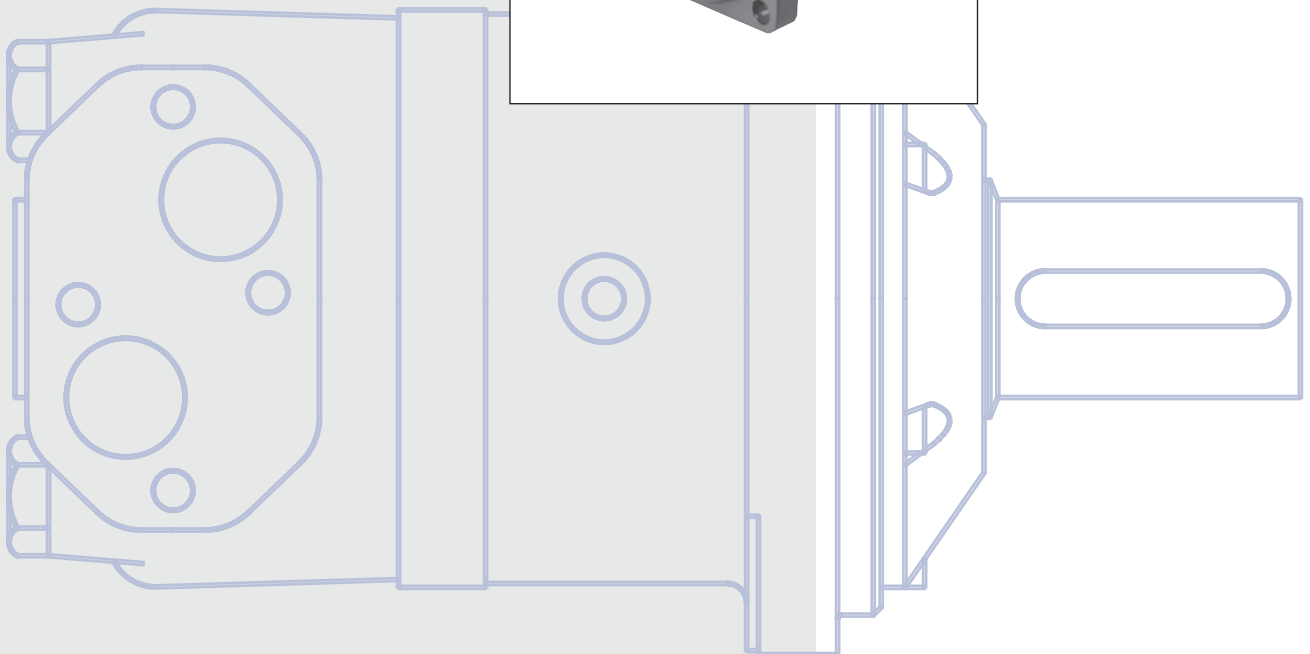
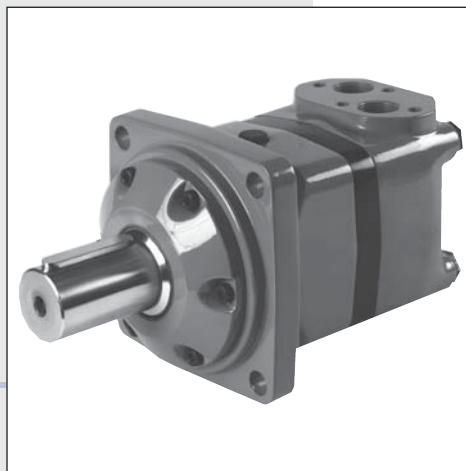
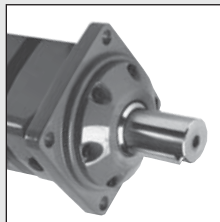
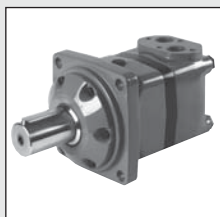
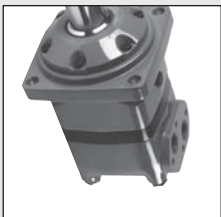


OMV Series 2
Orbital Motors

Repair Instructions





Revision History

Table of Revisions

Date	Page	Changed	Rev
Nov 2009	All	Washer removed, layout adjusted	CC
Feb 2010	4-5	Plug changed	CD
Sep 2010	12	New back cover	CE

Contents

Special Versions..... 3
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 Assembling 10
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Frontpage: F300 215. Drawing 151-2034.fa

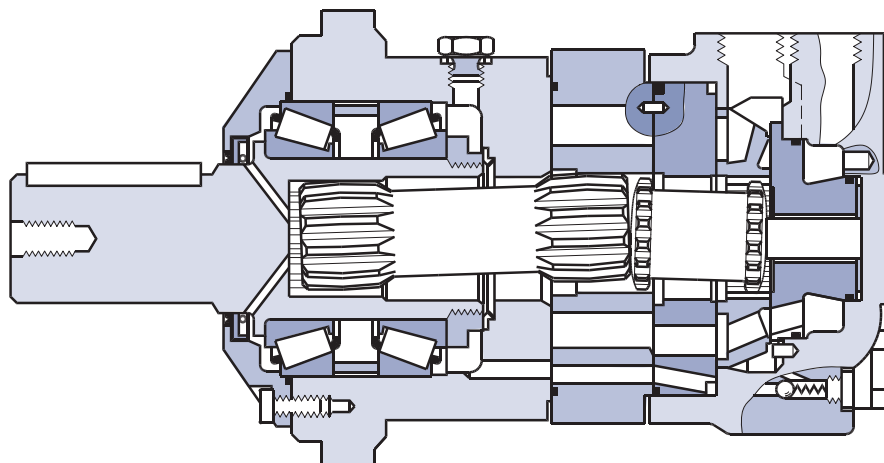
Special Versions

The list of spare parts cannot be used when ordering parts for special OMV versions. In this respect, please contact the sales organisation for Sauer-Danfoss.

Comments

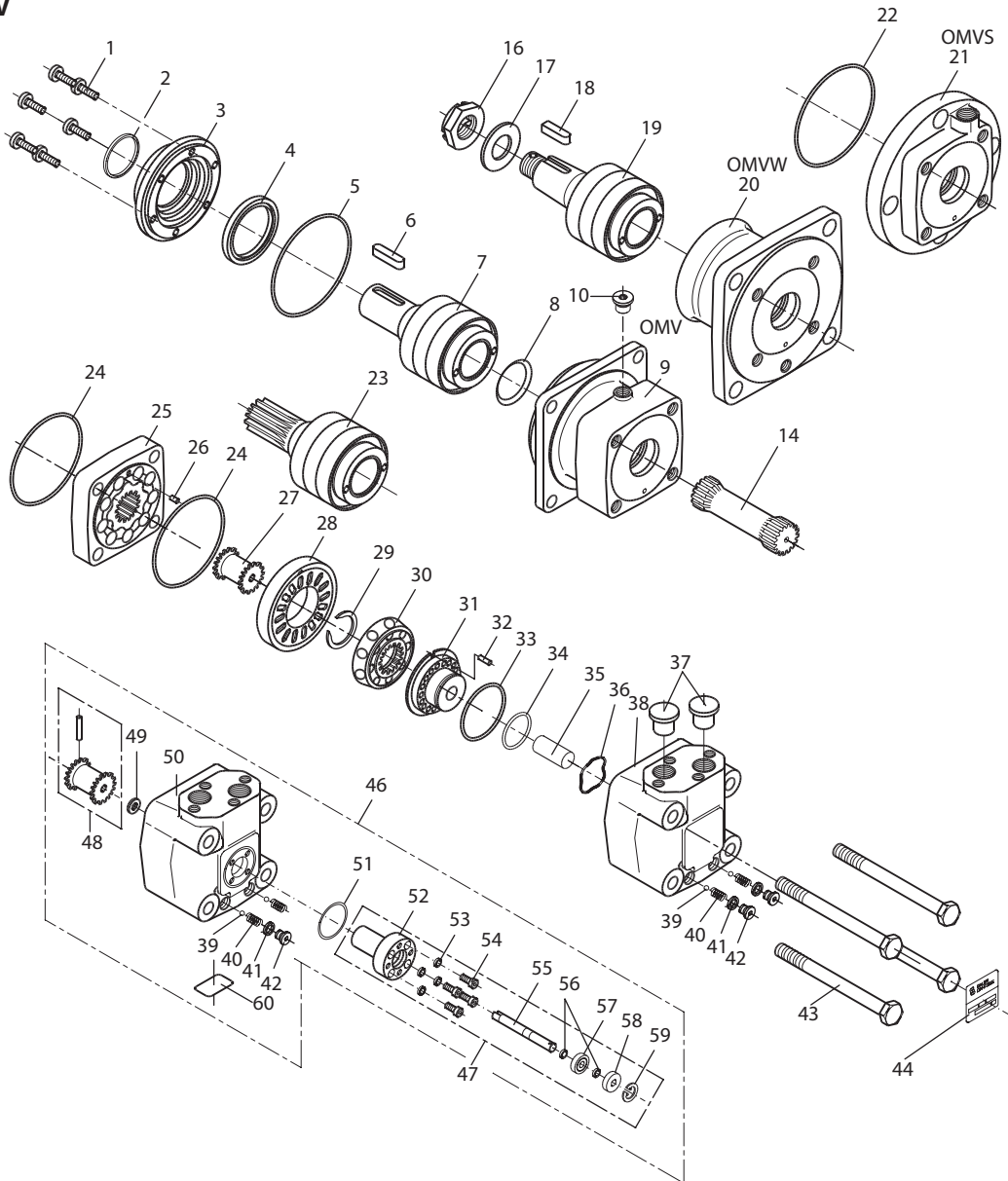
a) After week 27.97 the tightening pin has a new location. When repairing motors manufacturing before week 27.97 it will therefore be necessary to replace end cover, balance plate, tightening pin and spring washer.

b) After week 22.07 the thickness of the front cover is increased with 5 mm therefore the screws is changet from 681X0288 (l = 20 mm) to 681X0287 (l = 25 mm).
When repairing motors manufacturing before week 22.07 where it is necessary to change the front cover it is also necessary to change the screws in the front cover.


OMV Series 2

151-1780.10

**Exploded View OMV
Series 2**



P301 249

Tightening torque: 

Item 1	30 - 40 N·m [270 - 354 lbf·in]
Item 10:	30 - 60 N·m [270 - 530 lbf·in]
Item 42:	10 - 15 N·m [90 - 130 lbf·in]
Item 43:	190 - 210 N·m [1680 - 1860 lbf·in]
Item 54:	4 - 6 N·m [35 - 53 lbf·in]

Spare Parts List

Item	Spare parts	Number per motor	
		Code No	
1	Screw M8; l = 20 mm [0.79 in] standard mounting b) M8; l = 25 mm [1.0 in] b) M6; l = 20 mm [0.79 in] SAE C mounting	681X0288	6
		681X0287	6
		681X1521	8
2	Dust seal ring 60 • 67 • 4 mm [2.36 • 2.64 • 0.16 in]	633B3205	1
3	Front cover standard mounting b) SAE C mounting	11029816	1
		151B1773	1
4	Shaft seal 80 • 60 • 7 mm [3.15 • 2.36 • 0.27 in] NBR 80 • 60 • 7 mm [3.15 • 2.36 • 0.27 in] FPM	633B3203	1
		633B3204	1
5	O-ring 112 • 3 mm [4.41 • 0.12 in] standard mounting 96 • 2 mm [3.78 • 0.08 in] SAE C mounting	633B1380	1
		633B0121	1
6	Parallel key Metric 14 • 9 • 70 mm SAE: 1/2 • 1/2 • 21/4 in, standard mounting SAE: 1/2 • 1/2 • 2 1/2 in, SAE C mounting	682L8015	1
		682L8047	1
		682L9044	1
7	Cylindrical shaft Metric: Ø50 mm OMV/OMVW incl. bearings and parallel key SAE: Ø21/4 in OMV/OMVW incl. bearings and parallel key Standard mounting SAE C mounting	151B0102	1
		151B0165	1
		151B0147	1
8	Conical seal ring	633B9021	1
9	Bearing housing Metric: SAE: standard mounting: SAE: SAE C mounting	151B1678	1
		151B1700	1
		151B1771	1
10	Drain plug Metric: 1/4 BSPF steel, incl O-ring SAE: 9/16 - 18 UNF, incl O-ring	631X9926	1
		631X9925	1
14	Cardan shaft OMV/OMVW/OMVS 315 l = 115 mm [4.53 in] OMV/OMVW/OMVS 400 l = 122 mm [4.80 in] OMV/OMVW/OMVS 500 l = 130 mm [5.12 in] OMV/OMVW/OMVS 630 l = 141 mm [5.55 in] OMV/OMVW/OMVS 800 l = 155 mm [6.10 in]	151B1406	1
		151B1407	1
		151B1408	1
		151B1686	1
		151B1692	1
16	Castellated nut Metric: M 42 • 3 mm [1.65 • 0.12 in] SAE: 11/2 - 18 UNEF	681X8208	1
		681X8291	1
17	Washer, metric version only 43 • 78 • 7 mm [1.69 • 3.07 • 0.28 in]	684X1089	1
18	Parallel key Metric: 16 • 10 • 32 mm [0.63 • 0.39 • 1.26 in] SAE: 9/16 • 9/16 • 2 in	682L8020	1
		682L8048	1
19	Tapered shaft Metric: Ø60 mm OMV/OMVW incl. bearings and item 16, 17, 18 SAE: Ø2 1/4 in OMV/OMVW incl. bearings and item 16, 18	151B0109	1
		151B0160	1
20	Bearing housing Metric: OMVW SAE: OMVW	151B1680	1
		151B1701	1
21	Mounting flange Metric: OMVS SAE: OMVS	151B1682	1
		151B1702	1
22	O-ring OMVS 140 • 3 mm [5.51 • 0.12 in] NBR	633B1485	1
23	Splined shaft Metric: Ø54 mm [2.13 in] OMV/OMVW incl. bearings SAE: 21/8 in OMV/OMVW incl. bearings standard mounting SAE C mounting	151B0111	1
		151B0169	1
		151B0148	1
24	O-ring 112 • 3 mm [3.77 • 0.12 in] NBR	633B1380	2
25	Gearwheel set OMV/OMVW/OMVS 315 W = 25 mm [0.10 in] OMV/OMVW/OMVS 400 W = 32 mm [1.56 in] OMV/OMVW/OMVS 500 W = 40 mm [1.57 in] OMV/OMVW/OMVS 630 W = 51 mm [2.01 in] OMV/OMVW/OMVS 800 W = 65 mm [2.56 in]	151B1100	1
		151B1101	1
		151B1102	1
		151B1103	1
		151B1104	1

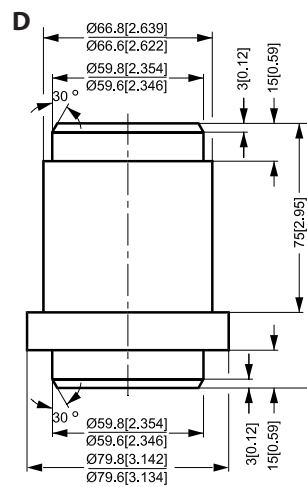
Spare Parts List

Item	Spare parts	Number per motor		
		Code No		
26	Guide pin $\varnothing 4, l = 10 \text{ mm [0.39 in]}$	682L2006	1	
27	Valve drive	151B1389	1	
28	Channel plate	151B1050	1	
29	Stop ring for OMVS 630 and 800	151B1672	1	
30	Disc valve	151B1049	1	
31	Balance plate a)	151B1485	1	
32	Guide pin $\varnothing 5, l = 14 \text{ mm [0.55 in] a)}$	682L9105	1	
33	O-ring $70 \cdot 2 \text{ mm, NBR [2.76} \cdot 0.08 \text{ in]}$	633B1379	1	
		$70 \cdot 2 \text{ mm, FPM [2.76} \cdot 0.08 \text{ in]}$	633B1456	1
34	O-ring $45 \cdot 2 \text{ mm, NBR [1.77} \cdot 0.08 \text{ in]}$	633B1429	1	
		$45 \cdot 2 \text{ mm, FPM [1.77} \cdot 0.08 \text{ in]}$	633B1455	1
35	Spacer	151B1391	1	
36	Spring washer $37 \cdot 45 \cdot 0.5 \text{ mm [1.46} \cdot 1.77 \cdot 0.02 \text{ in] a)}$	684X0086	1	
37	Seal plug (plastic)	Metric	633X0069	2
		SAE	633X0064	2
38	Valve housing	Metric a)	151B1705	1
		SAE a)	151B1706	1
39	Ball $\varnothing 1/4 \text{ in}$	689X1015	2	
40	Spring	013-0662	2	
41	Washer $13.9 \cdot 10.2 \cdot 1 \text{ mm [0.54} \cdot 0.40 \cdot 0.04 \text{ in]}$	684X2564	2	
42	Plug $1/8 \text{ BSP.F}$	631X2053	2	
43	OMV/OMVW/OMVS 315 $l = 150 \text{ mm [5.91 in]}$	681X1883	4	
	OMV/OMVW/OMVS 400 $l = 150 \text{ mm [5.91 in]}$	681X1883	4	
	OMV/OMVW/OMVS 500 $l = 160 \text{ mm [6.30 in]}$	681X1884	4	
	OMV/OMVW/OMVS 630 $l = 160 \text{ mm [6.30 in]}$	681X1884	4	
	OMV/OMVW/OMVS 800 $l = 180 \text{ mm [7.09 in]}$	681X1006	4	
44	Name plate OMV/OMVW/OMVS		1	
46	Valve housing with tacho connection and valve drive, metric version only	151B0139	1	
47	Tacho connection	151B1031	1	
48	Valve drive incl. guide pin	151B1032	1	
49	Spacer ring	151B1450	1	
50	Tacho valve housing	151B1704	1	
51	O-ring $40 \cdot 2 \text{ mm [1.57} \cdot 0.08 \text{ in] NBR}$	633B1378	1	
52	Tacho bearing housing	151B1452	1	
53	Washer $8.5 \cdot 5.6 \cdot 1 \text{ mm [0.33} \cdot 0.22 \cdot 0.04 \text{ in]}$	684X2012	4	
54	Screw M5 $l = 15 \text{ mm [0.59 in]}$	681X1880	4	
55	Tacho drive shaft	151B1453	1	
56	Retaining ring $6.0 \cdot 0.7 [0.24 \cdot 0.03 \text{ in}] \text{ DIN 6799}$	682L4922	2	
57	Bearing $8 \cdot 22 \cdot 7 \text{ mm [0.31} \cdot 0.87 \cdot 0.27 \text{ in]}$	981X1020	1	
58	Shaft seal $8 \cdot 22 \cdot 6.5 \text{ mm [0.31} \cdot 0.87 \cdot 0.25 \text{ in]}$	633B3175	1	
59	Retaining ring $22 \cdot 1 \text{ DIN 472}$	682L4008	1	
60	Name plate (aluminium) for OMV/OMVW/OMVS with tacho connection	151A0409	1	
A	Set of seals NBR OMV, OMVW, OMVS item 8, 22, 24, 33 and 34	151B0125	1	
B	Set of seals NBR OMV, OMVW, item 2, 4, 5, 8, 24, 33 and 34	151B0129	1	
C	Set of seals FPM OMV, OMVW, OMVS item 4, 33 and 34	151B0127	1	
D	Set of seals NBR OMVS item 8 and 22	151B1041	1	

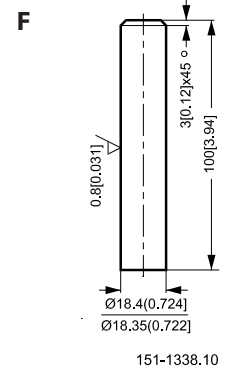
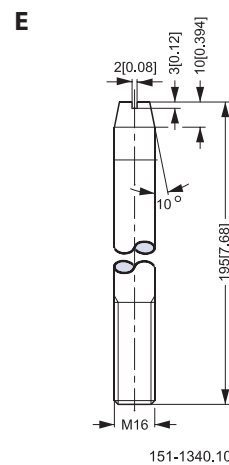
NBR: (Buna N, Perbunan), FPM (Viton)

* Contained in spare parts bag A, B, C or D

Special Tools




151-1336.



- A: Main holding tool.
Code number: SJ 151-9000-1
- B: Holding tool for OMV and OMVW.
Code number: SJ 151B9000-2
- C: Holding tool for OMVS.
Code number: SJ 151-8000-1
- D: Mandrel and backstop for fitting shaft seal
Code number: SJ 151B9000-14
- E: Two guide bolts
- F: Mandrel to remove balance plate

The tools cannot be bought from Sauer-Danfoss

Dismantling

Item	Part to remove	Comments
6 or 18	Parallel key	On cylindrical or tapered shaft motors
8 *	Conical seal ring	
10, 11	Drain plug and washer	
37	Seal plugs (2 off)	Place the motor in holding tool
42	Plugs (2 off)	Use  5 mm Allan head spanner
41	Washer (2 off)	
40	Springs (2 off)	Tilt motor, springs and balls come out
39	Ball (2 off)	
43	Screw (4 off)	Use 22 mm socket spanner
38	Valve housing	Lift off carefully as a unit, holding your fingers under the channel plate (Item no. 28)
24	O-ring	
28	Channel plate	
29	Stop ring	Only on OMVS 630 and 800
30	Disc valve	
35	Spacer	
31	Balance plate	Fill in oil into the spacer hole and use the $\varnothing 18.4$ mm [0.72 in] mandrel as a piston to press up the balance plate.
32	Guide pin	
33	O-ring	
34	O-ring	
36	Spring washer	
27	Valve drive	
26	Guide pin	
25	Gearwheel set	Hold fingers under the gearwheel set to prevent the parts from dropping out
24	O-ring	
14	Cardan shaft	
8	Conical seal ring	Not on OMVS, is already removed
1**)	Screw (6 off)	Unscrew with 13 mm socket spanner
3 **)	Front cover	
5 **)	O-ring	
2 **)	Dust seal ring	Item no. 2 and 4 to be knocked out by means of the special mandrel ("D" on page 8)
4 **)	Shaft seal	
7, 19 **)	Shaft incl. bearings	Press out the shaft/bearing assembly using a hydraulic press (pressing force max. 2500 N)
23		Shaft/bearing assembly should not be dismantled!

* OMVS only


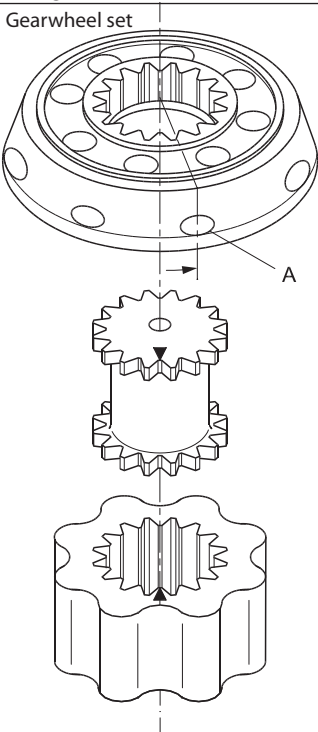

**) OMVS except

**Dismantling of
 Tacho Connection**

Item	Part to remove	Comments
54	Screw (4 off)	
47	Tacho connection	Remove from tacho valve housing
51	O-ring	
49	Spacer ring	
59	Retaining ring	Loosen tacho shaft package (by tapping lightly at the end of the shaft) and extract the package from tacho housing
58	Shaft seal	
56	Retaining ring (2 off)	
57	Bearing	




After dismantling, clean all parts in low aromatic kerosene.
 Examine the parts and exchange them if necessary.
 Immediately before assembly, lubricate each part with hydraulic oil and grease rubber parts with vaseline

Assembling

Item	Part to remove	Comments
8 **)	Conical seal ring	Fit into recess in bearing housing, placed in the holding tool
7, 19 **) 23	Shaft incl. bearings	Use the hydraulic press (max 2500 N [550 lbf]) Always press on the bearing outer ring. Shaft/bearing assembly should not be dismantled.
4 **)	Shaft seal	Knock into position in the front cover, using the assembly mandrel. Grease lip with vaseline.
2 **)	Dust seal ring	Use assembly mandrel, plastic hammer and support (to prevent the shaft seal from being knocked out). Grease lip with vaseline
5 **)	O-ring	Grease with vaseline
3 **)	Cover	
1 **)	Screw (6 off)	Use a 13 mm socket spanner. Tighten to  30 - 40 N.m [265.5 - 354 lbf.in] Turn the motor upside down. Fill up splines area in the shaft with oil. Mount 2 off guide bolts
14	Cardan shaft	
24	O-ring	Grease lip with vaseline
25	Gearwheel set 	Hold fingers under the gearwheel set to prevent parts falling out. Hole 6 mm [0.24 in] to be aligned with hole in the bearing housing. Mark the wheel of the gearwheel set at the point where the tip of a spline tooth is opposite the bottom of a tooth in the external rotor teeth (see drawing)  151-467.11

**) OMVS except

Assembling

Item	Part to remove	Comments
27	Valve drive	Mark the bottom of a spline tooth on the valve drive. Line up mark on rotor and valve drive Applies to motors with tacho connection: Pin on valve drive must point upwards
24	O-ring	Grease with vaseline
26	Guide pin	
28	Channel plate	
30	Disc valve	Align mark on valve drive with a hole in the outer rim. (A on drawing). Turn disc valve counter clockwise until splines in the two parts engage
36	Spring washer (2 off)	Place into valve housing
33	O-ring	Greased with vaseline
34	O-ring	Greased with vaseline
32	Guide pin	
31	Balance plate	
35	Spacer	Grease with vaseline to prevent the spacer from dropping out
38	Valve housing	Mount unit on the rest of the motor. Ports should face in the same direction as the drain port
43	Screw (4 off)	Lubricate threads and cross tighten screws to  190 - 210 N.m [1680 - 1860 lbf.in]
39	Ball (2 off)	
40	Spring (2 off)	
41	Washer (2 off)	
42	Plug (2 off)	Tighten to  10 - 15 N.m [90 - 130 lbf.in]
6 or 18	Parallel key	
10, 11	Drain plug and washer	Fill motor with oil before plugging. Tighten to  30 - 60 N.m [265.5 - 531 lbf.in]
8 *)	Conical seal ring	Grease with vaseline to keep in place
37	Seal plug (2 off)	

*) OMVS only

Assembling of Tacho Connection

The tacho connection must be reassembled in reverse order in relation to the procedure described under "disassembling the tacho connection".
4 screws (pos. 53) to be tightened to 4 - 6 N·m [35.5 - 53 lbf.in].



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