

ROBOTICS

# Product manual, spare parts

## IRB 460



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# **Product manual, spare parts**

**IRB 460**

IRC5, OmniCore

Document ID: 3HAC040628-001

Revision: Q

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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 21</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 23</a>.</li> <li>• Added axis-1 gearbox o-rings, see <a href="#">Spare parts - gearboxes on page 13</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 31</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 32</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>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 23</a>.</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>
M	Published in release 21C. The following updates are made in this revision: <ul style="list-style-type: none"> <li>Added spare parts Ethernet on base (3HAC047344-001) and Ethernet Connector kit (3HAC077657-001).</li> </ul>
N	Published in release 22B. The following updates are made in this revision: <ul style="list-style-type: none"> <li>Added spare parts sleeve (3HAC047450-001), radial sealing with dust lip (3HAB3701-50) and o-ring (3HAB3772-39).</li> <li>Changed the spare part numbers and color descriptions for axis-2 and axis-3 gearboxes.</li> </ul>

Revision	Description
P	Published in release 23A. The following updates are made in this revision: <ul style="list-style-type: none"><li>Updated the spare part number for Taper roller bearing in <a href="#">Spare parts - linkage and upper / lower rod on page 21</a>.</li></ul>
Q	Published in release 24A. The following updates are made in this revision: <ul style="list-style-type: none"><li>Added support for OmniCore V400XT.</li><li>Updated the spare part number for Taper roller bearing in <a href="#">Spare parts - parallel arm and lower arm on page 23</a>.</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.



#### Tip

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, 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.
- Troubleshooting.
- 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.

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### 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.

*Continues on next page*

- 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.

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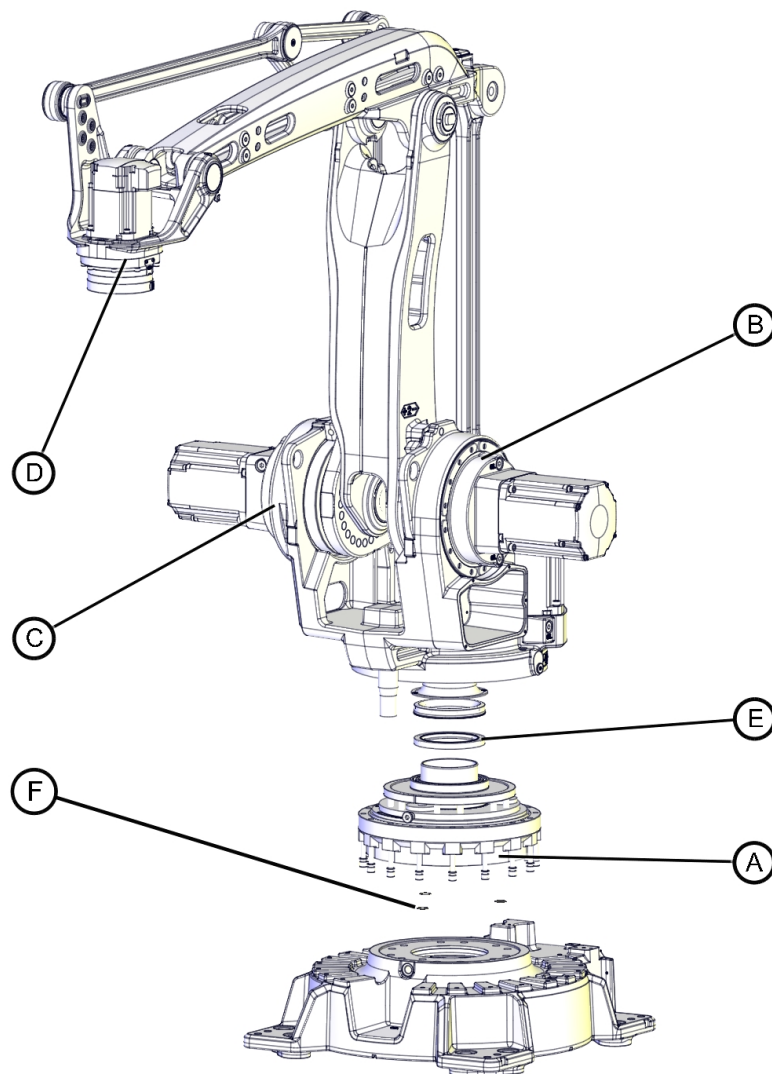


# 1 Spare parts - gearboxes

## 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	3HAC084105-001	NA	1 pc
C	Gearbox axis 3	3HAC084105-001	NA	1 pc
D	Gearbox axis 6	3HAC040502-001	White	1 pc
		3HAC054558-001	Graphite White	1 pc
E	Oil sealing	3HAC11581-4	NA	1 pc
F	O-ring	3HAB3772-97	NA	3 pcs

## Illustration



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## 2 Spare parts - motors

### Spare part list

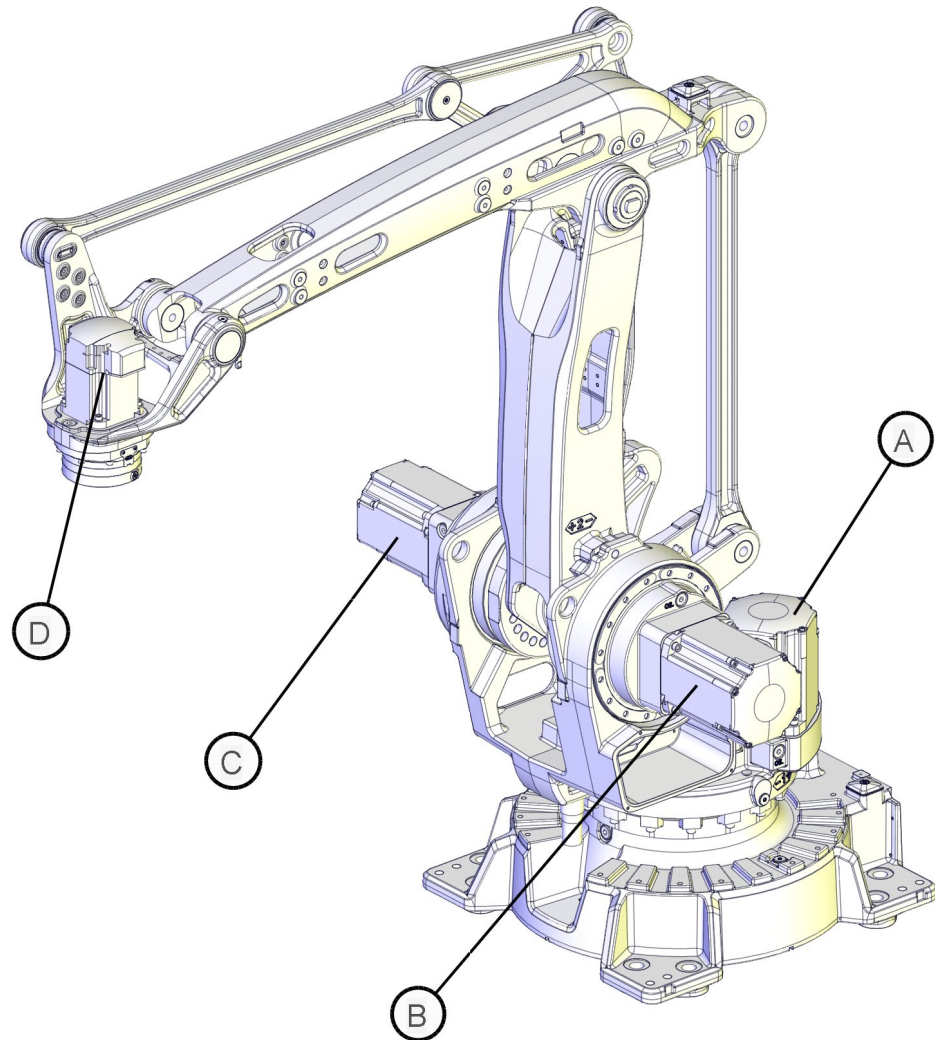
Pos.	Description	Spare part no.	Color	Qty
A	Motor axis 1, including pinion	3HAC037163-003	White	1 pc
		3HAC054559-001	Graphite White	1 pc
B	Motor axis 2, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001	Graphite White	1 pc
C	Motor axis 3, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001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

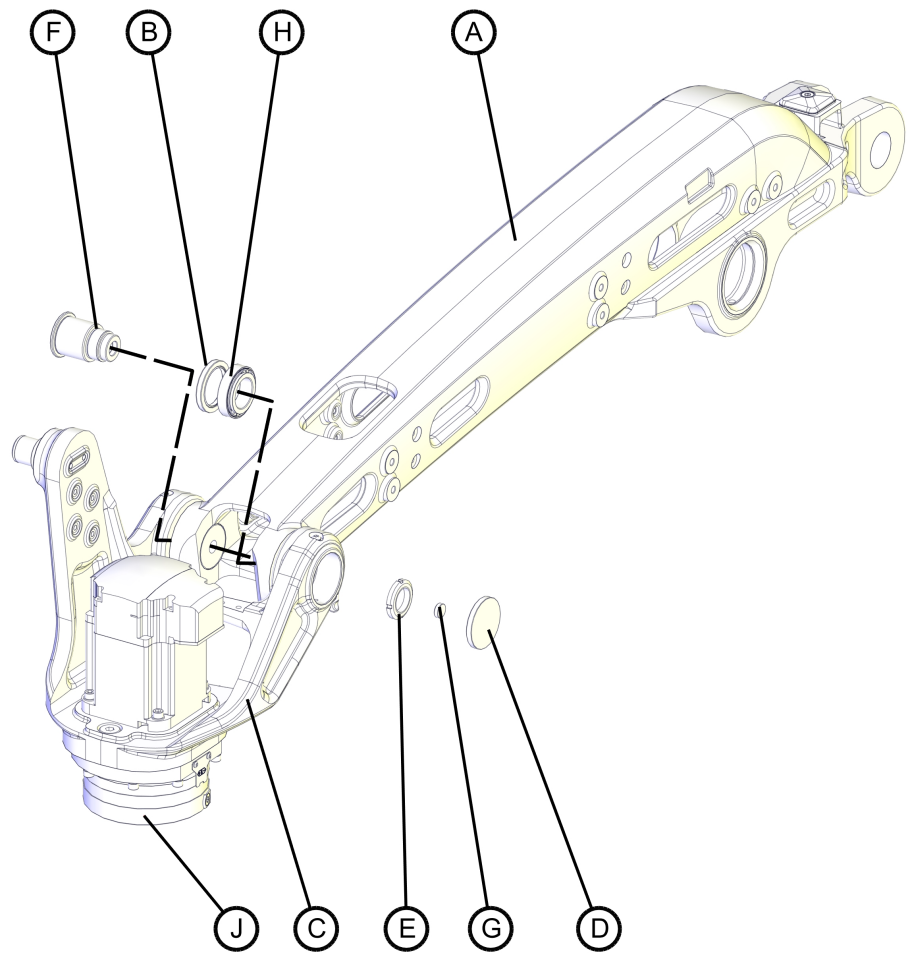
Pos.	Description	Spare part no.	Color	Qty
A	Upper arm including support ring	3HAC036501-005	White	1 pc
		3HAC054561-001	Graphite White	1 pc
B	Radial sealing with dust lip	3HAB3701-35	NA	2 pcs
C	Tilthouse	3HAC036502-006	White	1 pc
		3HAC036502-007	Graphite White	1 pc
D	VK cover	3HAA2166-21	NA	2 pcs
E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

*Continues on next page*

### 3 Spare parts - upper arm and tilthouse

Continued

#### Illustration



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

### Spare parts list

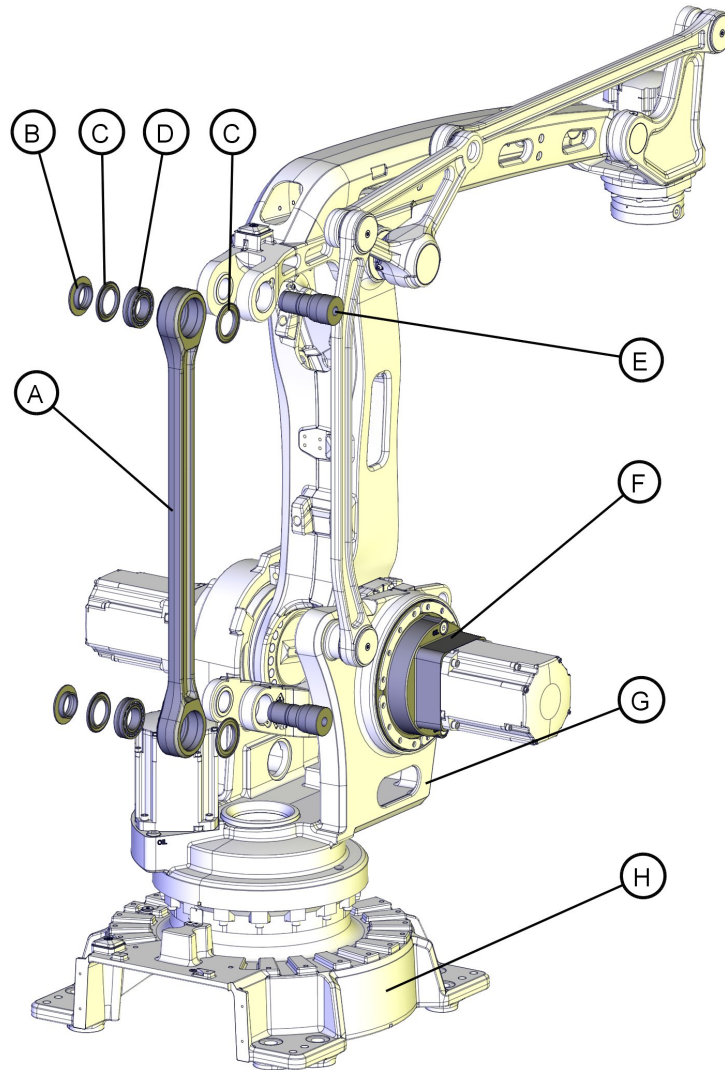
Pos.	Description	Spare part no.	Color	Qty
A	Parallel rod with bearing	3HAC039131-001	White	1 pc
		3HAC054563-001	Graphite White	1 pc
B	Trust washer	3HAC037167-001	NA	2 pcs
C	POM seal	3HAC037168-001	NA	4 pcs
D	Spherical roller bearing	3HAA2167-19	NA	2 pcs
E	Shaft	3HAC037169-001	NA	2 pcs
F	Motor flange	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

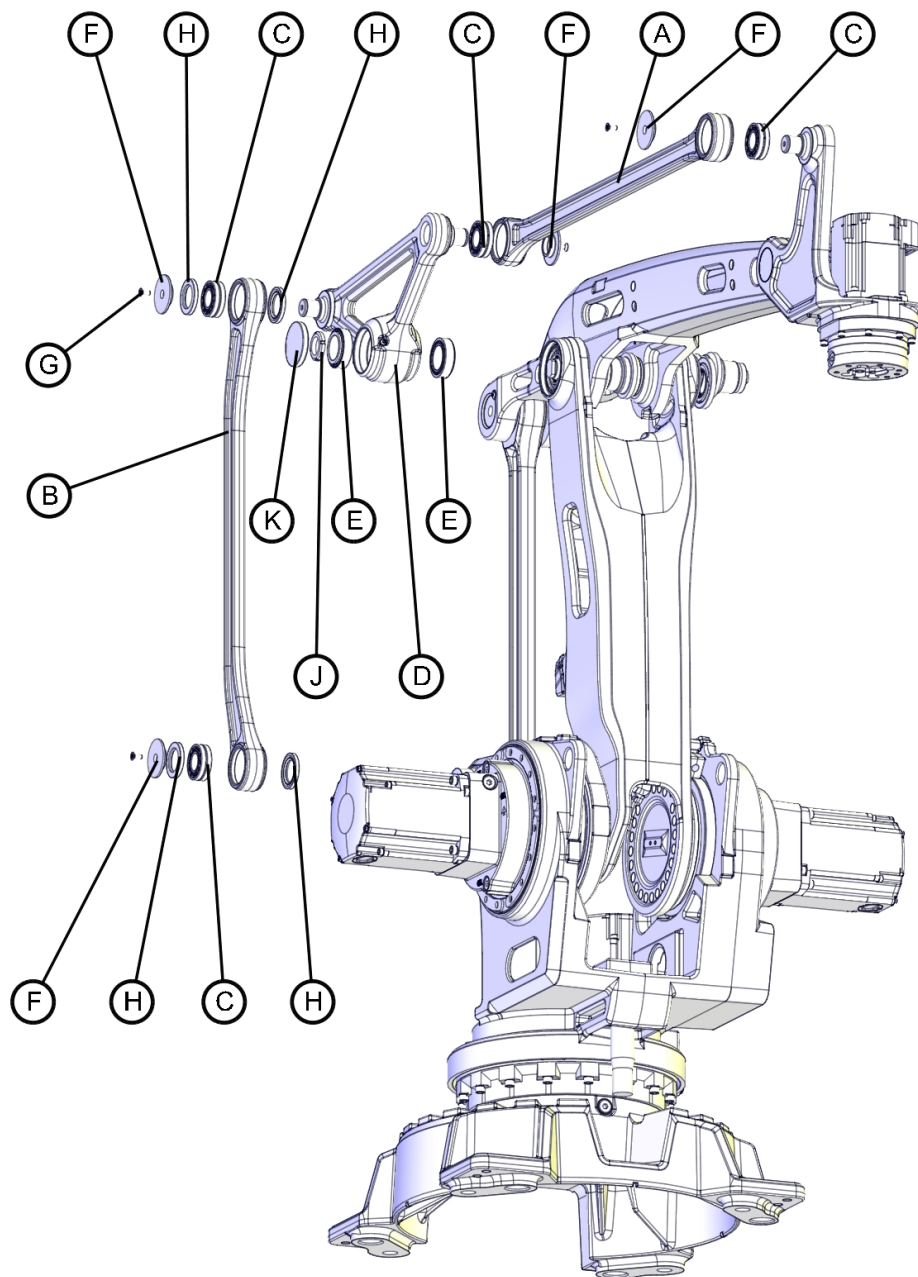
Pos.	Description	Spare part no.	Color	Qty
A	Upper rod system with bearing	3HAC037242-003	White	1 pc
		3HAC054567-001	Graphite White	1 pc
B	Lower rod system with bearing	3HAC037243-003	White	1 pc
		3HAC054568-001	Graphite White	1 pc
C	Spherical roller bearing	3HAA2167-20	NA	4 pcs
D	Link plate system with bearing	3HAC036453-003	White	1 pc
		3HAC054569-001	Graphite White	1 pc
E	Taper roller bearing	3HAA2103-25	NA	2 pcs
F	Locking washer for links	3HAC037177-001	NA	4 pcs
G	Torx counters. head screw	9ADA624-69	NA	4 pcs
H	Sealing ring	3HAB3702-28	NA	8 pcs
J	Lock nut	21262851-108	NA	1 pc
K	VK cover	3HAA2166-28	NA	1 pc

*Continues on next page*

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

Continued

### Illustration



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## 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	NA	2 pcs
D	Support ring <sup>i</sup>	3HAC037191-001	NA	2 pcs
E	Sealing ring (V-ring) <sup>i</sup>	3HAB3732-19	NA	2 pcs
F	Taper roller bearing	3HAA2103-33	NA	2 pcs
G	Sealing ring (T-ring)	3HAC022581-001	NA	2 pcs
H	Sealing ring (V-ring)	2216264-16	NA	2 pcs
J	Shaft, axis 3 side	3HAC037179-001	NA	1 pc
K	Shaft, axis 2 side	3HAC037178-001	NA	1 pc
L	POM sealing <sup>ii</sup>	3HAC037190-001	NA	1 pc
M	O-ring	3HAC044289-001	NA	1 pc
N	Support ring	3HAC044281-001	NA	1 pc
P	Radial sealing	3HAB3702-29	NA	1 pc
Q	Bearing	3HAB4169-1	NA	1 pc
R	Block disc	3HAC046730-001	NA	1 pc
S	Sleeve	3HAC047450-001	NA	2 pcs
T	Radial sealing with dust lip	3HAB3701-50	NA	2 pcs
U	O-ring	3HAB3772-39	NA	2 pcs

<sup>i</sup> Support ring (D) and sealing V-ring (E) are replaced by sleeve (S), radial sealing with dust lip (T) and o-ring (U).

<sup>ii</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.

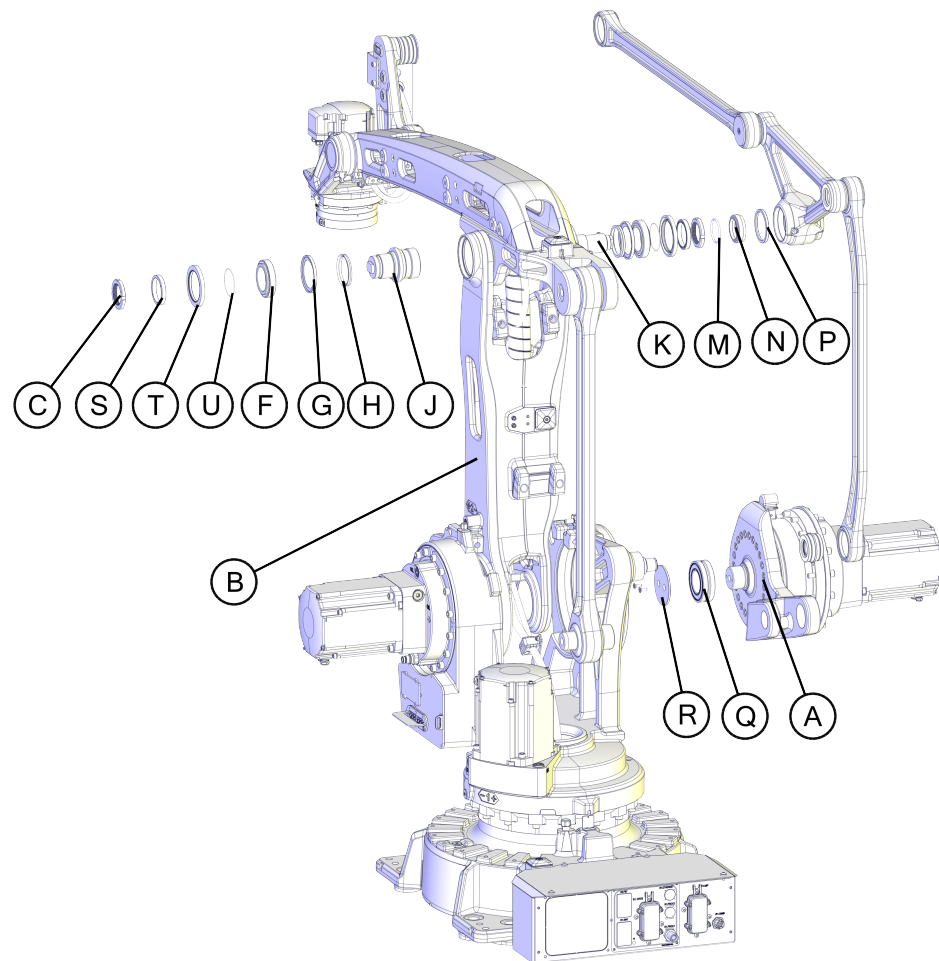
The old sealing structure that contains the support ring (D) and sealing V-ring (E) is replaced with the new sealing structure that includes the sleeve (S), radial sealing with dust lip (T) and o-ring (U) instead.

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## 6 Spare parts - parallel arm and lower arm

Continued

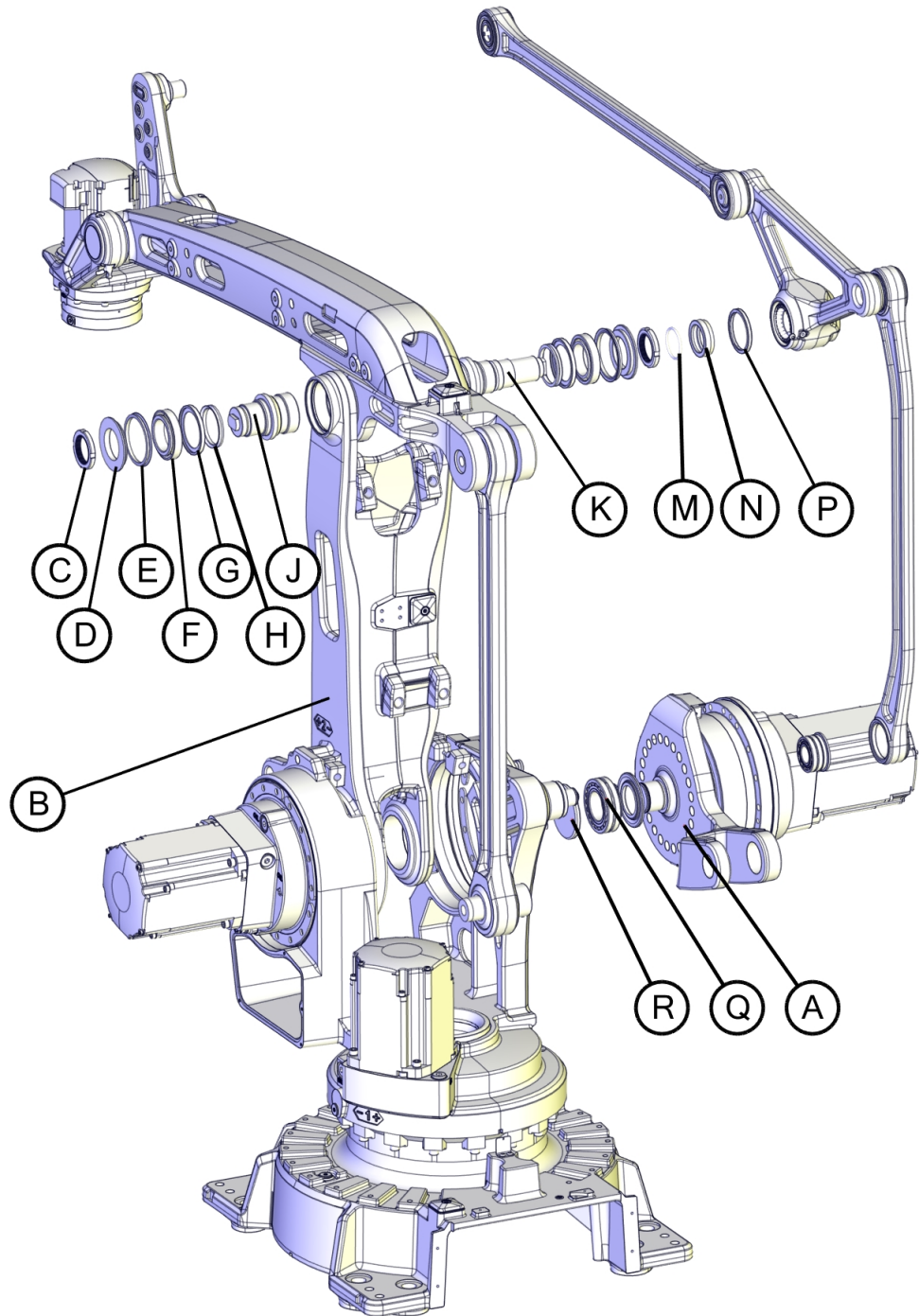
Design with sleeve (S), radial sealing with dust lip (T) and o-ring (U)



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



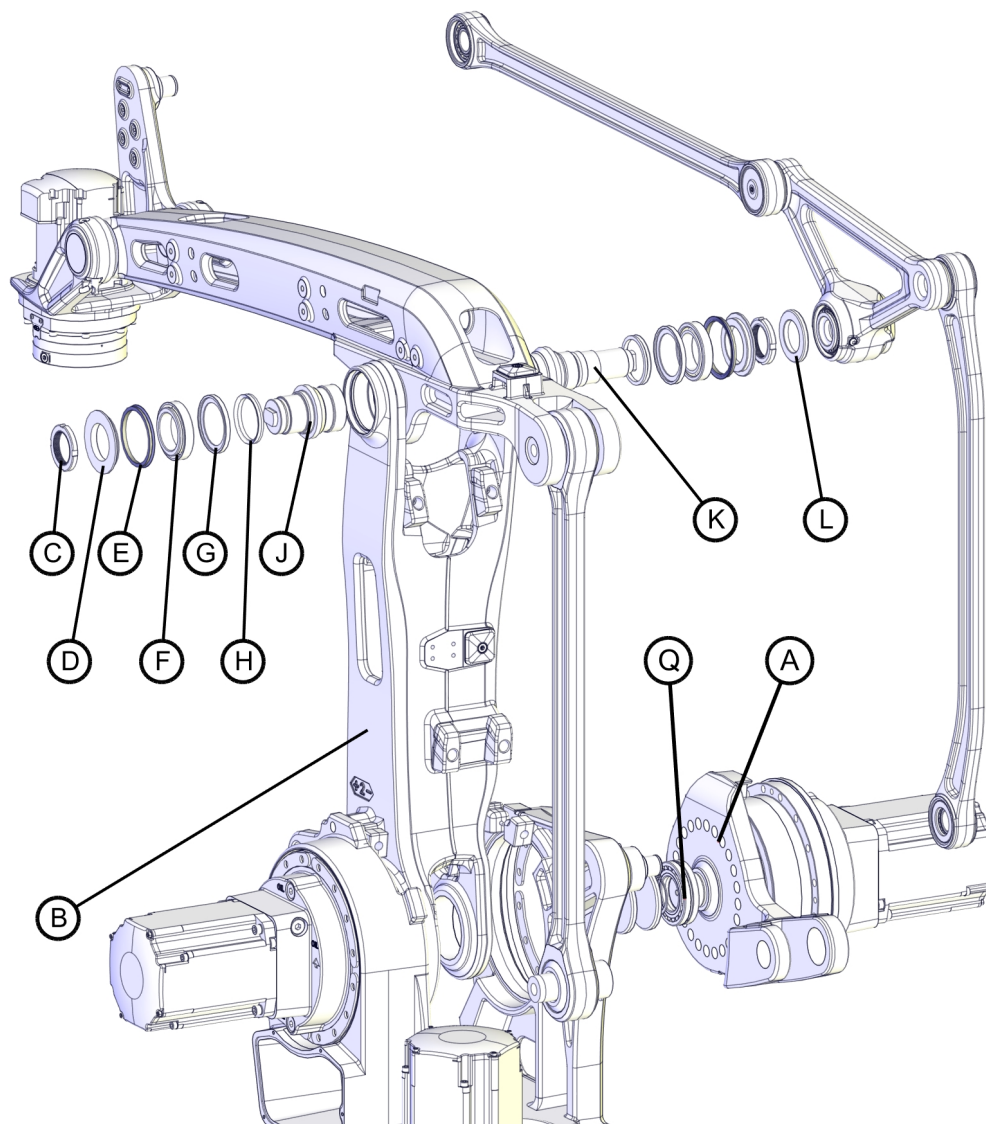
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## 6 Spare parts - parallel arm and lower arm

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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

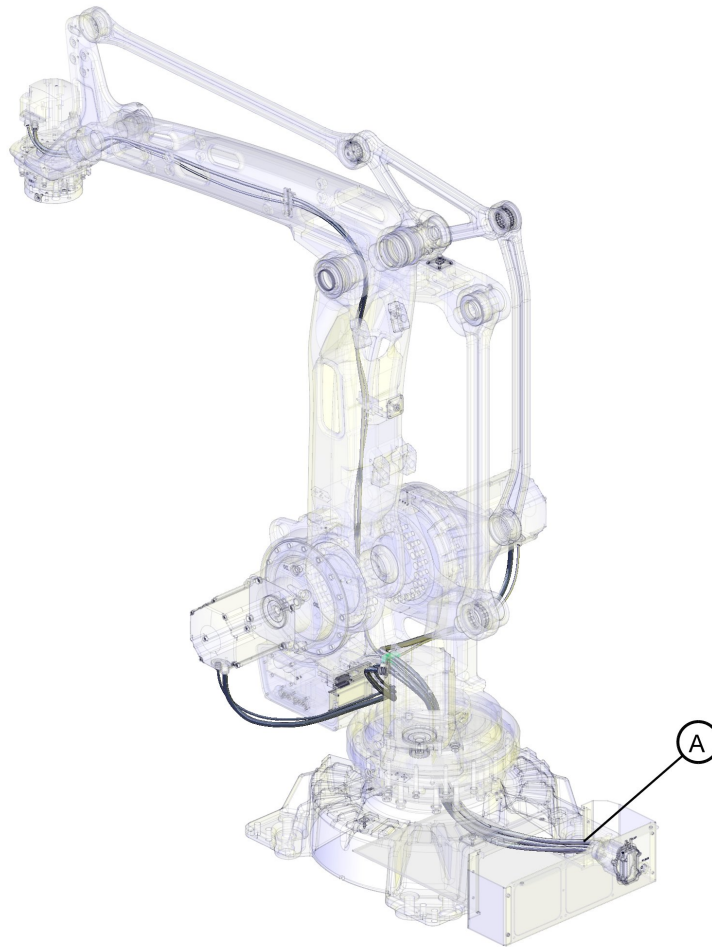
Pos.	Description	Spare part number	Note
A	Cable harness, manipulator axis 1-6	3HAC037534-001	
-	Cable harness, Customer CP/CS/CBUS	3HAC040447-001	
-	Cable harness, Customer CP/CS	3HAC040449-001	
-	Cable harness, Customer Ethernet/CP/CS	3HAC078114-001	
B	DSQC1050 Brake release board	3HAC065020-001	
C	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



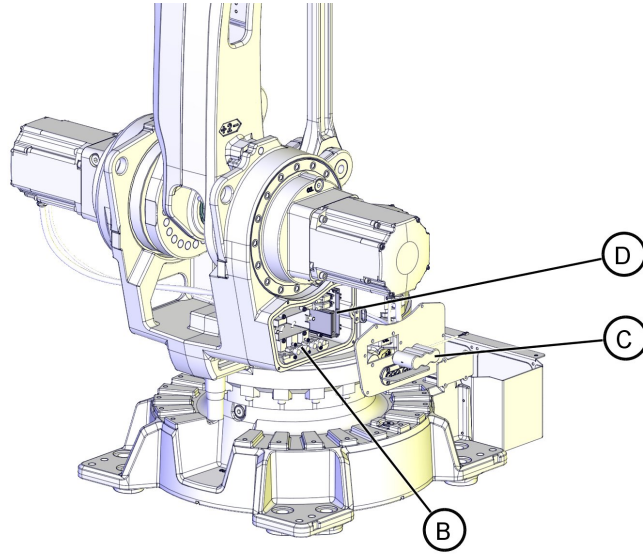
xx110000138

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



xx110000278

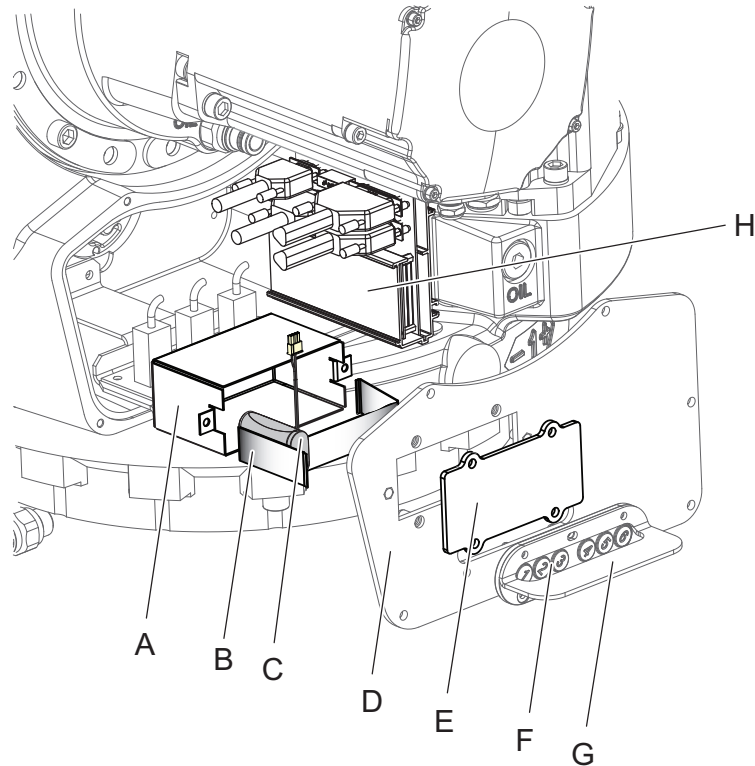
B	Brake release unit with buttons DSQC 563
C	Battery pack, Lithium (2-pole battery contact)
D	Serial measurement board, DSQC633A

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## 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

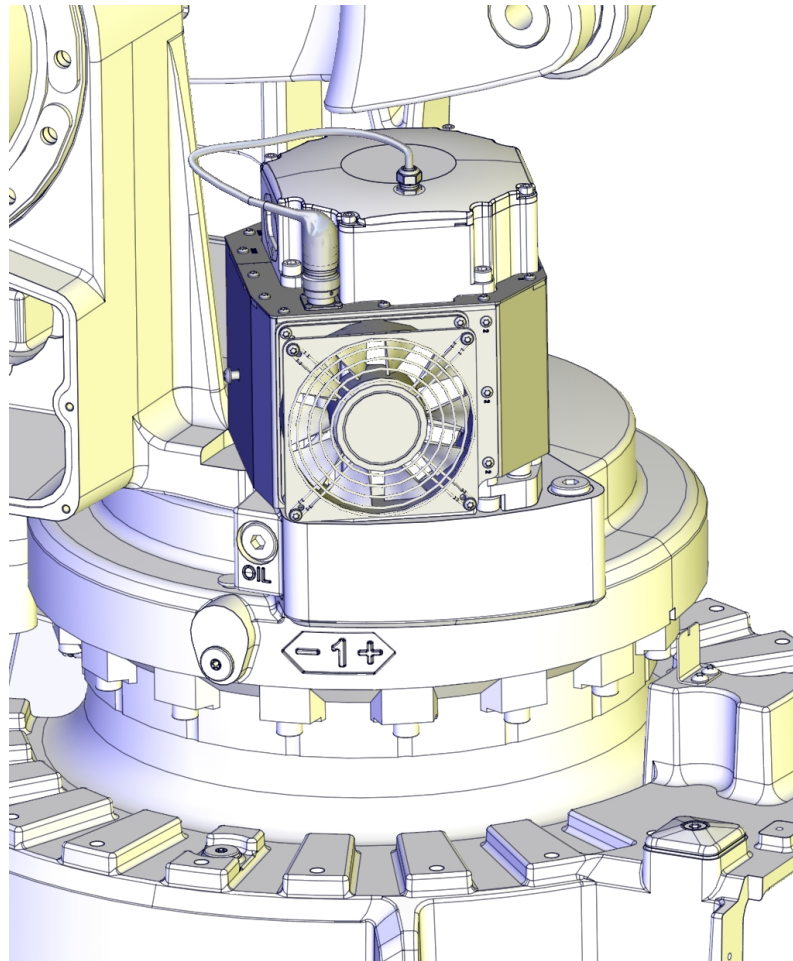
## 8 Spare parts for options

### 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



xx130000168

## 8 Spare parts for options

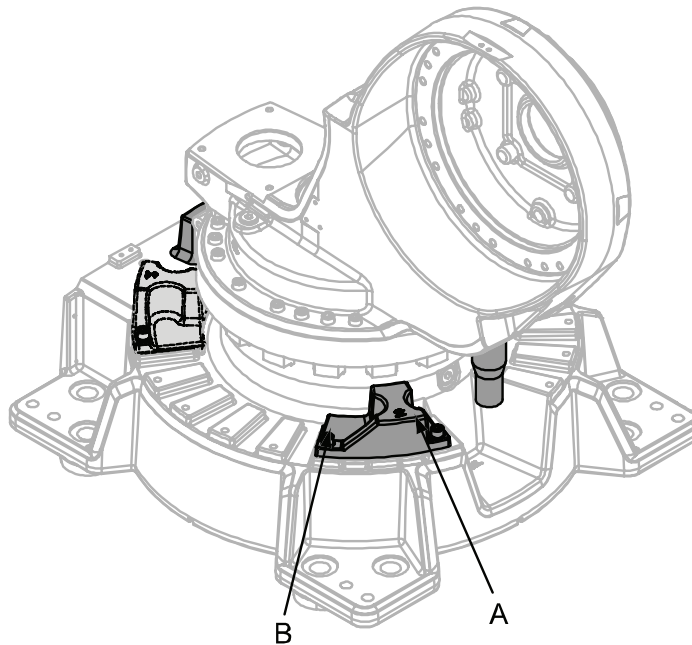
### 8.2 Spare parts - additional stop axis-1

### 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**

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**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
Ethernet on base, 1 pc	3HAC047344-001	239-1 On foot and 803-2 Ethernet, Parallel, Air
Ethernet Connector kit, 1 pc	3HAC077657-001	431-1 Upper arm and 803-2 Ethernet, Parallel, Air

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