03531753
Form P6583
Edition 10
June, 2000

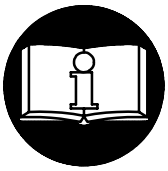
GB

OPERATION AND MAINTENANCE MANUAL FOR MODELS 1712B2 AND 1712P2 HEAVY DUTY IMPACTOOLS

NOTICE

Models 1712B2 and 1712P2 Heavy Duty Impactools are designed for use in the construction industry as well as production of heavy equipment such as locomotives, bulldozers, tractors and ships.

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 3/4" (19 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 designed for working in explosive atmospheres.**
- **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.

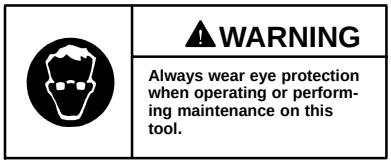
Printed in U.S.A.

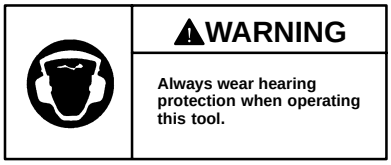
Ingersoll-Rand®

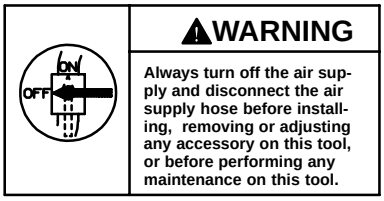
WARNING LABEL IDENTIFICATION

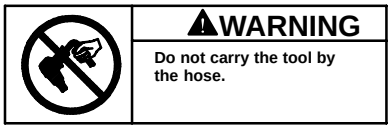
⚠ WARNING

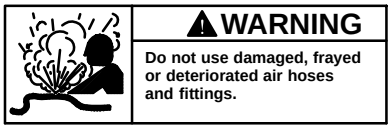
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

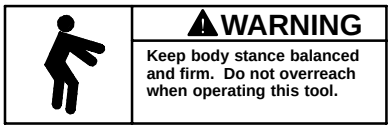


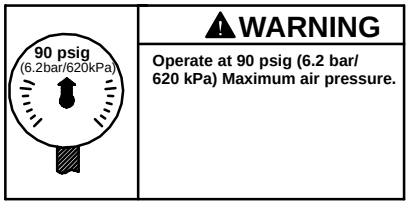












SETTING THE POWER REGULATOR

⚠ 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.

Models 1712B2 and 1712P2 Impactools are equipped with a combination power regulator/reverse valve designed to provide power adjustment while maintaining full power in the reverse direction. Since the reverse direction is primarily for loosening right–hand threaded fasteners and full power is required, no provision is made for power adjustment in this direction. The power output is calibrated by the numbers “1”, “3” or “5” stamped on the Housing Cover Assembly (25).

NOTICE

The numbers 1, 3 and 5 on the Housing are only for reference and DO NOT denote a specific power output. One (1) designates the lowest power while five (5) denotes the highest.

Power Adjustment in the Forward Direction

1. While facing the back of the Impactool, push the Reverse Lever (17) to the extreme right position.
2. Using a screwdriver, rotate the Power Regulator (20) so the the slot aligns with the desired power calibration.
3. The power is now adjusted for the forward direction but will still have full power in the reverse direction. The adjustment will not change regardless of how many times you shift the Reverse Lever as long as you do not change the power selection.

PLACING TOOL IN SERVICE

LUBRICATION

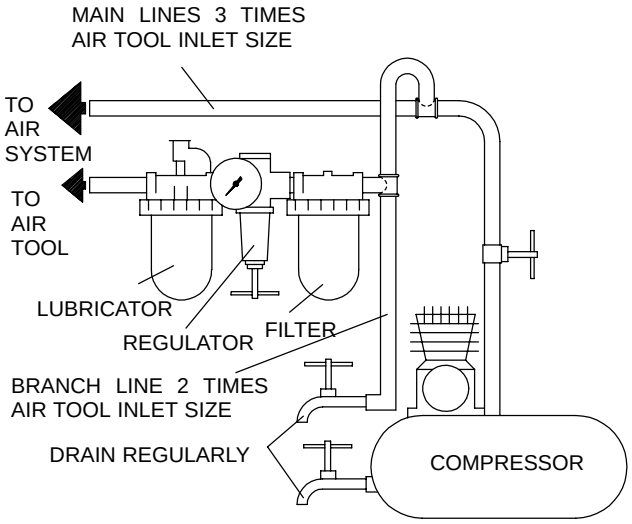
Ingersoll–Rand No. 50

Ingersoll–Rand No. 100

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

For USA – No. C31–06–G00

For International – FRL30–C6–A29



(Dwg. TPD905–1)

After each forty–eight hours of operation, or as experience indicates, inject about 3 cc of Ingersoll–Rand No. 100 Grease into the Grease Fitting (2).

SPECIFICATIONS

Model	Type of Handle	Drive	Impacts per min.	Recommended Torque Range	■Sound Level dB (A)		♦Vibrations Level
		in.		ft–lbs (Nm)	Pressure	Power	m/s^2
1712B2	grip	1” sq. dr.	800	450–1,000 (612–1,360)	109.1	122.1	14.1
1712P2	pistol	1” sq. dr.	800	450–1,000 (612–1,360)	104.6	117.6	12.2

■ Tested in accordance with PNEUROP PN8NTC1.2

♦ Tested in accordance with ISO8662–7

DECLARATION OF CONFORMITY

We ***Ingersoll–Rand, Co.***

(supplier's name)

78192 Trappes Cedex France

(address)

declare under our sole responsibility that the product,

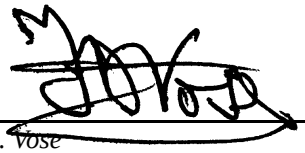
Series 1712B2 and 1712P2 Heavy Duty Impactools

to which this declaration relates, is in compliance with the provisions of

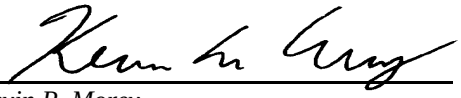
98/37/EC *Directives.*

By using the following Principle Standards: ***ISO8662, PNEUROP PN8NTC1.2***

Serial No. Range: ***(2000 →) A00D XXXXX →***



D. Vose
Name and signature of authorised persons



Kevin R. Morey
Name and signature of authorised persons

June, 2000
Date

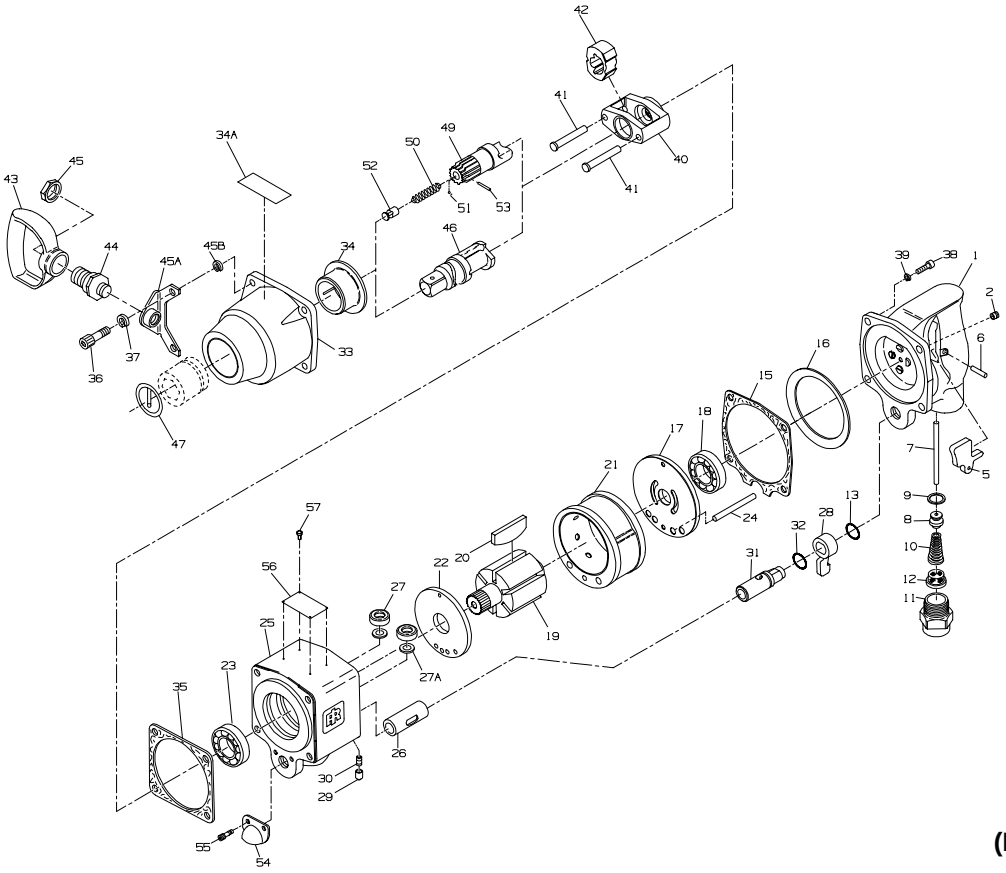
June, 2000
Date

NOTICE

SAVE THESE INSTRUCTIONS. DO NOT DESTROY.

When the life of the tool has expired, it is recommended that the tool be disassembled, degreased and parts be separated by material so that they can be recycled.

MODEL 1712B2



(Dwg. TPB516–7)

			PART NUMBER FOR ORDERING				PART NUMBER FOR ORDERING
	1	Inside Trigger Handle Assembly	1712–A92	♦	23	Front Rotor Bearing	810–97
	2	Grease Fitting	130SR–188		24	Cylinder Dowel	2934–98
	5	Inside Trigger	834–93A		25	Motor Housing Asssembly	1712–A40
•	6	Inside Trigger Pin	534–265		26	Reverse Valve Bushing	2934–330S
	7	Throttle Valve Plunger	2934–302	♦ •	27	Air Port Gasket (2)	R44H–210A
	8	Throttle Valve Assembly	2934–A50	♦ •	27A	Air Port Gasket Retainer (2)	2940–200
♦ •	9	Throttle Valve Face	2934–159		28	Reverse Lever	2934–658A
♦ •	10	Throttle Valve Spring	834–51	♦ •	29	Reverse Lock Plunger	4U–663B
	11	Straight Inlet	845–565	♦ •	30	Reverse Lock Plunger Spring	4U–664
♦	12	Air Strainer Screen	434–61		31	Reverse Valve Assembly	2934–A329
♦ •	13	Reverse Valve Seal	R00BR–210	♦ •	32	Valve Seal	85H–167
♦ •	15	Handle Gasket	2934–283		33	Hammer Case Assembly	1712B–A727
	16	Motor Clamp Washer	2934–207		34	Hammer Case Bushing	2934–641
	17	Rear End Plate	2934–12		34A	Warning Label	WARNING–2–99
♦	18	Rear Rotor Bearing	508–97	♦	35	Hammer Case Gasket	2934–36
	19	Rotor	2934–53		36	Hammer Case Cap Screw (4)	834–638
♦ •	20	Vane Packet (set of 6 Vanes)	2934–42–6				
	21	Cylinder	2934–3				
	22	Front End Plate	2934–11				

* 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.

		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING
37	Hammer Case Cap Screw Lock Washer (4)	34U–58	57	Nameplate Screw (4)	C32–302
38	Handle Cap Screw (4)	510–638	*	Exhaust Deflector Kit	2934–K23
39	Cap Screw Lock Washer (4)	8U–58	*	Exhaust Baffle	2934–124
40	Hammer Frame Assembly	2934–A703	*	Gasket	2934–223
41	Hammer Pin (2)	2934–704	*	Silencer	2940P–311
42	Hammer	1712–724	*	Screw (2)	R43F–104
*	Dead Handle	834–48	*	Piped–Away Exhaust Kit	
43	Side Spade Handle	T15–41		with Muffler	2940–KM184
44	Side Spade Handle Stud	534–148		without Muffler	2940–K184
45	Side Spade Handle Stud Nut	107–73A	*	Exhaust Adapter	294–167
45A	Side Spade Handle Bracket	2934–364	*	Exhaust Adapter Gasket	2940–30
45B	Side Spade Handle Bracket Spacer (2)	2934–140	*	Adapter Cap Screw (2)	AL–638
46	1” Square Drive Anvil		*	Exhaust Hose	R21–230
	Standard Length	1712–726	*	Hose Clamp (2 for 2940–KM184; 1 for 2940–K184)	R21–31
	6” Extended Length	280–726–6	*	Hose Connector (for 2940–KM184	R21–185
• 47	Retainer Ring (for 1” Square Drive Anvil)	RR10015S	*	Muffler (for 2940–KM184)	R21–674
49	Spline Drive Anvil		*	Horizontal Hanger	2934–366
	Standard Length	1712–A526	*	Lube Injector	230–228
	6” Extended Length	280–A514–6	*	Bottle of Oil	405–M01
50	Retaining Plunger Spring	2940–231	*	Grease	405–MG1
51	Socket Retaining Ball	D04–280		Tune–up Kit (includes illustrated parts 3, 9, 10, 12, 13, 15, 18, 20, 23, 27 (2), 27A (2), 29, 30, 32 and 35)	1712B/1712P–TK3
52	Retaining Ball Plunger	845–230			
53	Plunger Retaining Pin	845–128			
54	Exhaust Deflector	280–167			
55	Exhaust Deflector Screw (2)	W54–376			
56	Nameplate	1712–301			

* Not illustrated.

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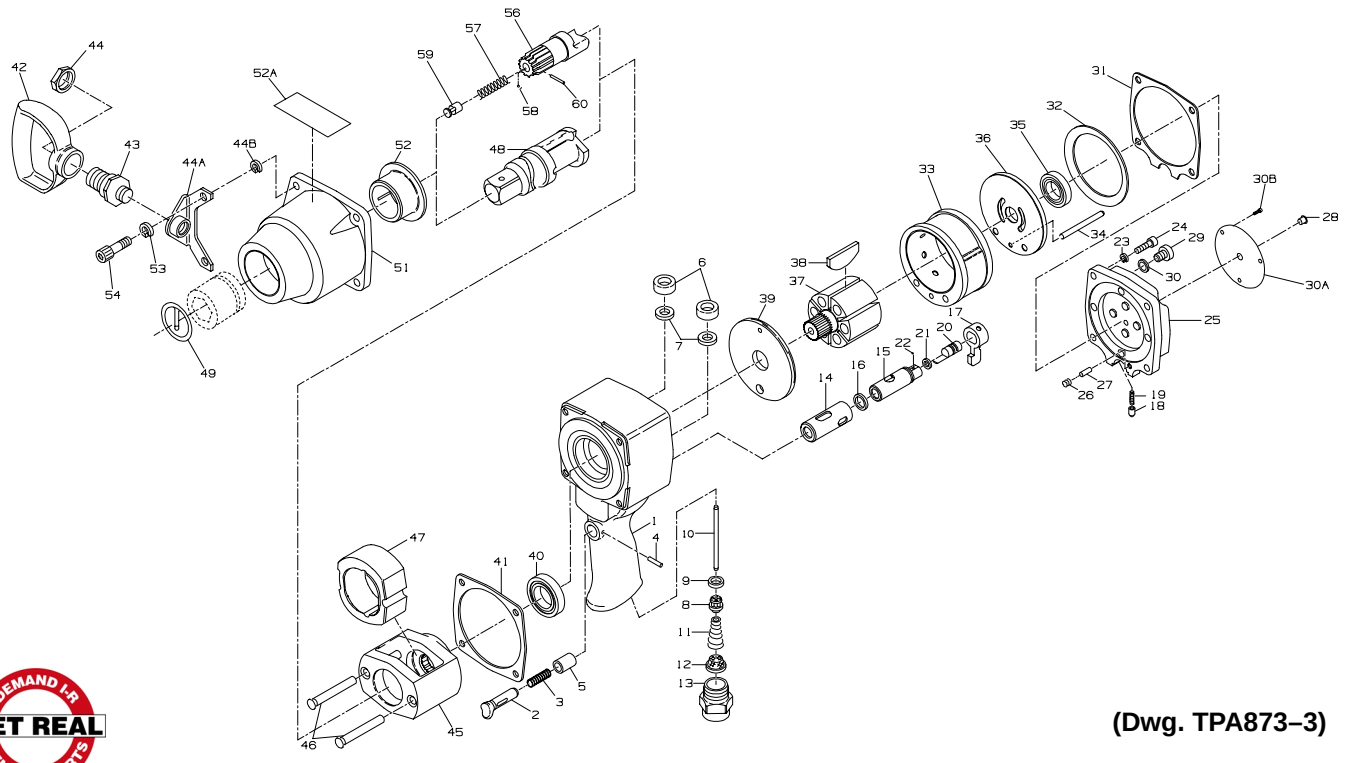
MODEL 1712P2



(Dwg. TPA873–3)

	PART NUMBER FOR ORDERING				PART NUMBER FOR ORDERING		
	1	Motor Housing Assembly	1712P–A40		22	Power Regulator Retaining Ball	AV1–255
	2	Trigger	2934P–93		23	Housing Cover Lock Washer (4)	8U–58
	3	Trigger Spring	2934P–51		24	Housing Cover Cap Screw (4) .	5l0–638
	5	Trigger Bushing	2905–91S		25	Housing Cover Assembly	1712P–Al02
♦•	6	Air Port Gasket (2)	R44H–210A		26	Oiler Adjusting Screw	R2–71
♦•	7	Gasket Retainer (2)	2940–200	♦	27	Oiler Felt	R2–75
	8	Throttle Valve	2934P–A50		28	Grease Fitting	130SR–188
♦•	9	Throttle Valve Face	2934–159		29	Oil Chamber Plug	R4–227
	10	Throttle Valve Plunger	2934P–302	♦	30	Oil Chamber Plug Gasket . .	R4–92
♦•	11	Throttle Valve Spring	834–51		30A	Nameplate	1712P–301
♦	12	Air Strainer Screen	434–61	♦	30B	Nameplate Screws (3)	C32–302
	13	Straight Inlet	845–565	♦	31	Housing Cover Gasket	2934–283
	14	Reverse Valve Bushing . . .	2934P–330S		32	Motor Clamp Washer	2934–207
	15	Reverse Valve Assembly	2934P–A329		33	Cylinder	2934–3
♦•	16	Reverse Valve Seal	85H–167		34	Cylinder Dowel	2934–98
	17	Reverse Lever	2934–658A	♦	35	Rear Rotor Bearing	508–97
♦•	18	Reverse Lock Plunger	4U–663B		36	Rear End Plate	2934–12
♦	19	Reverse Lock Spring	4U–664		37	Rotor	2934–53
	20	Power Regulator Assembly . . .	2934P–A249	♦•	38	Vane Packet (set of 6 Vanes) . .	2934–42–6
♦	21	Power Regulator Seal	R1A–159				

♦ 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.

		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING	
	39	Front End Plate	2934–11	53	Cap Screw Lock Washer (4) . .	34U–58
♦	40	Front Rotor Bearing	810–97	54	Hammer Case Cap Screw (4) .	834–638
♦•	41	Hammer Case Gasket	2934–36	*	Muffler	2910–674
	*	Dead Handle	834–48	56	Spline Drive Anvil	
	42	Side Spade Handle	T15–41		Standard Length	1712–A526
	43	Side Spade Handle Stud	534–448		6” Extended Length . .	280–A514–6
	44	Side Spade Handle Nut	107–73A	57	Retaining Plunger Spring	2940–231
	44A	Side Spade Handle Bracket . .	2934–364	58	Socket Retaining Ball	D04–280
	44B	Side Spade Handle Bracket		59	Retaining Ball Plunger . . .	845–230
		Spacer (2)	2934–140	60	Plunger Retaining Pin	845–128
	45	Hammer Frame Assembly . . .	2934–A703	*	Horizontal Hanger	2934–366
	46	Hammer Pin (2)	2934–704	*	Lube Injector	230–228
	47	Hammer	1712–724	*	Bottle of Oil	405–M01
	48	1” Square Drive Anvil		*	Grease	405–MG1
		Standard Length	1712–726	*	Tune–up Kit (includes	
		6” Extended Length . . .	280–726–6		illustrated parts 3, 6 [2], 7 [2]	
•	49	Retainer Ring (for 1” Square			9, 11, 12, 16, 18, 19, 21, 27,	
		Drive Anvil)	RR10015S		30, 31, 35, 38, 40 and 41) . . .	1712B/1712P–TK3
	51	Hammer Case Assembly	1712–A727			
	52	Hammer Case Bushing . . .	2934–641			
	52A	Warning Label	WARNING–2–99			

* 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 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 1712B2 or 1712P2 Impactool is disassembled for maintenance and repair or replacement of parts, lubricate the tool as follows:

1. Work approximately 10 cc of Ingersoll–Rand No. 100 Grease into the impact mechanism. Coat the Anvil (46, 49, 48 or 56) lightly with grease. Also coat the inside of the Hammer Case Bushing (34 or 52) with grease. Inject approximately 4 cc of grease into the Grease Fitting (2 or 28).
2. Use Ingersoll–Rand No. 50 Oil for lubricating the motor. Inject approximately 3 cc of oil into the Straight Inlet (11 or 13) 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.

Disassembly of the Impactool

1. Grasp the tool in leather–covered or copper–covered vise jaws with the square or spline drive upward.
2. **For Model 1712B2,** using a hex wrench, unscrew and remove the two Exhaust Deflector Screws (55) and the Exhaust Deflector (54).
3. Using a hex wrench, unscrew and remove the four Hammer Case Cap Screws (36 or 54), four Lock Washers (37 or 53), Side Spade Handle Bracket (45A or 44A) and two Bracket Spacers (45B or 44B).
4. While lightly tapping the end of the Anvil (46 or 48) with a plastic hammer, lift off the Hammer Case Assembly (33 or 51)
5. Remove the Hammer Case Gasket (35 or 41).
6. Remove the Anvil by rotating it as it is lifted out of the assembly.
7. Lift the remaining hammer assembly off the rotor shaft.
8. Push the two Hammer Pins (41 or 46) out of the Hammer Frame Assembly (40 or 45) and slide the Hammer (42 or 47) out of the Frame.

Disassembly of the Reverse Valve

NOTICE

When clamping the tool for disassembly in the following step, excessive clamping pressure will distort Motor Housing and make motor removal extremely difficult. Do not insert the hammer case end of the Motor Housing more than 1” (25 mm) into the vise jaws.

1. Lightly clamp the Motor Housing Assembly (25 or 1) in leather–covered or copper–covered vise jaws with the Trigger Handle Assembly (1) or Housing Cover Assembly (25) upward.
2. Using a hex wrench, unscrew and remove the four Handle Cap Screws (38) and Lock Washers (39) or Housing Cover Cap Screws (24) and lock Washers (23). Lift the assembled handle or cover off the Motor Housing. Do not lose the Reverse Lock Plunger (18) or Reverse Lock Spring (19) when removing the Housing Cover from pistol grip models.

3. Remove the Motor Clamp Washer (16 or 32) and the Handle or Housing Cover Gasket (15 or 31).

NOTICE

In the following step, make certain the Reverse Lever for 1712B2 models is in the center position to avoid jamming the Reverse Lock Plunger (29) when the Reverse Valve Assembly (31) is removed.

4. **For Model 1712B2,** move the Reverse Lever (28) to the center position and using a drift pin to push from below, grasp the Lever and lift the Reverse Valve Assembly out of the Housing.
   For Model 1712P2, grasp the Reverse Lever (17) and withdraw the Reverse Valve Assembly (15) from the Reverse Valve Bushing (14).
5. **For Model 1712B2,** pull the Reverse Lever off the Reverse Valve and remove the Reverse Valve Bushing Seal (32).
6. **For Model 1712B2,** using needle nose pliers, remove the Reverse Lock Plunger (29) and Reverse Lock Plunger Spring (30) from the Motor Housing.
7. **For Model 1712P2,** tap out the Power Regulator Retaining Ball (22) to release the Power Regulator Assembly (20).

Disassembly of the Motor

1. Remove the assembled motor from the vise jaws and using a plastic hammer, tap the splined shaft of the Rotor (19 or 37) to dislodge the Rotor from the Front Rotor Bearing (23 or 40).
2. Lift the Motor Housing (25 or 1) off the Rotor, Rear End Plate (17 or 36) and Rear Rotor Bearing (18 or 35) which will remain together as a unit.
3. Remove the six Vanes (20 or 38) from the Rotor.
4. Pull the Rear End Plate off the Rotor.
5. Open a set of vise jaws wide enough to clear the hub of the Rear End Plate and sharply rap the hub end of the End Plate on the top of the jaws to dislodge the Rear Rotor Bearing.
6. Remove the Cylinder Dowel (24 or 34) and lay the Motor Housing on top of the vise jaws with the Front Rotor Bearing (23 or 35) downward between the jaws. Using a soft drift pin, tap the Bearing out of the Housing.
7. To remove the Cylinder (21 or 33) and Front End Plate (22 or 39), thread four 1/4”–20 thread socket head cap screws that are at least 3” (75 mm) long into the handle or cover end of the Housing. Grasping the Housing with the installed screws downward, sharply strike the heads of the screws on a sturdy table to dislodge the Cylinder. The Cylinder should drop out of the Housing after a few impacts. If it does not, proceed as follows:

⚠ WARNING

The following procedure requires the use of heat. Take all precautions necessary to prevent being burned.

   a. Carefully heat alternate sides of the Housing until it is very warm.
   b. Using thick, heavy heavy gloves to avoid being burned, grasp the Housing and repeat the attempt to dislodge the Cylinder.
8. Remove the two Air Port Gaskets (27 or 6) and Air Port Gasket Retainers (27A or 7) from the Housing.

Disassembly of the Model 1712B2 Handle

1. Clamp the Trigger Handle Assembly (1) in leather–covered or copper–covered vise jaws with the Straight Inlet (11) upward
2. Using a wrench, unscrew and remove the Inlet as well as the Air Strainer Screen (12) and Throttle Valve Spring (10).
3. Remove the Throttle Valve Assembly (8) and Throttle Valve Plunger (7) from the Handle.
4. If the Trigger (5) must be removed, use an arbor press to push the Trigger Pin (6) from the Handle and slide the Trigger out of the slot in the Handle.

Disassembly of the Model 1712P2 Throttle Mechanism

1. Using a wrench, unscrew and remove the Straight Inlet (13) as well as the Air Strainer Screen (12) and Throttle Valve Spring (11) from the Motor Housing (1).
2. Remove the Throttle Valve Assembly (8) and Throttle Valve Plunger (10) from the Housing.

NOTICE

The Trigger (2) is under tension from the Trigger Spring (3) and will eject from the Housing if not properly restrained.

3. With the Trigger aimed at a cardboard box or restraining cloth, use a pin punch and hammer to tap the Trigger Pin (4) out of the Housing. Remove the Trigger Spring and Trigger Bushing 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 members 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 Model 1712P2 Throttle Mechanism

1. If the Trigger Bushing (5) was removed, align the trigger pin hole in the Bushing with the hole in the handle of the Motor Housing (1) and press the Bushing into the Housing.
2. Place the Trigger Spring (3) on the shaft of the Trigger (2).
3. With the bevel on the Trigger facing down the handle, push the assembled Trigger and Spring into the Bushing, aligning the slot in the Trigger with the retaining pin hole in the handle.
4. Press the Trigger Pin (4) into the handle capturing the Trigger and Spring.
5. Install the Throttle Valve Face (9) in the groove on the Throttle Valve (8).
6. Insert the Throttle Valve Plunger (10) followed by the Throttle Valve Assembly, hub end trailing, into the handle.
7. Install the Throttle Valve Spring (11), small end leading, on the hub of the Throttle Valve inside the handle.
8. Place the Air Strainer Screen (12), closed end leading, into the Valve Spring and install the Straight Inlet (13) in the handle against the Screen. Tighten the Inlet between 20 and 25 ft–lb (27 and 34 Nm) torque.

Assembly of the Model 1712B2 Handle

1. Position the Trigger (5) in the slot in the Handle (1) and using an arbor press, press the Trigger Pin (6) full length into the Handle so that it captures the Trigger.
2. Clamp the Handle in leather–covered or copper–covered vise jaws with the air inlet opening upward.
3. Coat the Throttle Valve Plunger (7) with oil and insert it, round end leading, into the inlet hole in the Handle.
4. Install a new Throttle Valve Face (9) on the Throttle Valve (8) and insert the assembly, Valve Face Leading, into the inlet hole in the Handle.
5. Encircle the cone end of the Air Strainer Screen (12) with the large end of the Throttle Valve Spring (10) and insert both parts, Spring leading, into the inlet hole in the Handle.
6. Install the Straight Inlet (11) over the Strainer Screen in the Handle and tighten the Inlet between 20 an 25 ft–lb (27 and 34 Nm) torque.
7. Remove the Handle from the vise and test the Trigger. If the Trigger functions properly, place the assembled Handle aside. If it does not function properly, disassemble the Handle to determine the cause of the problem.

Assembly of the Motor

1. Press the Front Rotor Bearing (23 or 40) into the recess at the hammer case end of the Motor Housing (25 or 1).
2. Slide the Front End Plate (22 or 39), bronze face first, over the spline hub of the Rotor (19 or 37).
3. Stand the assembled Rotor and End Plate upright, grasping the rotor spline with leather–covered or copper–covered vise jaws.
4. Place a Vane (20 or 38) in each slot in the Rotor.
5. Slide the Cylinder (21 or 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 (18 or 35), press the Bearing into the Rear End Plate (17 or 36).
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.

NOTICE

Excessive clamping pressure will distort the Motor Housing and make motor installation extremely difficult. Do not insert the hammer case end of the Motor Housing more than 1” (25 mm) into the vise jaws.

8. Lightly clamp the Motor Housing in leather–covered or copper–covered vise jaws with the motor bore upward.
9. Lubricate and install a new fiber Air Port Gasket Retainer (27A or 7) into each of the air ports inside the Motor Housing.

10. Install an Air Port Gasket (27 or 6) into each opening against the Retainer with the flat end of the Gasket away from the Retainer.
11. Using an assembly rod that is approximately 3/16" diameter x 8" long (5 mm diameter x 203 mm long), insert the rod through cylinder dowel holes in the End Plates and Cylinder to align the components. Allow the rod to protrude through the Front End Plate far enough to enter the dowel hole in the bottom of the motor bore.
12. Insert the rod into the motor housing dowel hole and slide the assembled motor along the rod into the Motor Housing. The assembly will be at the proper depth when the Rear End Plate is slightly below the face of the Motor Housing. Remove the assembly rod and insert the Cylinder Dowel (24 or 34) into the assembly.
13. Place the Motor Clamp Washer (16 or 32), 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 for Model 1712B2

1. Inject a small amount of grease into the hole in the Motor Housing (25) where the Reverse Lock Plunger (29) will be installed. With the grease to hold them in position, install the Reverse Lock Plunger Spring (30) and Lock Plunger in the hole.
2. Install a new Valve Seal (32) in the annular groove groove on the Reverse Valve (31).
3. Coat the Reverse Valve with a light film of oil and install it in the Motor Housing with the side hole nearest to the Seal pointed toward the Rotor (19).
4. Position the Reverse Lever (28) on the Reverse Valve and using a thin blade screwdriver to depress The Reverse Lock Plunger, push the Lever onto the Reverse Valve.
5. Place a new Handle Gasket (15) on the Motor Housing.
6. Examine the Reverse Valve Seal (13) located inside the Handle (1) and if it is nicked, deformed or worn, remove it and install a new Seal.
7. Fill the rotor cavity in the Handle with the recommended grease and position the Handle on the Motor Housing.
8. Install the four Handle Cap Screws (38) and Lock Washers (39) and using an alternate tightening pattern, tighten the Screws between 10 and 12 ft–lb (13.5 and 16.3 Nm) torque.
9. Move the Reverse Lever through the forward and reverse positions to make certain the Lever locks in position.
10. Rotate the rotor shaft. If the shaft does not rotate freely, rap the end of the rotor shaft with a soft hammer to set the motor and try to rotate the shaft again. If the shaft will not rotate smoothly after several tries, disassemble the motor, locate the binding problem and reassemble the motor as instructed.

Assembly of the Reverse Valve for Model 1712P2

1. Dampen the Reverse Valve Seal (16) and Power Regulator Seal (21) with O–ring lubricant and install the Seals in their respective grooves on the Reverse Valve Assembly (15) and Power Regulator assembly (20).
2. Slide the Reverse Valve Assembly into the Reverse Valve Bushing (14), large end first, so that the groove on the trailing end of the Valve is upward.
3. Slide the Power Regulator Assembly into the Reverse Valve Assembly, flat end first, and position it so that the groove on the trailing end of the Regulator is aligned with the small hole in the Reverse Valve Assembly.
4. Place the Power Regulator Retaining Ball (22) in the small hole in the Reverse Valve Assembly, making certain that it engages the groove in the Power Regulator Assembly.
5. Aligning the flats on the Reverse Lever (17) with those on the Reverse Valve Assembly, slide the Reverse Lever onto the Reverse Valve Assembly so that the tang on the Lever is pointing downward, parallel with the Handle.
6. Place the Housing Cover Gasket (31) on the Motor Housing.
7. Inject a small amount of grease into the hole in the Housing Cover (25) where the Reverse Lock Plunger (18) will be installed. With the grease to hold them in position, install the Reverse Lock Spring (19) and Lock Plunger in the hole.
8. Fill the rotor cavity in the Housing Cover with the recommended grease and position the Cover on the Motor Housing.
9. Install the four Housing Cover Cap Screws (24) and Lock Washers (23) and using an alternate tightening pattern, tighten the Screws between 10 and 12 ft–lb (13.5 and 16.3 Nm) torque.
10. Move the Reverse Lever through the forward and reverse positions to make certain the Lever locks in position.
11. Rotate the rotor shaft. If the shaft does not rotate freely, rap the end of the rotor shaft with a soft hammer to set the motor and try to rotate the shaft again. If the shaft will not rotate smoothly after several tries, disassemble the motor, locate the binding problem and reassemble the motor as instructed.

Assembly of the Impact Mechanism

1. Coat the Hammer (42 or 47) with Ingersoll–Rand No. 100 Grease.
2. Position the Hammer inside the Hammer Frame (40 or 45) and install the two Hammer Pins (41 or 46).
3. Install the Anvil (46 or 48) through the Frame and Hammer until it bottoms on the lower part of the Frame.
4. Set the assembled hammer mechanism onto the rotor shaft spline.
5. Place the Hammer Case Gasket (35 or 41) over the mechanism against the face of the Motor Housing (25 or 1).
6. Grease the Anvil and top of the Hammer Frame.
7. Place the Hammer Case Assembly (33 or 51) over the mechanism assembly against the Gasket. Make certain the Hammer Case Label is at the top of the tool.
8. Assemble the Side Spade Handle (43 or 42) to the Side Spade Handle Bracket (45A or 44A). Insert two Hammer Case Cap Screws (36 or 54) with Lock Washers (37 or 53) through the Bracket and install the two Side Spade Handle Bracket Spacers (45B or 44B) on the Screws. Position the assembly against the Hammer Case and loosely thread the Screws into the Housing.
9. Thread the remaining two Cap Screws and Lock Washers into the Housing and using an alternating pattern for all four fasteners, tighten the Screws between 20 and 25 ft–lb (27 and 34 Nm) torque.
10. **For Model 1712B2,** place the Exhaust Deflector (54) against the Housing and secure it by installing the two Exhaust Deflector Screws (55).

TROUBLESHOOTING GUIDE

Trouble	Probable Cause	Solution
Low power	Dirty Air Strainer and/or clogged Exhaust Silencer	Remove the Air Strainer Screen and Exhaust Silencer and clean using a suitable cleaning solution.
	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. Assemble the tool and inject 3 cc of recommended oil into Inlet and run tool to lubricate internal parts.
	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 Assembly 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.

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