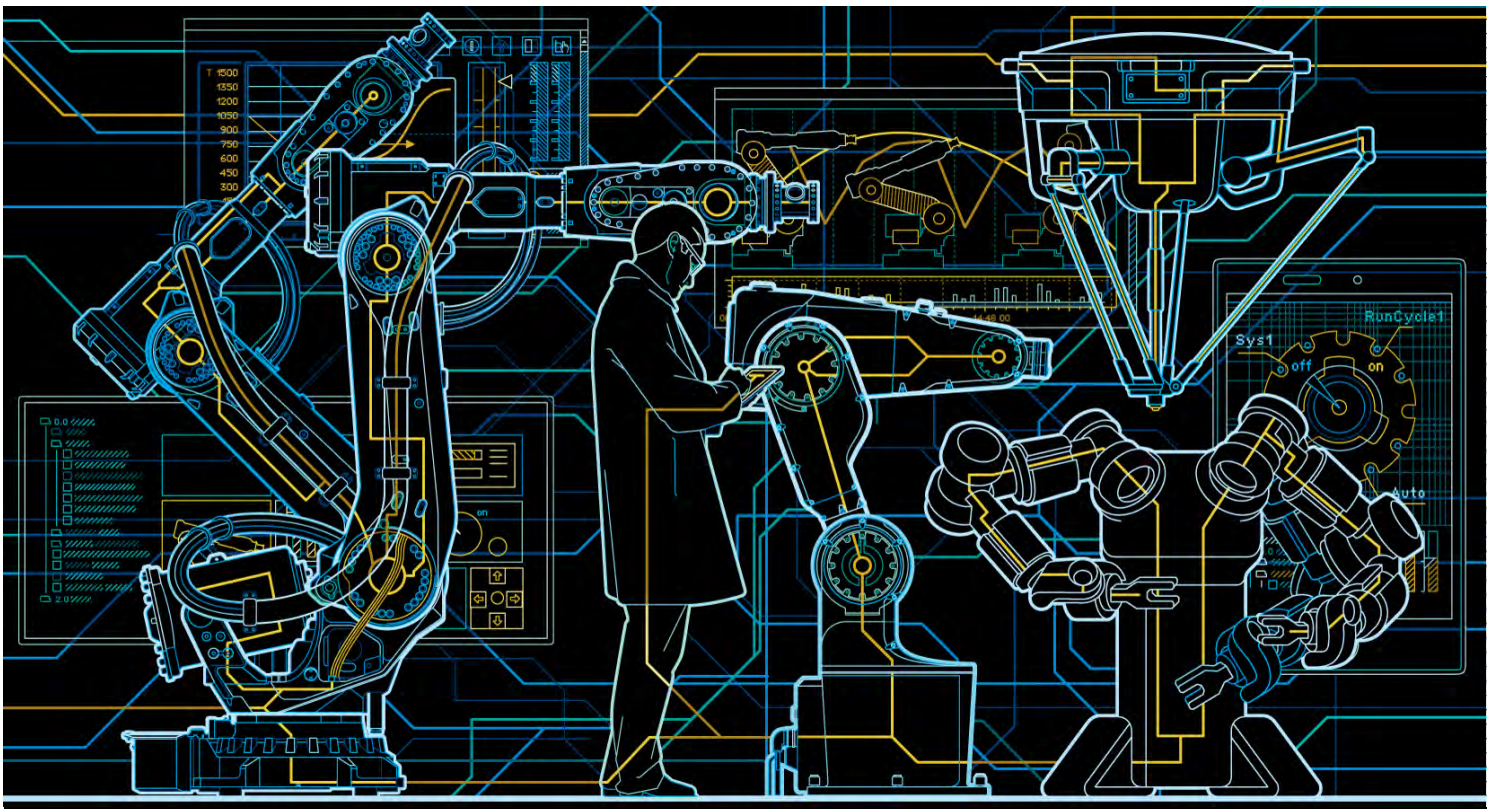

Product manual, spare parts
IRB 660

Power and productivity
for a better world™

Trace back information:
Workspace R16-2 version a6
Checked in 2016-09-09
Skribenta version 4.6.318

Product manual, spare parts

IRB 660 - 180/3.15
IRB 660 - 250/3.15

IRC5

Document ID: 3HAC049102-001

Revision: C

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Overview of this manual

About this manual

This manual contains spare parts for:

- IRB 660 and all its variants.

Usage

This manual shall be used as a complement to the product manual for IRB 660 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
1 Rebuilding robot	Information of rebuilding parts, required when rebuilding the robot to another version.
2 Spare parts and exploded view	Complete spare part list and complete list of robot components shown in exploded views.

References

Reference	Document ID
Product manual - IRB 660	*3HAC025755-001*
Circuit diagram - IRB 660	*3HAC025691-001*

Revisions

Revision	Description
-	First edition
A	This revision includes the following updates: • Spare parts with color Graphite White are added to the spare part lists.
B	This revision includes the following updates: • Generally modified due to update of BOL.

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Revision	Description
C	Published in release R16.2. The following updates are done in this revision: • Corrections due to updates in SAP terminology. • Updated spare parts due to new standard calibration method (Axis Calibration). - Base - Frame - Lower arm - Parallel arm - Tilthouse - Block for calibration • Updated spare parts due to sealing upgrade in the motors: - Motors - Tilthouse

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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.

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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, 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*

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1 Spare parts - frame to base

Parts list

Pos	Description	Article no.	Color	Qty
101	Base, machining	3HAC059481-002	Graphite White	1
		3HAC059481-001	ABB Orange	1
		3HAC059481-003	White RAL 9003	1
102	Frame	3HAC037559-007	Graphite White	1
		3HAC037559-008	ABB Orange	1
		3HAC037559-009	White RAL 9003	1
103	RV 400C-224.26	3HAC022279-002		1
104	Screw M12x70	3HAB 3409-73		24
105	Washer 13x19x1.5	3HAA 1001-134		24
106	Washer T = 3	3HAC 11732-2		3
107	Screw M16x70	3HAB 3409-88		18
108	Hose with flange	3HAC 14453-1		1
109	Rubber lined clip D = 28	3HAC 11529-1		1
110	Screw M6x16	9ADA 618-56		1
111	Hose clip	3HAC 4428-2		1
112	Plug	3HAC 14453-2		1
113	Bottom plate	3HAC 12252-1		1
114	Connection plate, base	3HAC 14131-1		1
115	Screw M6x25	9ADA 618-58		2
116	Cable guide, ax. 1	3HAC 11769-1		1
117	Screw M6x16	9ADA 618-56		2
118	Sealing strip	3HAC042556-001		-
119	Screw M6x8	9ADA 618-53		1

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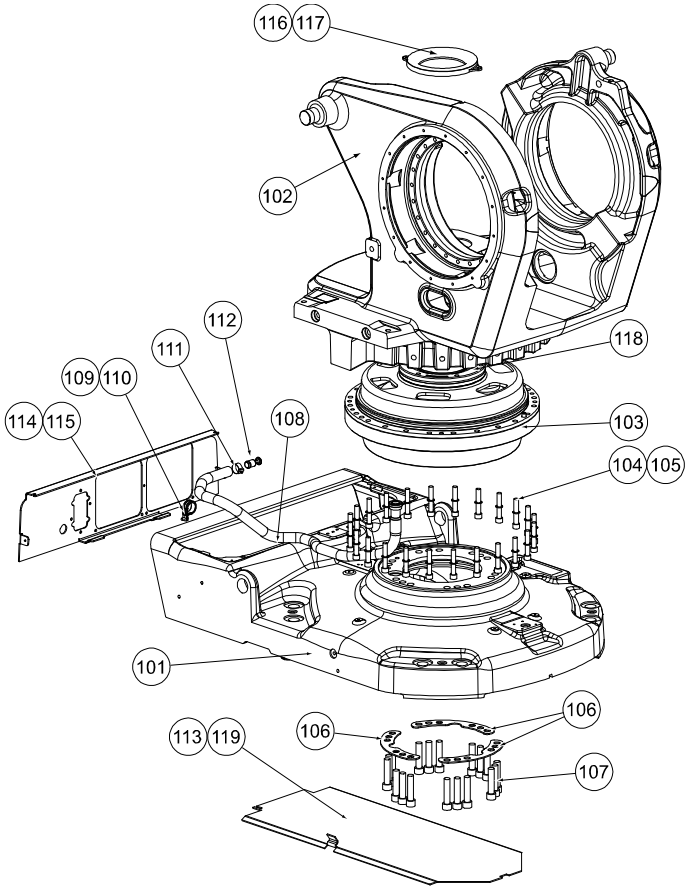

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2 Spare parts - cable harness

Parts list

Item	Article no.	Description	Qty
90.1	3HAC022544-008	Cable harness, man ax.1-6	1
90.3	3HAC 13416-1	Protection cover	1
90.4	3HAC 11774-3	Adapter, complete	1
90.5	3HAC 5172-1	Cable guide, ax.2	1
90.19	3HAC 12129-1	Cover plate	2
90.21	9ADA 618-57	Screw M6x20	2
90.22	9ADA 183-24	Screw M6x16	12
90.24	9ADA 618-56	Screw M6x16	4
90.29	9ADA 629-56	Screw M6x16	6
90.30	9ADA 183-25	Screw M6x20	4
90.31	3HAC7181-1	Loctite 243	-
90.36	3HAC 14222-1	Plate	1
90.37	9ADA 618-57	Screw M6x20	4

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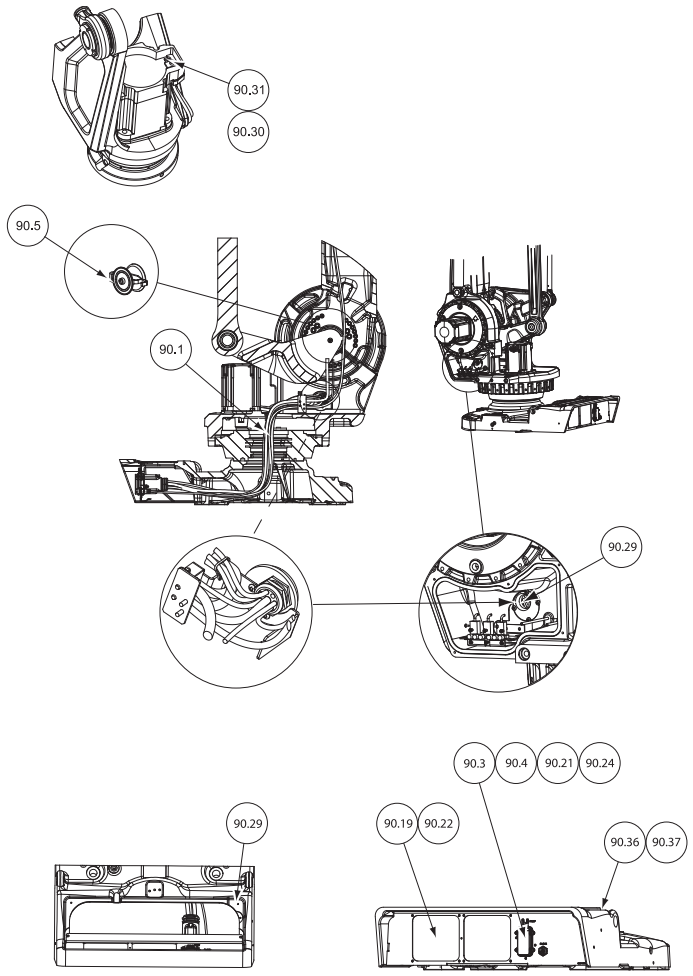

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3 Spare parts - customer harness

Parts list

Pos	Article no.	Description	Qty
1.1	3HAC022545-007	Cable harness, customer	1
1.2	3HAC023407-001	Attachment plate	1
1.3	3HAC 13416-1	Protection cover	1
1.4	3HAC 11774-3	Adapter, complete	1
1.5	9ADA 183-24	Screw M6x16	4
1.7	9ADA 618-57	Screw M6x20	4
1.8	3HAC 12625-1	Strap, Velco M5x300	1
1.9	9ADA 183-15	Screw M5x20	6
1.10	9ADA 267-6	Nut	10
1.12	9ADA 183-34	Screw M8x12	2
1.15	3HAC022969-001	Bracket	1
1.16	3HAC023100-001	Cover plate	1

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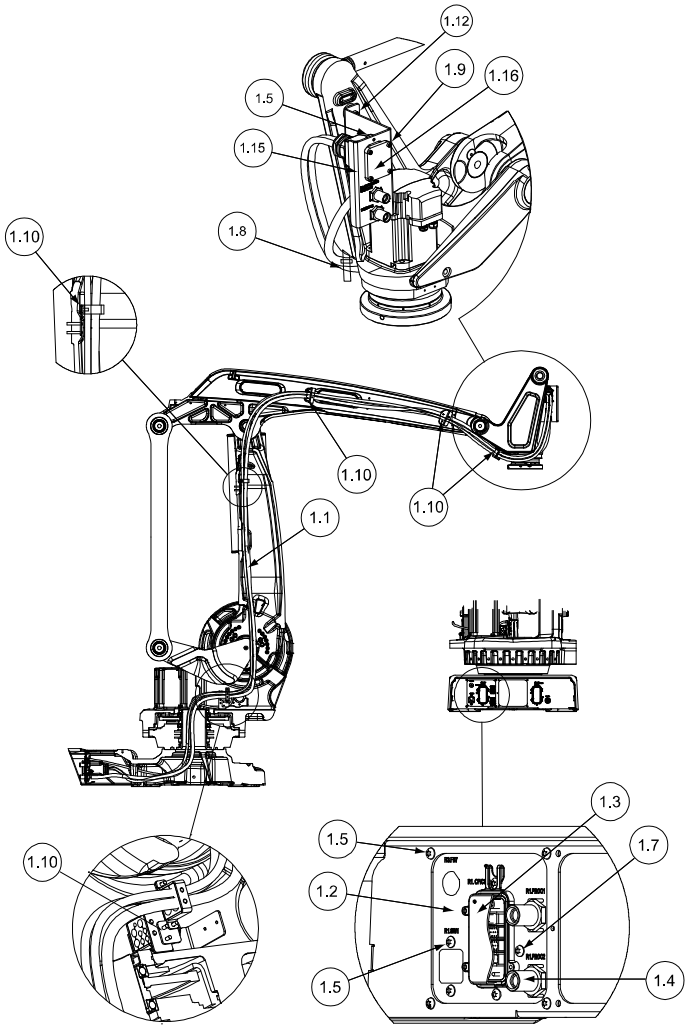

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4 Spare parts - lower arm system

Parts list

Pos	Description	Article no.	Color	Qty
301	Lower arm	3HAC021464-007	White RAL 9003	1
		3HAC021464-005	Graphite White	1
		3HAC021464-006	ABB Orange	1
302	Parallel arm	3HAC023026-006	White RAL 9003	1
		3HAC023026-004	Graphite White	1
		3HAC023026-005	ABB Orange	1
303	VK-Cover, VK 35x8 (Not visible in this figure.)	3HAA2166-18		1
304	Alvania WR2	3HAC042536-001		-
305	Spacing sleeve	3HAC4435-1		2
306	Sealed spherical bearing	3HAB4169-1		2
310	VK-cover, VK 120x12	3HAA2166-23		1
311	Damper	3HAC022338-001		2
312	Screw M8x25	9ADA183-37		4
313	Plain washer 8,4x16x1,6	9ADA312-7		4
314	Loctite 243	3HAC7181-1		-
315	Damper ax.2	3HAC12991-1		3
316	Screw M6x20	9ADA618-57		3
317	Protection plug	3HAC4836-8		1
318	Damper	3HAC022339-001		1

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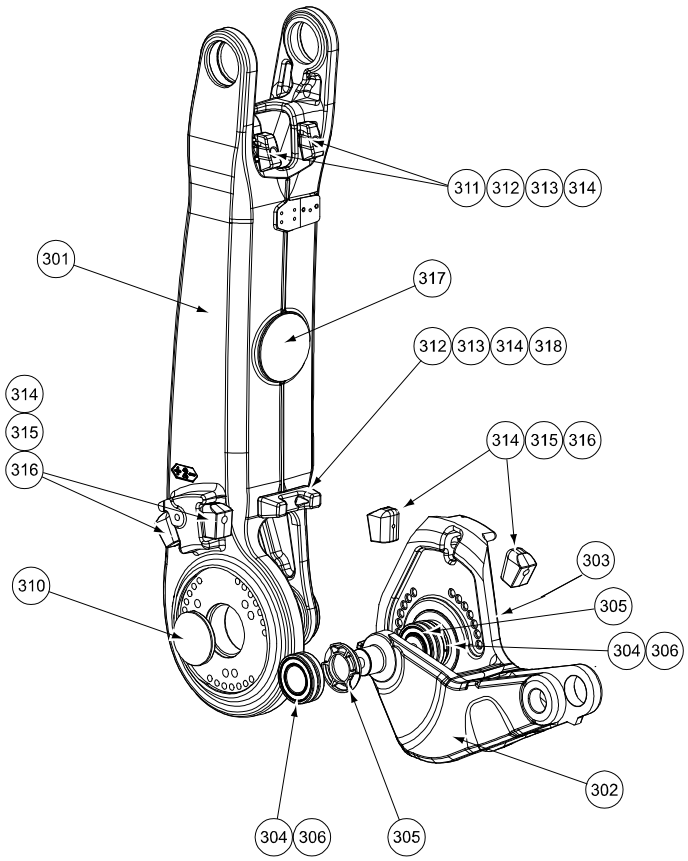

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5 Spare parts - parallel rod

Parts list

Pos	Article no.	Description	Qty
201	3HAC021084-004	Parallel rod (White RAL 9003)	1
202	3HAC042536-001	Alvania WR2	-
203	3HAC 4331-1	Thrust washer	2
204	3HAC 3715-1	Sealed spherical bearing	2
205	3HAC 4332-1	Cover washer	2
206	3HAC 4330-1	Shaft	2

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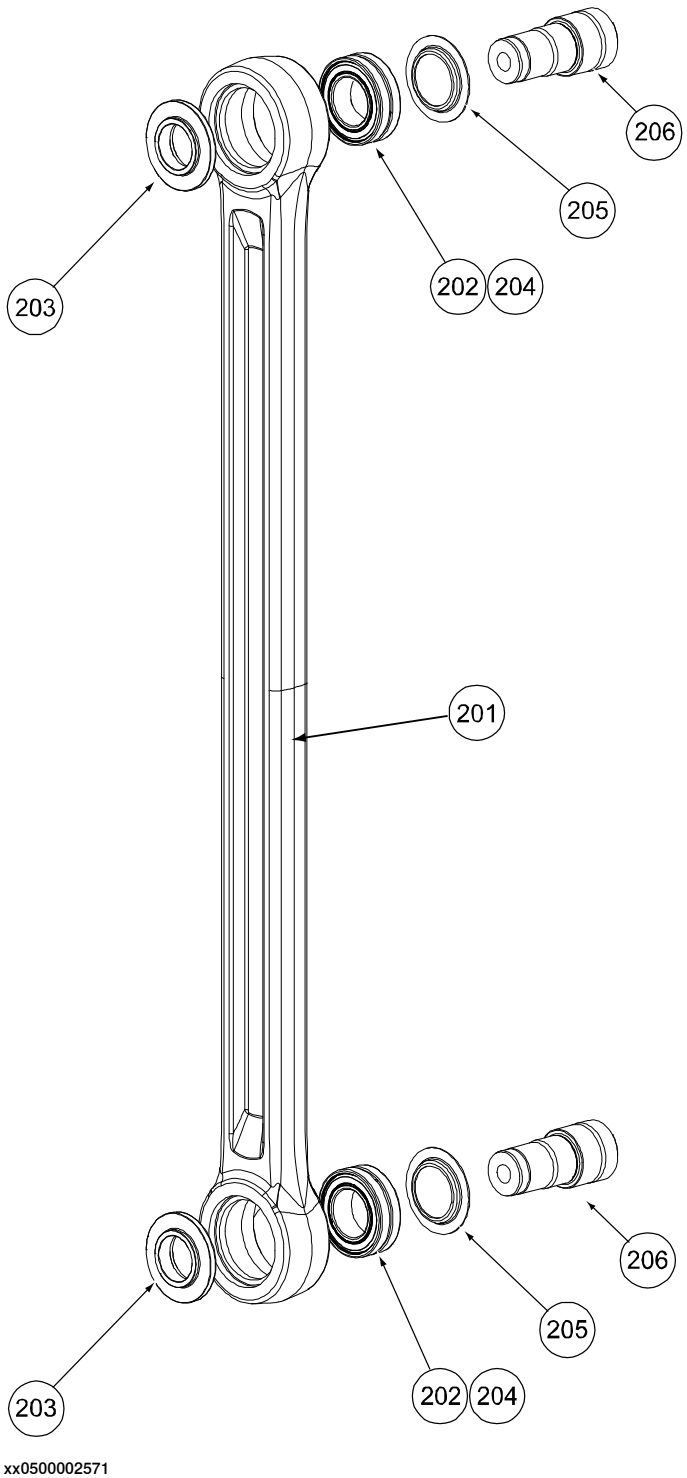

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6 Spare parts - Balancing device

Parts list

Pos	Article no.	Description	Color	Qty
4	3HAC024779-001	Balancing device (White RAL 9003)	White	1
4	3HAC024779-002	Balancing device	ABB Orange	1
	3HAC024779-003	Balancing device	Graphite White	1
4.6	3HAC 3476-1	Guiding ring		1
4.10	3HAC 3530-1	Circlip		1
58	3HAC042475-001	Sealing compound		200 ml
59	3HAC 7343-1	Sealing ring		2
60	3HAC 7253-1	Support washer		4
61	3HAC 3311-4	Adjust. Needle bearing		2
62	3HAC042536-001	Alvania RW2		10 g
63	3HAC 7349-1	Lock nut		2
64	3HAC 7181-1	Loctite 243		-

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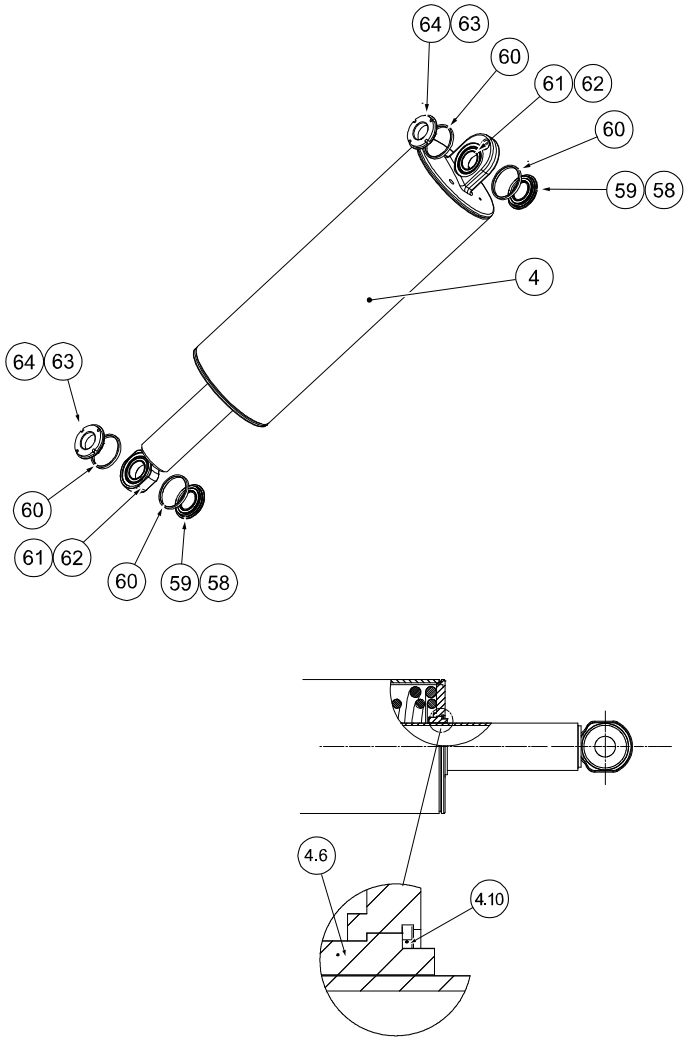

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7 Spare parts - frame to lower arm

Parts list

Pos	Description	Article number	Color	Qty.
11	Sealing ax.2/3	3HAC022379-001		1
12	Washer 13x19x1,5	3HAA 1001-134		24
13	Screw M12x60	3HAB 3409-71		24
14	RV-450E	3HAC022644-001		1
15	O-ring	3HAB 3772-84		1
16	Plain washer 8,4x16x1,6	9ADA 312-7		16
17	Screw M8x35	9ADA 183-39		16
18	Cover, machined	3HAC021663-004	Graphite White	1
		3HAC021663-006	ABB Orange	1
19	Washer	3HAB 4233-1		4
20	Screw M10x40	3HAB 3409-50		4
21	Motor including pinion axis 2	3HAC058991-004	Graphite White	1
		3HAC058991-003	ABB Orange	1
		3HAC058991-005	White RAL 9003	1
22	Sealing ax.2/3	3HAC022379-001		1
23	RV-450E ax.3	3HAC022644-001		1
24	Screw M12x60	3HAB 3409-71		24
25	Washer 13x19x1,5	3HAA 1001-134		24
26	Cover, machined	3HAC021663-004	Graphite White	1
		3HAC021663-006	ABB Orange	1
27	Screw M8x35	9ADA 183-39		16
28	Plain washer 8,4x16x1,6	9ADA 312-7		16
29	O-ring	3HAB 3772-84		1
30	Motor including pinion axis 3	3HAC058991-004	Graphite White	1
		3HAC058991-003	ABB Orange	1
		3HAC058991-005	White RAL 9003	1
31	Screw M10x40	3HAB 3409-50		4
32	Washer	3HAB 4233-1		4
33	Screw M16x60	3HAB 3409-86		6
34	Washer 17x25x3	3HAA 1001-186		6
35	Screw M12x50	3HAB 7700-69		21
36	Washer 13x19x1,5	3HAA 1001-134		21
37	Screw M12x50	3HAB 7700-69		21
38	Washer 13x19x1,5	3HAA 1001-134		21
39	Kyodo Yushi TMO 150	3HAC032140-004		20 000 ml

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Pos	Description	Article number	Color	Qty.
40	Magnetic plug	3HAC 16721-1		3
41	Magnetic plug	3HAC 16721-1		3
42	Kyodo Yushi TMO 150	3HAC032140-004		20 000 ml

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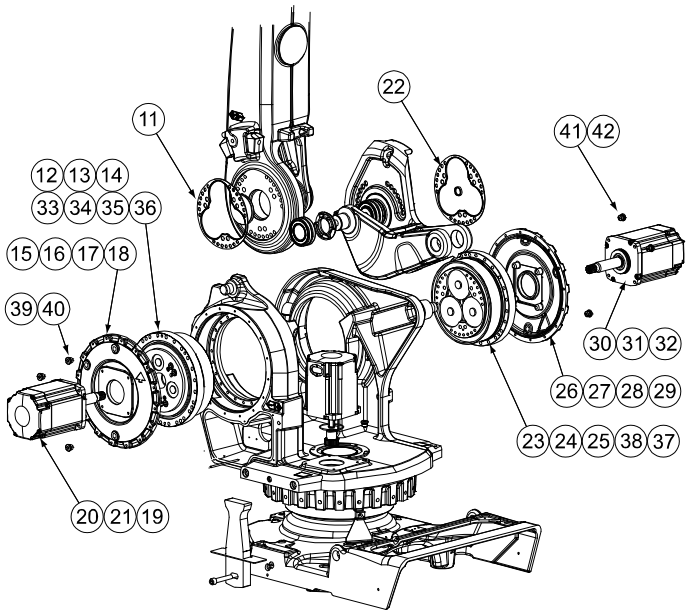

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8 Spare parts - shafts

Parts list

Pos	Article no.	Description	Color	Qty
501	3HAC025525-002	Upper arm machining	ABB Orange	1
	3HAC025525-003	Upper arm machining	Graphite White	1
502	3HAA 1001-124	Support ring		2
43	3HAC 4545-1	Shaft		1
44	3HAC 022446-001	Shaft		1
45	3HAC042472-001	Molycote 1000		-
46	3HAB 3772-29	O-ring		2
47	2216 264-16	Sealing ring		2
48	3HAC 022581-001	Sealing ring		2
49	3HAC042536-001	Alvania RW2		-
50	2213 3802-8	Taper roller bearing		2
51	3HAC 7817-1	Nilos ring		2
52	3HAC 6627-1	Spacer		2
53	3HAA 1001-658	O-ring		2
54	3HAC 7181-1	Loctite 243		-
55	2126 2851-112	Lock nut		2
56	9ADA 205-75	Screw M10x20		2
57	3HAC 7181-1	Loctite 243		-

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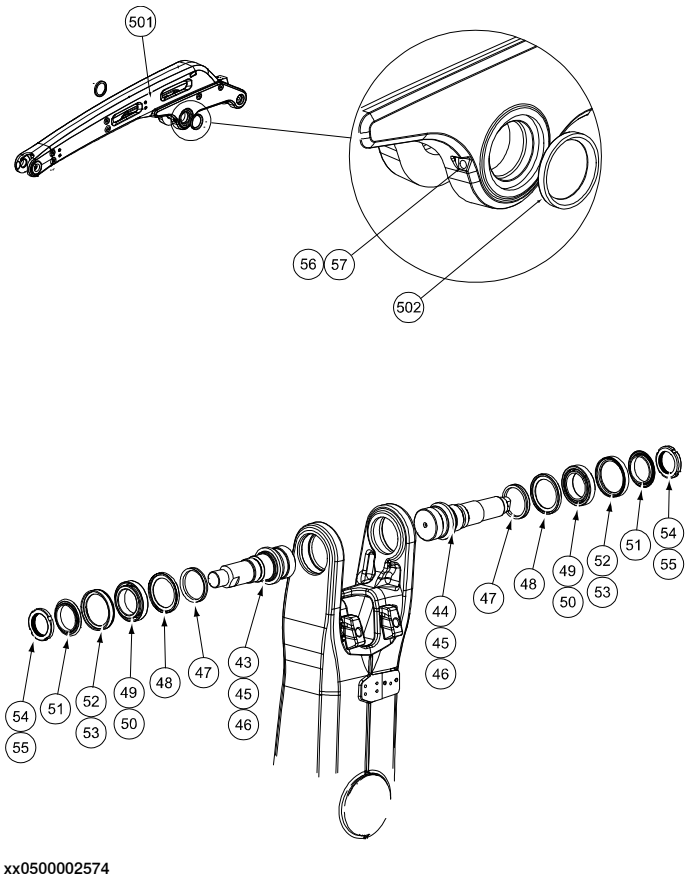

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9 Spare parts - tilthouse

Parts list

Pos	Description	Article no.	Color	Qty
508.1	Tilthouse complete	3HAC022764-007	White RAL 9003	1
		3HAC022764-008	ABB Orange	
		3HAC022764-009	Graphite White	
508.2	Motor including pinion axis 6	3HAC057980-006	White RAL 9003	1
		3HAC057980-003	ABB Orange	
		3HAC057980-004	Graphite White	
508.3	Gearbox RV 40E-81	3HAC037835-001		1
508.4	Screw M8x40	3HAB7700-55		8
508.5	Washer 8.4x13x1.5	3HAA1001-172		8
508.6	Turning disc	3HAC030223-001		1
508.7	Sync.plate	3HAC022977-001		1
508.8	Screw M4x8	9ADA618-32		2
508.9	Screw M14x25	21212518-577		6
508.10	Magnetic plug	3HAC037925-001		2
508.11	Screw M8x20	9ADA624-69		2
508.12	Protection Cover	3HAC14263-1		1
508.13	Screw M8x25	9ADA183-37		4
508.14	Plain washer 8,4x16x1,6	9ADA312-7		4
508.15	Loctite 243	3HAC7181-1		1 ml
508.16	O-ring 15.5x1.5	21520431-20		6
508.17	Kyodo Yushi TMO 150	3HAC032140-004		20 000 ml
508.18	O-ring 131x2	3HAB3772-65		1
508.19	Washer	21520441-1		2

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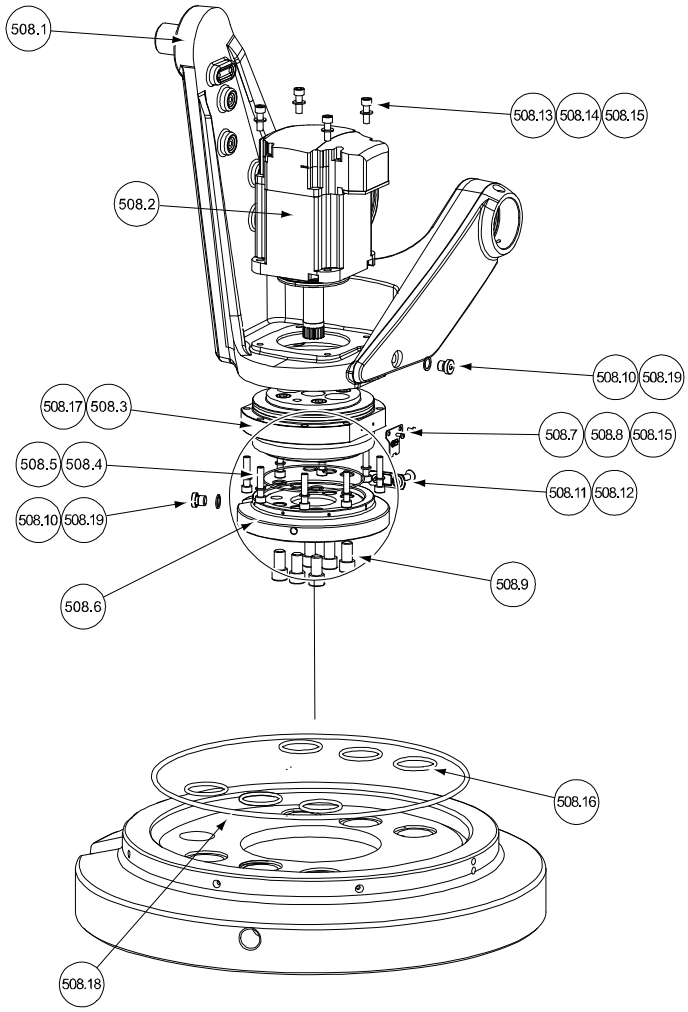

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10 Spare parts - upper arm front

Parts list

Pos	Article no.	Description	Qty
501	3HAC025525-001	Upper arm machining (White RAL 9003)	1
503	9ADA 629-56	Screw M6x16	2
504	9ADA 327-4	Plain washer 6,4x17x3	2
505	3HAC7181-1	Loctite 243	-
506	3HAC022673-001	Ball plug	1
507	3HAC023027-001	Protection cap	1
508	3HAC022764-003	Tilt house	1
509	3HAA 2166-21	VK-Cover, VK 68x8	2
510	2126 2851-107	Lock nut	2
511	3HAC021158-001	Shaft upper arm	2
512	3HAA 2166-17	VK-Cover, VK 19x6	2
513	2213 3802-11	Taper roller bearing	4
514	3HAC042536-001	Shell Alvania RW2	-
515	3HAC022645-001	Ring	1
516	3HAB 3701-35	Radial seal w. dustlip 50x68x8	2
517	9ADA 183-22	Screw M6x10	4
518	3HAC020537-001	Washer 6,4x12x1,6	4
520	9ABA 137-28	Retaining ring, bore	2

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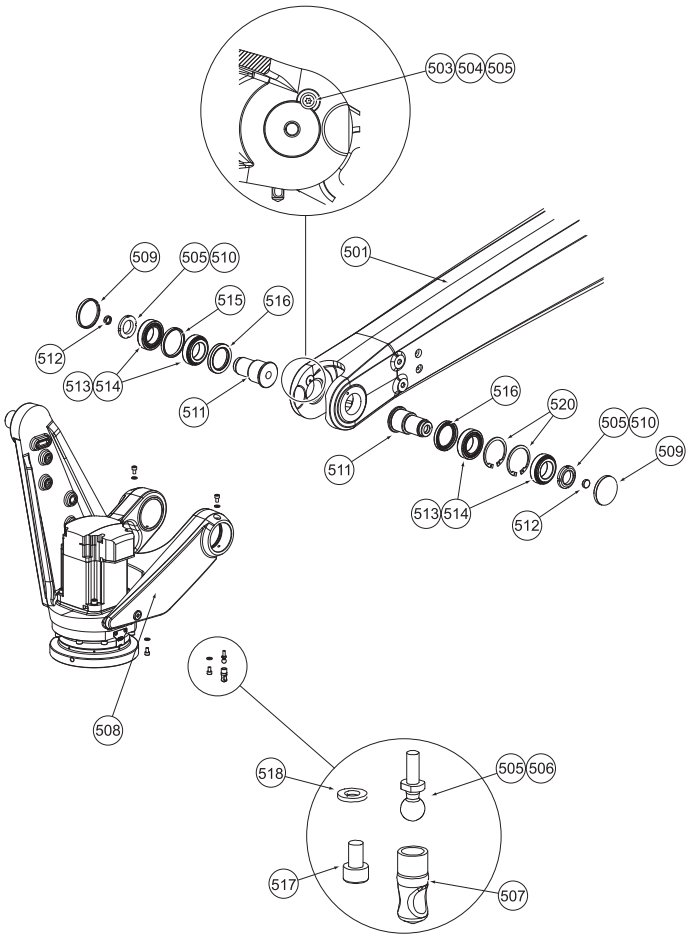

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11 Spare parts - Linkage

Parts list

Pos	Article no.	Description	Color	Qty.
601	3HAC023744-003	Upper rod (White RAL 9003)		1
602	3HAC023239-003	Lower rod (White RAL 9003)		1
603	3HAC042475-001	Sealing compound Permatex NR3		-
604	3HAC7343-1	Ring		4
605	3HAC7253-1	Support washer		8
606	3HAC3311-4	Adjust. needel bearing		4
607	3HAC042536-001	Alvania WR2		-
608	3HAC7349-1	Lock nut		4
609	3HAC 7181-1	Loctite 243		-
701	3HAC021088-004	Link, machining	ABB Orange	1
	3HAC021088-006	Link, machining	Graphite White	1
702	3HAA 2103-13	Taper roller bearing		2
703	3HAC042536-001	Alvania WR2		-
704	3HAC042475-001	Sealing compound Permatex NR3		-
705	3HAB 3702-31	Radial seal 85x100x9		1
706	3HAC022521-001	Support Ring		1
707	2126 2851-108	Lock nut		1
708	3HAC 7181-1	Loctite 243		-
709	3HAA 2166-13	VK-Cover		1

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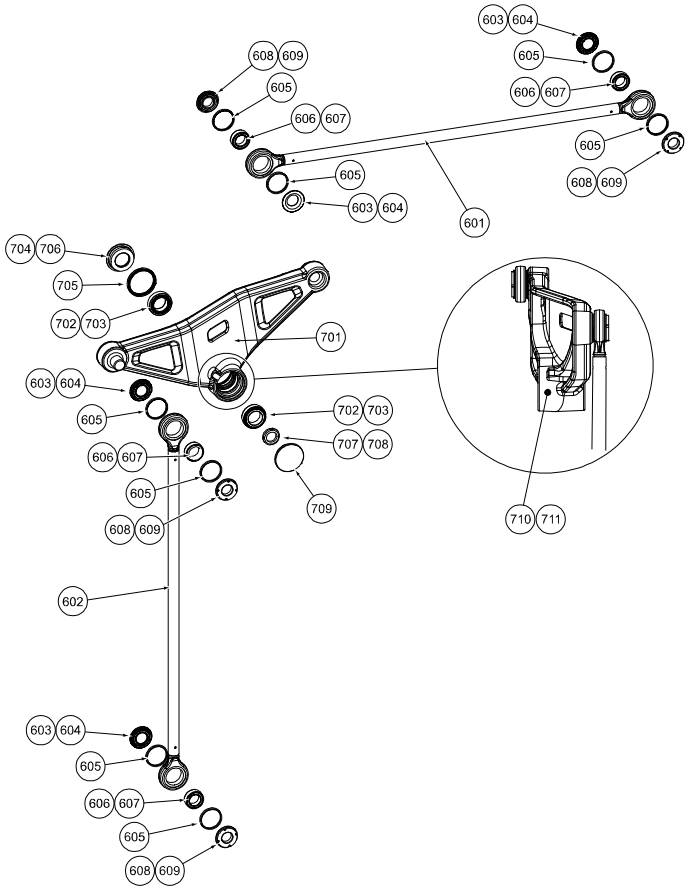
Exploded view



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12 Spare parts - motor axis1

Parts list

Pos	Description	Article no.	Color	Qty
65	Motor including pinion axis 1	3HAC058990-003	ABB Orange	1
		3HAC058990-004	Graphite White	1
		3HAC058990-005	White	1
66	Screw M10x40	3HAB3409-50		4
67	Washer	3HAB4233-1		4
68	Magnetic plug	3HAC037925-001		1
69	Magnetic plug	3HAC16721-1		1
70	Kyodo Yushi TMO 150	3HAC032140-004		-
71	Block for calibration	3HAC053973-001		1
72	Protection screw	3HAC14024-1		1
73	Screw M6x20	9ADA618-57		3
74	Synchronization plate	3HAC021287-001		1
75	Screw M6x16	9ADA618-56		2
76	Mech.stop	3HAC17358-1		1
77	Cover sheet	3HAC18306-1		1
78	Screw M16x90	3HAB7700-89		1

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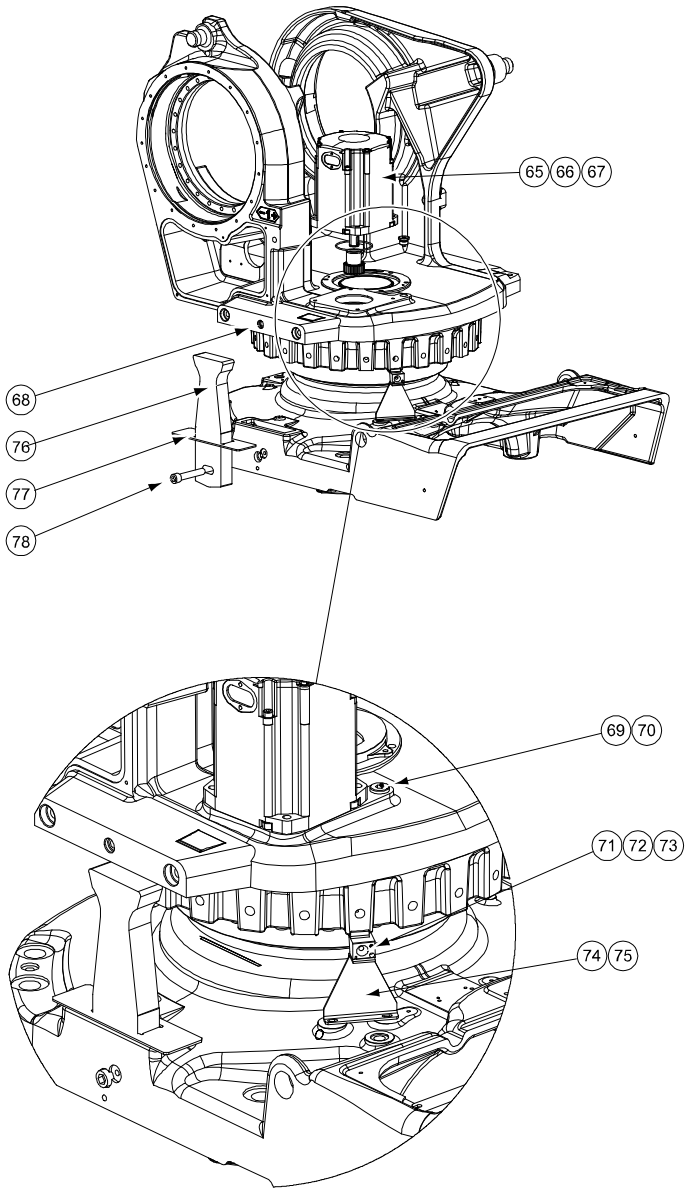
Exploded view



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13 Spare parts - SMB

Parts list

Pos	Article no.	Description	Qty
90.9	3HAC11526-1	Stud screw	2
90.10	3HAC022204-001	Bracket	1
90.11	3HAC 2744-1	Push button guard	1
90.12	3HAC 4813-1	Cover, push button guard	1
90.13	3HAC 16035-1	DSQC 563 Brake release board	1
90.14	3HAC 14791-4	Cover battery box	1
90.15	3HAC 13151-1	Cable battery/SMB Used with battery back 3HAC16831-1.	1
-	3HAC046287-001	Cable battery/SMB Used with battery unit 3HAC044075-001.	1
90.16	3HAC 15619-1	Cable, FB7-SMB 1.7	1
	3HAC031851-001	SMB unit, DSQC 633	1
90.18	3HAC044075-001	Battery unit (3-pole battery contact) Can only be used with SMB unit 3HAC031851-001	1
	3HAC16831-1	Battery pack (2-pole battery contact) Does not fit SMB unit 3HAC031851-001	1
-	3HAC046686-001	SMB replacement set	
90.20	9ADA 267-6	Nut M6	3
90.25	9ADA 183-13	Screw M5x12	6
90.27	9ADA 312-6	Plain washer 6.4x12x1.6	2
90.35	9ADA 618-45	Screw M5x16	6

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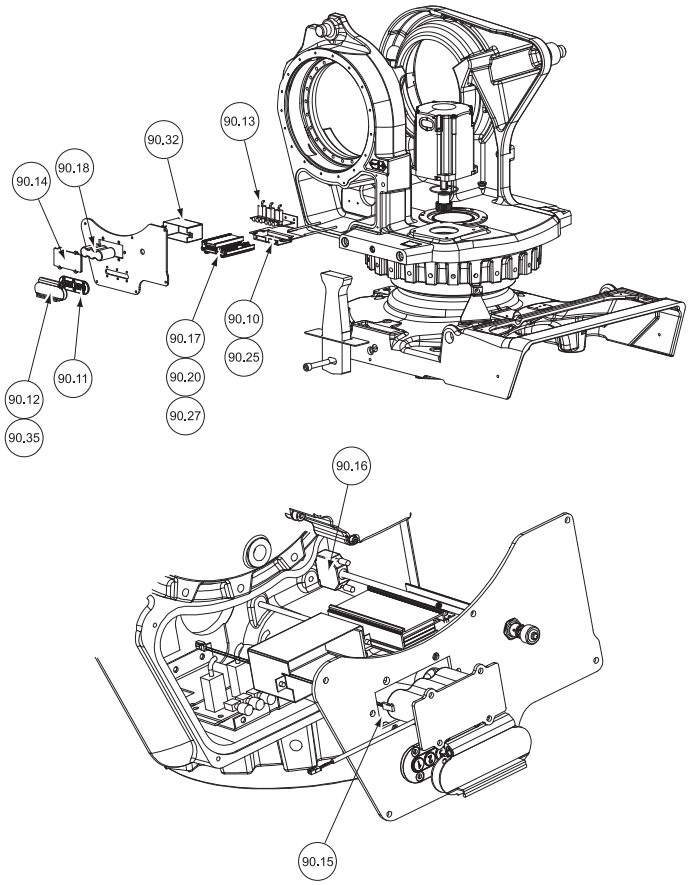
Exploded view



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14 Spare parts - Calibration items

Calibration items

Spare part number	Description	Note
3HAC056806-001	Protection cover and plug set	Contains replacement calibration pin covers and protective plugs for the bushing.

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15 Spare parts - options

Part list

Pos.	Description	Part no.
-	Customer connection kit: CP/CS, Proc. 1 on base	3HAC16667-1
-	Customer connection kit: R2.CP/CS, Proc. 1 on axis 6	3HAC025246-001
-	Base plate	3HAC12937-9

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