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"For All Your Hydraulic Needs"

Repair Instructions

Orbital Motors OMR, OMR C and OMRW N

Series 5 and 6

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Chapter 1

Safety Precautions

Always consider safety precautions before beginning a service procedure. Protect yourself and others from injury. Take the following general precautions whenever servicing a hydraulic system.



Warning:

Unintended machine movement

Unintended movement of the machine or mechanism may cause injury to the technician or bystanders. To protect against unintended movement, secure the machine or disable / disconnect the mechanism while servicing.



Warning:

Flammable cleaning solvents

Some cleaning solvents are flammable. To avoid possible fire, do not use cleaning solvents in an area where a source of ignition may be present.



Warning:

Fluid under pressure

Escaping hydraulic fluid under pressure can have sufficient force to penetrate your skin causing serious injury and/or infection. This fluid may also be hot enough to cause burns. Use caution when dealing with hydraulic fluid under pressure. Relieve pressure in the system before removing hoses, fittings, gauges, or components. Never use your hand or any other body part to check for leaks in a pressurized line. Seek medical attention immediately if you are cut by hydraulic fluid.



Warning:

Personal safety

Protect yourself from injury. Use proper safety equipment, including safety glasses, at all times.

Chapter

2

Special Versions and Cost-free Repairs

Topics:

- *Special Versions*
 - *OMR Series 5*
 - *OMR Series 6*
-

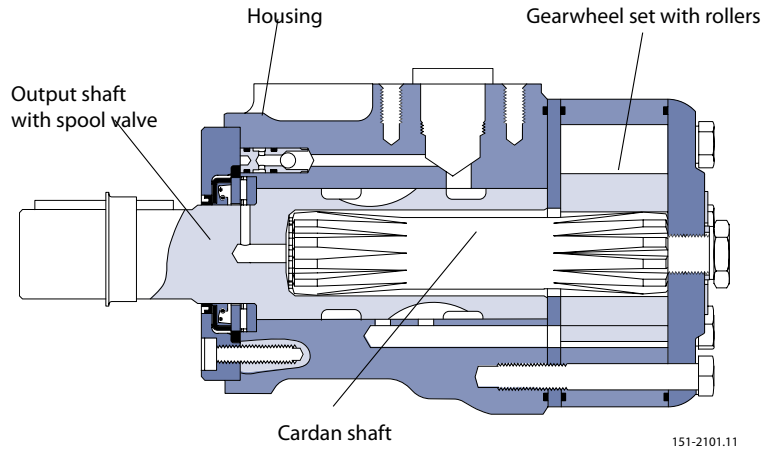
Special Versions

The list of spare parts cannot be used when ordering parts for special OMR versions.

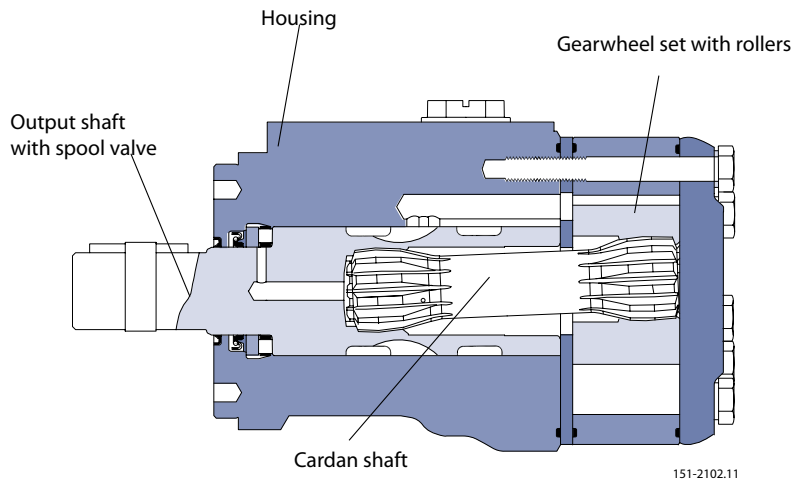
In this respect, please contact the sales organisation.

We would point out that cost-free repairs as mentioned in General Conditions of Sale, are carried out only at service shops authorised by the organization.

OMR Series 5



OMR Series 6



Chapter

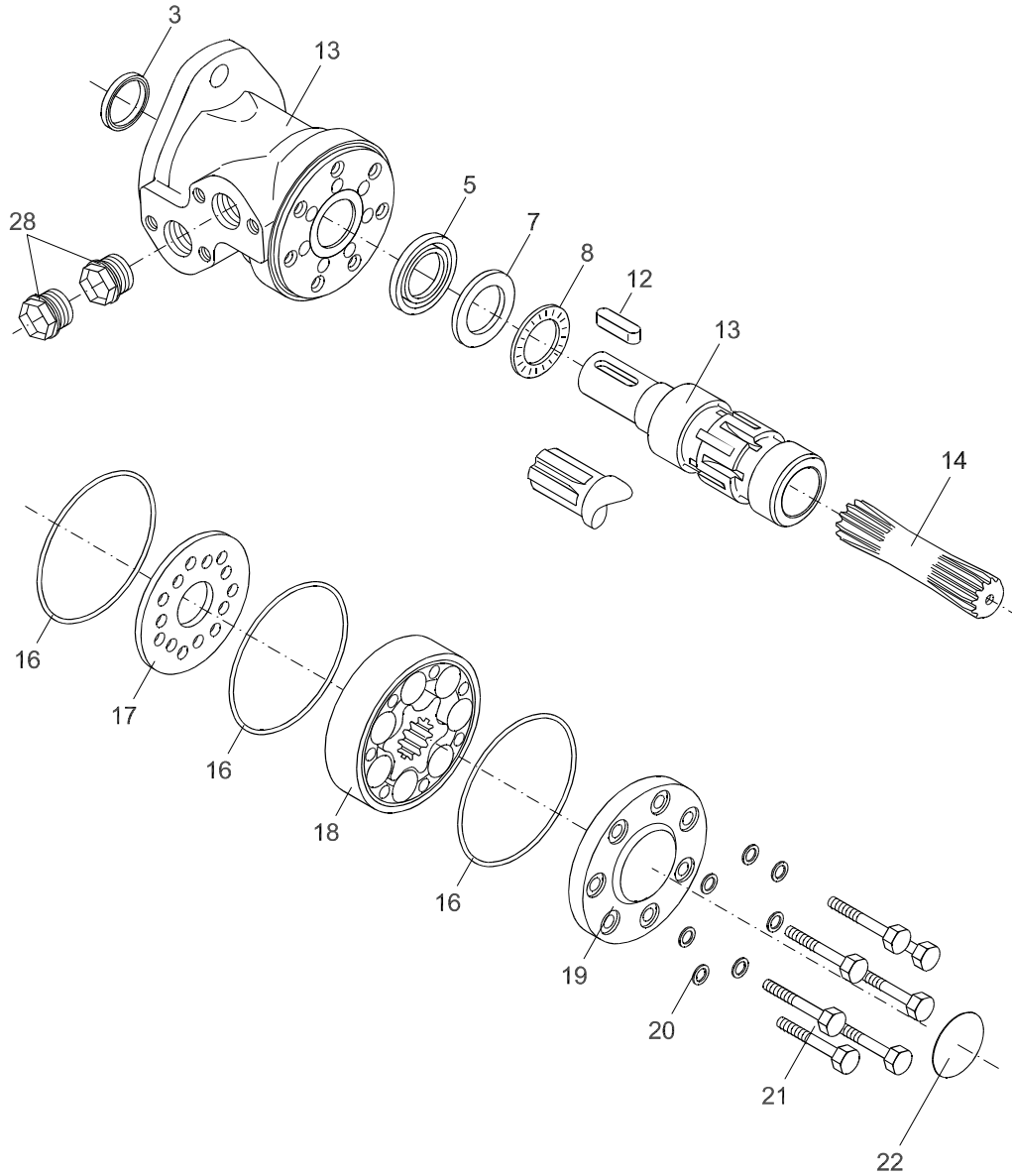
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OMR Metric Version, Series 6 with Integrated Spigot Flange

Topics:

- *Exploded view OMR, metric version Series 6 with integrated spigot flange*

Exploded view OMR, metric version Series 6 with integrated spigot flange



151-1769.10

Chapter

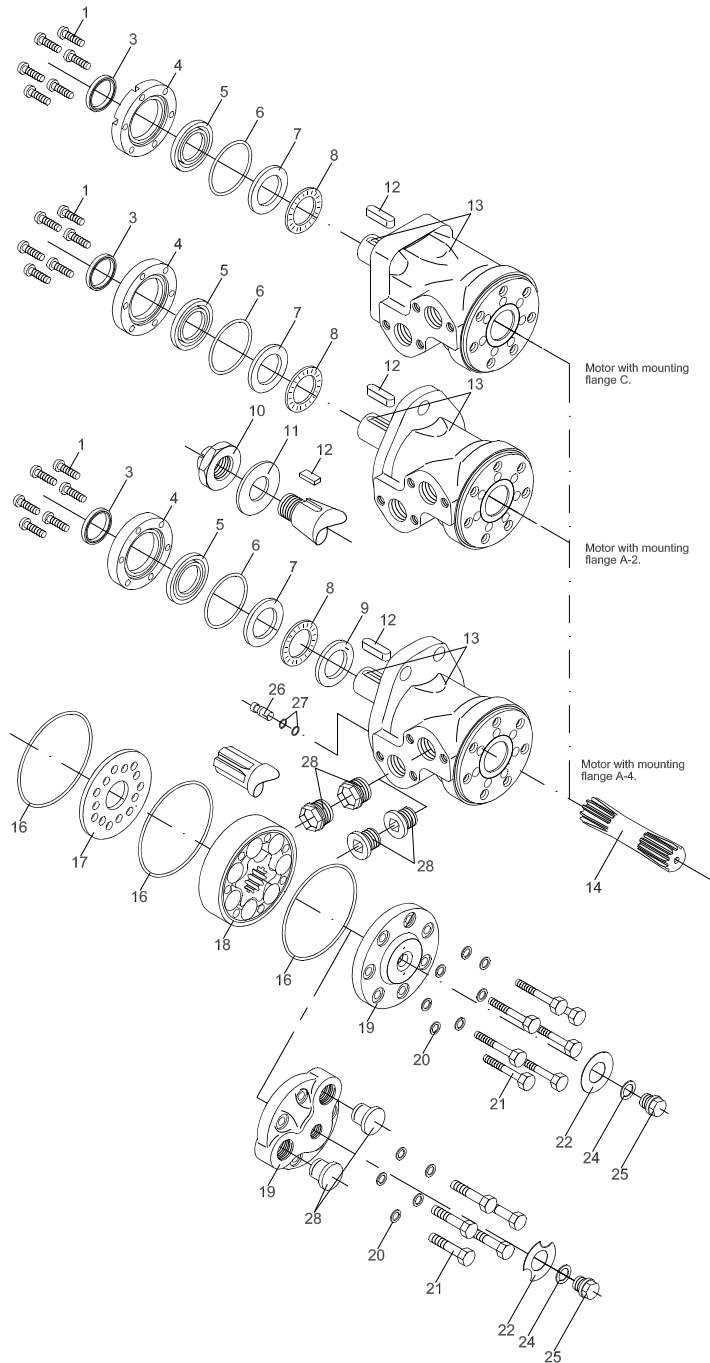
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OMR/OMR C Metric Version, Series 5 with Separate Spigot Flange

Topics:

- *Exploded view OMR and OMR C, metric version Series 5 with separate spigot flange*

Exploded view OMR and OMR C, metric version Series 5 with separate spigot flange



Chapter

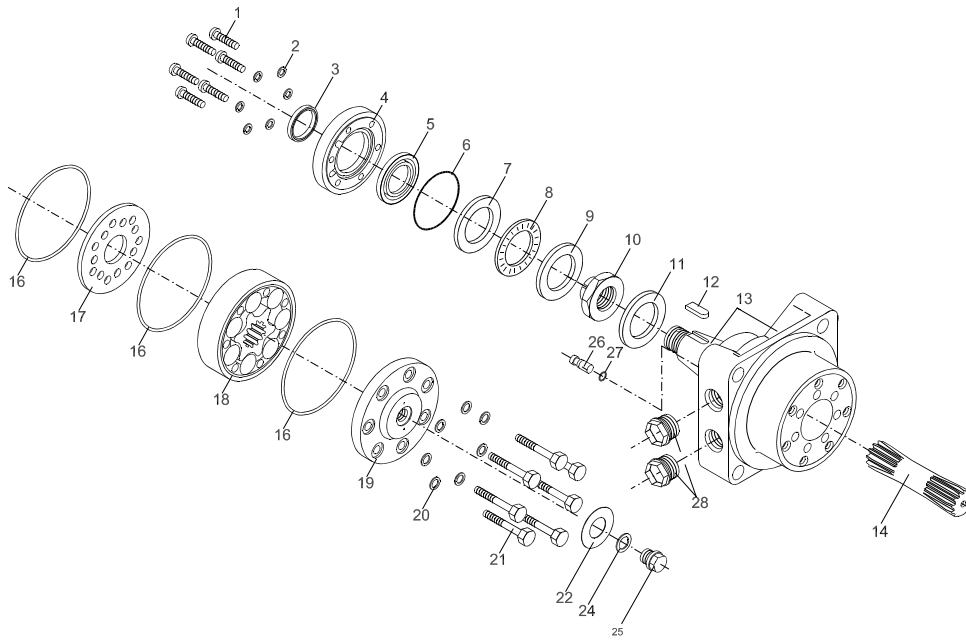
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OMRW N Metric Version, Series 5

Topics:

- *Exploded view for OMRW N, metric version Series 5*

Exploded view for OMRW N, metric version Series 5



151-1421.10

Chapter 6

Spare part list

Topics:

- *Tightening torque*

Item	Spare Part	Dimensions	Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
			O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge C	O M R Fla nge C	
1	Screw	M6: L = 16	681 X19 89	6	6			
		M5: L = 16	681 X19 61				6	
		M6: L = 16	681 X02 47		6	6		
		M6: L = 25	681 X14 54					6
2	Washer	9.9 • 6.1 • 0.5 mm	681 X20 47					6

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	OM R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge C	O M R Fla nge C	OM RW N
3	Dust seal ring							
	Ø25 mm, Ø1", 1" spl. shaft (HPS)	35.0 • 27.5 • 2.2 mm	633 B03 70	1				
	Ø28.5 mm tapered shaft	28.56 • 35.0 • 4.0 mm	151- 1313	1		1	1	1
	Ø25 mm shaft	35.0 • 28.5 • 4.0 mm	633 B00 10		1			
	Ø32 mm shaft	42.0 • 35.0 • 3.5 mm	633 B31 98	1		1		
	Ø32 Ø35 mm shaft (HPS)	42.0 • 35.0 • 1.9 mm	633 B03 69	1		1		
4	Spigot flange							
	Ø25 mm, ø1", 1" spl. shaft (HPS)		151- 5588	1		1		
	Ø25 mm, ø1", 1" spl. shaft		151- 5458	1		1		
	Ø25 mm shaft		151- 5473		1			
	Ø25 mm shaft		151- 1827				1	
	Ø32 mm shaft (HPS)		151- 5589	1	1	1		
	Ø32 mm shaft,		151- 1734	1		1		
	Ø35 mm tapered shaft		151- 1988					1

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
5	Shaft seal							
	Ø25 mm, ø1", 1" spl. shaft (HPS)	39.0 • 28.6 • 4.9 mm	633 B03 61	1	1		1	
	Ø25 mm, ø1", 1" spl. 28.5 mm tapered shaft	42.0 • 28.6 • 5.5 mm, NBR	633 B33 85		1	1	1	1
	Ø25 mm, ø1", 1" spl. shaft 28.5 mm tapered shaft	42.0 • 28.6 • 5.5 mm, FPM	633 B03 23		1	1	1	1
	Ø32 mm shaft, (HPS)	46.0 • 35.0 • 4.6 mm	633 B03 63		1		1	
	Ø32 mm shaft, 35 tapered shaft	48.0 • 35.0 • 5.5 mm	633 B32 73		1		1	1
6	O-ring							
	Ø25 mm, Ø1", 1" spl. 28.5 mm tapered shaft	47.2 • 3.5 mm, NBR	633 B11 91		1	1	1	1
	Ø25 mm	48.0 • 2.0 mm, NBR	633 B13 33					1
	Ø32 mm shaft	53.0 • 2.0 mm, NBR	633 B15 28			1		
	35 mm tapered shaft		633 B00 63					1

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
7	Bearing race							
	Ø25 mm, Ø1", 1" spl. shaft	41.6 • 29.0 • 4.0 mm	1104 3824	1				
	Ø25 mm, Ø1", 1" spl. shaft	47.5 • 29.5 • 3.0 mm	151- 1608		1	1	1	1
	28.5 mm tapered shaft							
	Ø32 mm shaft 35 mm tapered shaft	52.0 • 35.0 • 3.5 mm	1104 5961				1	1
8	Axial needle bearing							
	Ø25 mm, Ø1", 1" spl. shaft		1104 3825	1				
	Ø25 mm, Ø1", 1" spl. shaft	45.6 • 28.7 • 3.0 mm	151- 1458		1	1	1	1
	28.5 mm tapered shaft							
	Ø32 mm shaft 35 mm tapered shaft		981 X31 98				1	1
9	Bearing race							
	Ø32 mm shaft				1			
	35 mm tapered shaft	52.0 • 35.0 • 3.5 mm	1104 5961				1	1
10	Castellated nut							
	28.5 mm tapered shaft		681 X82 02		1			
	35 mm tapered shaft	M20 • 1.5	681 X82 35					1

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4	O M R Fla nge A4	O M R Fla nge C	OM RW N
1	Washer							
1	28.5 and 35 mm tapered shaft	44.0 • 20.5 • 4.0 mm	684 X25 30		1			1
1	Parallel key							
2	for Ø25 mm shaft	A8 • 7 • 32 mm, DIN6885	682 L80 35	1	1		1	1
	for Ø25 mm shaft	A8 • 7 • 31 mm	682 L90 07			1		
	for Ø1" shaft	¼ • ¼ • 1¼ in, B.S.46	682 L80 36	1	1		1	1
	for Ø32 mm shaft	A10 • 8 • 45 mm, DIN6885	682 L80 19		1		1	
	for 28.5 mm tapered shaft	B5 • 5 • 14 mm, DIN6885	682 L80 16		1			
	35 mm tapered shaft	B5 • 5 • 20 mm, DIN6885	682 L80 21					1
1	Housing +							
3	output shaft							

Item	Spare Part	Dimensions	Number per motor					OM RW N
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
			O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge C		
1	Cardan shaft							
4	OMR 50	L = 96.6 mm	151- 1812	1		1	1	1
	OMR 50	L = 79.7 mm	1104 6200	1	1			
	OMR 80	L = 101.0 mm	151- 1813	1		1	1	1
	OMR 80	L = 84.4 mm	1104 6261	1	1			
	OMR 100	L = 104.5 mm	151- 1814		1	1	1	1
	OMR 100	L = 87.8 mm	1107 7943	1	1			
	OMR 125	L = 109.0 mm	1108 7573		1	1	1	1
	OMR 125	L = 92.2 mm	151- 2655	1	1			
	OMR 160	L = 115.0 mm	1108 7574		1	1	1	1
	OMR 160	L = 98.3 mm	151- 2656	1	1			
	OMR 200	L = 122.0 mm	151- 1817		1	1	1	1
	OMR 200	L = 105.3 mm	1104 6282	1	1			
	OMR 250	L = 131.0 mm	151- 1818		1	1	1	1
	OMR 250	L = 114.0 mm	151- 2658	1	1			
	OMR 315	L = 142.0 mm	151- 1819		1	1	1	1
	OMR 315	L = 125.4 mm	151- 2659	1	1			
	OMR 375	L = 152.5 mm	151- 1820		1	1	1	1
	OMR 375	L = 135.6 mm	151- 2660	1	1			

			Number per motor						
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange				
Item	Spare Part	Dimensions	OMR Flange A2	OMR Flange A2	OMR Flange A2	OMR Flange A4	OMR Flange C	OMR Flange C	OMR Flange C
16	O-ring	90 • 2.0 mm, NBR	633 B13 01	3	3	3	3	3	3
17	Distributor plate		151- 1702	1	1	1	1	1	1
18	Gear wheel set								
	OMR 50	W = 9.0 mm	151- 1182	1	1	1	1	1	1
	OMR 80	W = 14.0 mm	151- 1138	1	1	1	1	1	1
	OMR 100	W = 17.4 mm	151- 1139	1	1	1	1	1	1
	OMR 125	W = 21.8 mm	151- 1140	1	1	1	1	1	1
	OMR 160	W = 27.4 mm	151- 1141	1	1	1	1	1	1
	OMR 200	W = 34.8	151- 1189	1	1	1	1	1	1
18	Gear wheel set								
	OMR 250	W = 43.5 mm	151- 1190	1	1	1	1	1	1
	OMR 315	W = 54.8 mm	151- 1191	1	1	1	1	1	1
	OMR 375	W = 65.0 mm	151- 1192	1	1	1	1	1	1
19	End cover								
	Side port without drain		151- 5568	1					
	Side port motor		151- 1659		1	1	1		1
	End port motor		151- 1833		1			1	

			Number per motor						
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange				
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A2	O M R Fla nge A4	O M R Fla nge C	OM RW N	
20	Washer								
	Side port motor	15.2 • 8.2 • 1.0 mm	684 X01 15	7	7	7	7	7	
	End port motor			5				5	

			Number per motor						
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange				
Item	Spare Part	Dimensions	OMR Flange A2	OMR Flange A2	OMR Flange A2	OMR Flange A4	OMR Flange C	OMR RW N	
21	Screw Side port motor	M8 • 1.25							
	OMR 50	l = 40 mm	681 X0180	7	7	7	7	7	
	OMR 80	l = 45 mm	681 X0181	7	7	7	7	7	
	OMR 100	l = 45 mm	681 X0181	7	7	7	7	7	
	OMR 125	l = 50 mm	681 X0182	7	7	7	7	7	
	OMR 160	l = 55 mm	681 X0183	7	7	7	7	7	
	OMR 160	l = 60 mm	681 X0184	7	7	7	7	7	
	OMR 200	l = 65 mm	681 X0185	7	7	7	7	7	
	OMR 250	l = 70 mm	681 X0187	7	7	7	7	7	
	OMR 315	l = 85 mm	681 X0189	7	7	7	7	7	
	OMR 375	l = 95 mm	681 X0190	7	7	7	7	7	
	Screw End port motor	M8 • 1.25							
	OMR 50	l = 40 mm	681 X0181		5			5	
	OMR 80	l = 50 mm	681 X0182		5			5	

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	OM R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
2	Name plate							
2	Side port motor				1	1	1	1
	End port motor				1			1
2	Washer	17.5 • 13.5 • 1.5 mm	684 X21 20		1	1	1	1
2	Drain plug		151- 1524		1	1	1	1
2	Check valve incl. item 27		151- 1076		2	2	2	2
			151- 1995					2
2	O-ring	5.0 • 1.5 mm, NBR	633 B13 24		4	4	4	4
2	Plug							
8	Side port motor-plastic plug		633 X00 74		2			
	End port motor- steel plug		631 X97 06	2	2	2	2	2
	End port motor- plastic plug		633 X00 74		2			2
	Spare parts bag for motors with HPS and Ø25 mm, Ø1", 1" spl.shaft (Series 6)		151- 1286	1				

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
3	1 pcs. Dust seal	35 • 27.5 • 2.2	633					
5	1 pcs. shaft seal	mm NBR	B03					
1	(series 5/6)	39 • 28.6 • 4.9	70					
6	3 pcs. O-ring	mm HSN	633					
1	3 pcs. O-ring	75.9 • 1.8 mm	B03					
6		NBR	61					
2	7 pcs. Washer	90 • 2.0 mm	633					
0	1 pcs. Washer	NBR	B11					
2		11.9 • 8.2 • 1	633					
4		mm	B13					
		17.5 • 13.5 •	01					
		1.5 mm	684					
			X01					
			15					
			684					
			X21					
			20					
	Spare parts bag for motors with standard shaft seal and Ø25 mm, Ø1", 1" spl.shaft (Series 5)		151- 1277	1	1**	1	1	1

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
3	1 pcs. Dust seal	35 • 28.5 • 4.0	151-					
5	1 pcs. Shaft seal	mm NBR	1313					
6	(series 5)	42 • 28.6 • 5.5	633					
6	1 pcs. O-ring	mm HSN	B33					
6	1 pcs. O-ring	47.2 • 3.5 mm	85					
1	1 pcs. O-ring	NBR	633					
6	3 pcs. O-ring	90 • 2.0 mm	B11					
2	7 pcs. Washer	NBR	91					
0	1 pcs. Washer	48 • 2.0 mm	633					
2		NBR	B13					
4			33					
		11.9 • 8.2 • 1	633					
		mm	B03					
		17.5 • 13.5 •	01					
		1.5 mm	684					
			X01					
			15					
			684					
			X21					
			20					
	Spare parts bag for motors Ø32 and 35 mm tapered shaft (Series 5)		151- 1166	1		1		1

			Number per motor					
			Cod e no.	Ser ie 6*	Series 5 with separate spigot flange			
Item	Spare Part	Dimensions	O M R Fla nge A2	O MR Fla nge A2	O M R C Fla nge A4 A2	O M R Fla nge A4	O M R Fla nge C	OM RW N
2	6 pcs. Washer	9.0 • 6.1 • 0.5 mm	684					
3	1 pcs. Dust seal	42 • 35 • 3.5 mm NBR	X20					
5	1 pcs. Shaft seal	48 • 3.5 • 5.5 mm NBR	47					
6	1 pcs. O-ring	53 • 2.0 mm NBR	633					
6	1 pcs. O-ring	74 • 2.0 mm NBR	B31					
6	1 pcs. O-ring	90 • 2.0 mm NBR	98					
1	3 pcs. Washer	11.9 • 8.2 • 1 mm	633					
6	7 pcs. Washer	17.5 • 13.5 • 1.5 mm	B32					
2	1 pcs. Washer		73					
2			633					
0			B15					
2			28					
4			633					
			B00					
			63					
			633					
			B13					
			01					
			684					
			X01					
			15					
			684					
			X21					
			20					

NBR: (Buna N, Perbunan)

FPM Viton (ISO 1629)

HPS: High-pressure shaft seal

*Series 6 with integrated spigot flange

**Excl.dust seal ring 633B0010

Tightening torque

Item	Code number	Torque N•m	Torque lbf•in
1	681X1989	5 - 8	45 - 70
	681X0247	5 - 8	45 - 70
	681X1961	5 - 10	45 - 90
	681X1454	12 - 15	110 - 130
10	681X8202	90 - 110	800 - 975
	681X8232	190 - 210	1680 - 1860
21	-	30 - 35	270 - 315
25	-	38 - 44	340 - 390
28	631X9706	20 - 23	175 - 200

NBR: (BUNA N, PERBUNAN).

Chapter

7

Special tools

Topics:

- [Special tools](#)
-

Special tools



Figure 1: Main holding tool (horse hole):
Code No.: SJ 151-9000-1.

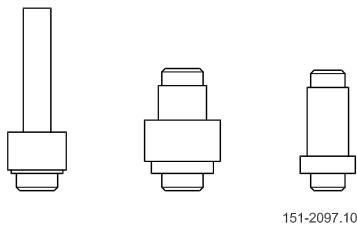
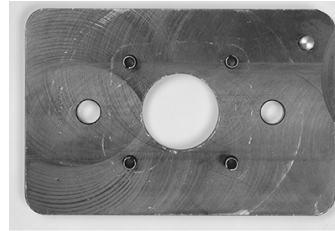


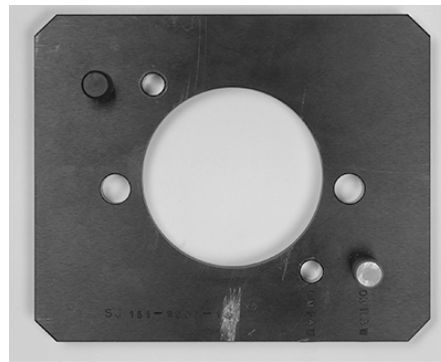
Figure 3: Mandrel: Code No.: SJ 151-0414

Mandrel: Code No.: SJ 151-9000-7 or SJ 151F9000-7



F300 131

Figure 2: SJ 151-9000-12.



F300 129

Holding tool for motor with square mounting flange:
Code No.: SJ 151-9000-12.

Holding tool for OMRW N: Code No.: SJ 151-9000-14.

Figure 4: SJ 151-9000-14.

Chapter

8

Dismantling / Cleaning

Topics:

- *Dismantling*
 - *Cleaning*
-

Dismantling

Item	Part to remove	Comments
10	Castellated nut	
11	Washer	
12	Parallel key	
28	Seal plugs	Put the motor in a holding tool, with the output shaft downward. For end port version use 10 mm hexagon socket spanner.
25, 24	Drain plug, washer (if present)	Use a 17 mm spanner socket.
21, 20	Screws, washers	Use a 13 mm spanner socket.
19	End cover	Remove end cover sideways.
18, 16	Gear wheel set O-rings (2 off)	Keep fingers under the gearwheel set to prevent the parts from falling out.
14	Cardan shaft	
17, 16	Distributor plate O-ring	
Item	Part to remove	Comments
13	Output shaft	<i>Motors with integrated spigot flange:</i> Place the motor housing on the work bench and press the shaft out of the motor housing. Shaft and bearings should normally not be removed from OMRW N. However, if necessary for inspection and cleaning, remove the shaft from the housing front end. The rear bearing can thus remain in the housing. After this, turn the motor.
1	Screws (6 off)	Use Torx-spanner type T30, 9 mm screwdriver or 4 mm hexagon socket spanner.
2	Washer	Only OMRW N
4	Spigot flange	
6, 7	O-ring, bearing race	<i>Motors with integrated spigot flange:</i> Remove bearing and bearing race from the motor housing. <i>Motors with separate spigot flange:</i> Use a 2 mm screwdriver
8	Needle bearing	

Item	Part to remove	Comments
5	Shaft seal	<i>Motors with integrated spigot flange:</i>
3	Dust seal	With mandrel and plastic hammer, carefully knock out the shaft seal. <i>Motors with separate spigot flange:</i> Knock out the shaft seal / dust seal with a plastic hammer. Use mandrel SJ 151-9000-7 or SJ 151F9000-7
9	Bearing race	Only OMR/OMRW N with ø32 mm/28.5 mm tapered shaft. Use a 2 mm screwdriver.
26	Check valves (2 off)	Only OMR with check valves. Pull the check valve out with, for example, a ground (shortened) 3.5 mm screw tap.

Cleaning

Cleaning

Clean all parts carefully with low aromatic kerosine.

Inspection and replacement

Check all parts carefully and replace if necessary.

Lubrication

Before assembly, lubricate all parts with hydraulic oil and grease rubber parts with vaseline.

Chapter 9

Assembly

Topics:

- [Assembly](#)
-

Assembly

Item	Part to install	Comments
		Place the motor housing in the holding tool with the flange upwards.
26	Check valves (2 off)	<i>Only OMR with check valves</i> Grease the check valves (fitted with new O-rings) and fit them in their bores with light blows using plastic hammer.
9	Bearing race	Only OMR/OMRW N with $\varnothing 32$ mm / 28.5 mm tapered shaft.
5	Shaft seal	<i>Motors with integrated spigot flange:</i> Lubricate the shaft seal on the outside with hydraulic oil. Fit the shaft seal correctly onto mandrel SJ 151-0414 and carefully press the shaft seal into position in the motor housing. <i>Motors with separate spigot flange:</i> Knock the seal into position in the spigot flange. Check that the seal lies against the cover recess. Use mandrel SJ 151-9000-7 or SJ 151F9000-7
3	Dust seal ring	Place the dust seal ring in the spigot flange and knock it into position with a plastic hammer and appropriate mandrel. SJ 151-9000-7 or SJ 151F9000-7
7, 6	Bearing race O-ring	<i>Motors with integrated spigot flange:</i> Fit bearing and bearing race onto the shaft and mount together with the shaft. <i>Motors with separate spigot flange:</i> Grease the O-ring with vaseline and fit the bearing race and O-ring into the spigot flange.
8	Needle bearing	
4	Spigot flange	Turn so that the holes line up.
2	Washer	Only OMRW N
1	Screws (6 off)	<i>Tightening torque</i> Torx screws M6: 5-8 Nm [45-70 lbf•in] Slotted screws M6: 5-8 Nm [45-70 lbf•in] Hexagon socket screws M5: 5-10 Nm [45-70 lbf•in] Hexagon socket screws M5: 12-15 Nm [45-70 lbf•in] After this, turn the motor.

13

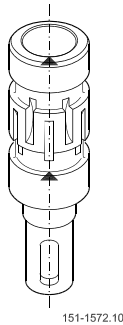


Figure 5: Output shaft

Grease the journals with hydraulic oil.

The rear shaft end must be marked before fitted. The mark must be positioned vertically above a commutation slot leading up to the front annular channel.

For OMRW N, guide the shaft into the motor housing back with the rear needle bearing fitted on the shaft. Bring the shaft in line with the back of the motor by gently tapping the shaft with a plastic hammer. Check that the shaft rotates easily

16

O-ring

Grease the O-ring and put it in the O-ring groove of the housing.

17

Distributor plate

Turn the distributor plate so that the holes line up.

14

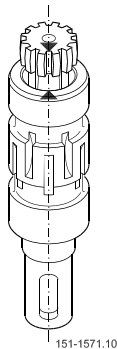


Figure 6: Cardan shaft

Guide the cardan shaft down into the motor housing.

In case of different splines lengths turn the cardan shaft to ensure the long splines end is fitted in the output shaft.

Transfer marking from output shaft to cardan shaft.

18, 16

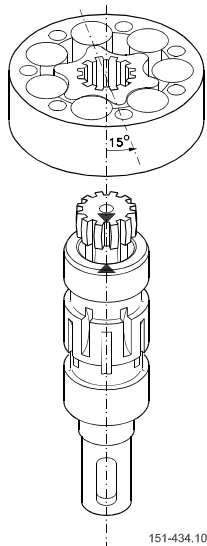


Figure 7: Gearwheel set

Place the O-rings (greased) in the O-ring grooves of the gearwheel.

In gearwheels with non through splines place the gearwheel with the recess in the spline hole facing down towards the housing.

Place the gearwheel set on the cardan shaft so that the top of a tooth in the external teeth of the gearwheel is vertically above the mark on the cardan shaft.

Turn the gearwheel set counter clockwise until the cardan shaft and the gearwheel start to mesh (15°). Turn the gearwheel rim so that the holes made for the screws line up.

19	End cover	Turn the end cover so that the holes line up.
20, 21	Washer, screws	Use a 17 mm spanner socket Tightening torque: 30 - 35 N•m [265-310 lbf•in].
24, 25	Washer, drain plug	Use a 17 mm spanner socket. Tightening torque: 30 - 60 N•m [270-315 lbf•in].
28	Seal plugs Threaded plug (if present)	End port version: Screw plastic plugs into end ports. Screw in the side port plugs using 10 mm hexagon socket spanner. Tightening torque: 50 - 70 Nm [445-620 lbf•in]. Side port version: Screw in plastic plugs.
12	Parallel key	To be secured with tape or plastic ring
11	Washer	
10	Castellated nut	