



## OPERATION AND MAINTENANCE FOR MODEL 2707A1 HEAVY DUTY IMPACTOOL

### NOTICE

Model 2707A1 Impactool is designed for use in heavy duty industrial applications, automotive repair, body shops, front end service and light truck and farm equipment applications.

Ingersoll-Rand is not responsible for customer modification of tools for applications on which Ingersoll-Rand was not consulted.

### ⚠ WARNING



**IMPORTANT SAFETY INFORMATION ENCLOSED.  
READ THIS MANUAL BEFORE OPERATING TOOL.**

**IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION  
IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.**

**FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

#### PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance, and maximum durability of parts, operate this tool at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 3/8" (10 mm) inside diameter air supply hose.
- 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.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905-1 for a typical piping arrangement.
- Always use clean, dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from rotating end of tool.
- Note the position of the reversing lever before operating the tool so as to be aware of the direction of rotation when operating the throttle.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.
- Tool shaft may continue to rotate briefly after throttle is released.
- Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.
- Use accessories recommended by Ingersoll-Rand.
- Use only impact sockets and accessories. Do not use hand (chrome) sockets or accessories.
- Impact wrenches are not torque wrenches. Connections requiring specific torque must be checked with a torque meter after fitting with an impact wrench.
- This tool is not designed for working in explosive atmospheres.

#### USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.

### NOTICE

The use of other than genuine Ingersoll-Rand replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties.

Repairs should be made only by authorized trained personnel. Consult your nearest Ingersoll-Rand Authorized Servicenter.

Refer All Communications to the Nearest  
Ingersoll-Rand Office or Distributor.

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# WARNING LABEL IDENTIFICATION

## ⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

	<p><b>⚠ WARNING</b></p> <p>Always wear eye protection when operating or performing maintenance on this tool.</p>
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	<p><b>⚠ WARNING</b></p> <p>Always wear hearing protection when operating this tool.</p>
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	<p><b>⚠ WARNING</b></p> <p>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.</p>
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	<p><b>⚠ WARNING</b></p> <p>Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.</p>
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	<p><b>⚠ WARNING</b></p> <p>Do not carry the tool by the hose.</p>
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	<p><b>⚠ WARNING</b></p> <p>Do not use damaged, frayed or deteriorated air hoses and fittings.</p>
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	<p><b>⚠ WARNING</b></p> <p>Keep body stance balanced and firm. Do not overreach when operating this tool.</p>
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	<p><b>⚠ WARNING</b></p> <p>Operate at 90 psig (6.2 bar/ 620 kPa) Maximum air pressure.</p>
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## ADJUSTMENTS

### SETTING THE POWER REGULATOR

#### ⚠ WARNING

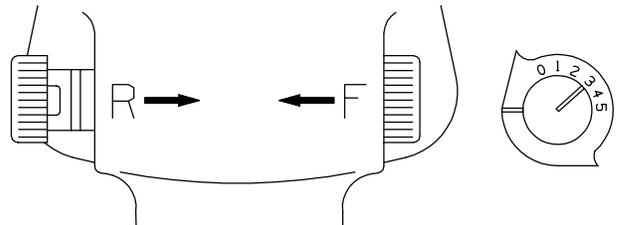
Impact wrenches are not torque control devices. Fasteners with specific torque requirements must be checked with suitable torque measuring devices after installation with an impact wrench.

Model 2707A1 Impacttool incorporates a power regulator into the reverse mechanism that allows the operator to have either full power output in one direction and reduced power output in the other direction or full power output in both directions. To adjust the power, proceed as follows:

**For full power in both directions**, rotate the reverse valve until the notch on each end of the reverse valve aligns with the number 5 on each side of the housing.

**For reduced power in the forward direction and full power in the reverse direction**, push the reverse valve inward on the right side of the tool and rotate the reverse valve until the notch on the right side aligns with the desired number on the right side. This provides reduced power in forward but full power in reverse when the reverse valve is pushed in the opposite direction.

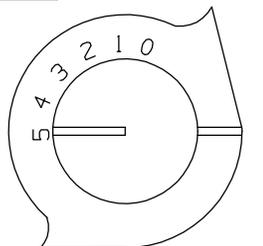
See Dwg. TPD1248.



(Dwg. TPD1248)

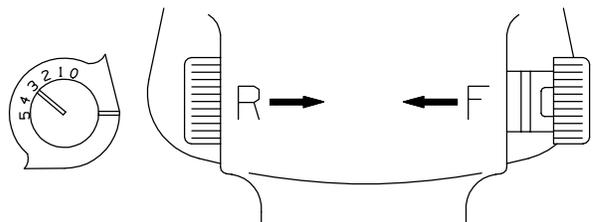
#### NOTICE

The numbers 0 thru 5 on the housing are only for reference and **DO NOT** denote a specific power output. Zero (0) designates the lowest power output while five (5) denotes the highest.



(Dwg. TPD1247)

**For reduced power in the reverse direction and full power in the forward direction**, push the reverse valve inward on the left side of the tool and rotate the reverse valve until the notch on the left side aligns with the desired number on the left side. This provides full power in forward but reduced power in reverse when the reverse valve is pushed the opposite direction. See Dwg. TPD1249.



(Dwg. TPD1249)

# PLACING TOOL IN SERVICE

## LUBRICATION



Ingersoll-Rand No. 50

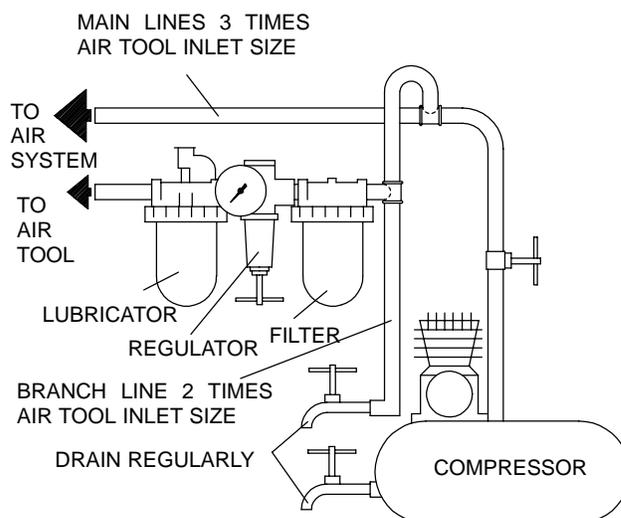
Ingersoll-Rand No. 100

Always use an air line lubricator with these tools.  
We recommend the following Filter-Lubricator-Regulator Unit:

For USA – No. C28-04-FKG0-28

After each eight hours of operation, unless an air line lubricator is used, remove the Oil Chamber Plug and fill the oil chamber with Ingersoll-Rand No. 50 Oil.

After each forty-eight hours of operation, or as experience indicates, inject about 4 cc of Ingersoll-Rand No. 100 Grease into the Grease Fitting.



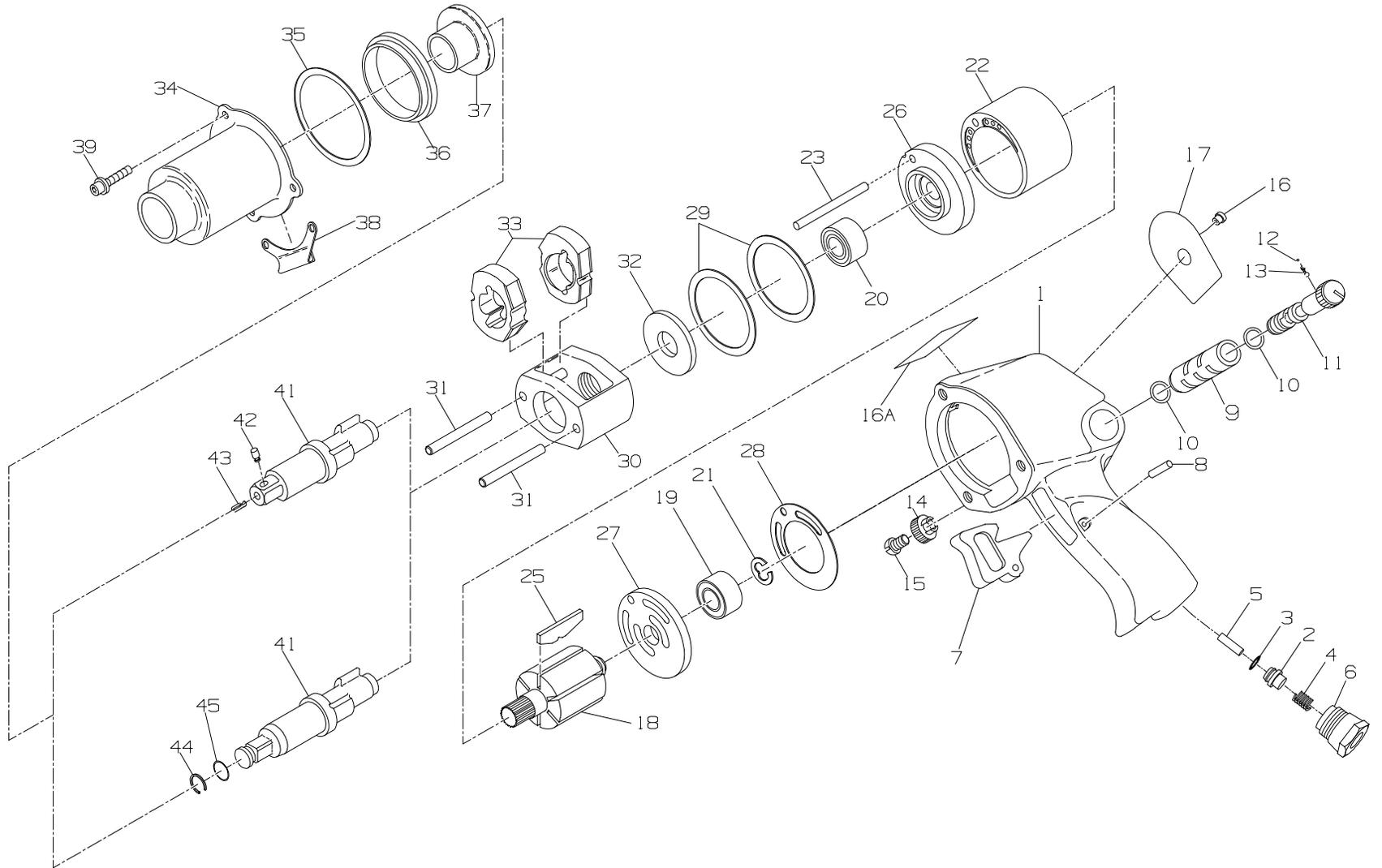
(Dwg. TPD905-1)

## SPECIFICATIONS

Model	Type of Handle	Drive	Impacts per min.	Recommended Torque Range	■ Sound Power Level dB (A)		◆ Vibrations Level
					Pressure	Power	
		in.		ft-lbs (Nm)			m/s <sup>2</sup>
2707A1	pistol	1/2" sq.	1,300	40-275 (54-373)	95.6	108.6	3.8

- Tested in accordance with PNEUROP PN8NTC1.2
- ◆ Tested to ISO8662-7





**MAINTENANCE SECTION**

**(Dwg. TPA781-3)**



PART NUMBER FOR ORDERING

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1	Motor Housing Assembly	244-A40	• 30	Hammer Frame Assembly	231-A703
2	Throttle Valve Assembly	404-50A	31	Hammer Pin (2)	231-704
♦ 3	Throttle Valve Face	405-159	32	Hammer Frame Rear Washer	231-706
♦ 4	Throttle Valve Spring	R1A-51	• 33	Hammer (2)	231-724
5	Throttle Valve Stem	244-302	34	Hammer Case Assembly	705-A927
6	Air Strainer Assembly	402-565	♦ 35	Hammer Case Gasket	230-36
7	Trigger	244-93	36	Hammer Case Pilot	405-800
8	Trigger Pin	533-656	37	Hammer Case Bushing	705-941
9	Reverse Valve Bushing	231-A330	38	Exhaust Deflector	244-23
♦ 10	Reverse Valve Bushing Seal (2)	PS3-67	39	Hammer Case Cap Screw (3)	231-638
11	Reverse Valve	231-329A	• 41	Anvil Assembly (1/2" Square Drive)	
♦ 12	Reverse Valve Detent Ball	AV1-255		with Pin-type Socket Retainer	
♦ 13	Reverse Valve Detent Spring	231-664		(standard)	2904-P726
14	Reverse Valve Knob	231-666		with Ball-type Socket Retainer	2904-B726
15	Reverse Valve Knob Screw	231-665		with Ring-type Socket Retainer	231-A626A
16	Grease Fitting	130SR-188	♦ 42	Socket Retaining Plunger	
16A	Housing Label	WARNING-2-99		for 2904-P726	804-716
17	Nameplate	2707-301		for 2904-B726	5UHD-715
• 18	Rotor	244-53	♦ 43	Retaining Plunger Spring	5UHD-718
♦ 19	Rear Rotor Bearing	402-22	44	Ring-type Socket Retainer	231-425A
♦ 20	Front Rotor Bearing	4U-97	45	Retainer O-ring	R1A-159
♦ 21	Rear Rotor Bearing Retainer	402-118	*	Grease Gun	R000A2-228
• 22	Cylinder	904-3	*	Horizontal Hanger	2706-366
23	Cylinder Dowel	904-98	*	Tune-Up Kit (includes illustrated parts 3,	
♦ 25	Vane Packet (set of 6 Vanes)	2906P-42-6		4, 10 [2], 12, 13, 19, 20, 21, 25, 28, 35,	
• 26	Front End Plate	231-11		42 and 43)	2707-TK2
• 27	Rear End Plate	231-12			
♦ 28	End Plate Gasket	231-283			
29	Motor Clamp Washer (2)	227-207			

\* Not illustrated.

♦ Indicates Tune-up Kit part.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

## MAINTENANCE SECTION

### WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always turn off air supply and disconnect air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

### LUBRICATION

Each time the Models 2707A1 is disassembled for maintenance, repair or replacement of parts, lubricate the tool as follows:

1. Work approximately 9 cc of Ingersoll–Rand No. 100 Grease into the Hammer Mechanism. Coat the Anvil lightly with grease around the Hammer Case Bushing. Inject approximately 4 cc of grease into the Grease Fitting.
2. Inject approximately 3 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 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 leather–covered or copper–covered vise jaws, with the square drive upward.
2. Unscrew and remove the three Hammer Case Cap Screws (39).
3. While lightly tapping on the end of the Anvil (41) with a plastic hammer, lift off Hammer Case (34).
4. Grasp the Hammer Frame Assembly (30) and carefully lift off the entire impact mechanism, making certain not to drop the two Hammer Pins (31). If it is necessary to disassemble the impact mechanism, refer to **Disassembly of the Impact Mechanism**. If it is unnecessary to disassemble impact mechanism, set it aside intact.

#### Disassembly of the Impact Mechanism

### NOTICE

Note the twin Hammers (33) within the Hammer Frame (30). These are identical but must be placed in the Hammer Frame 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.

1. Set the mechanism, driver end up, on a workbench.
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 Hammers out of engagement. Don't 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 the Hammer Frame.

### CAUTION

**With the Hammer Pins (31) removed the twin hammers will be free to slide from the Hammer Frame. Be careful you do not drop them.**

4. With the Anvil removed, lift out the two Hammer Pins and remove the Hammers.

#### Disassembly of the Motor

1. Lift the Rear Hammer Frame Washer (32) and the two Motor Clamp Washers (29) from the front of the motor.
2. Grasp the splined end of the Rotor (18) and pull the assembled motor from the Motor Housing (1).
3. Lift the Front End Plate (26) and the Front Rotor Bearing (20) from the splined end of the Rotor.
4. Remove the Cylinder (22) and Vanes (25).
5. Remove the Rear Rotor Bearing Retainer (21).
6. Lift the End Plate Gasket (28), the Rear End Plate (27) and the Rear Rotor Bearing (19) from the Rotor.

## MAINTENANCE SECTION

### Disassembly of the Reverse Valve

#### NOTICE

**The Reverse Valve Knob Screw (15) is installed with a thread locking compound. You may have to heat it slightly to loosen the Screw.**

1. Unscrew Reverse Valve Knob Screw and remove Reverse Valve Knob (14).

#### NOTICE

**Be careful not to lose the Reverse Valve Detent Ball (12) and Spring (13) from the hole in the side of the Reverse Valve.**

2. While slowly rotating Reverse Valve (11), withdraw it from Reverse Valve Bushing (9).

### Disassembly of the Throttle Mechanism

1. Unscrew the Air Strainer (6).
2. Withdraw the Throttle Valve Spring (4), Throttle Valve Assembly (2), and the Throttle Valve Stem (5). Remove the Throttle Valve Face (3) from the Throttle Valve.
3. Remove Trigger Pin (8) and Trigger (7).

## 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 bearing, 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.
7. Unless otherwise noted, always press on the stamped end of a needle bearing when installing the needle bearing in a recess.

### Assembly of the Throttle Mechanism

1. Place the Trigger (7) in the Housing (1) and secure it with the Trigger Pin (8).
2. Install the Throttle Valve Face (3) on the Throttle Valve (2).

3. Install the Throttle Valve Stem (5), Throttle Valve and Throttle Valve Spring (4) in the handle.
4. Install the Air Strainer Assembly (6) and tighten it to 30 to 35 ft-lb (40.5 to 47.5 Nm) torque.

### Assembly of the Reverse Valve

1. Make certain the Reverse Valve Bushing Seals (10) are properly located in undercuts in the Reverse Valve Bushing (9).
2. Dampen the Reverse Valve (11) with light oil. Install the Reverse Valve Detent Spring (13) followed by the Reverse Valve Detent Ball (12) in the hole in the Reverse Valve. With the Impactool in an upright horizontal position and, while facing the handle end of Impactool, slowly rotate the Reverse Valve and insert it from left to right in the splined end of the Reverse Valve Bushing.
3. Apply a thread locking compound to the Reverse Valve Knob Screw (15). Attach Reverse Valve Knob (14) to Reverse Valve with Reverse Valve Knob Screw, and tighten Screw to 40 to 50 in-lb (4.5 to 5.6 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 (20) into the Front End Plate (26) and the Rear Rotor Bearing (19) into the Rear End Plate (27).
2. Slip the Front End Plate and Bearing over the splined hub of Rotor (18).
3. Grasp the splined hub of the Rotor in leather-covered or copper-covered vise jaws so that the Rotor is in a vertical position.
4. Dampen each Vane (25) with light oil and insert a Vane into each vane slot.
5. Set the Cylinder (22) 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. Install the Rear Rotor Bearing Retainer (21) 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 5/32" x 6" (3.9 mm x 152 mm). Allow the rod to protrude from the Rear End Plate.
9. Grasp the handle of the Motor Housing (1) in leather-covered or copper-covered vise jaws so that the bore of the Motor Housing is horizontal.
10. Wipe a thin film of light grease on the End Plate Gasket (28) and press the Gasket firmly against the Rear End Plate.
11. Insert the protruding end of the guide rod into the dowel hole in the bore of the Motor Housing and slide the motor along the rod until it is completely seated.

## MAINTENANCE SECTION

12. Remove the guide rod and replace it with the Cylinder Dowel (23).
13. Reposition the Motor Housing in the vise so that the open face of the Motor Housing is upward.
14. Place the both Motor Clamp Washers (29), **convex side first**, against the Front End Plate so that the inner rim of the leading Washer contacts the Front End Plate, and the outer rim of trailing Washer contacts the Hammer Case Pilot (36).
15. Place the Rear Hammer Frame Washer (32) over the hub of the Rotor and against the Front Rotor Bearing (20).

### Assembly of the Impact Mechanism

1. Coat the Hammers (33) with a light film of Ingersoll–Rand Impactool No. 100 Grease.

#### 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.**

2. Replace the Hammers in the Hammer Frame Assembly (30) exactly as they were when you marked them prior to disassembly.
3. Replace the Hammer Pins (31).
4. Examine the base of the Anvil (41) and note its contour. While looking down through the Hammer Frame, swing top Hammer to its full extreme one way or another until you can match contour of Anvil. Place the Anvil into the Hammer Frame and through first Hammer. Swing the bottom Hammer in the opposite direction from top Hammer and maneuver Anvil slightly until it drops into bottom Hammer.

### Assembly of the Impact Wrench

1. Set assembled impact mechanism over the splined hub of the Rotor.
2. Smear a thin film of Ingersoll–Rand Impactool No. 100 Grease on the inside surface of the Hammer Case Bushing (37), and place the Hammer Case over the Anvil (41) and against the Motor Housing (1).
3. Install the Hammer Case Cap Screws (41). Tighten the Hammer Case Cap Screws to 60 to 70 in–lb (6.8 to 7.9 Nm) torque.

## MAINTENANCE SECTION

<b>TROUBLESHOOTING GUIDE</b>		
<b>Trouble</b>	<b>Probable Cause</b>	<b>Solution</b>
Low power	Dirty Air Strainer and/or clogged Exhaust Silencer.	Remove the Air Strainer Screen and Exhaust Silencer and clean using a clean, suitable cleaning solution. Allow to dry air and install in tool.
	Worn or broken Vanes	Replace the <b>complete</b> set of Vanes.
	Worn or broken Cylinder and/or scored End Plates.	Examine Cylinder and replace it if it is worn or broken or if bore is scored or wavy. Replace End Plates if they are scored.
	Dirty motor parts.	Disassemble tool and clean all parts with a clean, suitable cleaning solution. Assemble the tool and inject 3 cc of recommended oil into Inlet and run tool to lubricate internal parts.
Motor will not run.	Incorrect assemble of motor	Disassemble motor and replace worn or broken parts and reassemble as instructed.
	Insufficient lubricant in the hammer mechanism	Inject 4 cc of the recommended grease through the Grease Fitting) and run the tool.
Tool will not impact	Broken or worn impact mechanism parts	Remove Hamer 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>

### NOTICE

**SAVE THESE INSTRUCTIONS. DO NOT DESTROY.**

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