



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



GF13



17.3ft/5.3m Aluminum Covered Spray Boom



Assembly, Parts and Operator's Manual

Version GF13-1905

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DCSS Forward

The Drift Containment Spray System (DCSS) was developed to give the industry an environmentally friendly and reliable way to apply liquids to turf. This system, designed in a wind tunnel and proven by government tests, contains the spray in a shroud that is sealed to the turf's surface. Tests show the DCSS has better drift control in winds of 24 mph (40 kph) than an open boom in winds of 6 mph (10 kmh), which virtually eliminates the wind problem in spraying.

The DCSS is the most environmentally friendly and safe liquid applicator available in the world today. By using it you join the leading professionals around-the-world and protect the environment.

Safety

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

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

Assembly Safety

- Clear large area to fold booms out in field position.
- A minimum of two people are required for the assembly of large equipment, especially when lifting or exertion is required. When removing and assembling the center and the wings of the spray boom out of the original shipping box, use recommended lift points (see installation instructions).
- Always use clean tools of the proper size and specification to match the hardware and specific job.
- This unit has no inherent stability when not connected to the sprayer, thus for storage it should be partially disassembled. Remove wings, boom mount tubes, float arm assemblies with center actuators from center section, prior to storage.

Operational Safety

- Shut down sprayer and power unit then wait for all parts to stop before adjusting, cleaning, or lubricating the power unit or sprayer.
- Before spraying an area familiarize yourself with any rocks, debris, trees, traps, ditches, or gullies that may be potentially dangerous. Plan the spraying route to avoid these hazards. When spraying, use individual section controls to reduce the amount of double spraying.
- Keep sprayer boom width in mind at all times. When turning, exercise caution and avoid any obstacles or other persons. Remember the boom takes a wider swing going around corners.
- This boom should only be mounted on sprayers that are equipped with a clean water tank for the operator's use with a minimum capacity of 15 liters. This tank is to be totally isolated from the other parts of the machine and shall be fitted with a tap which can be opened without being continuously pressed.
- Spray only chemicals that unit was designed for, (ie turf application). Do not use products for which unit was not designed, (ie PAINT, sealants, cleaning fluids, dust inhibitors, ice surfaces).
- Stay clear of the pinch points and areas where the sprayer moves under power. Areas of concern include but are not limited to the following: 1) When the center section is folding up and the wing rest ring come to rest in the wing lockup yokes, stay clear of the lockup yokes, fixed and float arm assemblies, center actuators and center wheel mount assembly pivot points. 2) As the wings are folded up, stay clear of the wing lift pivots, actuators and all pivot points in that area. 3) As the wings are folding down from the vertical position the wing shroud overlaps the center shroud and presents a hazard of pinching, stay clear of this area. 4) When the wings break away, take caution when manually reloading the breakaway tube into the break latch of any pinch points.
- Any maintenance intervention, in particular welding, shall only be undertaken after the spray boom has been thoroughly rinsed.

Transport Safety

- Reduce speed on rough terrain.
- For all sprayers ensure that booms are folded and/or locked securely for transport.
- If excessive buffeting of airfoil/curtains occurs reduce speed as damage may result.

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.

For maximum drift control, keep curtain in contact with the canopy to ensure a seal to it. Drift control is less effective when the wind blows the curtain off the turf canopy, breaking the seal between the curtain and the turf.

General Spraying Information

Application Tips

Always use clean filtered water in the sprayer tank.

Your DCSS is supplied with ceramic insert tips. Ceramic material is one of the hardest in the world; it greatly increases the life of your tips. Calibrate frequently to confirm tip accuracy.

Ensure that the pressure at the supply end of the hose, used on hose reels, is sufficient to deliver the proper pressure at the hand unit.

Check the flow rate from all nozzles using the capacity calibration technique; see the Calibration section for tables and instructions. Use only clear water with no trace of chemicals when performing all calibration tests. Adjust the sprayer pressure to get the proper flow rate. The flow meters are not accurate enough in absolute terms to be used as a flow meter. In relative terms they are very accurate.

Nozzles

Caution: The NEW GF13 Series Windfoil covered boom was designed to use 80° tips. 110° tips are not recommended. It is not recommended to mixed or interchange tips, (ie use 2 different brands, sizes, styles of tips at the same time).

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 the pressure.

As pressure increases, average droplet size decreases. If droplets are too small, drift may be excessive with conventional sprayers but not with the DCSS. With conventional sprayers, large droplets that are used to control drift can roll off plants without sticking. The DCSS will contain small droplets and allow them to be deposited on target plants. Small droplets are beneficial in that they increase coverage and with the DCSS drift is not a problem.

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. The curtain must be in contact with the turf at all times to seal the shroud to the turf surface and contain the drops inside.

Use only conventional 80° tips, as these tips will provide the most uniform spray pattern in the DCSS.

Caution: When spraying next to a flowerbed 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 15 psi (1 bar) to prevent excessive dripping. Should the cap on the valve loosen or the check valve diaphragm become misaligned the body may leak. Stop the leak by tightening the check valve cap or remove the cap and inspect the seal for damage 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 a 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 screen

Calibration

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.

Use only clear water with no trace of chemicals when performing all calibration tests. Rotate the DSCC up to calibrate and operate the sprayer at the desired pressure. Collect the output from each nozzle for 60 seconds, using an accurate measuring cup. 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.

Actual sprayer speed, as determined from the tables below, will differ from the sprayer speedometer readings because of wheel slippage. Run a speed test in the field to be sprayed, and have the sprayer tank half full. The sprayer must be at full speed before starting the test run. To determine the speed discrepancy, mark off a distance as found on one of the tables. Run the power unit over this distance, carefully noting the speedometer reading and recording the time to cover the distance. The actual speed traveled can be found for the specific distance and time to travel, using the table.

After the nozzles have been individually checked and matched, the sprayer should be calibrated to determine the correct speed for the desired application volume.

Table 5: Time (seconds) to travel a distance of:

km/h	10m	25m	50m	100m	200m
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

Table 6: Time (seconds) to travel a distance of:

mph	10ft	20ft	50ft	100ft	200ft
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

Application Rate Tables

Table 1: American Application Rates at 16" Nozzle Spacing – 80 Degree Tips

American Application Rates at 16" 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 mph	3 mph	4 mph	5 mph	7 mph	2.5 mph	3 mph	4 mph	5 mph	7 mph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	12.9	10.7	8.0	6.4	4.6	0.29	0.25	0.18	0.15	0.11
			40	2.76	0.100	14.9	12.4	9.3	7.4	5.3	0.34	0.28	0.21	0.17	0.12
			50	3.45	0.112	16.6	13.8	10.4	8.3	5.9	0.38	0.32	0.24	0.19	0.14
			60	4.14	0.122	18.2	15.2	11.4	9.1	6.5	0.42	0.35	0.26	0.21	0.15
00827 15287	80015VS or AXI-80015 (100 mesh)	Teejet	30	2.07	0.130	19.3	16.1	12.1	9.6	6.9	0.44	0.37	0.28	0.22	0.16
			40	2.76	0.150	22.3	18.6	13.9	11.1	8.0	0.51	0.43	0.32	0.26	0.18
			50	3.45	0.168	24.9	20.8	15.6	12.5	8.9	0.57	0.48	0.36	0.29	0.20
			60	4.14	0.184	27.3	22.7	17.1	13.6	9.7	0.62	0.52	0.39	0.31	0.22
05876 14384	8002VS or AXI-8002 (50 mesh)	Teejet	30	2.07	0.173	25.7	21.4	16.1	12.9	9.2	0.59	0.49	0.37	0.29	0.21
			40	2.76	0.200	29.7	24.8	18.6	14.9	10.6	0.68	0.57	0.43	0.34	0.24
			50	3.45	0.224	33.2	27.7	20.8	16.6	11.9	0.76	0.63	0.48	0.38	0.27
			60	4.14	0.245	36.4	30.3	22.7	18.2	13.0	0.83	0.69	0.52	0.42	0.30
05877 14385	8003VS or AXI-8003 (50 mesh)	Teejet	30	2.07	0.260	38.6	32.2	24.1	19.3	13.8	0.88	0.74	0.55	0.44	0.32
			40	2.76	0.300	44.6	37.1	27.8	22.3	15.9	1.02	0.85	0.64	0.51	0.36
			50	3.45	0.335	49.8	41.5	31.1	24.9	17.8	1.14	0.95	0.71	0.57	0.41
			60	4.14	0.367	54.6	45.5	34.1	27.3	19.5	1.25	1.04	0.78	0.62	0.45
05878 14061	8004VS or AXI-8004 (50 mesh)	Teejet	30	2.07	0.346	51.4	42.9	32.2	25.7	18.4	1.18	0.98	0.74	0.59	0.42
			40	2.76	0.400	59.4	49.5	37.1	29.7	21.2	1.36	1.13	0.85	0.68	0.49
			50	3.45	0.447	66.4	55.3	41.5	33.2	23.7	1.52	1.27	0.95	0.76	0.54
			60	4.14	0.490	72.7	60.6	45.5	36.4	26.0	1.67	1.39	1.04	0.83	0.59
05879 14386	8005VS or AXI-8005 (50 mesh)	Teejet	30	2.07	0.433	64.3	53.6	40.2	32.2	23.0	1.47	1.23	0.92	0.74	0.53
			40	2.76	0.500	74.3	61.9	46.4	37.1	26.5	1.70	1.42	1.06	0.85	0.61
			50	3.45	0.559	83.0	69.2	51.9	41.5	29.6	1.90	1.58	1.19	0.95	0.68
			60	4.14	0.612	90.9	75.8	56.8	45.5	32.5	2.08	1.74	1.30	1.04	0.74
05880 14387	8006V or AXI-8006 (50 mesh)	Teejet	30	2.07	0.520	77.2	64.3	48.2	38.6	27.6	1.77	1.47	1.10	0.88	0.63
			40	2.76	0.600	89.1	74.3	55.7	44.6	31.8	2.04	1.70	1.28	1.02	0.73
			50	3.45	0.671	99.6	83.0	62.3	49.8	35.6	2.28	1.90	1.43	1.14	0.81
			60	4.14	0.735	109.1	90.9	68.2	54.6	39.0	2.50	2.08	1.56	1.25	0.89
05881	8008VS (50 mesh)	Teejet	30	2.07	0.693	102.9	85.7	64.3	51.4	36.7	2.36	1.96	1.47	1.18	0.84
			40	2.76	0.800	118.8	99.0	74.3	59.4	42.4	2.72	2.27	1.70	1.36	0.97
			50	3.45	0.894	132.8	110.7	83.0	66.4	47.4	3.04	2.53	1.90	1.52	1.09
			60	4.14	0.980	145.5	121.2	90.9	72.7	52.0	3.33	2.78	2.08	1.67	1.19
13674 14414	ER8010 or XR8010SS	Wilger	30	2.07	0.866	128.6	107.2	80.4	64.3	45.9	2.94	2.45	1.84	1.47	1.05
			40	2.76	1.000	148.5	123.8	92.8	74.3	53.0	3.40	2.83	2.13	1.70	1.21
			50	3.45	1.118	166.0	138.4	103.8	83.0	59.3	3.80	3.17	2.38	1.90	1.36
			60	4.14	1.225	181.9	151.6	113.7	90.9	65.0	4.16	3.47	2.60	2.08	1.49
14330	ER80125	Wilger	30	2.07	1.083	160.8	134.0	100.5	80.4	57.4	3.68	3.07	2.30	1.84	1.31
			40	2.76	1.250	185.6	154.7	116.0	92.8	66.3	4.25	3.54	2.66	2.13	1.52
			50	3.45	1.398	207.5	172.9	129.7	103.8	74.1	4.75	3.96	2.97	2.38	1.70
			60	4.14	1.531	227.3	189.5	142.1	113.7	81.2	5.21	4.34	3.25	2.60	1.86
14040 14415	MR8015 or XR8015SS	Wilger	30	2.07	1.299	192.9	160.8	120.6	96.5	68.9	4.42	3.68	2.76	2.21	1.58
			40	2.76	1.500	222.8	185.6	139.2	111.4	79.6	5.10	4.25	3.19	2.55	1.82
			50	3.45	1.677	249.0	207.5	155.7	124.5	88.9	5.70	4.75	3.56	2.85	2.04
			60	4.14	1.837	272.8	227.3	170.5	136.4	97.4	6.25	5.21	3.90	3.12	2.23
14195	MR8020	Wilger	30	2.07	1.732	257.2	214.3	160.8	128.6	91.9	5.89	4.91	3.68	2.94	2.10
			40	2.76	2.000	297.0	247.5	185.6	148.5	106.1	6.80	5.67	4.25	3.40	2.43
			50	3.45	2.236	332.1	276.7	207.5	166.0	118.6	7.60	6.34	4.75	3.80	2.72
			60	4.14	2.449	363.7	303.1	227.3	181.9	129.9	8.33	6.94	5.21	4.16	2.97

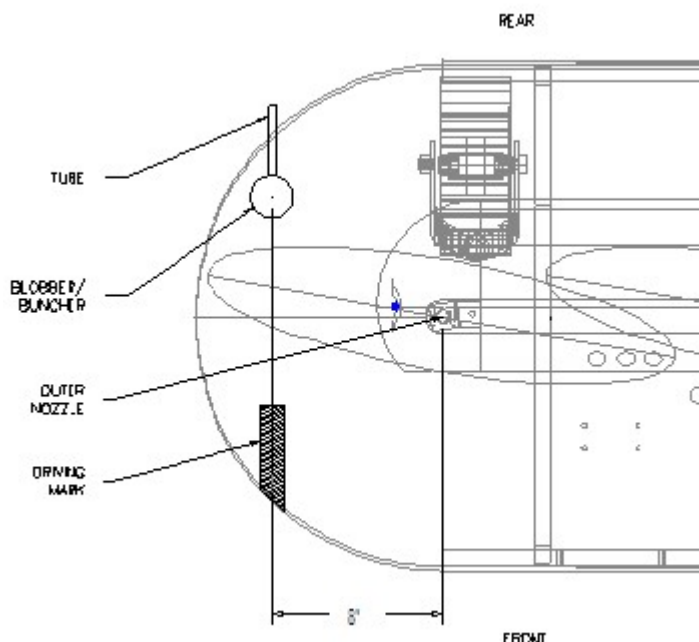
Table 2: Metric Application Rates at 16" Nozzle Spacing (0.4 meters) – 80 Degree Tips

Metric Application Rates at 16" Nozzle Spacing (0.4 meters)
80 Degree Tips

Rogers Part #	Tip Number	Tip Mfg	Liq Press psi	Liq. Press bars	Cap /noz. gpm	U. S. GALLONS PER ACRE					Liters/Hectare				
						3.125 mph	3.75 mph	4.38 mph	5 mph	5.625 mph	5 kph	6 kph	7 kph	8 kph	9 kph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	10.3	8.6	7.3	6.4	5.7	96	80	69	60	53
			40	2.76	0.100	11.9	9.9	8.5	7.4	6.6	111	93	79	69	62
			50	3.45	0.112	13.3	11.1	9.5	8.3	7.4	124	103	89	78	69
			60	4.14	0.122	14.5	12.1	10.4	9.1	8.1	136	113	97	85	76
00827 or 15287	8001VS or AXI-80015 (100 mesh)	Teejet or Albuz	30	2.07	0.130	15.4	12.9	11.0	9.6	8.6	144	120	103	90	80
			40	2.76	0.150	17.8	14.9	12.7	11.1	9.9	167	139	119	104	93
			50	3.45	0.168	19.9	16.6	14.2	12.5	11.1	186	155	133	116	103
			60	4.14	0.184	21.8	18.2	15.6	13.6	12.1	204	170	146	128	113
05876 or 14384	8002VS or AXI-8002 (50 mesh)	Teejet or Albuz	30	2.07	0.173	20.6	17.1	14.7	12.9	11.4	192	160	137	120	107
			40	2.76	0.200	23.8	19.8	17.0	14.9	13.2	222	185	159	139	123
			50	3.45	0.224	26.6	22.1	19.0	16.6	14.8	248	207	177	155	138
			60	4.14	0.245	29.1	24.2	20.8	18.2	16.2	272	227	194	170	151
05877 or 14385	8003VS or AXI-8003 (50 mesh)	Teejet or Albuz	30	2.07	0.260	30.9	25.7	22.0	19.3	17.1	289	240	206	180	160
			40	2.76	0.300	35.6	29.7	25.5	22.3	19.8	333	278	238	208	185
			50	3.45	0.335	39.8	33.2	28.5	24.9	22.1	373	310	266	233	207
			60	4.14	0.367	43.6	36.4	31.2	27.3	24.2	408	340	292	255	227
05878 or 14061	8004VS or AXI-8004 (50 mesh)	Teejet or Albuz	30	2.07	0.346	41.2	34.3	29.4	25.7	22.9	385	321	275	240	214
			40	2.76	0.400	47.5	39.6	33.9	29.7	26.4	444	370	317	278	247
			50	3.45	0.447	53.1	44.3	37.9	33.2	29.5	497	414	355	310	276
			60	4.14	0.490	58.2	48.5	41.6	36.4	32.3	544	453	389	340	302
05879 or 14386	8005VS or AXI-8005 (50 mesh)	Teejet or Albuz	30	2.07	0.433	51.4	42.9	36.7	32.2	28.6	481	401	344	301	267
			40	2.76	0.500	59.4	49.5	42.4	37.1	33.0	555	463	397	347	309
			50	3.45	0.559	66.4	55.3	47.4	41.5	36.9	621	517	444	388	345
			60	4.14	0.612	72.7	60.6	52.0	45.5	40.4	680	567	486	425	378
05880 or 14387	8006VS or AXI-8006 (50 mesh)	Teejet or Albuz	30	2.07	0.520	61.7	51.4	44.1	38.6	34.3	577	481	412	361	321
			40	2.76	0.600	71.3	59.4	50.9	44.6	39.6	666	555	476	417	370
			50	3.45	0.671	79.7	66.4	56.9	49.8	44.3	745	621	532	466	414
			60	4.14	0.735	87.3	72.7	62.4	54.6	48.5	816	680	583	510	453
05881 (50 mesh)	8008VS (50 mesh)	Teejet	30	2.07	0.693	82.3	68.6	58.8	51.4	45.7	770	641	550	481	428
			40	2.76	0.800	95.0	79.2	67.9	59.4	52.8	889	741	635	555	494
			50	3.45	0.894	106.3	88.5	75.9	66.4	59.0	994	828	710	621	552
			60	4.14	0.980	116.4	97.0	83.1	72.7	64.7	1088	907	777	680	605
13674 or 14414	ER8010 or XR8010SS	Wilger or Teejet	30	2.07	0.866	102.9	85.7	73.5	64.3	57.2	962	802	687	601	534
			40	2.76	1.000	118.8	99.0	84.9	74.3	66.0	1111	926	793	694	617
			50	3.45	1.118	132.8	110.7	94.9	83.0	73.8	1242	1035	887	776	690
			60	4.14	1.225	145.5	121.2	103.9	90.9	80.8	1360	1134	972	850	756
14330	ER80125	Wilger	30	2.07	1.083	128.6	107.2	91.9	80.4	71.4	1202	1002	859	752	668
			40	2.76	1.250	148.5	123.8	106.1	92.8	82.5	1388	1157	992	868	771
			50	3.45	1.398	166.0	138.4	118.6	103.8	92.2	1552	1294	1109	970	862
			60	4.14	1.531	181.9	151.6	129.9	113.7	101.0	1701	1417	1215	1063	945
14040 or 14415	MR8015 or XR8015SS	Wilger or Teejet	30	2.07	1.299	154.3	128.6	110.2	96.5	85.7	1443	1202	1031	902	802
			40	2.76	1.500	178.2	148.5	127.3	111.4	99.0	1666	1388	1190	1041	926
			50	3.45	1.677	199.2	166.0	142.3	124.5	110.7	1863	1552	1331	1164	1035
			60	4.14	1.837	218.2	181.9	155.9	136.4	121.2	2041	1701	1458	1275	1134
14195	MR8020	Wilger	30	2.07	1.732	205.8	171.5	147.0	128.6	114.3	1924	1603	1374	1202	1069
			40	2.76	2.000	237.6	198.0	169.7	148.5	132.0	2222	1851	1587	1388	1234
			50	3.45	2.236	265.6	221.4	189.7	166.0	147.6	2484	2070	1774	1552	1380
			60	4.14	2.449	291.0	242.5	207.9	181.9	161.7	2721	2267	1943	1701	1512

Foam Marker Installation Considerations

Mount the foam marker tank etc. as instructed by the manufacturer. Run hoses along the spray hoses under the shrouds as much as possible. Be sure to go around the back of the breakaway hinge point and into the wing, along the top of the 2in x 2in (5cm x 5cm) tube to the end. Ensure no plumbing or hardware gets into the spray pattern as dripping or stripping may occur. If the blobber is small enough, locate it inside the shroud with the tube or buncher going out the back such that it drops the blob just past the lower edge of the curtain. It must be located 8in (20cm) along the centerline of the shroud from the end tip. This places the blobber where it is protected from branches etc. plus positions the blob where both the front and rear curtain should hit it on the return pass, smearing it out which will help it dissipate. Put a large mark on the front of the shroud the same distance from the tip and drive such that the foam blob lines up with the mark. This will ensure proper overlap and provide even coverage. Under certain conditions large foam blobs will suffocate the grass underneath them. This can be minimized by smearing the foam and by using the



smallest blob possible. Some operators replace the large blobber supplied with a ½ inch (1.25 cm) hose running down the back edge of the curtain.

Installation Instructions

Removing spray boom from box

Once the top of the crate has been opened 2 people are required to unload the wings, boom mount assembly, and center section. Grab under the edge of the shroud near the end (curved section) and the frame that sticks out of the shroud for lifting the wing. On the center section the black painted round tubes (approx 1.75in (4.4cm) dia, breakaway tubes) are recommended lifting points for removing the center section out of the box. Table 1 below is a list of wing and center section weights. When using lifts, attach straps to same points as mentioned for manual lifting.

Center Frame Section

The initial step to setting up your new Windfoil covered boom is to install the mounting kit to the rear of sprayer frame (see applicable instructions with mounting hardware). The next step is to attach the boom mount assembly to the mounting kit. The boom mount assembly is attached to the mounting kit with u-bolts (ensure the boom mount assembly is centered on the back of the sprayer. The top of the lower tube should be approximately 20.5 inches (52 cm) from the ground. (see mounting instructions in mount kit for recommended tube heights)



Figure 1: Mounting kit install



Figure 2: Boom mount assembly

Once the boom mount assembly is secured, wheels can be attached to the center section. With the center section on the floor and the front elevated insert the wheel labeled center section (these wheels have a rim with 8 fins). The wheels labeled wing section will have a rim with 4 fins and an additional 3/4" flat washer on the shaft.



Figure 3: Inserting castor wheel



Figure 4: Castor wheel and boom height spacers

Note: wheels must castor freely when pin is inserted in top of castor fork. If wheel doesn't castor freely, remove one of the spacers or top machine washer.

Next attach the float arm assembly to the center frame. The top two bolts should have the nuts towards the outside of the frame and the wing stop rubber towards the outside of the frame (see figures below). Use a square to ensure the pivot plates being bolted to the center frame are perpendicular with the mounting tube. (Pictures are of the right side of the center frame)



Figure 5: Float arm assembly

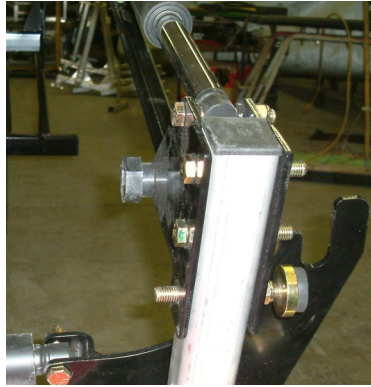


Figure 6: Bolt and wing stop orientation



Figure 7: Squaring float arm assembly

With the help of an assistant, roll unit along side of boom mount assembly, as shown below in figure 8. When attaching the float arm assemblies to the boom mount assembly, make sure that the bolts run from the inside out (i.e. nuts should be facing outward).



Figure 8: Positioning center section around boom mount assembly

To adjust the tilt of the center section, first loosen the two locked 5/8 jam nuts next to the actuator on the adjustment assembly *** (Note the locked 5/8 jam nuts must be loosened on both right and left float arm assemblies before adjustment is made) ***. Now adjust the 5/8 nylon lock nut on the end of the adjustment assemblies until the center section is level. *** (It is important that the back of the boom is not lower than the front) ***



Figure 9: Center Section adjustment



Figure 10: Center Section Adjustment

Wing Sections: With the wing sections on the ground, lift the tip of the wing and insert the wing wheels.



Figure 11: Wing castor wheel



Figure 12: Wing Castor Wheel

Place the wing in the broke away position and attach the break away tube to the center section. Note wing actuator must be extended before inserting wing into breakaway catch.



Figure 13: Attaching break away tube to center section



Figure 14: Extend wing actuator



Figure 15: Insert wing into break away catch

Install the wing support arms on the front of the boom mount assembly. The part of the arm facing outward from the sprayer should be approximately level. Once installed the wing actuators can be adjusted as well as the wing stops. The wing should slightly compress the rubber on the wing stop so the wing is held firm. Do not extend wing stop excessively outward as this will put excessive stress on the center frame. The wing actuator rubber damper should be slightly compressed when the actuator is retracted.



Figure 16: Wing support arm

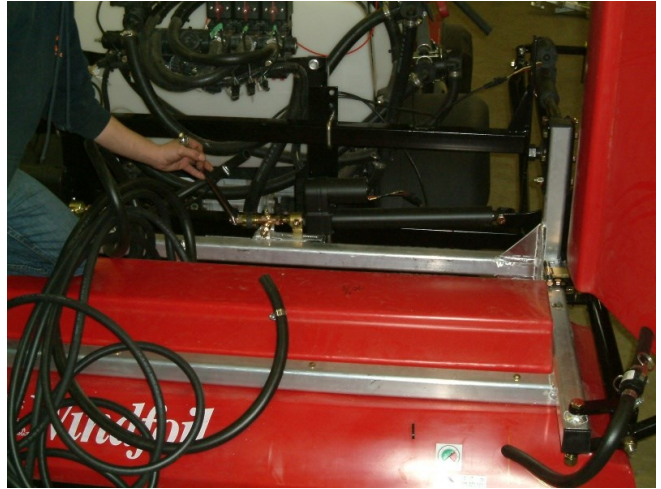


Figure 17: Wing Actuator Adjustment



Figure 18: Wing stop adjustment

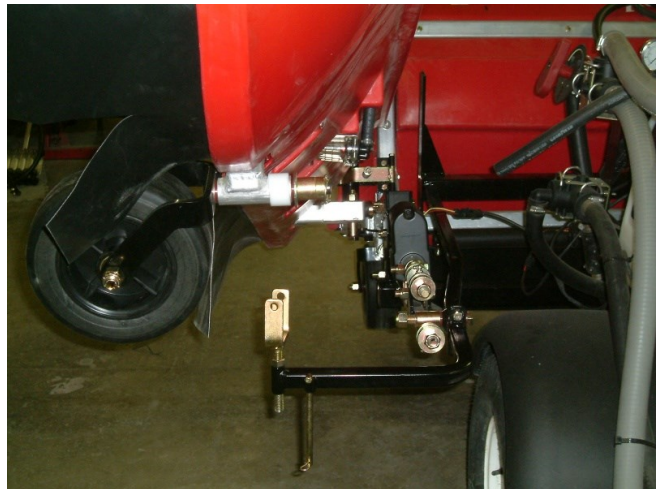


Figure 19: Wing Alignment for Transport

The center flow monitor can now be installed on the front side of the boom mount assembly. Usually it is installed on the right side of the boom mount assembly but will also work on the left.



Figure 20: Center flow monitor

****** BEFORE OPERATING REVIEW
CHECKLIST ON PAGE 18 TO ENSURE
PROPER FUNCTIONING OF ALL
MECHANISMS AND INSTALLATION
OF WIRING HARNESS******

Installation of Model Specific Wiring Harness

John Deere ProGator Wiring Harness

Remove cover to access electrical panel on left side of HD 200 sprayer. The power wire of the harness will attach to terminals as shown in the following figures. The black wire attaches to the ground stud on the side of the terminal block, and the fused line attaches to the middle stud on the front of the terminal block.

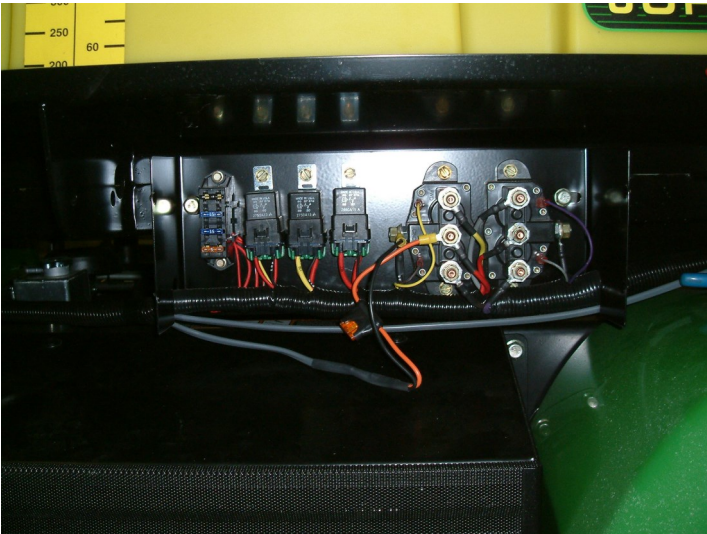


Figure 21: Electrical Panel



Figure 22: Power wire attachment locations

Run wires from center switch box alongside existing wiring from main control console, until seat platform where wires from center switch box can be run inside the existing split loom back to electrical panel above. Tape and secure wires where necessary. This wiring harness uses the existing wing lift wires at the rear of the sprayer. Use the supplied two foot extension wires to connect the wing actuators.



Figure 23: Taping center switch box wires to first part of existing main console wiring harness



Figure 24: Attachment of center switch box to top of main console

*****Ensure there is sufficient slack in the wiring harness to accommodate the full floatation (range of motion) of the boom in both field and transport positions.*****

Wiring Harness # 14535 for Toro Multipro 1250

- Lift seat to access engine compartment and take off console cover panel to access wiring components.
- Remove the blank toggle switch inserts for lifting the wings and the sonic boom control. Use the sonic boom slot in the console for the switch that folds the boom into transport. During proper functioning of the Rogers Spray boom the sonic boom option on the Toro Multipro is not needed.
- The power wire runs with the existing harness from the battery up to the front console. Note that the main wiring harness runs very close to the drive for the pump, therefore care must be taken to ensure the wiring is kept secured.
- Insert the toggle switches into the blank slots. There is existing wiring harness for lifting the left and right wings. Connect the toggle switch to the plastic connectors. (Do not put the actual rocker switch lever on the body until proper up down orientation of the switch body has been determined**)
- Run wire for split kit on the outside of the frame along the tank to the rear of the unit.
- Install actuator extensions to existing wiring harness for the wing actuators.
- Attach connector rings of power wire to battery and test the movement of the actuators.

**Test actuators by partially inserting rocker switch lever into the rocker switch body. If the up down motion is correct push rocker switch lever into switch body until it clicks into place. Otherwise rotate the rocker switch body.



Figure 21: Rocker Switches in Console Panel

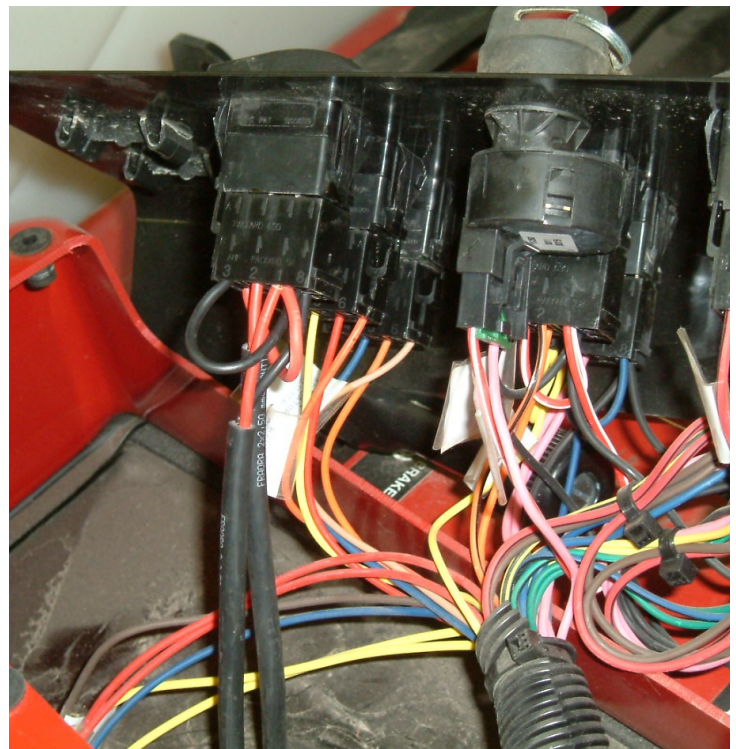


Figure 22: Wiring of Console Panel

!!! IMPORTANT—Make sure there is sufficient slack in the wiring harness to accommodate the full floatation of the boom in both field and transport positions. The boom is capable of floating approximately 10 inches down and 10+ inches up from standard level position. Failure to provide sufficient slack for the wiring harness between frame and actuators will result in damage to actuators and boom. !!!

Wiring Harness # 14914 for Toro Multitpro 5800



Figure 23: Dash of 5800 with inserted switches

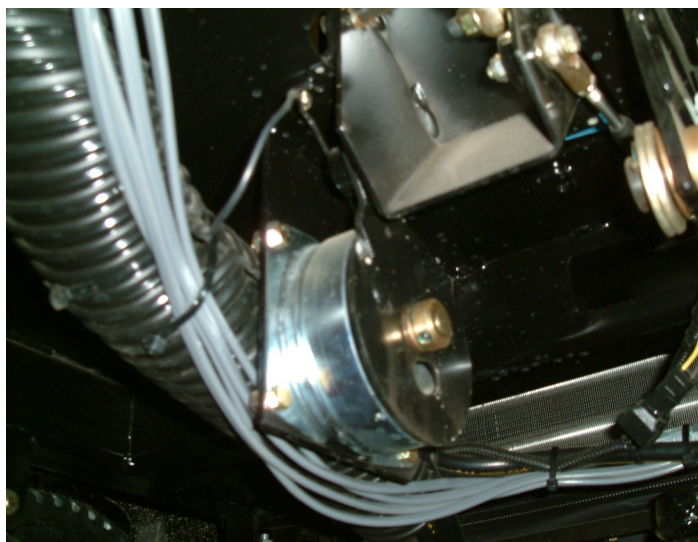


Figure 24: Underside of operator's area

- Remove blank inserts in dash next to ignition.
- Bring wiring harness connectors through holes but don't install rocker switch bodies until proper up/down orientation of switch cap has been determined.
- Run wires next to main existing conduit under operators area to electrical center under drivers side seat.
- Locate fuse block and ground block located under drivers seat on outer most wall as shown in figure 25.
- The fused power wire connects to the auxiliary power lead coming from the fuse block. The black power wire attaches to the ground block.

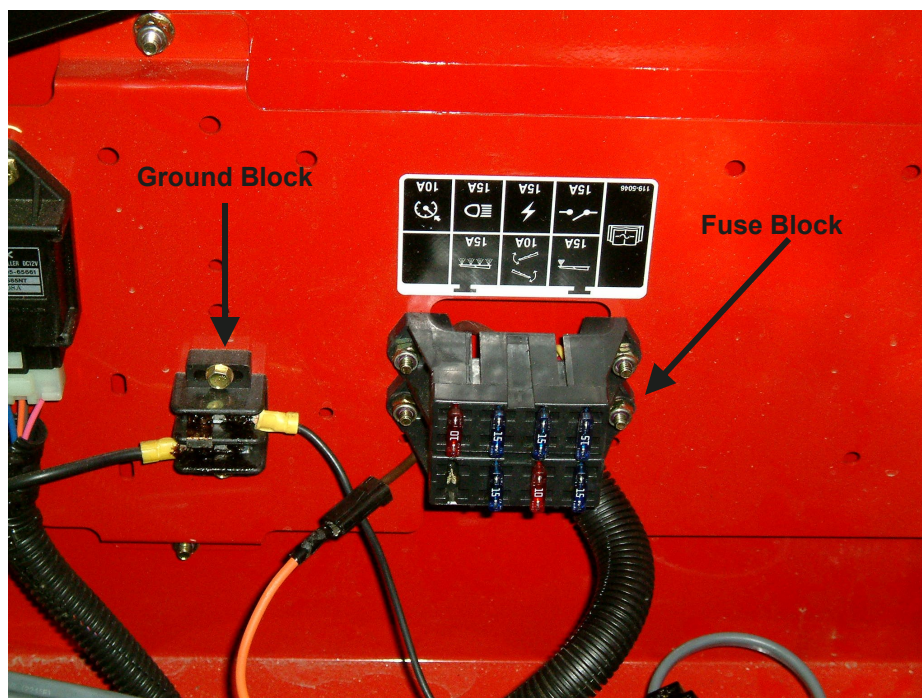


Figure 25: Power wire connections under drives seat



Figure 26: Wire placement along tank

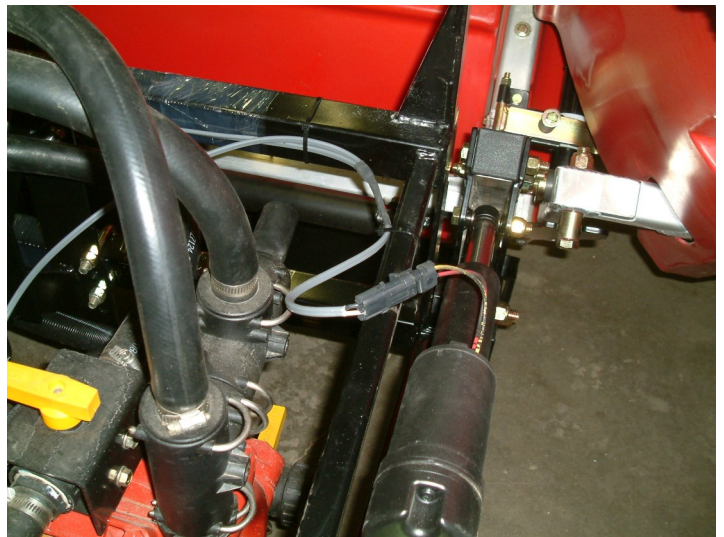


Figure 26: Slack in wire from frame to actuator

- Run wires together out of engine compartment and back along bottom left side of tank securing when necessary.
- Make sure to attach single wires to wing actuators.
- The split wire must be attached to the two center actuators such that they always run at the same time. If one operates independently then damage to the actuators and frame will occur.

!!! IMPORTANT—Make sure there is sufficient slack in the wiring harness to accommodate the full floatation of the boom in both field and transport positions. The boom is capable of floating approximately 10 inches down and 10+ inches up from standard level position. Failure to provide sufficient slack for the wiring harness between frame and actuators will result in damage to actuators and boom. !!!

Wiring Harness # 14494 for Toro Workman

- Take off the front panel of main control box. Remove rubber grommet from bottom of control box.
- Remove a blank insert from the control box front panel. Insert the toggle switch into the blank spot. Connect the toggle switch to the plastic connector. (Do not put the actual rocker switch lever on the body until proper up down orientation of the switch body has been determined)
- Run the wires in the split loom of the existing wiring harness from the control box to the back of the cab.
- Attach split kit for center section actuators to the unit. The wiring can be run back along the left hand side of the unit by the tank mounts.
- Connect power wire and split kit to wiring harness from the control box installed earlier.
- Test center actuators by partially inserting rocker switch lever into the rocker switch body. If the up down motion is correct push rocker switch lever into switch body until it clicks into place. Otherwise rotate the rocker switch body.
- Install actuator extensions to existing wiring harness at rear of sprayer for the wing actuators. These actuators will be controlled by the standard rocker switches in the control panel for lifting the wings.

Wiring Harness # 14737 for Smithco SS1750

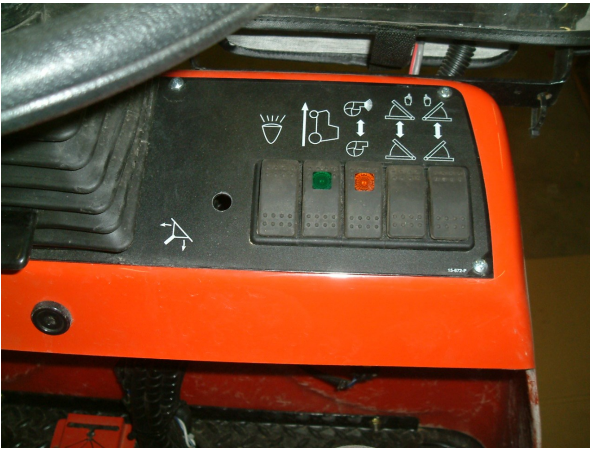


Figure 1: Location of hole in front panel

- Drill 1/2" hole in dash next to existing rocker switches. Check underneath to ensure all wiring is clear of this area.
- Attach both power wire and center actuator wire to toggle switch and install in dash.
- Run harness with existing wiring of sprayer.

- Lift seat to access an auxiliary fuse box. Bring power wire up and attach white wire to a common spade terminal. Install the supplied 40 amp fuse and attach the black wire to the respective spade terminal.

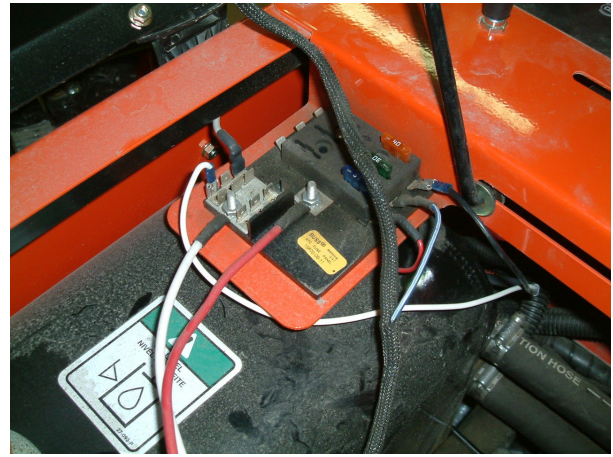


Figure 2: Auxiliary fuse box under seat

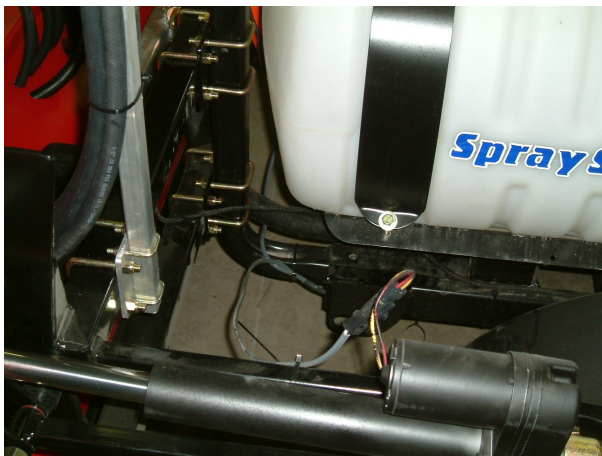


Figure 3: Center actuator wire

- Continue running center actuator wire to the rear of the sprayer and attach to the two center actuators. **Test to make sure that both of these actuators are working at the same time in the same direction.**

- Cut off the two existing wing actuator wire ends. Cut close to the existing end to leave as much wire as possible remaining.
- Attach the supplied Weather-Pak ends to these wires and connect to the wing actuators of the boom.
- Ensure that there is enough slack wire for the vertical floating, and transporting of the boom.



Figure 4: Installed Weather-Pak end

Final Assembly Checklist

- Boom Level: Sitting on a level pad with half a load of water in the sprayer adjust the angle of the boom by adjusting the center actuator adjustment assemblies as shown on page 11. It is important that the rear of the boom not be lower than the front.
- Breakaway Catches: The breakaway catch should release with a good push (45 lbs/20.5 kg) exerted at the wing wheel location on the boom. Return the wing to its spray position and the catch should grab firmly. Engage the catch before folding the boom for transport. The amount of force required for the breakaway catch to operate is adjusted by tightening or loosening the breakaway catch bolt (vertical orientation with spring).
- Wing Folding: Retract the actuator, the wing should rise 90° (if not at desired position make adjustment to mechanism at base of wing actuators). Ensure that wing stop rubber is positioned to make a firm stop for wing at 90°. The wing support arm yokes then need to be adjusted so when the boom is folded into transport the wings press firmly into the yoke.
- The Float Arms: The float arms should be free to move up and down without interference. The pivot plate assembly will float down until it hits the lower boom mount assembly tube in the field or in transport. Avoid running hoses, wires, etc. between these moving parts.
- Check For Leaks: Ensure all connections are leak free. If leaks occur check connection to ensure it is tight.

!!!! IMPORTANT—Make sure there is sufficient slack in the wiring harness to accommodate the full floatation of the boom in both field and transport positions. The boom is capable of floating approximately 10 inches down and 10+ inches up from standard level position. Failure to provide sufficient slack for the wiring harness to the actuators will result in damage to actuators and boom. !!!!

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 and DCSS

General Maintenance

Cleaning

Sprayers need to be cleaned to prevent corrosion, cross contamination of chemicals and crop injury. 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 deposits of gums, etc. If you spray chemicals, such as RoundUp[®], that will damage turf always 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. Wash the sprayer and DCSS in a wash area that properly contains the wash water. Flush with clean water, preferably after each day's operation. However, if you plan to use the same material over several days, most chemicals may be kept in the tank overnight; the label 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. Spray the rinse over the application area.

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 this accumulation. If water alone does not dissolve and remove the buildup, add a solvent. Allow paste to dissolve, then agitate and flush. 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 that neutralizes the chemical to prevent cross contamination. The solution used depends on the chemical to be removed from the sprayer. Check the chemical label for cleaning instructions.

Remove nozzle tips and screens, clean them in a strong detergent solution (or kerosene) using a soft brush. 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.

Transport position allows convenient access to the spray tips.

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 to 5 gallons (7-19 litres) of rust inhibitor or RV 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. Remember that this unit has no inherent stability when not connected to the sprayer, thus for storage it should be partially disassembled. Remove wings, boom mount tubes, float arm assemblies with center actuators from center section, prior to storage.

Operating Instructions

Operating the Folding Mechanism

Caution: Be sure to unlock the transport lock when lowering the boom. If left locked the electric actuator may bend the boom.

Electric Boom Folding To and From Transport Position: After the wings are up in transport position, operate the actuator to rotate the complete boom into the full transport position. As the boom leaves the ground, check the position of the wings relative to the transport arms on the side plate assemblies. Check that the wing lockup damper rests in the wing lockup yokes and lock the wings in place with the wing lockup pins. Caution avoid all pinch points as boom parts are being rotated.

Reverse the procedure to fold the booms out for field position. Fully extend the actuator mechanism for field operations or retract fully for transport. When spraying, retract the actuator for the boom to lift the wing over sand traps etc. The wing falling into a sand trap or hitting the lip may cause the breakaway to let go.

Caution: Boom must be completely folded for transport. Wings must first be raised to the vertical position and then center section must be rotated so that wings rest in boom mount assembly yokes. (inserting locking pins for transport is always a good idea to avoid unnecessary damage to boom) **NEVER TRANSPORT BOOM WITH BOTH WINGS IN VERTICAL POSITION!!!!** This will damage actuators, frame components and void warranty.

Plumbing System Operation

Nozzle Bodies: Nozzle bodies are equipped with diaphragm check valves to prevent dripping. Valves close when the system pressure drops below 15 psi (1 bar). Valve bodies contain filter screens. Spray tips and screens are retained with quick connect caps. Keep alternate sets of tips in other caps for quick tip changing. See assembly diagram in appendix.

Spray Monitor Manifold: Each column monitors the flow to each nozzle. Check the instruction sheet in the appendices of this manual to change the ball in the column to match the flow rate of the spray tips. If the balls are not even, the low balls indicate plugged or partially plugged nozzles.

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.

Driving Considerations

The four wheels under the boom enable the shroud and the curtain to follow the contours of the land. They are small and are subject to damage if left on the ground during fast rough transport. Fully lift the boom for transport. Do not back up over curbs etc, the boom may be damaged.

Maintenance

- Check regularly that all fasteners are tight and secure.
- See the General Spraying Information section of this manual.
- Check wheel bearings every 10 hours and adjust if required. Check more often in rougher situations.
- It is recommended that any maintenance intervention, in particular welding, shall only be undertaken after the spray boom has been thoroughly rinsed. For center and wing frame cases the frame should be removed from the shroud to eliminate possible burning of the plastic.

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

Wheel Bearing Failure

Check wheel bearings daily. If excessive wear is found, replace bearings. If bearings are too tight load will reduce their life, if too loose, hammering will reduce life.

Spray Hitting End of Boom/Curtain

The spray booms are designed for true 80° spray tips. If any other tips have been installed, spray pattern will be incorrect.

DCSS Wings do not Hit the Lock-Up Brackets when Folded for Transport

Be sure the wing actuators are fully retracted. Adjust the wing actuator adjustment bolts and the wing stopper on the center section to allow the wing to sit vertical. This should allow the wings to hit lockup brackets.

DCSS Breaks Away Too Easily

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

Tracking

The wheels have been placed in front so they do not run over the spray. However the weight of the prime mover and in extreme situations, the boom wheels, will modify the turf and cause it to absorb more fertilizer or chemical. Some fertilizers and fungicides are very susceptible while others are not. The track will disappear within a few days.

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).

ITEM	QTY	PART#	DESCRIPTION
1	4	00956	NUT NYLOCK 3/8NC PLD
2	4	00957	WASHER FLAT 3/8 PLD
3	4	00963	NUT NYLOCK 1/2NC PLD
4	8	00966	BOLT 1/4NCX2.5 PLD
5	2	00967	BOLT 1/2X2.5NC PLD
6	17	00968	NUT NYLOCK 1/4NC PLD
7	4	01051	NUT NYLOCK 5/8NC PLD
8	27	01157	WASHER FLAT SAE 1/4
9	2	01164	BOLT 1/4NCX1 PLD
10	2	01393	BOLT 3/8NCX6 PLD
11	2	05398	BOLT 1/2NCX3-1/2 PLD
12	2	05415	BOLT 1/4NCX4 PLD
13	2	05436	BOLT 3/8NCX2-1/2 PLD
14	2	05457	BOLT 5/8NCX4-1/2 PLD
15	2	07789	CLAMP RUBBER INSULATED, 1"
16	5	09754	WASHER FENDER 1/4
17	1	13484	FLEXISHIELD BLK 10 x 84.5"
18	4	14091	BUSHING IG 1.0x0.75x1.0 W/FL
19	2	14096	FTG CAMLOCK 3/4MCAM X3/4HB
20	8	14127	BUSHING IG 0.75x0.625x0.5" W/FL
21	5	14297	BOLT 1/4NCX2-3/4 PLD
22	4	14317	PLUG PLASTIC 2 SQUARE (.125W TUBE)
23	5	14505	CLAMP VARI-SPACING
24	2	14536_2	ACTUATOR 12IN STROKE ROD
25	1	14611L	WING LIFT ASBY GF11, L
26	1	14611R	WING LIFT ASBY GF11, R
27	2	14630	BREAKAWAY CATCH
28	5	14693	NOZZLE ASBY, T TJ SHB 1100468
29	1	14696	FLEXISHIELD 10.5 x 69"
30	2	14704	SPRING CPRN 0.8125x2.5x0.162
31	2	15456P_09	Wing Actuator Asby
32	1	15506	FRAME CENTER GF 13/15
33	1	15519	SHROUD GF13/15 CENTER
34	1	15639	NOZZLE BAR GF13
35	1	15681	AIRFOIL 63" PREPPED GF CTR
36	8	15685	AIRFOIL STANDOFF GF13

Wing Assembly Left GF13 Part # 15653

Exploded view diagram of the Wing Assembly Left GF13. The diagram shows the main wing structure with various components labeled with circled numbers 1 through 31. Callout 28 points to a large cylindrical component, and callout 27 points to a rectangular plate. The assembly includes a main frame, various support arms, and a large cylindrical tank at the rear.

PARTS LIST		
ITEM	QTY	PART# DESCRIPTION
1	2	00956 NUT NYLOCK 3/8NC PLD
2	7	00968 NUT NYLOCK 1/4NC PLD
3	2	01051 NUT NYLOCK 5/8NC PLD
4	4	01070 BOLT 1/4NCX2 PLD
5	4	01157 WASHER FLAT SAE 1/4
6	2	01164 BOLT 1/4NCX1 PLD
7	1	05435 BOLT 3/8NCX2 PLD
8	1	05438 BOLT 3/8NCX3-1/2 PLD
9	1	05457 BOLT 5/8NCX4-1/2 PLD
10	3	09754 WASHER FENDER 1/4
11	1	13429L FLOWMONITOR ASSY 4 COL. WING
12	1	13494 BUSHING WING PIVOT
13	1	13553 PIVOT BUSHING ASSEMBLY
14	1	14053 PLATE, BACKING 4 COLUMN FLOWMETER
15	2	14091 BUSHING IG 1.0x0.75x1.0 W/FL
16	1	14098 FTG CAMLOCK 3/4FCAMX3/4HB
17	2	14127 BUSHING IG 0.75x0.625x0.5" W/FL
18	1	14297 BOLT 1/4NCX2-3/4 PLD
19	4	14505 CLAMP VARI-SPACING
20	1	14591 BREAKAWAY TUBE GF ASSY
21	1	14683 WING REST NYLON RING
22	4	14693 NOZZLE ASBY, T TJ SHB 1100468
23	1	14713 BREAKAWAY BUSHING
24	1	15520 SHROUD GF13 WING L
25	1	15527L WING FRAME LEFT GF13
26	1	15642 WING CATCH
27	1	15643 FLEXI-SHIELD 10.5Wx55"
28	1	15644L FLEXI-SHIELD BLK, 10Wx104"
29	1	15669 WING CATCH BRACE TAB
30	1	15670 WING LOCKUP CATCH
31	1	15752 STABILIZER ASBY SHORT GF

DRAWN:
MERVIN BLINSKI

DATE CREATED:
11/11/2019

PROJECT:
Wing Asby Pack L GF13

GF SERIES:
15456P_05L

DATE CHECKED:
3/21/2019

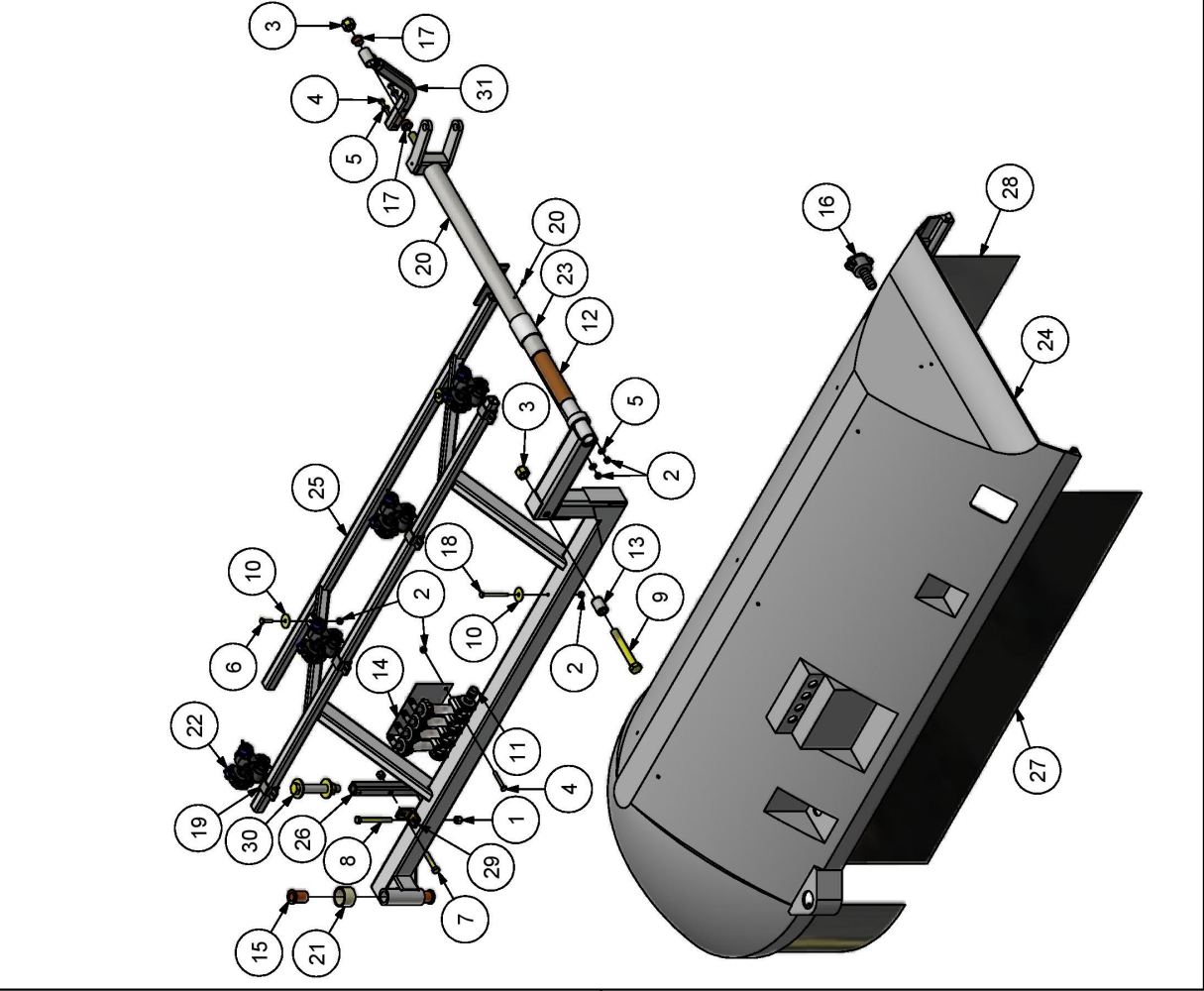
SCALE:
1:1

MATERIAL:
A

SIZE:
A

ROGERS SPRAYERS INC.

Wing Assembly Right GF13 Part # 15654



PARTS LIST		
ITEM	QTY	PART# DESCRIPTION
1	2	00956 NUT NYLOCK 3/8NC PLD
2	7	00968 NUT NYLOCK 1/4NC PLD
3	2	01051 NUT NYLOCK 5/8NC PLD
4	4	01070 BOLT 1/4NCX2 PLD
5	4	01157 WASHER FLAT SAE 1/4
6	2	01164 BOLT 1/4NCX1 PLD
7	1	05435 BOLT 3/8NCX2 PLD
8	1	05438 BOLT 3/8NCX3-1/2 PLD
9	1	05457 BOLT 5/8NCX4-1/2 PLD
10	3	09754 WASHER FENDER 1/4
11	1	13429R FLOWMONITOR ASSY 4 COL. WING
12	1	13494 BUSHING WING PIVOT
13	1	13553 PIVOT BUSHING ASSEMBLY
14	1	14053 PLATE BACKING 4 COLUMN
15	2	14091 FLOWMETER
16	1	14098 BUSHING IG 1.0x0.75x1.0 W/FL
17	2	14127 FTG CAMLOCK 3/4FCAMX3/4HB
18	1	14127 BUSHING IG 0.75x0.625x0.5" W/FL
19	4	14297 BOLT 1/4NCX2-3/4 PLD
20	4	14505 CLAMP VARI-SPACING
21	1	14591 BREAKAWAY TUBE GF ASSY
22	1	14683 WING REST NYLON RING
23	4	14693 NOZZLE ASBY, T J SHB 1100468
24	1	14713 BREAKAWAY BUSHING
25	1	15521 SHROUD GF13 WING L
26	1	15527R WING FRAME RIGHT GF13
27	1	15642 WING CATCH
28	1	15643 FLEXI-SHIELD 10.5Wx55"
29	1	15644R FLEXI-SHIELD BLK. 10Wx104"
30	1	15669 WING CATCH BRACE TAB
31	1	15670 WING LOCKUP CATCH
32	1	15752 STABILIZER ASBY SHORT GF

DESIGN: MERVIN BILINSKI

DATE CREATED: 3/24/2017

PROJECT: WING Asby Pack R GF13

GF SERIES

DATE CHECKED: 3/21/2019

SCALE: 1:1

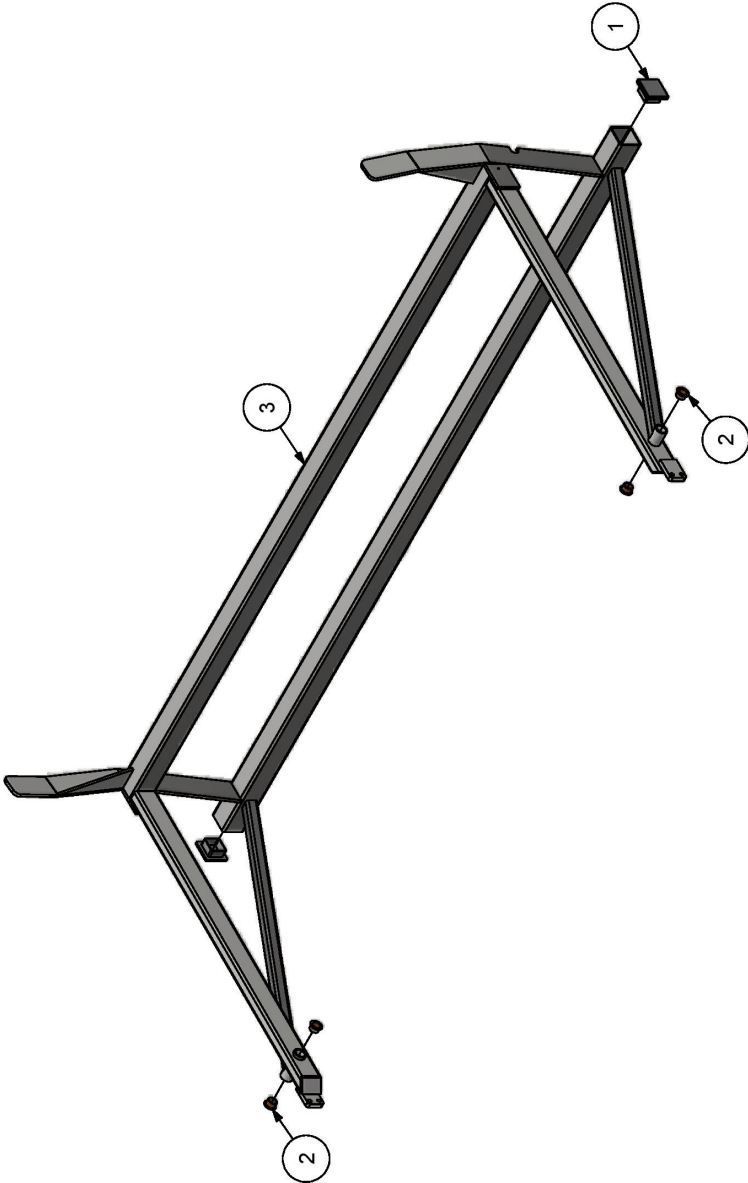
SHEET: 1

SIZE: A

ROGERS SPRAYERS INC.

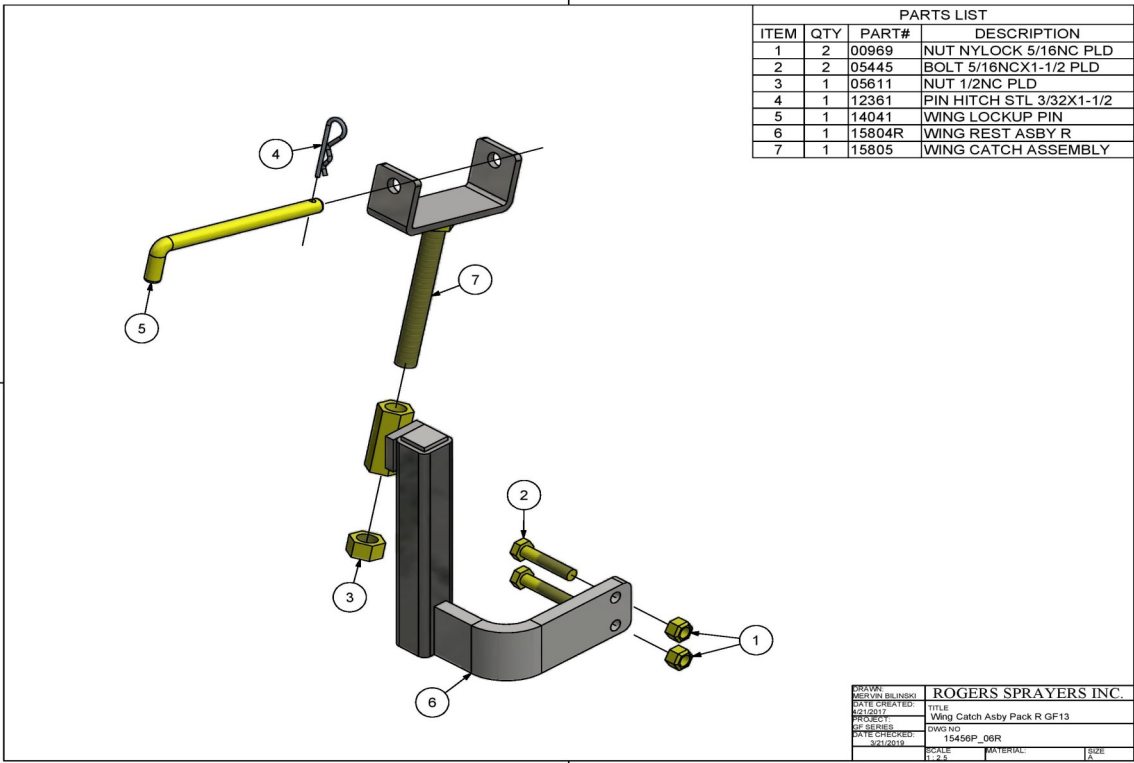
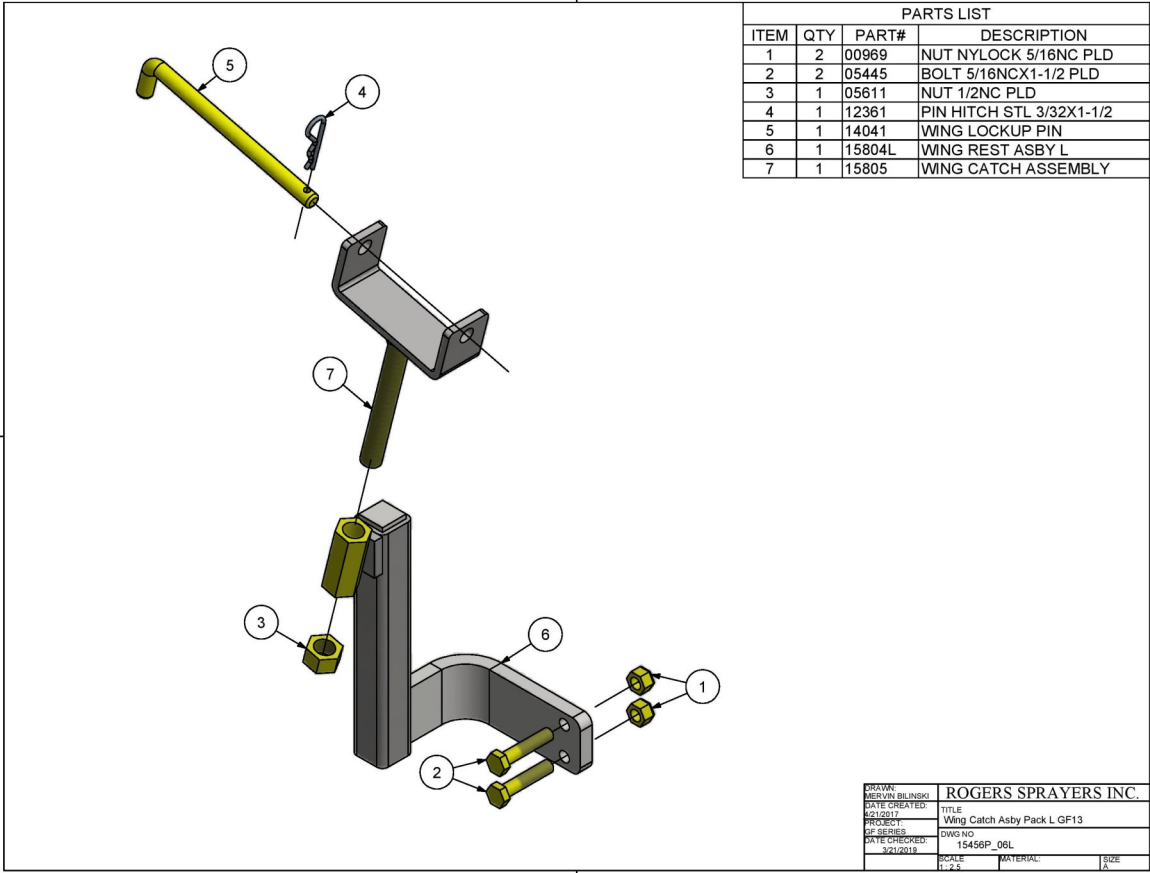
Boom Mount Assembly GF13 Part # 15652

PARTS LIST			
ITEM	QTY	PART#	DESCRIPTION
1	2	01058	PLUG PLASTIC 2 SQUARE (.125W TUBE)
2	4	14127	BUSHING IG 0.75x0.625x0.5" W/FL
3	1	15803	BOOM MOUNT ASSEMBLY GF13/15



ROGERS SPRAYERS INC.			
DRAWN: MERVIN BLINSKI	TITLE: BMT Asby Packing GF13	SCALE: 1"-12"	SIZE: A
DATE: 4/21/2017	PROJECT: GF SERIES		
DATE CHECKED: 3/21/2017	DWG NO: 15456P_01		
		MATERIAL:	

Wing Catch Assembly Left – Right GF13



Center Actuator — Float Arm Assembly

PARTS LIST		
ITEM	QTY	PART# DESCRIPTION
1	1	00963 NUT NYLOCK 1/2NC PLD
2	1	00967 BOLT 1/2x2.5NC PLD
3	1	00972 FTG STL NIP GREASE 1/4NF
4	1	01051 NUT NYLOCK 5/8NC PLD
5	4	07619 WASHER FLAT SAE 5/8 PLD
7	1	14100 ACTUATOR 8" 21:1 B/S
8	1	14603 DAMPER RUBBER
9	1	14620 PIVOT GF11 CTR ACTUATOR
10	1	15528 SPRING CPRN 0.662"x5"L
11	1	15641 ADJUSTER CENTER
12	2	15735 DAMPER CUP POLYFIBER GF
13	6	00963 NUT NYLOCK 1/2NC PLD
14	1	00967 BOLT 1/2x2.5NC PLD
15	3	01051 NUT NYLOCK 5/8NC PLD
16	1	01055 BOLT 1/2NCX3 PLD
17	2	05398 BOLT 1/2NCX3-1/2 PLD
18	1	05459 BOLT 5/8NCX5-1/2 PLD
19	2	07619 WASHER FLAT SAE 5/8 PLD
20	1	13534 BOLT 5/8NCX3-1/2 PLD
21	1	13542 SLIDER HEX
22	4	14127 BUSHING IG 0.75x0.625x0.5" W/FL
23	1	14603 DAMPER RUBBER
24	1	14610 PIVOT GF11 BOOM MT
25	1	14616 PIVOT PLATE ASBY GF11
26	1	15640 FLOAT ARM GF13
27	2	15735 DAMPER CUP POLYFIBER GF
28	1	15744 WING STOP ASSEMBLY GF SERIES

DRAWN: MERVIN BLINSKI

DATE CREATED: 1/11/2019

BY: MERVIN BLINSKI

DATE CHECKED: 3/21/2019

ROGERS SPRAYERS INC.

TITLE: Float Arm Asby Pack L GF13

DWG NO: 15456P_03L

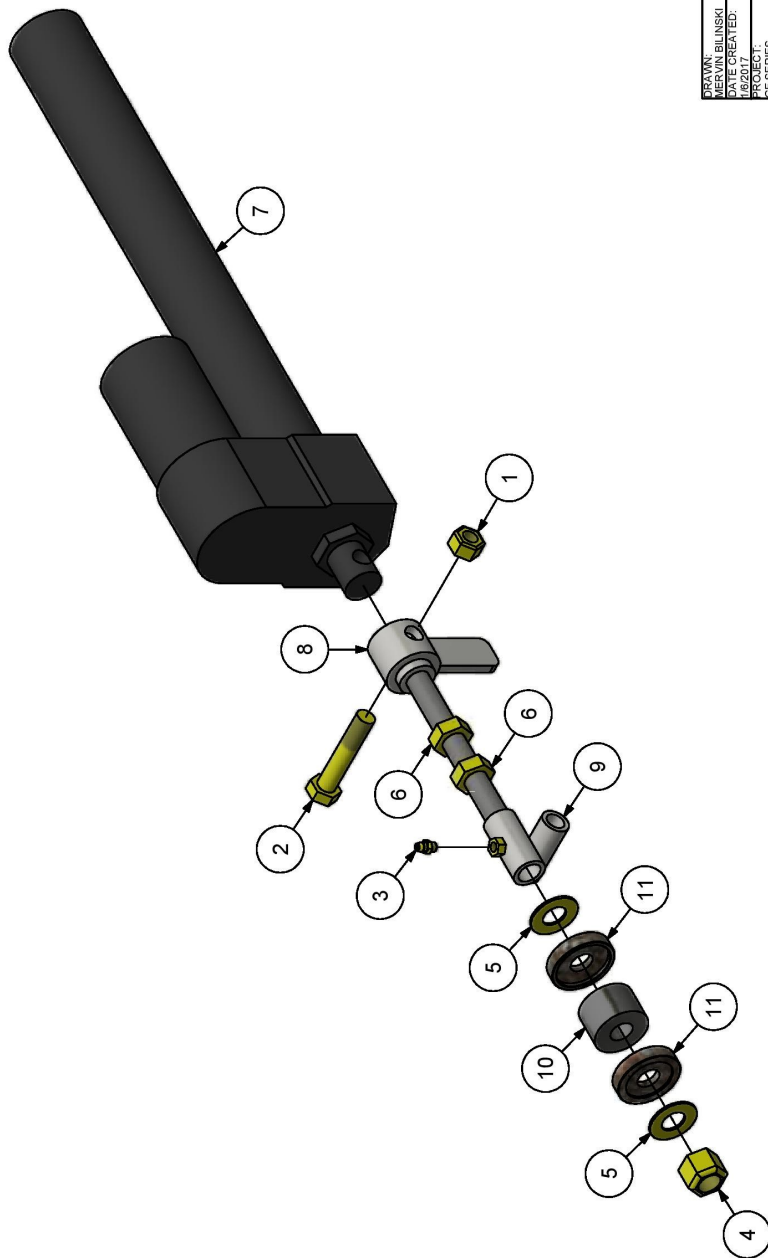
SCALE: 1:1

MATERIAL:

SIZE: 1

Wing Actuator Assembly

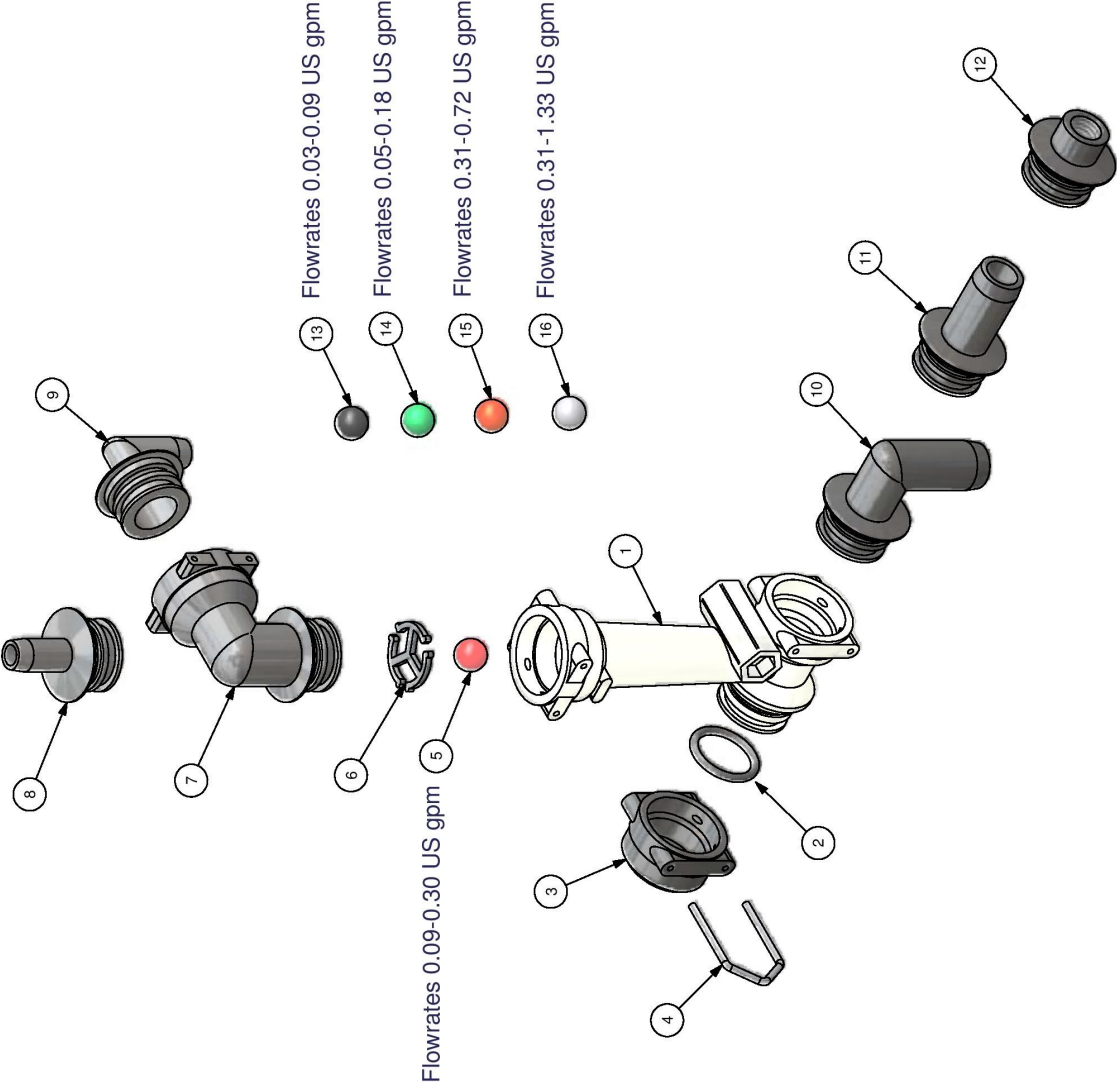
PARTS LIST			
ITEM	QTY	PART#	DESCRIPTION
1	1	00963	NUT NYLOCK 1/2NC PLD
2	1	00967	BOLT 1/2x2.5NC PLD
3	1	00972	FTG STL NIP GREASE 1/4NF
4	1	01051	NUT NYLOCK 5/8NC PLD
5	2	07619	WASHER FLAT SAE 5/8 PLD
6	2	13709	NUT JAM 5/8NC PLD
7	1	14536_1	ACTUATOR 12IN STROKE BODY
8	1	14598	ADJUSTER WING ACTUATOR
9	1	14601	PIVOT GF11 WING ACTUATOR
10	1	14603	DAMPER RUBBER
11	2	15735	DAMPER CUP POLYFIBER GF



DRAWN: MERVIN BILINSKI	ROGERS SPRAYERS INC.		
DATE CREATED: 1/6/2017	TITLE Wing Actuator Asby		
PROJECT: 3F SERIES	DWG NO 15456P_09		
DATE CHECKED: 3/1/2019	SCALE	MATERIAL	SIZE

Flowmonitor Assemblies

ORC Rotometer Parts Part # 11992



Parts List		
ITEM	QTY	DESCRIPTION
1	1	FLOWMONITOR ORC BODY
2	1	O-RING ORC
3	1	FTG POLY ORC CAP
4	1	ORC CLIP
5	1	BALL GELCON FLOW INDICATOR
6	1	ORC BALL RETAINER
7	1	FTG POLY ELB ST MORC x FORC
8	1	FTG POLY ADPT MORC x 1/2HB
9	1	FTG POLY ELB MORC x 1/2HB
10	1	FTG POLY ELB MORC x 3/4HB
11	1	FTG POLY ADPT MORC x 3/4HB
12	1	FTG POLY ADPT MORC x 1/4FNPT
13	1	BALL POLYPROP FLOW IND. BLACK
14	1	BALL POLYPROP FLOW IND. GREEN
15	1	BALL GLASS FLOW INDICATOR
16	1	BALL SS FLOW INDICATOR

DRAWN: J. BILINSKI		ROGERS SPRAYERS INC.	
DATE: 4/16/2006		TITLE: ORC ROTOMETER PARTS	
LOCATION: PLUMBING		DWG NO: 11992	
REVISION #		SCALE: 1:1	
		MATERIAL: A	
		SIZE: A	

Wheel Assemblies

The diagram shows an exploded view of a wheel assembly. The components are numbered as follows: 1. A small yellow hex nut. 2. A long yellow pin. 3. A small yellow O-ring. 4. A black bush. 5. A black spacer. 6. A black O-ring. 7. A grey fork. 8. A black tire mounted on a silver rim.

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	NUT NYLOCK 3/4NC PLD
2	1	BOLT 3/4NCX6-1/2 PLD
3	2	WASHER MACHINE 3/4
4	1	SPACER 1.25ODx0.76IDx1.0 POLY
5	1	SPACER 1.25ODx0.76IDx0.5 POLY
6	1	PIN LYNCH STL 0.180 X 1.0 PLD
7	1	CASTOR FORK GF
8	1	WHEEL EP HD CCSS

DESIGN: MERVIN BILINSKI

DATE CREATED: 1/6/2017

PROJECT: Castor Asby Packing GF13

DWG NO: 15458P_02

DATE CHECKED: 3/21/2019

ROGERS SPRAYERS INC.

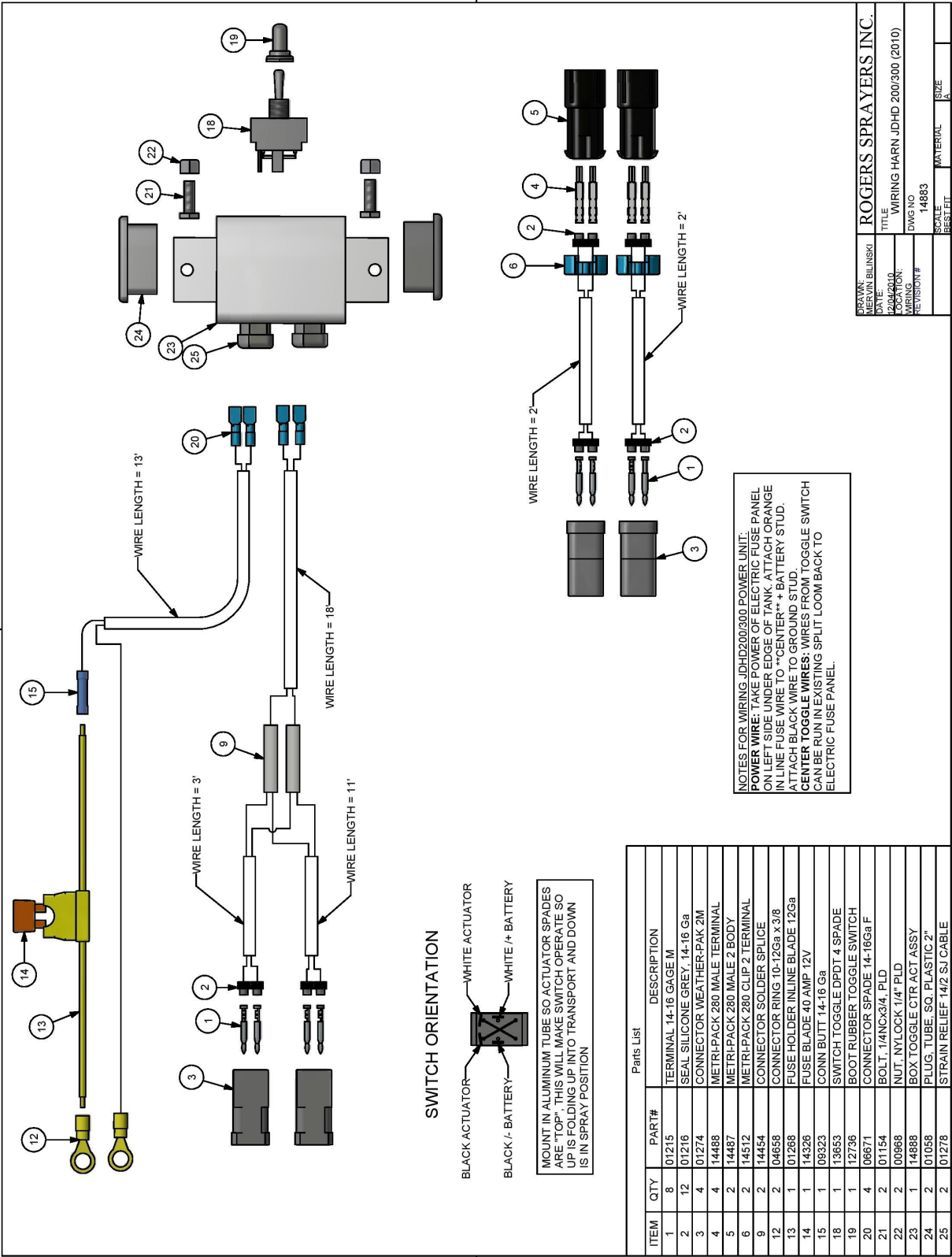
TITLE: Castor Asby Packing GF13

DWG NO: 15458P_02

SCALE: 1:1

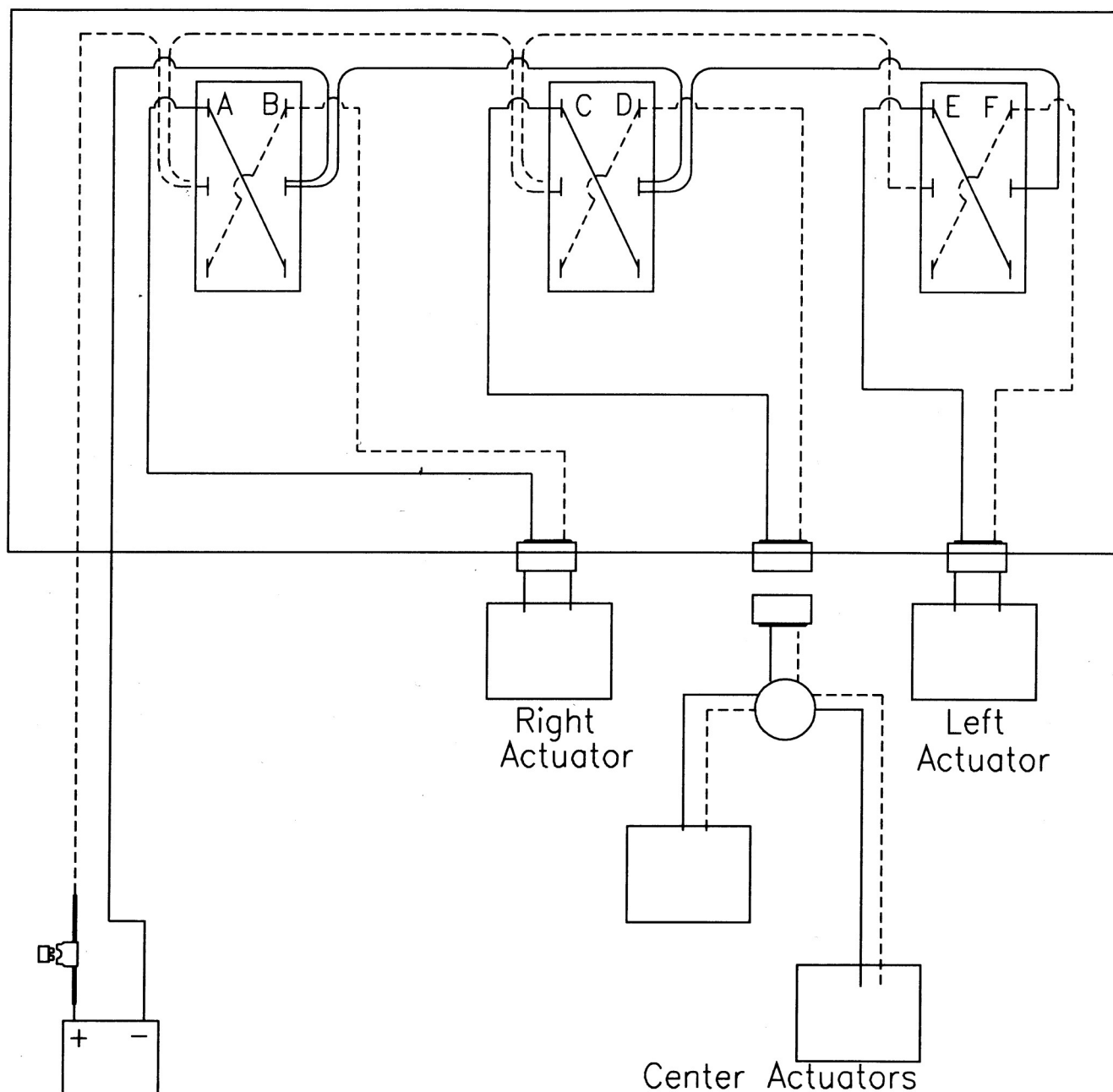
SHEET: 1

Progator JD HD 200 & 300 Wiring Assembly Part # 14883

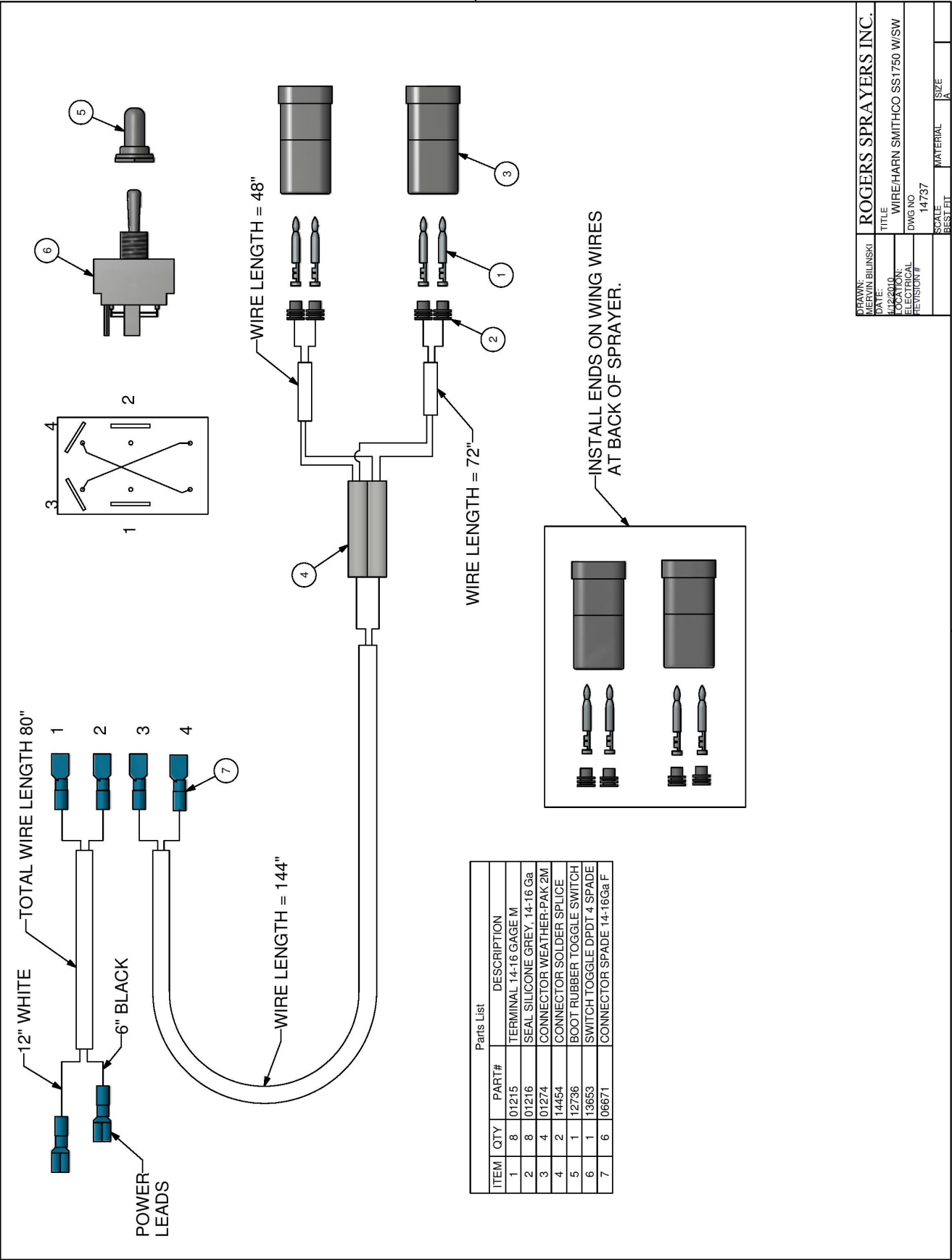


PROGATOR JDHD 200 & 300 WIRING (pre 2009)

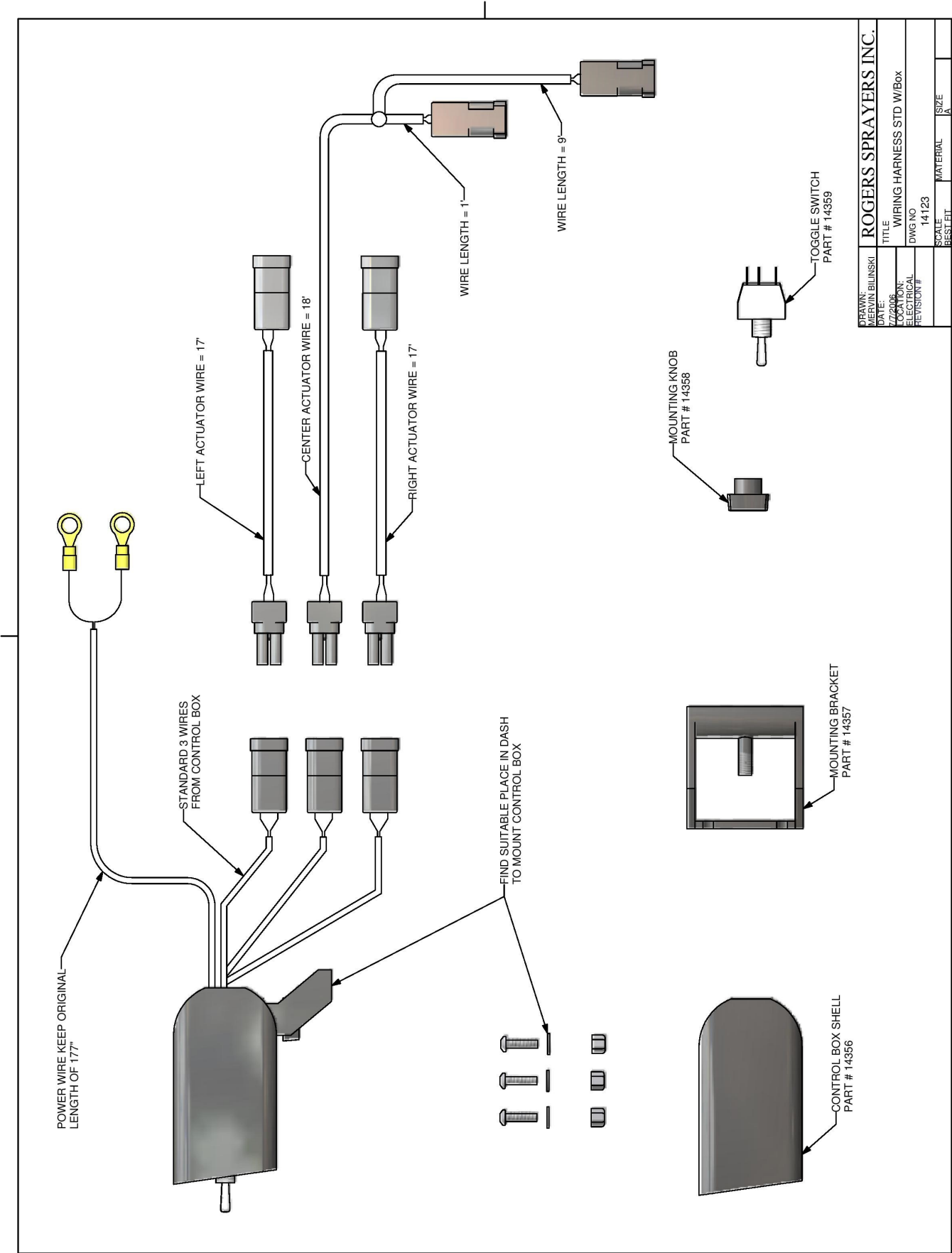
Your wiring harness should include 3 toggle switches, 3 actuator feed wires, 1 power wire and 1 split kit. Using the existing holes in the John Deere control panel for the wing actuators mount 2 of the toggle switches for the Falcon wings. The third switch can either be placed in a vacant hole location or a new hole needs to be added to the panel. Install actuators wires and power wire from front control panel to rear of machine. (Be sure wires are clear of exhaust parts and moving framework)



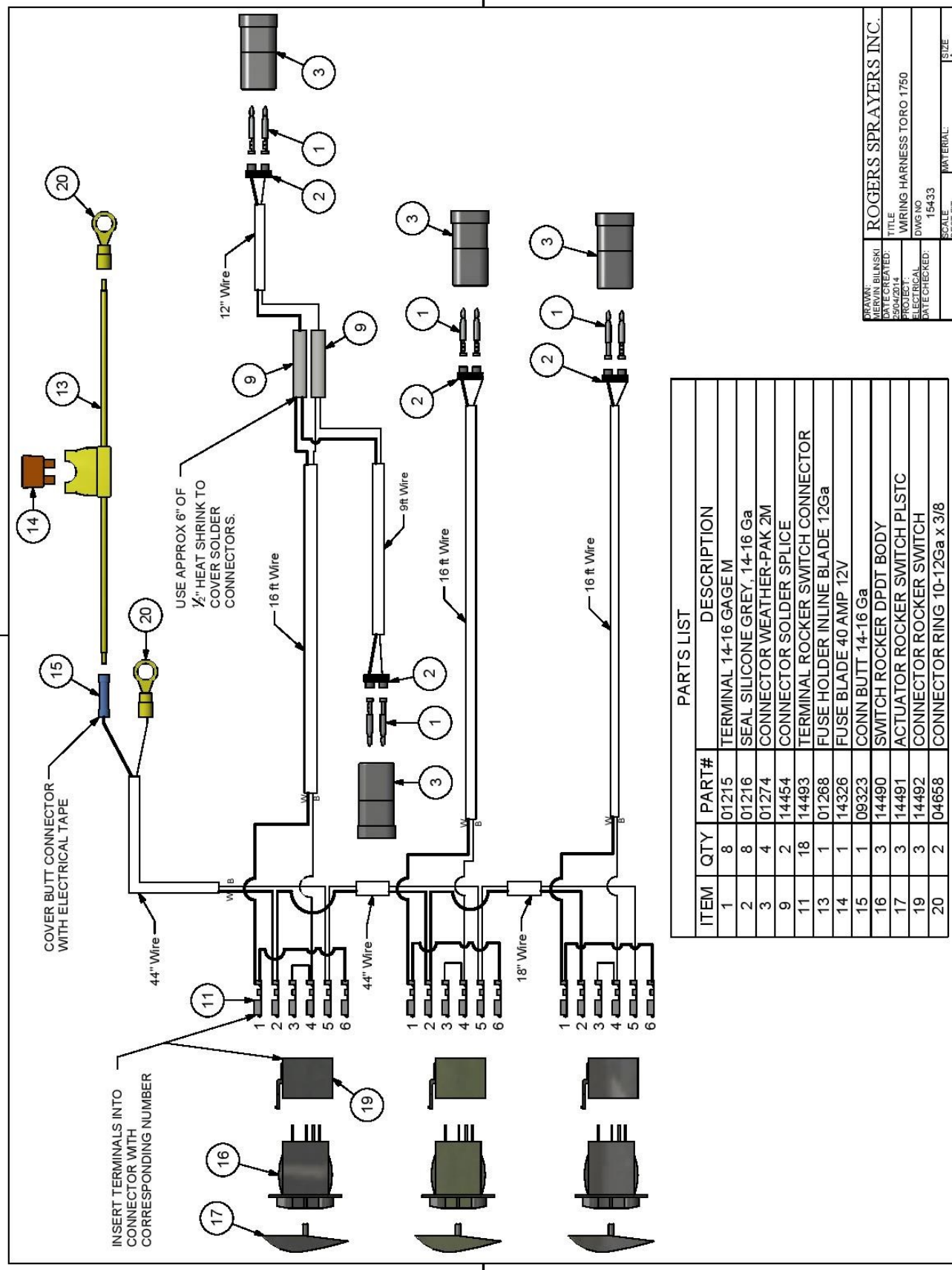
Actuator Wiring for JDHD200 Sprayers (Pre 2009)



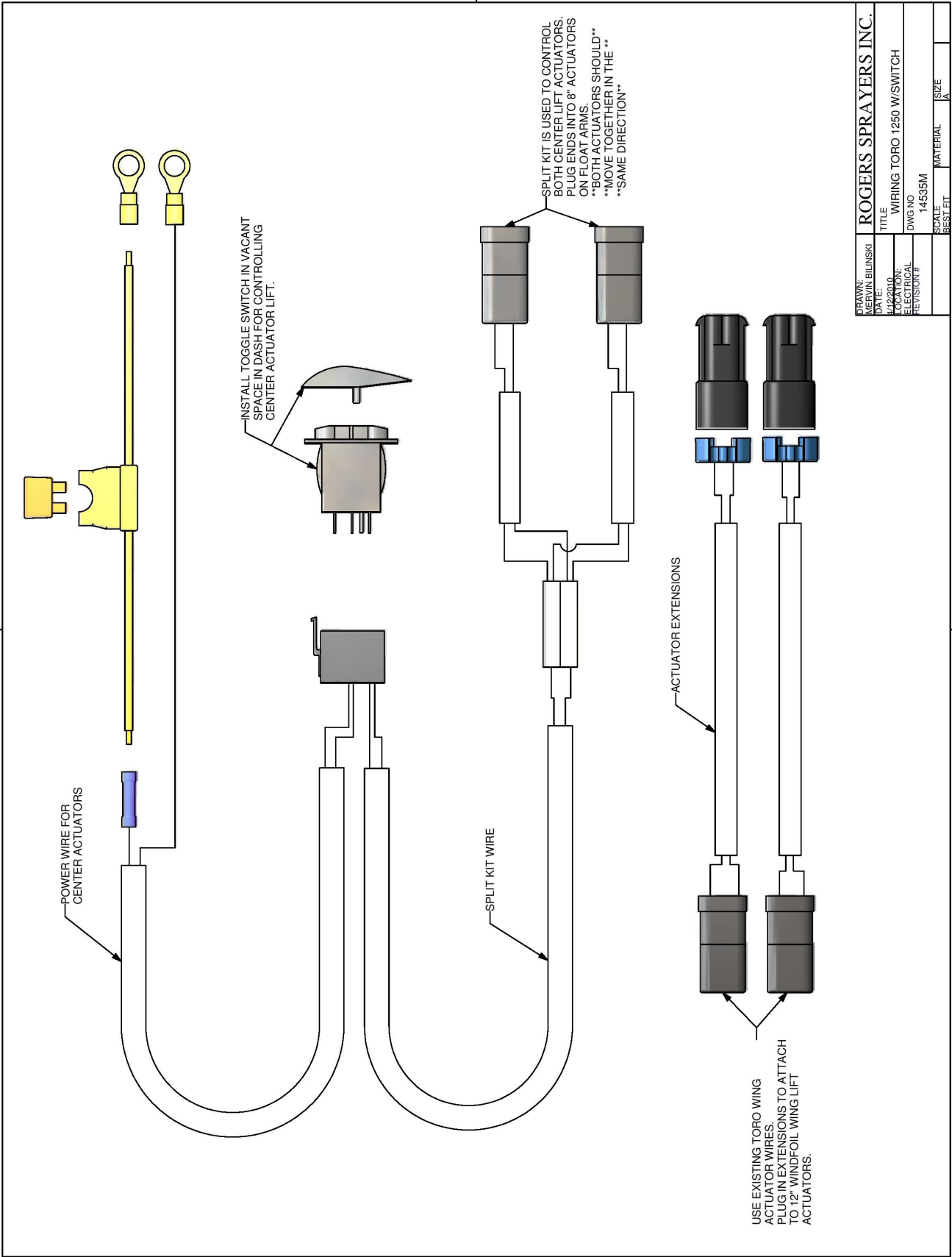
Standard Wiring Assembly With Box Part # 14123



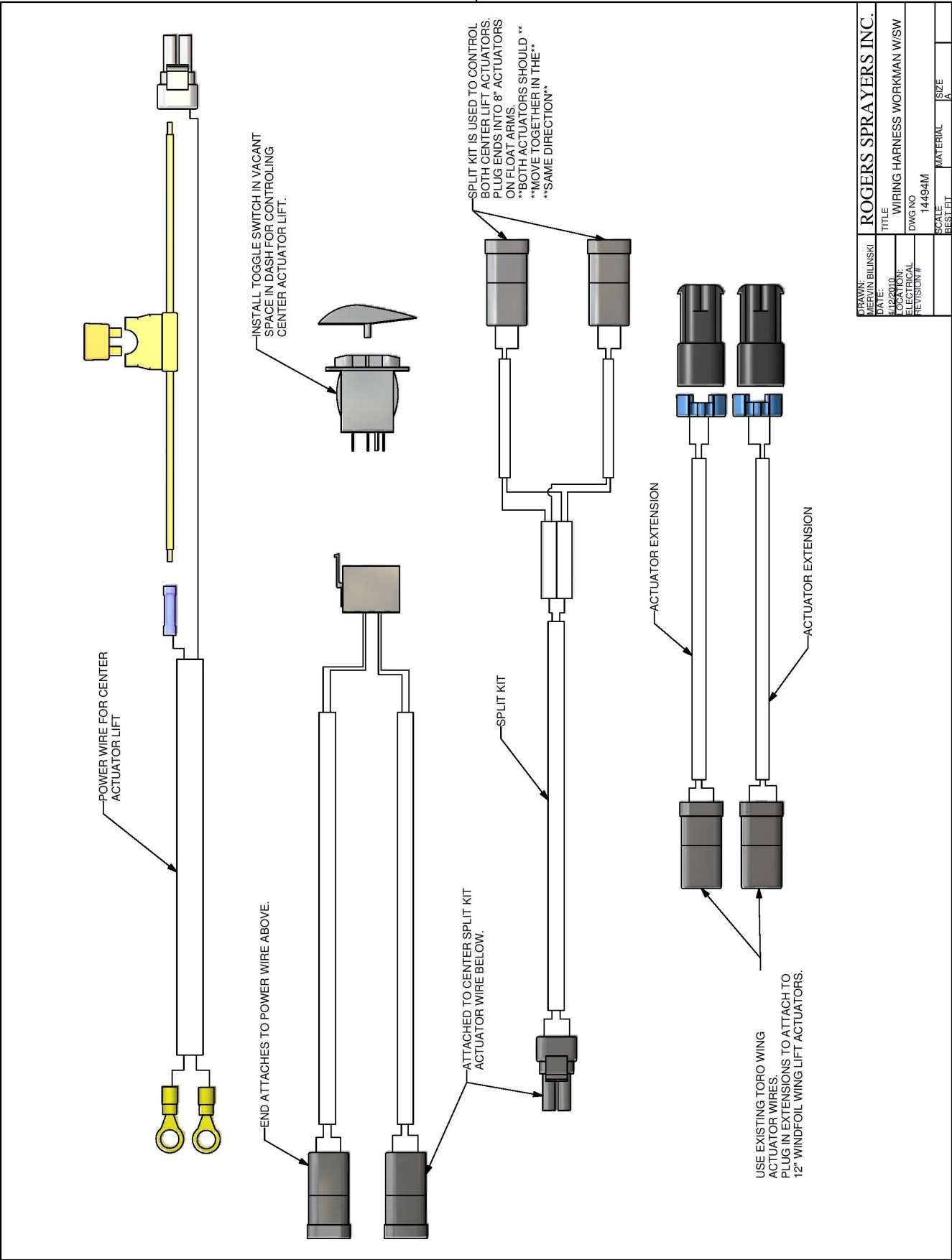
Toro 1750 Wiring Harness Part # 15433



Toro 1250 Wiring Harness Part # 14535

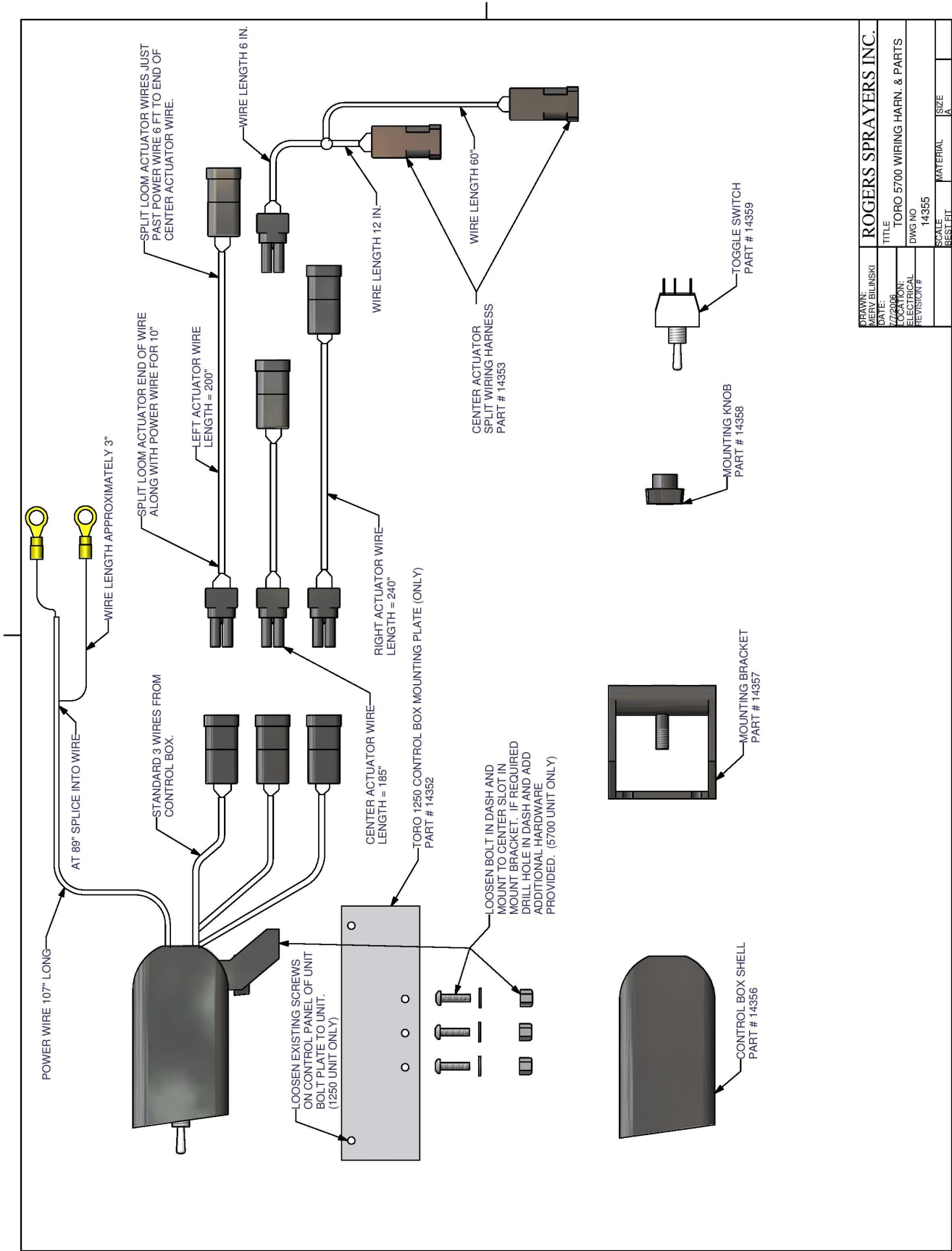


Toro Workman 200 Gal. Wiring Harness Part # 14494



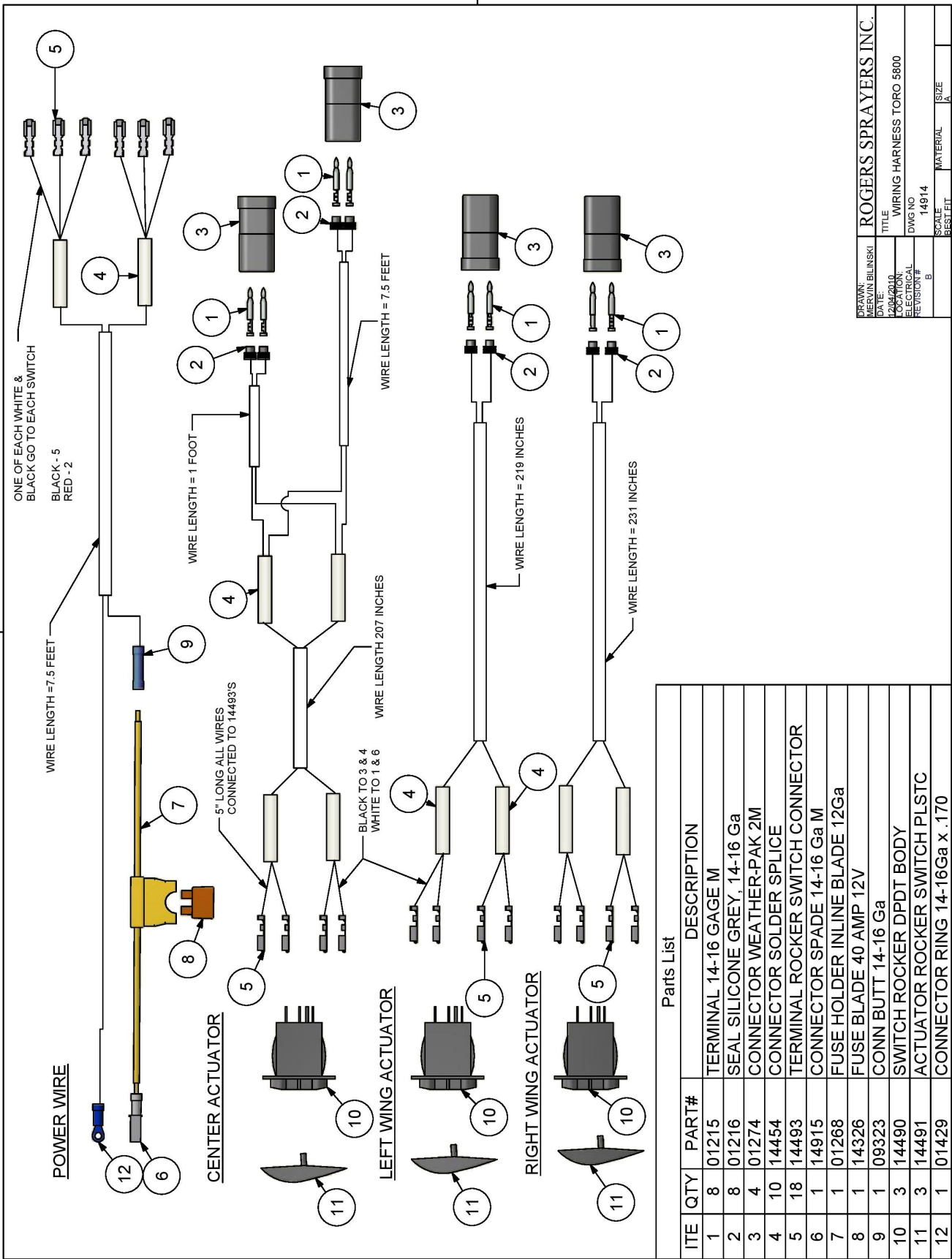
DRAWN: MERVIN BLINSKI			
DATE: 4/12/2010			
TITLE: WIRING HARNESS WORKMAN W/SW			
LOCATION: ELECTRICAL			
REVISION # 14494M			
SCALE	BEST FIT	MATERIAL	SIZE
			A

Toro 5700 Wiring Harness Part # 14355



DRAWN:	MERV BILINSKI	ROGERS SPRAYERS INC.
DATE:		
DESIGN:		
LOCATION:		
REVISION #		
DWG NO	14355	
SCALE	AS SHOWN	
MATERIAL		
SIZE		

Toro 5800 Wiring Harness Part # 14914



DRAWN: J. BLINSKI	ROGERS SPRAYERS INC.		
DATE: 12/04/2010	TITLE: WIRING HARNESS TORO 5800	SCALE: A	SIZE: A
LOCATION: ELECTRICAL	DWG NO: 14914	MATERIAL: BEST FIT	
REVISION # 1			

Rogers Sprayers Inc. (RSI)
141 - 105th Street East
Saskatoon, SK S7N 1Z2 Canada



Tel.: (306) 975-0500 or (888) 975-8294
Fax: (306) 975-0499
Email: info@rogerssprayers.com

ROGERS SPRAYERS INC OWNER WARRANTY AGREEMENT

Windfoil Drift Containment Spray Systems (DCSS) are warranted to be free of factory defects under normal and intended use for a period of one (1) year from date of purchase to the original purchaser. Equipment must be setup in accordance with factory instructions and operated, maintained and used in accordance with the operator's manual. Equipment used for rental has a warranty period of forty five (45) days. Any customization or modifications to the original equipment voids warranty immediately.

RSI reserves the right not to warranty any items that are not directly manufactured by RSI. Such components need to be returned to the factory for inspection and tested by either RSI or the original manufacturer for defects. Examples of these parts include actuators, engines, pumps and electrical systems.

All warranty Claims must be pre-authorized by the factory!

To obtain warranty, all defective parts must be returned to the factory; in some cases, location of part might require only photo of defective part. RSI must be contacted to determine which route is required. RSI through its designated dealer or factory appointed representative will repair or replace, at its option, any or all parts that are proven to be defective free of charge.

RSI DOES NOT pay or reimburse for any travel time or investigation time to determine the defective part. Warranty labor will be based on the time required for RSI to replace only the part. Warranty labor rates and replacement times will be assessed yearly and will be included in a labor replacement sheet.

This warranty does not apply to damage caused by misuse, accident, acts of god, and/or operation without proper servicing. RSI will not be responsible for consequential damages; its liability is limited to replacement of parts.

Standard wear components (see list) such as belts, nozzles, screens, bearings, wheels, flow indicator bodies or flow indicator parts are only warranted for 30 days after original purchase.

RSI makes no other expressed, implied or statutory warranty; nor is anyone authorized to make any on our behalf.

Complete your Warranty Registration online at www.rogerssprayers.com

The warranty registration is found on the Contact page of our website. The warranty registration **MUST** be filled out completely and submitted to RSI to activate the warranty. If you would prefer, a printable copy is also available online.

It is our intention to manufacture durable, user-friendly products. Any suggestions you have as to how we may improve our equipment are greatly appreciated.

EC Declaration of Conformity

WE,

Rogers Sprayers Inc.
141 - 105th St East
Saskatoon, Saskatchewan, S7N 1Z2
Canada

declare that the following products

Machine Type: Rear mounted spray boom

Model: WGF11, FGF11, WA5000E, WA5000, FA5000E, FA5000

Machine Type: Pedestrian Boom

Model: WG3, WG4, WG6, FG3, FG4, FG5

Machine Type: Pedestrian Spray Boom

Model: WE3, WE4, WE6, FE3, FE4, FE6

is in conformity with the provisions of the following European Directive(s)

Directive	Number	Certification Method
Machinery Directive	98/37/EC	Self-Certification
Machinery Directive	2006/42/EC	Self-Certification

And the following Standard:

SS-EN 907
EN ISO 4254-1:2009
EN ISO 4254-6:2009

The original copy of this document is kept at Rogers Sprayers Inc. with copies of the relevant test data and certificates, which constitute the required technical file for self declaration.

Place of declaration: Saskatoon, Saskatchewan, Canada
Date of declaration: May 3, 2011



Name: Mervin Bilinski, P. Eng.
Title: President
Rogers Sprayers Inc.



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