



ROGERS SPRAYERS INC.

141 - 105th Street East
Saskatoon, SK S7N 1Z2
Canada

Phone: (306) 975-0500
Fax: (306) 975-0499
Email: info@rogerssprayers.com
Web: www.rogerssprayers.com

SMA150E

(Skid Mount Aluminum, 150USG, Electric)

&

BK10T /BK12T

(Boom Kit 10ft /12ft, Triplex Nozzles)



Assembly, Parts and Operator's Manual

Version SMA150E-2011

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Safety

Many people die or suffer serious injury in job related accidents every year due to carelessness. Know your machinery and be aware of potential hazards. Put safety first in all your operations.

Review all instructions and procedures outlined in this manual annually. *Every operator must familiarize themselves with the operating instructions of the sprayer.*

Operational Safety

Shut down sprayer and power unit and wait for all parts to stop before adjusting, cleaning, or lubricating the power unit or sprayer.

Before spraying a field familiarize yourself with any rocks, debris, trees, ditches or gullies that may be potentially dangerous. Plan the spraying route to avoid these hazards.

Spray only chemicals that the unit was designed for, (ie turf application). Do not use products for which the unit was not designed, (ie PAINT, sealants, cleaning fluids, dust inhibitors, ice surfaces).

Minimize Chemical Drift

Drift can blow off a field after it has been sprayed, especially in high winds. Reasonable caution should be taken in order to spray effectively and safely.

(With optional covered boom attachment)

For maximum drift control, keep curtain in contact with the ground to ensure a seal to it. Drift control of the covered boom is less effective when the wind blows the curtain off the crop canopy breaking the seal between the curtain and the spray area.

General Spraying Information

Application Tips

Always use clean filtered water in the sprayer tank.

Your **Rogers Sprayers Inc. Skid Mount Sprayer** comes standard with 80 degree stainless steel or ceramic insert tips. Please contact your manufacturer or see the application rate table in this manual for various sizes of tips available for your machine.

Check the flow rate from all nozzles using the capacity calibration technique; see the Calibration section for tables and instructions. Use clean filtered water for all calibration testing. Adjust the sprayer pressure to get the proper flow rate.

Caution:	Conventional tips are rated at 40 psi (3 bar), for example a 8004 tip at 40 psi (3 bar) delivers 0.4 US gal/min (1.5 litres/min) . Only conventional 80° tips are recommended for the Skid Mount Sprayer . Wider angle tips (ie 110°) can be used in the boom configuration but the height needs to be adjusted to achieve proper overlap. 110° tips CANNOT be used with the wind deflector attachments.
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Nozzles

Despite being the most important component for accurate uniform spraying application, nozzles are often neglected and abused.

Nozzle flow rate depends on effective orifice size and pressure. Spray tip manufacturers have supplied tables of nozzle application rates at various pressures, for the best results it is recommended that you follow these guidelines.

The rule of thumb is that as you increase the pressure to your unit the average droplet size decreases. Normally with conventional open boom sprayers large droplets are used to control drift but large droplets can roll off plants without sticking. With the optional covered spray system you will be able to spray with smaller droplets, increase coverage and not worry about drift.

The spray patterns must overlap for even coverage but should not interfere with one another. Nozzles are set at a 10° angle so that one edge of its pattern will be just behind the edge of its adjacent spray pattern, evading interference with each other.

Typically as a tip wears the spray pattern distorts, output volumes usually increase and the droplet characteristics change. Recalibration may correct for output changes, but cannot correct for spray pattern changes or the drop size generated. Replacement tips can be purchased through Rogers Sprayers Inc. parts department.

Be cautious as this could possibly happen when using the wind breaker attachment:

When spraying next to a flower bed, do not spray over the turf edge as the spray will go under the curtain and onto the flowers.

Diaphragm Check Valve Nozzle Bodies

Diaphragm check valves close at approximately 15 psi (1 bar) to prevent excessive dripping from the tip after the sprayer has been turned off. Should the tip continue to drip, stop the leak by either tightening the check valve cap or removing the cap and inspect the seal for damage, excessive wear, or improper assembly.

To check for defective check valves when the spraying stop control has been actuated, the volume that drips from each nozzle should not exceed 2ml timed over a 5 minute period. The measuring is to start 8 seconds after the flow to the spray boom is shut off.

Nozzle caps are attached by engaging the cap and turning clockwise about one third of a turn. Self-aligning caps have a slot to align the tips. Ensure that the tips fit down into the slotted hole before installing caps on the diaphragm nozzle body assembly with the tip screens.

Non-aligning caps are also available for special tips.

Application Rate Tables

Table 1: American Application Rates at 20" Nozzle Spacing – 80 Degree Tips

Rogers Part #	Tip Number	Tip Mfg	Liquid Press psi	Liq. Press bars	Cap. /noz. gpm	U. S. GALLONS PER ACRE					U. S. GALLONS PER 1000 SQ. FT.				
						2.5	3	4	5	7	2.5	3	4	5	7
						mph	mph	mph	mph	mph	mph	mph	mph	mph	mph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	10.3	8.6	6.4	5.1	3.7	0.24	0.20	0.15	0.12	0.08
			40	2.76	0.100	11.9	9.9	7.4	5.9	4.2	0.27	0.23	0.17	0.14	0.10
			50	3.45	0.112	13.3	11.1	8.3	6.6	4.7	0.30	0.25	0.19	0.15	0.11
			60	4.14	0.122	14.5	12.1	9.1	7.3	5.2	0.33	0.28	0.21	0.17	0.12
00827	80015VS or API-80015 (100 mesh)	Teejet	30	2.07	0.130	15.4	12.9	9.6	7.7	5.5	0.35	0.29	0.22	0.18	0.13
			40	2.76	0.150	17.8	14.9	11.1	8.9	6.4	0.41	0.34	0.26	0.20	0.15
13351	API-80015 (100 mesh)	Albuz	50	3.45	0.168	19.9	16.6	12.5	10.0	7.1	0.46	0.38	0.29	0.23	0.16
			60	4.14	0.184	21.8	18.2	13.6	10.9	7.8	0.50	0.42	0.31	0.25	0.18
05876	8002VS or AXI-8002 (50 mesh)	Teejet	30	2.07	0.173	20.6	17.1	12.9	10.3	7.3	0.47	0.39	0.29	0.24	0.17
			40	2.76	0.200	23.8	19.8	14.9	11.9	8.5	0.54	0.45	0.34	0.27	0.19
14384	AXI-8002 (50 mesh)	Albuz	50	3.45	0.224	26.6	22.1	16.6	13.3	9.5	0.61	0.51	0.38	0.30	0.22
			60	4.14	0.245	29.1	24.2	18.2	14.5	10.4	0.67	0.56	0.42	0.33	0.24
05877	8003VS or AXI-8003 (50 mesh)	Teejet	30	2.07	0.260	30.9	25.7	19.3	15.4	11.0	0.71	0.59	0.44	0.35	0.25
			40	2.76	0.300	35.6	29.7	22.3	17.8	12.7	0.82	0.68	0.51	0.41	0.29
14385	AXI-8003 (50 mesh)	Albuz	50	3.45	0.335	39.8	33.2	24.9	19.9	14.2	0.91	0.76	0.57	0.46	0.33
			60	4.14	0.367	43.6	36.4	27.3	21.8	15.6	1.00	0.83	0.62	0.50	0.36
05878	8004VS or AXI-8004 (50 mesh)	Teejet	30	2.07	0.346	41.2	34.3	25.7	20.6	14.7	0.94	0.79	0.59	0.47	0.34
			40	2.76	0.400	47.5	39.6	29.7	23.8	17.0	1.09	0.91	0.68	0.54	0.39
14061	AXI-8004 (50 mesh)	Albuz	50	3.45	0.447	53.1	44.3	33.2	26.6	19.0	1.22	1.01	0.76	0.61	0.43
			60	4.14	0.490	58.2	48.5	36.4	29.1	20.8	1.33	1.11	0.83	0.67	0.48
05879	8005VS or AXI-8005 (50 mesh)	Teejet	30	2.07	0.433	51.4	42.9	32.2	25.7	18.4	1.18	0.98	0.74	0.59	0.42
			40	2.76	0.500	59.4	49.5	37.1	29.7	21.2	1.36	1.13	0.85	0.68	0.49
14386	AXI-8005 (50 mesh)	Albuz	50	3.45	0.559	66.4	55.3	41.5	33.2	23.7	1.52	1.27	0.95	0.76	0.54
			60	4.14	0.612	72.7	60.6	45.5	36.4	26.0	1.67	1.39	1.04	0.83	0.59
05880	8006VS or AXI-8006 (50 mesh)	Teejet	30	2.07	0.520	61.7	51.4	38.6	30.9	22.0	1.41	1.18	0.88	0.71	0.50
			40	2.76	0.600	71.3	59.4	44.6	35.6	25.5	1.63	1.36	1.02	0.82	0.58
14387	AXI-8006 (50 mesh)	Albuz	50	3.45	0.671	79.7	66.4	49.8	39.8	28.5	1.82	1.52	1.14	0.91	0.65
			60	4.14	0.735	87.3	72.7	54.6	43.6	31.2	2.00	1.67	1.25	1.00	0.71
05881	8008VS (50 mesh)	Teejet	30	2.07	0.693	82.3	68.6	51.4	41.2	29.4	1.88	1.57	1.18	0.94	0.67
			40	2.76	0.800	95.0	79.2	59.4	47.5	33.9	2.18	1.81	1.36	1.09	0.78
			50	3.45	0.894	106.3	88.5	66.4	53.1	37.9	2.43	2.03	1.52	1.22	0.87
			60	4.14	0.980	116.4	97.0	72.7	58.2	41.6	2.67	2.22	1.67	1.33	0.95
14414	XR8010SS	Teejet	30	2.07	0.866	102.9	85.7	64.3	51.4	36.7	2.36	1.96	1.47	1.18	0.84
			40	2.76	1.000	118.8	99.0	74.3	59.4	42.4	2.72	2.27	1.70	1.36	0.97
			50	3.45	1.118	132.8	110.7	83.0	66.4	47.4	3.04	2.53	1.90	1.52	1.09
			60	4.14	1.225	145.5	121.2	90.9	72.7	52.0	3.33	2.78	2.08	1.67	1.19
	80125		30	2.07	1.083	128.6	107.2	80.4	64.3	45.9	2.94	2.45	1.84	1.47	1.05
			40	2.76	1.250	148.5	123.8	92.8	74.3	53.0	3.40	2.83	2.13	1.70	1.21
			50	3.45	1.398	166.0	138.4	103.8	83.0	59.3	3.80	3.17	2.38	1.90	1.36
			60	4.14	1.531	181.9	151.6	113.7	90.9	65.0	4.16	3.47	2.60	2.08	1.49
14415	XR8015SS	Teejet	30	2.07	1.299	154.3	128.6	96.5	77.2	55.1	3.53	2.94	2.21	1.77	1.26
			40	2.76	1.500	178.2	148.5	111.4	89.1	63.6	4.08	3.40	2.55	2.04	1.46
			50	3.45	1.677	199.2	166.0	124.5	99.6	71.2	4.56	3.80	2.85	2.28	1.63
			60	4.14	1.837	218.2	181.9	136.4	109.1	77.9	5.00	4.16	3.12	2.50	1.78
	8020		30	2.07	1.732	205.8	171.5	128.6	102.9	73.5	4.71	3.93	2.94	2.36	1.68
			40	2.76	2.000	237.6	198.0	148.5	118.8	84.9	5.44	4.53	3.40	2.72	1.94
			50	3.45	2.236	265.6	221.4	166.0	132.8	94.9	6.08	5.07	3.80	3.04	2.17
			60	4.14	2.449	291.0	242.5	181.9	145.5	103.9	6.66	5.55	4.16	3.33	2.38

Capacity of the SMA150E (Skid Mount Sprayer)

The SMA150E is only designed to spray up to 8008 tips, you might be able to use 8010 tips and still obtain 40 psi with your system depending on the chemical used. Please note with the unit spraying at max capacity, there will virtually be no agitation back into the tank.

Table 2: Metric Application Rates at 20" Nozzle Spacing (.05 meters) – 80 Degree Tips

Rogers Part #	Tip Number	Tip Mfg	Liquid Press psi	Liquid Press bars	Cap /noz. gpm	U. S. GALLONS PER ACRE					Liters/Hectare				
						2.5	3	4	5	7	4	4.8	6.4	8	11.2
						mph	mph	mph	mph	mph	kph	kph	kph	kph	kph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	10.3	8.6	6.4	5.1	3.7	96	80	60	48	34
			40	2.76	0.100	11.9	9.9	7.4	5.9	4.2	111	93	69	56	40
			50	3.45	0.112	13.3	11.1	8.3	6.6	4.7	124	103	78	62	44
			60	4.14	0.122	14.5	12.1	9.1	7.3	5.2	136	113	85	68	49
00827 13351	80015VS or API-80015 (100 mesh)	Teejet	30	2.07	0.130	15.4	12.9	9.6	7.7	5.5	144	120	90	72	52
			40	2.76	0.150	17.8	14.9	11.1	8.9	6.4	167	139	104	83	60
		Albuz	50	3.45	0.168	19.9	16.6	12.5	10.0	7.1	186	155	116	93	67
			60	4.14	0.184	21.8	18.2	13.6	10.9	7.8	204	170	128	102	73
05876 14384	8002VS or AXI-8002 (50 mesh)	Teejet	30	2.07	0.173	20.6	17.1	12.9	10.3	7.3	192	160	120	96	69
			40	2.76	0.200	23.8	19.8	14.9	11.9	8.5	222	185	139	111	79
		Albuz	50	3.45	0.224	26.6	22.1	16.6	13.3	9.5	248	207	155	124	89
			60	4.14	0.245	29.1	24.2	18.2	14.5	10.4	272	227	170	136	97
05877 14385	8003VS or AXI-8003 (50 mesh)	Teejet	30	2.07	0.260	30.9	25.7	19.3	15.4	11.0	289	240	180	144	103
			40	2.76	0.300	35.6	29.7	22.3	17.8	12.7	333	278	208	167	119
		Albuz	50	3.45	0.335	39.8	33.2	24.9	19.9	14.2	373	310	233	186	133
			60	4.14	0.367	43.6	36.4	27.3	21.8	15.6	408	340	255	204	146
05878 14061	8004VS or AXI-8004 (50 mesh)	Teejet	30	2.07	0.346	41.2	34.3	25.7	20.6	14.7	385	321	240	192	137
			40	2.76	0.400	47.5	39.6	29.7	23.8	17.0	444	370	278	222	159
		Albuz	50	3.45	0.447	53.1	44.3	33.2	26.6	19.0	497	414	310	248	177
			60	4.14	0.490	58.2	48.5	36.4	29.1	20.8	544	453	340	272	194
05879 14386	8005VS or AXI-8005 (50 mesh)	Teejet	30	2.07	0.433	51.4	42.9	32.2	25.7	18.4	481	401	301	240	172
			40	2.76	0.500	59.4	49.5	37.1	29.7	21.2	555	463	347	278	198
		Albuz	50	3.45	0.559	66.4	55.3	41.5	33.2	23.7	621	517	388	310	222
			60	4.14	0.612	72.7	60.6	45.5	36.4	26.0	680	567	425	340	243
05880 14387	8006VS or AXI-8006 (50 mesh)	Teejet	30	2.07	0.520	61.7	51.4	38.6	30.9	22.0	577	481	361	289	206
			40	2.76	0.600	71.3	59.4	44.6	35.6	25.5	666	555	417	333	238
		Albuz	50	3.45	0.671	79.7	66.4	49.8	39.8	28.5	745	621	466	373	266
			60	4.14	0.735	87.3	72.7	54.6	43.6	31.2	816	680	510	408	292
05881	8008VS (50 mesh)	Teejet	30	2.07	0.693	82.3	68.6	51.4	41.2	29.4	770	641	481	385	275
			40	2.76	0.800	95.0	79.2	59.4	47.5	33.9	889	741	555	444	317
			50	3.45	0.894	106.3	88.5	66.4	53.1	37.9	994	828	621	497	355
			60	4.14	0.980	116.4	97.0	72.7	58.2	41.6	1088	907	680	544	389
14414	XR8010SS	Teejet	30	2.07	0.866	102.9	85.7	64.3	51.4	36.7	962	802	601	481	344
			40	2.76	1.000	118.8	99.0	74.3	59.4	42.4	1111	926	694	555	397
			50	3.45	1.118	132.8	110.7	83.0	66.4	47.4	1242	1035	776	621	444
			60	4.14	1.225	145.5	121.2	90.9	72.7	52.0	1360	1134	850	680	486
	80125		30	2.07	1.083	128.6	107.2	80.4	64.3	45.9	1202	1002	752	601	429
			40	2.76	1.250	148.5	123.8	92.8	74.3	53.0	1388	1157	868	694	496
			50	3.45	1.398	166.0	138.4	103.8	83.0	59.3	1552	1294	970	776	554
			60	4.14	1.531	181.9	151.6	113.7	90.9	65.0	1701	1417	1063	850	607
14415	XR8015SS	Teejet	30	2.07	1.299	154.3	128.6	96.5	77.2	55.1	1443	1202	902	721	515
			40	2.76	1.500	178.2	148.5	111.4	89.1	63.6	1666	1388	1041	833	595
			50	3.45	1.677	199.2	166.0	124.5	99.6	71.2	1863	1552	1164	931	665
			60	4.14	1.837	218.2	181.9	136.4	109.1	77.9	2041	1701	1275	1020	729
	8020		30	2.07	1.732	205.8	171.5	128.6	102.9	73.5	1924	1603	1202	962	687
			40	2.76	2.000	237.6	198.0	148.5	118.8	84.9	2222	1851	1388	1111	793
			50	3.45	2.236	265.6	221.4	166.0	132.8	94.9	2484	2070	1552	1242	887
			60	4.14	2.449	291.0	242.5	181.9	145.5	103.9	2721	2267	1701	1360	972

Capacity of the SMA150E (Skid Mount Sprayer)

The SMA150E is only designed to spray up to 8008 tips, you might be able to use 8010 tips and still obtain 40 psi with your system depending on the chemical used. Please note with the unit spraying at max capacity, there will virtually be no agitation back into the tank.

Calibration

As a tip wears recalibration may be required. Collect the output from each nozzle for 60 seconds, using an accurate measuring cup. Use clear water for all testing. Record the output from each nozzle. Replace nozzles that are more than 5% above or below the average reading, or has a visibly distorted pattern.

Run a speed test in the area to be sprayed. The sprayer must be up to speed before starting the test run. To determine the speed mark off a distance as found on one of the tables. Operate the sprayer over this distance carefully noting and recording the time to cover the distance. The speed traveled can be found for the specific distance and time to travel using the tables below.

After the nozzles have been individually checked and matched, the sprayer should be calibrated to determine the correct speed for the desired application volume. To get area covered multiply the width (ie. BK10 – 10ft(3.04m), BK12 – 12ft (3.66m)) x distance).

Table 1: Time in Seconds to Travel Distance of:

	10	25	50	100	200
mph	(ft)	(ft)	(ft)	(ft)	(ft)
1	6.8	17.0	34.1	68.2	136.0
1.5	4.5	11.4	22.7	45.5	90.9
2	3.4	8.5	17.0	34.1	68.2
2.5	2.7	6.8	13.6	27.3	54.5
3	2.3	5.7	11.4	22.7	45.5
4	1.7	4.3	8.5	17.0	34.1
5	1.4	3.4	6.8	13.6	27.3
6	1.1	2.8	5.7	11.4	22.7

Table 2: Time in Seconds to Travel a Distance of:

	10	25	50	100	200
Km/h	(m)	(m)	(m)	(m)	(m)
1	36.0	90.0	180.0	360.0	720.0
1.5	24.0	60.0	120.0	240.0	480.0
2	18.0	45.0	90.0	180.0	360.0
2.5	14.4	36.0	72.0	144.0	288.0
3	12.0	30.0	60.0	120.0	240.0
4	9.0	22.5	45.0	90.0	180.0
5	7.2	18.0	36.0	72.0	144.0
6	6.0	15.0	30.0	60.0	120.0

Note: Tip pressure is usually less than the pressure at the pump. Losses occur in valves, hoses, etc. Always check the flow by the above calibration method.

Assembly & Installation

For safety reasons please do not try and install your SMA150E with one person, a minimum of 2 people are required for assembly and installation. Remove skid mount (SMA150E) and Boom (either BK10T or BK12T) from box or packaging. Convenient handles are placed on all 4 corners of the SMA150E that are designed for lifting an moving the skid around.

Stand unit up using legs and pins as seen in figure 1.



Figure 1. Stand unit on legs.



Figure 2. Lift front of SMA150E

Stand unit up using legs and pins as seen in Figure 1.



Figure 3. Place in box

Lift unit and set in rear of box.



Figure 4. Fold Legs

Fold and pin legs for transport as seen in Figure 4 above.



Figure 5. Slide in box

Using 2 people lift the back of the unit and slowly slide into box of utility vehicle. Remove and fold back legs.



Figure 6. Tank Locks

Center sprayer in box and thread out tank lock so that skid is firmly in box. Use jam nut to hold threaded tank lock in place. Skid frame should be tight against the front of the box.



Figure 7. Install center boom

Attach Center Frame to the Skid Mount Frame. Due to height differences between work vehicles, the placement of the center frame on the Skid Mount will be different. With the open boom, optimum height is anywhere from 24-30 inches off the ground. (Measured from the tip to the target) With the wind deflector boom attachments, the wind deflectors are designed to have the tip exactly 24 inches from the target, so you will want to set your boom accordingly. If there is too much space in between the boom mount angles and the skid mount angles, please insert washers before tightening. Mounting bolts should be preloaded in frame for ease of assembly.

Install boom hose to output on pressure regulator on skid frame.



Figure 8. Install wings



Figure 9. Install wing hose

Install wings using pin in pivot first then load in break away mechanism. With wing loaded, install chain and hose. Use top bolt spring and chain links to adjust height of boom to be level with center section.

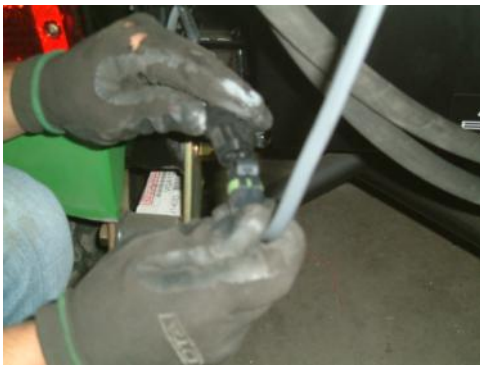


Figure 9. Battery Hookup



Figure 10. Solenoid install

To hook up the electrical, you will need access to the battery of your work vehicle. The supplied grey power cord will need to be installed on the terminals of the onboard battery. (a weather pak connector is used so that removal of the skid can be made without removing battery terminals) Install wires on solenoid and regulator as per manufacturers instructions.



Figure 11. Control box install

The electric solenoid control box can be mounted at the front of the work vehicle. Install in a convenient easy to see location.



Figure 12. Hydraulic hookup

Plug in the hydraulic lines to the female outlets underneath your work vehicle

Testing After Assembly

After assembling the spray boom, check for field readiness. Points to consider are:

- a) Remove the nozzle body caps with the spray tips and the tip screens. Flush the entire system with clear water. Install the tip screens and nozzle caps with spray tips. Check for proper alignment of the nozzle caps. Pressure test all the booms inspecting hose connections, nozzle caps, spray pattern and diaphragm nozzle bodies.
- b) Move all hinge or swivel joints through the full arc of movement. Check for interference, ease of movement.
- c) Check all fasteners to see that they are tightened firmly, or allowed to pivot if required.
- d) Calibrate the sprayer.

Last Check

- ⇒ Recheck all assembled parts for completeness and secure connections.
- ⇒ Your sprayer is now ready for a wet test, to ensure complete operation.

Operation

Once the Skid frame is installed in the power unit, add clean water to the tank.

IMPORTANT:

Never fill the tank with the unit on its storage legs, the legs are not designed to with stand the water load and will break.

Prior to starting be sure that the ball valve from the bottom of the tank is OPEN to allow water into the pump (see figure 13 below). Completely open the throttling valve (figure 14) and start the power unit and engage the hydraulics to the pump. Turn on the power to the electric solenoid. Slowly close the Throttling valve, at the back, and adjust the pressure regulator on the control box. Ideal spraying pressure is 40 psi. Once you can obtain +/- 40 psi with just using the control box adjustment, lock the throttling valve by tightening the bottom ring. You may need to open or close the throttling valve as you change tip sizes, to obtain control with the electric pressure regulator.

This unit is equipped with Tee Jet brand Triplex nozzle bodies. It is able to switch between 3 different nozzle tips by rotating the head around. Note : Only adjust the spray tips when the unit is not in operation/spraying. Make sure one of the nozzles is pointed towards the ground. If not, a nozzle will impact with the frame when placing the wing in an upright position.

If your unit is equipped with a Honda engine, consult the manual provided for operating instructions.

Note: The pump requires fluid flowing through it for lubrication. Do not run without fluid. The lack of fluid will cause your pump to overheat and prematurely wear.



Figure 13. Tank drain ball valve

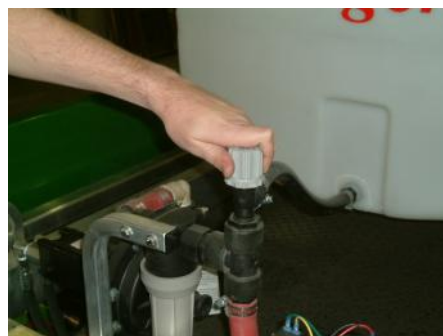


Figure 14. Throttling valve

Breakaway Operation

Should the wing hit a large or fairly heavy object on the field, the wing will pivot back out of the way. Stop and shut off the sprayer immediately. Reset the boom manually after such an incident. Swing the boom forward and the catch mechanism will lock the boom in place. Note be aware of all pinch points while the boom is being reset.

General Maintenance

Cleaning

Sprayers need to be cleaned to prevent corrosion and cross contamination of chemicals. Trace amounts of one chemical can react with another or carry over to the next spraying and cause crop damage, especially with pesticides. Long exposures with even small amounts of some chemicals can damage sprayer components either by corrosion or gum deposits. If you spray crops that are very susceptible to injury from the last chemical used (ie vegetables, turf, and ornamentals) clean the unit especially well.

Always try to end the day with an empty tank; avoid contamination of water supplies and injury to plants or animals. Do not make puddles that might be accessible to children, pets, farm animals, or wildlife. Flush with clean water preferably after each day's operation. If you plan to use the same material over several days most chemicals may be kept in the tank overnight, labels on the chemical usually indicates which may not. Rinse the outside of the sprayer. Surfactants combined with chemicals, when they are compatible, will provide some cleaning action in the sprayer.

Some chemical combinations (especially if oil is used) may produce a putty type paste (buttering out) in the sprayer tank and components; flushing with water after each load may prevent an accumulation. If water alone does not dissolve and remove the buildup, add solvent, kerosene, or other low flammable solvent; allow paste to dissolve, then agitate and flush. Next, flush with detergent and finally with clean water. Check with your chemical agent.

Whenever pesticides are changed, or before sprayer storage, clean sprayers thoroughly with a cleaning solution. The solution used depends on the chemical to be removed from the sprayer. Check the chemical label for cleaning instructions.

First flush with water, then add the cleaning solution to the tank and thoroughly agitate before flushing. Always flush with clean water to remove the cleaning solution. Remove nozzle tips and screens; clean them in a strong detergent solution or kerosene, using a soft brush such as an old toothbrush. Never use a metal probe to clean the orifice of a spray tip!

Follow the same safety precautions during cleaning as for applications. Use a respirator, rubber gloves, or other protective gear as may be directed by label instructions.

If a nozzle becomes blocked, turn the sprayer off. Note that the spray lines could still be pressurized therefore prior to removing the cap on the nozzle body, proper safety equipment should be worn, (ie gloves, eye protection, etc).

Sunshine

Many plastic sprayer parts are degraded by ultra violet light, especially the nozzle flow indicators. Store the sprayer in the shade to extend the length of service.

Winterizing

After the sprayer is thoroughly cleaned, put 2-5 gallons (7-19 liters) of rust inhibitor or antifreeze in the tank prior to the final flushing to help prevent corrosion. As the water is pumped from the sprayer, the antifreeze will leave a protective coating on the inside of the tank, pump, and plumbing. Remove nozzle tips, screens and no-drip valves (if used) and store them in a can of light oil such as diesel fuel or kerosene to prevent corrosion. Close nozzle openings with tape to prevent dirt, insects, mice, or other contaminants from entering.

During the final cleaning, completely check the sprayer. Look at the hoses, clamps, connections, nozzle tips, and screens for needed replacements. Store the sprayer in a reasonably clean and dry building.

Trouble Shooting

Leaking Nozzles

If 1 or 2 tips drip until the line is empty, check:

For deteriorated diaphragms

- ⇒ For material under the diaphragm
- ⇒ For a weak spring
- ⇒ For a deterioration of the diaphragm sealing surface

If all tips spray for more than 3 seconds after shut off, check:

- ⇒ To see if the sprayer shut off valve is leaking

If all tips spray for less than 3 seconds after shut off, check:

- ⇒ For air accumulation in the line
- ⇒ For swelling of the feed hoses

If the diaphragm leaks out the diaphragm spring body, check:

- ⇒ For loose spring body
- ⇒ For ruptured diaphragms
- ⇒ For misaligned diaphragm
- ⇒ For broken diaphragm body

Wing Breaks Away Too Easily

Adjust the bolt on the top of the spring, tightening the bolt adds tension making it more difficult to breakaway.

Striping

At end of Shroud – check:

- ⇒ If tips are spraying at a greater angle than 80°.
- ⇒ High tip pressure, over 40psi (2.8 Bar), will cause a wider spray pattern by extending the spray pattern angle.

Between Tips – check:

- ⇒ Low tip pressure will cause a narrower pattern. Actual tip pressure should be as close to 40 psi (1.7 - 2.8 bar) as possible.
- ⇒ Check tip screens to see if they are plugged.

Blocked Nozzles

If a nozzle becomes blocked, turn the sprayer off and completely fold up the spray boom (ie fold into transport position).

Note that the spray lines could still be pressurized. Therefore prior to removing the cap on the nozzle body, proper safety equipment should be worn, (ie gloves, eye protection, etc).

Drawings and Replacement Parts

Frame Assembly SMA150E

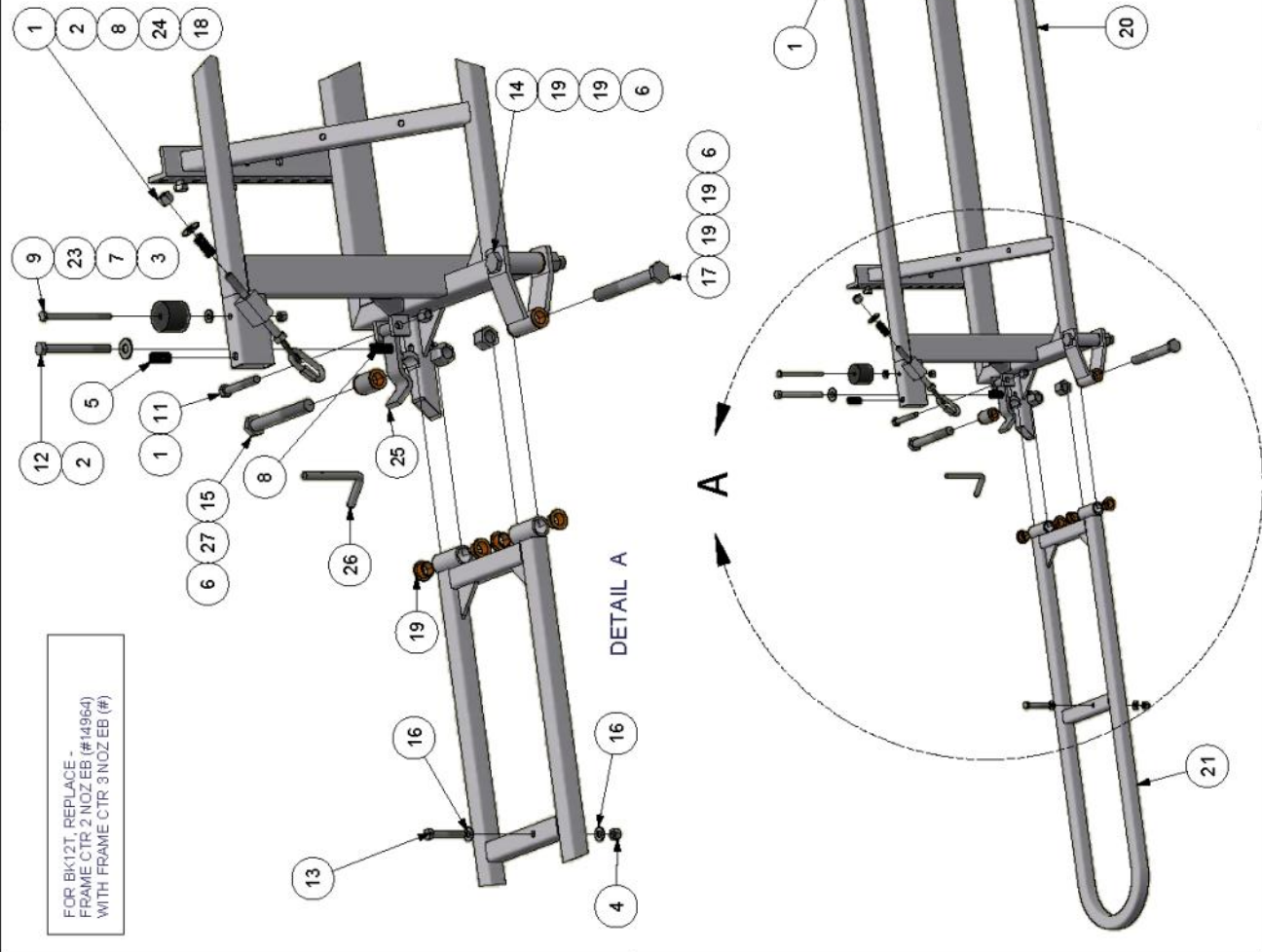
Parts List

ITEM	QTY	PART#	DESCRIPTION
1	8	00956	NUT, NYLOCK, 3/8NC, PLD
2	12	00957	WASHER, FLAT, 3/8" PLD
3	4	00963	NUT, NYLOCK, 1/2NC, PLD
4	2	00968	NUT, NYLOCK, 1/4" PLD
5	4	00976	WASHER FLAT 1/2 PLD
6	4	01055	BOLT, 1/2"x3", PLD
7	1	01056	PLUG, 1" SQ, PLASTIC
8	4	01157	WASHER FLAT, 1/4"
9	2	05436	BOLT, 3/8"x2.5", PLD
10	6	05437	BOLT, 3/8"x3", PLD
11	2	05440	BOLT, 3/8"x4", PLD
12	2	05569	WASHER LOCK 3/8 PLD
13	4	12361	PIN, HITCH, 3/32" x 1.5"
14	4	13709	NUT, JAM 5/8NC, PLD
15	2	14845	BOLT, 1/4NCx4.5, PLD
16	1	14884	PUMP CENT/HYD POLY PUMP ASSY
17	1	14910	SOLENOID ASSEMBLY
18	1	14980	SKID FRAME ASSBY, SMA
19	4	14985	LEG ASSEMBLY EB
20	4	14988	FRAME STABILIZER LOCK, SMA
21	4	14993	TANK LOCK EB
22	4	14999	LEG PIN, SMA
23	1	15054	SPRAYER SUPPORT L
24	1	15055	SPRAYER SUPPORT R

Frame Assembly BK10T & BK12T

Parts List

ITEM	QTY	PART#	DESCRIPTION
1	10	00956	NUT, NYLOCK, 3/8NC, PLD
2	6	00957	WASHER, FLAT, 3/8" PLD
3	2	00968	NUT, NYLOCK 1/4" PLD
4	2	00969	NUT, NYLOCK, 5/16NC, PLD
5	2	01041	SPRING CPRN 3/8"ID X 2.125 LG
6	6	01051	NUT, NYLOCK, 5/8NC, PLD
7	2	01157	WASHER FLAT, 1/4"
8	4	05249	SPRING CPRN 3/8"ID X 1" LG, SQ
9	2	05415	BOLT, 1/4NCx4, PLD
10	4	05431	BOLT, 3/8"x1", PLD
11	2	05436	BOLT, 3/8"x2.5", PLD
12	2	05440	BOLT, 3/8"x4", PLD
13	2	05447	BOLT, 5/16"x2", PLD
14	2	05456	BOLT, 5/8"x4", PLD
15	2	05457	BOLT, 5/8"x4.5", PLD
16	4	07616	WASHER FLAT SAE 5/16 PLD
17	2	12387	BOLT, 5/8"x5", PLD
18	2	14106	CHAIN QUICK LINK, 1/4 - 5/16"
19	16	14127	BUSHING, IG, 3/4x5/8X1/2 W/FLG
20	1	14958	FRAME CENTER 2 NOZ EB
21	2	14964	FRAME WING EB
22	2	14967	SWIVEL MOUNT ASSY
23	2	14989	RUBBER STOPPER
24	2	14990	BLOCK BOLT
25	2	14992	BREAKAWAY ASSY EB
26	2	14995	LATCH ROD
27	2	15049	PIVOT BUSHING, NYL

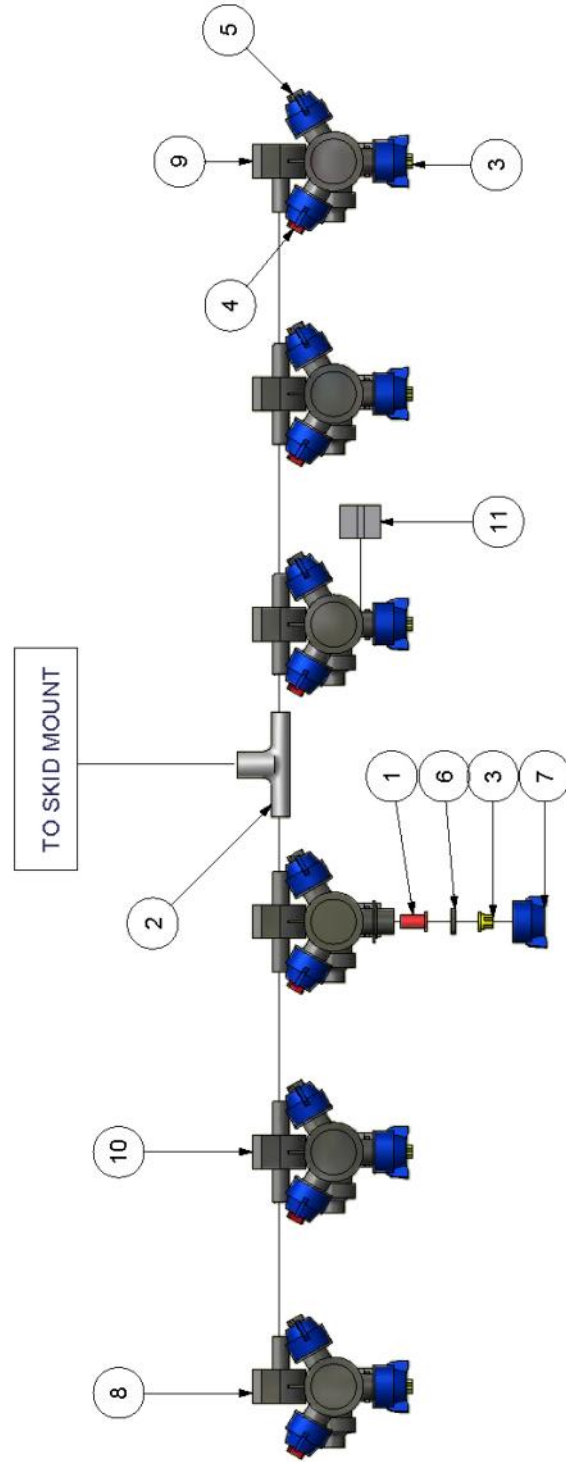


DRAWN: Peter Fredrikson
DATE: 10/05/2011
SCALE: E
TITLE: Frame Assembly Drawing BK10T/12T
DWG NO: 15078
REVISION #
MATERIAL
SIZE: A

Plumbing Assembly BK10T & BK12T

Parts List

ITEM	QTY	PART#	DESCRIPTION
1	18	04720	SCREEN, TIP 50 MESH
2	1	05844	FTG POLY TEE 1/2HBx3/4HBx1/2HB
3	6	05876	TIP 8002VS YELLOW
4	6	05878	TIP 8004VS RED
5	6	05880	TIP 8006VS GREY
6	18	14284	SEAL NOZZLE CAP, TJ
7	18	14288	CAP T J-NB BLUE
8	1	14503	NOZZLE BODY TJ TRIP SHB LEFT
9	1	14503	NOZZLE BODY TJ TRIP SHB RIGHT
10	4	14504	NOZZLE BODY TJ TRIP DHB
11	6	14505	CLAMP VARI-SPACING



DRAWN: Peter Fredriksson		Rogers Sprayers	
DATE: 10/05/2011		TITLE: BK10T/12T Plumbing Drawing	
BY: PFR		DWG NO: 15080	
SKID MOUNT		REVISION #	
SCALE: 1/6	MATERIAL: A	SIZE: A	

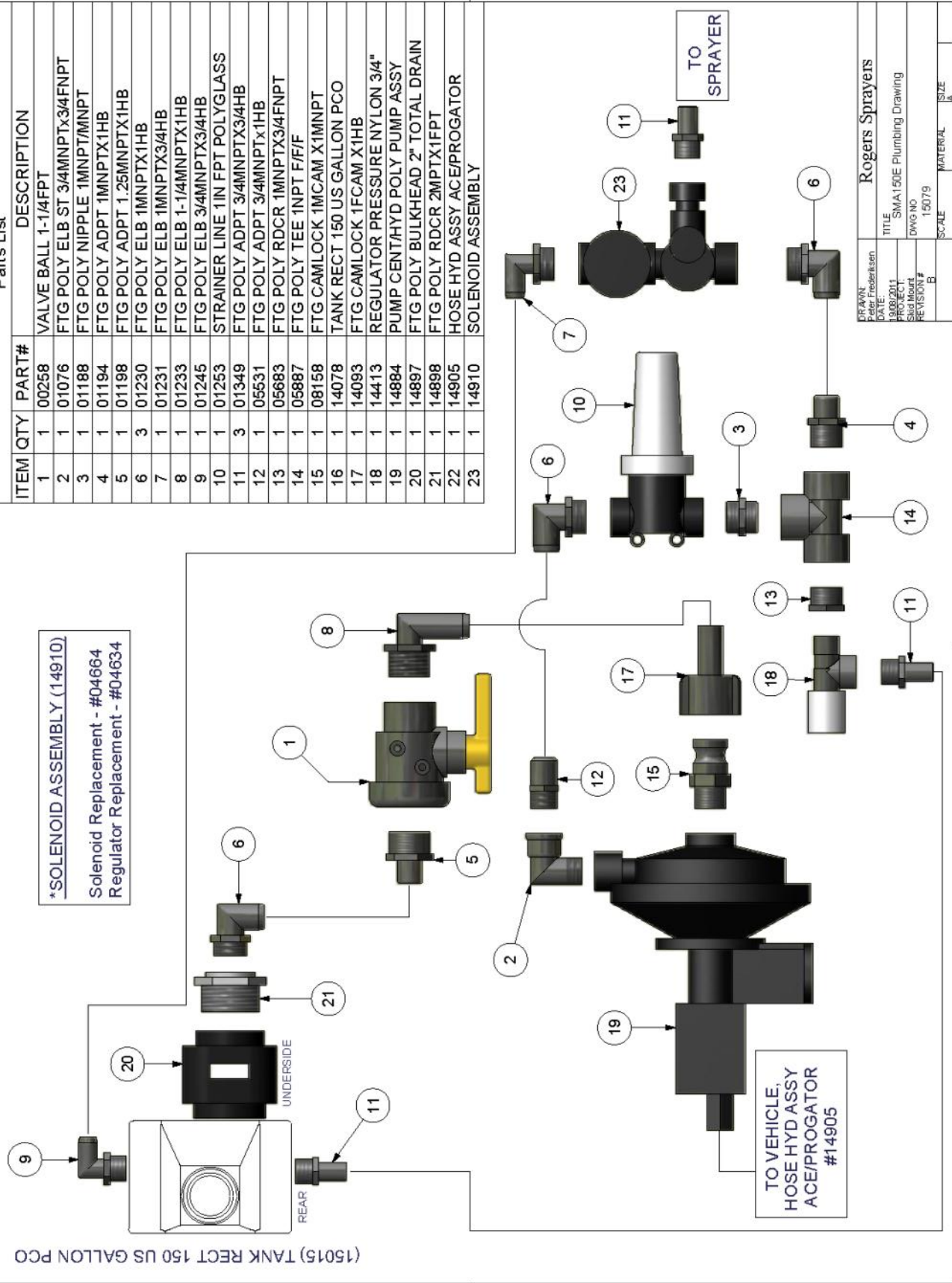
NOTE: BK12T HAS 7x TRIPLEX NOZZLE BODIES INSTALLED

Plumbing Assembly SMA150E

Parts List

ITEM	QTY	PART#	DESCRIPTION
1	1	00258	VALVE BALL 1-1/4FPT
2	1	01076	FTG POLY ELB ST 3/4MNPTX3/4FNPT
3	1	01188	FTG POLY NIPPLE 1MNPT/MNPT
4	1	01194	FTG POLY ADPT 1MNPTX1HB
5	1	01198	FTG POLY ADPT 1.25MNPTX1HB
6	3	01230	FTG POLY ELB 1MNPTX1HB
7	1	01231	FTG POLY ELB 1MNPTX3/4HB
8	1	01233	FTG POLY ELB 1-1/4MNPTX1HB
9	1	01245	FTG POLY ELB 3/4MNPTX3/4HB
10	1	01253	STRAINER LINE 1IN FPT POLYGLASS
11	3	01349	FTG POLY ADPT 3/4MNPTX3/4HB
12	1	05531	FTG POLY ADPT 3/4MNPTX1HB
13	1	05883	FTG POLY RDCR 1MNPTX3/4FNPT
14	1	05887	FTG POLY TEE 1NPT F/F/F
15	1	08158	FTG CAMLOCK 1MCAM X1MNPT
16	1	14078	TANK RECT 150 US GALLON PCO
17	1	14093	FTG CAMLOCK 1FCAM X1HB
18	1	14413	REGULATOR PRESSURE NYLON 3/4"
19	1	14884	PUMP CENT/HYD POLY PUMP ASSY
20	1	14897	FTG POLY BULKHEAD 2" TOTAL DRAIN
21	1	14898	FTG POLY RDCR 2MPTX1FPT
22	1	14905	HOSE HYD ASSY ACE/PROGATOR
23	1	14910	SOLENOID ASSEMBLY

*SOLENOID ASSEMBLY (14910)
Solenoid Replacement - #04664
Regulator Replacement - #04634



DRAWN: Peter Frederiksen	TITLE: Rogers Sprayers
DATE: 10/05/2011	TITLE: SMA150E Plumbing Drawing
BY: Peter Frederiksen	DWG NO: 15079
SCALE: B	REVISION #
MATERIAL	SIZE: A



ROGERS SPRAYERS INC.

141 - 105th Street East
Saskatoon, SK S7N 1Z2
Canada

Phone: (306) 975-0500
Fax: (306) 975-0499
Email: info@rogerssprayers.com
Web: www.rogerssprayers.com