



**16572554**  
Edition 2  
May 2014

## **Air Drill**

**44SMA, 44SMA-EU**

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# **Maintenance Information**



Save These Instructions

**IR** *Ingersoll Rand*<sup>®</sup>

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## Product Safety Information

### WARNING

- **Failure to observe the following warnings, and to avoid these potentially hazardous situations, could result in death or serious injury.**
- **Read and understand this and all other supplied manuals before installing, operating, repairing, maintaining, changing accessories on, or working near this product.**
- **Always wear eye protection when operating or performing maintenance on this tool. The grade of protection required should be assessed for each use and may include impact-resistant glasses with side shields, goggles, or a full face shield over those glasses.**
- **Always turn off the air supply, bleed the air pressure and disconnect the air supply hose when not in use, before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool or any accessory.**

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

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### Lubrication

Each time a Model 445MA is disassembled for maintenance, repair or replacement of parts, lubricate the tool as follows:

1. Work 1 – 2 cc of **Ingersoll Rand** No. 28 Grease through the Grease Fitting (15 and 54).
2. Remove the Oil Chamber Plug (20) and fill the chamber in the Backhead (14) with **Ingersoll Rand** No. 10 Oil.
3. Inject 2 or 3 drops of light oil into the oil hole in the Throttle Sleeve (123).

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### 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 Maintenance Instructions

1. Keep the Air Strainer Screen (131) clean. Periodically, as experience indicates, unscrew the Air Strainer Body (133) from the Air Strainer Cap (130) and wash the Air Strainer Screen in a suitable cleaning solution. Push the prongs on the Screen Support (132) into one end of the Screen and insert the Screen end first, into the Body when assembling the strainer.

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### Disassembly

#### 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. Unless otherwise noted, always press on the stamped end of a needle bearing when installing the needle bearing in a recess.
4. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care with threaded parts and housings.
5. Always clean every part and wipe every part with a thin film of oil before installation.
6. Apply a film of O-ring lubricant to all O-rings before final assembly.
7. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in a suitable cleaning solution and dry with a clean cloth. **Sealed or shielded bearing should never be cleaned.** Work grease thoroughly into every open bearing before installation.

### NOTICE

**Be The external thread on the Outer Feed Screw (79) is left-hand; rotate the Feed Screw Cap (81) clockwise to remove.**

2. Do not pry the Backhead (14) from the Motor Housing (1). Grasp the Oil Chamber Plug (20) in a copper-covered or leather-covered vise jaws and pull on the Housing if the Backhead can not be lifted off with the fingers.

### NOTICE

**The Governor Assembly (22) has left-hand threads.**

3. Rotate the Governor Assembly clockwise to remove it.
4. Never clamp the Cylinder (39) in a vise. When disassembling the Motor:
  - a. Grasp the Cylinder in one hand.
  - b. Insert a small rod into the rotor bore and drive the hub on the Rotor out of the Rear Rotor Bearing (34).
  - c. Support the Front End Plate (37) and press the rotor front hub out of the Front Rotor Bearing (35).
5. Unscrew the three Planet Gear Frame Set Screws (46) from the Planet Gear Frame (45) before attempting to press the Spindle out of the Planet Gear Frame.

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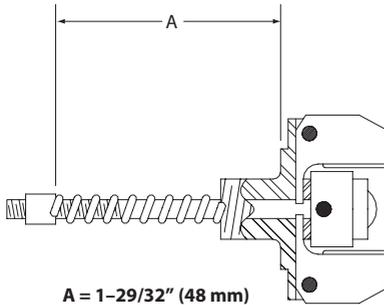
### Assembly Maintenance Instructions

1. Press the Rear Rotor Bearing (34), shielded side first, into the recess in the Rear End Plate (36) with an arbor that will contact only the bearing outer race. Press on the bearing inner race when installing the assembly on the hub of the Rotor (31).
2. Press the Front Rotor Bearing (35), shielded side first, onto the front hub of the Rotor with a sleeve that will clear the pinion and contact only the bearing inner race.
3. After installing one End Plate and Rotor Bearing on the rotor hub, insert a Vane (38) into each slot in the Rotor. Place the Cylinder (39) over the Rotor and against the installed End Plate being sure the Cylinder is positioned with its flattened rim toward the pinion end of the Rotor so that the flats will coincide with those on the Front End Plate when the motor is assembled.

**NOTICE**

**The Governor Assembly (22) has left-hand threads.**

- When installing a new Governor Assembly, screw the Adjusting Nut onto the governor stem until the proper dimension "A" is 1-27/32" (47 mm). This will usually result in the proper governed free speed. However, **this is only an approximate setting** and further adjustment may be necessary. Screw the nut farther onto the stem to **increase** the speed; back it off to **decrease** the speed. The correct governed free speeds for Model 44SMA Drills is 155 rpm.



- Be sure both rubber Air Port Gaskets (6) are in good condition and are positioned, lip side first, in the air ports in the Motor Housing (1) before installing the Multi-Vane motor in the Motor Housing.
- Draw the Backhead (14) evenly against the Backhead Gasket (21) on the face of the Motor Housing by turning each Backhead Cap Screw (88) a little at a time until all are tight.
- Note the stamping "THRUST HERE" on one side of the Spindle Thrust Bearing (66). Install the Bearing unstamped side first on the spindle hub.
- Assemble the Spindle (41) and gearing in the Gear Case (53). Install this assembly as a unit on the Motor Housing.

**Maintenance tools**

Tool name	Operation	Tool number for ordering
Grease Gun	Lubrication	P25-228
Spindle Packing Nut Spanner Wrench	Removing and installing the Spindle Packing Nut (59) on the Gear Case (53).	T1SE-26
Gear Frame Set Screw Wrench (3/16" hexagon key)	Removing or installing the Gear Frame Set Screws (46) in the Planet Gear Frame (45).	JA4-478

**TROUBLESHOOTING GUIDE**

Trouble	Probable Cause	Solution
Low power or low free speed	Dirty inlet or Air Strainer Screen	Using a clean, suitable cleaning solution in a well-ventilated area, clean the Air Strainer Screen. Allow to air dry.
	Worn or broken Vanes	Replace the <b>complete</b> set of Vanes.
	Worn or broken Cylinder and/or scored End Plates	Examine the Cylinder and replace it if it is worn or broken or if the bore is scored or wavy. Replace the End Plates if they are scored.
	Dirty motor parts	Disassemble the tool and clean all parts with a clean, suitable cleaning solution in a well-ventilated area. Reassemble the tool as instructed in this manual.
	Improper positioning of the Reverse Valve	Make certain the Reverse Valve is <b>fully</b> engaged.
Motor will not run	Incorrect assembly of the motor	Disassemble the motor, replace worn or broken parts and reassemble as instructed.
Rough operation	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Examine each bearing. Replace if worn or damaged.
	Worn or broken gear teeth	Check for worn or broken gearing. Replace any damaged or worn gears.

Trouble	Probable Cause	Solution
Air leaks	Worn Throttle Valve Face or Throttle Valve Face Cap	Replace worn parts.
	Oil Chamber Plug worn or not tight	Tighten the Plug. If the problem persists, replace the Plug.
Gear Case gets hot	Insufficient grease	Clean and inspect the Gear Case gearing parts and lubricate as instructed in LUBRICATION.
	Worn or damaged parts	Clean and inspect the Gear Case and gearing. Replace worn or broken components

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### Related Documentation

For additional information refer to:

Air Grinder Product Safety Information Manual Form 04584959.

Air Die Grinder Safety Information Form 04580288.

Air Sander Safety Information Form 04580387.

Product Information Manual Form 04581211, Form 04581799, Form 04581195 and Form 04581203.

Parts Information Manual Form 04581237.

Manuals can be downloaded from [ingersollrandproducts.com](http://ingersollrandproducts.com)







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