

ROBOTICS

# Product manual, spare parts

## IRB 460



Trace back information:  
Workspace 20D version a10  
Checked in 2020-12-16  
Skribenta version 5.3.075

**Product manual, spare parts**

**IRB 460**

**M2004**

**Document ID: 3HAC040628-001**

**Revision: L**

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# Overview of this manual

## About this manual

This manual contains spare parts for:

- IRB 460

## Usage

This manual shall be used as a complement to the Product manual during:

- maintenance work
- repair work.

## Who should read this manual?

This manual is intended for:

- maintenance personnel
- repair personnel.

## Prerequisites

Maintenance/repair/installation personnel working with an ABB Robot must:

- be trained by ABB and have the required knowledge of mechanical and electrical installation/repair/maintenance work.

## Organization of chapters

The manual is organized in the following chapters:

Chapter	Contents
Spare parts	Complete spare part list and complete list of robot components shown in illustrations.

## References

Reference	Document ID
<i>Product manual - IRB 460</i>	3HAC039842-001
Circuit diagram	3HAC036446-005

## Revisions

Revision	Description
-	First edition
A	<p>This revision includes the following changes:</p> <ul style="list-style-type: none"> <li>• Replaced sealing ring for for the linkage, see <a href="#">Spare parts - linkage and upper / lower rod on page 19</a>.</li> <li>• Added a new sealing structure that contains a support ring, o-ring and radial sealing at the link, see <a href="#">Spare parts - parallel arm and lower arm on page 21</a>.</li> <li>• Added axis-1 gearbox o-rings, see <a href="#">Spare parts - gearboxes on page 11</a>.</li> <li>• New SMB board RMU 101 and new battery pack RMU (3-pole battery contact) added.</li> </ul>

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Revision	Description
B	This revision includes the following changes: <ul style="list-style-type: none"> <li>• Spare parts for a cooling fan are added, see <a href="#">Spare parts - cooling fan for axis-1 motor on page 29</a>.</li> <li>• The position of the battery holder for RMU lithium battery (3-pole battery contacts) has changed. The figure has been updated.</li> </ul>
C	This revision includes the following changes: <ul style="list-style-type: none"> <li>• Spare part number for Sealing ring, Linkage and upper / lower rod, changed.</li> <li>• Spare parts with color Graphite White are added to the spare part lists</li> </ul>
D	This revision includes the following changes: <ul style="list-style-type: none"> <li>• Spare parts with color Graphite White are added to the spare part lists</li> </ul>
E	This revision includes the following changes: <ul style="list-style-type: none"> <li>• The graphite white base spare part number is updated.</li> </ul>
F	This revision includes the following changes: <ul style="list-style-type: none"> <li>• Corrections due to updates in SAP terminology.</li> <li>• Spare part item for turning disk is added and related spare part illustration is updated.</li> <li>• Added additional mechanical stop for axis 1, see <a href="#">Spare parts - additional stop axis-1 on page 30</a>.</li> </ul>
G	Published in release R17.1. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• Updated spare parts due to new standard calibration method (Axis Calibration). <ul style="list-style-type: none"> <li>- Base</li> <li>- Frame</li> <li>- Lower arm</li> <li>- Parallel arm</li> <li>- Tilt unit</li> <li>- Turning disc</li> </ul> </li> </ul>
H	Published in release R17.2. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• <ul style="list-style-type: none"> <li>- Updated spare parts - gearboxes</li> <li>- Updated spare parts - motors</li> <li>- Added section 8.3 Spare parts - others</li> <li>- Added spare part bearing, see <a href="#">Spare parts - parallel arm and lower arm on page 21</a>.</li> </ul> </li> </ul>
J	Published in release R18.1. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• New spare part number for brake release board (was DSQC563)</li> <li>• Added spare part block disc (3HAC046730-001) for design with new sealing structure.</li> </ul>
K	Published in release 20A. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• Changed the spare part number of axis-1 gear box in white color from 3HAC026114-006 to 3HAC040499-001.</li> </ul>
L	Published in release 20D. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• Added spare part Cable harness, Customer Ethernet/CP/CS (3HAC078114-001).</li> </ul>



# Product documentation

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## Categories for user documentation from ABB Robotics

The user documentation from ABB Robotics is divided into a number of categories. This listing is based on the type of information in the documents, regardless of whether the products are standard or optional.

All documents can be found via myABB Business Portal, [www.abb.com/myABB](http://www.abb.com/myABB).

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## Product manuals

Manipulators, controllers, DressPack/SpotPack, and most other hardware is delivered with a **Product manual** that generally contains:

- Safety information.
  - Installation and commissioning (descriptions of mechanical installation or electrical connections).
  - Maintenance (descriptions of all required preventive maintenance procedures including intervals and expected life time of parts).
  - Repair (descriptions of all recommended repair procedures including spare parts).
  - Calibration.
  - Decommissioning.
  - Reference information (safety standards, unit conversions, screw joints, lists of tools).
  - Spare parts list with corresponding figures (or references to separate spare parts lists).
  - References to circuit diagrams.
- 

## Technical reference manuals

The technical reference manuals describe reference information for robotics products, for example lubrication, the RAPID language, and system parameters.

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## Application manuals

Specific applications (for example software or hardware options) are described in **Application manuals**. An application manual can describe one or several applications.

An application manual generally contains information about:

- The purpose of the application (what it does and when it is useful).
- What is included (for example cables, I/O boards, RAPID instructions, system parameters, software).
- How to install included or required hardware.
- How to use the application.
- Examples of how to use the application.

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### Operating manuals

The operating manuals describe hands-on handling of the products. The manuals are aimed at those having first-hand operational contact with the product, that is production cell operators, programmers, and troubleshooters.

# 1 Spare parts - gearboxes

## Spare part list

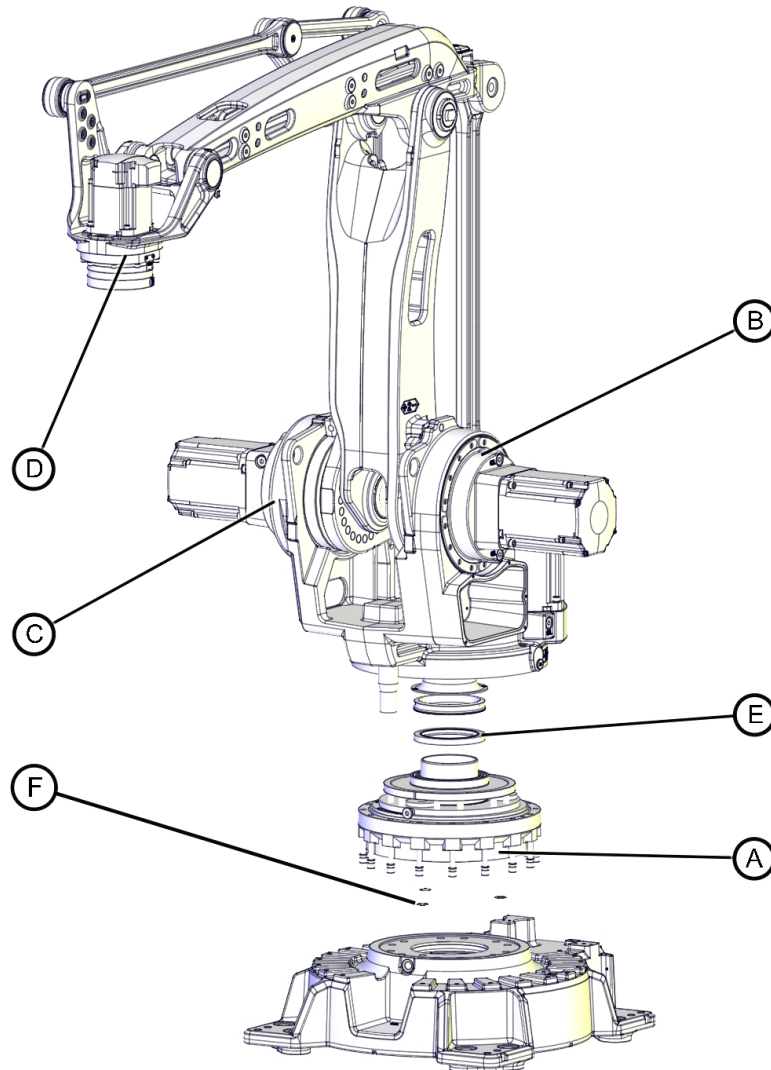
Pos.	Description	Spare part no.	Color	Qty
A	Gearbox axis 1	3HAC040499-001	White	1 pc
		3HAC026114-007	Graphite White	1 pc
B	Gearbox axis 2	3HAC040500-001	White	1 pc
		3HAC054557-001	Graphite White	1 pc
C	Gearbox axis 3	3HAC040500-001	White	1 pc
		3HAC054557-001	Graphite White	1 pc
D	Gearbox axis 6	3HAC040502-001	White	1 pc
		3HAC054558-001	Graphite White	1 pc
E	Oil sealing	3HAC11581-4		1 pc
F	O-ring	3HAB3772-97		3 pcs

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# 1 Spare parts - gearboxes

Continued

## Illustration



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## 2 Spare parts - motors

### Spare part list

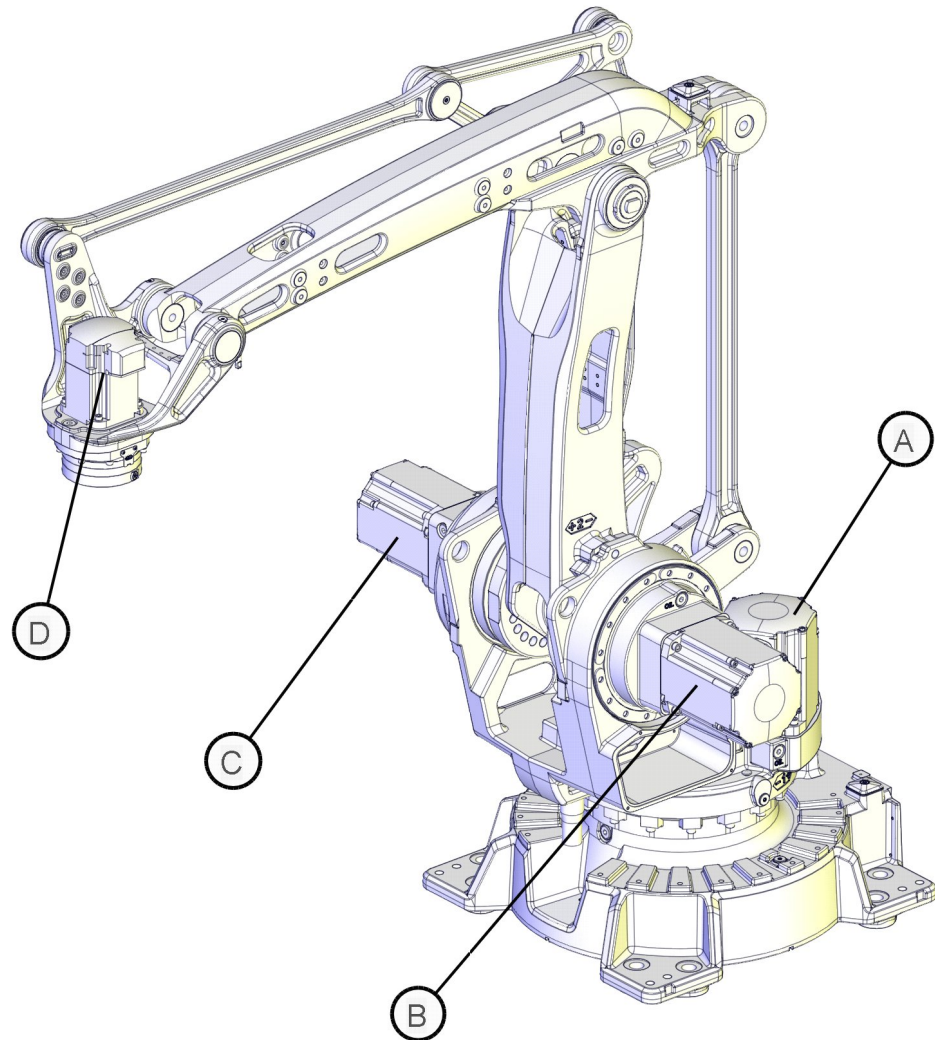
Pos.	Description	Spare part no.	Color	Qty
A	Motor axis 1, including pinion	3HAC037163-003	White	1 pc
		3HAC054559-001	Graphite White	1 pc
B	Motor axis 2, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001	Graphite White	1 pc
C	Motor axis 3, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001	Graphite White	1 pc
D	Motor axis 6, including pinion	3HAC057980-006	White	1 pc
		3HAC024777-002	Graphite White	1 pc

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## 2 Spare parts - motors

Continued

### Illustration



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### 3 Spare parts - upper arm and tilthouse

Spare part list

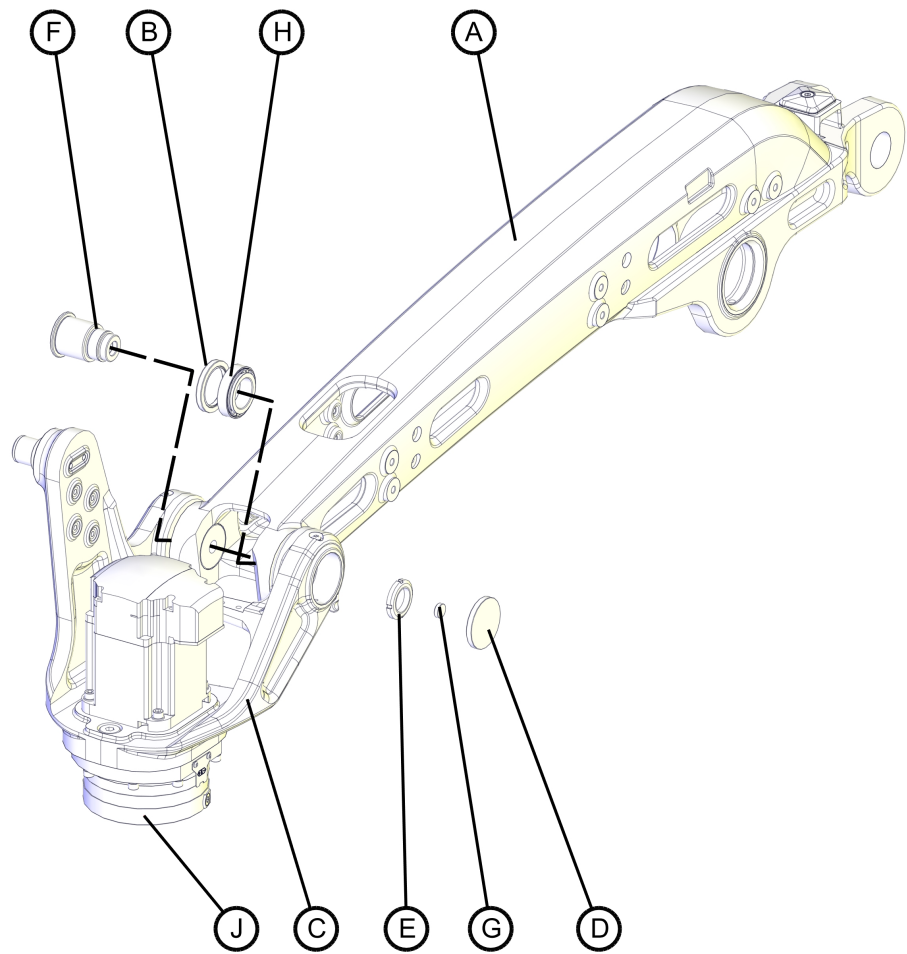
Pos.	Description	Spare part no.	Color	Qty
A	Upper arm including support ring	3HAC036501-005	White	1 pc
		3HAC054561-001	Graphite White	1 pc
B	Radial sealing with dust lip	3HAB3701-35		2 pcs
C	Tilthouse	3HAC036502-006	White	1 pc
		3HAC036502-007	Graphite White	1 pc
D	VK cover	3HAA2166-21		2 pcs
E	Locking nut	21262851-107		2 pcs
F	Shaft	3HAC037193-001		2 pcs
G	VK cover	3HAA2166-17		2 pcs
H	Taper roller bearing	22133802-11		2 pcs
J	Turning disc	3HAC060803-002		1 pc

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### 3 Spare parts - upper arm and tilthouse

Continued

#### Illustration



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## 4 Spare parts - base, frame and parallel rod

### Spare parts list

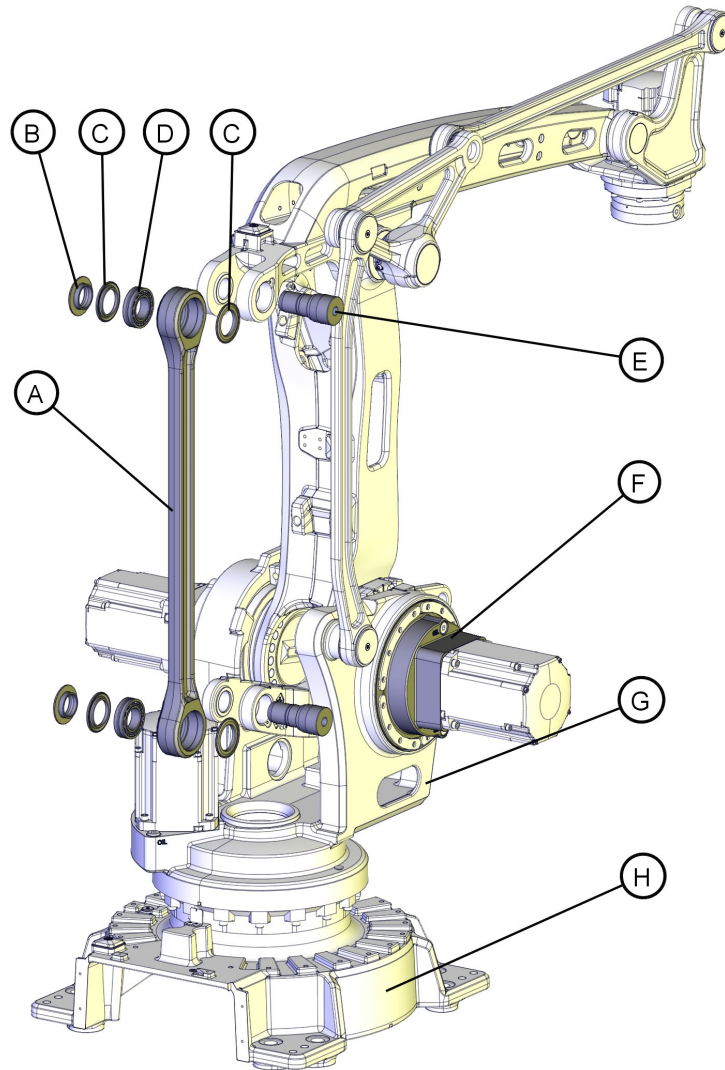
Pos.	Description	Spare part no.	Color	Qty
A	Parallel rod with bearing	3HAC039131-001	White	1 pc
		3HAC054563-001	Graphite White	1 pc
B	Trust washer	3HAC037167-001		2 pcs
C	POM seal	3HAC037168-001		4 pcs
D	Spherical roller bearing	3HAA2167-19		2 pcs
E	Shaft	3HAC037169-001		2 pcs
F	Motor flange	3HAC036507-005	White	2 pcs
		3HAC054564-001	Graphite White	2 pcs
G	Frame	3HAC036496-006	White	1 pc
		3HAC036496-007	Graphite White	1 pc
H	Base	3HAC026771-010	White	1 pc
		3HAC026771-008	Graphite White	1 pc

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## 4 Spare parts - base, frame and parallel rod

Continued

### Illustration



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## 5 Spare parts - linkage and upper / lower rod

### Spare part list

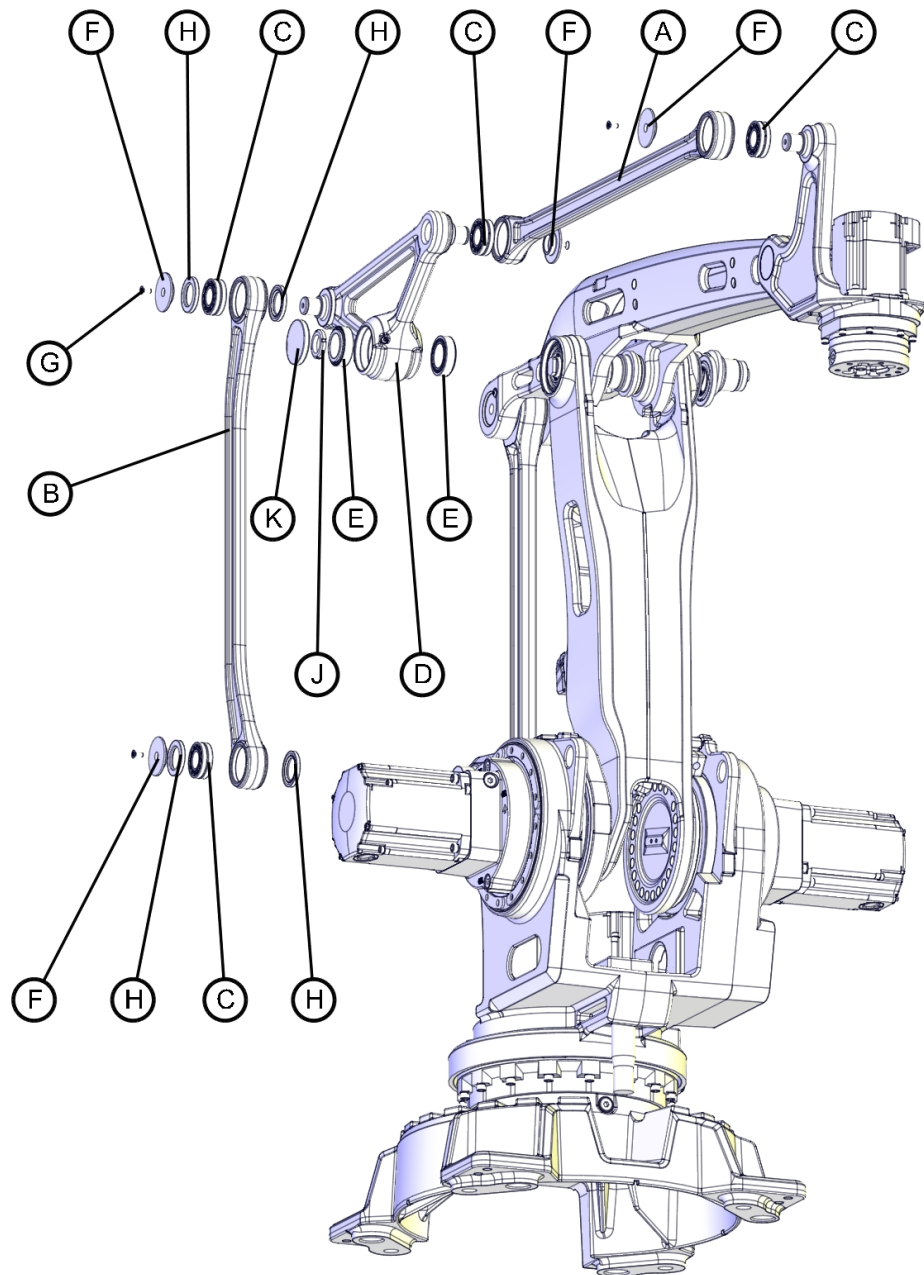
Pos.	Description	Spare part no.	Color	Qty
A	Upper rod system with bearing	3HAC037242-003	White	1 pc
		3HAC054567-001	Graphite White	1 pc
B	Lower rod system with bearing	3HAC037243-003	White	1 pc
		3HAC054568-001	Graphite White	1 pc
C	Spherical roller bearing	3HAA2167-20		4 pcs
D	Link plate system with bearing	3HAC036453-003	White	1 pc
		3HAC054569-001	Graphite White	1 pc
E	Taper roller bearing	3HAA2103-13		2 pcs
F	Locking washer for links	3HAC037177-001		4 pcs
G	Torx counters. head screw	9ADA624-69		4 pcs
H	Sealing ring	3HAB3702-28		8 pcs
J	Lock nut	21262851-108		1 pc
K	VK cover	3HAA2166-28		1 pc

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## 5 Spare parts - linkage and upper / lower rod

Continued

### Illustration



xx110000136

## 6 Spare parts - parallel arm and lower arm

### Spare part list

Pos.	Description	Spare part no.	Color	Qty
A	Parallel arm	3HAC036500-005	White	1 pc
		3HAC036500-006	Graphite White	1 pc
B	Lower arm	3HAC037457-006	White	1 pc
		3HAC037457-007	Graphite White	1 pc
C	Lock nut	21262851-112		2 pcs
D	Support ring	3HAC037191-001		2 pcs
E	Sealing ring (V-ring)	3HAB3732-19		2 pcs
F	Taper roller bearing	22133802-8		2 pcs
G	Sealing ring (T-ring)	3HAC022581-001		2 pcs
H	Sealing ring (V-ring)	2216264-16		2 pcs
J	Shaft, axis 3 side	3HAC037179-001		1 pc
K	Shaft, axis 2 side	3HAC037178-001		1 pc
L	POM sealing <sup>i</sup>	3HAC037190-001		1 pc
M	O-ring	3HAC044289-001		1 pc
N	Support ring	3HAC044281-001		1 pc
P	Radial sealing	3HAB3702-29		1 pc
Q	Bearing	3HAB4169-1		1 pc
R	Block disc	3HAC046730-001		1 pc

<sup>i</sup> Discontinued part. Replaced with part M, N and P.

### Illustration



#### Note

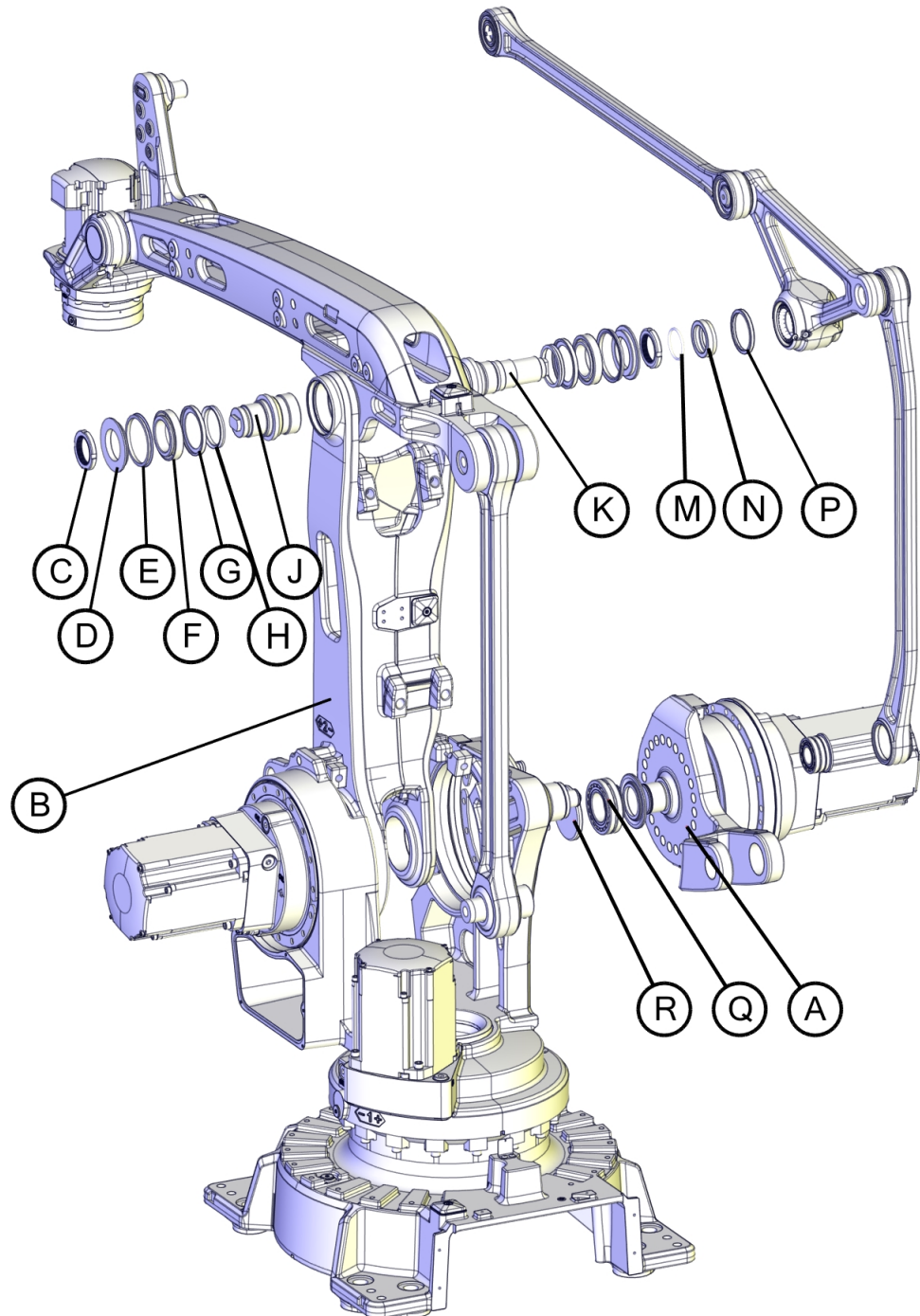
The old sealing structure that contains the POM sealing (L) is replaced with the new sealing structure that includes the o-ring (M), support ring (N) and radial sealing (P) instead.

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## 6 Spare parts - parallel arm and lower arm

Continued

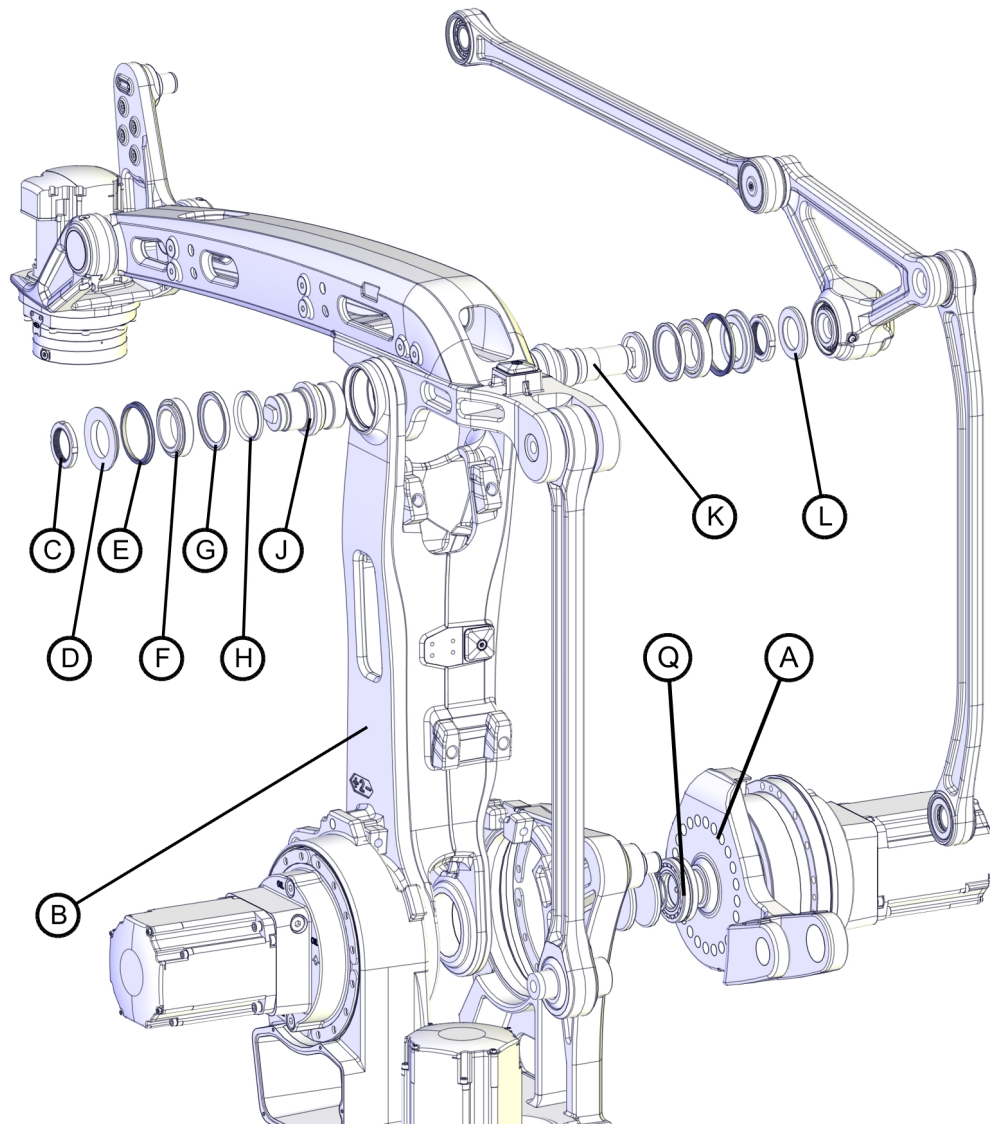
Design with support ring (N), o-ring (M) and radial sealing (P)



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Design with POM sealing (L)



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## 7 Spare parts - cable harness, brake release and SMB

### Spare part list

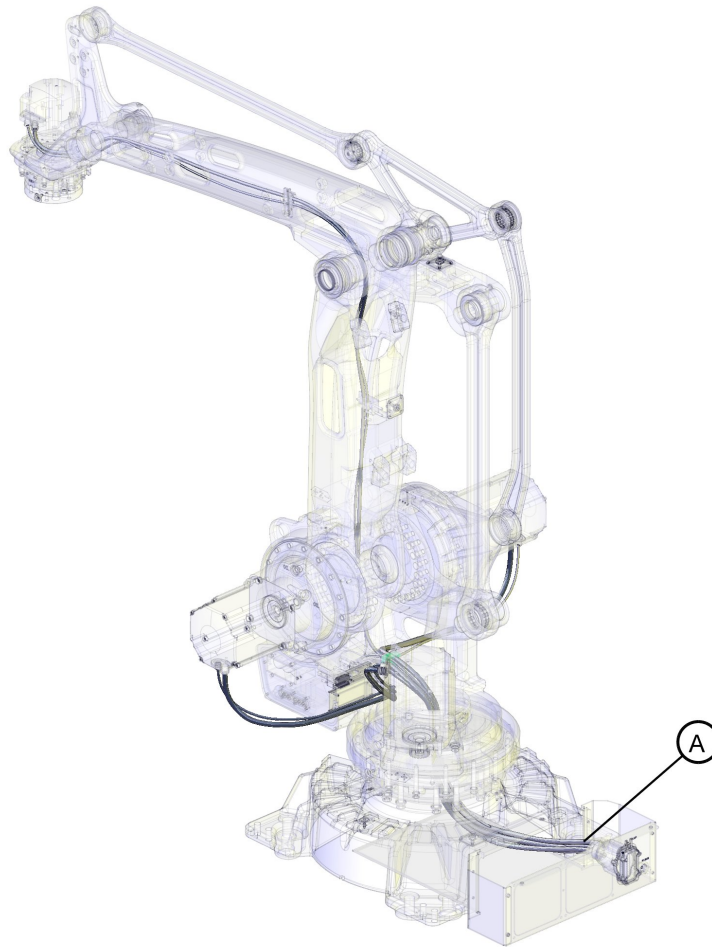
Pos.	Description	Spare part number	Note
A	Cable harness, manipulator axis 1-6	3HAC037534-001	
-	Cable harness, Customer CP/CS/CBUS	3HAC040447-001	
-	Cable harness, Customer CP/CS	3HAC040449-001	
-	Cable harness, Customer Ethernet/CP/CS	3HAC078114-001	
B	DSQC1050 Brake release board	3HAC065020-001	
C	Battery pack (2-pole battery contact)	3HAC16831-1	Lithium battery Can only be used with SMB board 3HAC031851-001.
	Battery unit (3-pole battery contact)	3HAC044075-001	RMU Lithium Can only be used with SMB board 3HAC044168-001. The battery holder 3HAC046520-001 needed to fit this battery pack.
D	Serial measurement board, DSQC633A	3HAC031851-001	
D	Serial measurement board, RMU 101	3HAC044168-001	
E	Battery holder	3HAC046520-001	Only used with battery unit 3HAC044075-001
-	Battery cable (2-pole battery contact)	3HAC13151-1	Only used with battery pack 3HAC16831-1
-	Battery cable (3-pole battery contact)	3HAC046287-001	Only used with battery unit 3HAC044075-001

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## 7 Spare parts - cable harness, brake release and SMB

Continued

### Illustration

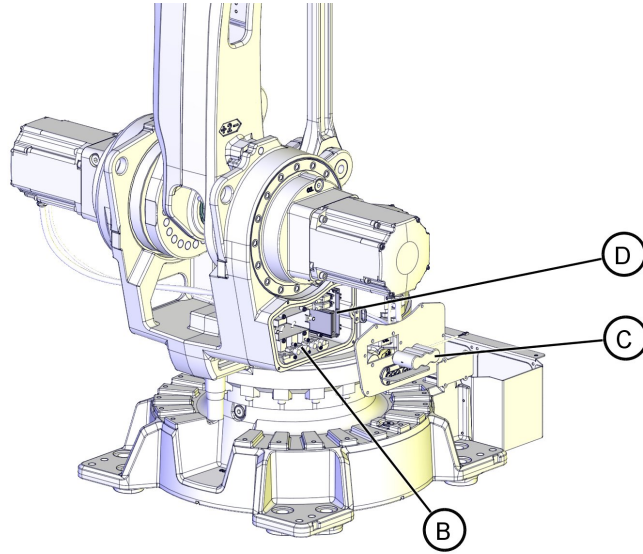


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A	Cable harness, manipulator axis 1-6
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### SMB board DSQC 633A (with 2-pole contact)



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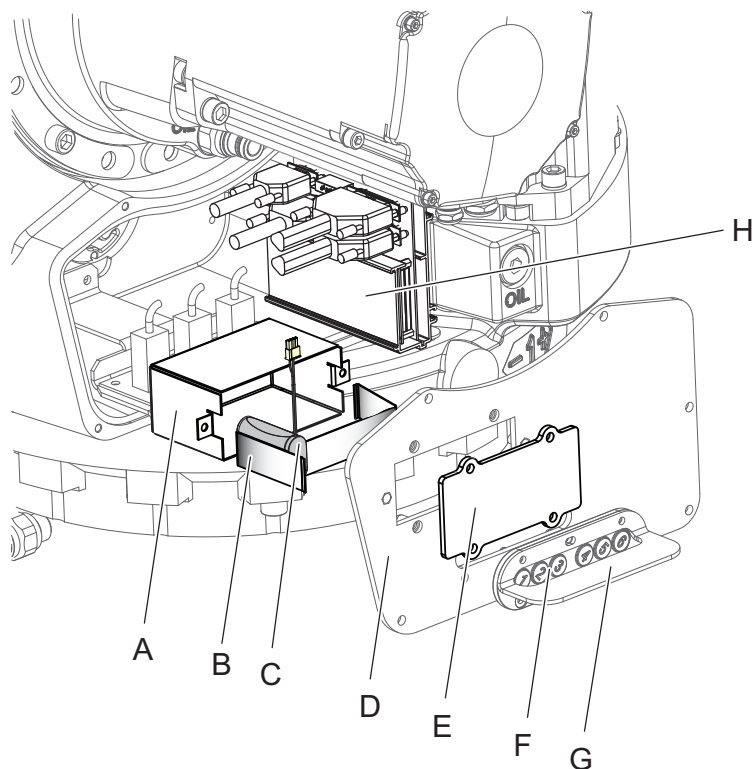
B	Brake release unit with buttons DSQC 563
C	Battery pack, Lithium (2-pole battery contact)
D	Serial measurement board, DSQC633A

Continues on next page

## 7 Spare parts - cable harness, brake release and SMB

Continued

### SMB board RMU 101 (with 3-pole contact)



xx1300001115

A	Battery box
B	Battery holder
C	Battery pack, RMU Lithium (3-pole battery contact)
D	SMB cover
E	Battery cover
F	BU button guard plate
G	Push button guard
H	Serial measurement board, RMU 101

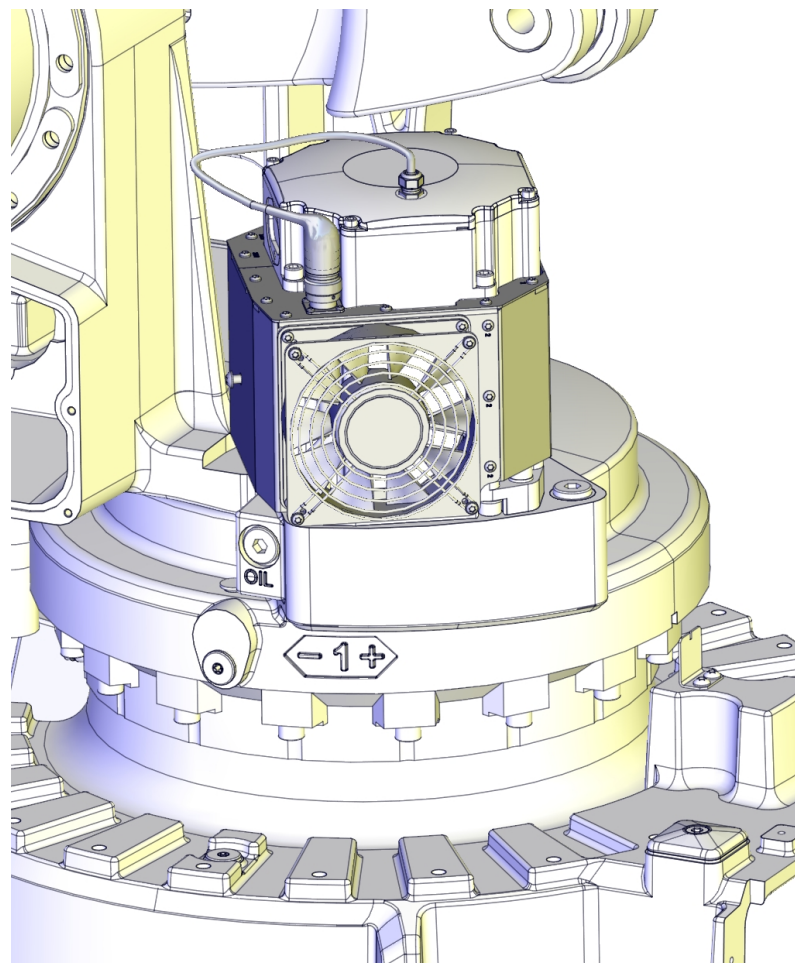
## 8 Spare parts for options

### 8.1 Spare parts - cooling fan for axis-1 motor

#### Spare part list

Pos.	Description	Spare part no.	Qty
-	Cooling fan	3HAC046167-001	1 pc
-	Fan axis-1 cable harness	3HAC033082-001	1 pc
-	Motor cover	3HAC046268-001	1 pc

#### Illustration



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## 8 Spare parts for options

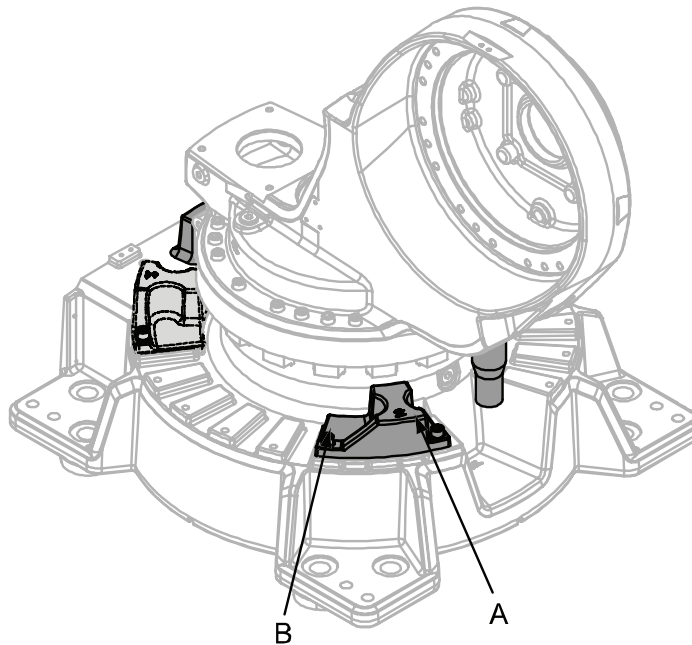
### 8.2 Spare parts - additional stop axis-1

### 8.2 Spare parts - additional stop axis-1

#### Spare part list

Pos.	Description	Spare part number	Note
-	Movable mechanical stop set, axis 1 (+15°/-7.5°)	3HAC025204-003	Includes: <ul style="list-style-type: none"><li>• one stop (+15° / -7.5°), 3HAC025366-001</li><li>• one stop (+7.5° / -15°), 3HAC025367-001</li><li>• attachment screws and washers</li><li>• document for movable mech.stop, 3HAC025204-002</li></ul>

#### Illustration



xx1600001463

A	Movable mechanical stop
B	Attachment screw plus washer, M12 x 40 quality 12.9 (2 pcs)

### 8.3 Spare parts - others

#### Spare part list

Description	Spare part number	Note
CP/CS, Proc 1 on base, 1 pc	3HAC16667-1	239-1 On foot
CP/CS/CBUS Connection Kit, 1 pc	3HAC039006-001	431-1 Upper arm

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