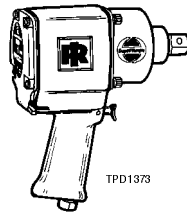
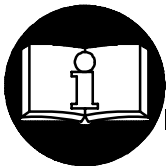


INSTRUCTIONS FOR MODEL 2910P3SP SPARK-RESISTANT IMPACT TOOL



NOTICE

Model 2910P3SP Impact tool features a non-sparking non-magnesium alloy housing and is ideal for use in coal mines, chemical plants and refineries. 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.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.
- 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 insulated against electric shock.

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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INGERSOLL-RAND®
PROFESSIONAL TOOLS

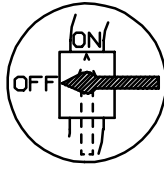
WARNING LABEL IDENTIFICATION

WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

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

	 WARNING 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.
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	 WARNING 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.
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	 WARNING Do not carry the tool by the hose.
---	---

	 WARNING Do not use damaged, frayed or deteriorated air hoses and fittings.
--	---

	 WARNING Keep body stance balanced and firm. Do not overreach when operating this tool.
---	---

	 WARNING Operate at 90 psig (6.2 bar/620 kPa) Maximum air pressure.
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PLACING TOOL IN SERVICE

LUBRICATION



Ingersoll-Rand No. 50 Ingersoll-Rand No. 100

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

For USA - No. C22-04-G00

For International - No. C26-C4-A29

Before starting the Tool and after each eight hours of operation, unless the air line lubricator is used, unscrew the Oil Chamber Plug (19) and fill the chamber with oil.

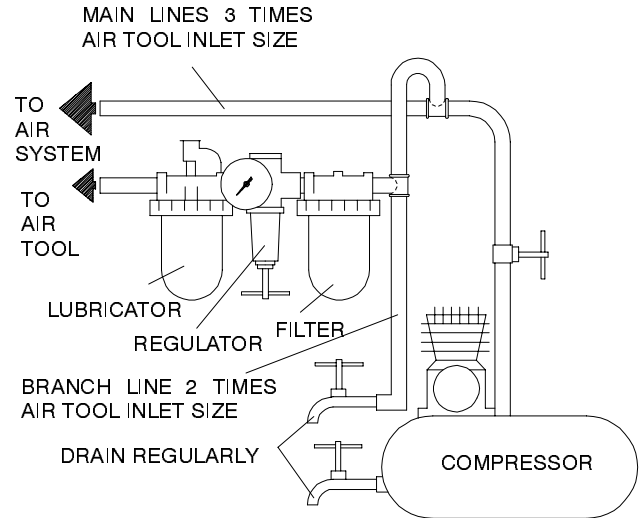
After each forty-eight hours of operation, or as experience indicates, inject about 6 cc of the recommended grease (approximately 14 strokes from the No. R000A2-228 Grease Gun) into the Grease Fitting (27).

INSTALLATION

Air Supply and Connections

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. An air line filter can greatly

increase the life of an air tool. The filter removes dust and moisture. Be sure all hoses and fittings are the correct size and are tightly secured. See diagram below for a typical piping arrangement.



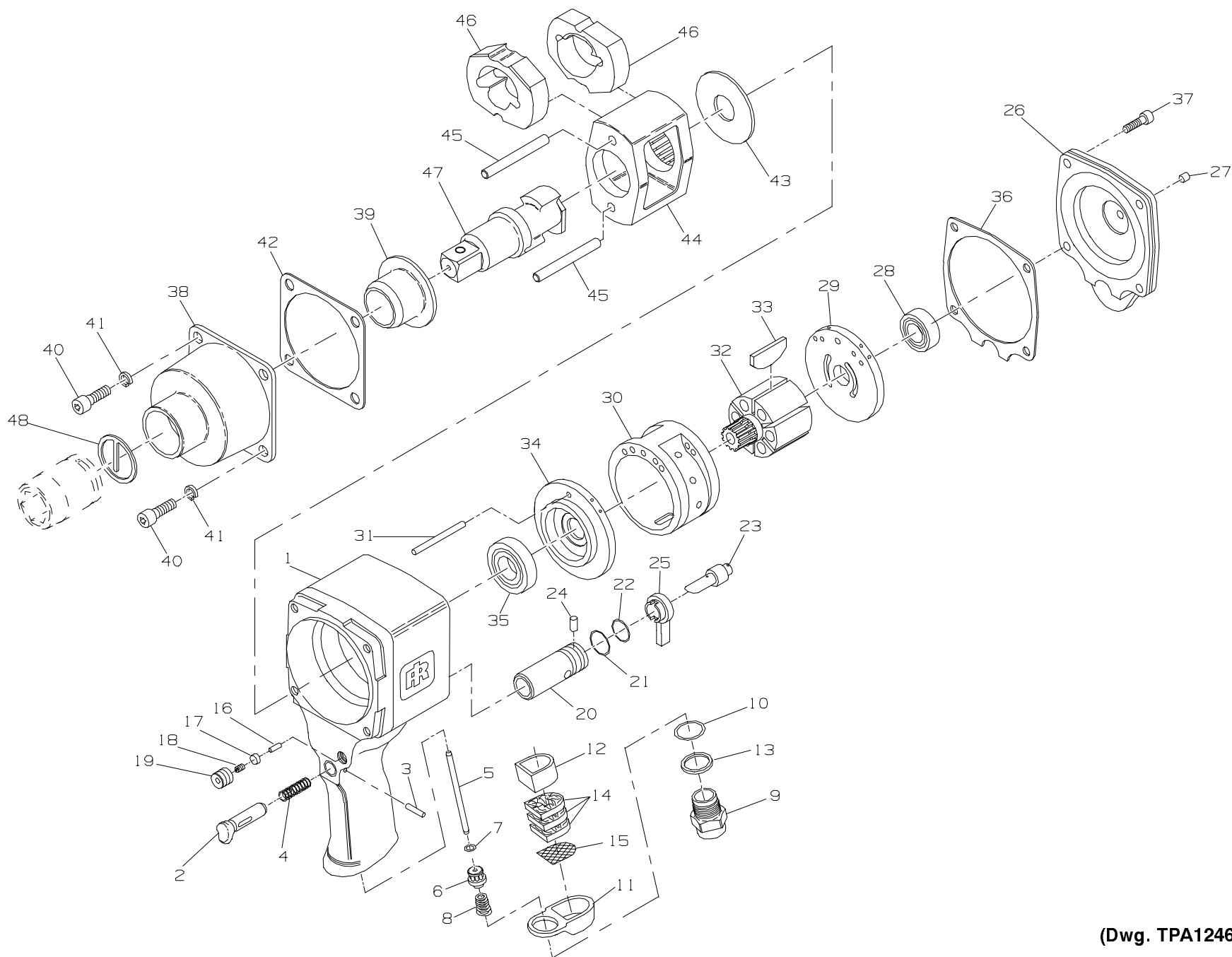
(Dwg. TPD905-1)

HOW TO ORDER AN IMPACTOOL

1" SQUARE DRIVE - PISTOL GRIP

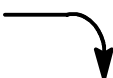
Model	Impacts/min.	Recommended Torque Range	
		ft-lb	Nm
2910P3SP	950	271 - 813	200 - 600

MAINTENANCE SECTION

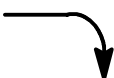


(Dwg. TPA1246)

PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



1	Motor Housing Assembly	2910SP-A40A	28	Rear Rotor Bearing	4E-510
2	Trigger	2905-93	29	Rear End Plate	910-12
3	Trigger Pin	R1AF-524	30	Cylinder	910-3
4	Trigger Spring	2934P-51	31	Cylinder Dowel	910-98
5	Throttle Valve Plunger	2910-302	32	Rotor	2910-53
6	Throttle Valve Assembly	434-50	33	Vane Packet (set of 6 Vanes)	260-42-6
7	Throttle Valve Face	435-159	34	Front End Plate	910-11
8	Throttle Valve Spring	R1A-51	35	Front Rotor Bearing	834-24
9	Air Inlet Bushing Assembly	2910-A465	36	End Plate Gasket	2910-739
10	Inlet Bushing Seal	BBFM-557	37	Housing Cover Cap Screw (4)	R0H-354
11	Exhaust Deflector	2910SP-23	38	Hammer Case Assembly	2920B-A727
12	Deflector Seal	2910-789	39	Hammer Case Bushing	2920-641
13	Washer	2905-788	*	Hammer Case Label	EU-99
14	Exhaust Silencer (3)	2910-311	40	Hammer Case Cap Screw (4)	34U-103
15	Exhaust Deflector Screen	2910-310	41	Cap Screw Lock Washer (4)	34U-58
16	Oiler Felt	R1-75	42	Hammer Case Gasket	910-36
17	Oiler	R2-63	43	Rear Hammer Frame Washer	910-706
18	Oiler Adjusting Screw	R1-71A	44	Hammer Frame	2910-703A
19	Oil Chamber Plug	R0H-377	45	Hammer Pin (2)	2910-704
20	Reverse Valve Assembly	2910-A329	46	Hammer (2)	2910-724
21	Reverse Valve External Seal	PS3-67	47	1" Square Drive Anvil	2910-826
22	Reverse Valve Internal Seal	R000BR-210	48	Socket Retainer	10015S
23	Power Regulator	2910-249	*	Nameplate	2910SP-301
24	Power Regulator Stop	2910-667			
25	Reverse Lever	910SP-658			
26	Motor Housing Cover	2910SP-202			
27	Grease Fitting	130SR-188			

* Not illustrated.

POWER REGULATOR ADJUSTMENT

2910P3SP Impacttools are equipped with a combination power regulator/reverse valve designed to provide power adjustment in one direction of rotation while maintaining full power in the opposite direction of rotation. The power output in either direction is calibrated by the numbers “1” through “5” stamped on the Motor Housing Cover. “5” designates maximum power and “1” designates minimum power.

Power Adjustment for Running Right-Hand Thread Fasteners

1. While facing the back of the Impacttool, push the Reverse Lever (25) to the extreme right position.
2. Using a screwdriver, rotate the Power Regulator (23) clockwise so that the slot aligns with the desired power calibration.
3. The 2910P3SP will now drive a right-hand thread fastener at the power setting you have selected. It will remove that same right-hand fastener under full power. This adjustment will not change regardless of how many times you shift the Reverse Lever as long as you do not change the power selection.

Power Adjustment for Running Left-Hand Thread Fasteners

1. While facing the back of the Impacttool, push the Reverse Lever (25) to the extreme left position.
2. Using a screwdriver, rotate the Power Regulator (23) counterclockwise so the the slot aligns with the desired power calibration.
3. The 2910P3SP will now drive a left-hand thread fastener at the power setting you have selected. It will remove the same left-hand thread fastener under full power. This adjustment will not change regardless of how many times you shift the Reverse Lever as long as you do not change the power selection.

MAINTENANCE SECTION

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.

LUBRICATION

Each time a Model 2910P3SP is disassembled for maintenance and repair or replacement of parts. Lubricate the tool as follows:

1. Work approximately 6 cc of Ingersoll-Rand No. 100 Grease into the impact mechanism. Coat the Anvil lightly with grease around the Hammer Case Bushing.
2. Fill the oil reservoir in the handle with Ingersoll-Rand No. 50 Oil.

DISASSEMBLY

General Instructions

3. Always disconnect the air supply line before performing any maintenance on this tool.
4. Always use protective eyewear when performing maintenance on this tool.
5. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
6. Do not disassemble the Impacttool unless you have a complete set of new gaskets and O-rings for replacement.

7. 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.
8. 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.

Disassembly of the Impact Mechanism

1. Clamp the handle of the Impacttool in a vise with the square driver upward.
2. Unscrew and remove the four Hammer Case Cap Screws (40).
3. While lightly tapping on the end of the Anvil (47) with a plastic hammer, lift off the Hammer Case (38) and Hammer Case Gasket (42).
4. Grasp the Hammer Frame (44) and carefully lift off the entire impact mechanism, making certain not to drop the two Hammer Pins (45).
5. Set the mechanism, driver end up, on the workbench.

NOTICE

Note the twin Hammers within the Hammer Frame. 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.

MAINTENANCE SECTION

6. 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. Don't do this; merely rotate the Anvil until it comes up solid.

7. 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.
8. With the Anvil removed, lift out the two Hammer Pins.

CAUTION

he twin Hammers are now free to slide from the Hammer Frame. Be careful you do not drop them.

Disassembly of the Motor and Reverse Valve

1. Lift the Rear Hammer Frame Washer (43) from the front of the motor.
2. Remove the Motor Housing from the vise.
3. Unscrew the Housing Cover Cap Screws (37) and remove the Motor Housing Cover (26) and End Plate Gasket (36).
4. Withdraw the Rear End Plate (29) and Bearing (28).
5. Withdraw the Cylinder Dowel (31) and the Reverse Valve/Regulator Assembly.
6. While lightly tapping the splined end of the Rotor (32) with a plastic hammer, withdraw the Rotor and Vanes (33).
7. Unscrew the Air Inlet Bushing (9) and remove the Exhaust Deflector (11), Deflector Seal (12), Exhaust Silencer (14) and the Exhaust Deflector Screen (15).
8. Withdraw the Throttle Valve Spring (8), Throttle Valve (6) and Throttle Valve Plunger (5).

⚠ WARNING

The following procedure requires the use of heat. Take all precautions necessary to prevent injury from burns.

9. The Cylinder (30) and Front End Plate (33) are a shrink fit in the Motor Housing. In order to remove them, place the Motor Housing in an oven preheated to 200 F (93 C) for about five minutes. Since the aluminum Motor Housing has a greater rate of expansion than the Cylinder and End Plate, the two parts can be withdrawn from the Housing. Remove the Front Rotor Bearing (35) from the End Plate.

CAUTION

Never attempt to press or otherwise force the Cylinder and End Plate from the Motor Housing.

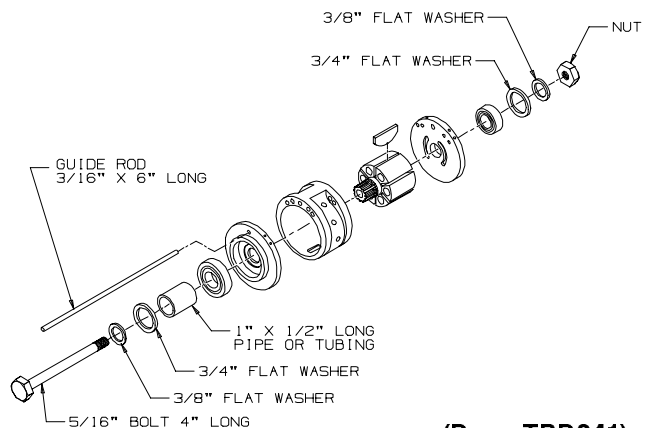
ASSEMBLY

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 installing the bearing in a bearing recess.
3. Whenever grasping a tool or part in a vise, always use copper-covered or leather-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
4. Except for bearings, always clean every part and wipe every part with a thin film of oil before installation.
5. Apply o-ring lubricant to every O-ring before assembly.
6. Check every bearing for roughness. If an open bearing must be cleaned, wash it thoroughly in clean solvent and dry it with a clean cloth. Sealed or shielded bearings should never be cleaned. Work grease thoroughly into every opening before installation.

Assembly of the Motor and Reverse Valve

1. Using a sleeve that contacts only the outer ring of the Bearing, press a new Front Rotor Bearing (35) in the Front End Plate (34) and a new Rear Rotor Bearing (28) in the Rear End Plate (29).
2. Installation of the motor parts is easier if they are assembled and clamped together, and entered into the bore of the Motor Housing (1) as a unit. A clamp for holding the motor parts together during installation can be improvised from a 5/16" bolt 4" long, a piece of 1" pipe or tubing 1/2" long, two 3/4" flat washers and two 3/8" flat washers. Also obtain a 3/16" (4.7 mm) diameter rod about 6" (152 mm) long to serve as a guide rod.



(Dwg. TPD341)

MAINTENANCE SECTION

3. Assemble the motor as follows:
 - (a) Slip the Front End Plate and Bearing over the splined hub of the Rotor (32).
 - (b) Slip the 5/16" bolt through a 3/8" washer followed by a 3/4" washer, and center the 1" pipe or tubing on the 3/4" washer.
 - (c) Place the Rear Hammer Frame Washer (43) over the bolt and against the pipe so that the flat side of the Frame Washer contacts the pipe.
 - (d) Slide the threaded end of the bolt through the Rotor, bringing the hub on the Frame Washer in contact with the inner ring of the Front Rotor Bear long. Stand this unit upright, clamping the head of the bolt in a vise.
 - (e) Dampen each Vane (33) with light oil and insert a Vane into each vane slot in the Rotor.
 - (f) **Set the Cylinder (30) over the Rotor and onto the Front Plate.**
 - (g) **Slide the Rear End Plate (29) and Bearing (28) onto the rotor hub.**
 - (h) Align the dowel hole through both End Plates with the one through the Cylinder and insert the 3/16" guide rod. Allow the rod to protrude about 3" beyond the Front End Plate.
 - (i) Install a 3/4" washer followed by a 3/8" washer on the end of the 5/16" bolt and run the nut finger tight.

WARNING

The following procedure requires the use of heat. Take all precautions necessary to prevent injury from burns.

4. Place the Motor Housing in an oven preheated to 200 F (93 C) for about five minutes. This will expand the Motor Housing for installation of the motor.
5. While the Motor Housing is still hot, insert the protruding end of the guide rod into the dowel hole in the Housing, and slide the assembled motor into the Housing until the Front End Plate is seated at the bottom of the housing bore. Let the Motor Housing cool.
6. Remove the guide rod and install the Cylinder Dowel (31).
7. Dampen the Reverse Valve (20) with light oil and install two new Reverse Valve Seals (21 and 22) in their respective grooves.

8. Place the Reverse Lever (25) on the notched end of the Reverse Valve so that the wing of the Lever is opposite the semicircular slot on the Reverse Valve.
9. Dampen the Power Regulator with light oil, and slide it through the Lever and into the Reverse Valve.
10. Rotate the Power Regulator until the small pin hole is aligned with the semicircular slot in the Reverse Valve.
11. Press the Power Regulator Stop (24) pin until it seats.
12. Slide the Reverse Valve and Power Regulator Assembly into the reverse valve bushing. Place the End Plate Gasket (36) on the back of the Motor Housing and install the Motor Housing Cover (26). Tighten each of the Housing Cover Cap Screws (37) a little at a time to a minimum of 10 ft-lb (13.5 Nm) torque.
13. Install the Throttle Valve Plunger (5), followed by the Throttle Valve (6) with a new Throttle Valve Face (7) and the Throttle Valve Spring (8).
14. Install the Deflector Seal (12), three new Exhaust Silencers (14), the Exhaust Deflector Screen (15) and the Exhaust Deflector (11).
15. Place the Washer (13) and a new Inlet Bushing Seal (10) onto the Inlet Bushing (9) and insert the Bushing through the Deflector into the Housing. Tighten the Bushing between 20 to 25 ft-lb (27 to 34 Nm) torque.
16. Grasp the handle of the assembled Motor Housing in copper-covered vise jaws so that the open end of the Motor Housing is upward.
17. Make certain that the Rear Hammer Frame Washer (43) is positioned on the Rotor so that the hub contacts the Front Rotor Bearing.
18. Place a new Hammer Case Gasket (42) onto the Housing.
19. Set the assembled impact mechanism down over the splined hub on the Rotor.
20. Smear a thin film of Ingersoll-Rand No. 100 Grease on the inside surface of the Hammer Case Bushing (39), and place the Hammer Case (38) down over the Anvil and against the Gasket.
21. Install the Hammer Case Cap Screws (40) and tighten them to a minimum of 20 ft-lb (27.1 Nm) torque.

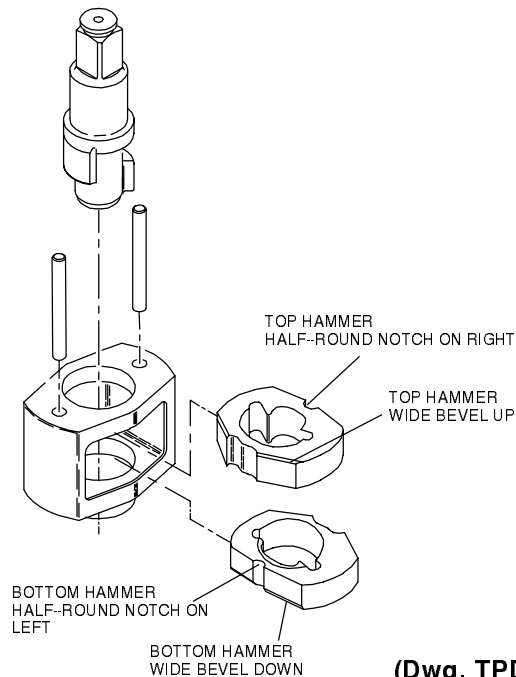
CAP SCREW SPECIFICATIONS

Tighten the Hammer Case Cap Screws to a minimum of 20 ft.lb (27.1 N m) torque. Tighten the Housing Cover Cap Screws to a minimum of 10 ft-lb (13.5 Nm) torque.

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. Refer to Dwg. TPD652.

Assembly of the Impact Mechanism



(Dwg. TPD652)

1. Coat the Hammers with a light film of Ingersoll-Rand No. 100 Grease.
2. Replace the Hammers in the Hammer Frame exactly as they were when you marked them prior to disassembly.

3. Replace the Hammer Pins (45).
4. Examine the base of the Anvil 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.

MAINTENANCE SECTION

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. Blow dry with compressed air.
	Worn or broken Vanes	Replace complete 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 suitable cleaning solution, in a well-ventilated area. Reassemble tool as instructed in this manual.
	Improper positioning of Reverse Valve	Make certain that Reverse Valve is fully engaged to the left or right.
Motor will not run	Incorrect assembly of motor	Disassemble motor and replace worn or broken parts and reassemble as instructed.
	Insufficient lubricant in the impact mechanism	Remove Hammer Case Assembly and lubricate impact mechanism.
Tool will not impact	Broken or worn impact mechanism parts	Remove Hammer Case and examine impact mechanism parts. Replace any worn or broken parts.
	Impact mechanism not assembled correctly	Refer to Assembly of the Impact Mechanism .

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.