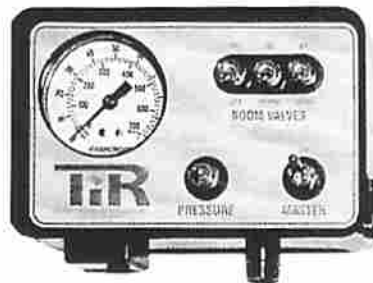


Owners Operating Manual

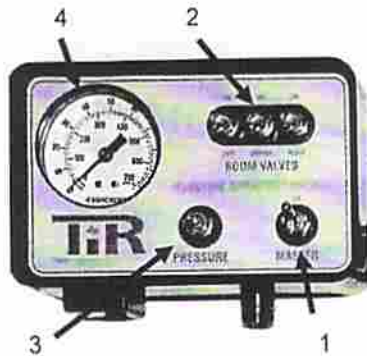


Electric Sprayer Control Systems

Texas Industrial Remcor, Inc.

P.O. Box 872
Little River-Academy, TX 76554
Phone (254) 982-4236
Fax (254) 982-4836
sprayervalves.com

Model RC-1B Sprayer Control



Sprayer Console:

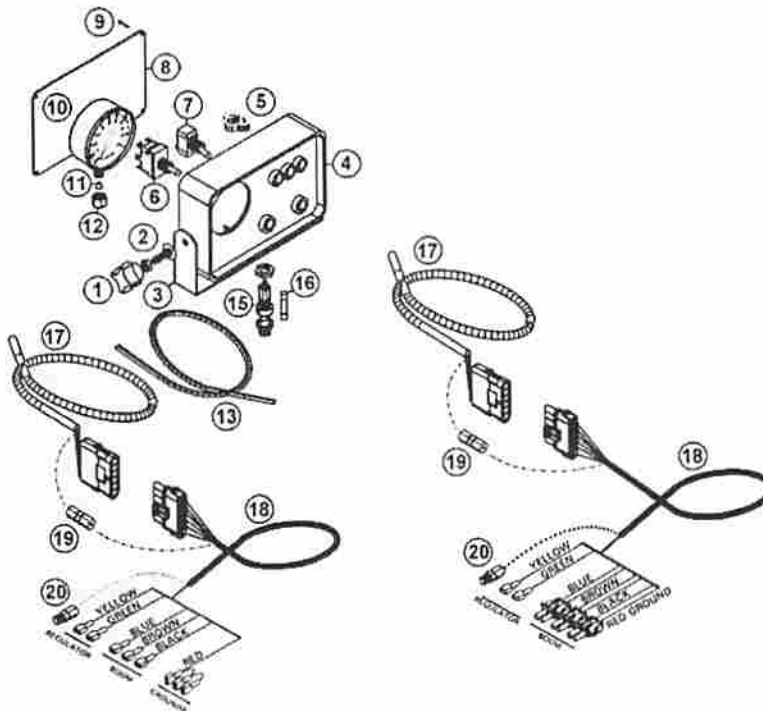
1. **Master Switch** – Switches power to the boom switches. Always use this switch to cut off the entire boom.
2. **Boom Switches** – Three on-off switches for individual boom sections. (Two, four or five switches optional)
3. **Regulator Switch** – Forwards or reverses the regulator motor, which raises or lowers the spraying pressure. Small pressure changes can be made by jogging the switch up or down.

4. **Pressure Gauge** – It is recommended that the tubing to the pressure gauge be connected to the center of the boom.

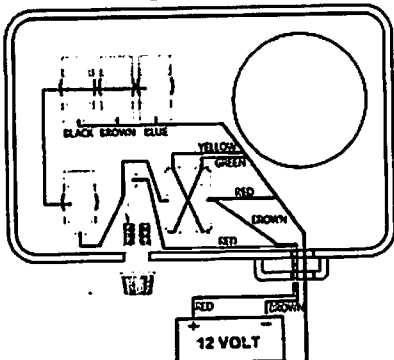
Find a convenient place to mount the console. Use the holes in the mounting bracket as a template to drill holes for the mounting screws.

The RC-1B Remote Control System provides the freedom of mounting the control valves anywhere on the sprayer. This can eliminate long boom, pressure, and bypass hoses.

Quick disconnects permit permanent installation of the valve assembly on the sprayer and the control box in the tractor cab.

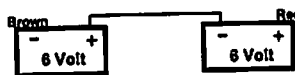


Wiring Diagram



Battery Connections

Important – Attach the red wire to the + post and the brown wire to the – post. The electric system must be 12 Volt. If the tractor has two 6 Volt batteries, the red wire must be attached to the + post on the battery that has the power cable to the tractor electrical system. The brown wire can be attached to the - post on the other battery or anywhere on the tractor frame. See wiring diagram.



RC-1B PARTS LISTS

Ref.	Part No.	Description	No. Req.
1	1266	Knob	2
2	5318/5320	1/2-20 X 1/2 Cap Screw w/ Hex Nut	2
3	1927	Mounting Bracket	1
4	1886	Control Panel	1
5	1846	Cable Clamp	1
6	1175	Pressure Switch	1
7	1214	Master Switch/Boom Switch	4
8	1848	Back Panel	1
9	5301	Screw, No. 4 X 1/2	4
10	2762	Gauge, 0-100 PSI/700 kPa, 1/2 NPT (Standard)	1
10	1332L	Gauge, 0-100 PSI/700 kPa, Liquid Filled, 1/2 NPT	1
10	1734	Gauge, 0-160 PSI, 1/2 NPT	1
10	1734L	Gauge, 0-160 PSI Liquid Filled 1/2 NPT	1
10	2421	Gauge, 0-200 PSI/1400 kPa, 1/2 NPT	1
11	1204	Ferrule	1
12	1320	1/2 NPT Nut	1
13	1212	8' (2.4M) Power Cord	1
15	1172	Fuse Holder	1
16	1216	Fuse, 15 Amp	1
17	1195WP	6' (1.8M) Cab Harness (Standard)	1
17	1294WP	10' (3M) Cab Harness (Optional)	1
18	1676	8' (2.4M) Sprayer Harness (Standard)	1
18	1576WP	8' (2.4M) Sprayer Harness (Weather Pack)	1
18	1577	15' (4.5M) Sprayer Harness (Optional)	1
18	1577WP	15' (4.5M) Sprayer Harness (Weather Pack)	1
18	1578	24' (7.3M) Sprayer Harness (Optional)	1
18	1578WP	24' (7.3M) Sprayer Harness (Weather Pack)	1
19	1182	1/8" Tube Union	1
20	1181	1/8" NPT X 1/8" Tube Fitting	1
	1987	Panel Assembly for 3 Valves Includes, Items 1-17 Also Available—Not Pictured	
	2052	Panel Assembly for 4 Valves	
	2090	Panel Assembly for 5 Valves	
		Parts 1-16 Apply with 1 or 2 add. Boom switches Please call for Part Numbers for Harnesses	

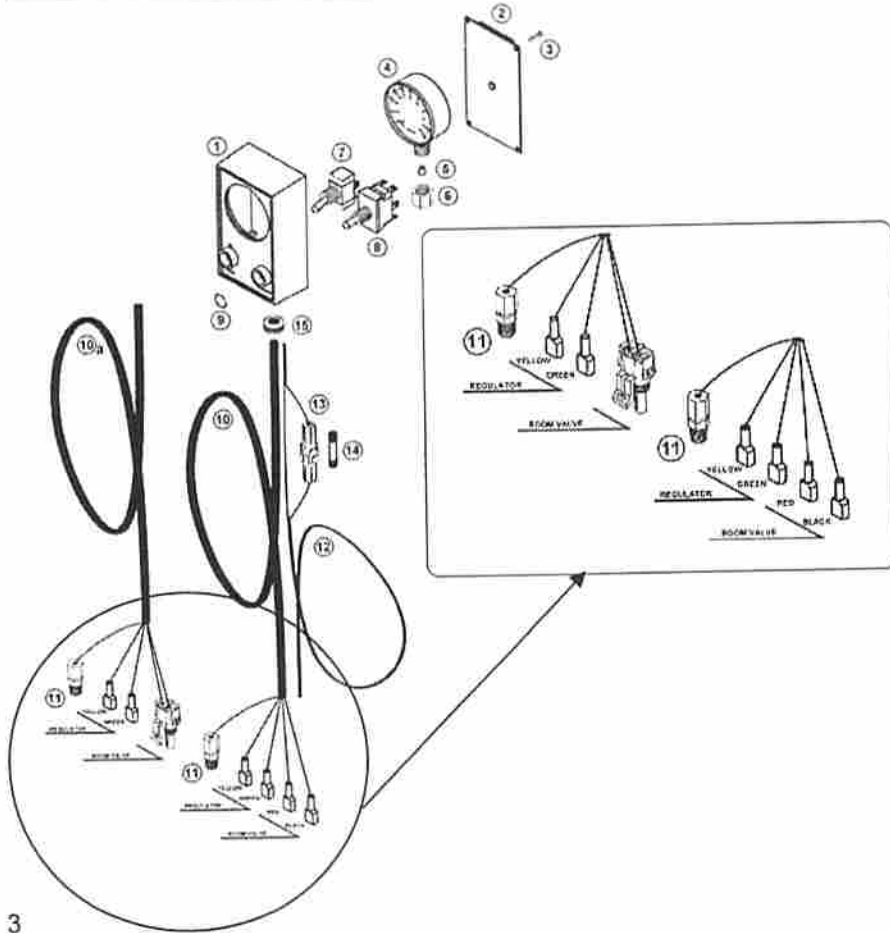
Model RC-10N Sprayer Control



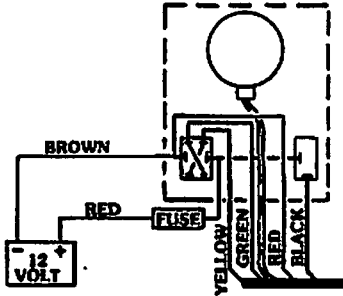
Console – Find a convenient place to mount the console. Use the holes in the mounting bracket for a template to drill holes for mounting screws.

1. **Pressure Switch** – Forwards or reverses the regulator motor, which raises or lowers the spraying pressure. Small pressure changes can be made by jogging the switch up or down.
2. **Boom Switch** – Switches power to the electric boom shut-off valve.
3. **Pressure Gauge** – It is recommended that the tubing to the pressure gauge be connected to the center of the boom.

Fuse Holder (below) – Contains a 5 Amp. 3 AG (1 ¼" X ¼") automotive fuse; however, any 2.5-6 Amp. 3 AG fuse can be used.



WIRING DIAGRAM



BATTERY CONNECTIONS

Important – Attach the red wire to the + post and the brown wire to the – post. The electric system must be 12 Volt. If the tractor has two 6 Volt batteries, the red wire must be attached to the + post on the battery that has the power cable to the tractor electrical system. The brown wire can be attached to the - post on the other battery or anywhere on the tractor frame.



RC-10N PARTS LIST

Ref.	Part No.	Description	No. Req.
1	1186	Control Box	1
2	1203	Back Plate	1
3	5301	Screw, No 4 X 1/2	4
4	1331	Gauge, 0-100 PSI / 700kPa, 1/4 NPT (Standard)	1
4	2399	Gauge, 0-200 PSI/ 1400Pa, 1/4 NPT (Optional)	1
5	1204	Ferrule	1
6	1320	1/4" NPT Nut	1
7	1214	On-Off Switch	1
8	1175	Regulator Switch	1
9	5320	Hex Nut for 1214 & 1175	2
10	1575	15 Ft. (4.5M) Harness	1
10a	1575WP	15 Ft. (4.5M) Weather-Pack Harness (Optional)	1
11	1181	1/8" NPT to 1/8" Tube Fitting & Nut	1
12	1206	Power Cord with Integrated Fuse Holder	1
13	1207	Fuse Holder	1
14	1208	5 Amp. Fuse	1
15	1209	Grommet	1
	1585	15 Ft. (4.5M) Extension Harness (Optional)	
	1586	Panel & Harness Assembly (Items 1 – 15)	

ELECTRIC REGULATORS

No. 1560 PARTS LIST

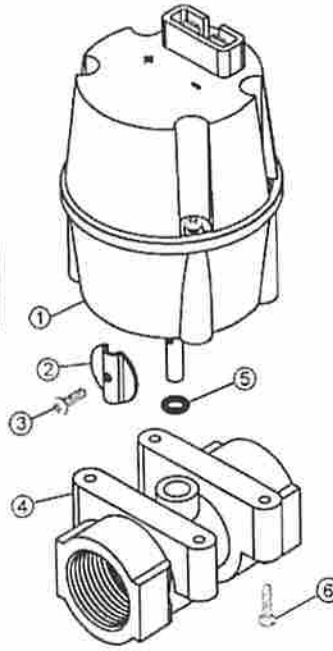
¾" NPT. – 12 Volt – 1 RPM – ¾" Orifice

Ref.	Part No.	Description	No. Req.
1	5707	Motor Assembly	1
2	1150	Butterfly Valve	1
3	5431	Butterfly Screw, 4-40 X 5/16	1
4	1479	Valve Body	1
5	1169	*O* Ring, .008 Viton	1
6	5301	Screw, No. 4 X 1/2	4
	1560	Complete Regulator	

No. 1541 PARTS LIST

1" NPT. – 12 Volt – 1 RPM – 1" Orifice

Ref.	Part No.	Description	No. Req.
1	5707	Motor Assembly	1
2	1556	Butterfly Valve	1
3	5431	Butterfly Screw, 4-40 X 5/16	1
4	1480	Valve Body	1
5	1169	*O* Ring, .008 Viton	1
6	5301	Screw, No. 4 X 1/2	4
	1541	Complete Regulator	



SPECIFICATIONS

Valve Body and Motor Housing	Glass Filled Nylon
Motor Shaft	Stainless Steel
Butterfly Valve	PA12
Shaft Seal	Viton
Speed at 12 Volt	1 RPM
Speed at 6 Volt	.5 RPM
Current draw at 12 Volt	.9 AMP
Maximum Recommended Pressure	150 PSI (1,000 kPa)
Maximum Recommended Temperature	120° F (50° C)

No 1560 ¾" Orifice - Flow rates in GPM (US)

PSI Pressure Drop	Fully Open	45°	Fully Closed
20 PSI	37	16	0.5
40 PSI	51	23	0.5

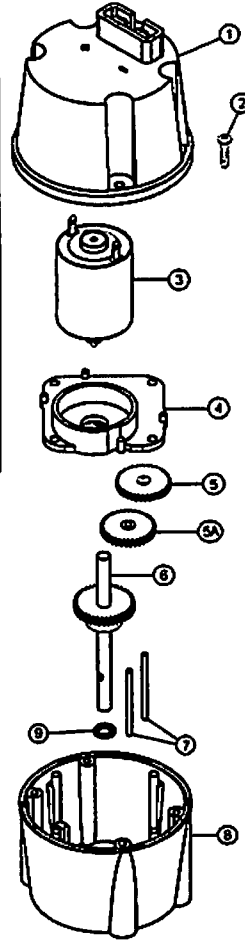
No 1541 1" Orifice - Flow rates in GPM (US)

PSI Pressure Drop	Fully Open	45°	Fully Closed
20 PSI	67	29	0.8
40 PSI	95	42	0.8

MOTOR & GEAR HOUSING ASSEMBLIES

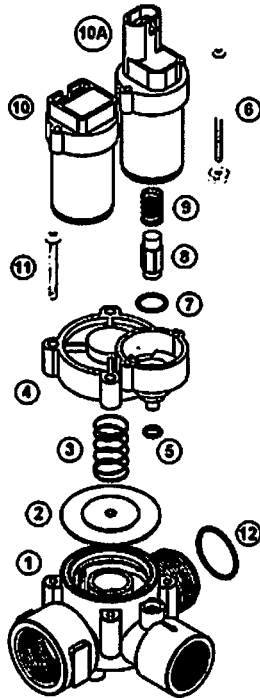
PARTS LIST

Ref	Part No.	Description	No. Req
1	2675	Cover Assembly	1
	2008	Gasket for Motor Cover (Not Shown)	1
2	5341	4-40 X 1/2 Self Tapping Screw	4
3	2691	Motor with Pinion Gear	1
4	2674	Motor Plate	1
5A	1509	Spur Gear & Pinion - Nylon	4
5	1671	Spur Gear & Pinion - Metal	1
6	1513	Shaft with Gear - 1560A Regulator	1
6	1558	Shaft with Gear - 1541A Regulator	1
7	1510	Shaft	2
8	1483	Gear Housing	1
9	1169	"O" Ring, .008 Viton or Buna	1



To disassemble the motor and gear housing, remove four screws and lift off the cover assembly (1).

To reassemble the gear train, follow these steps: Place the O-Ring (9) into the O-Ring groove, push the shaft with gear (6) all the way down through the O-Ring and gear housing (8), insert the shafts (7) into the two bosses in the gear housing, put five gears (5) alternately on the shafts, and replace the motor plate (4) so that the three shafts match the bosses on the bottom of the plate. Lubricate the gears and shafts with a couple drops of light to medium oil.



No. 1999A SOLENOID PARTS LIST

Ref	Part No.	Description	No.
1	1962	Valve Body	1
2	*1974	Viton Diaphragm Assembly, Standard	1
2	⁽¹⁾ 2109	Aflas Diaphragm Assembly, Optional	1
3	⁽¹⁾ 1975	Spring	1
4	6963	Valve Cover	1
5	⁽¹⁾ *1978	Viton "O" Ring 010	1
6	5305/5306	6-32 X 2 5/8 Screw with Hex Nut	2
7	⁽¹⁾ *1977	Viton "O" Ring 014	1
8	*2239	Plunger with Viton Seat, Standard	1
8	2240	Plunger with Aflas Seat, Optional	1
9	⁽¹⁾ *1979	Plunger Spring	1
10	2515	Coil Assembly	1
10A	2520	Coil Assembly, Weather Pack	1
11	5307	No. 8 X 1 1/2 Screw	4
12	2168	"O" Ring 022	1
	2517	Viton Repair Kit – consists of items*	
	2518	Aflas Repair Kit – consists of items (1)	

SPECIFICATIONS

Valve Housing	Glass Filled Nylon
Wetted Metal Parts	304 and 430 Stainless Steel
Diaphragm, Seat and Seals	Viton, Standard; Aflas, Optional
Coil	Epoxy Encapsulated
Terminals	1/2" Male Tabs or Weather Pack
Voltage	12 Volt DC (other available)
Current	1.1 Amp at 12 Volt
Pressure	175 PSI (1,200 kPa) Max / 10 PSI (70 kPa) Min
Flow	0-18 GPM (0-65 L/M) 8 cv
Actuating Pressure	5 PSI (35 kPa)
Temperature	120° F (50° C) Maximum

Pilot operated solenoid valves operate on the principal of pressure drop across the valve. For the No. 1999A Valve, this drop is 5 PSI (35 kPa) at flow rates up to 18 GPM (65 L/M). This means that spraying pressure should be measured behind the valve.

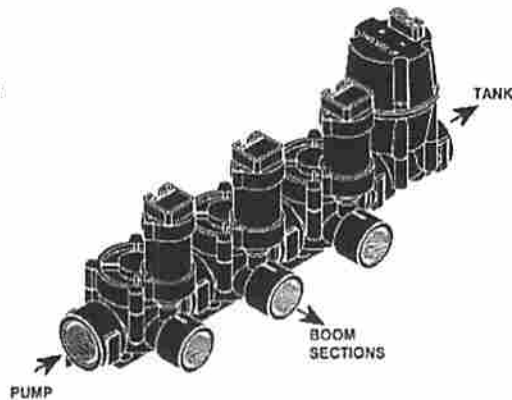
The No. 1999A Valves come with Viton or Aflas diaphragms and valve seats. Check with the chemical manufacturer to ensure the chemicals are compatible with the valve parts.

INSTALLATION

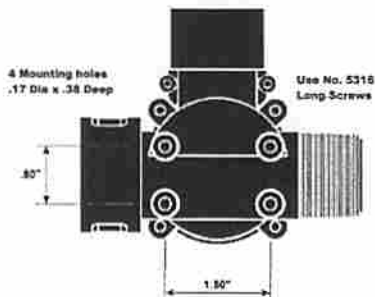
The valves can be plumbed as shown in the illustration. It is advisable to install a strainer ahead of the valves. Note the arrows for flow direction.

The coil will radiate heat; therefore, it should not be enclosed. If the coil fails, the valve can be opened by removing the plunger (8).

After use, always flush and drain valves.



MOUNTING



1988 Mounting Bracket for 1999A-1, single valve
1989 Mounting Bracket for 1999A-2, double valves
1990 Mounting Bracket for 1999A-3, triple valves

TROUBLESHOOTING

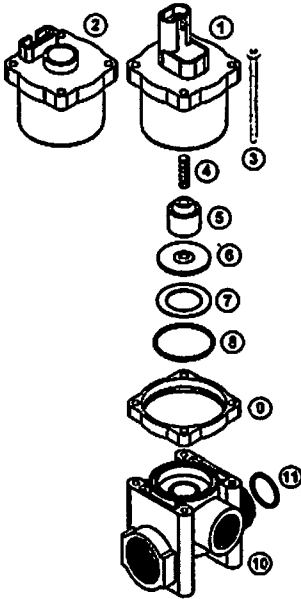
Valve fails to open:

1. Check if the coil (10) is burned out.
2. Remove the coil (10) and check if the plunger (8) is stuck.
3. Check if the seat in the plunger is bulged or swollen. If so, use fine sandpaper and sand the seat down so that it is flat with the metal.
4. Check the channel under and to the plunger for blockage.
5. Check the control box and wiring harness for broken wires, bad switches and blown fuses.

Valve fails to shut off:

1. Remove the coil (10) and check if the plunger (8) is stuck.
2. Disassemble the valve and check if the spring (3) is broken.
3. Check for proper electrical connections.

No. 2100C SOLENOID VALVE



PARTS LIST

Ref	Part No.	Description	No. Req
1	2845.WP	Coil Weather Pack Terminals	1
2	2831	Coil 1/2" Spade Terminals	1
3	5308	No. 8 X 2 1/2" Screw	4
4	*2315	Spring	1
5	6383	Plunger	1
6	*2307	Disc Valve Viton	1
	*2308	Disc Valve Aflas	1
7	*2363	Washer	1
8	*2314	"O" Ring, 028 Viton	1
9	2658	Adaptor Ring	1
10	2895	Valve Body	1
11	2166	"O" Ring, 018 Viton	1
	2604	Viton Repair Kit. Consists of items marked with *	
		Aflas Repair Kit. Consists of items marked with 0	

SPECIFICATIONS

Valve Housing	Glass Filled Nylon
Wetted Metal Parts	430 Stainless Steel
Seal and "O" Rings	Aflas or Viton
Coil	Epoxy Encapsulated
Terminals	1/2" Male Tabs or Weather Pack
Voltage	12 Volt DC
Current	2.4 Amp at 12 Volt
Operating Pressure	125 PSI (850 kPa) Maximum
Flow	0-10 GPM (0-38 L/M) 4.5 cv
Temperature	120° F (50° C) Maximum

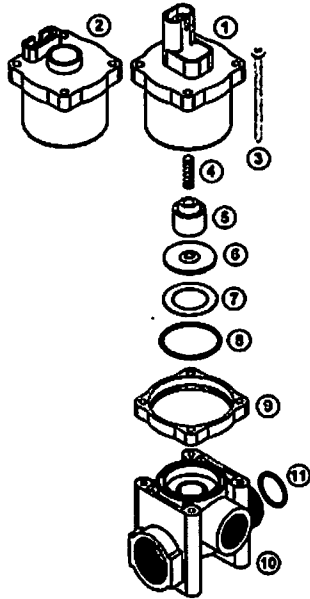
DISASSEMBLY

It is not necessary to take the valve out of the line to service it. The valve can be disassembled by removing the four No. 8 X 2 1/2 screws (3).

ASSEMBLY

Assemble the valve as shown in the illustration. Be sure the small seat on the disc valve (6) is in the up position. Do not over tighten the No. 8 X 2 1/2 screws.

No. 2500B & 2502B SOLENOID VALVES



PARTS LIST

Ref.	Part No.	Description	No. Req.
1	2641.WP	Coil Weather Pack Terminals	1
2	2642	Coil, 1/4" Spade Terminals	1
3	5308	8 X 2 1/2 Screw	4
4	*2315	Spring	1
5	6383	Plunger	1
6	*2307	Disc Valve, Viton	1
7	*2363	Washer	1
8	*2314	"O" Ring, 028 Viton	1
9	2631	Adaptor Ring	1
10	2385	Valve Body for 2500B Valve	1
10	2295	Valve Body for 2502B Valve	1
11	2166	"O" Ring, 018	1
	2352	Repair Kit. Consists of items marked with *	

SPECIFICATIONS

Valve Housing	Glass Filled Nylon
Wetted Metal Parts	430 Stainless Steel
Seal and "O" Rings	Viton
Coil	Epoxy Encapsulated
Terminals	1/4" Male Tabs or Weather Pack
Voltage	12 Volt DC
Current	2.0 Amp at 12 Volt
Operating Pressure 2500B	100 PSI (700 kPa) Max.
Operating Pressure 2502B	175 PSI (1200 kPa) Max.
Flow 2500B	0-10 GPM (38 L/M)
Flow 2502B	0-8 GPM (35 L/M)
Temperature	120° F (50° C) MAXIMUM

DISASSEMBLY

It is not necessary to take the valve out of the line to service it. The valve can be disassembled by removing the four No. 8 X 2 1/2 screws (3).

ASSEMBLY

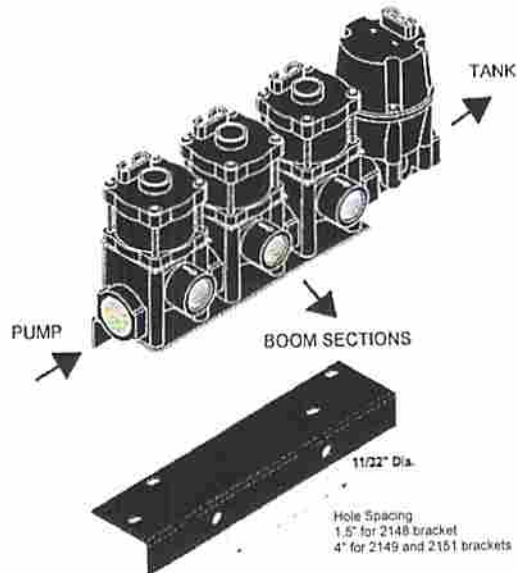
Assemble the valve as shown in the illustration. Be sure the small seat on the disc valve (6) is in the up position. Do not over tighten the No. 8 X 2 1/2 screws.

INSTALLATION

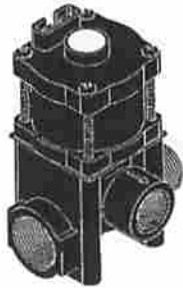
The valves can be plumbed as shown in the illustration. It is advisable to install a strainer ahead of the valves. Note the arrows for flow direction.

The coil will radiate heat; therefore, it should not be enclosed. If the coil fails, the valve can be opened by removing the plunger.

After use, always flush and drain valves.



Mounting



4 mounting holes
.17 Dia X 1.00 Deep
Use No. 5313 10 X 3/4"
Long Screws

2148 Mounting Bracket for single valve
2149 Mounting Bracket for double valves
2151 Mounting Bracket for triple valves

TROUBLESHOOTING

Valve fails to open:

1. Check if the coil is burned out.
2. Remove the coil and check if the plunger is stuck.
3. Check the control box and wiring harness for broken wires, bad switches and blown fuses.

Valve fails to shut off:

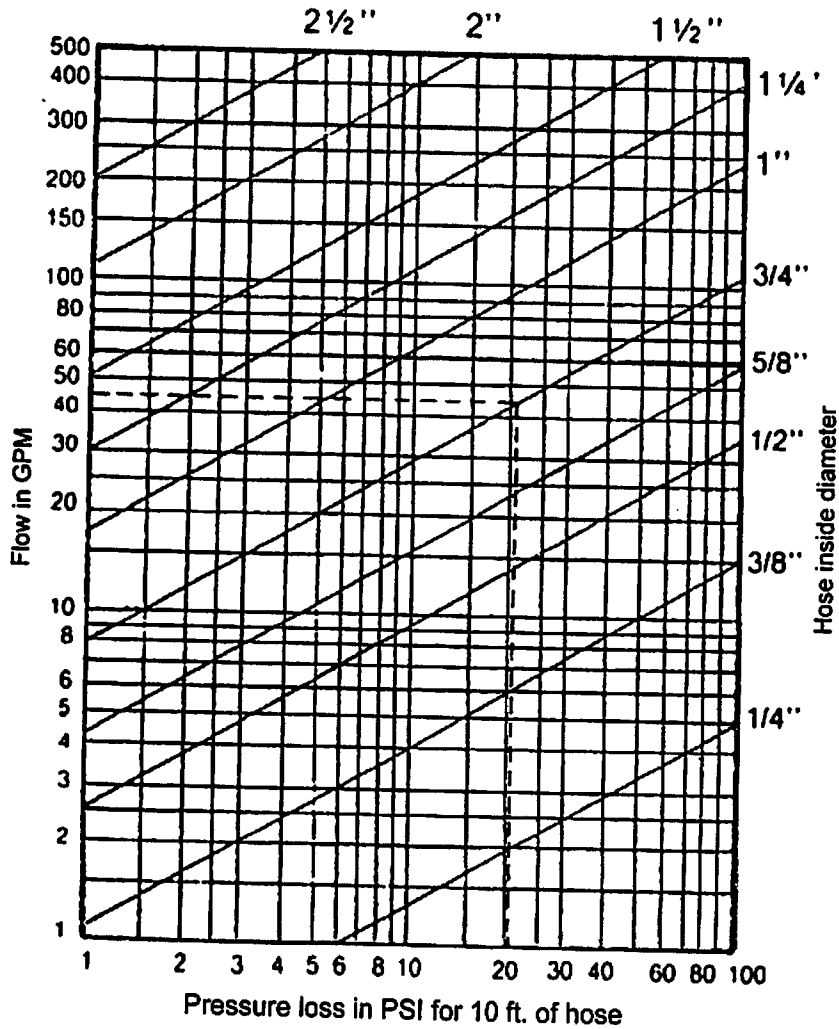
1. Remove the coil and check if the plunger is stuck.
2. Disassemble the valve and check if the spring is broken.
3. Check for proper electrical connections.

PRESSURE LOSS CHART

English

This chart shows the pressure loss through a 10 ft. hose length. For example, it will take 22 PSI to pump 45 GPM through 10 ft. of $\frac{3}{4}$ " hose. Loss for other lengths can be computed since the loss is directly proportional to hose length.

Also, it should be noted that one $\frac{3}{4}$ " dia. hose will handle the same amount of flow as three $\frac{1}{2}$ " hoses, or a 1" dia. hose will handle twice the flow as a $\frac{3}{4}$ " dia. hose. Because of the small hose sizes, it is not uncommon to see pressure drop of 10-20 PSI between the pump and the nozzles.

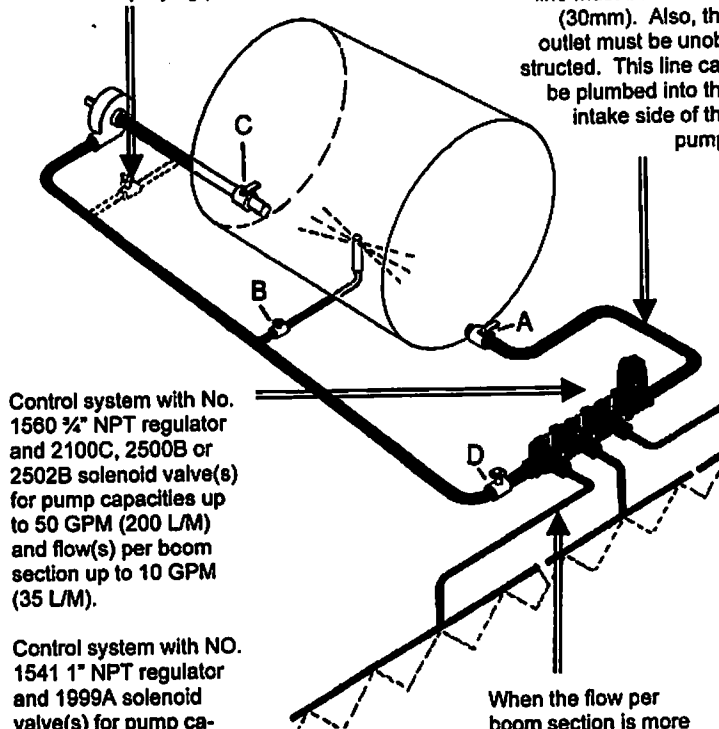


INSTALLATION

Pressure Relief Valve for positive displacement pumps only. Set at 10-30 PSI (50-150 kPa) above desired spraying pressure.

VERY IMPORTANT

For pump capacities above 20GPM (80 L/M) this line must be 1" dia. (25mm). For pump capacities above 50 GPM (200 L/M) this line must be 1½" dia. (30mm). Also, the outlet must be unobstructed. This line can be plumbed into the intake side of the pump.



Control system with No. 1560 ¾" NPT regulator and 2100C, 2500B or 2502B solenoid valve(s) for pump capacities up to 50 GPM (200 L/M) and flow(s) per boom section up to 10 GPM (35 L/M).

Control system with NO. 1541 1" NPT regulator and 1999A solenoid valve(s) for pump capacities of 15-150 GPM (60-568 L/M) and flow(s) per boom section up to 18 GPM (50 L/M).

When the flow per boom section is more than 5 GPM (20 L/M) and the hose length is more than 10' (3M) this line should be ¾" dia. (20mm).

INSTALLATION

Read this chapter carefully and follow the illustrations. The regulator is installed to change the pump output pressure and thus the spraying pressure. Follow the recommended hose size as closely as possible. Also see the Pressure Loss Chart on page 12. Compare pump capacity with regulator flow charts. See page 5. When plumbed properly the spraying pressure can be changed over a wide range. This can be checked as follows:

Start up the pump and run it at normal operating speed. Open all boom valves. If the pressure cannot be lowered enough, check the return line size and the regulator size. If these are correct, a gate or ball valve can be installed at D in order to cut down excess pump capacity. Never install an agitator on the end of the return line. If the pressure cannot be raised enough, check agitator orifice sizes, pump capacity, regulator size and, when using a positive displacement pump, the relief valve setting. Also check line strainers for clogging, suction hoses for air leaks, collapsed suction lines, etc.

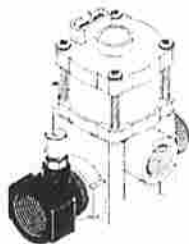
In order to service pumps, strainers, electric boom valves, and regulators, it is recommended that positive shut-off valves are installed at A, B and C. These should be closed when the sprayer is not in use.

No. 2152 PRESSURE ADAPTOR

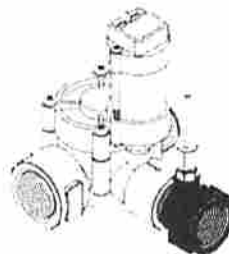
The Pressure Adaptor is used to connect the 1/8" Gauge Tubing to the spray line. With the 2100C, 2500B or 2502B valve the adaptor is used on the inlet side of the valve. With the 1999A valve, the adaptor is screwed into the outlet side.

No. 2152 - 3/4" NPT PRESSURE ADAPTOR

2100C, 2500B or 2502B



1999A



Assemble the No. 2152 pressure Adaptor to the 2100C, 2500B, 2502B or 1999A Solenoid valves as illustrated



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LIMITED WARRANTY

Texas Industrial Remcor, Inc. guarantees that our product shall be free from defects in material and workmanship, under normal use, for a period of 90 days from the date of the original purchase. Defective units or parts should be returned to the factory with transportation prepaid. If inspection shows them to be defective, they will be repaired or replaced without charge. Texas Industrial Remcor, Inc. assumes no liability for consequential damages.