04581815
Edition 1
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Reversible Power Motor

Model 8231-4B-1

Operator's Manual

Save These Instructions

Ingersoll Rand

⚠ WARNING

General Product Safety Information

- **Important Safety Information enclosed.**
- **Read and understand this manual before operating this motor.**
- **It is your responsibility to make this safety information available to others that will operate this motor.**

Safety Information - Explanation of Safety Signal

⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
NOTICE	Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

⚠ WARNING

- **Pneumatic tools should always be installed and used in accordance with A.N.S.I. B186.1 "Safety Code for Portable Air Tools".**
- **Operate this motor at 90 p.s.i.g. (6.2bar/620 KpA) maximum air pressure at the air inlet of the motor.**
- **Disconnect air supply from tool before performing maintenance procedures.**
- **Keep hands, clothing and long hair away from rotating end of the motor.**
- **Anticipate and be alert for sudden changes in motion during start up and operation of any power motor.**
- **Never exceed rated r.p.m. of motor.**
- **Wear suitable eye and hearing protection while operating motor.**
- **Motor shaft can continue to rotate briefly after throttle is released.**
- **Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.**
- **Turn off air supply and disconnect air supply hose before installing, removing or adjusting any accessory on this motor or before performing any maintenance on this motor.**
- **Do not carry the motor by the Hose.**
- **Do not use damaged, frayed or deteriorated air hoses and fittings.**
- **Do not overreach when operating this motor. Keep body stance balanced and firm.**
- **Do not remove any labels. Replace any damaged label.**
- **Use only accessories recommended by Ingersoll Rand.**

Safety Symbol Identification

Wear Respiratory Protection | Wear Eye Protection | Wear Hearing Protection | Read Manuals Before Operating Product

(Dwg. MHP2598)

Lubrication

Routine Lubrication Requirements

Lack of or an excessive amount of lubrication will affect the performance and life of this tool. Use only recommended lubricants at below time intervals:

Every 8 Hours of Tool Operation - Fill lubricator reservoir of recommended F.R.L. with spindle oil (29665). If an in line or air line lubricator is not used, apply several drops of spindle oil (29665) in air inlet.

Every 160 Hours of Tool Operation - Flush tool with a solution of three (3) parts cleaning solvent to one (1) part spindle oil (or use kerosene).

Every 160 Hours of Tool Operation - Lubricate gearing. Pack bearings, coat shafts and lubricate gears with **NLGI #1 "EP"** grease (33153).

Air Supply Requirements

For maximum operating efficiency, the following air supply specifications should be maintained to this air motor:

- AIR PRESSURE - 90 p.s.i.g. (6.2 bar)
- AIR FILTRATION - 50 micron
- LUBRICATED AIR SUPPLY
- HOSE SIZE - 5/16" (8 mm) I.D.

An **Ingersoll Rand** model C28231-810 air line FILTER/ REGULATOR/LUBRICATOR (F.R.L.) is recommended to maintain the above air supply specifications.

Recommended Lubricants

After disassembly is complete, all parts, except sealed or shielded bearings, should be washed with solvent. To relubricate parts, or for routine lubrication, use the following recommended lubricants:

Where Used	Ingersoll Rand Part #	Description
Air Motor	29665	1 qt Spindle Oil
"O" Rings & Lip Seals	36460	4 oz. Stringy Lubricant
Gears and Bearings	33153	5 lb. "EP" - NLGI # 1 Grease

Inspection, Maintenance and Installation

Disconnect air supply from the tool or shut off air supply and exhaust (drain) line of compressed air before performing maintenance or service to the tool.

It is important that the tools be serviced and inspected at regular intervals for maintaining safe, trouble-free operation of the tool.

Be sure the tool is receiving adequate lubrication, as failure to lubricate can create hazardous operating conditions resulting from excessive wear.

Be sure that the air supply lines and connectors are of proper size to provide a sufficient quantity of air to the tool.

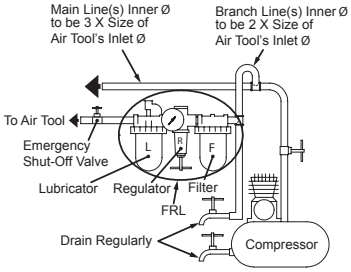
Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be replaced if unsuitable for safe operation and responsibility should be assigned to be sure that all tools requiring guards or other safety devices shall be kept in legible condition. Maintenance and repair records should be maintained on all tools. Frequency of repair and the nature of the repairs can reveal unsafe application. Scheduled maintenance by competent authorized personnel should detect any mistreatment or abuse of the tool and worn parts. Corrective action should be taken before returning the tool for use.

Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded bearings should never be placed in solvent unless a good method of re-lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry.

Upon reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 36460 lubricant for "O" ring assembly. When assembling "O" rings or parts adjacent "O" rings, care must be exercised to prevent damage to the rubber sealing surfaces. A small amount of grease will usually hold steel balls and other small parts in place while assembling.

When replacement parts are necessary, consult drawing containing the part for identification.

Always use clean, dry air. Dust, corrosive fumes and/or excessive moisture can damage the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes rust, scale, moisture and other debris from the air lines. Low air pressure (less than 90 p.s.i.g.) reduces the speed of the air tool. High air pressure (more than 90 p.s.i.g.) raises performance beyond the rated capacity of the tool and could cause injury. Shown below is a typical piping arrangement.



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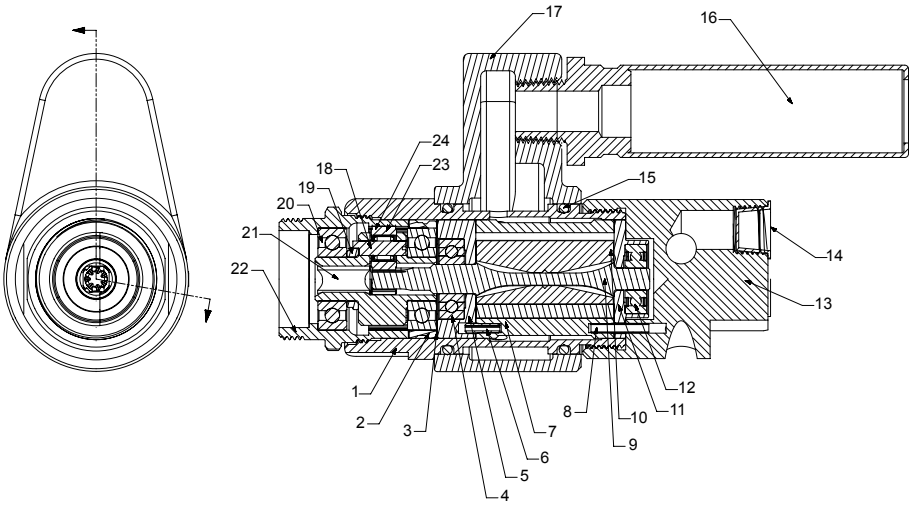
8231-4B-1 - Cross Section View



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8231-4B-1 - Parts List

Number	Part Name	Part No.	Number	Part Name	Part No.
	Housing Assembly	43634	14	Plug (2 req'd)	11481-7
1	Motor Housing	43631	15	O-Ring (2 req'd)	Y325-127
*	Grease Fitting	35967	16	Muffler	43551-3
2	Spacer	32305		Manifold Assembly	43556
3	Spacer	32310	17	Exhaust Manifold	43557
4	Bearing	Y65-15	*	Set Screw	Y23-102
5	End Plate	31602		Gearing Assembly 6.86:1	36329
	Cylinder Assembly	37684	18	Shaft (2 req'd)	33436
6	Pin	Y178-20	19	Spacer	33693
7	Cylinder	37682	20	Bearing (2 req'd)	32325
8	Pin	Y178-24	21	Spindle	36330
9	Rotor	46216	22	Ring Gear	36325
10	Rotor Vane (4 req'd)	30741		Gear Assembly (2 req'd)	33438
11	End Plate	31601	23	Gear (2 req'd)	33543
12	Bearing	Y65-7	24	Bearing (2 req'd)	33437
13	BeackHead	43632			

* Not Shown

Disassembly/Assembly Instructions

NOTICE

- Never apply excessive pressure by a holding device which may cause distortion of a part.
- Apply pressure evenly to parts which have a press fit.
- Apply even pressure to the bearing race that will be press fitted to the mating part.
- Use correct tools and fixtures when servicing this tool.
- Don't damage "O" rings when servicing this tool.
- Use only genuine **Ingersoll Rand** replacement parts for this tool. When ordering, specify part number, description, tool model number and serial number.

Drive Gearing Disassembly

- Using wrenches on flats of ring gear (22), unthread and remove drive gearing.
- Grasp ring gear in one hand and tap drive end of spindle with a soft face hammer; spindle and components will loosen from ring gear.
- Gearing should not be disassembled further unless damage is evident, as Brinelling of the bearing races may occur, making replacement necessary.
- To disassemble further, remove bearing (20) and spacer.
- Remove shafts, releasing gears.
- To remove bearing (20) insert shafts into spindle and alternately tap ends, loosening bearing.

Drive Gearing Assembly

- Assemble spacer and bearing (20) to spindle, pressing on inner race of bearing.
- Lubricate gears liberally with **Ingersoll Rand** 33153 grease and assemble to spindle, securing with shafts. **NOTE:** Be sure each shaft (24) contains 15 needle bearings. Gearing should contain approximately 1/8 oz. (3.5 g) of grease.
- Assemble bearing (20) to spindle, pressing on inner race of bearing.
- Assemble gearing into ring gear (22).
- Assemble ring gear and components to tool and tighten, using wrenches on flats of ring gear (22).

Motor Disassembly

- The motor assembly can be removed from either end of motor housing (1).
- To remove from "gearing" end of motor housing, remove gearing from tool.
- Remove spacers (2 and 3) and motor assembly from motor housing.
- Grasp cylinder in one hand and tap splined end of rotor with a soft face hammer; motor will come apart.
- Remove bearing (12) and end plate (11) from rotor.

Motor Assembly

- Assemble bearing (12) to end plate (11) pressing on outer race of bearing.
- Assemble end plate (11) to rotor, pressing on inner race of bearing.
- Coat four rotor blades (10) with **Ingersoll Rand** 29665 spindle oil and assemble to rotor slots-straight side out.
- Coat inside diameter of cylinder (7) with **Ingersoll Rand** 29665 spindle oil and assemble over rotor, aligning roll pin (8) and air inlet slots in end of cylinder with holes in end plate.
- Assemble bearing (4) to end plate (5) pressing on outer race of bearing.
- Assemble end plate (4) to rotor, pressing on inner race of bearing.
  NOTE: Align hole in end plate with roll pin (6) in cylinder. Be sure rotor turns without binding.
- Assemble motor assembly into motor housing (1), aligning roll pin (8) with 0.1065" diameter blind hole in head (largest hole). Assemble spacers (2 and 3) and gearing to motor housing (1).

Manifold Disassembly

- Remove muffler (16) from manifold (17).
- Place head (13) in a vise, clamping on flats.
- Unthread and remove motor housing (1).
- Unthread set screw (Not Shown) and slide manifold off housing.

Manifold Assembly

- Grease "O" rings (15) with **Ingersoll Rand** 36460 lube and assemble to grooves in motor housing (1).
- Assemble manifold (17) to motor housing.
- Assemble motor assembly and gearing to tool (see "Motor Assembly").
- Assemble head (13) to motor housing.
- Rotate manifold so muffler will be located approximately 180° from cylinder exhaust slots and tighten set screw (Not Shown).
- Assemble muffler (16) to manifold.

Product Parts Information

CAUTION

The use of other than genuine Ingersoll Rand replacement parts may result in safety hazards, decreased motor performance, and increased maintenance, and may invalidate all warranties.
Ingersoll Rand is not responsible for customer modification of motors 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.

Manuals can be downloaded from www.irtools.com
Refer all communications to the nearest **Ingersoll Rand** Office or Distributor.

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