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Falcon FA5000E

16.5ft/5m Aluminum Covered Spray Boom
with Electric Folding System



Assembly, Parts and Operator's Manual

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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 kph), which virtually eliminates the wind problem in spraying.

The airfoil on top of the shroud is the key. It eliminates the uplifting eddy from behind the DCSS that flips drops up into the air, more commonly referred to as drift on non-airfoil covered booms.

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.

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 litres (4 US gal). 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 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 lockup dampers 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.

Assembly Safety

- Clear large area to fold booms out in field position.
- A minimum of two people is required for assembly of large equipment, especially when lifting or exertion is required. When removing and assembling the center and 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

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

The sprayer has been designed in wind tunnels to control airflow around and behind the sprayer this minimizes drift and allows safe spraying in windy conditions. [See literature.]

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 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.

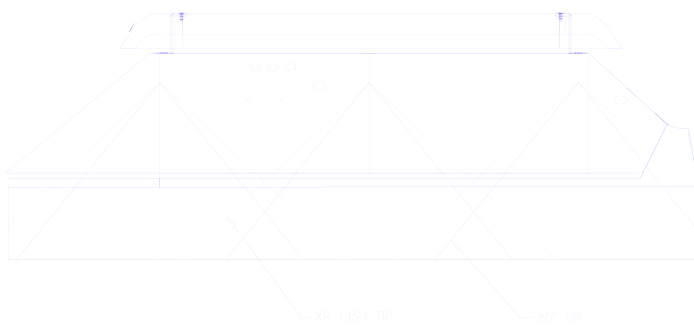
Nozzles

Caution: 80° tips are recommended, as they are true 80° tips. Being ceramic they far out last any other tip. These tips can not be mixed or interchanged. Only conventional 80° tips are recommended.

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. If a flat fan is used that is greater than 80° the spray will hit the end of the curtain and drip.



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 screens.

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:

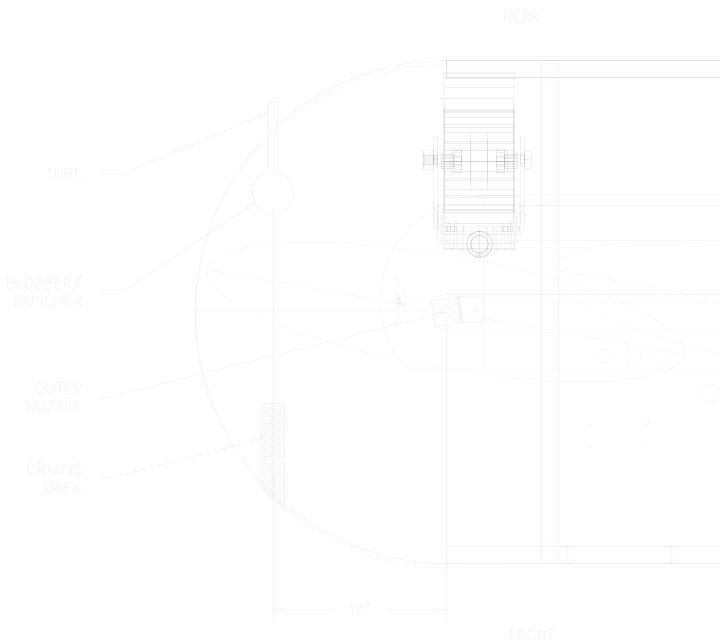
km/h	10m	25m	50m	100m	200m
1	36.0	90.0	180.0	360.0	720.0
1.5	24.0	60.0	120.0	240.0	480.0
2	18.0	45.0	90.0	180.0	360.0
2.5	14.4	36.0	72.0	144.0	288.0
3	12.0	30.0	60.0	120.0	240.0
4	9.0	22.5	45.0	90.0	180.0
5	7.2	18.0	36.0	72.0	144.0
6	6.0	15.0	30.0	60.0	120.0

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

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 2"X2" 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 10" 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" hose running down the back edge of the curtain.



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^a, 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.

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.

Final Assembly Checklist

Mechanism Checks

Boom Level: Sitting on a level pad adjust the angle of the boom by adjusting the center lock bar or actuator mount angle with the bolts on the upper arm to level the boom front to back with half a load of water in the sprayer.

Breakaway Catches: The breakaway catch should release with a good push (45 lbs/20.5kg) exerted at the transport catch on the end of the boom, (toward the rear). 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 adjustable by changing the position of the shim washers on the breakaway bolt from outside to inside to increase spring pressure if required.

Wing Folding: For manual fold, pivot wing into the vertical position and hook the latch in the slot provided. For electric option retract the actuator, the wing should rise 90° if not adjust the actuator mount so the wing rotates in to the transport lock.

The Float Arms: The float arms should be free to move up and down without interference. The wheel mount will float down until it hits on the lower cross bar in the field or in transport. Avoid running hoses, wires, etc. between these moving parts.

Curtain: Ensure curtain touches the turf. If not, move the castor wheel spacers from below the boom to on top of the boom mount.

Testing After Assembly

- a) After assembling the spray boom, check for field readiness. Points to consider are:
- b) 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.
- c) Move all hinge or swivel joints through the full arc of movement. Check for interference, ease of movement.
- d) Check all fasteners to see that they are tightened firmly, or allowed to pivot if required.
- e) Calibrate the sprayer and DCSS

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.

Manual Folding To and From Transport Position: Lift the wing up using handle and lock it up with the catch. Then lift the manual lift lock arm using wing lock damper, pull the boom forward until it stops and then rotate it down into the transport or service position and lock in place with the D ring. Caution avoid all pinch points as boom parts are being rotated.

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.

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 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 95° or 110° tips have been installed, spray will hit the end curtains and drip.

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

Be sure the wing actuators are fully retracted. Adjust the actuator mount clamps on the center frame so the DCSS wing fits into the lock up brackets.

DCSS Breaks Away Too Easily

Adjust the breakaway tension by putting washers inside the stops to increase spring compression.

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.

Stripping

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

Application Rate Tables

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

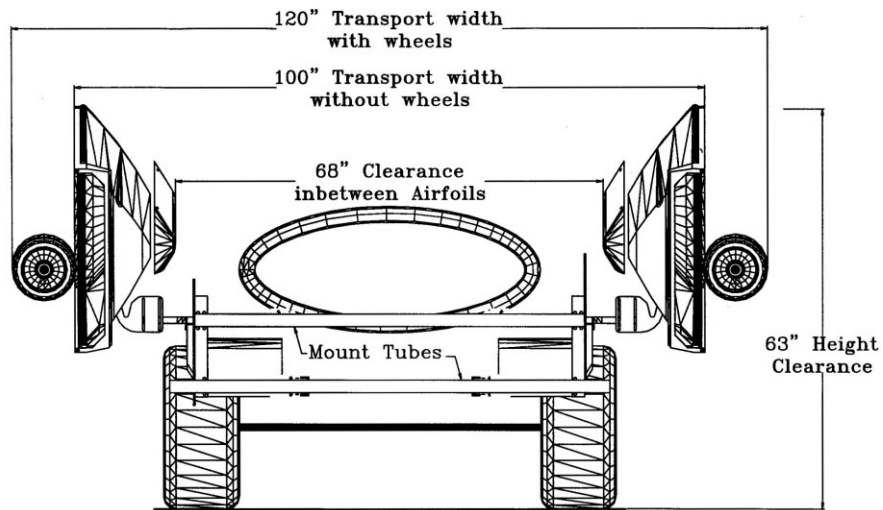
Rogers Part #	Tip Number	Tip Mfg	Liquid Press psi	Liq. Pres s bars	Cap. /noz. gpm	U. S. GALLONS PER ACRE					U. S. GALLONS PER 1000 SQ. FT.				
						2.5	3	4	5	7	2.5	3	4	5	7
						mph	mph	mph	mph	mph	mp h	mp h	mp h	mp h	mph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	10.3	8.6	6.4	5.1	3.7	0.24	0.20	0.15	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 13351	80015VS or API-80015 (100 mesh)	Teejet Albuz	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
			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 14384	8002VS or AXI-8002 (50 mesh)	Teejet Albuz	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
			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 14385	8003VS or AXI-8003 (50 mesh)	Teejet Albuz	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
			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 14061	8004VS or AXI-8004 (50 mesh)	Teejet Albuz	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
			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 14386	8005VS or AXI-8005 (50 mesh)	Teejet Albuz	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
			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 14387	8006VS or AXI-8006 (50 mesh)	Teejet Albuz	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
			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
13674 14414	ER8010 or XR8010SS	Wilger 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
14330	ER80125	Wilger	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
14040 14415	MR8015 or XR8015SS	Wilger 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
14195	MR8020	Wilger	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

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

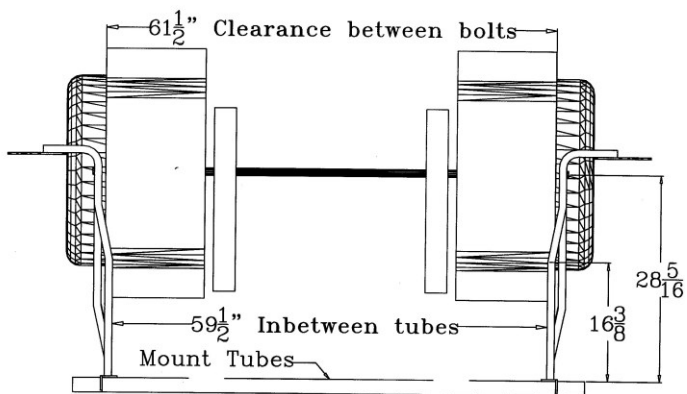
Rogers Part #	Tip Number	Tip Mfg	Liq- uid Press psi	Liq- uid Press bars	Cap /noz. gpm	U. S. GALLONS PER ACRE					Liters/Hectare				
						2.5	3	4	5	7	4	4.8	6.4	8	11.2
						mph	mph	mph	mph	mph	kph	kph	kph	kph	kph
01369	8001VS (100 mesh)	Teejet	30	2.07	0.087	10.3	8.6	6.4	5.1	3.7	96	80	60	48	34
			40	2.76	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	8001VS or API-80015 (100 mesh)	Teejet Albuz	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
			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 Albuz	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
			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 Albuz	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
			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 Albuz	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
			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 Albuz	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
			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 Albuz	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
			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
13674 14414	ER8010 or XR8010SS	Wilge r 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
14330	ER80125	Wilge r	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
14040 14415	MR8015 or XR8015SS	Wilge r 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
14195	MR8020	Wilge r	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

Mounting Clearances

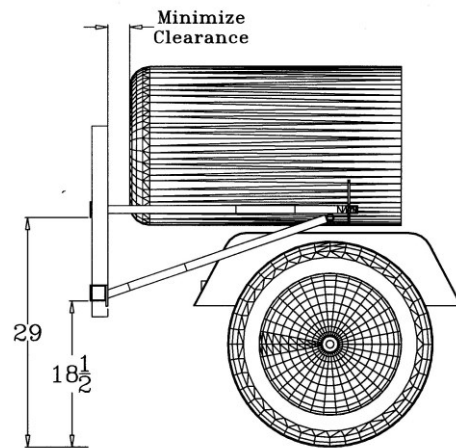
To check if you can mount the boom on your sprayer make sure that it will fit inside the dimensions own below.



REAR VIEW



TOP VIEW



SIDE VIEW

Installation Instructions

Center Frame Section

The initial step to setting up your new Falcon is to install the boom mount tubes on the back of the sprayer. These will be single tubes, the top tube is 62" and the bottom tube is 70". U-bolt these tubes solid to the frame and centered on the back of the machine. From the ground to the top of the bottom tube should be 20.5", and from the ground to the top of the top tube 31".



Boom mount tubes

For mounting on the HD200, cross over plates are used and u-bolted to the boom mounting tubes and bolted into the HD200 frame at the top. The bottom plate only takes 1 u-bolt each and a pinching plate is used to hold the mounting

Cross over plates



On other models, in general, boom mount tubes must be attached to uprights extending from the sprayer skid frame.

The next step is to mount the fixed arms on the ends of the boom mount tubes as shown in the photo. Using the 3/8"x2"x3" u-bolts make sure that fixed arms are vertical and clear the fenders and wheels of the machine.



Once center wheel mounts are installed, for manual fold units install center support bar. On electric fold units; install actuator with cylinder completely open (longest position). Arm should be installed with nut facing outward.



Next install center castor wheels with $\frac{3}{4}$ " nylock nut. Do not over tighten, wheel should castor freely



After the wheels are installed, with the help of an assistant, remove center assembly from the sawhorses and roll unit along side of fixed arms that were mounted on the boom mount tubes. The photo below shows how center wheel assembly is attached to the fixed arms. When attaching the center to the fixed arms make sure that the bolts run from the inside out (i.e. nuts should be facing outward).



Wing Sections

To install wings:



Break away the arm on the center.



Next start the solid wing frame inside the breakaway tube.



Lift wing as shown in the photo and slide the wing frame in the remainder of the way.



Lift wing as shown in the photo and slide the wing frame in the remainder of the way.



Then lift the wing and install the nut and bolt through the stabilizer bar, shroud and angle. After the unit is assembled the bolt in the slot can be adjusted to straighten and align the wing.



Install the wing rest lock-up catch.



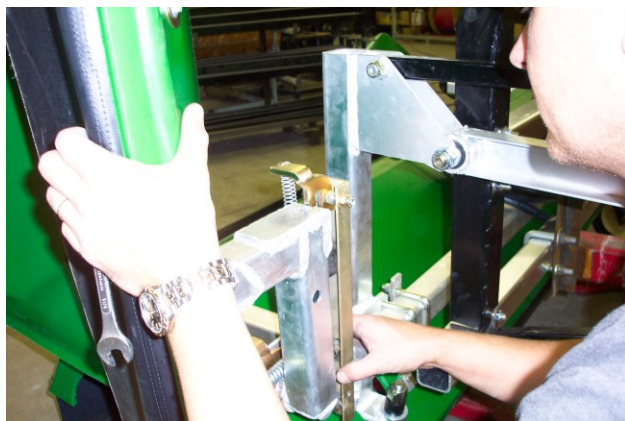
Install the wing castor wheel fork by sliding the pin through the bushing, use $\frac{3}{4}$ " nylock nut.



Next install the wing transport yoke. Use a $\frac{1}{2}$ " nut on the bottom to lock into position.

Fold Systems

For **manual fold system**, install manual wing catch as shown. With wing in upright position, and catch up, wing should just clear lockup. Tighten bolts on Channel once set in position.



For **electric fold system**, wings should be vertical when actuator is retracted. To adjust, loosen u-bolt on center frame and slide mounting bracket appropriately.

Adjustments



To adjust center frame, make sure all of the wheels are in the forward rolling position (**very important**).



Then adjust the center actuator mounts on the floating arm as shown in the photo to level the boom.

Hook-up plumbing

Install airfoils



Bolt on the airfoils with the long supports in the front and the short supports in the back.

Test each wing for proper fold-up — wings should be vertical.

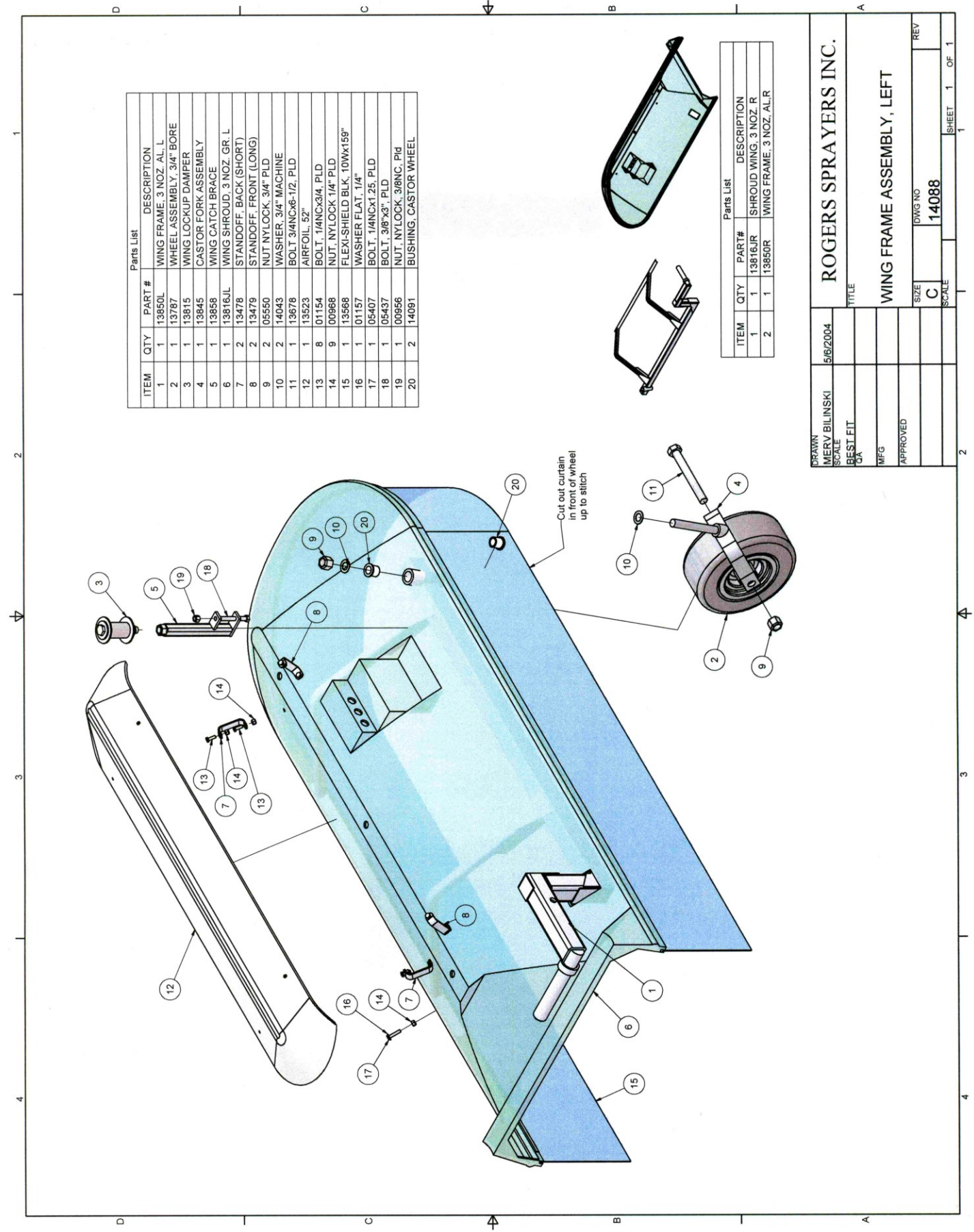
Test the center fold for proper clearances.

Adjust height of wing rests for proper lock-up in transport.

All curtains must be properly secured during high-speed highway transport.

ITEM	QTY	PART #	DESCRIPTION
1	1	13485	CENTER FRAME, HP 4 NOZ.
2	2	13499	BREAKAWAY TUBE
3	2	13486	CENTER WHEEL MOUNT
4	2	13845	CASTOR FORK ASSEMBLY, 3/4" BORE
5	2	13787	WHEEL ASSEMBLY, 3/4" BORE
6	1	13501L	WING STABILIZER BAR, LEFT
7	1	13501R	WING STABILIZER BAR, RIGHT
8	1	13817J	SHROUD, HP, 4 NOZ. CENTER GRN
9	4	01058	PLUG, TUBE, SQ. PLASTIC 2"
10	2	13493	BUSHING, NYLON WING STAB
11	2	13494	BUSHING, NYLON WING PIVOT
12	1	13475L	BREAK LATCH, LEFT
13	1	13475R	BREAK LATCH, RIGHT
14	2	05431	BOLT, 3/8"x1", PLD
15	22	00956	NUT, NYLOCK, 3/8NC, PLD
16	6	12587	UBOLT, 3/8" x2"x3", PLD
17	4	14043	WASHER, 3/4" MACHINE
18	4	05550	NUT NYLOCK, 3/4" PLD
19	2	13710	SPRING, CPRN, .8125x4.875x.162
20	2	01393	BOLT, 3/8"x6", PLD
21	2	13847	CENTER SHROUD SUPPORT
22	1	13480	SHROUD SUPPORT, FRONT
23	2	05432	BOLT, 3/8"x1.5", PLD
24	8	00957	WASHER, FLAT, 3/8" PLD
25	3	01070	BOLT, 1/4NCx2, PLD
26	3	09754	WASHER, 1/4" FENDER
27	15	00966	NUT NYLOCK 1/4" PLD
28	2	13678	BOLT 3/4NCx6-1/2, PLD
29	1	13484	FLEXISHIELD, BLK 10"x84.5"
30	2	13484a	FLEXISHIELD, BLK 10"x6"
31	1	13484b	FLEXISHIELD, BLK 10"x61.5"
32	2	05457	BOLT, 5/8"x4.5", PLD
33	2	01051	NUT, NYLOCK, 5/8NC, PLD
34	2	12361	PIN, HITCH, 3/32" x 1.5"
35	3	13478	STANDOFF, BACK (SHORT)
36	3	13479	STANDOFF, FRONT (LONG)
37	12	01154	BOLT, 1/4NCx3/4, PLD
38	1	13483	AIRFOIL, 68"
39	2	00967	BOLT, 1/2"x2.5", PLD
40	2	00963	NUT, NYLOCK, 1/2NC, PLD
41	4	14091	BUSHING, CASTOR WHEEL
42	4	14127	BUSHING, NYL, 3/4x5/8x1/2 WIFLG
43	1	14192R	BRACE CENTER FRAME, R
44	1	14192L	BRACE CENTER FRAME, L
45	4	05437	BOLT, 3/8"x3", PLD

Wing Frame Assembly Part # 14088



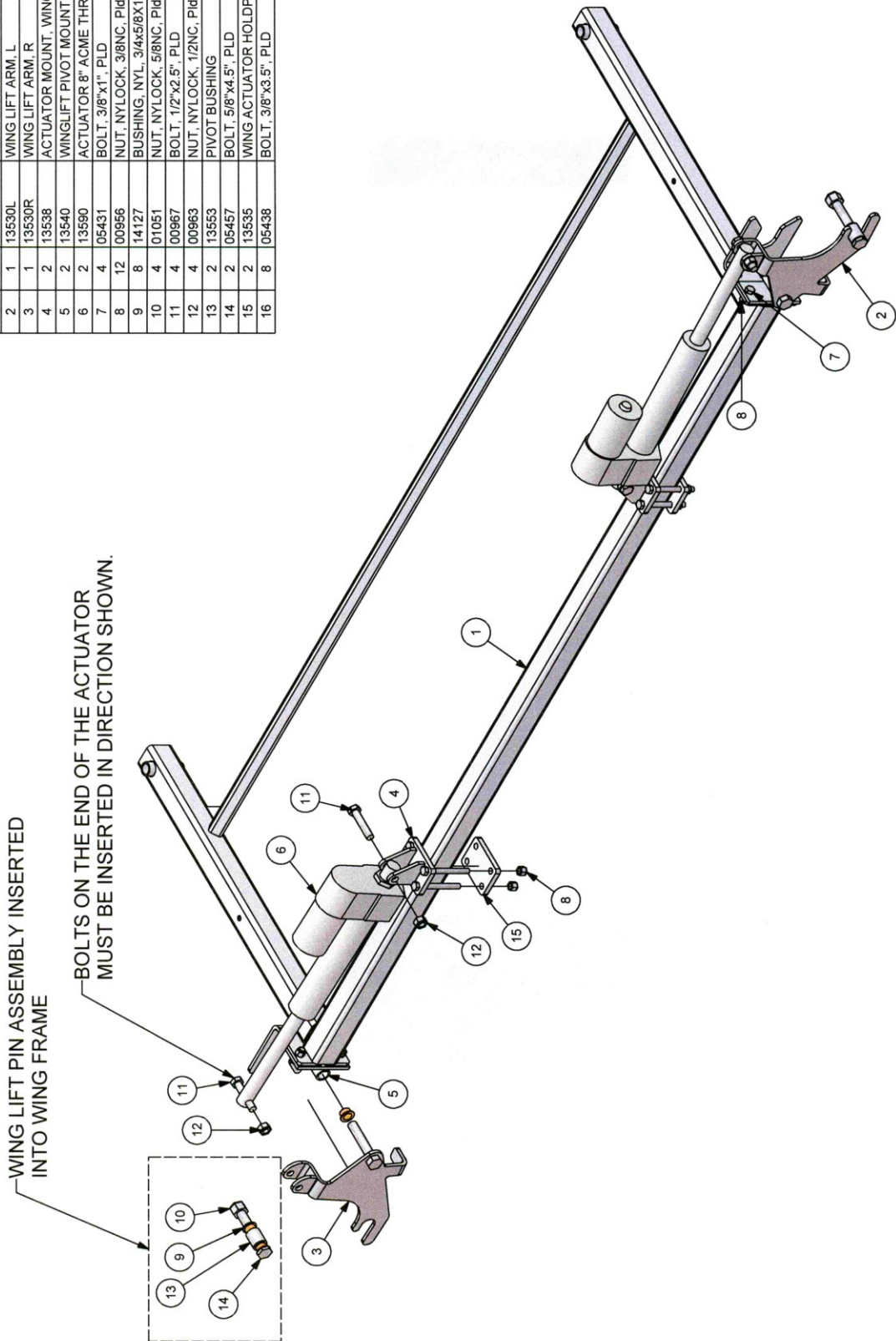
Parts List		
ITEM	QTY	DESCRIPTION
1	1	WING FRAME, 3 NOZ. AL. L.
2	1	WHEEL ASSEMBLY, 3/4" BORE
3	1	WING LOCKUP DAMPER
4	1	CASTOR FORK ASSEMBLY
5	1	WING CATCH BRACE
6	1	WING SHROUD, 3 NOZ. GR. L.
7	2	STANDOFF, BACK (SHORT)
8	2	STANDOFF, FRONT (LONG)
9	2	NUT NYLOCK, 3/4" PLD
10	2	WASHER, 3/4" MACHINE
11	1	BOLT 3/4NCX6-1/2, PLD
12	1	AIRFOIL, 52"
13	8	BOLT, 1/4NCX3/4, PLD
14	9	NUT, NYLOCK 1/4" PLD
15	1	FLEXI-SHIELD BLK, 10WX159"
16	1	WASHER FLAT, 1/4"
17	1	BOLT, 1/4NCX1.25, PLD
18	1	BOLT, 3/8"x3", PLD
19	1	NUT, NYLOCK, 3/8NC, PLD
20	2	BUSHING, CASTOR WHEEL

Parts List		
ITEM	QTY	DESCRIPTION
1	1	SHROUD WING, 3 NOZ. R
2	1	WING FRAME, 3 NOZ. AL.R

DRAWN MERY BILINSKI	5/6/2004	ROGERS SPRAYERS INC.	
SCALE BEST FIT	QA	TITLE	
MFG		WING FRAME ASSEMBLY, LEFT	
APPROVED		SIZE C	REV
		DWG NO 14088	
		SCALE	SHEET 1 OF 1

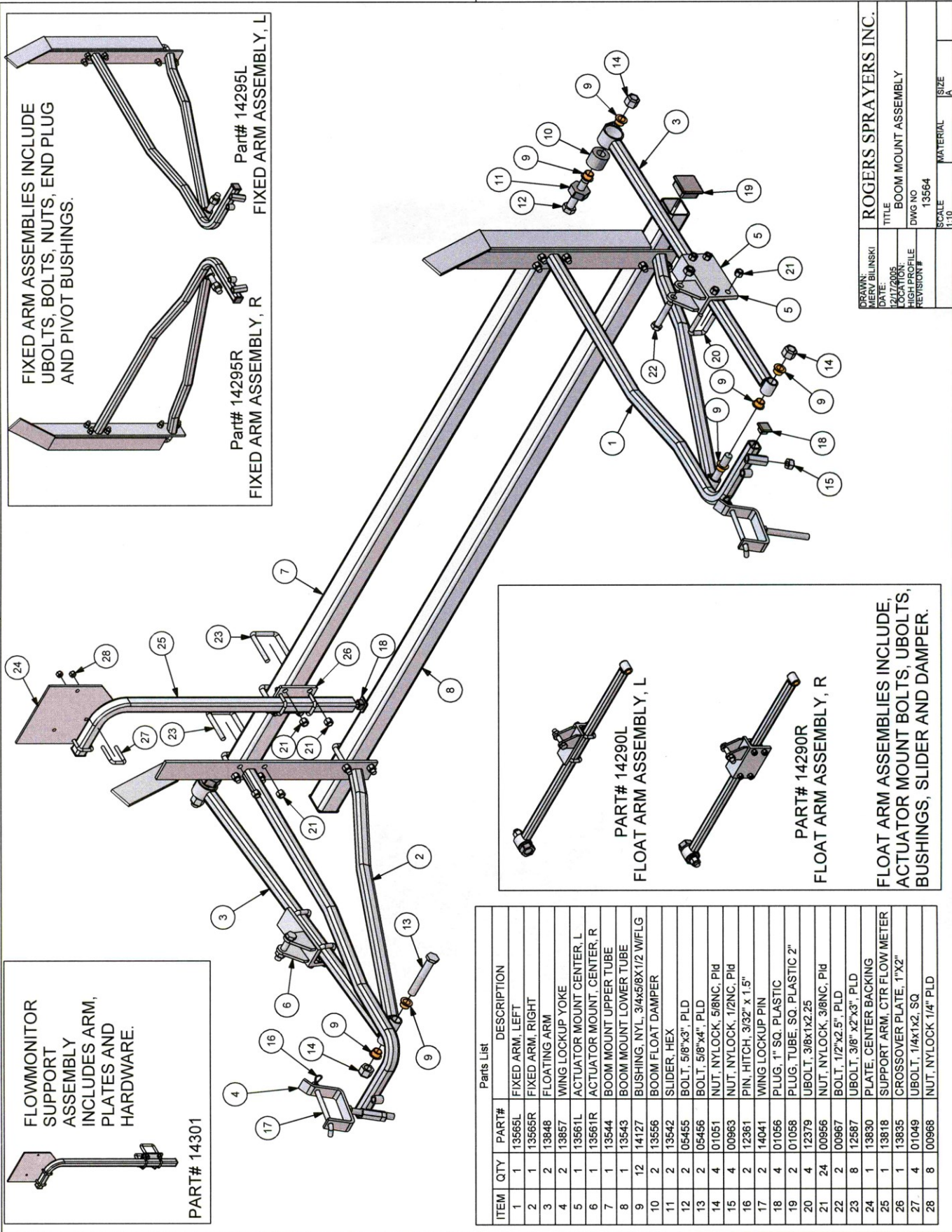
Wing Lift Assembly

Parts List		
ITEM	QTY	PART# DESCRIPTION
1	1	13485 CENTER FRAME, HP 4 NOZ.
2	1	13530L WING LIFT ARM, L
3	1	13530R WING LIFT ARM, R
4	2	13538 ACTUATOR MOUNT, WING
5	2	13540 WINGLIFT PIVOT MOUNT
6	2	13590 ACTUATOR 8" ACME THREAD
7	4	05431 NUT, 3/8"x1", PLD
8	12	00956 BOLT, NYLOCK, 3/8NC, PLD
9	8	14127 BUSHING, NYL, 3/4x5/8x1/2 WIFLG
10	4	01051 NUT, NYLOCK, 5/8NC, PLD
11	4	00967 BOLT, 1/2"x2.5", PLD
12	4	00963 NUT, NYLOCK, 1/2NC, PLD
13	2	13553 PIVOT BUSHING
14	2	05457 BOLT, 5/8"x4.5", PLD
15	2	13535 WING ACTUATOR HOLDPLATE
16	8	05438 BOLT, 3/8"x3.5", PLD

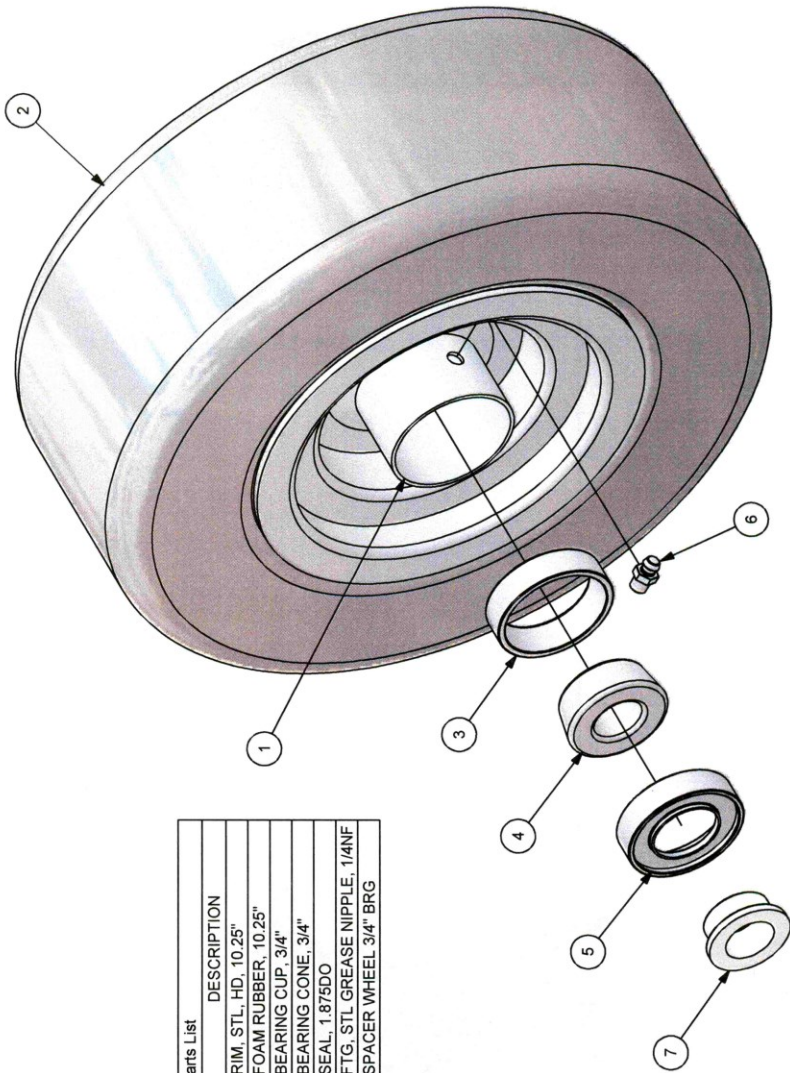


DRAWN: MERV BILINSKI		ROGERS SPRAYERS INC.	
DATE: 8/9/2005	TITLE: WING LIFT ASSEMBLY PARTS	SCALE: BEST FIT	SIZE: A
LOCATION: HIGH PROFILE	DWG NO: Wing Lift Assembly	MATERIAL:	
REVISION #:			

Boom Mount Assembly Part # 13564



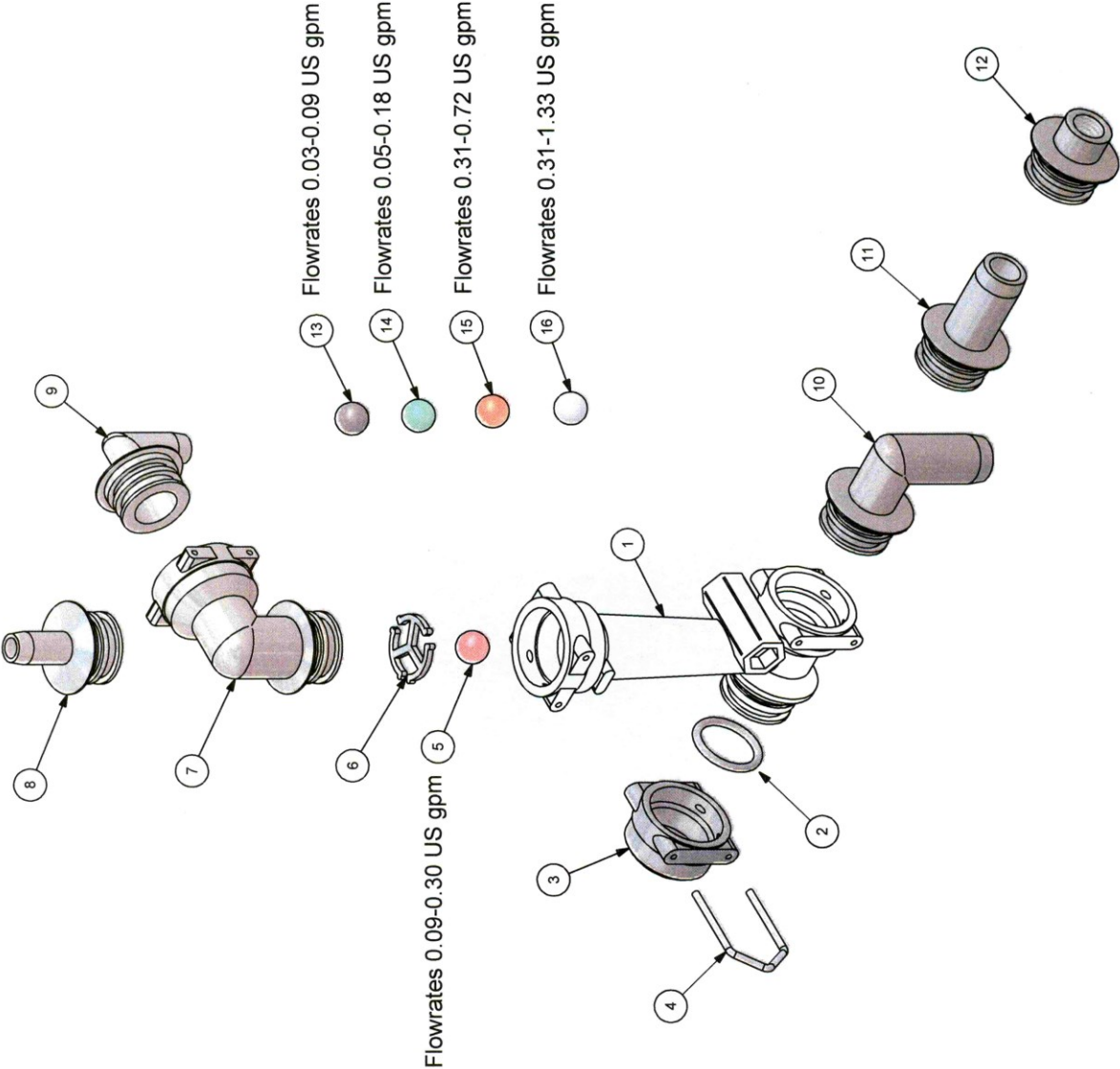
Wheel Assembly, 3/4" Bore



Parts List			
ITEM	QTY	PART#	DESCRIPTION
1	1	14031	RIM, STL, HD, 10.25"
2	1	00864	FOAM RUBBER, 10.25"
3	2	14032	BEARING CUP, 3/4"
4	2	14034	BEARING CONE, 3/4"
5	2	14033	SEAL, 1.875DO
6	1	00972	FTG, STL GREASE NIPPLE, 1/4NF
7	2	13801	SPACER WHEEL 3/4" BRG

DRAWN: MERV BILINSKI				ROGERS SPRAYERS INC.			
DATE: 4/24/2004				TITLE: WHEEL ASSEMBLY, 3/4" BORE			
LOCATION: HIGH PROFILE				DWG NO: 13787			
REV: 0001				SCALE: BEST FIT			
				MATERIAL: 304			
				SIZE: A			

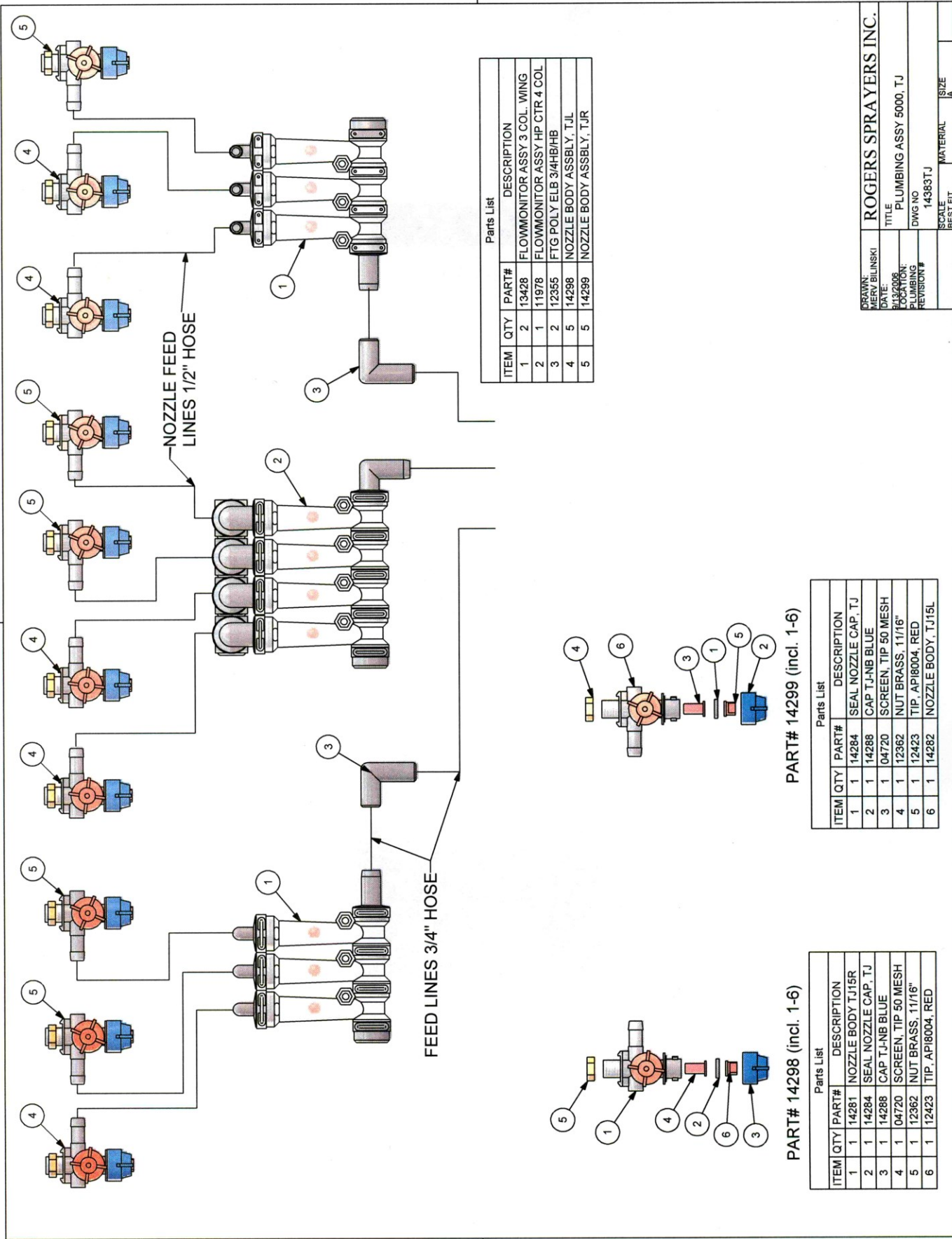
ORC Rotometer Part # 11992



Parts List		
ITEM	QTY	PART#
1	1	00889
2	1	11984
3	1	00909
4	1	11976a
5	1	11990
6	1	11989
7	1	01115
8	1	11975
9	1	00906
10	1	00905
11	1	00903
12	1	12727
13	1	01118
14	1	01119
15	1	11965
16	1	11991

DRAWN: MERV BILINSKI		ROGERS SPRAYERS INC.	
DATE: 4/15/2008		TITLE: ORC ROTOMETER PARTS	
DESIGNED: PLUMBING		DWG NO: 11992	
REVISION #		SCALE: BEST FIT	
		MATERIAL: A	
		SIZE: A	

Plumbing Assembly 5000 TJ Part # 14383TJ



Parts List		
ITEM	QTY	DESCRIPTION
1	2	FLOWMONITOR ASSY 3 COL. WING
2	1	FLOWMONITOR ASSY HP CTR 4 COL
3	2	FTG POLY ELB 3/4HB/HB
4	5	NOZZLE BODY ASSBLY, TJL
5	5	NOZZLE BODY ASSBLY, TJR

DRAWN: MERV BILINSKI		ROGERS SPRAYERS INC.	
DATE: 9/13/2008		TITLE: PLUMBING ASSY 5000, TJ	
CHECKED: J. BILINSKI		DWG NO: 14383TJ	
REVISION #		SCALE: BEST FIT	
		MATERIAL: A	

Parts List	
ITEM	QTY
1	1
2	1
3	1
4	1
5	1
6	1

Parts List	
ITEM	QTY
1	1
2	1
3	1
4	1
5	1
6	1

DECLARATION OF CONFORMITY

(According to ISO/IEC Guide 22 And EN 45014)

We, ROGERS SPRAYERS INC.
813B 50-TH STREET EAST
SASKATOON, SASKATCHEWAN. S7K 3Y5

declare that the following product:

SPRAY BOOM, MODELS WA5000, WA5000E, WA6000, WA6000E, WS5000,
WS5000E, WS6000, WS6000E, FA5000, FA5000E, FA6000, FA6000E, FS5000,
FS5000E, FS6000, FS6000E
PEDESTRIAN BOOM MODELS WG3, WG4, WG6, FG3, FG4, FG6
PEDESTRIAN SPRAYER MODELS WE3, WE4, WE6, FE3, FE4, FE6

is in conformity with the provisions of the following European Directives:

Council Directive 98/37/EC; as amended by 98/79/EEC:

And the following standards:

SS-EN 907

Done at SASKATOON, SASKATCHEWAN, CANADA **on** SEPTEMBER 25, 2006

..... 

.....



ROGERS SPRAYERS INC.

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Web: www.rogerssprayers.com