



**16609596**

Edition 1

June 2008

## **Sump Pump**

**S35**

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# **Maintenance Information**



**Save These Instructions**

 **Ingersoll Rand**

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 **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).

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### Lubrication

Each time the Model P35 Sump Pump is disassembled for the maintenance, repair or replacement of parts, lubricate the pump as follows: Inject 1-2 cc of **Ingersoll Rand** No. 80 Grease through the Grease Fittings (3 and 14).

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### Disassembly

#### General Instructions

1. Do not disassemble the pump 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 pump unless you have a complete set of new gaskets and O-rings for replacement.

#### Disassembly of the Sump Pump

1. If the Air Strainer Screen (5) is to be cleaned or replaced, unscrew the Air Strainer Cap (6) and withdraw the Screen.
2. With the Motor Housing (13) clamped in leather-covered or copper-covered vise jaws horizontally, remove the six Brass Bolts (27) and Spring Washers (28).

3. Remove the Impeller Nut (42) and the Impeller (37).
4. Reposition the Motor Housing in the vise vertically. Unscrew the Housing Nut (8) and carefully remove the Backhead Assembly (11).
5. While grasping the Governor Assembly (9) in one hand, gently tap on the impeller end of the Rotor (21) with a plastic hammer and withdraw the assembled motor.
6. Carefully remove the Impeller Shims (29, 30, 31), the Water Seals (24) and the Impeller Spacer (23).
7. Remove the Front Rotor Bearing (20), Impeller Washer (41) and the Rear Rotor Bearing (10).

#### Disassembly of the Motor

1. Carefully unscrew the Governor Assembly (9).
2. Remove the Rear End Plate (15).
3. Remove the four Vanes (17) then the Cylinder (11).
4. Remove the Front End Plate (19).
5. If required, remove the Rotor Bearings (20 and 10) from both End Plates.

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### 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 with threaded parts and housings.
4. Except for bearings, 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 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.
6. Apply a film of O-ring lubricant to all O-rings before final assembly.

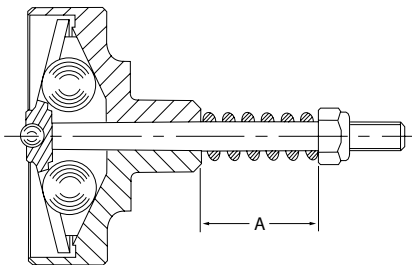
#### Assembly of the Motor

1. If required, reinstall the Rotor Bearings (20 and 10) in the Front and Rear End Plates (19 and 15).
2. Place the Front End Plate on the slotted end of the Rotor (21).
3. Slide the Cylinder (11) over the Rotor.
4. Apply a thin coat of recommended oil to the Vanes (17) and install them in the slots in the Rotor.
5. Place the Cylinder Dowel (12) in the hole in the Cylinder.
6. Place the Rear End Plate on the Rotor.
7. Carefully reinstall the Governor Assembly (9) into the Rotor.

## Governor Adjustment

When installing a new Governor Assembly, screw the Adjusting Nut onto the governor stem until dimension "A" equals 7/8" at 7200 RPM. This will usually result in the proper governed free speed. However, **this is only a 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. See Dwg. TPD1867.

"A" = 7/8" (22.2mm) at 7200 RPM



(Dwg. TPD1867-1)

## Assembly of the Sump Pump

1. Place the Impeller Spacer (23) on the Rotor.
2. Start one Seal, lip side last, into the bore of the Motor Housing and press in the Impeller Hub Bushing. The Bushing will force the Seal into the Housing to the proper depth.
3. Slip the other Seal, lip side last, onto a round smooth rod, the same (or slightly larger) diameter as the shank on the Impeller Spacer. Grease the spacer shank. Place the end of the rod against the spacer face, and slide the Seal from the rod onto the Spacer.
4. Carefully place the two Water Seals (24) on the Impeller Spacer with their lips opposing each other.
5. In required, replace the Impeller Hub Bushing (36).
6. Clamp the Motor Housing (13) in leather-covered or copper-covered vise jaws, Impeller end down.
7. Place the Backhead (1) onto the Motor Housing, making sure that the Cylinder Dowel seats in the dowel hole.
8. Secure the Backhead with the Housing Nut (8).
9. Rotate the Motor Housing in the vise.
10. Reinstall the Impeller Shims (29, 30 31).
11. With the Impeller Key (26) in the Rotor, reinstall the Impeller (37) on the Rotor and secure it with the Impeller Nut (42).
12. Reinstall the Impeller Case (18) and secure it with the four Brass Bolts (44) and Spring Washers (28).

## Troubleshooting Guide

Trouble	Probable Cause	Solution
Low power or low free speed	Dirty Air Strainer Screen and/or Muffler	Using a clean, suitable, cleaning solution in a well-ventilated area, clean the Air Strainer Screen and/or Muffler. Allow to air dry.
	Worn or broken Vanes	Replace <b>complete</b> set of Vanes.
	Worn or broken Cylinder	Examine Cylinder and replace it if it is worn or broken or if bore is scored or wavy.
	Improper lubrication or dirty build-up in the motor	Lubricate the pump as instructed in <b>LUBRICATION</b> . If lubrication does not result in satisfactory operation, disassemble the pump, inspect and clean all parts.
Erratic speed	Sticking Governor Valve	Replace Governor Valve and/or Governor Valve Bushing.
Rough operation	Worn or broken Rear Rotor Bearing or Front Rotor Bearing	Examine each Bearing. Replace if worn or damaged.
Scoring of End Plates and Cylinder	Improper assembly	Make certain that all motor parts are properly aligned prior to clamping the motor assembly.

## Related Documentation

For additional information refer to:

Air Sump Pumps Product Safety Information Manual Form 16576597.

Air Sump Pumps Product Information Manual Form 91358614.

Air Sump Pumps Parts Information Manual Form 16609588.

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

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