

Rogers Sprayers Inc.

141 - 105th Street East, Saskatoon, SK S7N 1Z2 Canada
Toll Free: 1-888-975-8294 or (306) 975-0500 Fax: (306) 975-0499
Web: www.rogerssprayers.com Email: info@rogerssprayers.com

Windfoil

Model No: FM3500/FM1500

Front Mount Sprayer



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Windfoil DCSS Forward

The DCSS system was developed to give the industry a reliable way to apply liquids to turf. The system designed in a wind tunnel and proven by government tests contains the spray in a shroud sealed to the turf's surface. The 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 to become drift on non-airfoil covered booms.

The DCSS is the most environmentally and safety friendly 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.

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

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

Operational Safety

- Shut down sprayer and power unit and wait for all parts to stop before adjusting, cleaning, or lubricating the power unit or sprayer.
- Before spraying a field, familiarize yourself with any rocks, debris, trees, ditches or gullies that may be potentially dangerous. Plan the spraying route to avoid these hazards. 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.

Assembly Safety

- Clear large area to fold booms out in field position.
- A minimum of two people should be available for assembly of large equipment, especially when lifting or exertion is required.
- Always use clean tools of the proper size and specification to match the hardware and specific job.

Transport Safety

- Never transport sprayers with castor wheels on the ground faster than 16 km/h (10 mph).
- Reduce speed on rough terrain.
- For all sprayers, ensure that booms are folded and/or locked securely for transport.

Minimize Chemical Drift

The *Windfoil* sprayer has been designed in wind tunnels to control airflow around and behind the sprayer to minimize drift, allowing safe spraying in windy conditions. 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 of the *Windfoil* 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 *Windfoil* DCSS is supplied with Tee Jet 8001 tips. Calibrate frequently to confirm tip accuracy.

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

Check the flow rate from all nozzles using the capacity calibration technique; see the Calibration section for tables and instructions. 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.

Caution: The tips cannot be mixed or interchanged. Only conventional 80° tips are recommended for the *Windfoil*. XR tips have a wider pattern than 80° tips and hit the shroud end. They are not recommended.

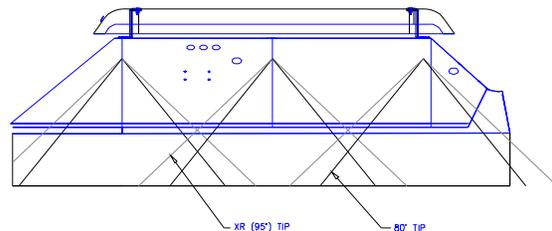
Nozzles

Despite being the most important component for accurate, uniform spraying application, nozzles are often neglected and abused. Nozzle flow rate depends on the 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 *Windfoil's* DCSS. With conventional sprayers, large droplets that are used to control drift can roll off plants without sticking. The *Windfoil* DCSS will contain small droplets and allow them to be deposited on target plants. **Small droplets are beneficial in that they increase coverage and are not a drift problem with the *Windfoil* DCSS.**

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 Tee Jet or API 80° tips, as these will provide the most uniform spray pattern in the *Windfoil* DCSS. **Do not use XR tips as their spray pattern is greater than 80° causing the spray to hit the end of the shroud which causes dripping.**



If you wish to increase coverage to the edge of the shroud, use XR tips. The spray will hit the curtain and some dripping may occur which will not be noticeable with most pesticides. Caution must be exercised with pesticides that burn the turf, as these drops may increase burning.

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

Diaphragm Check Valve Nozzle Bodies

Diaphragm check valves close at 15 psi 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.

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. 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 have a visibly distorted pattern.

After the nozzles have been individually checked and matched, the sprayer should be calibrated to determine the correct speed for the desired application volume. Refer to Tables 1 and 2, for typical application rates for different nozzles.

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

Table 1: API Nozzle Application Rates for 10" (25cm) Spacing

Tip (screen) 80°	Liquid PRESS. in PSI	FLOW in GPM 1 Tip	US Gal/1000sqft – 10" Spac.			FLOW in L/m 1 Tip	L/ha - ¼ m Spacing		
			2.5 MPH	3 MPH	4 MPH		4 km/h	5 km/h	6 km/h
API 80015 (80 Mesh) Green Part # 13351	30	0.13	0.71	0.59	0.44	0.49	295	236	197
	35	0.14	0.76	0.64	0.48	0.53	318	254	212
	40	0.15	0.82	0.68	0.51	0.57	341	273	227
	45	0.16	0.87	0.73	0.55	0.61	363	291	242
API 8002 (50 Mesh) Yellow Part# 12422	30	0.17	0.93	0.77	0.58	0.64	386	309	257
	35	0.19	1.04	0.86	0.65	0.72	431	345	288
	40	0.20	1.09	0.91	0.68	0.76	454	363	303
	45	0.21	1.15	0.95	0.72	0.79	477	382	318
API 8003 (50 Mesh) Blue Part # 13352	30	0.26	1.42	1.18	0.89	0.98	590	472	394
	35	0.28	1.53	1.27	0.95	1.06	636	509	424
	40	0.30	1.64	1.36	1.02	1.14	681	545	454
	45	0.32	1.75	1.45	1.09	1.21	727	581	484
API 8004 (50 Mesh) Red Part# 12423	30	0.35	1.91	1.59	1.19	1.32	795	636	530
	35	0.38	2.07	1.73	1.30	1.44	863	690	575
	40	0.41	2.24	1.86	1.40	1.55	931	745	621
	45	0.43	2.35	1.95	1.47	1.63	977	781	651
API 8005 (50 Mesh) Brown Part# 12424	30	0.44	2.40	2.00	1.50	1.67	999	799	666
	35	0.47	2.56	2.14	1.60	1.78	1067	854	712
	40	0.51	2.78	2.32	1.74	1.93	1158	927	772
	45	0.54	2.95	2.45	1.84	2.04	1226	981	818
API 8006 (50 Mesh) Grey Part# 12425	30	0.52	2.84	2.36	1.77	1.97	1181	945	787
	35	0.56	3.05	2.55	1.91	2.12	1272	1017	848
	40	0.60	3.27	2.73	2.05	2.27	1363	1090	908
	45	0.64	3.49	2.91	2.18	2.42	1453	1163	969

Table 2: Tee Jet Application Rate for 10" (25cm) Spacing

Tip (Screen) Colour	Liquid Press. psi	Capacity 1 nozzle gpm	U.S. Gal/1000 Sqft			FLOW l/min 1 Tip	L/ha - ¼ m Spacing		
			2.5 mph	3 mph	4 mph		4 km/h	5 km/h	6 km/h
80015 (100 mesh) Green Part# 00827	30	0.13	0.71	0.59	0.44	0.49	295	236	197
	40	0.15	0.82	0.68	0.51	0.57	341	273	227
	50	0.17	0.93	0.77	0.58	0.64	386	309	257
	60	0.18	0.98	0.82	0.61	0.68	409	327	273
8001 (100 mesh) Orange Part# 01369	30	0.09	0.49	0.41	0.31	0.66	273	204	164
	40	0.10	0.55	0.45	0.34	0.76	303	227	182
	50	0.11	0.60	0.50	0.38	0.84	333	250	200
	60	0.12	0.65	0.55	0.41	0.91	363	273	218
8002 (50 mesh) Yellow Part# 05876	30	0.17	0.93	0.77	0.58	0.64	386	309	257
	40	0.20	1.09	0.91	0.68	0.76	454	363	303
	50	0.22	1.20	1.00	0.75	0.83	500	400	333
	60	0.25	1.36	1.14	0.85	0.95	568	454	379
8003 (50 mesh) Blue Part # 05877	30	0.26	1.42	1.18	0.89	0.98	590	472	394
	40	0.3	1.64	1.36	1.02	1.14	681	545	454
	50	0.34	1.85	1.55	1.16	1.29	772	618	515
	60	0.37	2.02	1.68	1.26	1.40	840	672	560
8004 (50 mesh) Red Part # 05878	30	0.35	1.91	1.59	1.19	1.32	795	636	530
	40	0.4	2.18	1.82	1.36	1.51	908	727	606
	50	0.45	2.45	2.05	1.53	1.70	1022	818	681
	60	0.49	2.67	2.23	1.67	1.85	1113	890	742
8005 (50 mesh) Brown Part # 05879	30	0.43	2.35	1.95	1.47	1.63	977	781	651
	40	0.5	2.73	2.27	1.70	1.89	1136	908	757
	50	0.56	3.05	2.55	1.91	2.12	1272	1017	848
	60	0.61	3.33	2.77	2.08	2.31	1385	1108	924
8006 (50 mesh) Grey Part# 05880	30	0.52	2.84	2.36	1.77	1.97	1181	945	787
	40	0.6	3.27	2.73	2.05	2.27	1363	1090	908
	50	0.67	3.65	3.05	2.28	2.54	1522	1217	1014
	60	0.74	4.04	3.36	2.52	2.80	1681	1344	1120

Actual sprayer speed, as determined from the following tables, 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 appropriate table below.

Table 5: Time in Seconds to Travel a Distance of:

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

Table 6: Time in Seconds to Travel Distance of:

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

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 by either corrosion or deposits of gums, etc. If you spray crops that are very susceptible to injury from the last chemical used, such as vegetables, turf, and ornamentals clean the unit especially well.

Always try to end the day with an empty tank; avoid contamination of water supplies and injury to plants or animals. Do not make puddles that might be accessible to children, pets, farm animals, or wildlife. Flush with clean water, preferably after each day's operation. 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 an accumulation. If water alone does not dissolve and remove the buildup, add a low flammable 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. The solution used depends on the chemical to be removed from the sprayer. Check the chemical label for cleaning instructions.

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

Follow the same safety precautions during cleaning as for applications. Use 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 of rust inhibitor or antifreeze in the tank prior to the final flushing to help prevent corrosion. As the water is pumped from the sprayer, the antifreeze will leave a protective coating on the inside of the tank, pump, and plumbing. Remove nozzle tips, screens and no drip valves and store them in a can of light oil such as diesel fuel or kerosene to prevent corrosion. Close nozzle openings with tape to prevent dirt, insects, mice, or other contaminants from entering.

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

Assembly

Centre Section Attachment

1. Using the 1½" square U-bolts supplied attach the tank mount to the back of the 1½" tubing farthest away from the power unit with the tank numbers facing away from the power unit. Attach the ¾" hose with the supplied gear clamp.
2. Using the 1½" square U-bolts supplied attach the boom pull upright tube(s) on the appropriate sides, see General Assembly DCSS for mounting parts layout
3. The boom pull upright tubes contain the stand legs and a D-ring necessary for storage purposes (FM3500 only).

Center Frame Attachment

1. Place Center Frame in front of Mount Adapter. The pump and line strainer face away from the power unit.
2. The Center Frame attaches to the Mount Adapter with 1½" square U-bolts and 3/8" nylock nuts. Refer to Mount Adapter drawing where appropriate.

Castor Frame and Wheel Attachment

1. Attach the Center Castor Frame to the Center frame via a Ø1" by 6" long pin. A cotter pin is provided to hold the 6" long pin in place.
2. Place a Castor Wheel Assembly in each of the wheel bushings of the Center Castor Frame placing the castor wheel spacers on the top of the bushings. The bushings are located to the extreme left and right of the front of the Castor Frame.
3. Place the Lynch Pin into end of the castor wheel shaft.

Wing Attachment

1. Place the left and right wings to the sides of the Center Frame. The wheels of the wings will locate to the outer rear of the sprayer and face toward the power unit.
2. Release the breakaway arm from the Center Frame.
3. Loosen the Guide ring that is on the Breakaway Arm.
4. Remove the 1/4" bolts holding the Wing Pivot U-Clamp to the wing and remove the Wing Pivot U-Clamps from the wing.
5. Place the Wing Pivot U-Clamps onto the Breakaway Arm and reattach the Wing to the U-Clamps.

6. Ensure that the U-Clamp is pressed up against the inside of the Breakaway Arm.
7. Tighten the 1/4" bolts holding the Wing Pivot U-Clamp to the Breakaway Arm.
8. Lock the Guide Ring into position tight against the Wing Pivot U-Clamp closest to the power unit.
9. Locate the two ropes and handles. Run one rope through the left wing rope cleat and the other the right rope cleat to the wing rope pull tab on the wing and tie a tight knot in the very end of the rope. Pull rope back out of the Rope Tab until the knot is tight against the Rope Tab.

Plumbing Hookup

1. Attach the double cross plate supplied in the parts bag to the Valve Mount with 1/4" square U-bolts. Attach Mount to the right upright on the Center frame with 1 1/2" square U-bolts.
2. Adjust height of controls to suit your power unit and user preference. Use tie straps to secure the hoses neatly in place.
3. Attach the Backing Plate and Nozzle Flow Indicator to the Tank Mount using the 1/4" x 2" lg bolts.
4. Locate the three 1/2" hoses from the Center Boom Section. Cut to desired length and hook the end of each hose to the hose barbs on the nozzle flow indicator. To avoid confusion, ensure that the position that each hose exits the shroud of the spray boom corresponds with the position it is installed on the nozzle flow indicator. Plastic, crimp type hose clamps are located in the parts box.
5. Attach wing supply hoses to the appropriate wings placing the supply hose underneath the breakaway arm. Attach the center nozzle flow indicator supply hose and the bypass hose to the top of the solution tank. Use the plastic crimp type hose clamps to secure to hose barbs.

Electrical Hookup

1. Route electrical harness along power unit frame. Avoid all pivot points and moving parts to avoid pinching or wearing into cable.
2. Plug cable into auxiliary 12V power outlet on power unit.
3. Tie cable securely to power unit.
4. Clean terminals of battery to ensure good connections

Final Assembly Checklist

Mechanism Checks:

1) Centre Boom Pivot

Lift the wheels of the centre section off the ground and check that the boom centers itself. Adjust the springs on the boom mount to provide even pressure on the boom when centered. Loosen the nuts on the bolts on either side to balance the pressure.

2) Breakaway Catches

The breakaway catch should release with a good push (45lbs) exerted 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.

3) Wing Fold Stop

Raise the wings, they should rise 90° and rest against the fold stop on the Boom Pull Mounts on the center frame. The fold stop positions the wing and secures it firmly when in the transport position. Adjust the position of the fold stop if necessary.

4) Curtain

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

5) Check for Leaks

Ensure all connections are leak free. If leaks occur, check connection to ensure it is tight.

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 and grease.
- c) Check all fasteners to see that they are tightened firmly.
- d) Calibrate the sprayer and DCSS

Operation

First Checks

During sprayer setup, test the operation of the spray tips, hoses and plumbing system with clear water. Refer to the sprayer maintenance and operation section found in this manual.

Clean sprayer tank and flush plumbing system with clean water.

Check line strainer and nozzle screens for residue and debris. Clean screens with clear water. Replace any screens that are torn or remain clogged after cleaning.

Check and clean nozzle tips. To ensure best performance calibrate spray tips. Refer to Calibration found in the General Spraying Information section of this manual. The frequency that you should perform calibration will vary based on the volume and type of spraying that is done.

Determine proper chemical mixture based on the specific chemical and spray tip size. Different size spray tips and nozzle screens are available through your Windfoil dealer.

Using the Sprayer

Prepare to spray by turning on the power switch for the pump. Observe the pressure gauge on the Valve Mount. The pressure should rise slightly above the spray pressure desired for the specific tip type and chemical. The exact difference between the set pressure with no booms spraying and the spray pressure will depend on the size of tips and number of spray booms engaged.

Adjust the pressure regulator located on the Valve Mount to obtain the desired pressure.

Begin moving at the desired spray speed.

Turn on the appropriate sections of the spray boom with the specific On/Off valve located on the Valve Mount.

DCSS Operation

If you wish to lift a boom, switch off the flow to the boom. Wait a couple of seconds so the mist under the boom can settle before lifting the boom.

Each wing can be lifted with the rope and secured in place by pulling the rope through the cleat on the top of the Valve Mount.

To disengage simply lift the rope to pull it out of the cleat. Store the excessive rope with the handle on the hook.

The wings are attached to your boom via the breakaway pin and pivot. If you strike an object with a wing, that wing should breakaway as a protection against damage.

After striking an object, return the wing to position. Grasp wing at outer edge. Move end of wing forward until breakaway pin contacts the breakaway mechanism. With sharp forward motion, lock wing into breakaway catch.

Maintenance

- Grease DCSS wing hinge points every 40 hours.
- Check regularly that all fasteners tight and secure.
- See the General Spraying Information section of this manual.
- Check wheel bearings every 40 hours and adjust if required. Check more often in rougher situations.

Trouble Shooting

Leaking Nozzles

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

- ⇒ For deteriorated diaphragms **or** material under the diaphragm **or** deterioration of the diaphragm sealing surface
- ⇒ For a weak spring

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 diaphragm **or** missaligned diaphragm **or** a broken diaphragm body

Wheel Bearing Failure

Check wheel bearings weekly. 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 DCSS Curtain

The spray booms are designed for true 80° spray tips. If spray is dripping off the end of the curtains, 110° or XR tips may be incorrectly installed. Remove these and install true 80° tips such as API80° tips.

DCSS Flops Sideways When Lifted

The bolts that adjust the tension on the DCSS boom mount bar spring may be too tight and are not equally pushing on the shroud mount bar. Put into transport position on level ground and loosen the bolt to increase the tension.

DCSS Breaks Away Too Easily

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

Tracking

The weight of the prime mover and in extreme situations, the wing 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°, XR 80° tips have a wider than 80° spray pattern.
- ⇒ High tip pressure, over 40psi (2.8 Bar), will cause a wider spray pattern by extending the spray pattern angle.

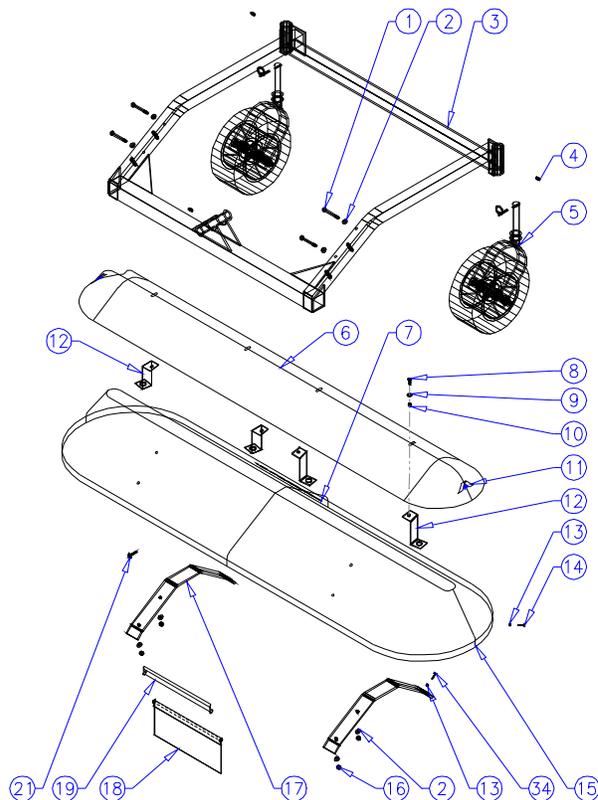
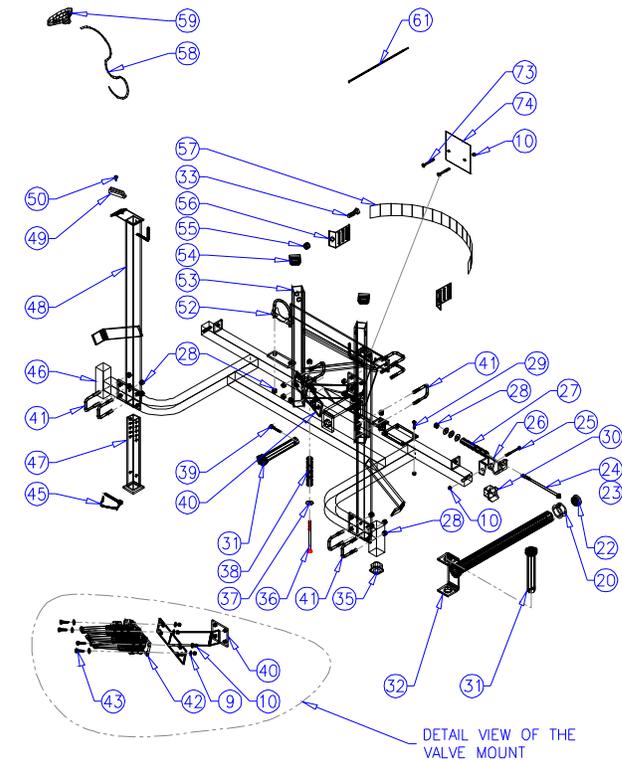
Between Tips – check:

- ⇒ Low tip pressure will cause a narrower pattern. Actual tip pressure should be between 25 – 40 psi (1.7 - 2.8 bar).
- ⇒ Tip screens to see if they are plugged.

Drawings and Parts Break Downs

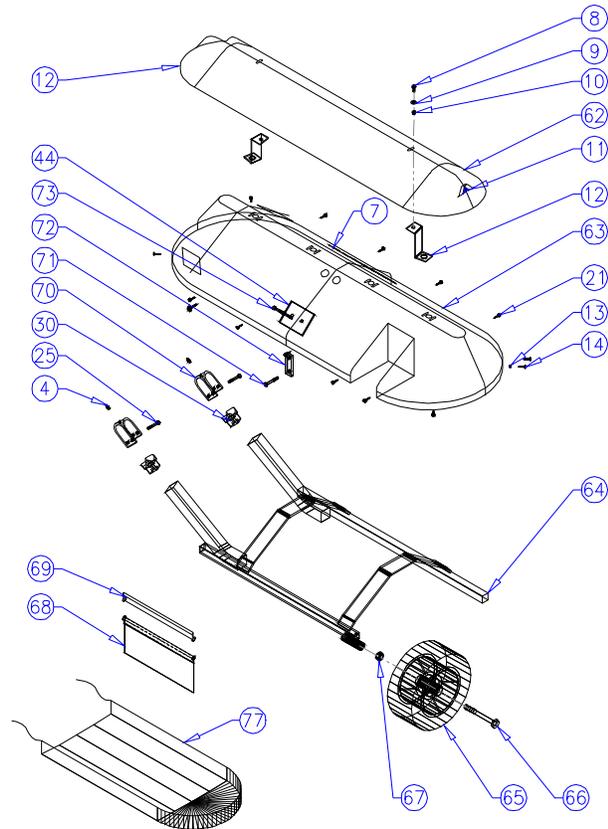
General Assembly, DCSS, Front Mount

		FM3500	
Item	Description	Part #	Qty
1	Bolt, 5/16NC x 3 1/2, Plated	01395	4
2	Washer, Flat, 5/16, Plated	00970	8
3	Low Profile Caster Frame	00400	1
4	Grease Nipple, 1/4NF	00972	7
5	Caster Wheel Assembly	00921	2
6	Airfoil, Poly, 60"	01499	1
7	ROGERS Decal, White	01397	3
8	Bolt, 1/4NC x 3/4, Plated	01154	8
9	Washer, Flat, 1/4, Plated	01157	16
10	Nut, Nylock, 1/4NC, Plated	00968	32
11	"WINDFOIL" Decal, White	01396	6
12	Airfoil Standoff, Left, Al	00721L	4
12	Airfoil Standoff, Right, Al	00721R	4
13	Nut, Nylock, #10, Plated	01153	16
14	Machine Screw, #10-24 x 3/4	01152	14
15	Shroud, Center, FM	01502	1
16	Nut, Nylock, 5/16NC, Plated	00969	6
17	Spar, LP Sprayer	12653	2
18	Curtain, Blue, 5 1/2", centre	01387	1
19	Curtain Hanger, centre	01358	1
20	Steel Collar, 3/4", Plated	00805	2
21	TEK Screw, #12 x 1 1/4	01156	28
22	Plug, Round, 1 1/4", Plastic	00961	2
23	Set Screw, 3/8", Sq Head	01073	2
24	Bolt, 3/8NCX7, Plated	00954	2
25	Bolt, 1/4NC x 2 1/2, Plated	00966	10
26	Breakaway Catch, Plated	00814	2
27	Compression Spring	00955	2
28	Nut, Nylock, 3/8NC, Plated	00956	22
29	Machine Screw, 1/4X1 1/4	12272	4
30	Wing Pivot Bushing, Nylon	00130	6
31	Pin, ø1"X6", Plated	00804	3
32	Breakaway Arm, FM	00470	2
33	Bolt, 1/2NCX1 1/2, Plated	01053	2
34	Machine Screw, #10X1	07157	2
35	Urethane Bushing	00128	4
36	Bolt, 3/8NCX5, Plated	06521	2
37	Flat Washer, 3/8, Plated	00957	8
38	Compression Spring	00690	2
39	Cotter Pin, 3/16X1 1/2	00965	3
40	Valve Mount	01155	1
41	U-bolt, 3/8NCX1 1/2SqX2 1/2	01050	8
42	Valve, Manual Boom Control	01209	0
43	Bolt, 1/4NCX1, Plated	01164	4
45	Lock Pin, Steel	01319	2
46	Centre Frame, FM	00425	1
47	Storage Leg, FM	12717	2
48	Boom Pull Mount, Left	13006L	1
48	Boom Pull Mount, Right	13006R	1
49	Rope Clamp, Plastic	12723	2
50	Machine Screw, #10X1 1/2	05388	4
51	Serial Number Plate	01398	1
52	Saddle Clamp	01172	1
53	Tank Mount, 25gal, FM	12570	1
54	Plug, Square, 1 1/2", Plastic	01057	2
55	Nut, Nylock, 1/2NC, Plated	00963	2
56	Strap Holder, Plated	05103	2
57	Strapping, 2", Black	01701	1
58	Poly Rope, 6mmX65"	06300	2
59	Plastic Handle	06318	2
61	Nytie, Black, 15 1/2"	00974	12
73	Bolt, 1/4NCX2, Plated	01070	6
74	Backing Plate, Al	12057	0
76	Decal, "Front & Back"	12341	1



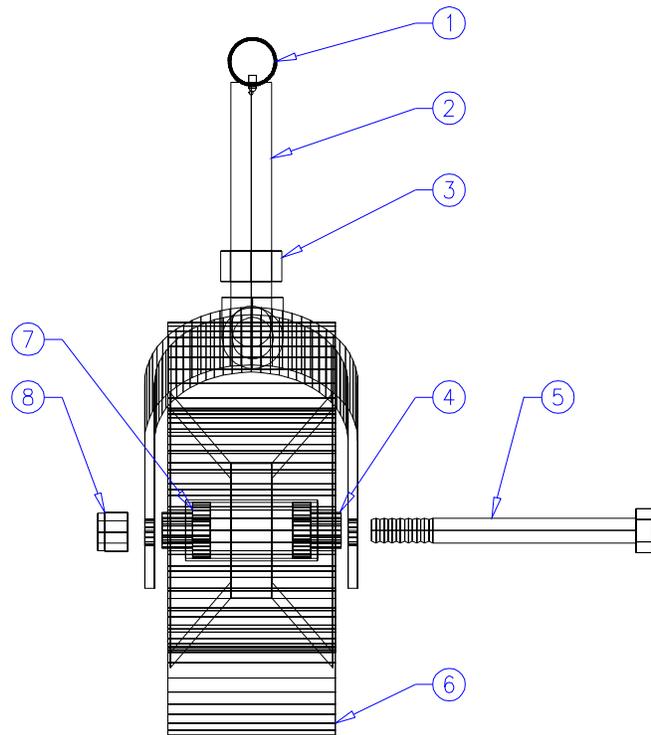
Wing Assembly, DCSS, Front Mount

FM3500			
Item	Description	Part #	Qty
4	Grease Nipple, 1/4NF	00972	7
7	ROGERS Decal, White	01397	3
8	Bolt, 1/4NC x 3/4, Plated	01154	8
9	Washer, Flat, 1/4, Plated	01157	16
10	Nut, Nylock, 1/4NC, Plated	00968	32
11	"WINDFOIL" Decal, White	01396	6
12	Airfoil Standoff, Left, Al	00721L	4
12	Airfoil Standoff, Right, Al	00721R	4
13	Nut, Nylock, #10, Plated	01153	16
14	Machine Screw, #10-24 x 3/4	01152	14
21	TEK Screw, #12 x 1 1/4	01156	28
25	Bolt, 1/4NC x 2 1/2, Plated	00966	10
30	Wing Pivot Bushing, Nylon	00130	6
44	Backing Plate, Al	12045	0
62	Poly Airfoil, 40"	01500	2
63	Shroud, Wing, Left, FM	01503L	1
63	Shroud, Wing, Right, FM	01503R	1
64	Wing Frame, FM, Left	01381L	1
64	Wing Frame, FM, Right	01381R	1
65	Wheel Assembly, Rear, FM	00920	2
66	Bolt, 5/8NCX5, Plated	12387	2
67	Nut, 5/8NC, Plated	01313	2
68	Curtain, Blue, 5 1/2"	01505	2
69	Curtain Hanger	01504	2
70	U-clamp, Wing Pivot	00951	4
71	Bolt, 5/16NCX2, Plated	05447	2
72	Rope Tab, Wing, FM	06307	2
73	Bolt, 1/4NCX2, Plated	01070	6

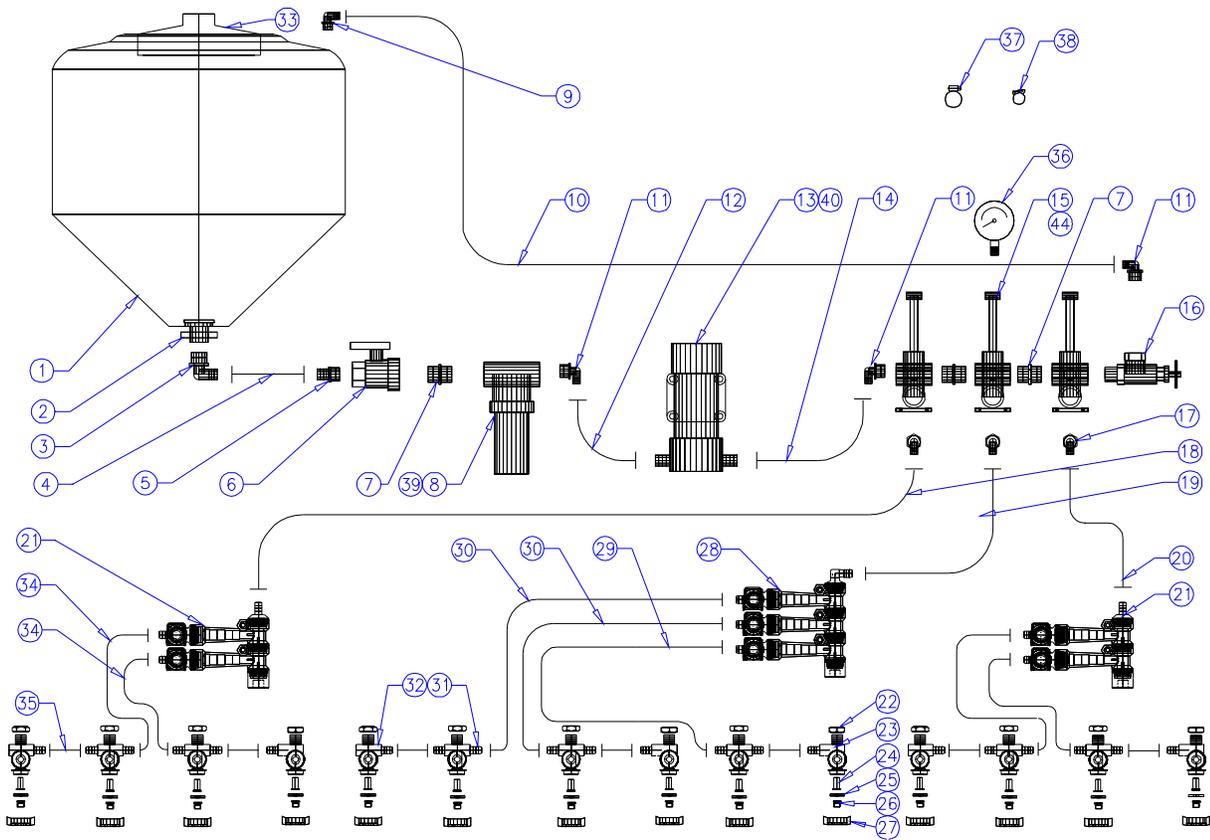


Castor Wheel Assembly, LP Series

Item	Description	Part #	Qty
1	Lynch Pin, 1/4"	05116	1
2	Caster Bracket	00865	1
3	Caster Bracket Spacer, 3/4"	00853	1
4	Spacer, Castor Wheel, 3/4"	00159	2
5	Bolt, 5/8NCX6 1/2	01166	1
6	Wheel Assembly	00920	1
7	Bearing, 5/8IDX35mm	00857	1
8	Nut, Nylock, 5/8NC	01051	1



Plumbing Assembly, DCSS, Front Mount

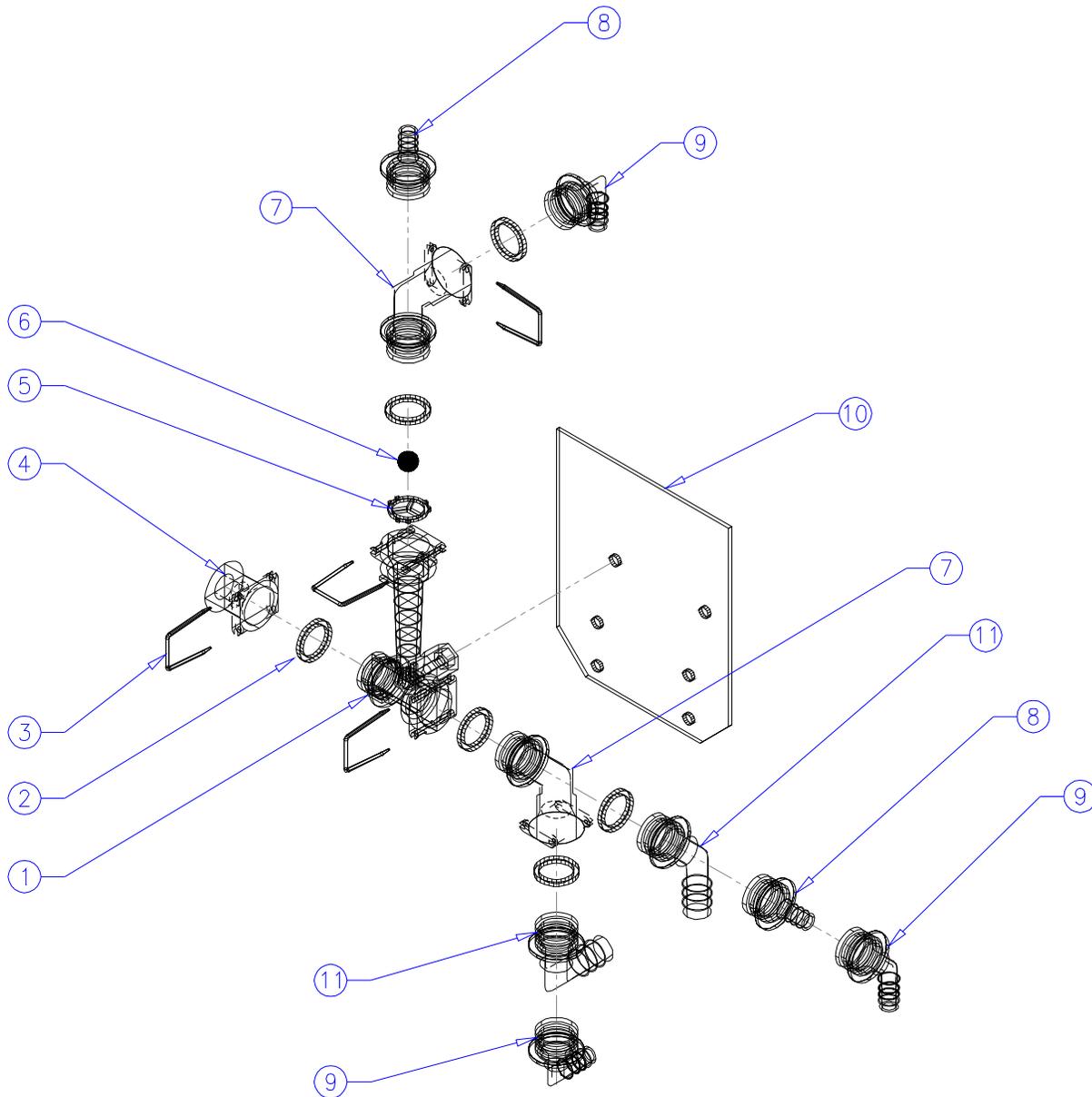


		FM3500	
Item	Description	Part #	Qty
1	Cone Tank, 25USgal	12384	1
2	Bulkhead Fitting, 3/4"	00302	1
3	Poly Elbow, 3/4FNPT	01245	1
4	Hose, Red, 3/4", 250psi	01448	1
5	Poly Adapter, 3/4", MNPT/HB	01349	1
6	Poly Ball Valve, 3/4"FPT	01250	1
7	Poly Nipple, 3/4"MNPT/MNPT	01193	3
8	Line Strainer, 100 Mesh Screen	01252	1
9	Poly Elbow, 1/4"MNPTX1/2"HB	01239	1
10	Hose Red, 1/2", 300psi	10805	1
11	Poly Elbow, 3/4"MNPTX1/2"HB	01243	3
12	Hose Red, 1/2", 300psi	07200	1
13	Pump, 12V, Viton Seals	01280	1
14	Hose Red, 1/2", 300psi	05316	1
15	Boom Control Valve, Manual	01209	3
16	Pressure Regulator, 0-100psi	01279	1
17	Poly Elbow, 1/2"MNPTX1/2"HB	01235	1
18	Hose Red, 1/2", 300psi	07144	1
19	Hose Red, 1/2", 300psi	05347	1
20	Hose Red, 1/2", 300psi	05317	1
21	ORC Rotometer Assembly, Wing	11983	2
22	Brass Nut, 11/16	12362	14

		FM3500	
Item	Description	Part #	Qty
23	Nozzle Body Assembly, Left	12300	4
24	Tip Screen, 100 Mesh	00829	14
25	Nozzle Cap Seal, 13mmX3mm	01521	14
26	Spray Tip, 8001VS, Flat Fan, 80°	01369	14
27	Poly Nozzle Cap, Self Aligning	01532	14
28	ORC Rotometer Assembly, Centre	11982	1
29	Hose Red, 1/2", 300psi	10807	1
30	Hose Red, 1/2", 300psi	05345	2
31	Nozzle Body Assembly, Tee	12302	7
32	Nozzle Body Assembly, Right	12301	3
33	Vented Tank Lid, 8"	01350	0
34	Hose Red, 1/2", 300psi	07751	4
35	Hose Red, 1/2", 300psi	05350	7
36	Pressure Gauge, 100psi	01281	1
37	Gear Hose Clamp, HS-12	01091	2
38	Hose Clamp, Plastic, SNP-16	01092	40
39	Screen Strainer, 3/4"X100 Mesh	08171	0
40	Pump Repair Kit	12735	0
41	Decal for Cone Tank	12611	1
42	Backing Plate, 3 Column	12045	1
43	Backing Plate, 2 Column	12057	2
44	Repair Kit, Valve Assembly, Opt	12543	0

See application rate tables for a listing of API and Tee Jet tips and their application rates

Rotometer Assembly, Parts Details

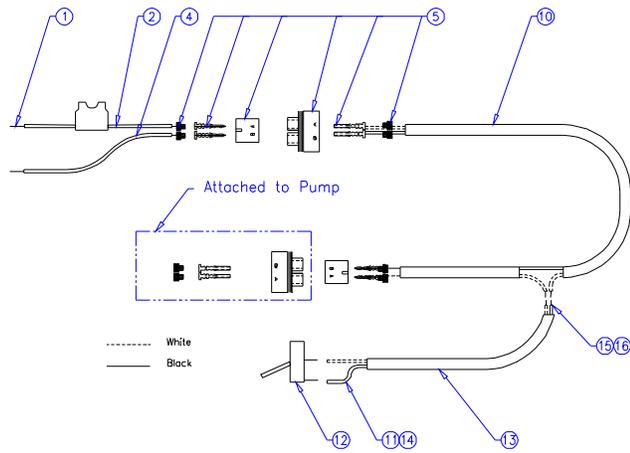


Item	Description	11982		11983	
		Part #	Qty	Part #	Qty
1	ORC, Rotometer Body	00889	3	00889	2
2	ORC, O-Ring	11984	10	11984	7
3	ORC, Clip	11976	10	11976	7
4	ORC, End Cap	00909	1	00909	1
5	ORC, Ball, Retainer	11989	3	11989	2
6	ORC, Ball, Red *	11990	3	11990	2
6	ORC, Ball, SS (optional)	11991	3	11991	2
7	ORC, 3/4" Elbow, M/FORC	01115	3	01115	2
8	ORC, Adapter, MORC1/2HB	N/A		11975	1
9	ORC, 1/2" H.B. Elbow	00906	4	00906	2
10	Backing Plate, Al	12045	0	12057	0

* Red plastic ball are for lower flow rates (0.09 – 0.30 US GPM per column); Steel balls are for higher flow rates (0.40 – 1.33 US GPM per column)

Electrical Assembly, DCSS, Front Mount

Item	Description	Part #	Qty
1	Ring Connector, Insulated	01291	2
2	Fuse Holder, 12Ga w/ fuse	01268	1
3	Fuse, Blade Type, 10amp	05106	0
4	Wire, 14Ga, Stranded	01771	1
5	Weather-Pak Connector Kit	11823	2
10	Cable, 14ga X 2 Wire	01260	1
11	Ring Connector	01303	2
12	Switch, Toggle	01405	1
13	Cable, 14ga X 2 Wire	01525	1
14	Heat Shrink	12298	1
15	Butt Connector, Insulated	09323	2
16	Heat Shrink	12297	1



Universal Front Mount Assembly

Item	Description	Part #	Qty
1	Right angle Mount, UFM	13157R	1
2	Nylock Nut, 3/8NC, Plated	00956	12
3	U-bolt, 3/8NCX1½X2½, Plated	01050	6
4	Cross Support, UFM	13151	1
5	Left Angle Mount, UFM	13157L	1

