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Power Motor

Model 8352, Series 2200

Operation and Maintenance Information

Save These Instructions

Ingersoll Rand

⚠ WARNING

General Product Safety Information

- **Read and understand this manual before operating this product.**
- **It is your responsibility to make this safety information available to others that will operate this product.**
- **Failure to observe the following warnings could result in injury.**

⚠ WARNING

When Placing the Motor in Service

- Always install, operate, inspect and maintain this product in accordance with all applicable standards and regulations (local, state, country, federal, etc.).
- Always use clean, dry air at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet. Higher pressure may result in hazardous situations including excessive speed, rupture, or incorrect output torque or force.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905-2 for a typical piping arrangement.
- Ensure an accessible emergency shut off valve has been installed in the air supply line, and make others aware of its location.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Keep clear of whipping air hoses. Shut off the compressed air before approaching a whipping hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this motor, or before performing any maintenance on this motor.
- Do not lubricate with flammable or volatile liquids such as kerosene, diesel or jet fuel. Use only recommended lubricants.
- Keep work area clean, uncluttered, ventilated and illuminated.
- Do not remove any labels. Replace any damaged label.

⚠ WARNING

When Using the Motor

- Always wear eye protection when operating or performing maintenance on this motor.
- Always wear hearing protection when operating this motor.
- Always use Personal Protective Equipment appropriate to the product used and material worked. This may include dust mask or other breathing apparatus, safety glasses, ear plugs, gloves, apron, safety shoes, hard hat and other equipment.
- Keep others a safe distance from your work area, or ensure they use appropriate Personal Protective Equipment.
- This motor is not insulated against electric shock.
- Prevent exposure and breathing of harmful dust and particles created by power tool use.
  - Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
    - lead from lead based paints,
    - crystalline silica from bricks and cement and other masonry products, and
    - arsenic and chromium from chemically treated lumber.
  - Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.
- Keep hands, loose clothing, long hair and jewelry away from motor.
- Motor and/or accessories may briefly continue their motion after throttle is released.
- Ensure work pieces are secure. Use clamps or vises to hold work piece whenever possible.
- Do not use motor when tired, or under the influence of medication, drugs, or alcohol.
- Never use a damaged or malfunctioning motor or accessory.
- Do not modify the motor, safety devices, or accessories.
- Do not use this motor for purposes other than those recommended.
- Use accessories recommended by **Ingersoll Rand**.

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.

Safety Symbol Identification

Wear Respiratory Protection

Wear Eye Protection

Wear Hearing Protection

Read Manuals Before Operating Product

(Dwg. MHP2598)

Safety Information - Explanation of Safety Signal Words

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.

Intended Use:

This Power Motor is designed for running at low rpm speeds.

Lubrication

Where Used	Ingersoll Rand Part #	Description
Air Motor	29665	1 qt. Spindle Oil

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

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

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

EVERY 8 HOURS OF MOTOR OPERATION - Fill lubricator reservoir of recommended FRL with spindle oil (29665).

EVERY 160 HOURS OF MOTOR OPERATION - Flush motor with a solution of three (3) parts cleaning solvent to one (1) part spindle oil.

EVERY 160 HOURS OF MOTOR OPERATION - Lubricate gearing. Pack bearings, coat shafts and lubricate gears with NLGI #1 "EP" grease (33153).

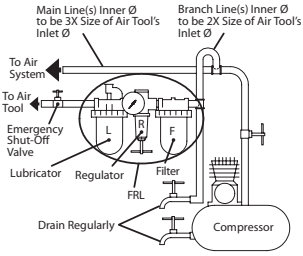
Air Supply Requirements

Always use an air line lubricator with these motors. To maintain the recommended air supply specifications the following Filter-Regulator-Lubricator Unit (FRL) should be used: C28221-800

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

Air Filtration = 50 Micron
Lubricated Air supply
Hose Inner diameter = 5/16" (8 mm)

Maintenance and Installation



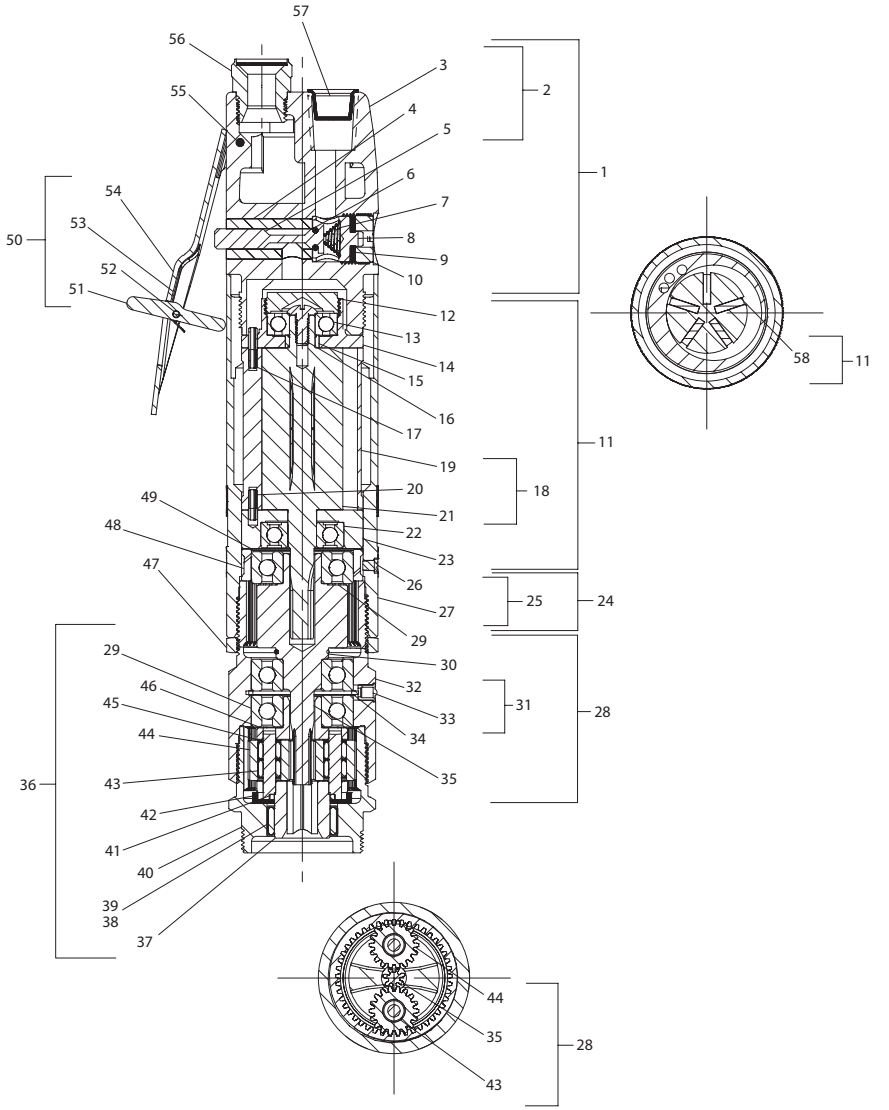
(Dwg. TPD905-2)

It is important that the motor be serviced and inspected at regular intervals to maintain safe, trouble-free operation.

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 operating condition. Maintenance and repair records should be maintained on all motors. 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 motor and worn parts. Corrective action should be taken before returning the motor for use.

When replacement parts are necessary, consult parts drawing TP2060 on page 4 for identification.

Model 8352 Power Motor - Diagram



(Dwg. TP2060)

Model 8352 Power Motor - Parts List

Item No.	Part Description	Part Number	Item No.	Part Description	Part Number
1	Head Assembly	37079-3	32	Adapter	34492
2	Head Assembly	37077	33	Fitting	35323
3	Head Lever	37075	34	Retainer Ring	33708
4	Bushing	36760	35	Spindle	40840
5	Valve Stem	36777	36	Gear Assembly (7.43:1)	37118
6	O-Ring	Y325-7	37	Spindle	37123
7	Spring	32858	38	Needle Bearing	37121
8	Regulator	36775	39	Gear	37119
9	Seal	36781	40	Gear Ring	37120
10	Nut	36776	41	Spacer	37126
11	Motor Assembly	43139	42	Spacer	37127
12	Nut	33694	43	Needle Bearing (4)	42271
13	Ball Bearing	33709	44	Planet Gear (2)	46416
14	End Plate	33710	45	Shaft (2)	37124
15	Spacer	33701	46	Shim	37128
16	Screw	33700	47	Lock Nut	35831
17	Pin	Y178-20	48	Spacer	33711
18	Cylinder	36772	49	Spacer	33699
19	Cylinder	35646	50	Lever Assembly	45779
20	Pin	Y178-22	51	Arm	45777
21	Rotor	41521	52	Rivet	47411
22	Ball Bearing	33705	53	Torsion Spring	45778
23	End Plate	33712	54	Lever	45776
24	Housing Assembly	37082-1	55	Rivet	36992
25	Housing	37082	56	Diffuser	40192
26	Fittings	35967	57	Plug, Plastic	11481-7
27	Motor, Housing	37083	58	Rotor Blade (5)	41520
28	Gear Assembly (7.43:1)	40826	*	Screen	36025
29	Ball Bearing (3)	33704	*	Screen	40199
30	Retainer Ring	40843	*	Adapter	44263-3
31	Housing Assembly	35270-ARO	*	Shaft (2)	40841

* Items not Illustrated

Maintenance

Disassembly

NOTICE

Disassembly should be done on a clean workbench 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 lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry.

Disassembly:

1. **Drive Gearing** - Using wrenches on the flats of the Ring Gear (40) and on the flats of the Housing Adapter (32), unthread and remove Gear Assembly (36) from motor. Tap drive end of Ring Gear (40) with a soft face hammer. Spindle (37) and components will now loosen from Ring Gear.

Note: Do not disassemble further unless damage is evident. To disassemble, remove Spacers (41 and 42). Alternately tap shafts (42) to remove Bearing.

2. **Auxiliary Gearing** - Remove Drive Gearing. Loosen Lock Nut (47) and unthread then remove Gearing Assembly (28) from Motor. Tap splined end of Spindle (35) with a soft face hammer. Spindle and components will now loosen from Housing Adapter (32). Remove Bearing (29) from splined end of Spindle. Rotate Retainer Ring (34), allowing removal of shafts and gears. Place shafts (42) in Spindle and alternately tap ends of shafts, loosening Bearing (29) from Spindle (37).
3. **Motor** - The Motor Assembly may be removed from Housing (27) after the removal of Gearing or Head. Remove Retaining Nut (12) and Screw (16). Grasp Cylinder (19) in one hand and tap splined end of Rotor (21) with a soft face hammer. The Motor should now begin to come apart.
4. **Head** - Remove Nut (10) to allow removal of Valve components.

Assembly

NOTICE

Upon reassembling, lubricate parts where required. Use Ingersoll Rand #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.

Assembly:

1. **Head** - Grease and assemble O-Ring (6). Assemble Valve Stem (5), Spring (7), Regulator (8), and Seal (9) into Valve opening and secure with Nut (10).
2. **Motor** - Assemble Bearing (13) to End Plate (14), while pressing on outer race of Bearing.

Note: Assemble with bearing markings facing outward.

Assemble Spacer (15) and End Plate (14) to Rotor (21) while pressing on outer race of Bearing. Secure with Fastener (16), while tightening to 28 in-lbs (3.2 Nm). Coat Rotor Blades with 29665 spindle oil and assemble in Rotor slots, with straight side facing outward. Coat inner diameter of Cylinder (18) with 29665 spindle oil and assemble to End Plate (14), while aligning Roll Pin (20) with hole in End Plate and air inlets of Cylinder and End Plate. Assemble Bearing (22) to End Plate (23), while pressing on outer race of Bearing. Assemble End Plate to Cylinder while pressing on inner race of Bearing. Assemble Retaining Nut (12) to End Plate and torque to 9-12 ft-lbs (12-16 Nm). Be sure Rotor does not bind and assemble to Housing. Assemble Spacers (48 and 49) to Housing.

3. **Auxiliary Gearing** - Pack Bearings and lubricate gears liberally with **Ingersoll Rand** #33153 grease when assembling. Assemble Planet Gears (44) and Shafts (45) to spindle (37), aligning notch in Shafts with Retainer Ring (30). Rotate open portion of Retainer Ring 90° from Shafts, while securing Shafts in place. Assemble Bearings (29) to Spindle. Assemble Retainer Ring (34) and Spindle to Housing Adapter (31). Assemble Housing Adapter to Motor and secure with Lock Nut (47).
4. **Drive Gearing** - Pack Bearings and lubricate gears liberally with **Ingersoll Rand** #33153 grease when assembling. Assemble Gears (44) and Shafts (45) to Spindle, aligning notch in Shafts with Spacer (41). Assemble Spacer (46) and Bearing (29) to Spindle. Assemble Spacer (42) to Spindle and assemble Spindle to Ring Gear. Assemble Ring Gear to Motor.

Parts and Maintenance

When the life of the Motor has expired, it is recommended that the Motor be disassembled, degreased and parts be separated by material so that they can be recycled.

Manuals can be downloaded from www.irtools.com.

Refer all communications to the nearest **Ingersoll Rand** Office or Distributor.

Notes:

www.irtools.com

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