



04584348

Edition 2

April 2006

# Air Impact Wrench

2925Ti Series

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## 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

Each time a Series 2925P1TI and 2925P3TI Impacttool is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Work approximately 12 to 15 cc of **Ingersoll Rand** No. 170 Grease into the impact mechanism. Coat the Anvil (40, 42 or 48) lightly with grease around the

Hammer Case Bushing (38). Inject approximately 2 to 4 cc of grease into the Grease Fitting (17).

2. Use **Ingersoll Rand** No. 50 Oil for lubricating the motor. Inject approximately 1 to 2 cc of oil into the air inlet before attaching the air hose.

## Disassembly

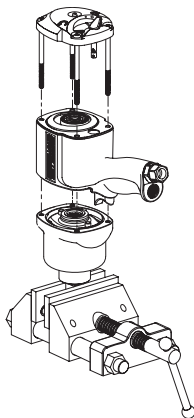
### General Instructions

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 repair or replacement.
4. Do not disassemble the Impacttool unless you have a complete set of new gaskets and o-rings for replacement.

### Disassembly of the Hammer Case and Anvil Assembly

#### NOTICE

Before disassembling this tool, clamp the anvil drive in leather-covered or copper-covered vise jaws with the Backcap (16) pointing upward. See Drawing TPD1918.



(Dwg. TPD1918)

1. Unscrew and remove the four Backcap Bolts (14).
2. Lift the assembled Motor Housing (1) off of the Hammer Case (39). Make sure that you hold the Backcap in position on the Housing and that the motor does not come out of the Housing.
3. Remove the Hammer Case Gasket (37) and replace with a new one when assembling the Hammer Case to the Housing.

4. Remove the Hammer Case and impact mechanism assembly from the vise. Remove the Hammer Frame Washer (33) from the rear of the Hammer Frame and set it aside on a clean bench.
5. Place the impact mechanism on a bench with the Anvil pointing upward. Make sure that the Hammer Pins (36) do not drop out of the Hammer.
6. Lift the Hammer Case off of the Anvil (40 or 48). If it is unnecessary to disassemble the impact mechanism, set it aside intact.

### Disassembly of the Quick-Change Anvil

1. Clamp the handle of the tool in leather-covered or copper-covered vise jaws with the Quick-Change Anvil (42) upward.
2. Remove front Thrust Ring Lock (44) and Thrust Ring (45).

#### NOTICE

The Retaining Ball (47) will fall free once the Retaining Sleeve (43) is removed.

3. Remove the Retaining Sleeve Spring (46), Retaining Sleeve, Retaining Ball, and the rear Thrust Ring Lock.
4. Remove the four Backcap Bolts (14). While lightly tapping on the end of the Anvil with a plastic hammer, lift off the Hammer Case (39).
5. Remove and discard the Hammer Case Gasket (37).
6. Grasp the Hammer Frame (34) and carefully lift off entire impact mechanism making certain not to drop the two Hammer Pins (36). If it is necessary to disassemble the impact mechanism, refer to Disassembly of the Impact Mechanism. If it is unnecessary to disassemble the impact mechanism, set it aside intact.
7. Remove the Rear Hammer Frame Washer (33).

### Disassembly of the Impact Mechanism

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

#### NOTICE

Note the two Hammers within the Hammer Frame. These are identical but must be placed in the Hammer Frame in a particular 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 the mechanism sitting upright on the workbench, slowly rotate the Anvil 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 do this; merely rotate the Anvil until it comes up solid.

3. Hold the Hammer Frame firmly and, without disturbing the Hammers, gently lift the Anvil, simultaneously rotating it clockwise about 1/8 of a turn, from Hammer Frame.
4. With Anvil removed, lift out the two Hammer Pins.

## NOTICE

**The twin Hammers are now free to slide from the Hammer Frame. Be careful not to drop them.**

### Disassembly of the Reverse Valve

1. Remove the four Backcap Bolts (14)
2. Lift the Backcap off of the rear of the Housing.
3. Discard the Backcap Gasket (15) and replace it with a new one when assembling the tool.
4. Use a hooked tool to remove the Reverse Valve (32) from the reverse valve bushing. Set the Reverse Valve aside on a clean bench.
5. Remove and discard the Reverse Valve O-ring (31). Replace it with a new one when assembling Reverse Valve.
6. Use a flat, thin blade screwdriver to remove the Reverse Lever Retaining Ring (19) and Reverse Lever Spring (20) from the Reverse Lever (18).
7. Remove the Reverse Lever from the Backcap.

### Disassembly of the Motor

1. Remove the four Backcap Bolts.

2. Remove the Backcap, Motor Clamp Washer (21) and Backcap Gasket from the Housing and set them aside on a clean bench. Discard the Backcap Gasket and replace it with a new one when assembling the tool.
3. Lift the Housing from the Hammer Case. Place one hand over the rear of the Housing and turn the Housing over so that the assembled motor can slide and be guide out of the Housing.
4. Place the assembled motor on a clean bench with the rotor spline facing upward.
5. Remove the Front End Plate (29) and Cylinder (27).
6. Remove the Rotor (25) from Rear End Plate (23).
7. Remove the Vanes from the Rotor.
8. Inspect all motor parts including the Front Rotor Bearing (30) and Rear Rotor Bearing (22) and replace all worn or damaged parts.

### Disassembly of the Throttle Mechanism

1. Unscrew and remove the Air Inlet Bushing (18).
2. Remove the Screen (7), Throttle Valve Spring (6) and Throttle Valve (5).
3. If the Throttle Valve Seat (2) requires replacement, insert a hooked tool through the center of the Valve Seat. Catching the backside of the Seat with the hook, pull the Seat from the Housing.
4. Withdraw the Trigger Assembly (3) from Housing.
5. Remove the Retaining Ring (11), Exhaust Deflector (12) and Muffler Element (10) from the Housing.

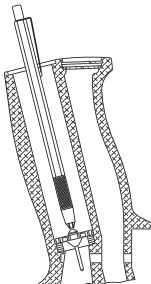
## Assembly

### 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 or 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.
6. Check every bearing for roughness. **Sealed or shielded bearings should never be cleaned.** Work grease thoroughly into every open bearing before installation.

### Assembly of the Throttle Mechanism

1. Install a new Throttle Valve Seat (2) by pushing it into position in the Housing (1) with a 13/16" dowel.
2. Insert the short end of the stem of the Throttle Valve (5) into the jaws of an expanding-type mechanical pencil. Allow the jaws to retract around stem to secure it.
3. Install the Throttle Valve on the Valve Seat. See Dwg. TPD1919.



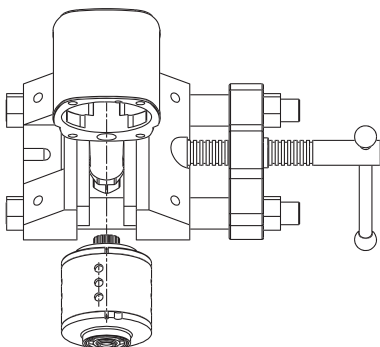
(Dwg. TPD1919)

4. As an alternate assembly procedure, drop the Throttle Valve, long stem first, into the inlet passage. If the throttle Valve does not sit squarely on the Throttle valve Seat, shake the Handle until it seats.
5. Install the Throttle Valve Spring (6), small end first, with the inside diameter of the small first coil around the hub of the Throttle Valve.
6. Coat the Inlet Bushing O-ring (9) with O-ring lubricant and install it on the Inlet Bushing (8).
7. Screw the Inlet bushing into the Housing until snug and tighten to 50-55 ft. lbs. (68-75 Nm) torque.
8. Wipe the stem of the Trigger Assembly (3) with light grease and insert the stem of the Trigger into the trigger bore in the Housing until it snaps into place on the Throttle Valve.

### Assembly of the Motor

1. Pack the Front Rotor Bearing (30) and Rear Rotor Bearing (22) with the recommended grease. Install the Front Rotor Bearing in the Front End Plate (29) and the rear Rotor Bearing in the Rear End Plate (23).
2. Slide the assembled Rear End Plate and Rear Rotor Bearing on the hub of the Rotor (25).
3. Set the assembled Rear End Plate and Rotor on a clean surface with the spline of the Rotor pointing upward.
4. Insert the Vanes (26) in the vane slots on the Rotor.
5. Install the Front and Rear Cylinder Dowels (28) in the Cylinder (27).
6. Slide the Cylinder over the Rotor and Vanes making sure that the Rear Cylinder Dowel enters the notch in the outside diameter of the Rear End Plate.

**For Series 2925RBP1Ti and 2925RBP3Ti:** Assemble Cylinder with exhaust ports to **LEFT** of top dead center (11 o'clock position). See Dwg. TPD1921.

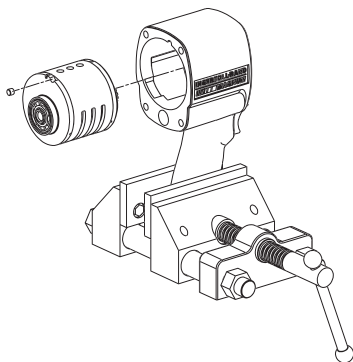


(Dwg. TPD1921)

### NOTICE

If more power is needed for forward operation than for reverse operation, install the Cylinder with exhaust ports to the RIGHT of top dead center (1 o'clock position).

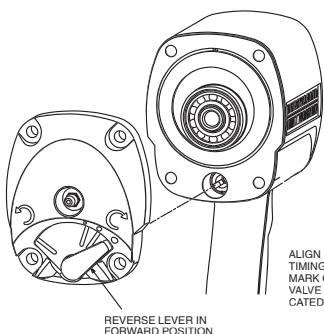
7. Install the assembled Front End Plate and Bearing over the front, splined end of the Rotor making sure that the front Cylinder Dowel fits into the notch in the outside diameter of the Front End Plate.
8. Grasp the Housing with one hand and set it upside down on its top. With the other hand, carefully guide the motor assembly into the Housing, making sure that the side of the motor assembly containing the Cylinder Dowels is oriented to the top of the Housing. Install Locating Pin (24) into Housing and End Plate. See Dwg. TPD1920-1.



(Dwg. TPD1920-1)

### Assembly of the Reverse Valve

1. Coat a new Reverse Valve O-ring (31) with O-ring lubricant and install it in the groove on the Reverse Valve (32).
2. Install the Reverse Valve in the reverse valve bushing with the slotted end trailing, making sure that the index mark on the Reverse Valve is aligned with the index mark on the Bushing. See Dwg. TPD1913.



(Dwg. TPD1913)

### NOTICE

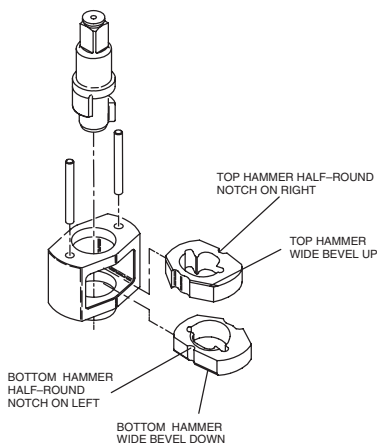
The Reverse Valve must be installed and indexed with the bushing as directed in Step 2 and Dwg. TPD1913. Failure to do so will cause improper operation of the Reverse Valve.

3. Insert the Reverse Lever (18) through the rear of the Backcap (16).
4. Slide the Reverse Lever Spring (20) over the shaft of the Reverse Lever and secure the Spring and Reverse Lever by installing the Reverse Lever Snap Ring (19) in the groove in the shaft of the Reverse Lever. Rotate the Reverse Lever so that it is pointing to the symbol for FORWARD (clockwise) operation. See Dwg. TPD1913.

### Assembly of the Impact Mechanism

### NOTICE

To ensure proper Reverse Valve operation, the Reverse Lever must stay in this position when installing the Backcap and Reverse Valve.



(Dwg. TPD652)

1. Coat the Hammers (35) with a light film of **Ingersoll Rand No. 170 Grease**.

2. Replace the Hammers in the Hammer Frame (34) 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. These Hammers must be installed with the wide bevels facing the web of the Hammer Frame as illustrated.

3. Replace the Hammer Pins (36).
4. Examine the base of the Anvil (40, 42 or 48) and note its contour. While looking down through the Hammer Frame, swing the top Hammer to its full extreme one way or another until you can match the contour of the Anvil. Enter the Anvil into the Hammer Frame and through the first Hammer. Swing the bottom Hammer in the opposite direction from the top Hammer and maneuver the Anvil slightly until it drops into the bottom Hammer.

### Assembly of the Square Drive Anvil and Spline Drive Anvil

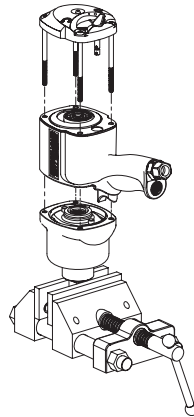
1. Place the Hammer Frame Washer (33), hub side first, over the hub of the Rotor and against the Front Rotor Bearing.
2. Set the assembled impact mechanism down over the splined hub of the Rotor. If the impact mechanism was disassembled, refer to Assembly of Impact Mechanism.
3. Position the new Hammer Case Gasket (37) on Housing.
4. Work approximately 12 to 15 cc of **Ingersoll Rand** No. 170 Grease into the impact mechanism.
5. Smear a thin film of **Ingersoll Rand** No. 170 Grease on the inside surface of the Hammer Case Bushing (38) and place the Hammer Case (39) down over the Anvil and against the Motor Retainer.
6. Install the Backcap Bolts and tighten them to 10 to 12 ft-lb (13 to 16 Nm) torque.
7. Remove the Impacttool from the vise and inject 2 to 4 cc of **Ingersoll Rand** No. 170 Grease into the Grease Fitting (17).

### Assembly of the Quick-Change Anvil

1. Place the Hammer Frame Washer (33), hub side first, over the hub of the Rotor and against the Front Rotor Bearing.
2. Set the assembled impact mechanism down over the splined hub of the Rotor. If the impact mechanism was disassembled, refer to Assembly of Impact Mechanism.
3. Position the new Hammer Case Gasket (37) on Housing.
4. Work approximately 12 to 15 cc of **Ingersoll Rand** No. 170 Grease into the impact mechanism.
5. Smear a thin film of **Ingersoll Rand** No. 170 Grease on the inside surface of the Hammer Case Bushing (38) and place the Hammer Case (39) down over the Anvil and against the Motor Retainer.
6. Install the Backcap Bolts (14) and tighten them to 10 to 12 ft-lb (13 to 16 Nm) torque.
7. Reinstall the rear Thrust Ring Lock (44) on the Quick Change Anvil.
8. Place a dab of grease into the hole in the Quick Change Anvil (42) to temporarily hold the Retaining Ball (47).
9. Slide the Retaining Sleeve (43), Retaining Sleeve Spring (46), Thrust Ring (45), and front Thrust Ring Lock (44) onto the Anvil.
10. Remove the Impacttool from the vise and inject 2 to 4 cc of **Ingersoll Rand** No. 170 Grease into the Grease Fitting (17).

### Assembly of the Tool

1. Wipe a thin film of the recommended grease on the inside of the Hammer Case Bushing (38) and insert the assembled impact mechanism into Hammer Case (39).
2. Secure the Hammer Case and impact mechanism by the anvil (square drive) end in leather-covered or copper-covered vise jaws. See Dwg. TPD1918.



(Dwg. TPD1918)

3. Install a new Hammer Case Gasket (37) on the Hammer Case making sure that the holes in the gasket align with the holes in the Hammer Case.

### NOTICE

**When installing optional Hanger Kit, place Gasket on the Hammer Case followed by the Hanger.**

4. Wipe a small amount of the recommended grease on the flat side of the Hammer Frame Washer (33) and place it on the splined face of the Hammer Case (34) with the hub end of the washer pointing up.

### NOTICE

**When installing optional Hanger Kit, place additional washer provided between the Hammer Frame and Hammer Frame Washer.**

5. Set the fully assembled Motor Housing over the opening in the Hammer Case. Insert the spline drive of the Rotor into the splined hole of the impact mechanism. Make sure of the wide section of the Hammer Case is just above the Trigger.
6. Place a new Backcap Gasket (15) over the rear of the Housing making sure that the holes in the Gasket align with the holes in the Housing and that the profile of the Gaskets matches the profile of Housing.
7. Place a Motor Clamp Washer (21) over the rear of the motor with the convex side up and matching the large outside diameter of the Rear End Plate.
8. Place the Backcap (16) over the back of the Housing making sure that the Reverse Valve Lever (18) is in the full-forward (clockwise) position with the lugs in the Lever engaging the slots in the Reverse Valve. Make sure that the index mark on the Reverse Valve lines up with the index mark on the reverse valve bushing.
9. Install the four Backcap Bolts and tighten to 10-12 ft-lbs (13-16 Nm) torque.

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## Troubleshooting Guide

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| Trouble              | Probable Cause                                                     | Solution                                                                                                                                                                                                                     |
|----------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low power            | Dirty Inlet Bushing or Air Strainer Screen and/or Exhaust Silencer | Using a suitable cleaning solution, in a well ventilated area, clean Air Strainer Screen, Inlet Bushing and Exhaust Silencer.                                                                                                |
|                      | 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 tool and clean all parts with a suitable cleaning solution, in a well-ventilated area. Reassemble tool as instructed in this manual.                                                                             |
| Motor will not run   | Improper positioning of the Reverse Valve Lever or Reverse Valve   | Make certain that the Reverse Valve Lever is in the reverse position or one of the three forward positions. If the tool has been disassembled, refer to Dwg. TPD1913 for proper Reverse Valve and Reverse Lever orientation. |
|                      | Incorrect assembly of the motor.                                   | Disassemble the motor, replace worn or broken parts and reassemble as instructed.                                                                                                                                            |
| Tool will not impact | Insufficient lubricant in the impact mechanism                     | Remove the Hammer Case Assembly and lubricate the impact mechanism.                                                                                                                                                          |
|                      | 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 <b>Assembly of the Impact Mechanism</b> .                                                                                                                                                                           |

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## Related Documentation

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For additional information refer to:  
Safety Information Manual 04580916.  
Product Information Manuals 16573206.  
Parts List Manuals 04584561.

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



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