80183387
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Air Impact Wrench

3940P2Ti

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

Each time a Model 3940P2Ti Impactool is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Work approximately 6 cc of **Ingersoll-Rand** No. 170 Grease into the impact mechanism. Coat the Anvil (40) lightly with grease around the Hammer Case Bushing (42). Inject approximately 6 cc of grease into the Grease Fitting.
2. Inject approximately 3 cc of No. 10 oil into the air inlet before attaching the air hose.

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 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 the Impactool

1. Clamp the handle of the Impactool in a vise with the square drive upward.
2. Remove Exhaust Deflector (4) and Silencer (5).
3. Unscrew and remove the four Hammer Case Cap Screws (45).
4. While lightly tapping on the end of the Anvil (40) with a plastic hammer, lift off the Hammer Case Assembly (41).
5. Remove the Hammer Case Gasket (36).
6. Grasp Hammer Frame (37) and carefully lift off entire impact mechanism, making certain not to drop the two Hammer Pins (38).

Disassembly of the Impact Mechanism

1. Set the mechanism, driver end up, on the workbench.

NOTICE

Note the twin Hammers (39) within the Hammer Frame Assembly (37). These are identical but must be placed in the Hammer Frame Assembly in a certain relationship. Using a felt-tipped pen, mark the top Hammer "T↑" and the bottom Hammer "B↑" with the arrows pointing upward. Mark both hammers on the same end.

2. With mechanism sitting upright on the workbench, slowly rotate Anvil (40) in a clockwise direction until it comes up solid.

NOTICE

If you continue to rotate the Anvil, it will cam the Hammers out of engagement. Do not allow this to happen; merely rotate the Anvil until it comes up solid.

3. Hold the Hammer Frame firmly and, without disturbing Hammers, gently lift the Anvil, simultaneously rotating it counterclockwise about 1/8 of a turn, from the Hammer Frame.

NOTICE

The twin Hammers will be free to slide from the Hammer Frame when the Hammer Pins (38) are removed. Do not drop the Hammers.

4. With Anvil removed, lift out the two Hammer Pins (38).
5. Remove the twin Hammers.

Disassembly of the Reverse Valve

1. Unscrew the four Housing Cover Cap Screws (25) and remove the Housing Cover Assembly (21), Housing Cover Gasket (27), and Motor Clamp Washer (26).
2. Grasp the Reverse Lever (20) and withdraw the Reverse Valve Assembly (18) from the Motor Housing Assembly (1), taking care not to lose the Reverse Lock Plunger (23) and Reverse Lock Plunger Spring (24).

Disassembly of the Motor

1. **While holding the Impactool over the workbench**, turn Impactool to bring the square drive side upward. This will allow the motor parts to slide out of the Motor Housing Assembly (1). If the motor parts do not slide out freely, gently tap the side of the Motor Housing Assembly with a plastic hammer to jar them loose. Often, all of the motor parts except the Front End Plate (34) and Cylinder (33) will slide out easily. Tap the Motor Housing to remove the Front End Plate and Cylinder.
2. Inspect the Vanes (32) for wear. If a Vane is chipped or otherwise damaged, replace the complete set.
3. Check the bore of the Cylinder and the faces of the End Plates for scoring. Replace any scored parts.
4. Remove two Air Port Gaskets (16) and Air Port Gasket Retainers (17) from Housing.

Disassembly of the Throttle Mechanism

1. Place the tool on the workbench with the handle pointing toward you and the square drive side upward. Use a punch to tap out the Throttle Valve Assembly Retaining Pin (15) from the right to the left hand side of the handle. Pull upward on the Trigger (7) to remove the complete Throttle Valve Assembly (6).
2. Punch out the Trigger Retaining Pin (14) from the Throttle Valve Bushing Assembly (8) to separate Throttle Valve Assembly (6) from the Throttle Valve Bushing 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 with threaded parts and housings.
4. Always clean every part and wipe every part with a thin film of oil before installation.
5. Apply a film of O-ring lubricant to all O-rings before final assembly.

Assembly of the Throttle Mechanism

1. Apply O-ring lubricant to the O-rings and place them on the Throttle Valve Bushing (8), large ring on the large diameter grooves, the two smaller rings in the smaller grooves.
2. Insert the Throttle Valve Assembly (6), small end first, into the small diameter of the Throttle Valve Bushing.
3. Align the slot in the Throttle Valve Assembly with the slot in the Throttle Valve Bushing and replace the Trigger Retaining Pin (14). Press on the Trigger (7).
4. Place the Impactool on the workbench with the handle pointing toward you and the square drive upward. Align the hole in the Throttle Valve Bushing Assembly with the hole in the Housing and drive in the Throttle Valve Assembly Retaining Pin (15) from left **to right**.

Assembly of the Motor

NOTICE

Periodically, as experience indicates and always after disassembly, clean the air strainer screen in the Inlet Bushing (3). Torque the Inlet Bushing to 50 to 60 ft-lb (68 to 81 Nm).

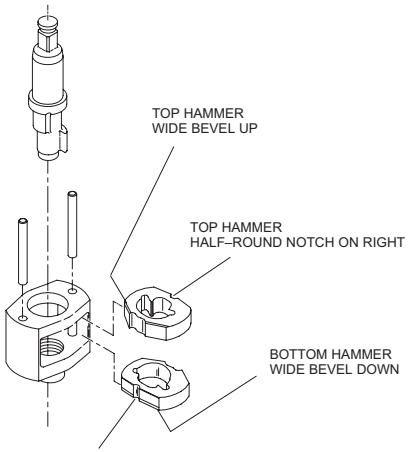
Before assembling the Motor, wipe a thin film of oil on the Rotor (31), End Plates (30 and 34), Cylinder (33), and Vanes (32).

1. Using a sleeve that will contact only the outer ring of the Front Rotor Bearing (35), press the bearing into the Front End Plate (34).
2. Slide the Front End Plate (34), bronze face first, over the splined hub of the Rotor (31).
3. Stand the assembled Rotor and End Plate upright, grasping the splined rotor hub with leather-covered or copper-covered vise jaws.
4. Place a Vane (32) in each vane slot in the Rotor.
5. Slide the Cylinder (33) down over the Rotor, aligning the holes in the Cylinder with those in the Front End Plate.
6. Using a sleeve that will contact only the outer ring of the Rear Rotor Bearing (29), press the bearing into the Rear End Plate (30).
7. Using a sleeve that will contact only the inner ring of the Rear Rotor Bearing, press the assembled bearing and end plate onto the short hub of the Rotor.
8. Before installing the Motor Assembly in the Motor Housing (1), be certain that the Air Port Gaskets (16) and Gasket Retainers (17) are in good condition and positioned with large open end down in the recess in the Motor Housing.
9. Using a 3/16" x 8" rod, insert the rod through the Cylinder Dowel Holes in both End Plates and Cylinder. This will hold all the motor parts in alignment. Allow the 3/16" rod to protrude from the Front End Plate far enough to enter the dowel hole at the bottom of the bore of the Motor Housing.
10. Put the rod into the Dowel Hole in the Motor Housing, then slide the assembled Motor into the Housing. Remove the rod and install the Cylinder Dowel (28).
11. Place the Motor Clamp Washer (26) concave side first, over the hub of the Rear End Plate so that the outer rim of the Washer contacts the End Plate.

Assembly of the Reverse Valve

1. Dampen the Reverse Valve Seal (19) with O-ring lubricant and install the Seal in the groove on the Reverse Valve Assembly (18).
2. Slide the Reverse Valve Assembly into the Motor Housing Assembly (1).
3. Aligning the flats on the Reverse Lever (20) with those on the Reverse Valve Assembly, slide the Reverse Lever on the Reverse Valve Assembly. Place the Housing Cover Gasket (27) on the Motor Housing.
4. Put the Reverse Lock Spring (24) followed by the Reverse Lock Plunger (23) in the small hole at the bottom of the Housing Cover Assembly (21).
5. Install the Motor Housing Cover (21). Tighten the Motor Housing Cover Cap Screws to 10 to 12 ft-lb (14 to 16 Nm).

Assembly of the Impact Mechanism



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1. Coat Hammers (39) with a light film of Ingersoll-Rand Grease No. 170.
2. Replace Hammers in the Hammer Frame Assembly (37) exactly as they were when you marked them prior to disassembly.

NOTICE

If you are installing new Hammers, or want to change the location of the existing Hammers to utilize both impacting surfaces, slide the Hammers in the Hammer Frame so that the half-round notch on one Hammer is located on one side of the Frame and the half-round notch on the other Hammer is located on the other side of the Frame.
Each Hammer is undercut on one side. When properly installed in the Hammer Frame, these undercuts must face each other.

3. Replace Hammer Pins (38).
4. Examine base of Anvil (40) and note its contour. While looking down through Hammer Frame, swing the top Hammer to its full extreme one way or other until you can match the contour of the Anvil. Put the Anvil into the Hammer Frame and through the first Hammer. Swing the bottom Hammer in opposite direction from the top Hammer and maneuver Anvil slightly until it drops through the bottom Hammer.

Assembly of the Impactool

1. Secure Impactool in vise.
2. Set assembled hammer mechanism onto rotor shaft spline.
3. Place Hammer Case Gasket (36) over mechanism and against face of Motor Housing.
4. Grease Anvil and top of Hammer Frame.
5. Reinstall the Hammer Case Assembly (41).
6. Assemble Dead Handle (44) to Dead Handle Bracket (43). Insert two Hammer Case Cap Screws (45). Position assembly against Hammer Case and thread the Screws into Housing.
7. Secure the Hammer Case Assembly with four Hammer Case Cap Screws (45). Tighten to 20-25 ft-lb (27-34 Nm) torque.
8. Install a new Exhaust Silencer (5) in Motor Housing Assembly (1) and install the Exhaust Deflector (4).

Cap Screw Specifications

Tighten the Hammer Case Cap Screws to a minimum of 20 ft-lb (27.1 Nm) torque.

Tighten the Housing Cover Cap Screws to a minimum of 10 ft-lb (13.5 Nm) torque.

Troubleshooting Guide		
Trouble	**Probable Cause**	**Solution**
Low power	Dirty Inlet Bushing or Air Strainer Screen and/or Exhaust Silencer.	Using a clean, suitable cleaning solution, in a well ventilated area, clean Air Strainer Screen, Inlet Bushing and Exhaust Silencer.
	Worn or broken Vanes.	Replace the **complete** 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 tool and clean all parts with a clean, suitable cleaning solution, in a well ventilated area. Reassemble tool as instructed in this manual.
	Improper positioning of the Reverse Valve.	Make certain that the Reverse Valve is **fully** engaged to the left or right.
Motor will not run	Incorrect assembly of the motor.	Disassemble the motor, replace worn or broken parts and reassemble as instructed.
	Insufficient lubricant in the impact mechanism.	Remove the Hammer Case Assembly and lubricate the impact mechanism.
Tool will not impact	Broken or worn impact mechanism parts.	Remove the Hammer Case and examine the impact mechanism parts. Replace any worn or broken parts.
	Impact Mechanism not assembled correctly.	Refer to **Assembly of the Impact Mechanism.**

Related Documentation

For additional information refer to:
Air Impact Wrench Product Safety Information Manual 04580916.
Air Impact Wrench Product Information Manual 10569382.
Air Impact Wrench Parts List Manual 80171911.

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