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Edition 1

OPERATION AND MAINTENANCE MANUAL FOR MODELS MVA017A/VSM–5252, MVA017B/VSM–5018 MVA034A/VSM–5019, MVA034B/VSM–5159 REVERSIBLE AIR OR GAS OPERATIONAL MOTORS

⚠ WARNING

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

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

The MVA motors are designed for gas operation at a maximum inlet pressure of 90 psig. It is not totally sealed in dynamic operation since the exhaust must be vented or piped away and there is a possibility of leakage around the output shaft when rotating.

Caution should be taken when operating this motor on gas because of the danger of fire, explosion or inhalation.

When assembling a gas operated motor always perform the steps as directed in the section titled Gas Operation Test Procedure.

- 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 psig (6.2 bar/620 kPa) maximum air / gas pressure at the inlet with 1/2" (13 mm) air supply hose.
- Always turn off the air / gas supply and disconnect the air / gas supply hose before installing, removing or adjusting any accessory on this motor or before performing any maintenance 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 Air / Gas line is removed.
- Do not lubricate motor with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Use accessories recommended by Ingersoll–Rand.
- 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 Servicenter.

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

Refer All Communications to the Nearest Ingersoll–Rand Office or Distributor.

Printed in U.S.A.

INGERSOLL-RAND®
AIR MOTORS

WARNING LABEL IDENTIFICATION

⚠ WARNING

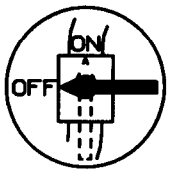
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

⚠ WARNING

Always wear eye protection when operating or performing maintenance on this motor.

⚠ WARNING

Always wear hearing protection when operating this motor.

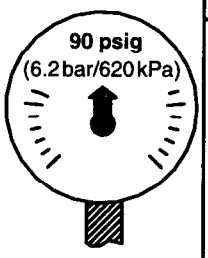


⚠ WARNING

Always turn off the air / gas supply and disconnect the supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this motor.

⚠ WARNING

Do not use damaged, frayed or deteriorated air / gas hoses and fittings.



⚠ WARNING

Operate at 90 psig (6.2 bar/620 kPa) Maximum air / gas pressure.

PLACING TOOL IN SERVICE

LUBRICATION

Ingersoll–Rand No 20

Ingersoll–Rand No. 28

Always use an air line lubricator with this motor.

INSTALLATION

Air Supply and Connections

Always use clean, dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes dust and moisture. Make sure all hoses and fittings are the correct size and are tightly secured.

MAINTENANCE SECTION

⚠ WARNING

It is imperative that gas–operated motors be properly sealed to prevent gas leakage. Refer to GAS OPERATION TEST PROCEDURE when making repairs.

GAS OPERATION TEST PROCEDURE

Ingersoll–Rand carefully assembled this motor with specially selected sealing materials to prevent gas leakage, and tested this motor to detect leaks.

When reassembling a motor, follow the procedures to properly test the motor for leaks:

1. Plug one inlet (either forward or reverse).
2. Connect non–pressurized air line to the inlet that is not plugged.
3. Pressurize motor with **air** to 40 psi.
4. Fully submerge motor in water.
5. Monitor for a minimum of 2 minutes for bubbles in water.

6A If the motor DOES NOT release bubbles during the two minute test, the motor is ready for gas operation.

6B If the motor releases ANY bubbles during testing, the motor must be reworked and retested.

NOTICE

If the motor operates sluggishly, flush it with a clean, non–toxic, nonflammable commercial solvent in a well ventilated area.

To flush the motor:

1. Disconnect the air line and muffler.
2. Pour 6 to 8 cc of solvent into each inlet.
3. Rotate the rotor shaft by hand in both directions several times to ensure all internal parts of motor are thoroughly cleaned.
4. Apply air pressure to the inlet and slowly increase the air flow until there is no trace of the solvent in the exhaust.
5. After flushing, shut off the air supply and disconnect air supply line.
6. Pour 6 to 8 cc of a high detergent SAE 10 motor oil into the air inlet.
7. Reconnect the air supply line, slowly increase the air pressure to ensure all internal parts of motor will be covered with a film of oil.
8. If the motor is still low in power, check for damaged vanes or foreign material in the vane slots in the Rotor.

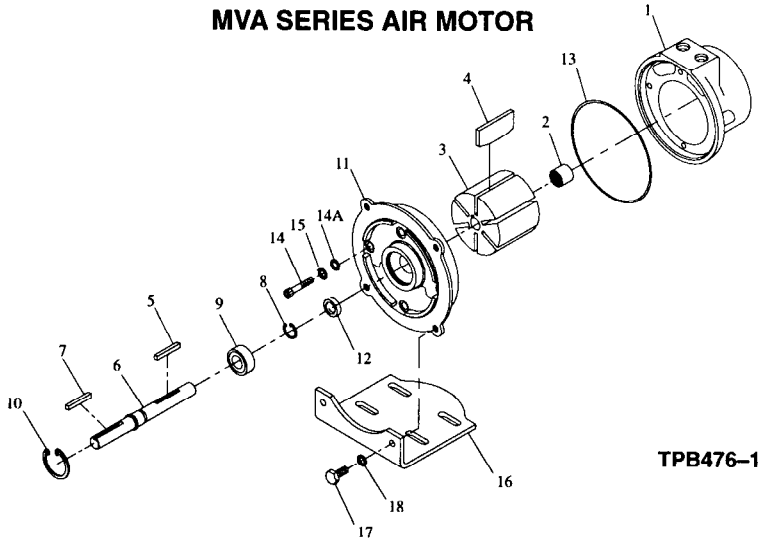
NOTICE

Periodically, check the Vanes for wear. Always replace Vanes in sets, never replace an individual Vane.

	Model	MVA Series
1	Cylinder Assembly	
	for MVA008	MVA008–A3
	for MVA017	MVA017–A3
	for MVA034	MVA034–A3
2	Rear Rotor Shaft Bearing	MVA008–22
3	Rotor	
	for MVA008	MVA008–53
	for MVA017	MVA017–53
	for MVA034	MVA034–53
4	Vane Packet (set of 6)	
	for MVA008	MVA008–42–6
	for MVA017	MVA017–42–6
	for MVA034	MVA034–42–6
5	Rotor Key	
	for MVA008	TC–410
	for MVA017	J5–754
	for MVA034	MVA034–610
6	Rotor Shaft	
	for MVA008	MVA008–52
	for MVA017	MVA017–52
	for MVA034	MVA034–52
7	Rotor Shaft Key	J5–754
8	Rotor Shaft Retainer	MVA008–218
9	Front Rotor Shaft Bearing	R2H–97
10	Front Rotor Shaft Bearing Reatainer	S12–118
11	Front Head Assembly	MVA008–A240A
12	Rotor Shaft Seal	VSM–4565
13	Front Head Seal (2)	MVA008–103
14	Front Head Cap Screw (4)	R3F–7
14A	Front Head Cap Screw Seal	MLK–211
15	Front Head Cap Screw Retainer	16922
*	Mounting Foot Kit	MVA008–K4
16	Mounting Foot	MVA008–4
17	Mounting Foot Bolt (2)	D02–506
18	Mounting Foot Lock Washer (2)	D02–321
*	Nameplate	MVA008–301
*	Nameplate Screw (2)	MVA008–302
*	Warning Tag	TA–GAS–90

*Not Shown

MVA SERIES AIR MOTOR



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MAINTENANCE SECTION

⚠ WARNING

Always wear eye protection when operating or performing maintenance on this motor.
Always turn off air / gas supply and disconnect supply hose before installing, removing or adjusting any accessory on this motor, or before performing any maintenance on this motor.

DISASSEMBLY

General Instructions

1. Always disconnect the air / gas line at the motor before attempting any disassembly.
2. Do not disassemble the motor any further than necessary to replace or repair damaged parts.
3. When grasping a part in a vise, always use leather–covered or copper–covered vise jaws to protect the surface of the part 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.
5. If it necessary to disassemble a motor, always have new seals on hand. Do not use old seals.

ASSEMBLY

General Instructions

1. Always wipe all parts with a thin film of oil before installing them in the motor.
2. Always press on the **inner ring** of a ball–type bearing when installing the bearing on a shaft.
3. Always press on the **outer ring** of a ball–type bearing when pressing the bearing into a bearing recess.
4. Whenever grasping a part in a vise, always use leather–covered or copper–covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
5. Lubricate the Rotor (3) and Vanes (4) with a good quality SAE 10 non–detergent oil. Lubricate the Bearings with Ingersoll–Rand No. 28 Grease. Coat the Rotor Shaft (6) with a good quality SAE 10 non–detergent oil.
6. If using gas to power the motor always test for leaks after assembly. Refer to the Gas Operartion Test Procedure.

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power or low free speed	Low air pressure at the inlet	Check air pressure at the inlet. For top performance and durability of parts, the air pressure must be 90 psig (6.2 bar/620 kPa) at the inlet.
	Worn or broken Vanes	Install a new set of Vanes.
	Improper lubrication or dirt building up in the Motor	Lubricate as instructed under LUBRICATION. If this does not help, flush the Motor as instructed under MAINTENANCE.
Rough operation	Worn or broken Rotor Bearings	Examine each Bearing. Install new bearing where necessary.
Scoring of End Plates and/or Cylinder	Rotor does not have proper clearance	Motor must be refurbished.

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