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Air Die Grinder and Grinder

DG Series

Maintenance Information

Save These Instructions

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 Grinder is disassembled for overhaul or replacement of parts, lubricate the tool as follows:

1. Always wipe the Vanes with a light film of oil before inserting them into the vanes slots.
2. Inject 0.5 to 1.0 cc of **Ingersoll Rand** No. 10 oil into the air inlet Assembly 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 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.
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.

Disassembly of Extension housing & Motor housing

1. Using wrench unscrew extension housing (37) assembly (left hand thread) in clockwise direction.
2. Remove deflector (32) assembly (with muffler (33) & O-ring (31)), clamp sleeve (34) and arbor coupling (30).

Disassembly of Motor housing

1. Pull the motor subassembly out of motor housing by holding rotor (21) on soft sided vise.
2. Remove the lever subassembly (10) after pushing the pin (11) out of motor housing (6).
3. Using wrench (for 8 mm hex. A/F), unscrew and remove throttle pin bushing (9) and throttle pin (7) (with O-ring (8)).
4. Remove brass screen (2) from back end of motor housing (6).
5. Remove retainer (3) from back end groove of motor housing (6) and remove spring (4) and ball (5).
   Note: Retainer (3) will NOT be re-usable after disassembly. Use new retainer (3).

Disassembly of Motor Assembly & Controller Assembly

1. Grasp the rotor (21) from front side in a soft sided vise and unscrew controller assembly (16) from rotor shaft (21) (Right Hand Thread) using wrench (for 10 mm hex. A/F) in counter clockwise direction.
2. Remove rear bearing (17), spring washer (18) and rear end plate (19) with press fitted roll pin (20).
3. Remove cylinder (23) and vanes (22).
4. Grasp the rotor (21) in a soft sided vise and remove bearing nut (28) (right hand thread) using wrench in counter clock wise direction.
5. Press the rotor (21) out of front bearing (26) by supporting front endplate (25) and remove spacer (24).

Disassembly of Extension Housing

1. Remove plug from extension housing (37).
2. Grasp the extension housing (37) assembly in a soft sided vise and restrict the arbor (36) rotation by entering a rod (4 mm dia.) through extension housing (37) hole to arbor (36) hole. And unscrew collet body (43) or straight wheel adapter (48) (right hand thread) using wrench in counter clock wise direction.
3. Remove arbor (36) with rear bearing (26) and bearing nut (28) from back side.
4. Take out retaining ring (42) and remove dust shield (41), front bearing (40) and spring washer (38).
5. Grasp the arbor (36) in a soft sided vise and remove bearing nut (28) (right hand thread) using wrench in counter clock wise direction.
6. Press the arbor (36) out of rear bearing (26) by supporting rear bearing (26).

NOTICE

Replace the damaged parts with new, for example-bearing(17,26,40), vanes (22), throttle pin (7), spring (4), ball (5), O-ring (8,12,13,27,31,35,39), retainer (3), lever assembly (10).

Assembly

Assembly of Extension Housing

1. Press the rear bearing (26) on to the arbor (36) by supporting arbor shoulder. Make sure bearing sits on arbor shoulder.
2. Grasp the arbor (36) in a soft sided vise, apply medium strength thread loctite (#243 or equivalent) on arbor (36) threaded portion approx. 1/4 to 1/3 of the way around and tighten the bearing nut (28) (right hand thread) using wrench in clock wise direction to 25 Nm.
3. Insert the arbor (36) subassembly in extension housing (37) and make sure bearing (26) sits on housing shoulder.
4. Place o-ring (39), spring washer (38), front bearing (40) & dust shield (41) and insert retaining ring (42) on to extension housing (37) groove.
5. Grasp the extension housing (37) assembly in a soft sided vise and restrict the arbor (36) rotation by entering a rod (4 mm dia.) through extension housing (37) hole to arbor hole. Apply medium strength thread loctite (#243 or equivalent) on arbor (36) threaded portion approx. 1/4 to 1/3 of the way around and tighten collet body (43) or straight wheel adapter (48) (right hand thread) using wrench in clock wise direction to 25 Nm.
6. Add o-ring (35) on to the Extension housing rear side.

Assembly of Motor Assembly & Controller Assembly

1. Place spacer (24), front end plate (25) & bearing (26) on the rotor (21) front end and press bearing (26) by supporting rotor (21) back face.
2. Grasp the rotor (21) in a soft sided vise, Apply medium strength thread loctite (#243 or equivalent) on rotor (21) threaded portion approx. 1/4 to 1/3 of the way around and tighten the bearing nut (28) (right hand thread) using wrench in clock wise direction to 25 N-m.
3. Insert cylinder (23) and 4 nos. of vanes (22).
4. Place rear end plate (19) with press fitted roll pin (20), spring washer (18) and rear bearing (17). Make sure to align roll pin in end plate cylinder slot.
5. Grasp the rotor (21) from bearing nut (28) side in a soft sided vise and apply medium strength thread loctite (#243 or equivalent) on controller spindle threaded portion approx. 1/4 to 1/3 of the way around and tighten controller assembly (16) on rotor shaft (right hand thread) using wrench in clockwise direction to 3.5 Nm.
6. Add o-ring (27) on to the front end plate (25).

Assembly of Motor Housing

1. Insert ball (5) on ball seat (14) of aluminum block (15), insert spring (4), lock spring by inserting retainer (3) in to back end groove of motor housing(6).
2. Insert screen (2) from back end of motor housing (6).
3. Add o-ring (8) on to the throttle pin (7), insert throttle pin (7) into throttle pin bush (9), Apply medium strength thread loctite (#243 or equivalent) on throttle pin bush (9) threaded portion approx. 1/4 to 1/3 of the way around and tighten throttle pin bushing (9) (right hand thread) on motor housing (6) using wrench in clockwise direction to 5.5 Nm.
4. Assemble lever sub assembly (10) by pushing the pin (11) into motor housing (6).

Assembly of Complete Tools

1. Insert the motor subassembly in motor housing (6) subassembly Ensure the rotor shaft (21) is rotating free after this assembly.
2. Grasp the Motor housing (6) assembly in a soft sided vise & insert deflector (32) assembly (with muffler (33) & O-ring (31)), arbor coupling (30), clamp sleeve (34) and tighten extension housing (37) assembly (left hand thread) using wrench in counter clock wise direction to 35 Nm.

Assembly of Wheel Guard

1. Tighten wheel guard (51) onto guard adapter (49) with lock washer (52) and screw (53) (right hand thread) using screw driver in clock wise direction to 8.0 Nm.
2. Grasp the tool from motor housing (6) in a soft sided vise & insert wheel guard & guard adapter assembly. (Above assembly) on extension housing (37) hub and tighten screw (50) (right hand thread) using screw driver in clock wise direction to 8.5 Nm.

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/620KPa).
	Clogged Muffler elements	Disassemble the tool, if the Muffler can't be cleaned, replace it.
	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.	Replace the Motor Housing.
	Bent stem on Throttle Valve	Remove the Throttle Valve.
Excessive run out	Bent Collet body or Wheel Adapter	Replace the Arbor.
	Loose Collet Nut	Tighten the Collet Nut.
	Worn or damaged Collet, Collet Nut	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 Pin or Valve Seat.	Disassemble, inspect and clean parts.
	Worn Throttle Pin or Valve Seat	Replace the Throttle Pin and/or Valve Seat.
	Excessive dirt build-up beneath the Throttle Lever.	Clean out the slot area.
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 Pin	Replace the Throttle Pin.
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 recommend oil in the inlet and run the Grinder long enough to coat the internal parts with the oil.
	Worn or broken rear Bearing or front Rotor Bearing	Replace the worn or broken Bearing. Examine the front end plate. Front end plate Spacer, and rear Rotor Bearing, 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	Examine the worn or broken Bearing.

Related Documentation

For additional information refer to:
Air Die Grinder Product Safety Information Manual 47146659 & Air Grinder Product Safety Information Manual 47146667.
Air Die Grinder Product Information Manual 47146501 & Air Grinder Product Information Manual 47148887.
Air Die Grinder & Air Grinder Parts Information Manual 47146519.

Manuals can be downloaded from www.ingersollrandproducts.com.

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