

Product manual, spare parts IRB 460

Trace back information:
Workspace R17-1 version a7
Checked in 2017-03-22
Skribenta version 5.1.011

Product manual, spare parts

IRB 460

M2004

Document ID: 3HAC040628-001

Revision: G

The information in this manual is subject to change without notice and should not be construed as a commitment by ABB. ABB assumes no responsibility for any errors that may appear in this manual.

Except as may be expressly stated anywhere in this manual, nothing herein shall be construed as any kind of guarantee or warranty by ABB for losses, damages to persons or property, fitness for a specific purpose or the like.

In no event shall ABB be liable for incidental or consequential damages arising from use of this manual and products described herein.

This manual and parts thereof must not be reproduced or copied without ABB's written permission.

Keep for future reference.

Additional copies of this manual may be obtained from ABB.

Original instructions.

© Copyright 2012-2017 ABB. All rights reserved.

ABB AB, Robotics
Robotics and Motion
Se-721 68 Västerås
Sweden

Table of contents

Overview of this manual	7
Product documentation, IRC5	9
1 Spare parts - gearboxes	11
2 Spare parts - motors	13
3 Spare parts - upper arm and tilthouse	15
4 Spare parts - base, frame and parallel rod	17
5 Spare parts - linkage and upper / lower rod	19
6 Spare parts - parallel arm and lower arm	21
7 Spare parts - cable harness, brake release and SMB	25
8 Spare parts for options	29
8.1 Spare parts - cooling fan for axis-1 motor	29
8.2 Spare parts - additional stop axis-1	30
Index	31

This page is intentionally left blank

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"> • Replaced sealing ring for for the linkage, see Spare parts - linkage and upper / lower rod on page 19. • Added a new sealing structure that contains a support ring, o-ring and radial sealing at the link, see Spare parts - parallel arm and lower arm on page 21. • Added axis-1 gearbox o-rings, see Spare parts - gearboxes on page 11. • New SMB board RMU 101 and new battery pack RMU (3-pole battery contact) added.

Continues on next page

Revision	Description
B	This revision includes the following changes: <ul style="list-style-type: none">• Spare parts for a cooling fan are added, see Spare parts - cooling fan for axis-1 motor on page 29.• The position of the battery holder for RMU lithium battery (3-pole battery contacts) has changed. The figure has been updated.
C	This revision includes the following changes: <ul style="list-style-type: none">• Spare part number for Sealing ring, Linkage and upper / lower rod, changed.• Spare parts with color Graphite White are added to the spare part lists
D	This revision includes the following changes: <ul style="list-style-type: none">• Spare parts with color Graphite White are added to the spare part lists
E	This revision includes the following changes: <ul style="list-style-type: none">• The graphite white base spare part number is updated.
F	This revision includes the following changes: <ul style="list-style-type: none">• Corrections due to updates in SAP terminology.• Spare part item for turning disk is added and related spare part illustration is updated.• Added additional mechanical stop for axis 1, see Spare parts - additional stop axis-1 on page 30.
G	Published in release R17.1. The following updates are made in this revision: <ul style="list-style-type: none">• Updated spare parts due to new standard calibration method (Axis Calibration).<ul style="list-style-type: none">- Base- Frame- Lower arm- Parallel arm- Tilt unit- Turning disc

Product documentation, IRC5

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 listed can be ordered from ABB on a DVD. The documents listed are valid for IRC5 robot systems.

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 exploded views (or references to separate spare parts lists).
- Circuit diagrams (or references to circuit diagrams).

Technical reference manuals

The technical reference manuals describe reference information for robotics products.

- *Technical reference manual - Lubrication in gearboxes*: Description of types and volumes of lubrication for the manipulator gearboxes.
- *Technical reference manual - RAPID overview*: An overview of the RAPID programming language.
- *Technical reference manual - RAPID Instructions, Functions and Data types*: Description and syntax for all RAPID instructions, functions, and data types.
- *Technical reference manual - RAPID kernel*: A formal description of the RAPID programming language.
- *Technical reference manual - System parameters*: Description of system parameters and configuration workflows.

Continues on next page

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, DVD with PC software).
- How to install included or required hardware.
- How to use the application.
- Examples of how to use the application.

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 trouble shooters.

The group of manuals includes (among others):

- *Operating manual - Emergency safety information*
- *Operating manual - General safety information*
- *Operating manual - Getting started, IRC5 and RobotStudio*
- *Operating manual - IRC5 Integrator's guide*
- *Operating manual - IRC5 with FlexPendant*
- *Operating manual - RobotStudio*
- *Operating manual - Trouble shooting IRC5*

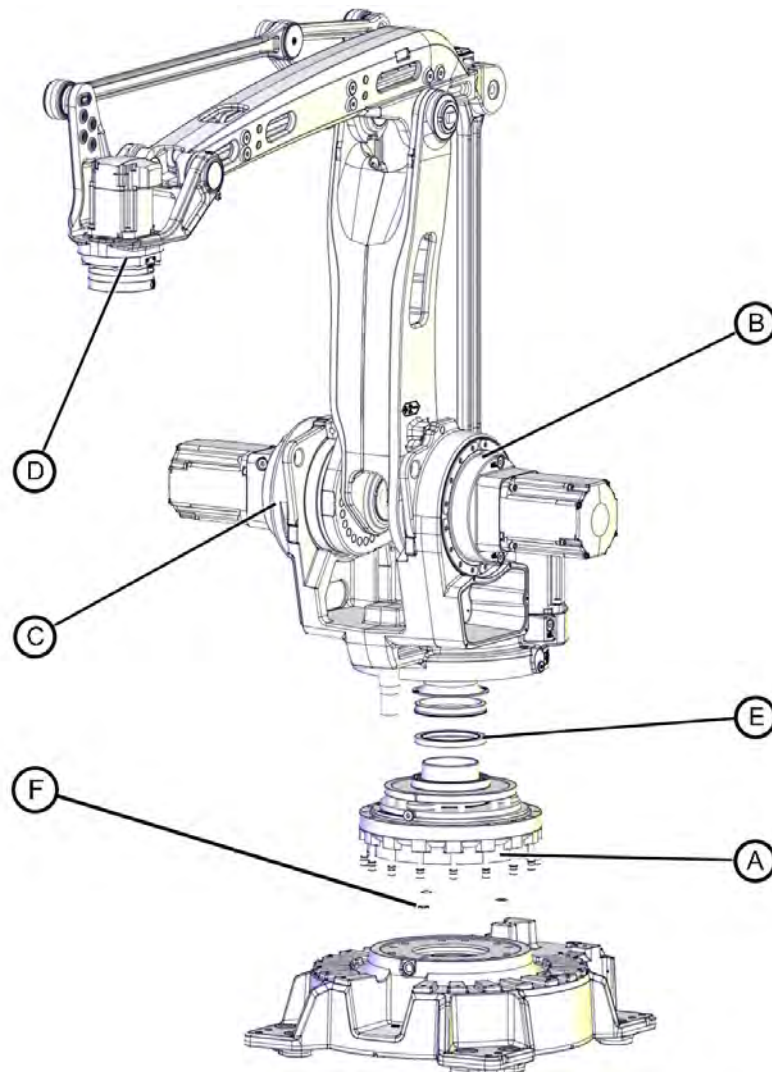
1 Spare parts - gearboxes

Spare part list

Pos.	Description	Spare part no.	Color	Qty
A	Gearbox axis 1	3HAC040499-001	White	1 pc
		3HAC054556-001	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

Continues on next page

Illustration



xx1100000133

2 Spare parts - motors

Spare part list

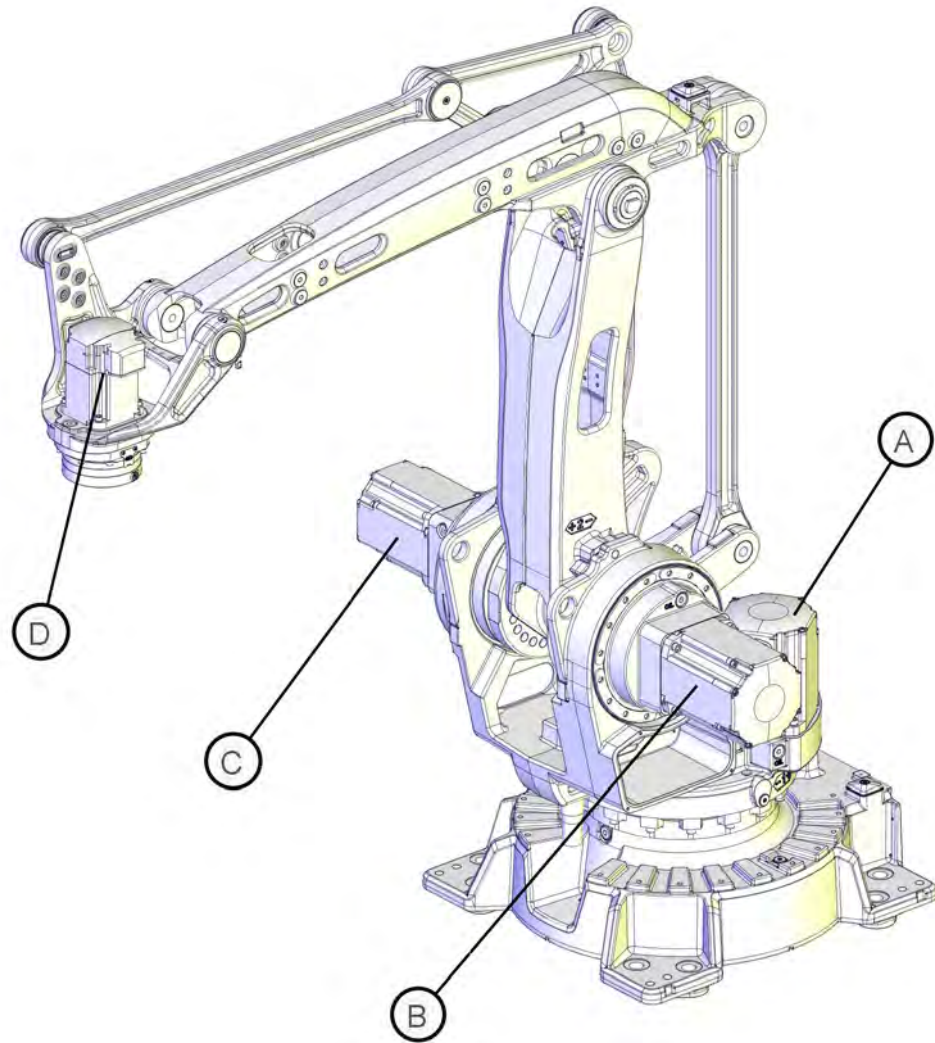
Pos.	Description	Spare part no.	Color	Qty
A	Motor axis 1, including pinion	3HAC037163-003	White	1 pc
		3HAC054559-001	Graphite White	1 pc
B	Motor axis 2, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001	Graphite White	1 pc
C	Motor axis 3, including pinion	3HAC037192-003	White	1 pc
		3HAC054560-001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

Continues on next page

2 Spare parts - motors

Continued

Illustration



xx1100000131

3 Spare parts - upper arm and tilthouse

Spare part list

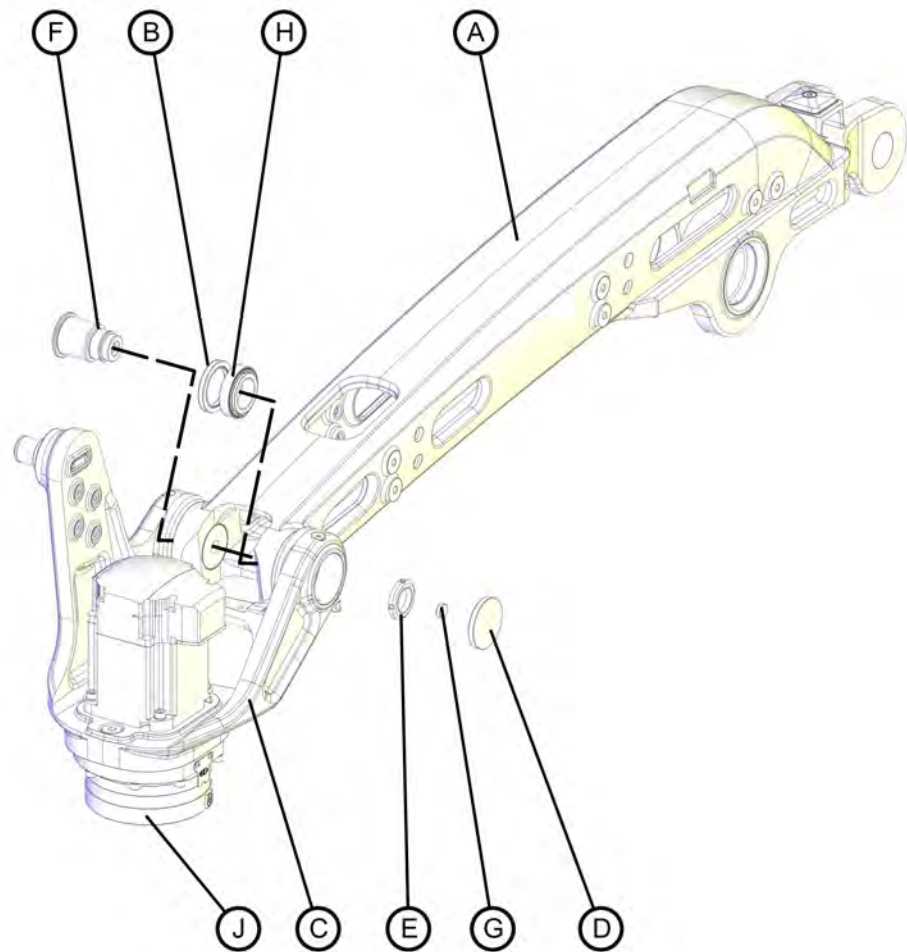
Pos.	Description	Spare part no.	Color	Qty
A	Upper arm including support ring	3HAC036501-005	White	1 pc
		3HAC054561-001	Graphite White	1 pc
B	Radial sealing with dust lip	3HAB3701-35		2 pcs
C	Tilthouse	3HAC036502-006	White	1 pc
		3HAC036502-007	Graphite White	1 pc
D	VK cover	3HAA2166-21		2 pcs
E	Locking 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

Continues on next page

3 Spare parts - upper arm and tilthouse

Continued

Illustration



xx1100000135

4 Spare parts - base, frame and parallel rod

Spare parts list

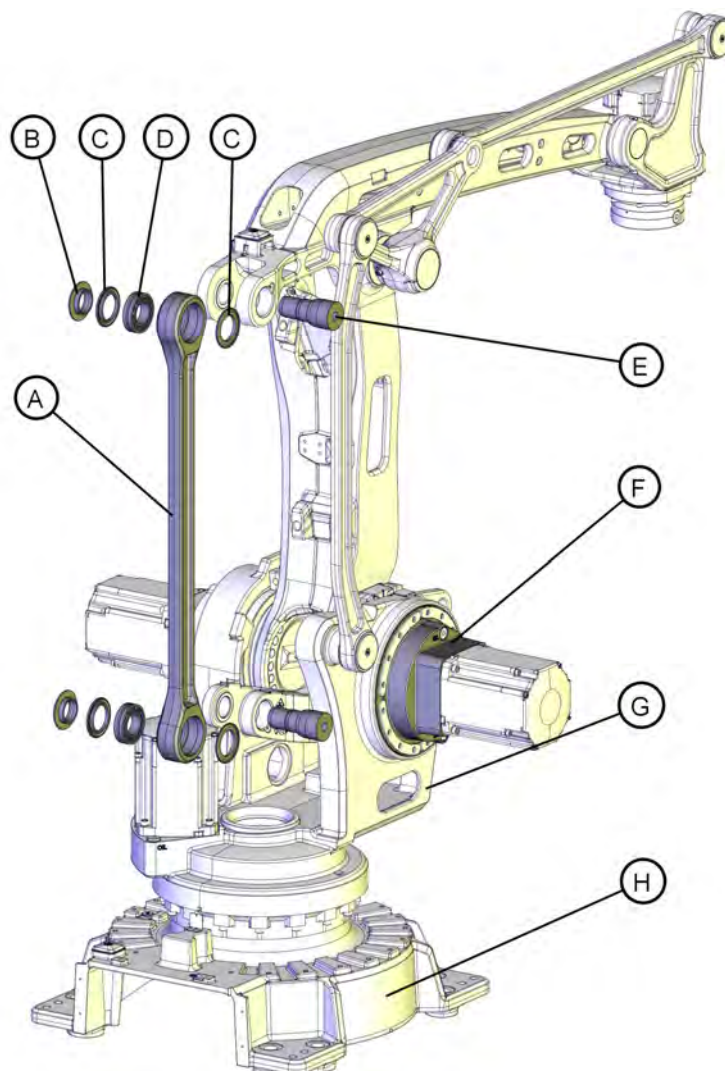
Pos.	Description	Spare part no.	Color	Qty
A	Parallel rod with bearing	3HAC039131-001	White	1 pc
		3HAC054563-001	Graphite White	1 pc
B	Trust washer	3HAC037167-001		2 pcs
C	POM seal	3HAC037168-001		4 pcs
D	Spherical roller bearing	3HAA2167-19		2 pcs
E	Shaft	3HAC037169-001		2 pcs
F	Motor flange	3HAC036507-005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

Continues on next page

4 Spare parts - base, frame and parallel rod

Continued

Illustration



xx1100000137

5 Spare parts - linkage and upper / lower rod

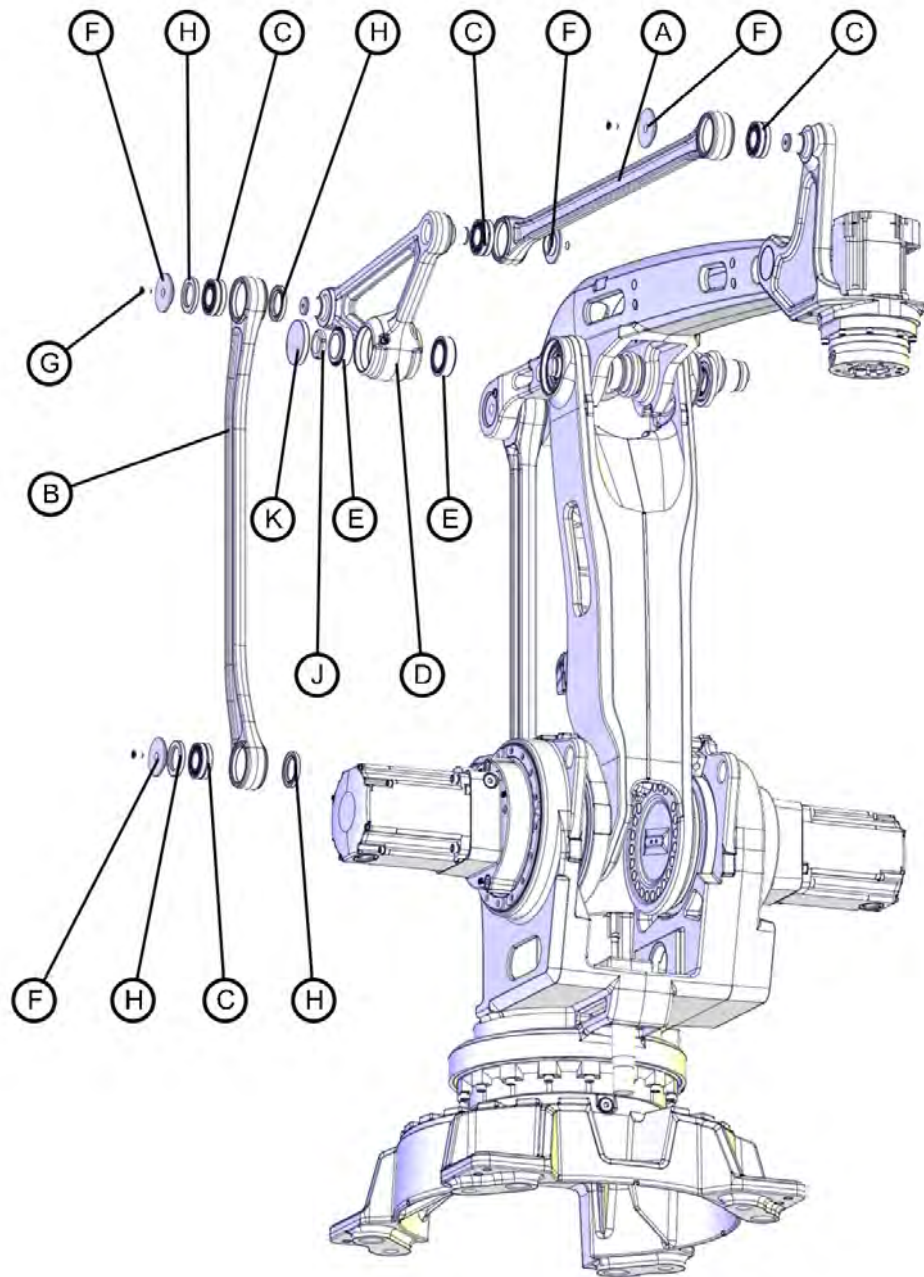
Spare part list

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

Continues on next page

Continued

Illustration



xx1100000136

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 ⁱ	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

ⁱ Discontinued part. Replaced with part M, N and P.

Illustration



Note

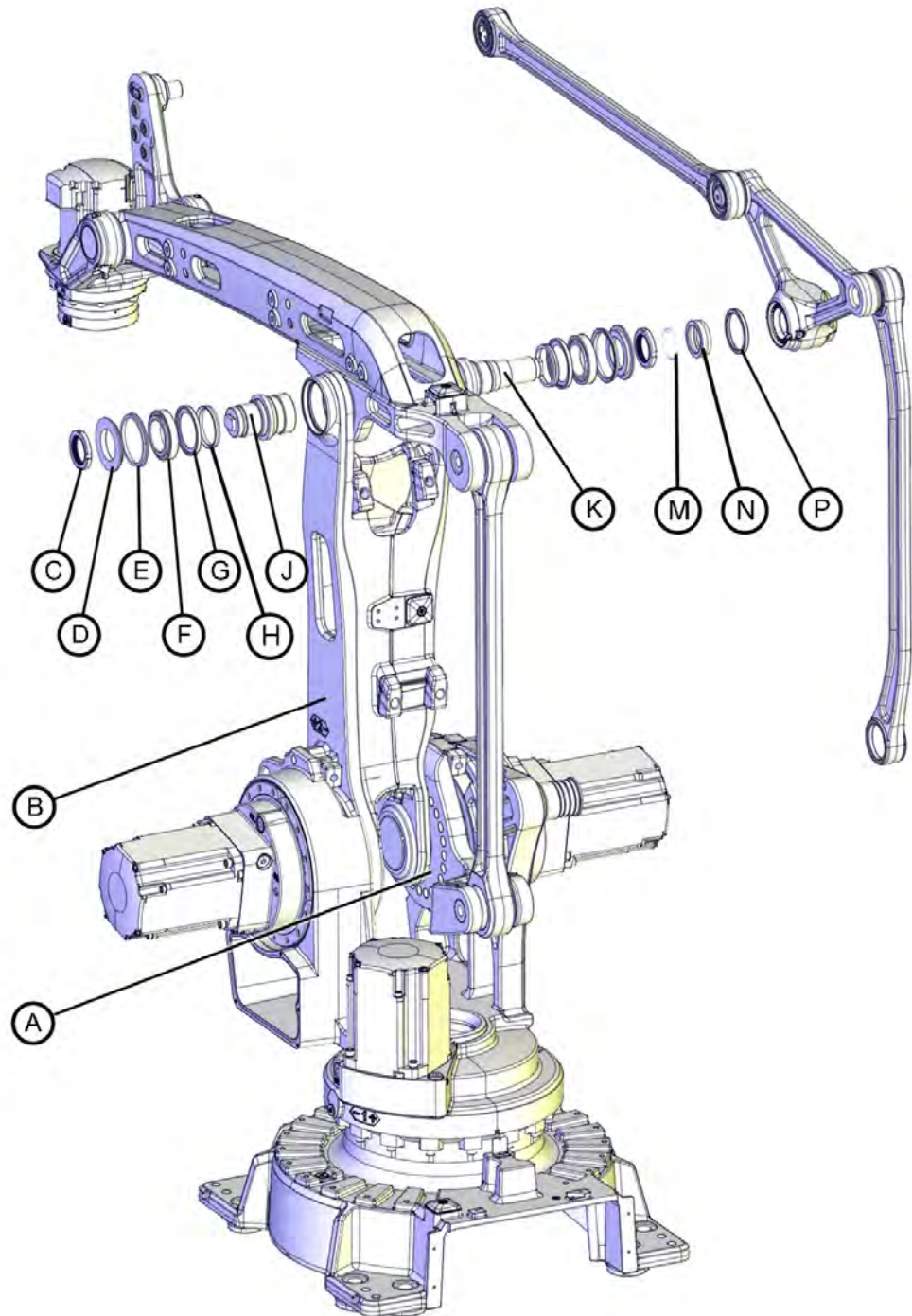
The old sealing structure that contains the POM sealing (L) is replaced with the new sealing structure that includes the o-ring (M), support ring (N) and radial sealing (P) instead.

Continues on next page

6 Spare parts - parallel arm and lower arm

Continued

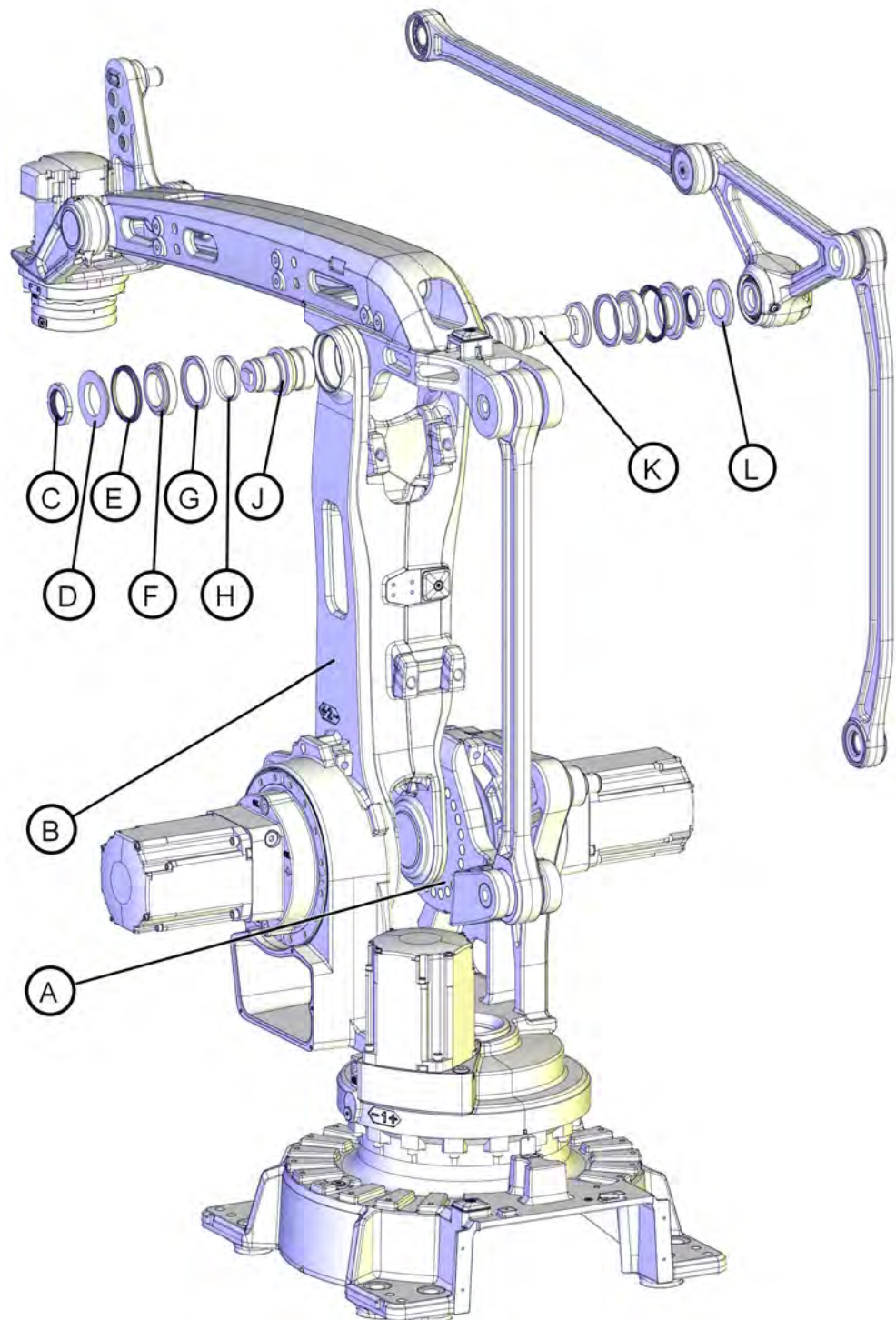
Design with support ring (N), o-ring (M) and radial sealing (P)



xx1300000014

Continues on next page

Design with POM sealing (L)



xx1100000134

This page is intentionally left blank

7 Spare parts - cable harness, brake release and SMB

Spare part list

Pos.	Description	Spare part no.	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	
B	DSQC 563 Brake release board	3HAC16035-1	
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 batterycontact)	3HAC046287-001	Only used with battery unit 3HAC044075-001

Continues on next page

Continued

Illustration

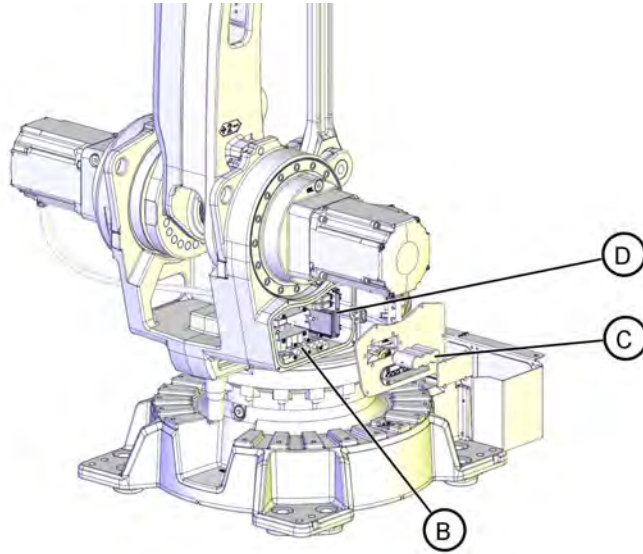


xx1100000138

A	Cable harness, manipulator axis 1-6
---	-------------------------------------

Continues on next page

SMB board DSQC 633A (with 2-pole contact)



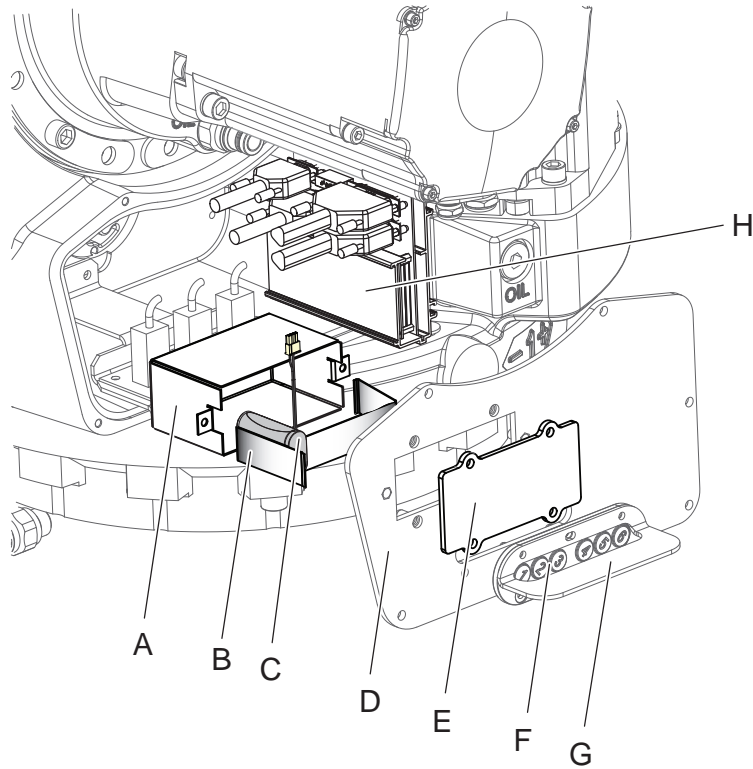
xx1100000278

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

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

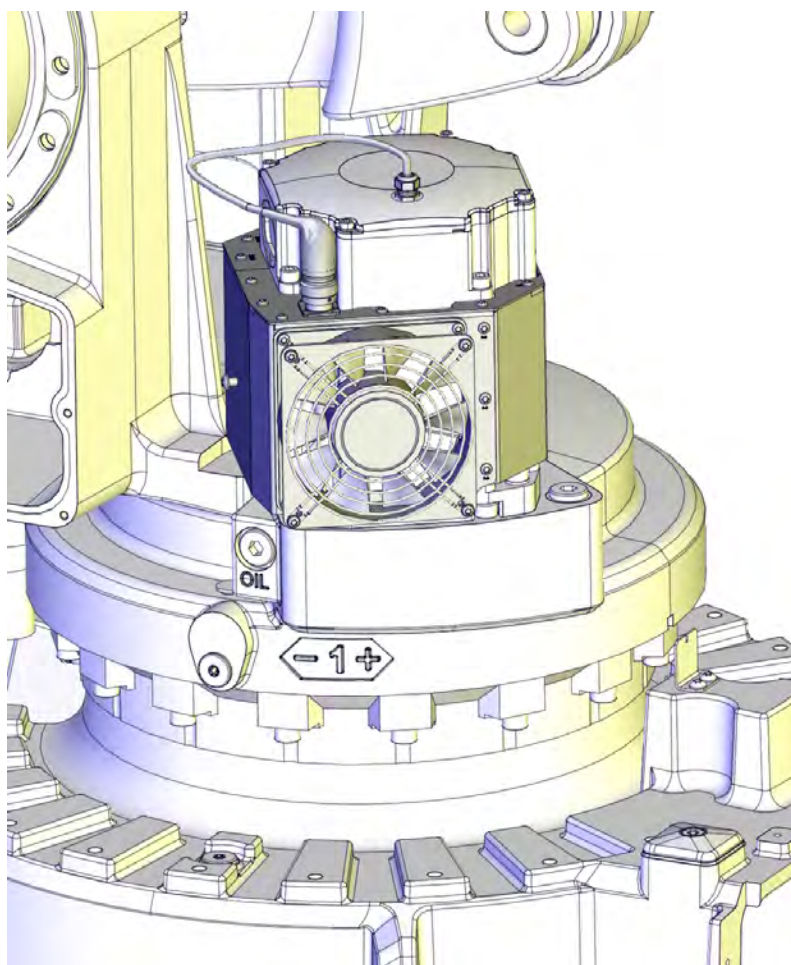
8 Spare parts for options

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



xx1300000168

8 Spare parts for options

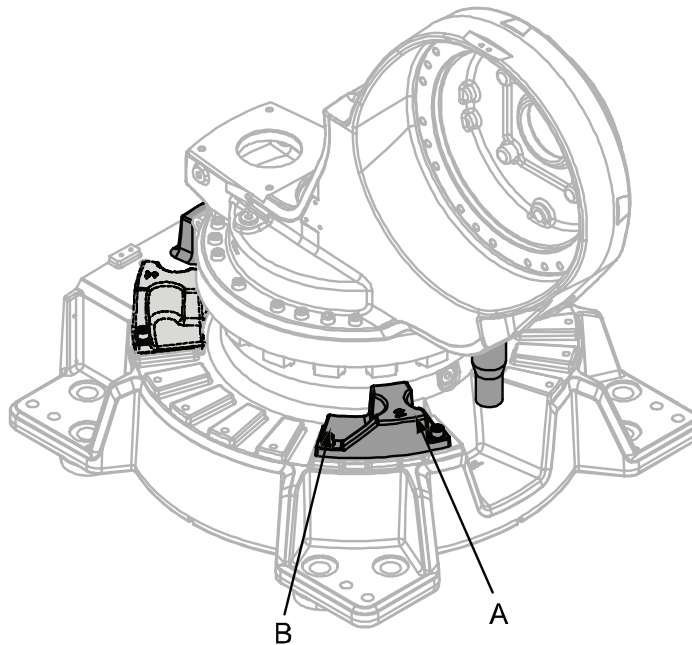
8.2 Spare parts - additional stop axis-1

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">• one stop (+15° / -7.5°), 3HAC025366-001• one stop (+7.5° / -15°), 3HAC025367-001• attachment screws and washers• document for movable mech.stop, 3HAC025204-002

Illustration



xx1600001463

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

Index

B

base, 17
battery pack, 25
brake release unit, 25

C

cable harness, 25

F

frame, 17

G

gearboxes, 11

L

linkage, 19
lower arm, 21

lower rod, 19

M

motors, 13

P

parallel arm, 21
parallel rod, 17

S

serial measurement board, 25
SMB, 25

T

tilthouse, 15

U

upper arm, 15
upper rod, 19

Contact us

ABB AB, Robotics
Robotics and Motion
S-721 68 VÄSTERÅS, Sweden
Telephone +46 (0) 21 344 400

ABB AS, Robotics
Robotics and Motion
Nordlysvegen 7, N-4340 BRYNE, Norway
Box 265, N-4349 BRYNE, Norway
Telephone: +47 22 87 2000

ABB Engineering (Shanghai) Ltd.
Robotics and Motion
No. 4528 Kangxin Highway
PuDong District
SHANGHAI 201319, China
Telephone: +86 21 6105 6666

ABB Inc.
Robotics and Motion
1250 Brown Road
Auburn Hills, MI 48326
USA
Telephone: +1 248 391 9000

www.abb.com/robotics