

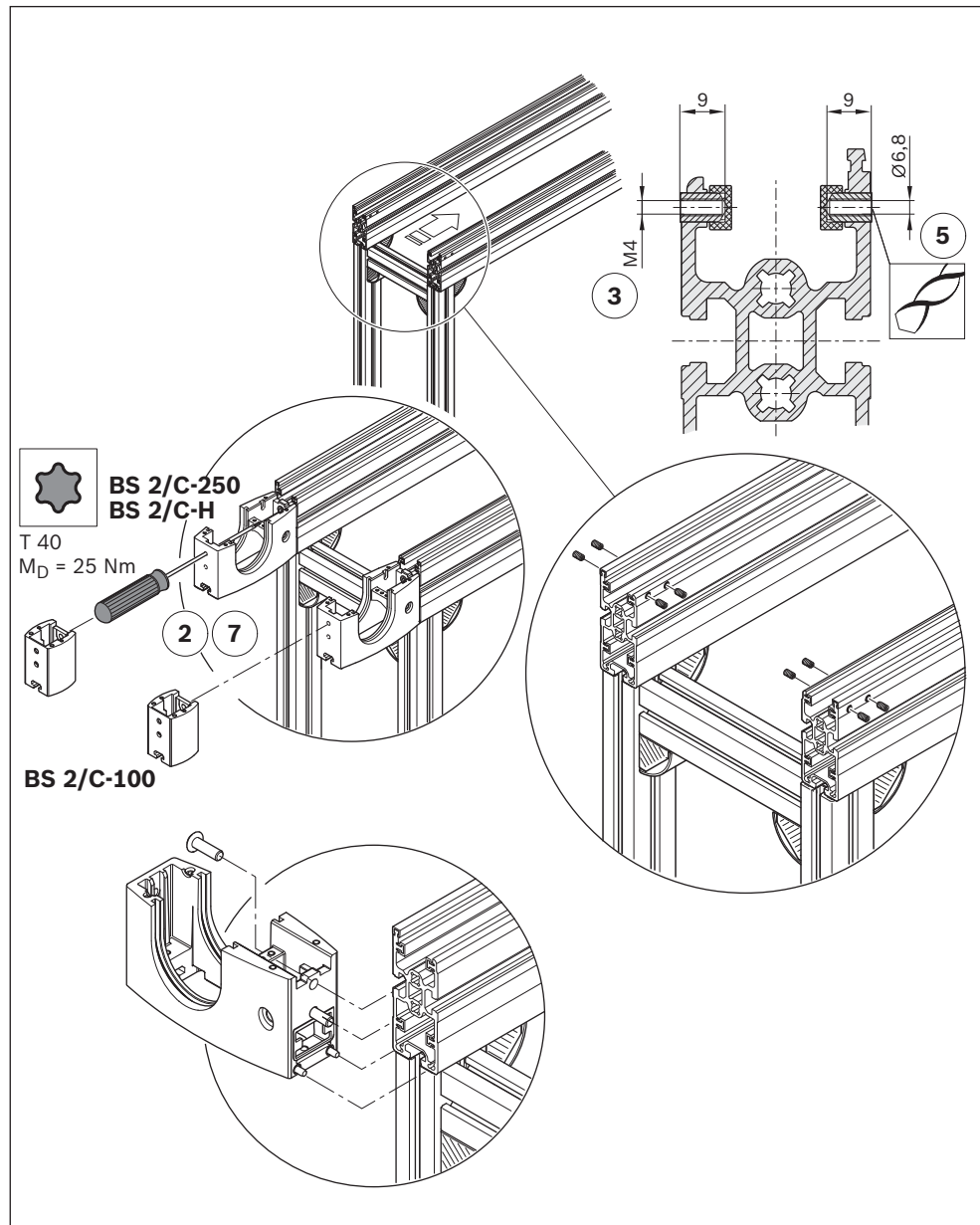
The gear motor can only be exchanged completely. Separating the motor from the gear is not permitted!

1. Disassemble the side cover plates.
2. Remove the retainer rings from the hexagonal shaft.
3. Push the hexagonal shaft out of the drive. Keep the sheath tube for reusing.
4. Disassemble the flange from the gear motor.
5. Assemble the flange on the new gear motor.
6. Assemble the gear motor and tighten the screws by hand.
7. Push the hexagonal shaft into the drive. Attach the sheath tube. Secure the hexagonal shaft with retainer rings.
8. Once the gear motor is centered through the hexagonal shaft, tighten the screws firmly.

**Fig. 54: Exchanging the gear motor, motor mounting (MA) = M**

**10.4.25 Exchanging the glide profiles:
BS 2/C-100, BS 2/C-250, BS 2/C-H**

1. Dismount the chain, see pages 57/59/62.
2. Dismount the return head.
3. Disassemble the locking bolts.
4. Exchange the glide profiles.
5. Fix the glide profiles and drill them open.
6. Assemble the locking bolts.
7. Mount the return head.
8. Mount the chain, see pages 58/61/64.



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Fig. 55: Exchanging glide profiles: BS 2/C-100, BS 2/C-250, BS 2/C-H

10.5 Spare parts

For spare parts, see the MTparts spare parts list, **3 842 529 770**.

11 Decommissioning

The product is a component that does not have to be decommissioned. As a result, this chapter in these instructions does not contain any information.

12 Disassembly and Exchange

WARNING

High electrical voltage!

Danger of severe injuries or death due to electric shock.

- Make sure the relevant system component is not under pressure or voltage before performing any maintenance or repair work.
- Protect the system against being switched on.

High pneumatic pressure!

Danger of severe injuries or death.

- Switch off the compressed air supply on the relevant system component before performing any maintenance or repair work.
- Protect the system against being switched on.

Lifted loads may fall!

Falling objects may result in severe injuries (or even death).

- Always use lifting equipment with a sufficiently high load bearing capacity (see the shipping documents for product weight)
- Before lifting the product, make sure that the carrying straps are correctly fastened!
- Secure the product to prevent toppling while lifting!
- Make sure that no one is in the danger area when raising and lowering, with the exception of the operator!

12.1 Preparing the product for storage/further use

- Only store the product on a flat surface.
- Protect the product against mechanical influences.
- Protect the product against environmental influences such as contamination and humidity.
- Observe the ambient conditions, see page 75.
- For belt sections with an assembled motor and/or assembled lubrication unit: Support the belt section so that there is no load on the motor or lubrication unit.

13 Disposal

- The materials used are environmentally sustainable.
- They may be recycled or reused (if components are converted or replaced).
Recyclability is ensured by the selection of material and the possibility to take the components apart.
- Careless disposal of the product may pollute the environment.
- Dispose of the product in accordance with the currently applicable national regulations in your country.

14 Extension and Conversion

- Do not convert the product.
- The Bosch Rexroth warranty only applies to the delivered configuration and extensions taken into account in the configuration. The manufacturer can accept no warranty claims if the system is converted or extended in a manner not listed in these instructions.

15 Troubleshooting and Resolution

- If you are unable to remedy the error, please get in touch with one of the contact addresses listed at www.boschrexroth.com.

16 Technical Data

- For dimensions, see the sales catalog TS *2plus*, 3 842 531 138.
- Maximum load/section load:
 - BS 2/C-100 belt section: max. 100 kg / 1.0 kg/cm of support surface length
 - BS 2/C-250 belt section: max. 250 kg / 1.0 kg/cm of support surface length
 - BS 2/C-H belt section: max. 400 kg / 2.0 kg/cm of support surface length
 - BS 2/R-300 belt section: max. 300 kg / 1.5 kg/cm of support surface length
 - BS 4/R-300 belt section: max. 300 kg / 1.5 kg/cm of support surface length
 - BS 2/R-700 belt section: max. 700 kg / 1.5 kg/cm of support surface length
 - BS 4/R-700 belt section: max. 700 kg / 1.5 kg/cm of support surface length
 - BS 2/R-H belt section: max. 1200 kg / 2.0 kg/cm of support surface length
 - BS 2/R-V-1200 belt section: max. 1200 kg / 1.5 kg/cm of support surface length
- Noise emissions: < 70 dB (A)

16.1 Ambient conditions

- The transfer systems have been designed for stationary use in a location that is protected from the elements.
- Operating temperature
 - +5°C to +40°C
 - 5°C to +60°C with 20% reduced load
- Storage temperature –25°C to +70°C
- Relative humidity 5% to 85%
- Air pressure > 84 kPa, appropriate height < 1400 m above sea level
- Permissible floor load: 1000 kg/m²
- The load values of the electrical drives are reduced by 15% when the system is set up in a location with an altitude > 1400 m.
- Avoid molds, fungi, rodents, and other vermin.
- Do not install or operate near industrial systems with chemical emissions.
- Do not install or operate near sandy or dusty sources.
- Do not install or operate in areas that are regularly jarred by high forces caused by e.g. presses or heavy machinery.
- Resistant to many common media used in production such as water, mineral oil, grease, and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, such as test oil, doped oils, aggressive detergents, solvents, or brake fluid.
- Avoid long-term contact with acidic or basic reacting materials.

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