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Air Die Grinder

Series SC and XC

Maintenance Information



Save These Instructions

IR *Ingersoll Rand*


WARNING

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

Note: When reading the instructions, refer to exploded diagrams in Parts Information Manuals when applicable (see under Related Documentation for form numbers).

Lubrication

Whenever one of these Grinders is disassembled for overhaul or replacement of parts, lubricate as follows:

1. Always wipe the Vanes (27) with a light film of oil before inserting them into the vane slots.
2. Inject 0.5 to 1.0 cc of **Ingersoll Rand** No. 10 Oil into the Air Inlet (16) after assembly.

Disassembly

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. Whenever grasping a tool or a part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part or tool and help prevent distortion. This is particularly true of threaded members and housings. A special rubber block is available to hold the housing. The part number for ordering this special block is #22040992.
3. 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.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O-Rings for replacement.
5. 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.

Tool Specific Instructions

- Steps common to all SC Models:
 1. Remove the Collet Nut (36), Collet Cap (35) and Collet (34).
 2. Remove the Housing Cap (37), using Wrench (46).
 3. Remove the Motor Clamp (32).
 4. Pull the Motor Assembly out of the Motor Housing (1).
 5. Disassemble the motor.
- Steps common to all XC Models:
 1. Remove the Extension Housing (42).
 2. Grasp the Extension Housing in a vise and remove the Coupling Nut (39) while holding a wrench on the flats of the Arbor (44).
 3. Press the Arbor (44) out of the Extension Housing.
 4. Remove the Collet Nut (36), Collet Cap (35) and Collet (34).
 5. Remove the Bearing (41) from the rear of the Extension Housing.
 6. Press the Bearing (43) out of the front of the Extension Housing.

7. Remove the Coupler (40) and Clamp Sleeve (38) from the Motor Housing (1).
6. Pull the Motor Assembly out of the Motor Housing.
7. Disassemble the motor.

Disassembly of the Motor

1. Grasp the Cylinder (28) in a vise and use a punch to tap the Rotor (26) out of the rear Bearing (23).
2. Remove the Vanes (27) from the Rotor.
3. Grasp the Rotor in a vise and remove the Collet Body (33) or Coupling Nut (39).
4. Remove the Front Rotor Bearing (31), if it must be replaced, by supporting the Front End Plate (29) between two blocks on the table of an Arbor Press. Place the blocks as close as possible to the body of the Rotor and press the Rotor from the Bearing and End Plate. Remove the Front End Plate Spacer (30) from the Rotor. Press the Bearing out of the End Plate using a 0.433" (11mm) pin.
5. Remove the Rear Bearing (23) if it must be replaced. Press the Bearing out of the End Plate using a 0.2375" (6.03mm) pin.

Disassembly of the Inlet and Throttle

1. Using a 3/4" wrench, unscrew and remove the Inlet Bushing (16).
2. Remove the Exhaust Deflector (15), O-Ring (14) and Silencer (13) from the Inlet.
3. Using a 1/4" bushing driver, tap the Motor Housing out of the Composite Housing (9).
4. Remove the O-Ring Gasket (8) and Muffler Element (12).
5. Unscrew the Valve Plug (22), and remove the Valve Stem (18), Valve Spring (20), Valve Spring Seat (19) and Valve O-Ring (17).
6. The Valve Bushing (2), if it must be replaced, is only available as part of an assembly of the Motor Housing and Bushing.
7. Press the Throttle Lever Pin (7) from the Housing and remove the Throttle Lever Assembly (3, 4, 5 and 6).
8. Any Throttle Lever parts to be replaced are only available as part of the Throttle Lever Assembly.

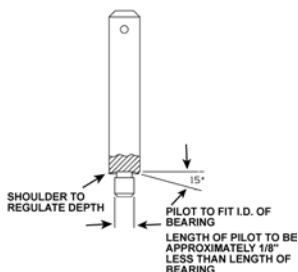
Assembly

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. Always 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 in clean solution and dry with a clean cloth. **Sealed or shielded bearings should not be cleaned.** Work grease into every open 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.

Needle Bearing Inserting Tool



(Dwg. TPD786)

Tool Specific Instructions

1. Assembly sequence is the reverse of disassembly.
2. First install the Throttle Lever Assembly, then the Valve parts.
3. Place the O-Ring Gasket and Muffler Element in position on the back of the Motor Housing and slide the Composite Housing down over the Motor Housing. Make sure the Gasket stays in correct position so as to not get pinched by the Composite Housing. Push the Composite Housing all the way back.
4. Install the Inlet parts. Make sure the O-Ring stays in correct position so as to not get pinched by the Inlet Bushing.
5. Assemble the Motor and install it in the Motor Housing. Make sure the Cylinder Dowel (24) is aligned with the round hole in the Motor Housing.
6. Install the Motor Clamp (SC models only), or Coupler, Clamp Sleeve and Extension assembly (XC models only).
7. Install the Housing Cap and the Collet parts.

Troubleshooting Guide

Trouble	Probable Cause	Solution
Low power or low free speed	Insufficient air pressure	Check air line pressure at the Inlet of the Tool. It must be 90 psig (6.2 bar/620 kPa).
	Clogged muffler elements	Disassemble the Tool and agitate bare Motor Housing and Flange in a clean, suitable cleaning solution. Back Flush the Muffler Elements with a clean, suitable cleaning solution until all contaminants and obstructions are removed. If elements cannot be cleaned, replace them.
	Plugged Inlet Screen	Clean the Inlet Screen with a clean, suitable cleaning solution or replace the Screen.
	Worn or broken Vanes	Install a complete set of new Vanes.
	Worn or broken Motor Housing	Replace the Motor Housing.
	Internal air leakage in the Motor Housing indicated by high air consumption/low speed or air leaking out the front and rear exhaust simultaneously.	Replace the Motor Housing.
	Grit buildup under the Throttle Lever restricting full Throttle Valve Plunger movement	Remove the Throttle Lever and clean the groove in the Motor Housing.
	Bent stem on Throttle Valve	Replace the Throttle Valve.
	Angle gear wick misaligned or damaged	Reposition or replace the wick.
Excessive runout	Bent Arbor	Replace the Arbor.
	Loose Collet Nut	Tighten the Collet Nut until snug.
	Worn or damaged Collet, Collet Nut or Nosepiece	Replace the damaged component and retest.
	Worn or damaged Upper Arbor Bearing or Lower Arbor Bearing	Replace the worn or damaged Bearing.
Scoring of End Plate	Worn Front End Plate Spacer or Front End Plate	Install a new Front End Plate Spacer and Front End Plate.
	Worn Front Rotor Bearing	Install a new Front Rotor Bearing.
Leaky Throttle Valve	Dirt accumulation on Throttle Valve or Throttle Valve Seat	Disassemble, inspect and clean parts.
	Worn Throttle Valve or Throttle Valve Seat	Replace the Throttle Valve and/or Throttle Valve Seat.
	Excessive dirt build-up beneath the Throttle Lever	Clean out the slot area.
	Bent Throttle Valve Plunger	Replace the Plunger.

Trouble	Probable Cause	Solution
Front Rotor Bearing runs hot	Front End Plate Spacer rubbing the bore of the Front End Plate	Replace the Front End Plate and Front End Plate Spacer combination.
Slow tool idle	Bent or leaky Throttle Valve	Replace the Throttle Valve.
Rough operation/vibration	Improper lubrication or dirt buildup	Disassemble the Tool and clean in a suitable cleaning solution. Assemble the Tool and inject 3 cc of the recommended oil into the Inlet and run the Grinder long enough to coat the internal parts with the oil.
	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Replace the worn or broken Bearings. Examine the Front End Plate, Front End Plate Spacer, Front Seal Cup and Rear Rotor Bearing Spacers and replace any damaged parts. If the rear end plate is damaged, replace the Rotor.
	Worn or broken Upper Arbor Bearing or Lower Arbor Bearing	Replace the worn or broken Bearing.
	Worn or broken Bevel Gear or Bevel Pinion	Examine the Bevel Gear and Bevel Pinion. If either is worn or damaged, replace both the Gear and the Pinion because they are a matched set and must not be used separately.

Related Documentation

For additional information refer to:

Air Die Grinder Product Safety Information Manual Form 04580288.

Air Die Grinder Product Information Manual Form 80152846.

Air Die Grinder Parts List Manual Form 04581237.

Manuals can be downloaded from www.irtools.com.

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