



**16601619**  
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## **Air Impact Wrench**

**1720B and 1720P Series**

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# **Maintenance Information**



**Save These Instructions**

**IR** *Ingersoll Rand*<sup>®</sup>

## 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 Manuals when applicable (see under Related Documentation for form numbers).

### Lubrication

Each time a Series 1720B or 1720P Air Impact Wrench 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, particularly around the Hammer Pins (37 or 39), Hammer (38 or 40), Hammer Frame (36 or 38), Anvil (39 or 41) and inside the Hammer Case Bushing (32 or 34).
2. Work some **Ingersoll Rand** No. 170 Grease into the Rear Rotor Bearing (18 or 20) and Front Rotor Bearing (27 or 28).
3. Inject approximately 4 cc of **Ingersoll Rand** No. 170 Grease into the Grease Fitting (10 or 12).
4. Wipe a thin film of **Ingersoll Rand** No. 50 Oil on the Rotor (21 or 27), Vanes (22 or 24), Reverse Valve (13 or 15), Rear End Plate (19 or 21), Front End Plate (25) and the bore of the Cylinder (23).
5. 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 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 tool unless you have a complete set of new gaskets and O-rings for replacement.

#### Model 1720B

#### Disassembly of the Air Impact Wrench

1. Clamp the handle of the tool in leather-covered or copper-covered vise jaws with the square driver upward.
2. Unscrew and remove the four Hammer Case Cap Screws (35).
3. While lightly tapping on the end of the Anvil (41) with a plastic hammer, lift off the Hammer Case (33) and remove the Hammer Case Gasket (32).
4. Grasp the Hammer Frame (38) and carefully lift off the entire impact mechanism, making certain not to drop the two Hammer Pins (39).

#### Disassembly of the Impact Mechanism

1. Set the mechanism, driver end up, on the workbench. Using a felt tipped pen, mark one end of the Hammer (40) "1" with the arrow pointing upward.
2. With the mechanism sitting upright on the workbench, slowly rotate the Anvil (41) in a clockwise direction until it comes up solid.

#### NOTICE

**If you continue to rotate the Anvil, it will cam the Hammer out of engagement. Don't do this; merely rotate the Anvil until it comes up solid.**

3. Hold the Hammer Frame (38) firmly and, without disturbing the Hammer, gently lift the Anvil from the Hammer Frame.
4. With the Anvil removed, lift out the two Hammer Pins (39).

#### NOTICE

**The Hammer is now free to slide from the Hammer Frame. Be careful not to drop it.**

#### Disassembly of the Reverse Valve

1. Unscrew the Reverse Valve Knob Screw (18) and remove the Reverse Valve Knob (17).

#### NOTICE

**This Screw is installed with a suitable thread- locking compound. You may have to heat the Screw slightly to loosen it.**

2. While slowly rotating the Reverse Valve (15), withdraw it from the reverse valve bushing in the Motor Housing.

#### Disassembly of the Motor

1. Grasp the Motor Retainer (31) and lift it from the Motor Housing (1).
2. Lift the Rear Hammer Frame Washer (37) and the two Motor Clamp Washers (30) from the front of the motor.
3. Grasping the spline of the Rotor (27), carefully lift the assembled motor from the Motor Housing.

#### NOTICE

**The End Plate Dowel (26) will be free to move when the Front End Plate (25) clears the Housing. Do not lose it.**

4. Remove the Rear End Plate Gasket (22).
5. Remove the Motor Housing from the vise.
6. Slide the Front End Plate (25) and Front Rotor Bearing (28) from the Rotor.
7. Remove the Cylinder Dowel (29), Cylinder (23) and Vanes (24) from the Rotor.
8. Using snap ring pliers, remove the Rear Rotor Bearing Retainer (19) and slide the Rear End Plate (21) and Rear Rotor Bearing (20) from the Rotor.
9. If the Front Rotor Bearing or Rear Rotor Bearing requires replacement, press it from the End Plate with an arbor press.

#### Disassembly of the Throttle Mechanism

1. Unscrew the Air Inlet Bushing (9) and remove the Air Strainer Screen (8), Throttle Valve Spring (7), Throttle Valve Assembly (5) and Throttle Valve Plunger (4).
2. Unscrew the four Exhaust Deflector Screws (14) and remove all of the muffler parts.

## Model 1720P

### Disassembly of the Air Impact Wrench

1. Clamp the handle of the tool in leather-covered or copper-covered vise jaws with the square driver upward.
2. Unscrew and remove the four Hammer Case Cap Screws (33).
3. While lightly tapping on the end of the Anvil (39) with a plastic hammer, lift off the Hammer Case (31) and remove the Hammer Case Gasket (30).
4. Grasp the Hammer Frame (36) and carefully lift off the entire impact mechanism, making certain not to drop the two Hammer Pins (37).

### Disassembly of the Impact Mechanism

1. Set the mechanism, driver end up, on the workbench. Using a felt tipped pen, mark one end of the Hammer (38) " " with the arrow pointing upward.
2. With the mechanism sitting upright on the workbench, slowly rotate the Anvil (41) in a clockwise direction until it comes up solid.

#### NOTICE

**If you continue to rotate the Anvil, it will cam the Hammer out of engagement. Don't do this; merely rotate the Anvil until it comes up solid.**

3. Hold the Hammer Frame (38) firmly and, without disturbing the Hammer, gently lift the Anvil from the Hammer Frame.
4. With the Anvil removed, lift out the two Hammer Pins (37).

#### NOTICE

**The Hammer is now free to slide from the Hammer Frame. Be careful not to drop it.**

### Disassembly of the Reverse Valve

1. Unscrew the Reverse Valve Knob Screw (16) and remove the Reverse Valve Knob (15).

#### NOTICE

**This Screw is installed with a suitable thread locking compound. You may have to heat the Screw slightly to loosen it.**

## 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.

## Model 1720B

### Assembly of the Throttle Mechanism

1. Fold the Exhaust Silencer (11) in the shape of an "S" or a "fan fold" along the partially cut lines and install it in the rectangular opening in the bottom of the Motor Housing (1).
2. Install the Exhaust Deflector Gasket (13) on the rim of the opening.
3. Place the Exhaust Deflector (12) over the Gasket and after applying Loctite (R)\* No. 601 to the four Exhaust Deflector Screws (14), secure the Deflector with the Screws. Tighten each Screw between 20 and 25 in-lb (2 and 3 Nm) torque.

2. While slowly rotating the Reverse Valve (13), withdraw it from the reverse valve bushing in the Motor Housing.

### Disassembly of the Motor

1. Grasp the Motor Retainer (29) and lift it from the Motor Housing (1).
2. Lift the Rear Hammer Frame Washer (35) and the two Motor Clamp Washers (28) from the front of the motor.
3. Grasping the spline of the Rotor (21), carefully lift the assembled motor from the Motor Housing.

#### NOTICE

**The End Plate Dowel (26) will be free to move when the Front End Plate (25) clears the Housing. Do not lose it.**

4. Remove the Rear End Plate Gasket (20).
5. Slide the Front End Plate (25) and Front Rotor Bearing (27) from the Rotor.
6. Remove the Cylinder Dowel (24), Cylinder (23) and Vanes (22) from the Rotor.
7. Using snap ring pliers, remove the Rear Rotor Bearing Retainer (17) and slide the Rear End Plate (19) and Rear Rotor Bearing (18) from the Rotor.
8. If the Front Rotor Bearing or Rear Rotor Bearing requires replacement, press it from the End Plate with an arbor press.
9. Remove the Housing from the vise.

### Disassembly of the Throttle Mechanism

1. Unscrew the Inlet Bushing (8) and remove the Exhaust Deflector (7), Throttle Valve Spring (6) and the Throttle Valve (3).

#### NOTICE

**The Trigger (2) will be free to fall out of the Housing when the Throttle Valve is removed. Do not lose it.**

2. If the Throttle Valve Seat (5) 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.
3. Remove the two Housing Plate Screws (11) and the Housing Plate (9) if the Housing Plate Gasket (10) needs to be replaced.

4. Apply a thin coat of O-ring lubricant to the Throttle Valve Face (6) and install it on the Throttle Valve (5).

\* Product of ND Industries

5. Install the Throttle Valve on the small end of the Throttle Valve Plunger (4) and insert the Plunger and Valve, Plunger first, into the air inlet chamber of the housing.
6. Put the small end of the Throttle Valve Spring (7) over the trailing end of the Throttle Valve. Place the Air Strainer Screen (8) so that it sits within the coils of the Spring and install the Air Inlet Bushing (9). Tighten the Inlet Bushing between 50 and 60 ft-lb (68 and 81 Nm) torque.

### Assembly of the Reverse Valve

1. After applying O-ring lubricant to the Reverse Valve Seals (16), install them in the undercuts in the reverse valve bushing. Make certain they are properly seated.
2. Dampen the Reverse Valve (15) with light oil. With the tool in an upright position, and while facing the handle end of the tool, insert the Reverse Valve from left to right into the reverse valve bushing.
3. Place the Reverse Valve Knob (17) on the end of the Valve and, after applying a suitable thread-locking compound to the Reverse Valve Knob Screw (18), fasten the Knob to the Valve with the Screw. Tighten the Knob Screw between 5 and 6 ft-lb (6.75 and 8.15 Nm) torque.

## Assembly of the Motor

1. Using a sleeve that will contact only the outer ring of the bearing, press the Front Rotor Bearing (28) into the Front End Plate (25) and the Rear Rotor Bearing (20) into the Rear End Plate (21).
2. Slip the Front End Plate and Bearing over the splined hub of the Rotor (27).
3. Grasp the splined end of the Rotor in copper-covered vise jaws with the Rotor in a vertical position.
4. Dampen each Vane (24) with light oil and insert a Vane into each vane slot in the Rotor.
5. Set the Cylinder (23) over the Rotor and onto the Front End Plate.
6. Slide the Rear End Plate and Bearing onto the Rotor hub and against the Cylinder.
7. Using snap ring pliers, install the Rear Rotor Bearing Retainer (19) in the groove on the rotor hub.
8. Align the dowel hole in both End Plates with the one through the Cylinder, and insert a guide rod 3/16" diameter x 8" long (4.7 mm diameter x 203 mm long) through the holes. Allow the rod to protrude about 3-1/2" (89 mm) from the Rear End Plate.
9. While holding the assembled motor intact, remove it from the vise.
10. Insert the protruding end of the guide into the cast slot at the bottom of the Motor Housing bore and slide the assembled motor along the rod until it is completely seated in the housing.
11. Remove the guide rod and install the Cylinder Dowel (29).
12. Install the Front End Plate Dowel (26).
13. Grasp the handle of the Motor Housing in copper-covered vise jaws with the open end of the Motor Housing upward.
14. Place a Motor Clamp Washer (30), concave side first, down over the hub of the Front End Plate so that the outer rim of the Washer contacts the Front End Plate. Place the second Motor Clamp Washer, convex side first, down over the hub of the Front End Plate so that the inner rims of both Washers are in contact but the outer rims are separated.
15. Place the Motor Retainer (31), small bore first, down over the hub of the Front End Plate and against the outer rim of the second Motor Clamp Washer.
16. Place the Rear Hammer Frame Washer (37), hub side first, over the hub of the Rotor and against the Front Rotor Bearing.

## Assembly of the Impact Mechanism

1. Coat the Hammer (40) with a light film of **Ingersoll Rand** No. 170 Grease.
2. Slide the Hammer into the Hammer Frame (38) exactly as it was when you marked it prior to disassembly.

### NOTICE

**In order to utilize both impacting surfaces on the Hammer and thus equalize the wear on each hammer jaw, the Hammer can be flipped over so that the arrow is pointing downward.**

3. Replace the Hammer Pins (39).
4. Examine the base of the Anvil (41) and note its contour. While looking down through the Hammer Frame, swing the 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 Hammer.

## Assembly of the Tool

1. Set the assembled impact mechanism down over the splined hub of the Rotor.
2. Position the Hammer Case Gasket (32) on the Housing.
3. Work approximately 12 to 15 cc of **Ingersoll Rand** No. 170 Grease into the impact mechanism.
4. Smear a thin film of **Ingersoll Rand** No. 170 Grease on the inside surface of the Hammer Case Bushing (34), and place the Hammer Case (33) down over the Anvil and against the Motor Retainer.
5. Install the Hammer Case Cap Screws (35) and tighten them between 20 and 25 ft-lb (27 and 34 Nm) torque.
6. Remove the tool from the vise and inject 2 to 4 cc of **Ingersoll Rand** No. 170 Grease into the Grease Fitting (10).

## Model 1720P

### Assembly of the Throttle Mechanism

1. If the Housing Plate (9) was removed, position the Housing Plate Gasket (10) and Housing Plate, convex side first, against the Motor Housing (1). Apply *VibraTite*\* to the two Housing Plate Screws (11) and secure the Plate and the Gasket with the Screws. Tighten the Screws between 20 and 25 in-lb (2 and 3 Nm) torque.
2. If the Throttle Valve Seat (5) was removed, drop the Seat into the air inlet chamber in the handle. Install a new Throttle Valve Seat by pushing it into position against the shoulder in the air inlet chamber with a 5/8" (16 mm) dowel.
3. Wipe the stem of the Trigger Assembly (2) with some light grease and insert the stem into the trigger bushing.
4. Installation of the Throttle Valve (3) is sometimes a bit tricky due to the smallness of the Valve and the depth of the bore in which it is located. The difficult part is in holding the Valve while inserting the long end of the valve stem through the hole in the trigger stem. Although the Valve can be held with a push-button mechanical pencil or a wooden dowel, one of the easiest ways of holding it is by using a common wooden pencil with a rubber eraser. Insert the short end of the valve stem into the rubber eraser, as far as possible, and then back it out until the Valve is just nicely supported. Insert the Valve into the bore of the handle so that the long end of the stem enters the hole in the trigger stem. Pull outward on the Trigger to hold the Valve while removing the pencil.
5. Install the Throttle Valve Spring (6), small end first.
6. Position the Exhaust Deflector (7) in the recess at the bottom of the handle and install the Inlet Bushing (8). Tighten the Bushing between 40 and 45 ft-lb (54 and 61 Nm) torque.

### Assembly of the Motor

1. Using a sleeve that will contact only the outer ring of the bearing, press the Front Rotor Bearing (27) into the Front End Plate (25) and the Rear Rotor Bearing (18) into the Rear End Plate (19).
2. Slip the Front End Plate and Bearing over the splined hub of the Rotor (21).
3. Grasp the splined end of the Rotor in copper-covered vise jaws with the Rotor in a vertical position.
4. Dampen each Vane (22) with light oil and insert a Vane into each vane slot in the Rotor.
5. Set the Cylinder (23) over the Rotor and onto the Front End Plate.
6. Slide the Rear End Plate and Bearing onto the Rotor hub and against the Cylinder.
7. Using snap ring pliers, install the Rear Rotor Bearing Retainer (17) in the groove on the Rotor hub.
8. Align the dowel hole in both End Plates with the one through the Cylinder, and insert a guide rod 3/16" diameter x 8" long (4.7 mm diameter x 203 mm long) through the holes. Allow the rod to protrude about 3-1/2" (89 mm) from the Rear End Plate.
9. While holding the assembled motor intact, remove it from the vise.
10. Insert the protruding end of the guide into the cast slot at the bottom of the Motor Housing bore and slide the assembled motor along the rod until it is completely seated in the housing.
11. Remove the guide rod and install the Cylinder Dowel (24).
12. Install the End Plate Dowel (26).
13. Grasp the handle of the Motor Housing in copper-covered vise jaws with the open end of the Motor Housing upward.
14. Place a Motor Clamp Washer (28), concave side first, down over the hub of the Front End Plate so that the outer rim of the Washer contacts the Front End Plate. Place the second Motor Clamp Washer, convex side first, down over the hub of the Front End Plate so that the inner rims of both Washers are in contact but the outer rims are separated.
15. Place the Motor Retainer (29), small bore first, down over the hub of the Front End Plate and against the outer rim of the second Motor Clamp Washer.
16. Place the Rear Hammer Frame Washer (35), hub side first, over the hub of the Rotor and against the Front Rotor Bearing.

\* Product of ND Industries.

## Assembly of the Impact Mechanism

1. Coat the Hammer (38) with a light film of **Ingersoll Rand** No. 170 Grease.
2. Slide the Hammer into the Hammer Frame (36) exactly as it was when you marked it prior to disassembly.

### NOTICE

**In order to utilize both impacting surfaces on the Hammer and thus equalize the wear on each hammer jaw, the Hammer can be flipped over so that the arrow is pointing downward.**

3. Replace the Hammer Pins (37).
4. Examine the base of the Anvil (39) and note its contour. While looking down through the Hammer Frame, swing the 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 Hammer.

## Assembly of the Tool

1. Set the assembled impact mechanism down over the splined hub of the Rotor.
2. Position the Hammer Case Gasket (30) on the Housing.
3. Work approximately 12 to 15 cc of **Ingersoll Rand** No. 170 Grease into the impact mechanism.
4. Smear a thin film of **Ingersoll Rand** No. 170 Grease on the inside surface of the Hammer Case Bushing (32), and place the Hammer Case (31) down over the Anvil and against the Motor Retainer.
5. Install the Hammer Case Cap Screws (33) and tighten them between 20 and 25 ft-lb (27 and 34 Nm) torque.
6. Remove the tool from the vise and inject 2 to 4 cc of the recommended grease into the Grease Fitting (12).

## Troubleshooting Guide

Trouble	Probable Cause	Solution
Low power	Dirty Air Screen and/or Exhaust Silencer	Remove the Air Strainer Screen and/or Exhaust Silencer and clean using a suitable cleaning solution.
	Worn or broken Vanes	Replace <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 in a suitable cleaning solution. Assemble the tool and inject 3 cc of the recommended oil into Inlet and run tool to lubricate internal parts.
Motor will not run	Improper positioning of Reverse Valve	Make certain that the Reverse Valve is <b>fully</b> engaged to left or right.
	Incorrect assembly of the motor	Disassemble the motor and replace worn or broken parts; reassemble as instructed.
Tool will not impact	Insufficient lubricant in impact mechanism	Remove the Hammer Case Assembly and lubricate the impact mechanism.
	Broken or worn impact mechanism parts	Remove the Hammer Case Assembly and examine impact mechanism parts. Replace any worn or broken parts.
	Impact mechanism assembled incorrectly	Refer to <b>Assembly of the Impact Mechanism</b> .

## Related Documentation

For additional information refer to:  
 Product Safety Information Manual 04580916.  
 Product Information Manual 03532983.  
 Parts Information Manual 16601601.

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

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**Notes:**

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