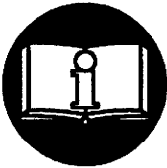
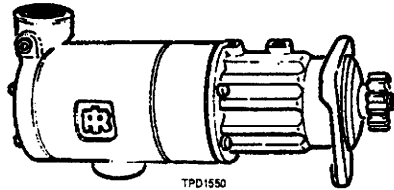


MODELS SS350GB20R83-32GF and SS350GE20R83-32GF STARTERS



⚠ WARNING

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

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- For safety, top performance, and maximum durability of parts, do not operate SS350 Starters at air pressures over the pressure rating stamped on the nameplate. Use supply lines of adequate size.
- Always turn off the air and gas supply and disconnect the air and gas supply hose before installing, removing or adjusting any accessory on this starter, or before performing any maintenance on this starter.
- SS350 Starters are designed for gas operation. They are not totally sealed in dynamic operation since the exhaust must be vented or piped away and there is a possibility of leakage around the output shaft when rotating.
- Caution should be taken when operating these starters on gas because of the danger of fire, explosion or inhalation. After assembling a SS350 Starter, always test it in accordance with the procedures outlined in this manual. Never install a reassembled starter that has not been tested in accordance with the procedures in this manual.
- Operate this starter only when properly installed on the engine.
- Do not lubricate starters with flammable or volatile liquids such as kerosene or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Use accessories recommended by Ingersoll-Rand.

NOTICE

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

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


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


It is the responsibility of the employer to place the information in this manual into the hands of the operator.

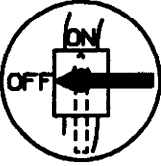
WARNING LABEL IDENTIFICATION


⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

	⚠ WARNING
	Always wear eye protection when operating or performing maintenance on this starter.

	⚠ WARNING
	Always wear hearing protection when operating this starter.

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

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

TESTING THE STARTER

1. Turn the Drive Pinion (46) by hand in the direction of Starter rotation. The clutch should ratchet smoothly with a slight “clicking” action.

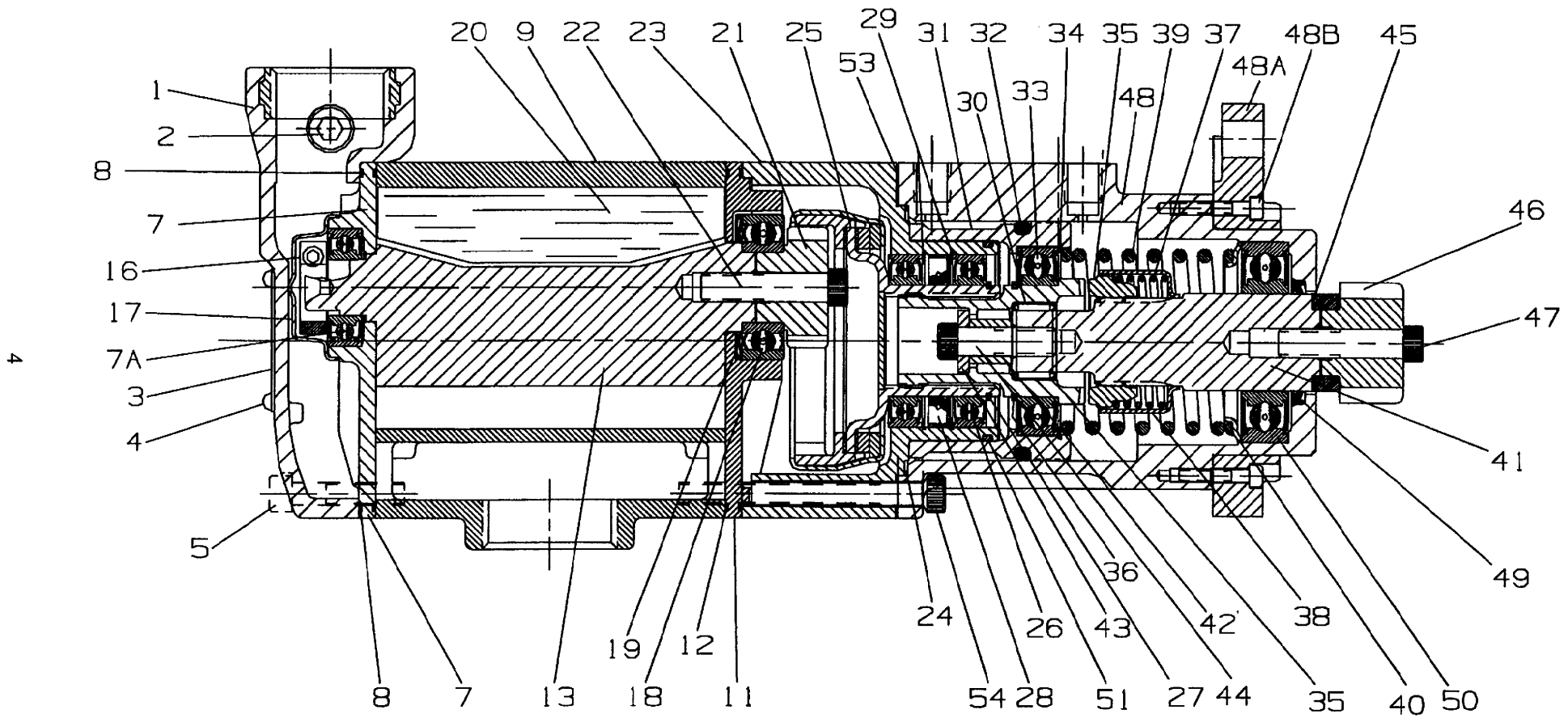
NOTICE

Proper Starter rotation is indicated when facing the Drive Pinion. That is, a Starter having the letter “R” in the model number is designated as a right-hand rotation model, and the Drive Pinion will rotate clockwise when facing the Drive Pinion.

2. Turn the Drive Pinion in the opposite direction of Starter rotation. The gearing and motor should rotate freely with no binding.
3. Attach an air hose to the “IN” port on the Drive Housing (48) and apply 50 psig (3.4 bar/345 kPa) air pressure. The Drive Pinion should move outward and air should escape from the “OUT” port.
4. Plug the “OUT” port and apply 150 psig (10.3 bar/1034 kPa) air pressure to the “IN” port. Check to make certain no air is escaping. Measure the distance from the face of the Drive Pinion farthest from the mounting flange to the machined face of the mounting flange. It should be 2.75” (70.0 mm ± 1.5 mm). With the air pressure on and the Drive Shaft extended, push the Drive Pinion toward the Drive Housing until the Pinion rotates slightly and comes to a solid stop. While holding the Drive Pinion against the stop, measure again the distance from the face of the Drive Pinion to the machined face of the mounting flange. The difference between the two measurements must be .47” (12.0 mm ± 0.9 mm). Remove the pressure from the “IN” port and measure again the distance from the face of the Drive Pinion to the machined face of the mounting flange. It should be 1.82” (46.2 mm ± 1.5 mm).
5. Attach a 3/8” (9 mm) air hose to the inlet of the motor and apply 90 psig (6.2 bar/620 kPa) air pressure. The Starter motor should run smoothly.
6. Plug the exhaust port and apply 30 psig (2.1 bar/207 kPa) air pressure to the inlet of the motor. Immerse the Starter for thirty seconds in a non-flammable solvent. If the Starter is properly sealed, no bubbles will appear.

NOTICE

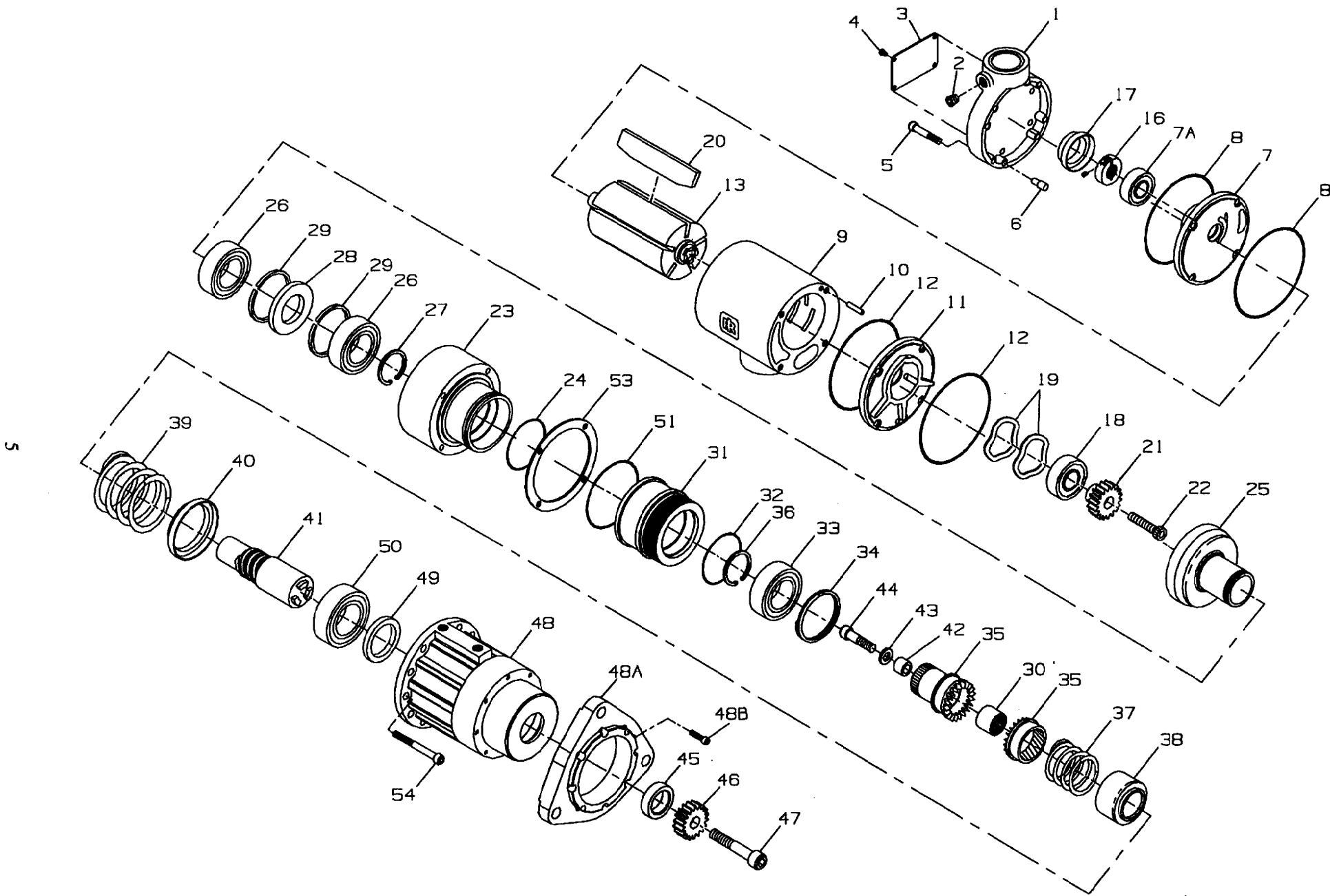
For detailed information on installation and maintenance for this starter, refer to Form P6633.



MAINTENANCE SECTION

(Dwg. TPA1401)

MAINTENANCE SECTION



(Dwg. TPA1397)

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Motor Housing Cover Assembly	SS350-A102	22	Rotor Pinion Retaining Screw	
2	3/8" Pipe Plug (2)	HSPPS-3		for B ratio	SS350B-732
3	Nameplate	SS800-301		for E ratio	SS350E-732
4	Nameplate Screw (4)	R4K-302	23	Gear Case	SS350-37-03
5	Motor Housing Cover Cap Screw (4)	SS350-25	◆ 24	Gear Case O-ring	SS350-151
6	Bolt Hole Plug (4)	SS350-103	25	Drive Gear	
7	Rear End Plate			for B ratio	SS350B-9
	(includes Rear Rotor Bearing)			for E ratio	SS350E-9
	for right-hand rotation Models	SS350R-12	26	Drive Gear Bearing (2)	SS350-359
	for left-hand rotation Models	SS350L-12	◆ 27	Bearing Retaining Ring	SS350-109
7A	Rear Rotor Bearing	SS350-24	◆ 28	Gear Case Seal	SS350-272
◆ 8	End Plate O-ring (2)	SS350-67	29	Gear Case Seal Retaining Ring (2)	SS350-270
9	Cylinder Housing Kit	SS350-K3	30	Needle Bearing	SS350-278
10	Cylinder Dowel (4)	SS350-98	31	Piston Kit	SS350-K703
11	Front End Plate	SS350-11	◆ 32	Piston O-ring	SS350-337
◆ 12	End Plate O-ring (2)	SS350-67	33	Piston Bearing	SS350-339
13	Rotor	SS350-53A	34	Piston Bearing Retaining Ring	SS350-107
16	Rear Rotor Bearing Retaining Nut	SS350-65	35	Clutch Jaw Kit	
17	Retaining Nut Cover	SS350-64		(includes both jaws and Bearing)	SS350R-K587
◆ 18	Front Rotor Bearing	AM-318	◆ 36	Clutch Jaw Retaining Ring	SS350-109
19	Front Rotor Bearing Wave Washer (2)	SS350-224	37	Clutch Spring	SS350R-583
◆ 20	Vane Packet (set of 5 Vanes)	SS350-42-5	38	Clutch Spring Cup	SS350-367A
21	Rotor Pinion		39	Piston Return Spring	SS350-700
	for B ratio	SS350B-17	40	Return Spring Seat	SS350-191
	for E ratio	SS350E-17	41	Drive Shaft	SS350R-8

◆ Indicates Tune-up Kit part.

PART NUMBER FOR ORDERING



PART NUMBER FOR ORDERING



42	Drive Shaft Spacer	SS350-180	◆	49	Drive Housing Seal	SS350-271
43	Drive Shaft Washer	SS350-177		50	Drive Housing Bearing	SS350-363
44	Drive Shaft Cap Screw	SS350-179	◆	51	Drive Housing O-ring	SS350-243
45	Drive Shaft Collar	SS350-175	◆	53	Drive Housing Gasket	SS350-245
46	Drive Pinion	SS350R-13-83		54	Drive Housing Cap Screw (4)	SS350-744
47	Drive Pinion Retaining Screw	SS350-394	*	Tune-up Kit (includes illustrated parts 8 [2], 12 [2], 18, 20, 24, 27, 28, 32, 36, 49, 51 and 53)		
48	Drive Housing Assembly	SS350A-300				SS350-TK2
48A	Flange	SS175-301-20				
48B	Screw (8)	AL-636				

* Not illustrated.

◆ Indicates Tune-up Kit part.

MAINTENANCE SECTION

