Assembly Manual
AP50

Diaphragm Pump
50 CFM

Revision 1B

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AP50 Diaphragm Pump Isometric View

Torque Charts

Imperial Bolt Torque (UNC Threads)

Bolt Size (in.)	Wrench Size (in.)	304 SS (ft·lb / Nm)	Grade 5 Steel (ft·lb / Nm)
1/4	7/16	3 (4)	9 (12)
5/16	1/2	7 (9)	19 (26)
3/8	9/16	13 (17)	34 (46)
7/16	5/8	20 (27)	54 (73)
1/2	3/4	31 (42)	83 (113)
9/16	13/16	45 (61)	120 (163)
5/8	15/16	63 (85)	165 (224)
3/4	1 1/8	112 (152)	293 (397)
7/8	1 5/16	180 (244)	474 (643)
1	1 1/2	270 (366)	710 (963)

Metric Bolt Torque (Coarse Threads)

Bolt Size (mm)	Wrench Size (mm)	304 SS (Nm)	8.8 Steel (Nm)	10.9 Steel (Nm)
M4	7	2.5	3	4
M5	8	5	6	8
M6	10	8	10	13
M8	13	20	24	34
M10	17	40	48	67
M12	19	70	83	117

Torque Marking Requirement

After torquing, mark the bolt head and adjacent surface with a **permanent marker**.

This verifies torque and reveals any loosening or tampering. Misaligned marks require inspection and re-torque.

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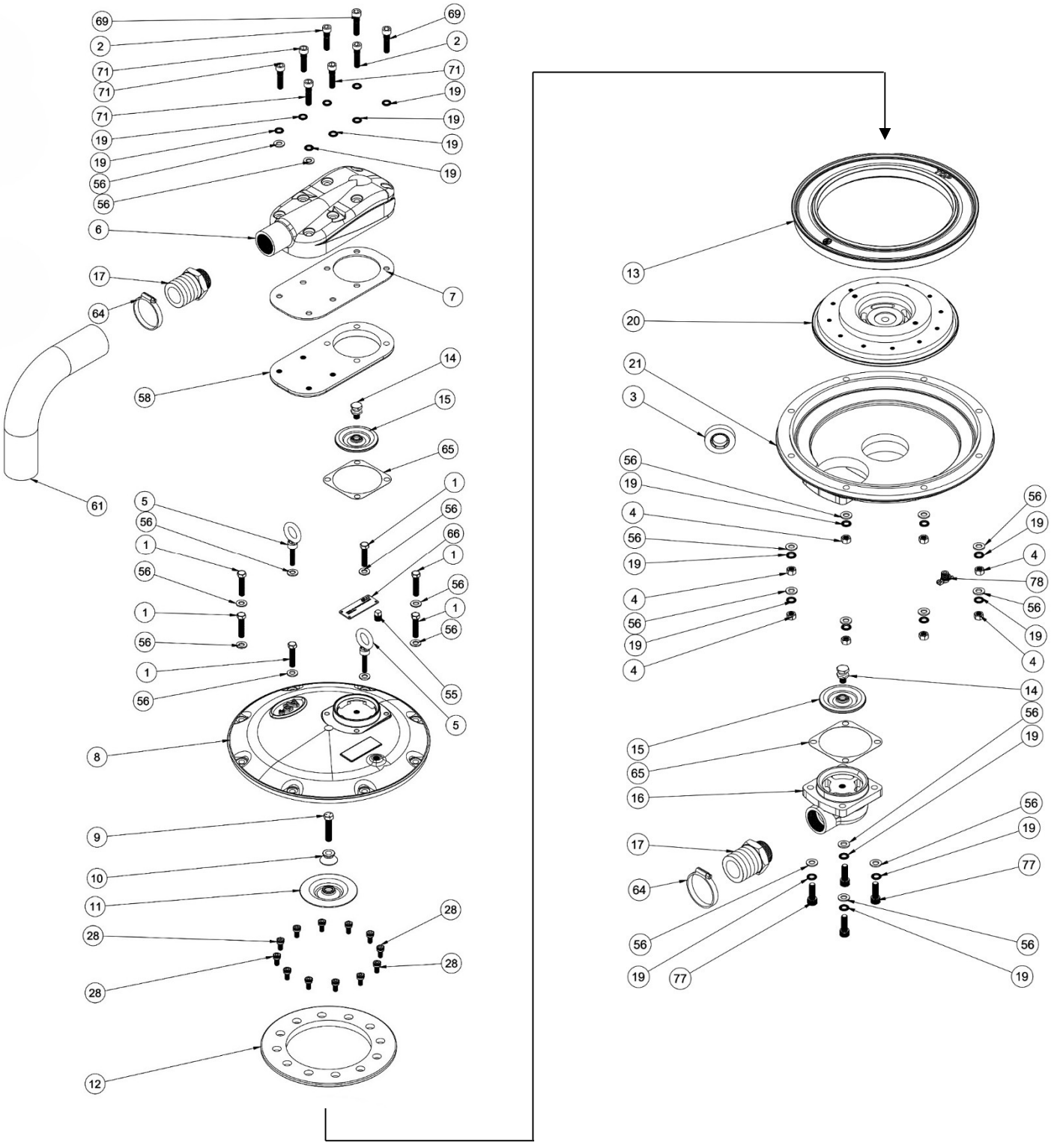
Exploded Assembly

UPPER ASSEMBLY



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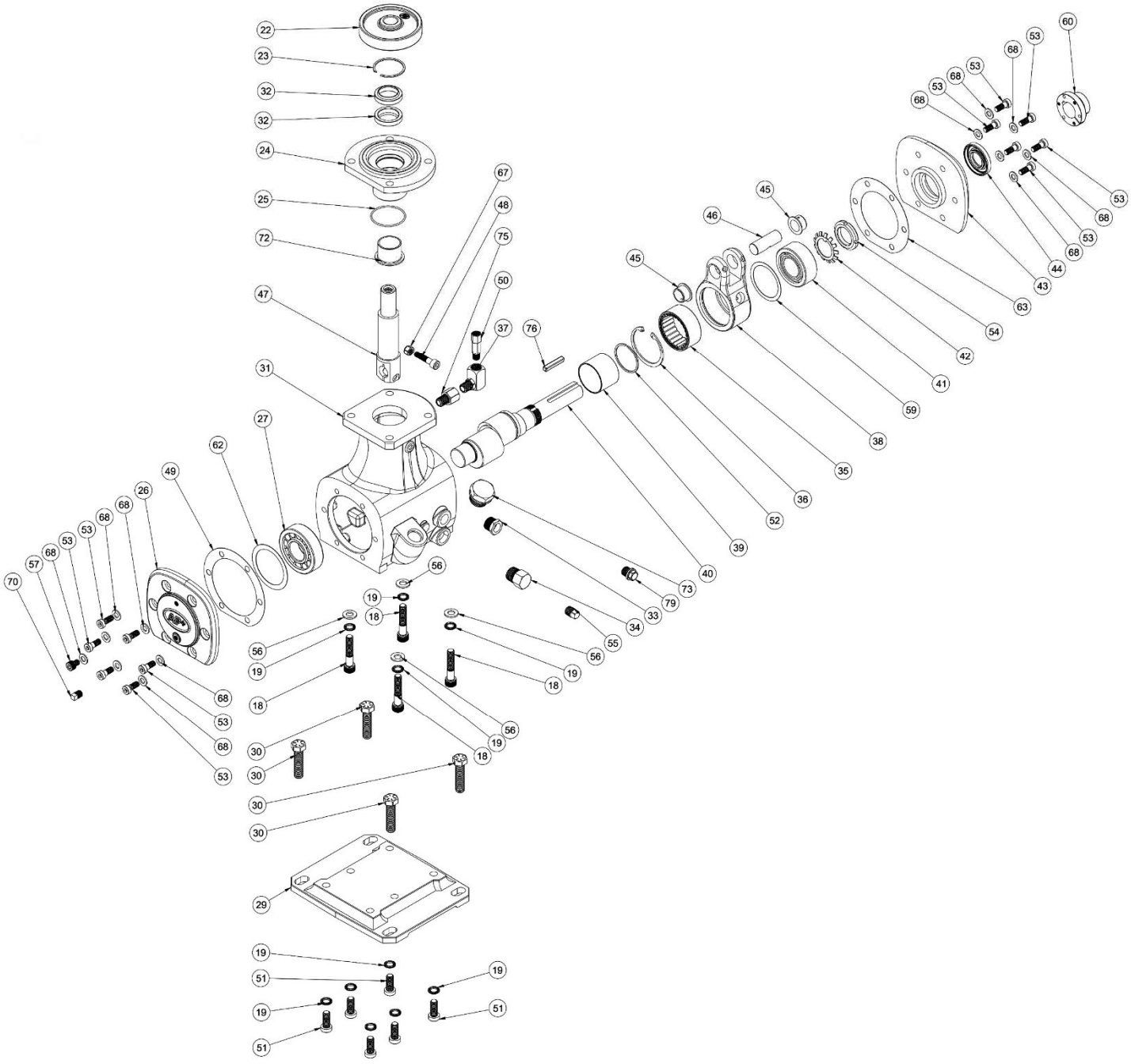
LOWER ASSEMBLY



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Bill of Materials

Item	Qty	Part Name
1	6	BOLT ALLEN HEAD M10 X 1.5 X 40 G8.8
2	2	BOLT ALLEN HEAD M10 X 1.5 X 70 G8.8
3	1	REFLECTIVE TAPE 10MM WIDE, LENGTH = 1175MM
4	8	NUT M10 X 1.5 G8.8
5	2	LIFTING EYE NUT
6	1	OUTLET NOZZLE UPPER
7	1	OUTLET NOZZLE GASKET
8	1	UPPER HOUSING
9	1	BOLT HEX HEAD 7/16"-14 TPI UNC X 2" G5
10	1	ACTUATOR WASHER
11	1	ACTUATOR VALVE
12	1	SPLIT ACTUATOR TOP
13	1	ACTUATOR SEAL
14	2	INLET / OUTLET STUD
15	2	INLET / OUTLET VALVE
16	1	INLET NOZZLE
17	2	HOSE TAIL
18	4	STUD M10 X 1.5 X 40 G8.8
19	30	WEDGE LOCK WASHER PAIR M10 G8.8
20	1	SPLIT ACTUATOR BOTTOM
21	1	LOWER HOUSING
22	1	NECK SEAL
23	1	RING LOCKING ROD ACTUATOR SHAFT
24	1	ROD / ACTUATOR SHAFT GUIDE
25	1	O-RING
26	1	BEARING COVER NDE
27	1	BEARING NDE NJ 306 E
28	12	BOLT ALLEN HEAD M8 X 1.25 X 12 G12.9
29	1	ADAPTER FEET
30	4	BOLT HEX HEAD 1/2"-13 TPI X 2" UNC G5
31	1	CRANKCASE
32	2	SEAL LIP WIPER TYPE
33	1	PLUG OIL LEVEL SIGHT GLASS
34	1	PLUG HEX HEAD 1/2"-14 TPI BSPP
35	1	NEEDLE ROLLER BEARING TO SUIT CONROD
36	1	CIRCLIP CRANKSHAFT
37	1	90 DEGREE ELBOW
38	1	CONNECTING ROD
39	1	RING BEARING IR CRANKSHAFT SLEEVE
40	1	CRANKSHAFT
41	1	BEARING DE
42	1	WASHER BEARING LOCK
43	1	BEARING COVER DE
44	1	DOUBLE OIL SEAL BEARING COVER DE
45	2	BEARING SOLID BUSH
46	1	CONNECTING ROD PIN
47	1	ACTUATOR SHAFT
48	1	BOLT ALLEN HEAD M8 X 1.25 X 35 G8.8
49	1	BEARING GASKET NDE
50	1	NIPPLE AIR RELEASE
51	6	BOLT LOW PROFILE ALLEN HEAD M10 X 1.5 X 25 G8.8
52	1	RING LOCKING CRANKSHAFT
53	12	BOLT ALLEN HEAD M8 X 1.25 X 20 G8.8
54	1	NUT BEARING LOCK
55	2	PLUG SQUARE HEAD
56	26	FLAT WASHER M10 G8.8 OD 20MM
57	1	BOLT ALLEN HEAD M8 X 1.25 X 10 G8.8
58	1	OUTLET NOZZLE LOWER
59	1	SHIM
60	1	QUICK DISCONNECT (QD) BUSHING
61	1	VACUUM PUMP EXHAUST HOSE
62	1	SHIM
63	1	BEARING GASKET DE
64	2	EXHAUST HOSE CLAMP
65	2	GASKET INLET / OUTLET
66	1	DATA PLATE
67	1	NYLON LOCK NUT M8 X 1.25 G8.8
68	13	FLAT WASHER M8 G8.8 OD 16MM
69	2	BOLT ALLEN HEAD M10 X 1.5 X 65 G8.8
70	1	PLUG SQUARE HEAD
71	4	BOLT ALLEN HEAD M10 X 1.5 X 50 G8.8
72	1	DU BUSH FLANGED METRIC (30X34X26)
73	1	PLUG HEX HEAD 3/4" - 14 TPI BSPP
75	1	NIPPLE
76	1	KEY STEEL
77	4	BOLT ALLEN HEAD M10 X 1.5 X 30 G8.8
78	1	COCK VALVE 1/4" NPT
79	1	PLUG 1/4" BSPP

Assembly Symbol Legend

Item No.	Symbol	Symbol Meaning
1		Hydralic Press and Press Sleeves
2		Loctite 263 Red High Strength Threadlocker
3		Torque Wrench and Bolt Tightening Sequence
4		Circlip Pliers
5		15W40 Engine Oil Dispenser
6		Spanner
7		Thread Seal Teflon Tape
8		Rotate Apparatus
9		Move Components In Direction of Arrow
10		Measurement Required
11		Oil Seal Neck Protector
12		Heat-Resistant Gloves Heat Component to Stated Temperature

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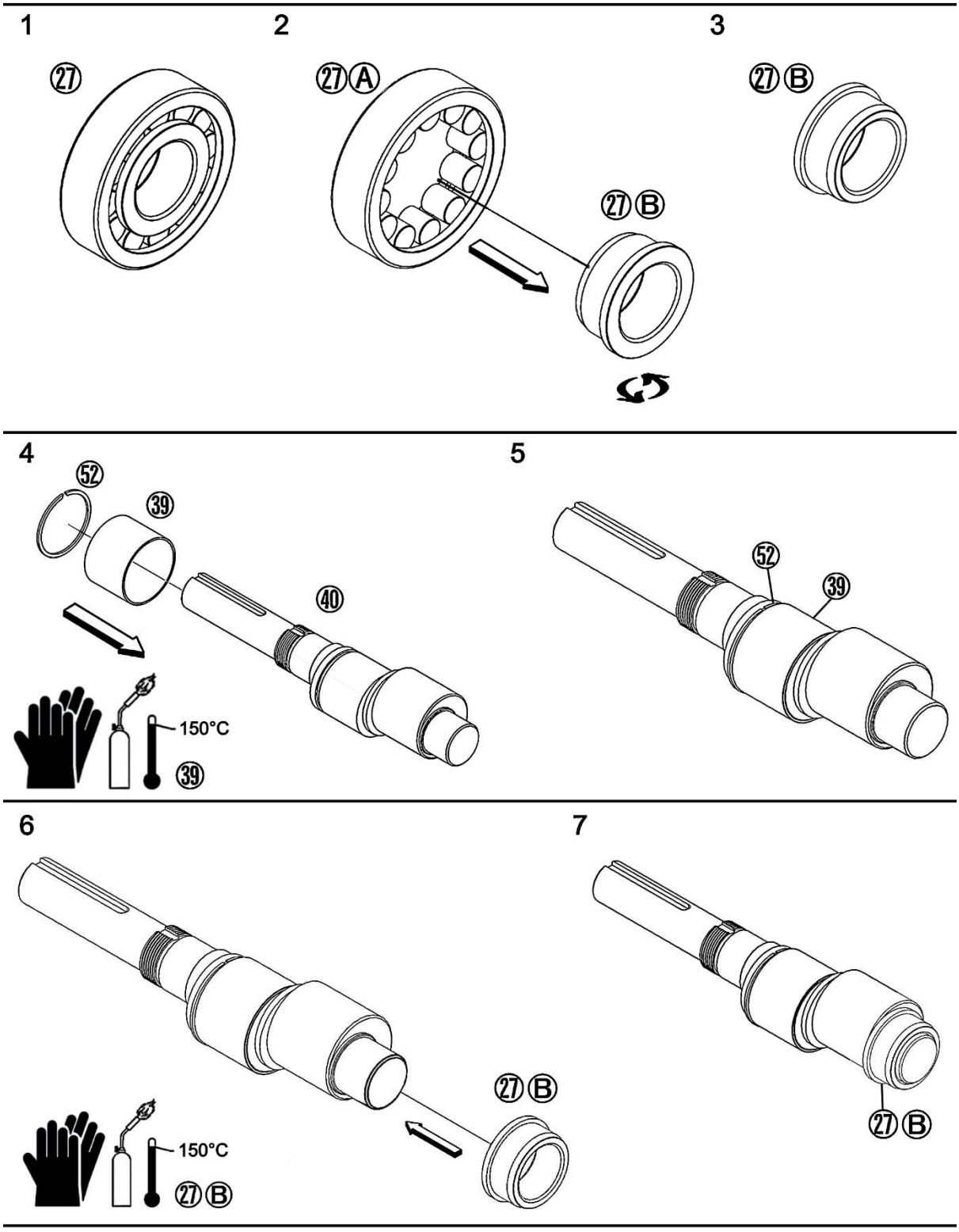
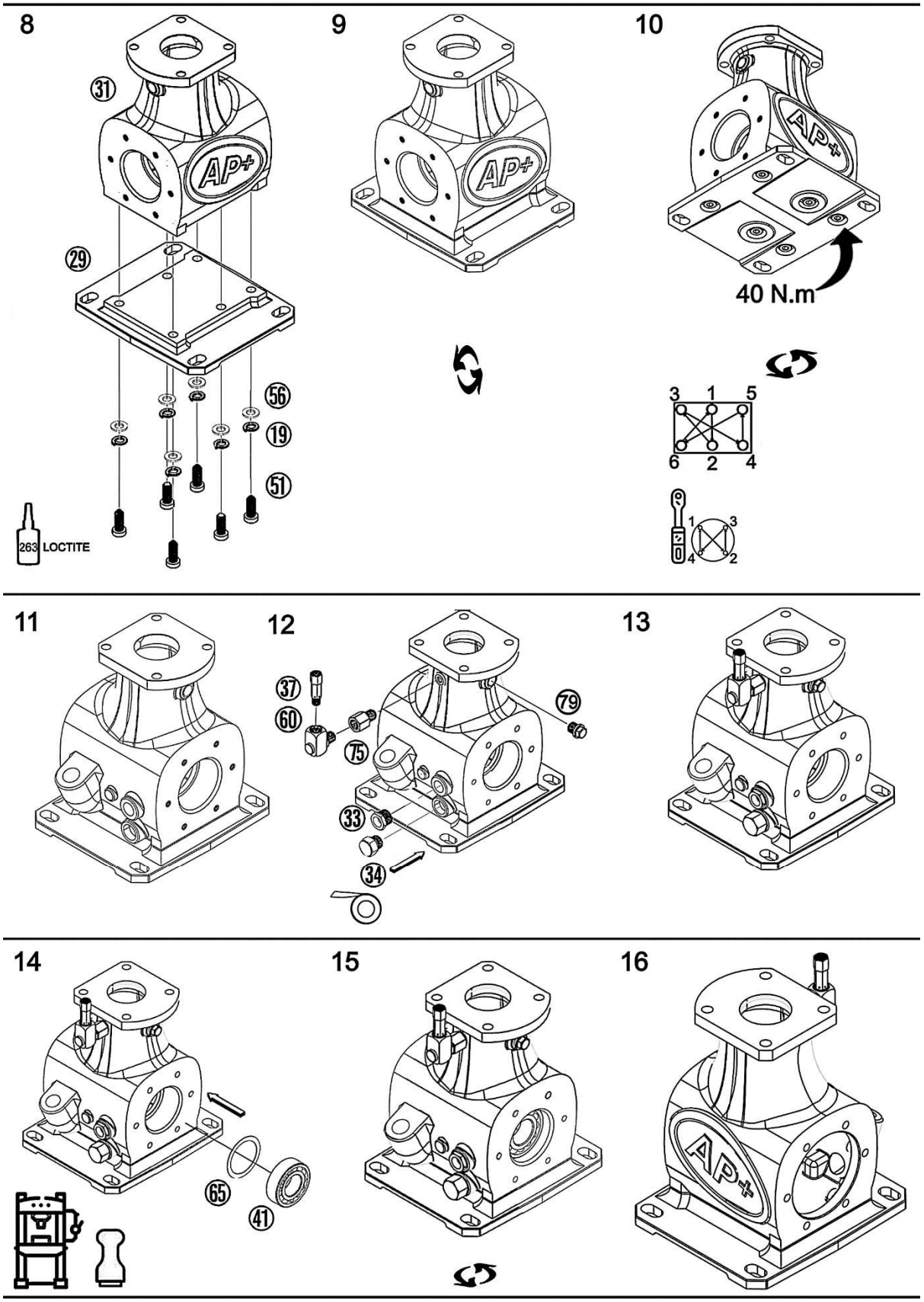
Assembly Guide




8
31
29
56
19
51
263 LOCTITE
9
10
40 N.m
3 1 5
6 2 4
11
12
37
60
75
79
33
34
13
14
65
41
15
16

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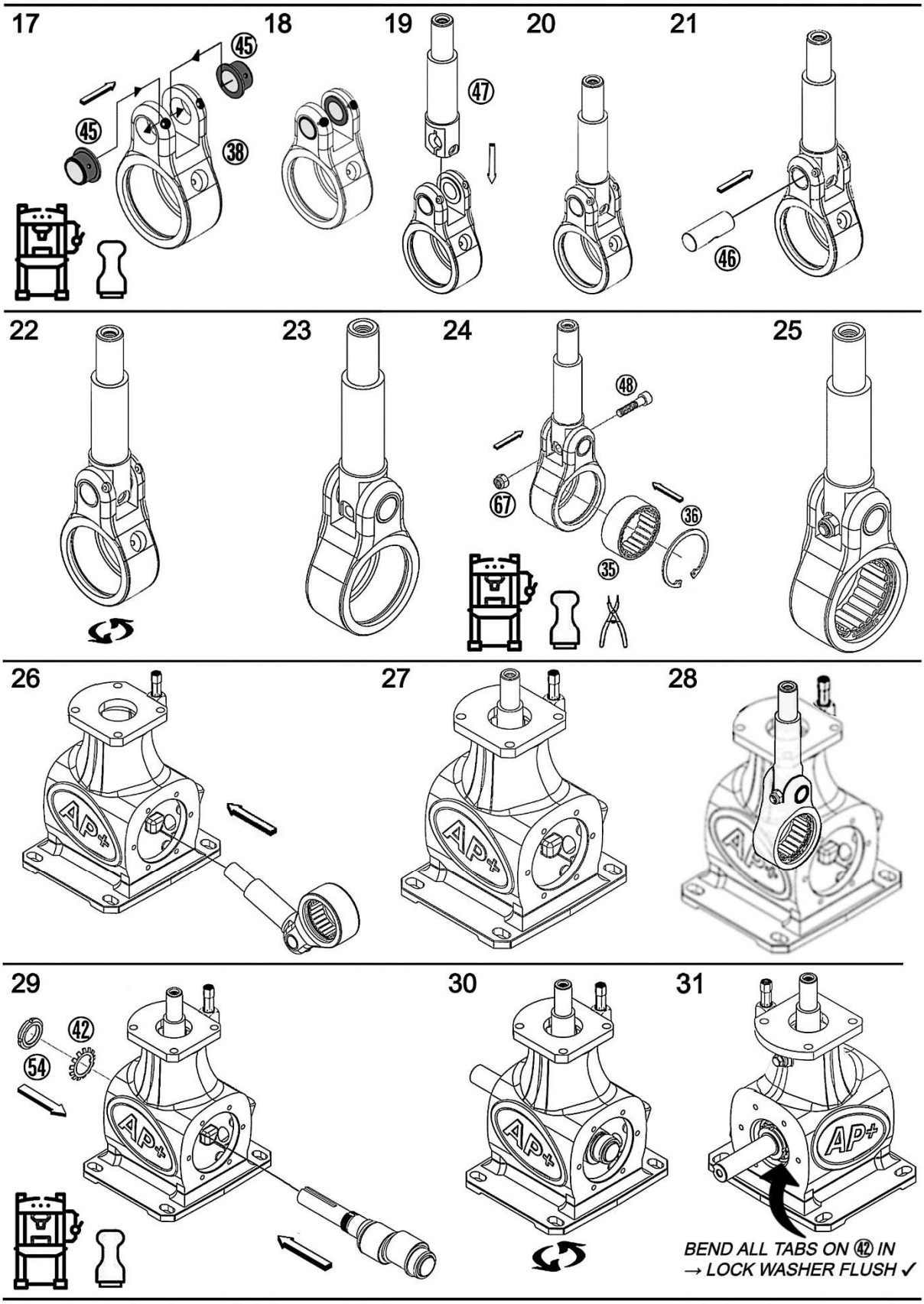
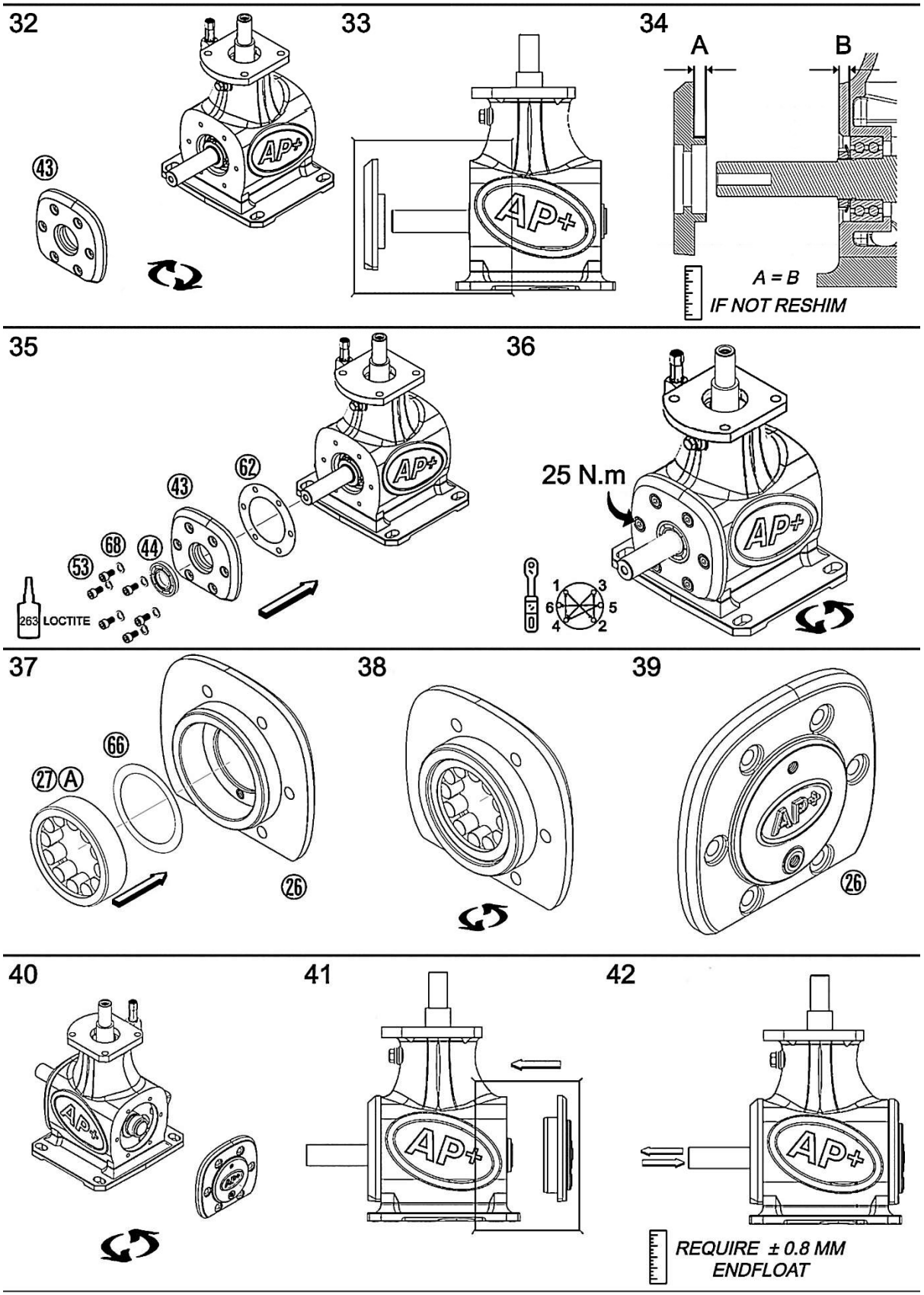
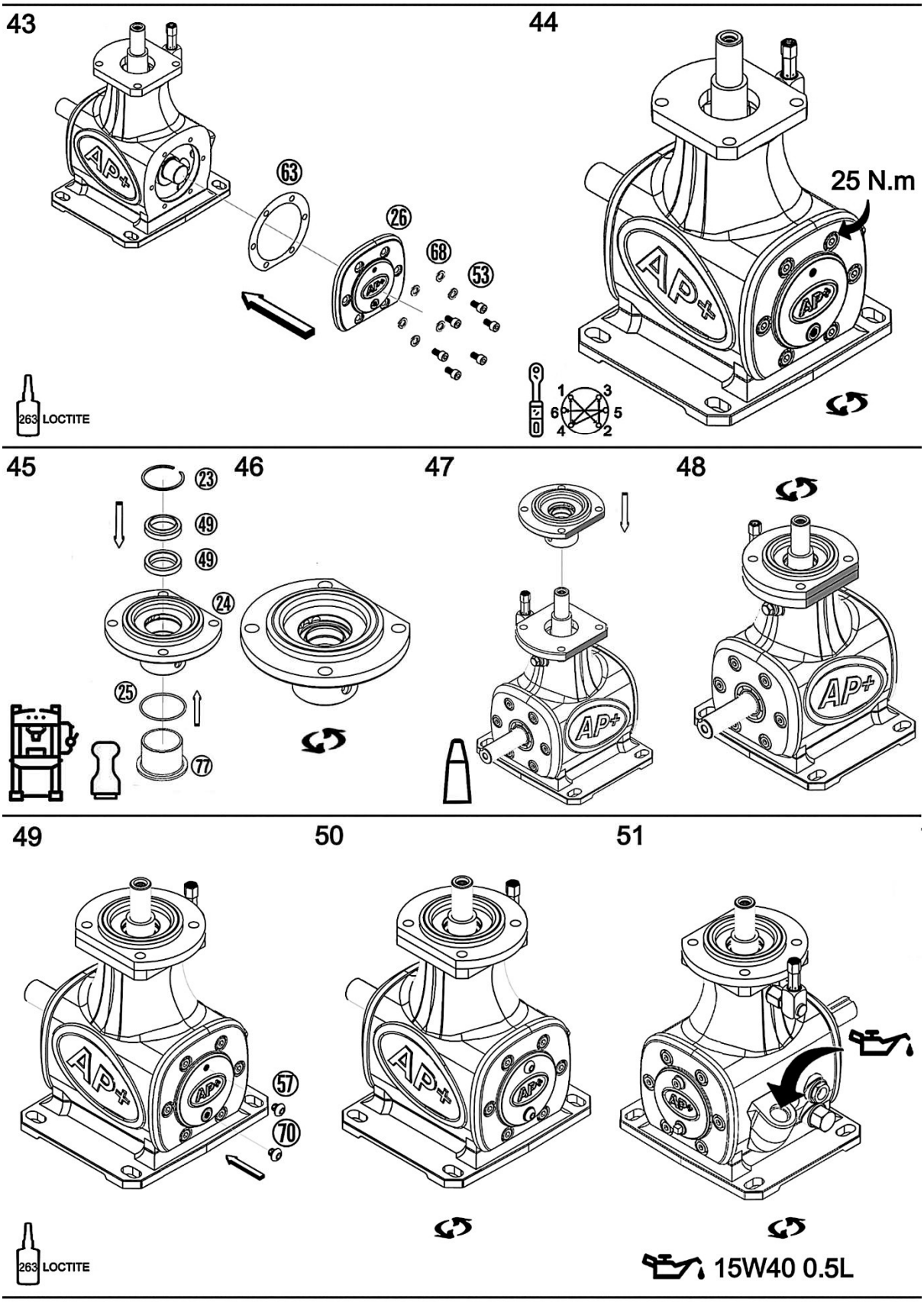
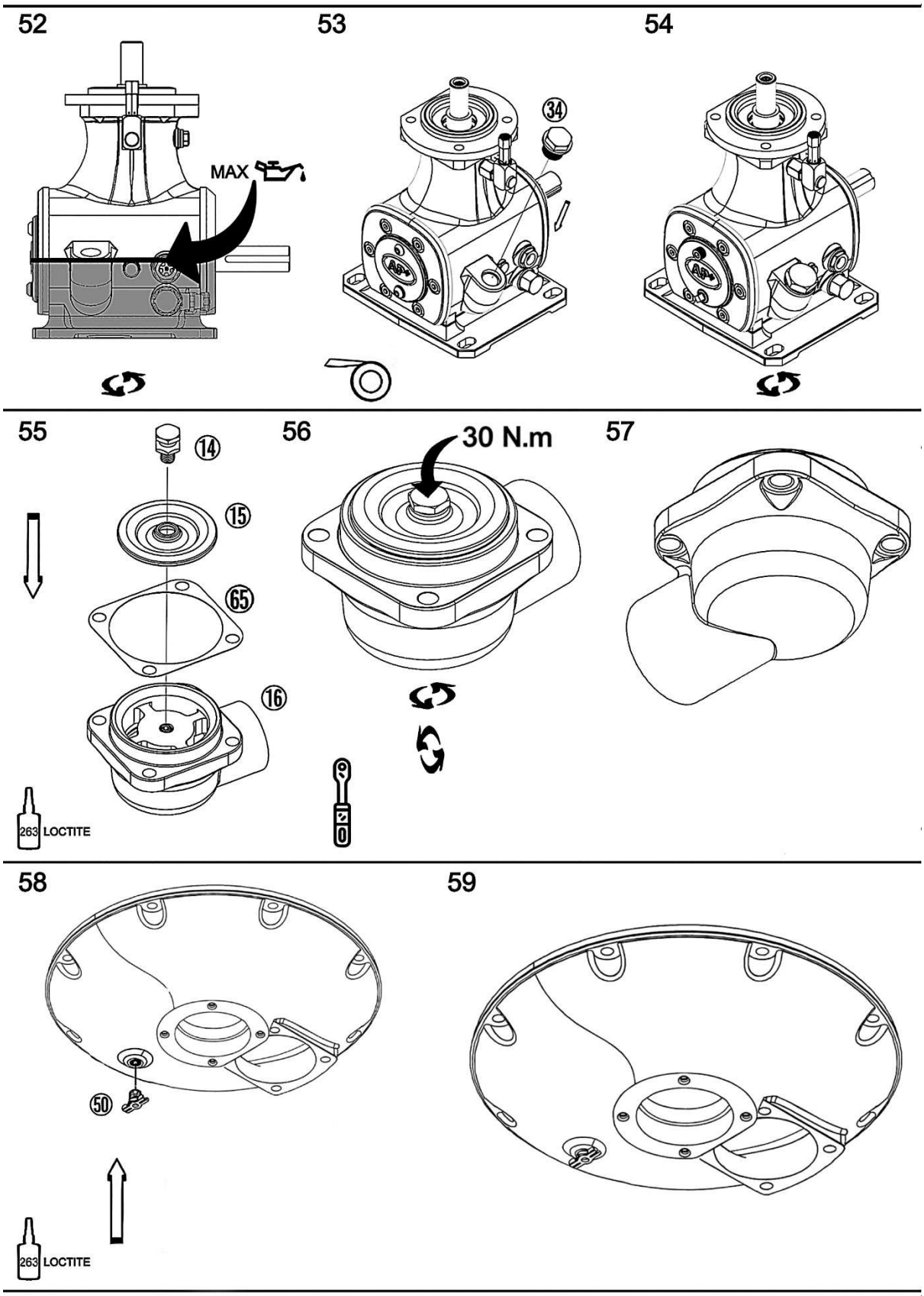
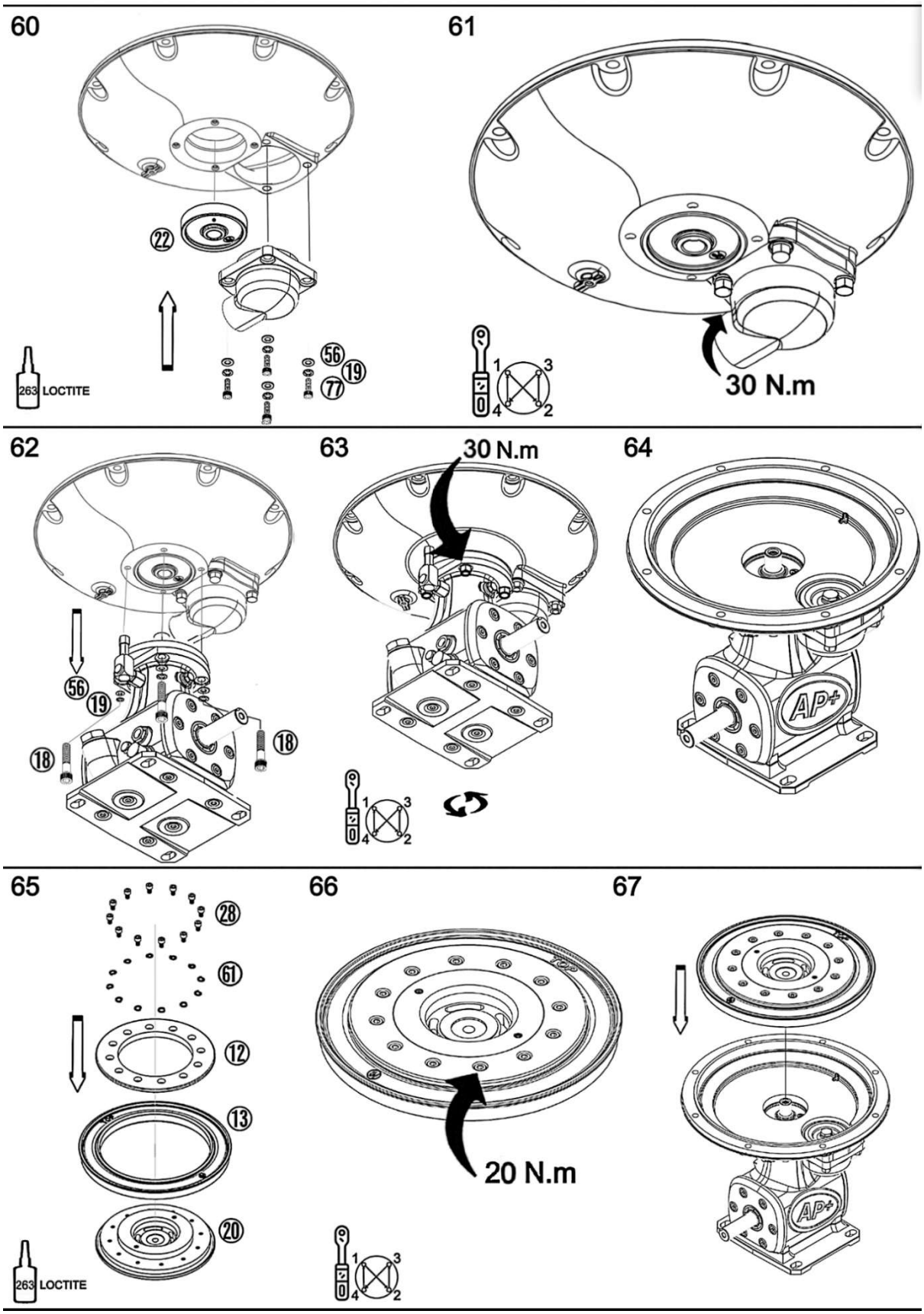
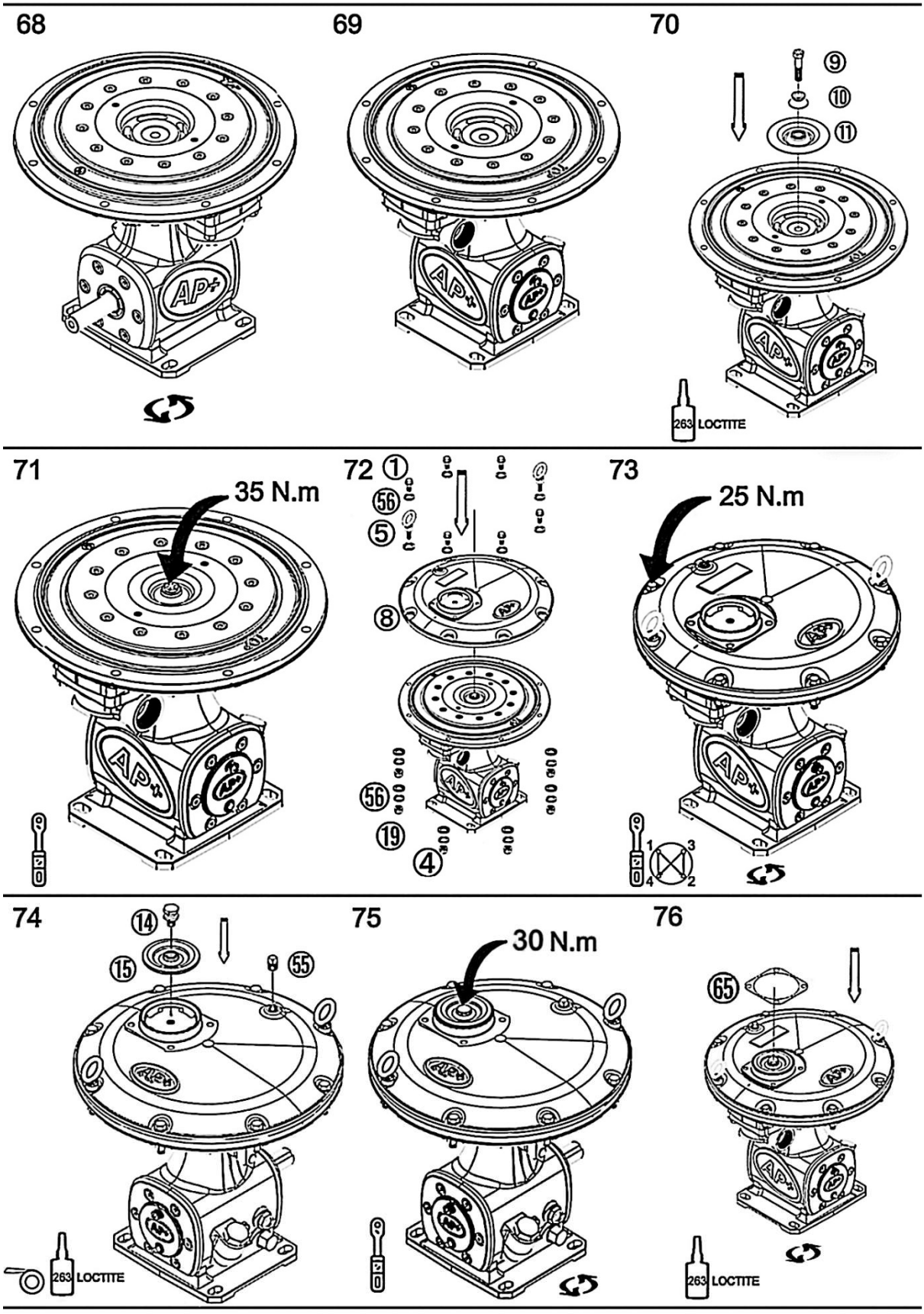


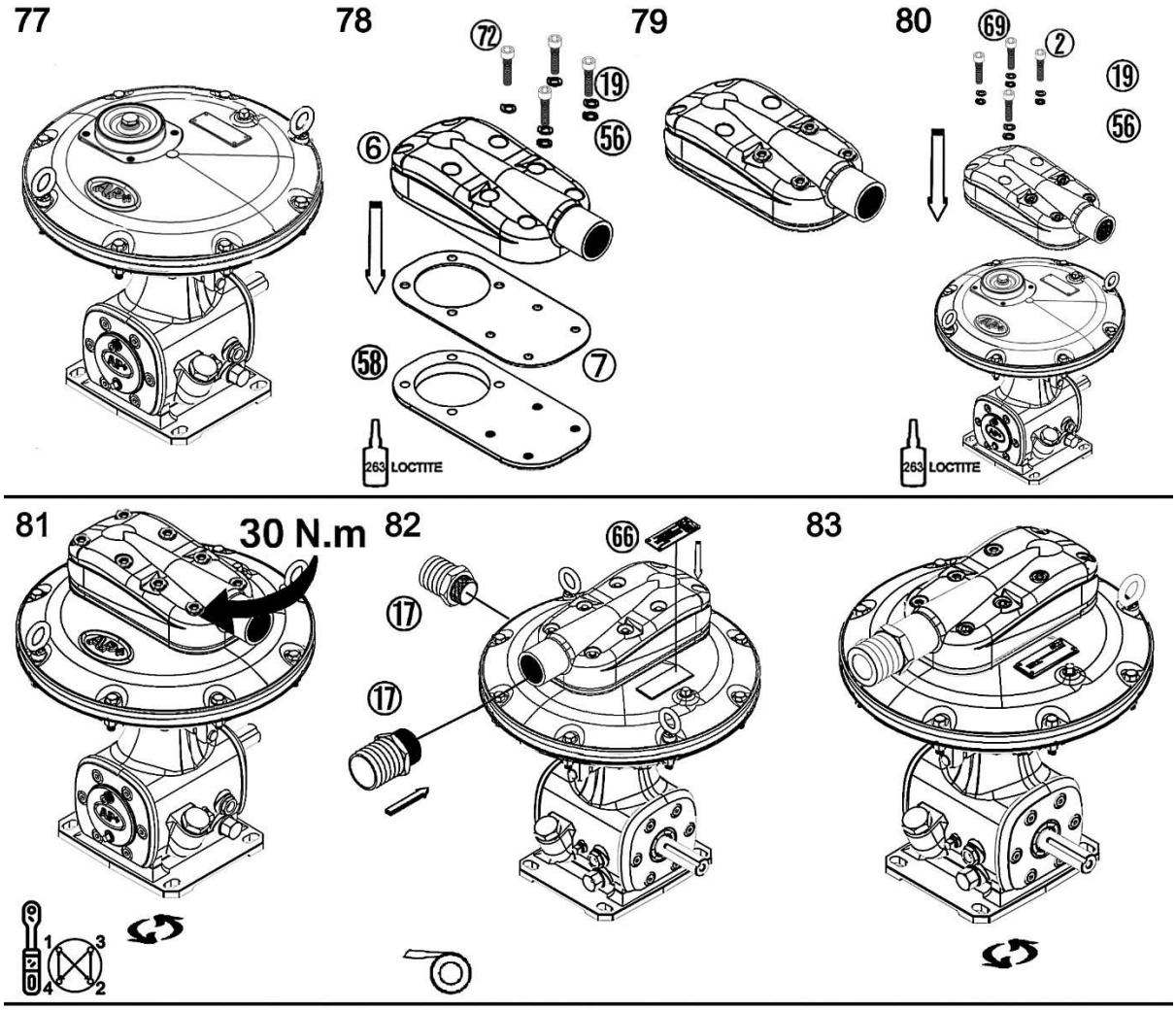

32
43
33
34
A
B
A = B
IF NOT RESHIM
35
62
43
68
44
53
263 LOCTITE
36
25 N.m
1
2
3
4
5
6
37
66
27 A
26
38
39
26
40
41
42
REQUIRE ± 0.8 MM
ENDFLOAT

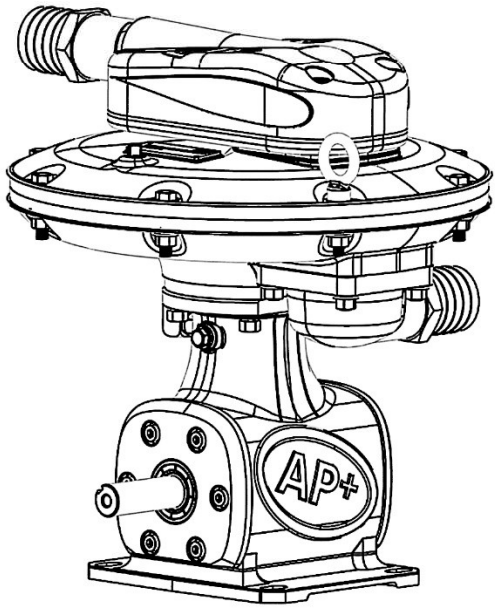

43
63
26
68
53
263 LOCTITE
44
25 N.m
1
3
6
5
4
2
45
23
49
49
24
25
77
46
47
48
49
50
51
57
70
263 LOCTITE
15W40 0.5L


52
MAX
53
34
54
55
14
15
65
16
263 LOCTITE
56
30 N.m
57
58
50
263 LOCTITE
59


60
22
56
19
77
263 LOCTITE
61
30 N.m
62
56
19
18
18
63
30 N.m
64
AP+
65
28
61
12
13
20
263 LOCTITE
66
20 N.m
67
AP+


68
69
70
⑨
⑩
⑪
263 LOCTITE
71
35 N.m
72 ①
56
⑤
⑧
56
19
④
73
25 N.m
1
2
3
4
74
14
15
55
263 LOCTITE
75
30 N.m
76
65
263 LOCTITE


77
78
79
80
72
19
56
6
58
7
263 LOCTITE
69
2
81
30 N.m
82
66
17
83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