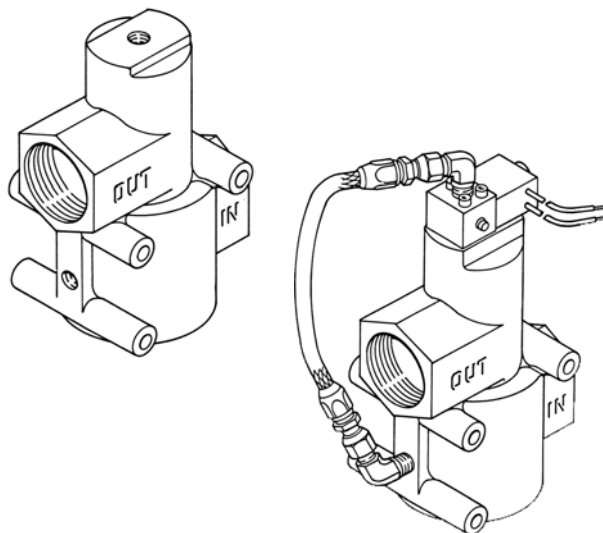


OPERATING & SERVICE MANUAL



TURBOVALVE

TABLE OF CONTENTS

SECTION	SUBJECT	PAGE
1.0	General Information.....	1
2.0	<i>TURBOVALVE</i> Operation.....	1
3.0	<i>TURBOVALVE</i> Installation.....	2
4.0	<i>TURBOVALVE</i> Disassembly.....	2
5.0	<i>TURBOVALVE</i> Assembly.....	3
6.0	Disassembly/Assembly (Electrical).....	3

LIST OF ILLUSTRATIONS

FIGURES	TITLE	PAGE
1	<i>TURBOVALVE</i> (Pneumatically Controlled).....	1
2	<i>TURBOVALVE</i> (Electrically Controlled).....	2
3	Opening Pressure vs. Supply.....	2
4	Piston Removal.....	3
5	<i>TURBOVALVE</i> Dimensional Data.....	4
6	T30-I Installation Diagram (Electrical).....	5
7	T50-P Installation Diagram.....	6
8	T100 Series Installation Diagram.....	7
9	T100-V Installation Diagram.....	8
10	<i>TURBOVALVE</i> (Pneumatically Controlled).....	10
11	<i>TURBOVALVE</i> (Electrically Controlled).....	12

1.0 GENERAL INFORMATION

The TDI **TURBOVALVE** is a versatile starting air or control relay valve available in a pilot operated version or with an integrated solenoid that eliminates extra plumbing. Its high flow capacity reduces pressure drop through the valve, providing for a broad range of applications.

An auxiliary port provides a convenient point for accessing the pressure at the supply (IN port) ... using it for indication, control or pilot actuation.

FEATURES

- Low pressure pilot
- Optional integrated solenoid versions
- 450 psig Rating (Pneumatically controlled version only)
- High flow capacity
- Replaceable O-Rings
- 1-1/4" or 1-1/2" pipe sizes
- 3-Point mounting for secure attachment
- Replaces Sealco (P/N: 10900, 11900, 14900, and 110250) and Ingersoll-Rand (P/N:SRV125 and SRV150) relay valves

SPECIFICATIONS

- Valve Housing: Aluminum (Nickel plated for corrosion resistance).
- Internal Parts: Aluminum
- O-Rings: VITON or Buna N
- Operating Temperature: -20 to 200°F (-29° to 93°C)
- Valve Working Pressure Rating: 450 psig (31 Bar) (Pneumatically controlled version only)
- Weight: 2.9 pounds (1.3 kg)
- Optional Solenoid Voltages: 12, 24, 48, 110 VDC/120 or VAC/60 Hz
- Cv = 41

2.0 OPERATION

2.1 Pneumatically controlled **TURBOVALVE**

- a. Air is supplied to the Applied Pressure Port (APP), which forces the piston to the open position. The pressure required to open the relay valve is based on the supply pressure. See figure 3.
- b. The main ports (IN and OUT) open to allow flow through the valve.
- c. When the pilot pressure is released, the spring allows the piston to retract, closing the main port.

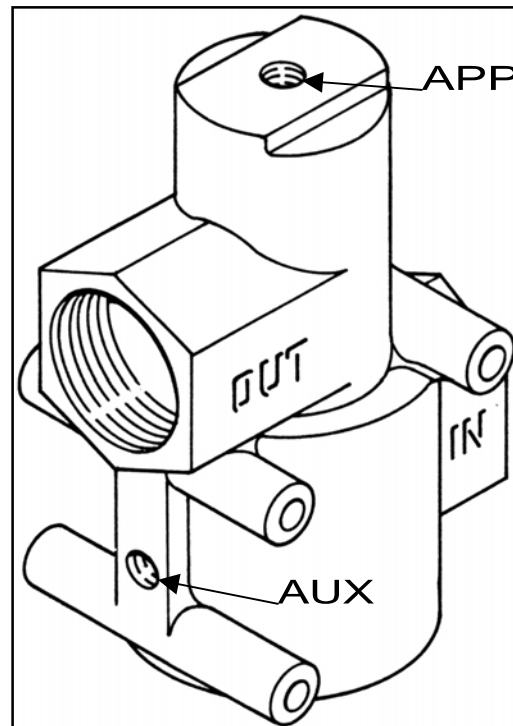


Figure 1. TurboValve-Pneumatically Controlled

2.2 Electrically controlled **TURBOVALVE**

- a. Electricity is applied to the solenoid valve allowing air to access the relay valve via the APP.

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- b. The main ports (IN and OUT) are opened to allow flow through the valve.
- c. When the start button is released, the electric solenoid vents, allowing the relay valve piston to retract, closing the main port.

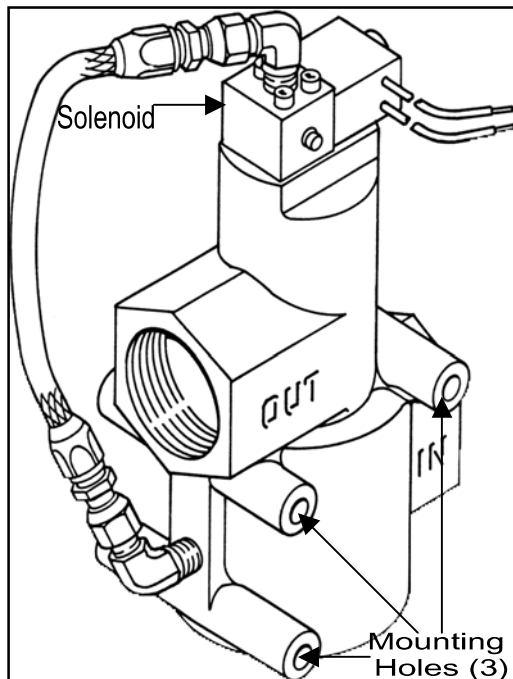


Figure 2. TurboValve-Electrically Controlled

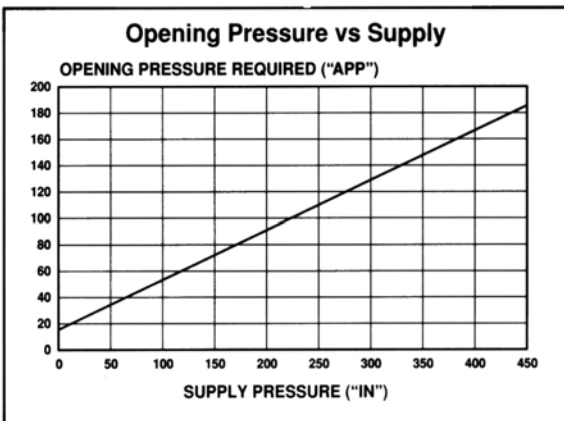


Figure 3. Opening Pressure vs. Supply

3.0 INSTALLATION

The valve may be mounted in any position using the three holes located

on the relay valve body as shown in figure 2. The air to the Applied Pressure Port (APP) should be clean and dry. Connection piping to the APP and IN ports should be cleaned to remove excess thread sealant, chips, and other foreign matter that could get trapped in the valve or the pilot chamber and cause seals to fail.

The TURBOVALVE may be ordered using the full description as shown or by specifying a Part Number using the Model Code System. Example: the Part Number for a standard pneumatic valve with a 1-1/2\" NPT threads and Buna N O-Ring is RLVA-25683-001-1-01. (Please Note: TDI RLVA-25683-001-2-00 replaces TDI 42-23356, and TDI RLVA-25683-001-1-01 replaces TDI 52-93503.)

4.0 DISASSEMBLY

WARNING

Never attempt to remove the starter relay valve or retainer snap-ring from bottom side of valve until the air pressure has been bled off. Failure to do this could result in internal parts being blown out with considerable force.

Carefully remove retaining ring (11) from relay valve housing (1).

Remove end cap (9), spring (7), and piston (4) from relay valve housing.

WARNING

If necessary, apply low pressure air to the relay valve APP to disengage the piston from valve housing. The aft end of valve must be positioned toward workbench surface to block piston as shown in figure 4.

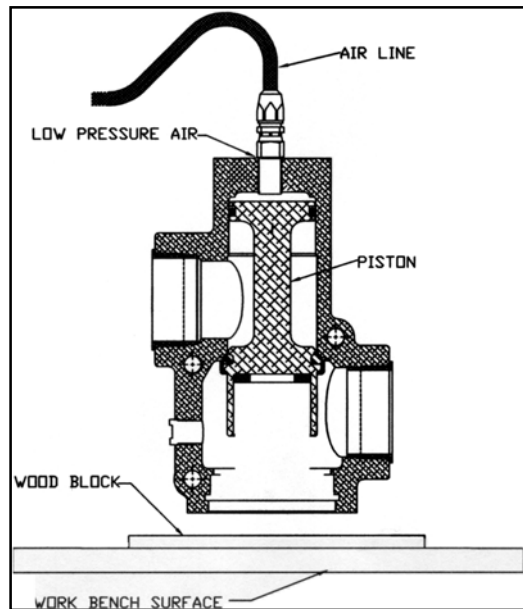


Figure 4. Piston Removal

Remove O-Rings (8,10) from end cap.

Remove O-Ring cap (6), shock dampener (5) and O-Rings (2,3) from piston (4).

5.0 ASSEMBLY

Use either 2-26119-001 (Buna N) or 2-26119-002 (Viton) repair kit to rebuild the TURBOVALVE.

Coat all O-Rings, end cap, piston, and bore of relay valve housing with a good grade of silicon based grease (TDI P/N 9-94082-001).

Place O-Rings (8,10) on end cap (9) and O-Rings (2,3) on piston (4).

Install shock dampener (5) into piston housing (4) bore.

Install O-Ring cap (6) onto piston (4) and seat over O-Ring (3).

Hand press piston assembly into relay valve housing (1) until seated.

Install spring (7) into bore of valve housing (1).

Install end cap assembly (8,9,10) into valve bore and secure with retainer ring (11).

6.0 DISASSEMBLY / ASSEMBLY (RELAY VALVE – ELECTRICALLY CONTROLLED)

Follow the above procedure to remove and install the internal parts in electrically controlled relay valve.

If necessary, rotate the connectors on the ends of the hose assembly (5) counter-clockwise to remove from relay valve assembly.

Rotate 90° elbows (4,6) counter-clockwise to remove from relay valve assembly.

Remove the screws (2) to separate the solenoid valve (1) from the relay valve housing (7).

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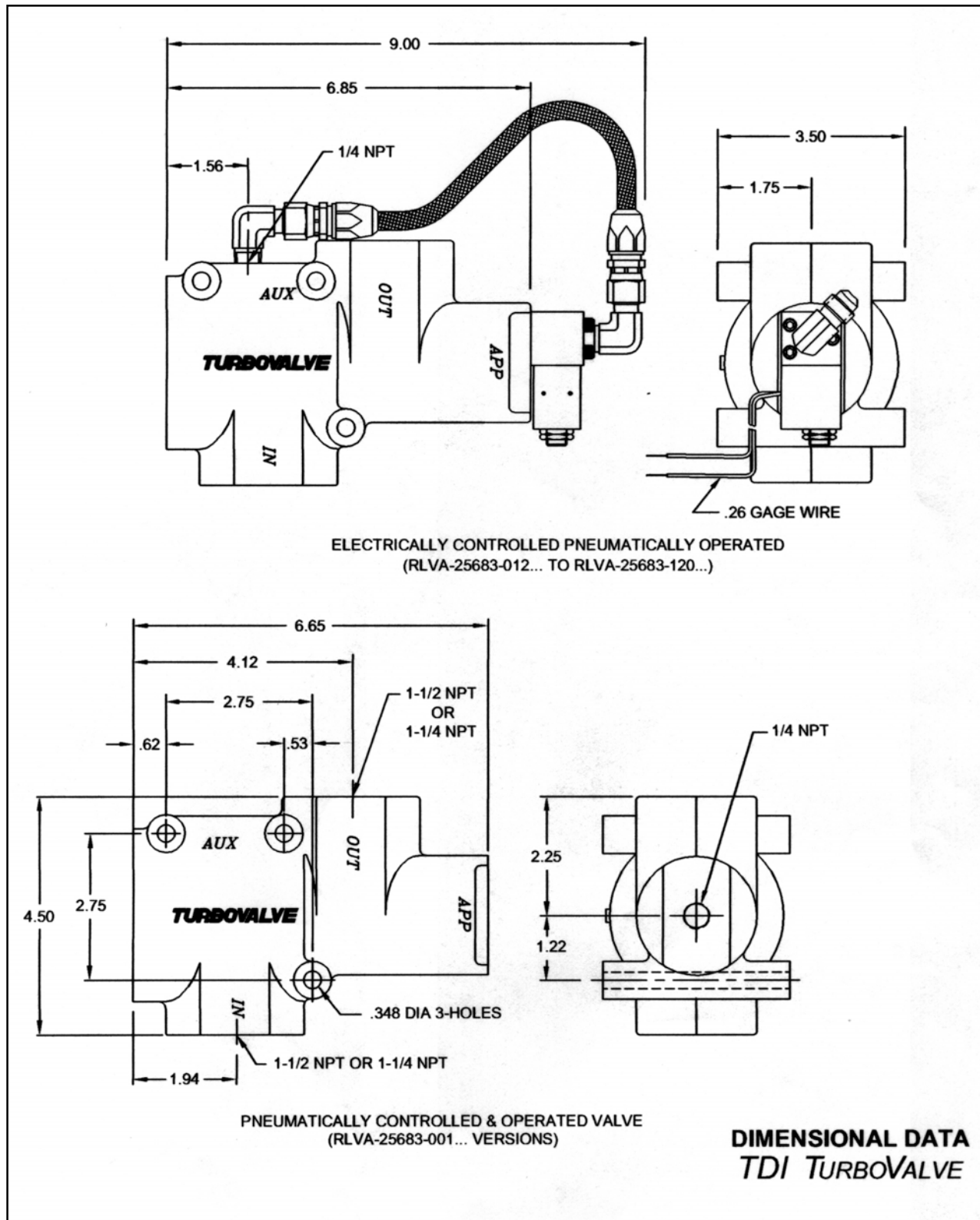


Figure 5. *TURBOVALVE* Dimensional Data

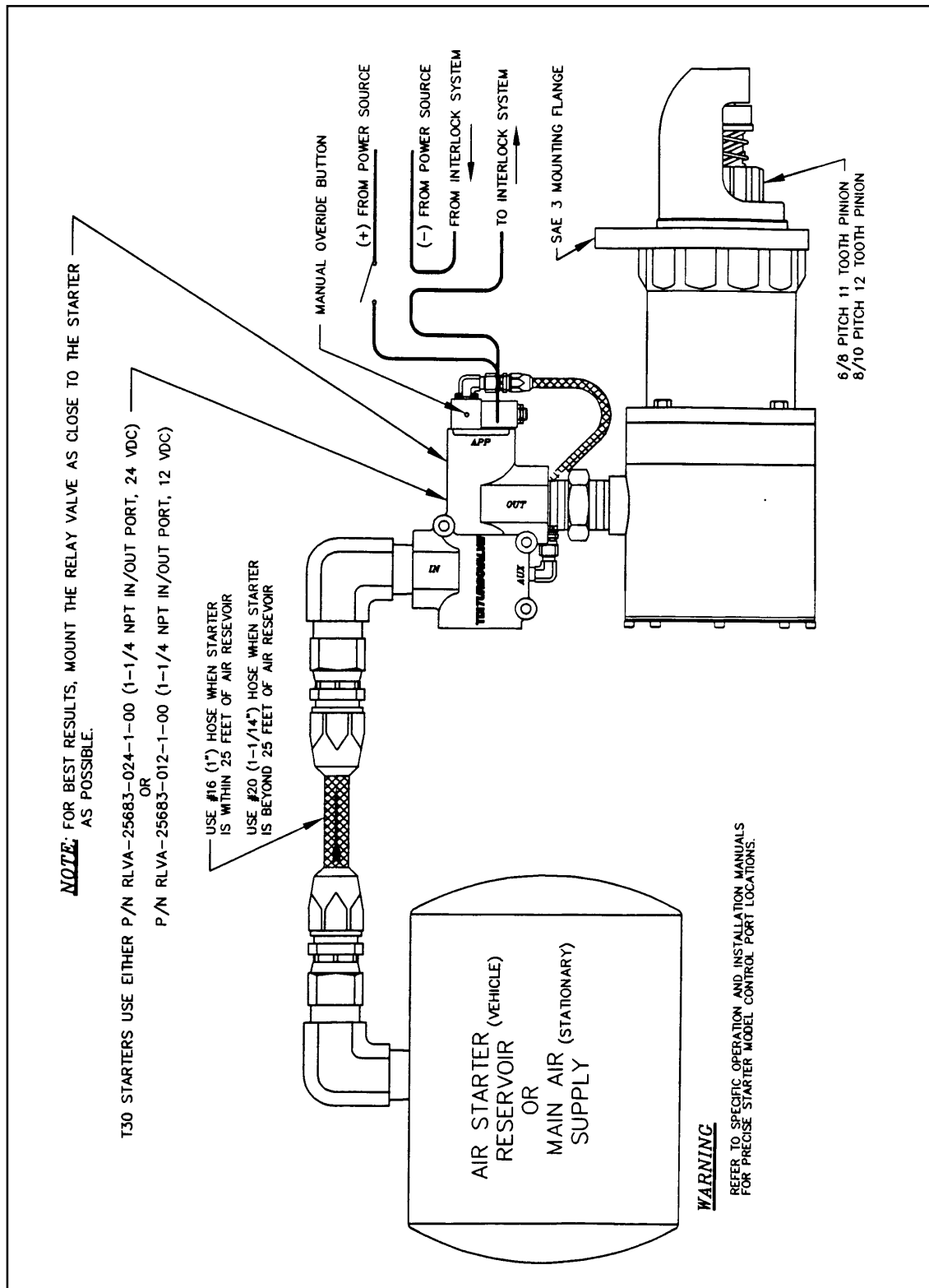


Figure 6. T30-I **TURBOTWIN** Air Starter Installation Diagram (Electrical)

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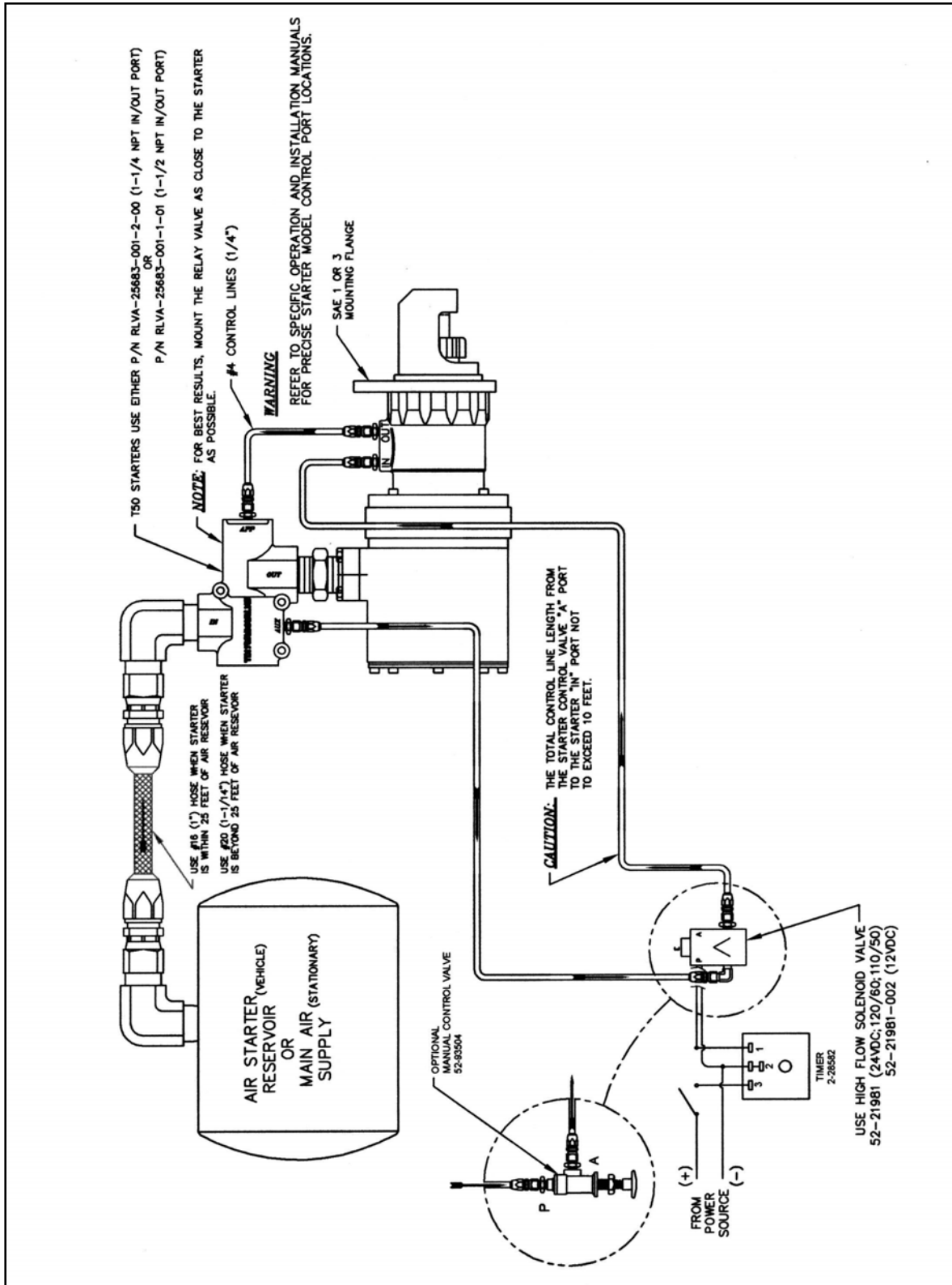


Figure 7. T50-P *TURBOTWIN* Air Starter Installation Diagram

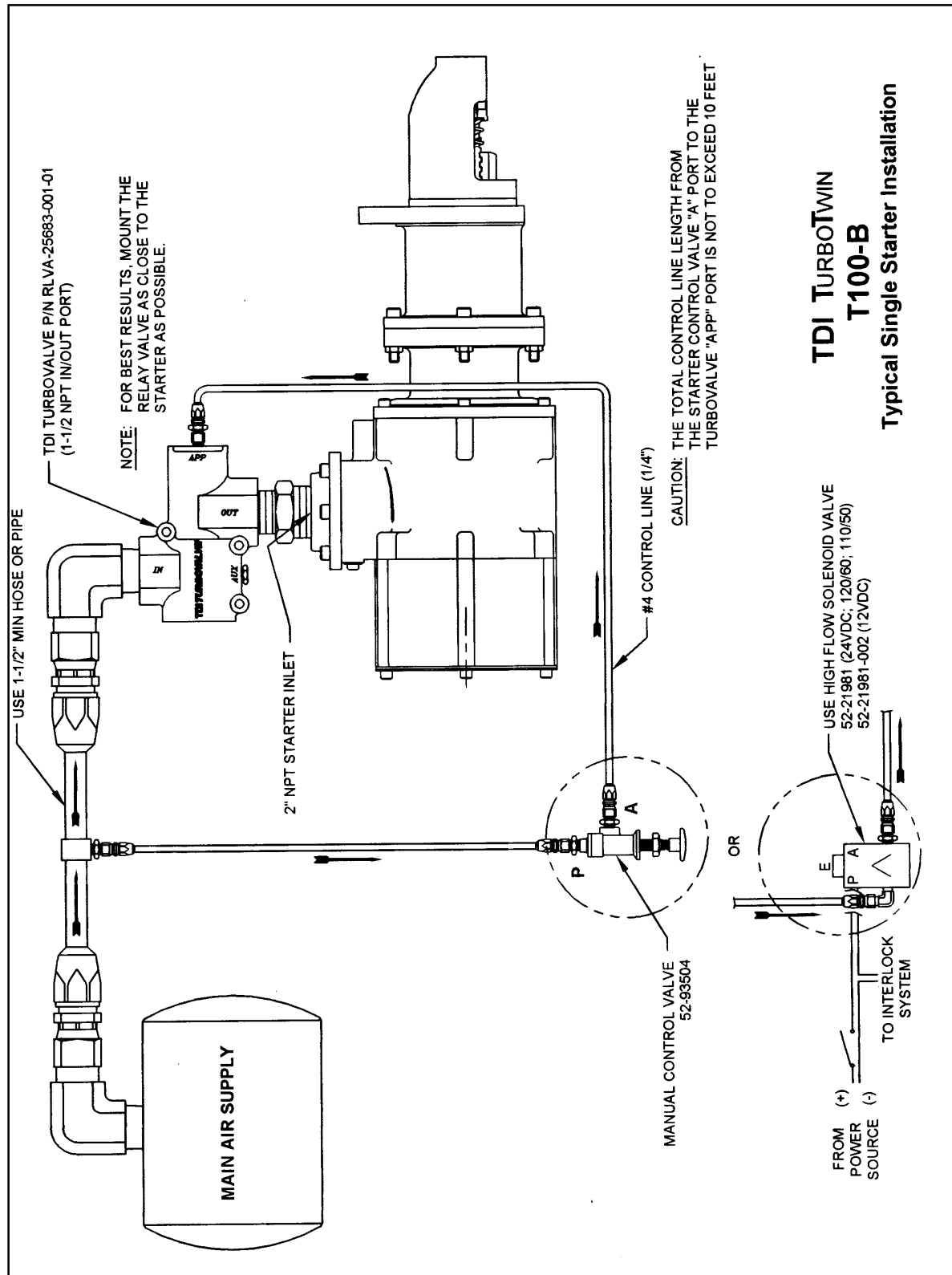


Figure 8. T100 Series **TURBOTWIN** Air Starter Installation Diagram

TDI TURBOTWIN™

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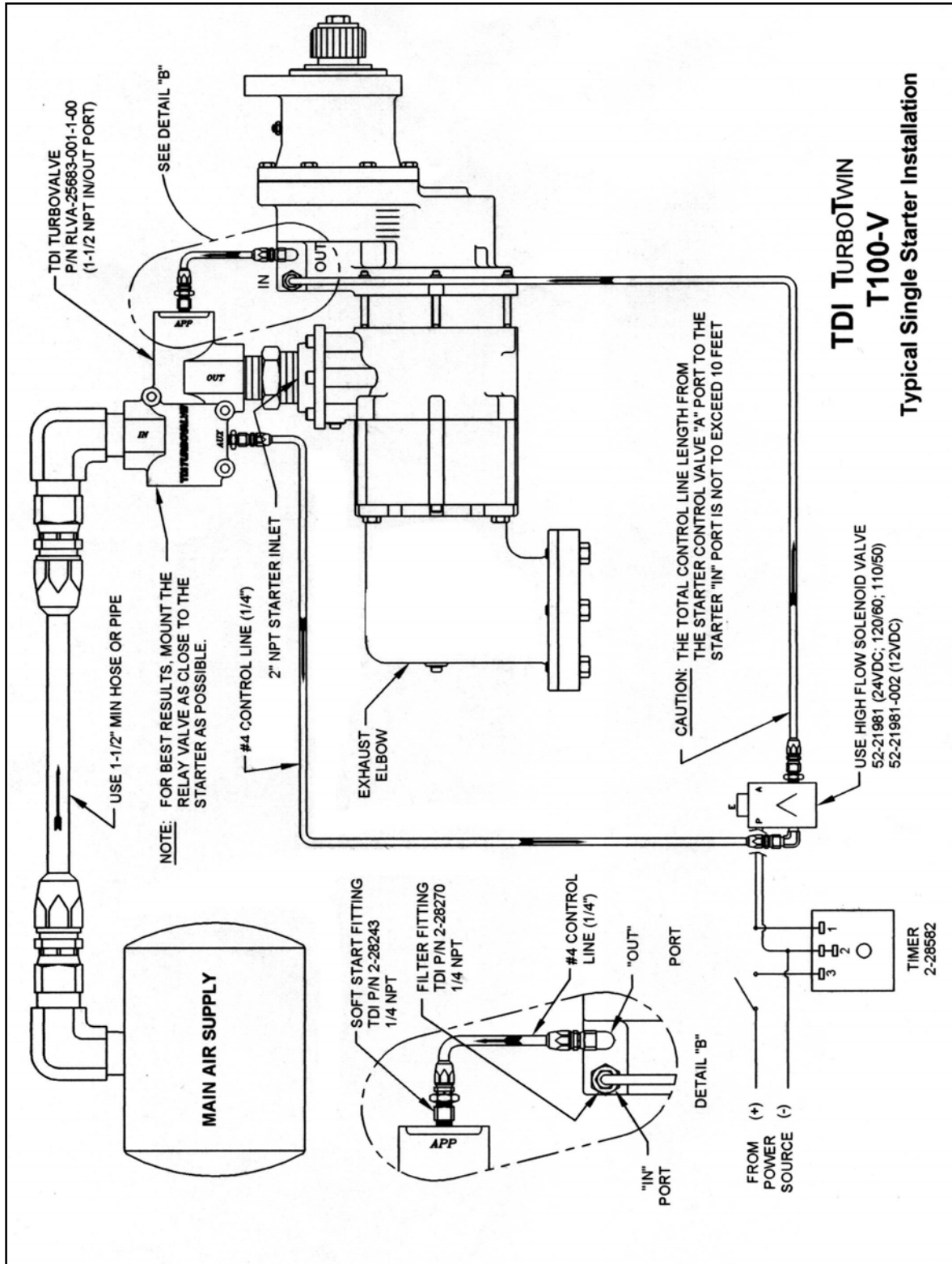


Figure 9. T100-V TURBOTWIN Air Starter Installation Diagram

6.0 ILLUSTRATED PARTS BREAKDOWN (Pneumatically Controlled)

PART NUMBER	IN PORT	OUT PORT	O-RINGS	OVERHAUL KIT
RLVA-25683-001-1	1 ¼ "	1 ¼ "	Buna-N	2-26119-001
RLVA-25683-001-2	1 ¼ "	1 ¼ "	Viton	2-26119-002
RLVA-25683-001-1-01	1 ½ "	1 ½ "	Buna-N	2-26119-001
RLVA-25683-001-2-01	1 ½ "	1 ½ "	Viton	2-26119-002

KEY NO.	DESCRIPTION	PART NUMBER
1	Housing, Relay Valve (1 ¼" NPT)	2-25764
1	Housing, Relay Valve (1 ½" NPT)	2-25764-001
2	O-Ring, Buna - N	9-90001-221
2	O-Ring, Viton	9-90002-221
3	O-Ring, Buna - N	9-90031-324
3	O-Ring, Viton	9-90030-324
4	Piston	2-25694
5	Dampener, Shock	2-25107
6	Cap, O-Ring	2-25106
7	Spring, Compression	9-90435
8	O-Ring, Buna - N	9-90001-218
8	O-Ring, Viton	9-90002-218
9	End Cap	2-25693
10	O-Ring, Buna - N	9-90001-035
10	O-Ring, Viton	9-90002-035
11	Ring, Retaining	9-92001-016

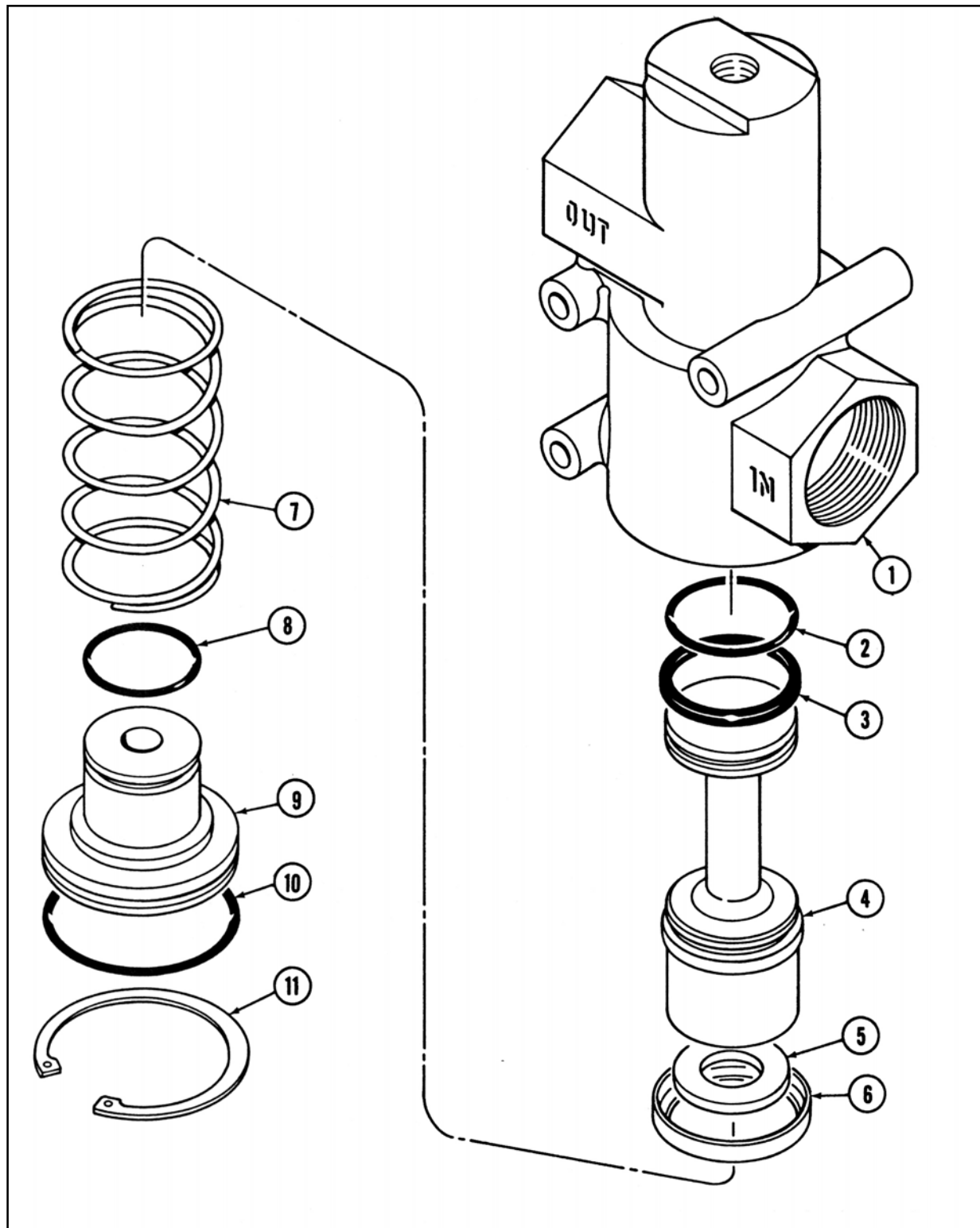


Figure 10. Exploded View of *TURBOVALVE* (Pneumatically Controlled)

7.0 ILLUSTRATED PARTS BREAKDOWN (Electrically Controlled)

PART NUMBER	IN PORT	OUT PORT	O-RINGS	VOLTAGE	VALVE PART NUMBER	OVERHAUL KIT
RLVA-25683-012-1	1 ¼"	1 ¼"	Buna-N	12 VDC	2-26324-001	2-26119-001
RLVA-25683-012-2	1 ¼"	1 ¼"	Viton	12 VDC	2-26324-001	2-26119-002
RLVA-25683-012-1-01	1 ½"	1 ½"	Buna-N	12 VDC	2-26324-001	2-26119-001
RLVA-25683-012-2-01	1 ½"	1 ½"	Viton	12 VDC	2-26324-001	2-26119-002
RLVA-25683-024-1	1 ¼"	1 ¼"	Buna-N	24 VDC	2-26324-010	2-26119-001
RLVA-25683-024-2	1 ¼"	1 ¼"	Viton	24 VDC	2-26324-010	2-26119-002
RLVA-25683-024-1-01	1 ½"	1 ½"	Buna-N	24 VDC	2-26324-010	2-26119-001
RLVA-25683-024-2-01	1 ½"	1 ½"	Viton	24 VDC	2-26324-010	2-26119-002
RLVA-25683-110-2-01	1 ½"	1 ½"	Viton	110 VDC	2-26324-003	2-26119-002
RLVA-25683-120-2-01	1 ½"	1 ½"	Viton	120 VAC	2-26324-004	2-26119-002

KEY NO.	DESCRIPTION	PART NUMBER
1	Valve (12VDC)	2-26324-001
2	Screw (3)	11F-19024-020
3	O-Ring, Buna - N	9-90001-010
3	O-Ring, Viton	9-90002-010
4	Elbow, 90° Male	9-93565-001
5	Hose Assembly	1P-23448-001
6	Elbow, 90° Male	9-93565-002
7	Housing, Relay Valve (1 ¼" NPT)	2-25692
7	Housing, Relay Valve (1 ½" NPT)	2-25692-001
8	O-Ring, Buna - N	9-90001-221
8	O-Ring, Viton	9-90002-221
9	O-Ring, Buna - N	9-90031-324
9	O-Ring, Viton	9-90030-324
10	Piston	2-25694
11	Dampener, Shock	2-25107
12	Cap, O-Ring	2-25106
13	Spring, Compression	9-90435
14	O-Ring, Buna - N	9-90001-218
14	O-Ring, Viton	9-90002-218
15	End Cap	2-25693
16	O-Ring, Buna - N	9-90001-035
16	O-Ring, Viton	9-90002-035
17	Ring, Retaining	9-92001-016

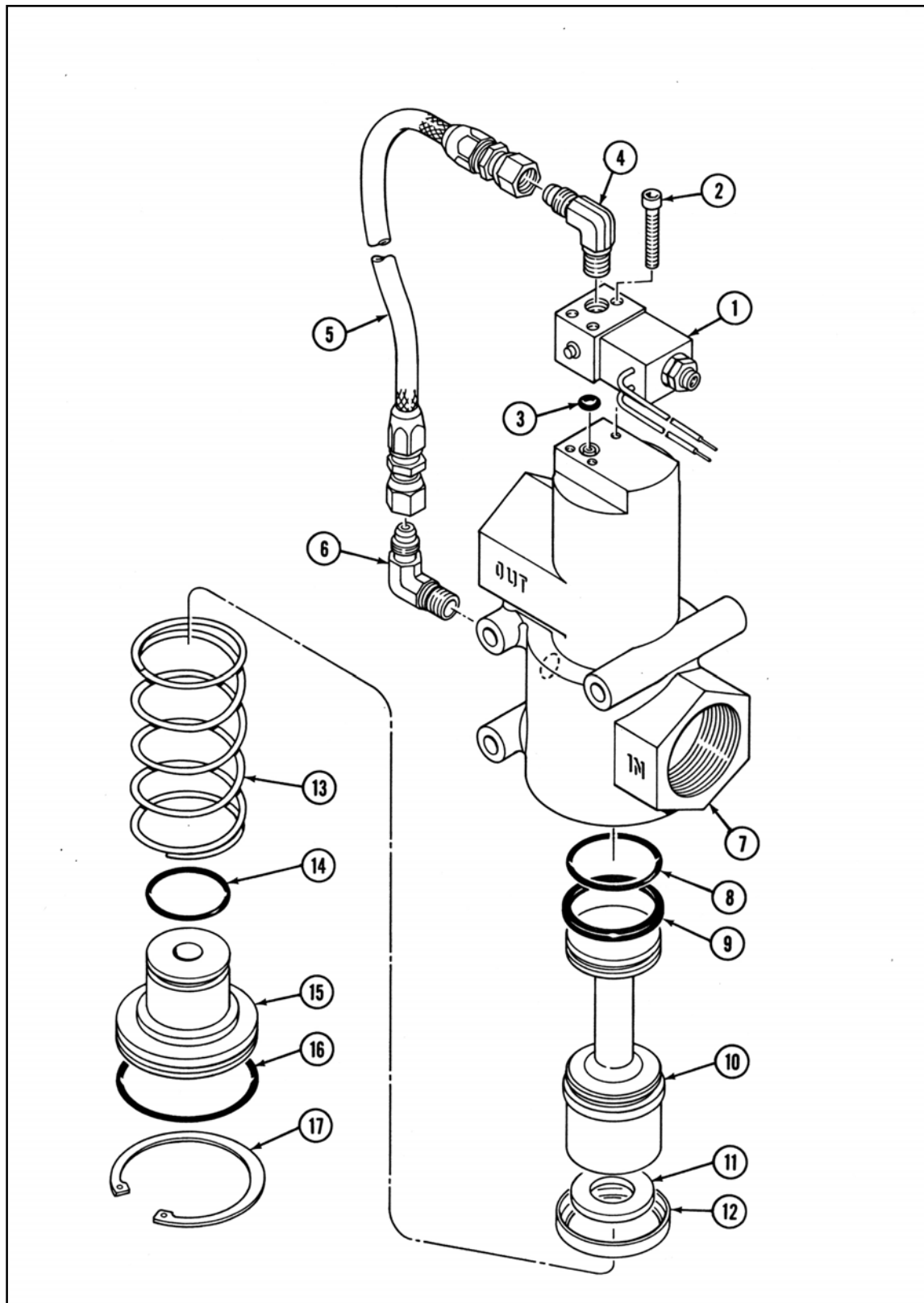


Figure 11. Exploded View of *TURBOVALVE* (Electrically Controlled)