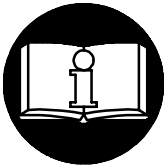


# OPERATION AND MAINTENANCE MANUAL

## for

### SERIES MVA008, MVA017 AND MVA034

## REVERSIBLE MULTI-VANE <sup>®</sup> GEARED MOTORS



### ▲ WARNING

**IMPORTANT SAFETY INFORMATION ENCLOSED.  
READ THIS MANUAL BEFORE OPERATING TOOL.**

**FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

- Always operate, inspect and maintain this motor in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance and maximum durability of parts, operate this motor at 90 psi (6.2 bar/620 kPa) air pressure at the inlet with 3/4" (19 mm) air supply hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this motor.
- Keep hands, loose clothing and long hair away from rotating end of motor.
- Anticipate and be alert for sudden changes in motion during start up and operation of any motor.
- Motor shaft may continue to rotate briefly after the throttle is released.
- Do not lubricate motor with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace and damaged label.
- Use accessories recommended by Ingersoll-Rand.
- This motor is not designed for working in explosive atmospheres.
- This motor is not insulated against electric shock.

### NOTICE

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

Ingersoll-Rand is not responsible for customer modification of tools for applications on which Ingersoll-Rand was not consulted.


Repairs should be made only by authorized, trained personnel. Consult your nearest Ingersoll-Rand Authorized Service center.


It is the responsibility of the employer to place the information in this manual into the hands of the operator.

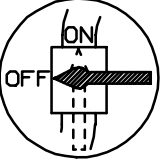
# WARNING LABEL IDENTIFICATION


## ⚠ WARNING

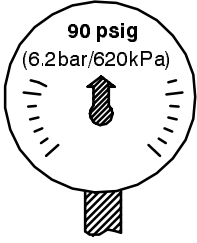
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

	<b>⚠ WARNING</b>
	Always wear eye protection when operating or performing maintenance on this motor.

	<b>⚠ WARNING</b>
	Always wear hearing protection when operating this motor.

	<b>⚠ WARNING</b>
	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 motor.

	<b>⚠ WARNING</b>
	Do not use damaged, frayed or deteriorated air hoses and fittings.

	<b>⚠ WARNING</b>
	Operate at 90 psig (6.2 bar/620 kPa) Maximum air pressure.

# PLACING TOOL IN SERVICE

## LUBRICATION



**Ingersoll-Rand No. 50    Ingersoll-Rand No. 28**

We recommend using a Filter-Lubricator-Regulator Unit with these Motors. For Series MVA008 and MVA017, use No. C22-04-G00 (1/2" pipe tap inlet). For Series MVA034 use No. C31-06-G00 (3/4" tap inlet). Install the Unit as close to the Motor as practical. Keep the Lubricator filled with Ingersoll-Rand No. 50 Oil.

### NOTICE

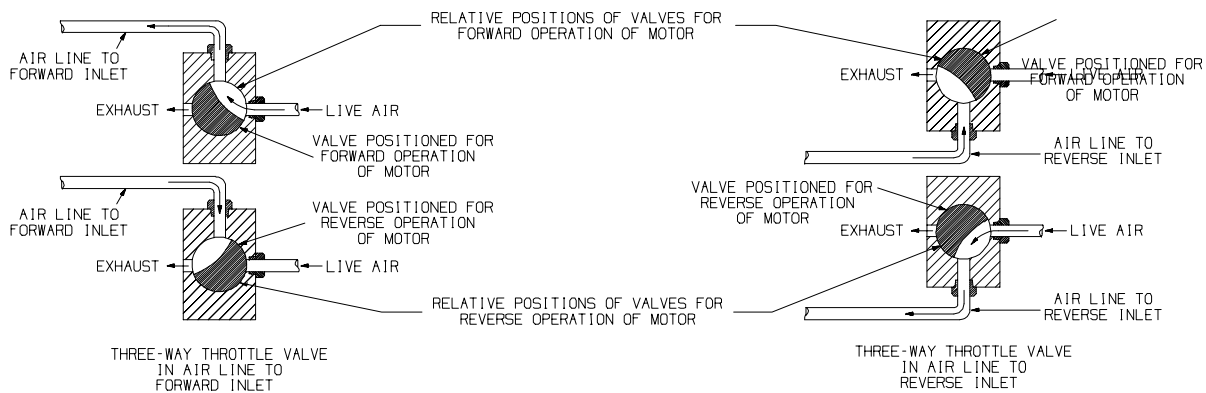
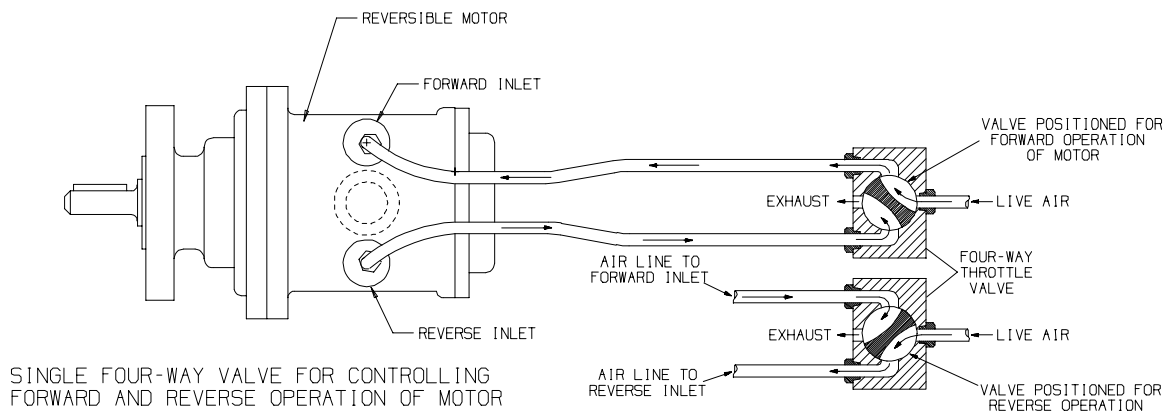
**If a sight feed lubricator is used, adjust the lubricator to feed 60 drops per minute for continued duty operation.**

**Whenever the motor is disassembled, work some Ingersoll-Rand No. 28 Grease into the Rear Rotor Shaft Bearing (2).**

## VALVE AND PIPING

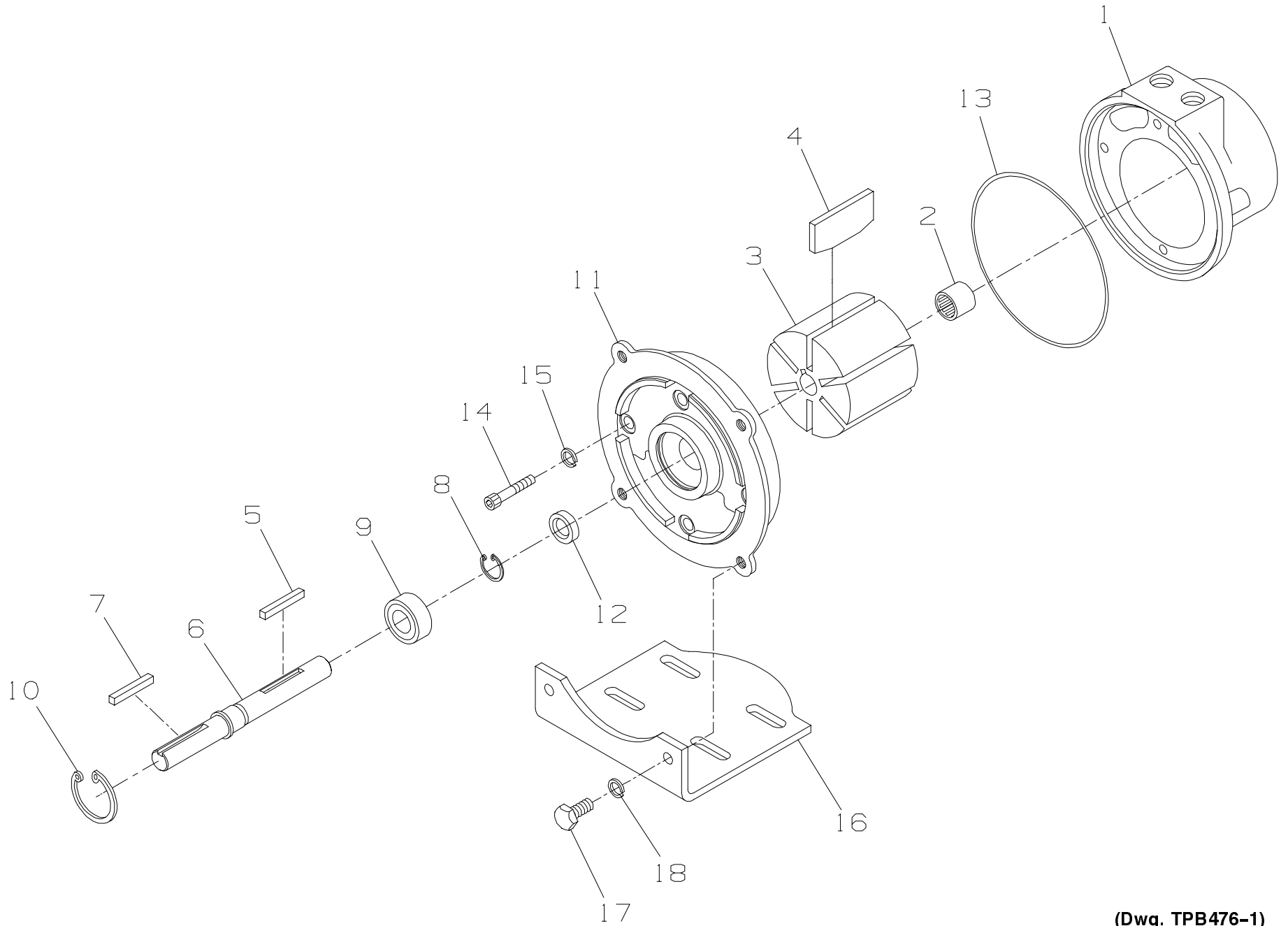
### NOTICE

**When these motors are used on applications requiring a reversible motor, a 4-way throttle valve or two 3-way throttle valves must be used in the air supply line in accordance with the following schematic diagram. When the application requires a non-reversible motor, a 2-way in-line valve can be used in the air supply line. In either case, the inlet and outlet of the valve must be equal in size, and preferably one size larger, than the inlet of the motor.**



**TWO THREE-WAY VALVES FOR CONTROLLING FORWARD AND REVERSE OPERATION OF MOTOR**

(Dwg. TPB256)



(Dwg. TPB476-1)

**PART NUMBER FOR ORDERING** →

**PART NUMBER FOR ORDERING** →

1	Cylinder Assembly		7	Rotor Shaft Key . . . . .	J5-754
	for MVA008 . . . . .	MVA008-A3	8	Rotor Shaft Retainer . . . . .	MVA008-218
	for MVA017 . . . . .	MVA017-A3	• 9	Front Rotor Shaft Bearing . . . . .	R2H-97
	for MVA034 . . . . .	MVA034-A3	10	Front Rotor Shaft Bearing Retainer . . . . .	S12-118
• 2	Rear Rotor Shaft Bearing . . . . .	MVA008-22	11	Front Head Assembly . . . . .	MVA008-A240A
3	Rotor		• 12	Rotor Shaft Seal . . . . .	M0V010AA-271
	for MVA008 . . . . .	MVA008-53	• 13	Front Head Seal . . . . .	MVA008-103
	for MVA017 . . . . .	MVA017-53	14	Front Head Cap Screw (4) . . . . .	R3F-7
	for MVA034 . . . . .	MVA034-53	15	Front Head Cap Screw Lock Washer (4) . . . . .	8U-58
• 4	Vane Packet (set of 6 Vanes)		* 16	Muffler . . . . .	M0V010AA-674
	for MVA008 . . . . .	MVA008-42-6		Mounting Foot Kit . . . . .	MVA008-K4
	for MVA017 . . . . .	MVA017-42-6	16	Mounting Foot . . . . .	MVA008-4
	for MVA034 . . . . .	MVA034-42-6	17	Mounting Foot Bolt (2) . . . . .	D02-506
• 5	Rotor Key		18	Mounting Foot Lock Washer (2) . . . . .	D02-321
	for MVA008 . . . . .	TC-410	* 18	Nameplate . . . . .	MVA008-301
	for MVA017 . . . . .	J5-754	* 18	Nameplate Screw (2) . . . . .	MVA008-302
	for MVA034 . . . . .	MVA034-610			
6	Rotor Shaft				
	for MVA008 . . . . .	MVA008-52			
	for MVA017 . . . . .	MVA017-52			
	for MVA034 . . . . .	MVA034-52			

\* Not illustrated.

- To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

## MAINTENANCE SECTION

### WARNING

Always use protective eyewear when performing maintenance on a motor or operating a motor.

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

## DISASSEMBLY

### General Instructions

1. Do not disassemble the motor any further than necessary to replace or repair damaged parts.
2. Do not press any needle bearing from a part unless you have a new needle bearing on hand for installation. Needle bearings are always damaged during the removal process.
3. When grasping a tool in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part or motor and help prevent distortion. This is particularly true of threaded members and housings.
4. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.

### Disassembly of the Motor

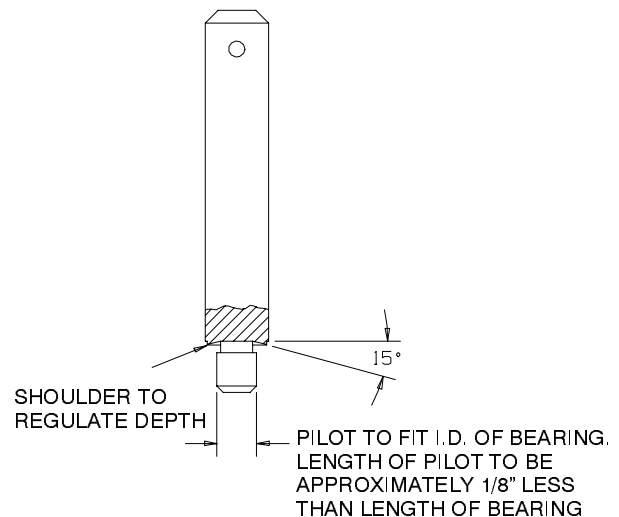
1. Using a 3/16" hex wrench, unscrew and remove the four Front Head Cap Screws (14) and Lock Washers (15).
2. Using a soft hammer, carefully tap the cylinder end of the Front Head (11) at various points until it separates from the Cylinder (1).
3. Grasp the Rotor Shaft (6) and the Front Head and carefully pull the assembled motor from the Cylinder. If replacement is required, remove the Front head Seal (13) from the pilot hub of the Front Head.
4. Remove the Vanes (4) from the Rotor (3) and slide the Rotor off the Rotor Shaft (6). Do not lose the Rotor Key (5). If the Key remained in the shaft slot, pull it from the Shaft.
5. Examine the rotor key slot in the Rotor Shaft very carefully. Stone or polish any burs, nicks or sharp edges which might damage the Rotor Shaft Seal (12) when the Rotor Shaft is removed from the Front Head.
6. Using snap ring pliers, remove the Front Rotor Shaft bearing Retainer (10) and pull the Shaft with the Bearing out of the Front Head. Examine the Shaft at the rotor shaft seal location. If any roughness exists at that location, polish the Shaft.

7. If the Front Rotor Shaft Bearing (9) is worn or damaged, use snap ring pliers to remove the Rotor Shaft Retainer (8) and pull the Bearing from the Shaft toward the rotor end.
8. Examine the Rotor Shaft Seal. If the Seal is nicked, cut or damaged in any way, pull it out of the Front Head.
9. Carefully examine the Rear Rotor Shaft Bearing (2) in the Cylinder. Examine each roller. If the Bearing is worn or damaged, use a bearing puller to pull it from the Cylinder.

## ASSEMBLY

### General Instructions

1. Always press on the inner ring of a ball-type bearing when installing the bearing on a shaft.
2. Always press on the outer ring of a ball-type bearing when pressing the bearing into a bearing recess.
3. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care not to damage threads or distort housings.
4. Except for bearings, clean every part and wipe every part with a thin film of oil before installation.
5. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly clean suitable solution and dry with a clean cloth. Sealed or shielded bearings should not be cleaned. Work grease into every bearing before installation.
6. Apply a film of O-ring lubricant to every O-ring before installation.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing a needle bearing into a recess. Use a bearing inserting tool similar to the one shown in Dwg. TPD786.



(Dwg. TPD786)

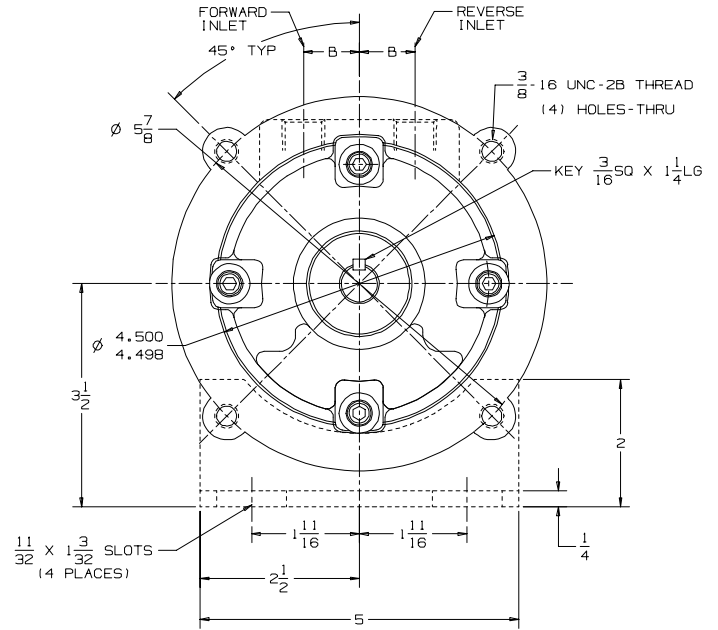
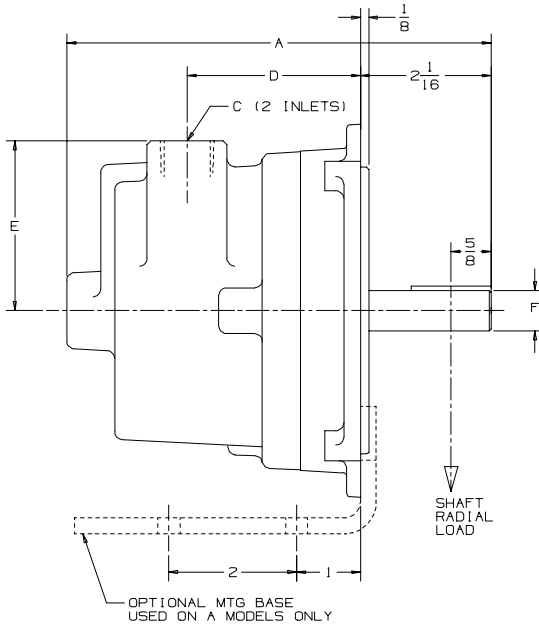
## **MAINTENANCE SECTION**

### **Assembly of the Motor**

1. If the Rear Rotor Bearing (2) was removed, press a new Bearing into the recess in the Cylinder (1). Press the Bearing until it is flush with the large rotor bore face at the bottom of the Cylinder. Inject 1/2 cc of Ingersoll-Rand No. 28 Grease into the bottom of the recess.
2. If the Rotor Shaft Seal (12) was removed, press a new Seal, lip end leading, into the recess in the Front Head (11). Make certain the lip does not roll backward during installation. Improper installation will cause the Seal to leak during operation. Press the Seal to the bottom of the recess in order to provide clearance for the Rotor Shaft Retainer (8).
3. If the Front Rotor Shaft Bearing (9) is being replaced, push a new Bearing onto the Rotor Shaft (6), from the rotor end, until it stops against the shoulder on the Shaft. Using snap ring pliers, install the Rotor Shaft Retainer (8) in the annular groove in the Shaft to retain the Bearing.
4. Insert the rotor end of the Rotor Shaft through the Rotor Shaft Seal and Front Head until the Front Rotor Shaft Bearing nears the Front head. Inject 1/2 cc of Ingersoll-Rand No. 28 Grease between the Bearing and Seal and continue pushing the Shaft until the Bearing bottoms in the recess in the Front Head.
5. Using snap ring pliers, install the Front Rotor Shaft Bearing Retainer (10) to keep the Bearing and Shaft in position.
6. Examine the Rotor Key (5) carefully. If it has nicks or burs, stone or polish the rough areas until it is smooth. Coat the Key and Rotor Shaft with Ingersoll-Rand No. 28 Grease and insert the Key in the slot on the Rotor Shaft.
7. Align the internal key slot in the Rotor (3) with the Key in the Shaft and slide the Rotor onto the Shaft. The Rotor must slide freely over the Key on the Shaft. If it does not slide freely, remove the Rotor, locate and eliminate the obstruction and then reinstall the Rotor.
8. With the Rotor upward, coat each Vane (4) with a thin coat of oil and install a Vane in each of the vane slots in the Rotor.
9. Install the Front head Seal (13) on the pilot hub of the Front Head. Coat the Seal with oil.
10. Install the Cylinder over the assembled Rotor and Front Head making certain the Shaft enters the Rear Rotor Shaft Bearing properly and the Cylinder fits onto the pilot hub of the Front Head without damaging or displacing the Front head Seal.
11. Install a Lock washer (15) on each of the four Front Head Cap Screws (14) and secure the Front Head to the Cylinder with the Cap Screws. Tighten each Screw a little at a time using an alternating pattern until the Screws are tightened between 13 and 14 ft-lb. (17 and 19 Nm) torque.

# MAINTENANCE SECTION

## DIMENSIONS FOR SERIES MVA MOTORS



(Dwg. TPB507-1)

Model	A	B	C (NPT)	D	E	F (DIA.)
MVA008A8B	5-7/16"	7/8"	3/8"	1-7/8"	2-1/2"	.6250 .6245
MVA017A8B	6-11/16"	7/8"	3/8"	1-7/8"	2-1/2"	.6250 .6245
MVA034A8B	8-7/16"	1-3/16"	1/2"	2"	2-5/8"	.8750 .8745

**NOTICE**

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.