



Form P6513
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Starter Relay Valve

SRV Series

User Manual



Save These Instructions



Product Description

This product is a non-regulating, pneumatically-operated, relay valve designed to provide control over fluid flow to the starter motor in an air starter-based, internal combustion engine starting system.



General Product Safety Information

- **Read and understand this manual before operating this product.**
 - **It is your responsibility to make this safety information available to others that will operate this product.**
 - **Failure to observe the following warnings could result in injury.**
 - **Always install, operate, inspect and maintain this product in accordance with all applicable standards and regulations (local, state, country, federal, etc.).**
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Product Safety Information

- This Starter Relay Valve is designed by **Ingersoll Rand** specifically for use on Air Starter installations. Any other use may result in injury or equipment damage.
 - Only use this Starter Relay Valve at or below 225 psig (15.5 bar/1550 kPa) maximum pressure, unless otherwise labeled. Higher pressure may result in hazardous situations including rupture of the Starter Relay Valve and associated hardware.
 - To use this Starter Relay Valve at a pressure of 225 psig (15.5 bar/1550 kPa), all associated pipe, hose and fittings must be rated at 225 psig or more. Some IR models are sold with lower pressure ratings due to associated piping.
 - Do not use this Starter Relay Valve with any corrosive gas or with any liquid.
 - Except for SRV100, SRV125, SRV150 and SRV150SS, the Starter Relay Valve was designed for use with compressed air only. Only those models may be used with natural gas.
 - Always shut-off the air supply to the Starter Relay Valve, and bleed off any residual pressure, before performing any maintenance on the Starter Relay Valve.
 - Never remove the Retaining Ring from the Starter Relay Valve unless all pressure has been bled off. Internal parts will be forcefully ejected if Retaining Ring is removed while pressurized.
 - Always wear eye protection when performing any maintenance on this Starter Relay Valve.
 - Do not remove any labels. Replace any damaged label.
 - Never use a damaged or malfunctioning Starter Relay Valve.
 - Do not modify the Starter Relay Valve.
 - Do not use this Starter Relay Valve for purposes other than those recommended.
 - Be sure all hoses & fittings are the correct size & are tightly secured.
 - Do not use damaged, frayed or deteriorated air hoses & fittings.
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Safety Symbol Identification



Read Manuals Before Operating Product



This warning applies to all Starter Relay Valves except SRV100, SRV125, SRV150 and SRV150SS.

Safety Information - Explanation of Safety Signal Words

**DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION**

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

NOTICE

Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

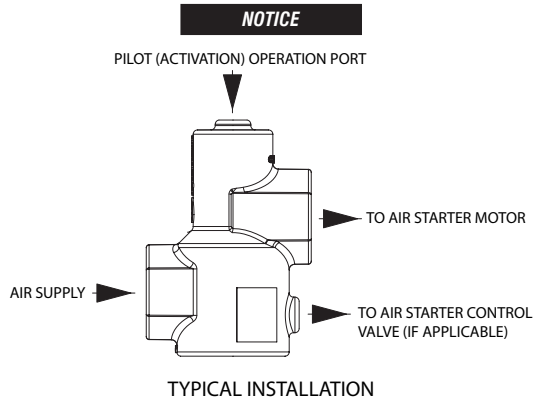
Product Parts Information

⚠ CAUTION

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

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

Placing the Starter Relay Valve in Service



(Dwg. 45508561)

This Starter Relay Valve is specially designed and manufactured by Ingersoll Rand for use on Starter installations. Install it in accordance with the following instructions.

Pre-Installation

1. Clean the air line, O-ring groove and sealing surfaces to be sure they are free of foreign material.
2. Ensure that enough space is left for removal and service of this valve.
3. Ensure that the air line is suitably aligned and supported to avoid strained joints.
4. Do not over tighten the air line connections.
5. Starter Relay Valves that have a small drain hole above the "OUT" connection (including SRV125T, SRV150T, SRV150T-LT and SRV150SST-LT) are to be installed with the drain hole down.

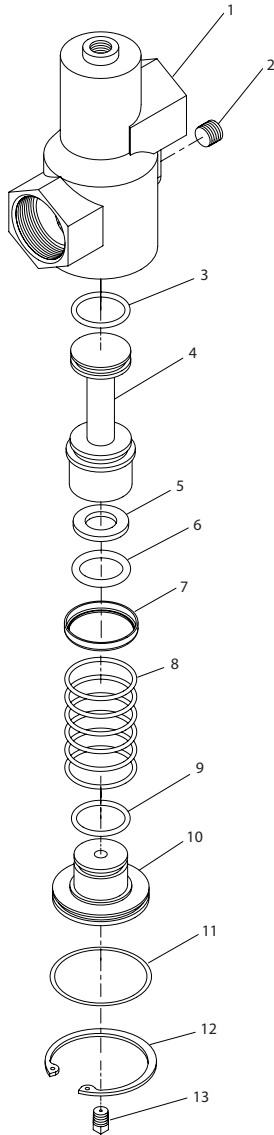
Installation of the Starter Relay Valve (threaded connections)

1. Use a short pipe nipple between the supply line and the Starter Relay Valve. The nipple should be the same size as the inlet of the Starter Relay Valve.
2. Apply No. SMB-441 **Ingersoll Rand Sealant** to the male thread on the nipple, and install the nipple on the supply line. Tighten the connection so that it is airtight.
3. Note that one of the tapped inlets on the Starter Relay Valve is marked "IN". Thread this inlet onto the nipple and tighten the connection so that it is airtight.
4. Apply **Ingersoll Rand Sealant** to the male threads on the air line that goes to the Starter, and thread this line into the tapped outlet on the Starter Relay Valve that is marked "OUT". Make certain the connection is airtight.
5. Attach the hose from the outlet side of a 3-way normally vented Control Valve to the small tapped hole in the top of the Starter Relay Valve. Use **Ingersoll Rand Sealant** on the male thread.

Installation of the Starter Relay Valve (flange connections)

1. Place the O-ring supplied with the flange fitting into the groove on the Starter Relay Valve.
2. Mount the Starter Relay Valve to the tank using ST500-K166 Flange Assembly. The air flow arrow must point toward the starter.
3. Check the O-ring to see that it properly seated in the groove to prevent cutting.
4. Push the two clamp halves inward as far as they will go.
5. Tighten the four flange bolts in an alternating pattern to 35-45 ft-lbs (47-61Nm) torque.
6. Attach the air hose from the outlet side of a 3-way normally vented Control Valve to the small tapped hole in the top of the Starter Relay Valve. Use SMB-441 **Ingersoll Rand Sealant** on the male thread.

Starter Relay Valve Exploded View



(Dwg. TPD1731)

Starter Relay Valve Parts List

| Item | Part Description | Part Number | | | |
|------|-------------------------------------|------------------------|-------------------------------|---|--|
| | | Aluminum Models | SRV150SS (Stainless Steel) | SRV150T-LT (Low Temperature Aluminum) | SRV150SST-LT (Low Temperature Stainless Steel) |
| 1 | Valve Housing | | SRV150SS-40 | 45504404 | 45504362 |
| | | for SRV100 SRV100-40 | - | - | - |
| | | for SRV125 SRV125-40 | - | - | - |
| | | for SRV125F SRV125F-40 | - | - | - |
| | | for SRV125T 04333639 | - | - | - |
| | | for SRV150 SRV150-40 | - | - | - |
| | | for SRV150T SRV150T-40 | - | - | - |
| 2 | Pipe Plug | HSPPS-2 | HSPPS-2 | HSPPS-2 | HSPPS-2 |
| 3 | Upper Piston O-ring | * SRV150-210 | * SRV150-210 | ** 45504305 | ** 45504305 |
| 4 | Piston | SRV150-246 | 04555900 | 45504388 | 45504289 |
| 5 | Bumper | * SRV150-339 | * SRV150-339 | ** 45504321 | ** 45504321 |
| 6 | Piston O-ring | * SRV150-211 | * SRV150-211 | ** 45504313 | ** 45504313 |
| 7 | O-ring Retainer | * SRV150-33 | * SRV150-33 | ** SRV150-33 | ** SRV150-33 |
| 8 | Spring | SRV150-250 | SRV150-250 | SRV150-250 | SRV150-250 |
| 9 | End Plug O-ring | * SRV150-67 | * SRV150-67 | ** 45504347 | ** 45504347 |
| 10 | End Plug | SRV150-338 | SRV150SS-338 | 45504396 | 45504354 |
| 11 | End Plug Seal O-ring | * SRV150-604 | * SRV150-604 | ** 45504339 | ** 45504339 |
| 12 | Retaining Ring | * SRV150-340 | * SRV150-340 | ** SRV150-340 | ** SRV150-340 |
| 13 | Pipe Plug | - | SRV150-368 | - | SRV150-368 |
| 14 | Warning Label "not for natural gas" | - | - | 04333274 | 04333274 |
| | | for SRV125F 04333274 | - | - | - |
| | | for SRV125T 04333274 | - | - | - |
| | | for SRV150T 04333274 | - | - | - |

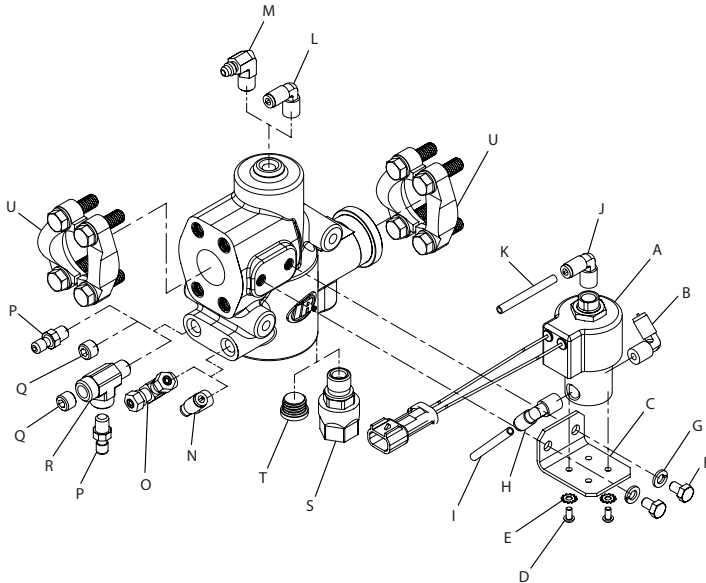
* Indicates part in Tune-Up Kit SRV150-TK3

** Indicates part in Tune-Up Kit SRV150-LT-TK1

NOTICE

Tune-up Kits are available for maintaining the Starter Relay Valve. Those Tune-up Kits include all O-rings (3, 6, 9, 11), Bumper (5), O-ring Retainer (7), End Plug Retaining Ring (12) and SRV-GR55 Grease.

Optional Equipment for SRV125F



(Dwg. TP2212)

| Item | Part Description | Part Number | Item | Part Description | Part Number |
|--|---|---|---|--------------------------------|---------------|
| Solenoid and Mounting Hardware - Position 1 | | | Pilot Port Hardware - Position 2 | | |
| A | Solenoid 12 Volt Pioneer Connections 12 Volt, Wire Leads 12 Volt, Wire Leads | 150BMP-A1051C 150BMP-1051B 150BMP-2451B | L | 90° Elbow with Push to Lock | EL90-4M4DOT |
| B | 90° Elbow with Push to Lock | EL90-4M4DOT | M | 90° Elbow with JIC 37° | EL90-4M437M |
| C | Solenoid Mounting Bracket | 150TMP-2451 | Left and Right Live Air Port hardware - Position 3 and 4 | | |
| D | Solenoid Mounting Screw (2) | Y133-105C | N | 90° Elbow with Push to Lock | EL90-4M4DOT |
| E | Solenoid Mounting Screw Washer (2) | Y117-110 | O | T Connection with Push to Lock | 150TMP-MRT4M4 |
| F | Solenoid Mounting Bracket Screw (2) | 150TMP-128 | P | Schrader Valve | 04333654 |
| G | Solenoid Mounting Bracket Washer (2) | Y14-516C | Q | 1/4" Pipe Plug | H5PPS-2 |
| H | 90° Elbow with Push to Lock | EL90-4M4DOT | R | T Fitting with 1/4" NPT | SRV125F-188 |
| I | Connection Hose | 150TMP-125 | + | Pressure Gauge | SRV125F-1064 |
| J | 90° Elbow with Push to Lock | EL90-4M4DOT | Secondary Inlet Port Hardware - Position 5 | | |
| K | Connection Hose | 150TMP-125 | S | Check Valve | ST400-1056 |
| | | | T | Plug | SRV125F-34 |
| | | | U | 1-1/4" Flange Kit | ST500-K166 |

(+) Items Not Shown

For Position Coding information refer to Drawing 10554749

WARNING

Always wear eye protection when performing maintenance on the Starter Relay Valve. Always bleed off the pressure before performing any maintenance on the Starter Relay Valve.

Installation of the Tune-up Kit

Disassembly of the Starter Relay Valve

1. Bleed off the pressure.
2. Clamp the Relay Valve in a vise with the Retaining Ring (12) up.
3. Carefully remove the Retaining Ring. The End Plug (10) should spring out. If it does not, tap the Valve Housing (1) lightly with a soft hammer until the End Plug springs out.
4. Remove the End Plug, Spring (8), and Piston Assembly (4).
5. Remove and discard all used O-rings and Bumper (5).
6. Clean all other parts in a clean, suitable cleaning solution in a well ventilated area.

Assembly of the Starter Relay Valve

1. Using O-ring lubricant, lubricate and install the new Piston O-ring (6) and the new Upper Piston O-ring (3) on the Piston.

NOTICE

The Upper Piston O-ring (3) is slightly larger in diameter than the End Plug O-ring (9).

2. Turn the Piston over and insert the new Bumper (5).
3. Using O-ring lubricant, lubricate and install the new End Plug Seal O-ring (11) and the new End Plug O-ring (9) on the End Plug (10).
4. Lubricate the lower small bore of the Valve Housing (1) with O-ring lubricant.
5. Insert the Piston Assembly into the Valve Housing. Push on the Piston until the Piston O-ring (6) seats against the beveled face.
6. Install the O-ring Retainer (7) with the large opening over the Piston O-ring.
7. Place the Piston Spring (8) on the Piston.
8. Place the End Plug Assembly on the Piston Spring.
9. Using a press to hold down the End Plug Assembly, install the End Plug Retaining Ring (12).

General Information

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

The original language of this manual is English.

Manuals can be downloaded from www.irtools.com.

Refer all communications to the nearest **Ingersoll Rand** office or distributor.

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