## SERIES MOO2R MULTI-VANE® AIR MOTORS

Always operate, inspect and maintain this tool in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1) and any other applicable safety codes and regulations.

## **△WARNING**

Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool. Failure to do so could result in injury.

FOR TOP PERFORMANCE AND MAXIMUM DURABILITY OF PARTS, OPERATE THIS TOOL AT 90 psig (6.2 bar/620 kPa) AIR PRESSURE WITH 1/4" (6 mm) AIR SUPPLY HOSE.

## LUBRICATION

Oil: Ingersoll-Rand No. 10 Lubricant. Grease: Ingersoll-Rand No. 28 Lubricant.

We recommend the use of an air line lubricator in the air supply line. Attach the unit as close to the tool as practical. Where the lubricator cannot be permanently mounted, we recommend using an Ingersoll-Rand No. NL-4 Lubricator. For permanent installations, we recommend using an Ingersoll-Rand C11-02-G00 Filter-Lubricator-Regulator unit. These units have 1/4" pipe tap inlet and outlet and 5/16 pint (148 ml) oil capacity. Larger capacity units may be used, but do not use a unit having less than a 1/4" pipe tap inlet and outlet. Adjust the lubricator so there is a slight oil mist in the exhaust.

After each forty hours of operation, or as experience indicates, remove the Gear Case Grease Screw (16) and inject 1.5 cc of the recommended grease into the opening. Do not grease excessively. Too much grease in the Gear Case (15) will cause heating. Grease leakage from the spindle end is also an indication that an excessive amount of grease has accumulated within the Gear Case.

Whenever the gear end of the Motor is disassembled, lubricate the gear train as follows:

For single reduction Motors, work approximately 15 cc of the recommended grease into the gearing and around the Bearings (31) on the Spindle (26).

For double reduction Motors, work approximately 19 cc of the recommended grease into the gear train and around the Bearings (31) on the Spindle (26).

For triple reduction Motors, work approximately 22 cc of the recommended grease into the gear train and around the Bearings (31) on the Spindle (26).

## NOTICE

The use of other than genuine Ingersoll-Rand replacement parts may result in decreased Motor performance and increased maintenance, and may invalidate all warranties.

For additional repair service information, request Service Bulletin S6839 from your Ingersoll-Rand Distributor or Sales Office.



1 N		V			<del></del>
1 17	Mater Housing		24	Intermediate Gear Head Planet Gear (3)	
1	Motor Housing	M002 B40		(for models M002RHR101AR3,	
	for reversible models	M002-R40			
- 1	for nonreversible models	M002-N40		M002RHR159AR3, M002RVR101AR3,	
2 1	Rear Rotor Bearing Retainer	8SL-305		M002RVR159AR3 and M002RVR159AS3)	
	Rear Rotor Bearing	DG10-22		(14 teeth)	3RLM-10
		ll l	25	Gear Head Spacer (for models	
4 1	Rear End Plate Gasket	3RL-739	23		
5	Rear End Plate	M002-12		M002RHR021AR3, M002RVR028AR3,	
	Rotor	3RL-53		M002RHR021AR3, M002RHR028AR3,	
2 1	Vane Packet (set of 5 Vanes)	3RL-42-5		M002RHR044AR3, M002RHR101AR3,	
		3KL-42-3		M002RHR159AR3, M002RVR006AR3,	
8 1	Cylinder	4			
	for reversible models	M002-R3		M002RVR013AR3, M002RVR021AR3,	
- 1	for nonreversible models	M002-N3		M002RVR028AR3, M002RVR044AR3,	
		3RL-98		M002RVR101AR3, M002RVR159AR3	
9	Cylinder Dowel	- 1			3RL-80
- 13	Front End Plate Assembly	M002-A11		and M002RVR159AS3)	3KL-00
10	Front End Plate	M002-11	26	Spindle	
11	Front Rotor Bearing	DG10-22		for model M002RHR008AS3	M002-8-008
- 1		3RL-13		for model M002RVR159AS3	M002-8-0211
12	Front Rotor Bearing Retainer	il i		l l	
13	Front End Plate Seal (2)	M002-210		for models M002RHR000AR3,	
14	Motor Clamp Washer	M002-207		M002RHR004AR3, M002RVR000AR3	
	Gear Case	1		and M002RVR004AR3	M002-108-004
13				for models M002RHR008AR3	
i	for models M002RHR000AR3,				M002-108-008
1	M002RHR004AR3, M002RHR008AR3,			and M002RVR008AR3	M002-100-000
1	M002RHR008AS3, M002RVR000AR3,	1		for models M002RHR013AR3,	
	M002RVR004AR3 and			M002RHR028AR3, M002RHR101AR3,	
1		M002-37		M002RVR013AR3, M002RVR028AR3	
1	M002RVR008AR3	MO02-37			M002 109 012
	for models M002RHR006AR3,	Ħ		and M002RVR101AR3	M002-108-013
1	M002RHR013AR3, M002RHR021AR3,	H		for models M002RHR006AR3,	
	M002RHR028AR3, M002RHR044AR3,	H		M002RHR021AR3, M002RHR044AR3,	
	· ·			M002RHR159AR3, M002RVR006AR3,	
1	M002RVR006AR3, M002RVR013AR3,				
	M002RVR021AR3, M002RVR028AR3			M002RVR021AR3, M002RVR044AR3	
ł	and M002RVR044AR3	M002-137		and M002RVR159AR3	M002-108-021
ł	for models M002RHR101AR3,	1	27	Spindle Planet Gear (3)	
		h		for models M002RHR008AR3,	
1	M002RHR159AR3, M002RVR101AR3,	ł		1	
1	M002RVR159AR3 and	+		M002RVR008AR3 and	
1	M002RVR159AS3	M002-237		M002RHR008AS3 (19 teeth)	3RLL-10
16	Gear Case Grease Screw	M002-95		for models M002RHR004AR3,	
		MO02-73			
	Rotor Pinion (for models M002RHR004AR3,	1		M002RHR013AR3, M002RHR028AR3,	
	M002RHR013AR3, M002RHR021AR3,			M002RHR101AR3, M002RVR004AR3,	
- 1	M002RVR004AR3, M002RVR013AR3			M002RVR013AR3, M002RVR028AR3	
	and M002RVR021AR3) (18 teeth)	3RLM-17		and M002RVR101AR3 (14 teeth)	3RLM-10
		SIGNAT 17			JICLIN-10
18	Rotor Pinion Spacer (for models			for models M002RHR006AR3,	
1	M002RHR004AR3, M002RHR013AR3,			M002RHR021AR3, M002RHR044AR3,	
	M002RHR021AR3, M002RVR004AR3,	j	1	M002RHR159AR3, M002RVR006AR3,	
	M002RVR013AR3 and M002RVR021AR3)	M002-80		M002RVR021AR3, M002RVR044AR3,	
		111002 00			
19	Gear Head	Į.		M002RVR159AR3 and	
	for models M002RHR006AR3,			M002RVR159AS3 (17 teeth)	3RLN-10
	M002RHR021AR3, M002RVR006AR3		28	Spindle Drive Plate (for models	
	and M002RVR021AR3 (10 teeth)	3RLN-216		M002RHR000AR3 and M002RVR000AR3)	M002-171
	1	5KE:1-210			
	for models M002RHR013AR3		29	Coupling Nut (2)	M002-27
	and M002RVR013AR3 (18 teeth)	3RLM-216	30	Coupling Nut Retainer (2)	M002-29
	for models M002RHR028AR3.	ļ	31	Spindle Bearing (2)	WFS182-24
	M002RHR101AR3, M002RHR159AR3,			Spindle Bearing Spacer	M002-111
	•		32		1
	M002RVR028AR3, M002RVR101AR3		33	Spindle Retaining Ring (2)	3RL-6
	M002RVR159AR3 and		34	Gear Case Seal	M002-159
	M002RVR159AS3 (18 teeth)	M002-216-028	11		
			li	Flange Assembly	M002-A580
	1 , ,	141002 210-020	25	Flange Assembly	1
	for models M002RHR044AR3		35	Flange	M002-580
	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36	Flange Seal.	M002-580 M002-159
20	for models M002RHR044AR3		13	Flange	M002-580
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)		36 37	Flange	M002-580 M002-159
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)		36 37 38	Flange	M002-580 M002-159 M002-271
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37	Flange	M002-580 M002-159 M002-271 M002-561
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)		36 37 38	Flange. Flange Seal. Spindle Seal Flange Key (2). Spindle Socket Adapter for M002RHR008AS3	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38	Flange	M002-580 M002-159 M002-271 M002-561
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38 39	Flange. Flange Seal. Spindle Seal Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3. for M002RVR159AS3. Socket Adapter Ball (for models	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3)	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3. for M002RVR159AS3. Socket Adapter Ball (for models	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3 Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required)	M002-580 M002-159 M002-271 M002-561 R000B2J2-21
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044 3RLM-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3 Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1
	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629
20	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696
	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044 3RLM-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629
21	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31
	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3 Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722
21	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3 Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722
21	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21 22	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21 22	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171  3RL-80	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21 22	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21 22	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)  Gear Head Planet Gear (3) for models M002RHR013AR3, M002RHR021AR3, M002RVR013AR3 and M002RVR021AR3 (14 teeth) for models M002RHR028AR3, M002RHR044AR3, M002RHR101AR3, M002RHR044AR3, M002RVR028AR3, M002RVR044AR3, M002RVR028AR3, M002RVR159AR3 and M002RVR159AR3 and M002RVR159AS3 (19 teeth) Gear Head Drive Plate (for models M002RHR006AR3 and M002RVR006AR3) Gear Head Spacer (for models M002RHR101AR3, M002RHR159AR3, M002RVR101AR3, M002RVR159AR3 and M002RVR159AS3 Intermediate Gear Head for models M002RHR101AR3 and M002RVR101AR3 (18 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171  3RL-80	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722
21 22	for models M002RHR044AR3 and M002RVR044AR3 (10 teeth)	M002-216-044  3RLM-10  3RLL-10  M002-171  3RL-80	36 37 38 39	Flange. Flange Seal. Spindle Seal. Flange Key (2). Spindle Socket Adapter for M002RHR008AS3 for M002RVR159AS3. Socket Adapter Ball (for models M002RHR008AS3 and M002RVR159AS3) (as required) 1/8" diameter. 9/64" diameter. 5/32" diameter. 3/16" diameter. 7/32" diameter. 9/32" diameter.	M002-580 M002-159 M002-271 M002-561 R000B2J2-21 R1440-212-1 AV1-255 RX1-629 2U-696 4U-31 2U-722 8U-722

<sup>\*</sup> Not illustrated.