

Thank you for purchasing a TurfMarker™ foam marking system. By following this installation, use and maintenance guide carefully, your unit will provide years of reliable service.

Richway Industries Ltd. makes a continued effort to improve its products. As such, we reserve the right to make design changes without obligations to add them to machines already in the field.

Please take a moment to fill out the following for future reference:

Model #: _____

Serial #: _____

Date of Purchase: _____

Purchased From: _____

Table of Contents

Safety First	Page 3
Installation	Page 5
Tank & Power Unit Assembly	5
Foam Tubing	6
Switch Plate	6
Battery Connections	6
Operation	Page 7
Compressor Check	7
Mixing Foam	7
Filling the Tank	8
Maintenance	Page 8
Winterization	8
Trouble Shooting	Page 9
Appendices	Page 10
Wire Diagram	10
Internal Components	11
Warranty	Page 12
Company Information	Page 12

SAFETY FIRST



Important

Do not operate without reading and understanding this owners manual



Caution: To reduce the risk of explosion or fire

- This foam marker is designed to operate off of a 12 volt DC power supply only.
- Do not attempt to operate machine without covers in place.
- Never operate this machine with a damaged electrical cord. Disconnect from electrical supply if machine is not working properly or cord is damaged.
- Disassembly or attempted repairs, if accomplished incorrectly can create electrical shock and/or short hazards. Only qualified personnel should perform repair service.
- Do not remove covers or attempt repairs while connected to electrical source.
- Never attempt to replace electrical wires and cables with smaller gauge or inferior wire and cable.
- Do not attempt to operate this machine without the appropriate fuse in place.
- Do not attempt to bypass fuse. If fuse is no longer serviceable, a real shock or short hazard may exist.
- Never replace original fuse with a higher amperage fuse.
- Inspect all components for damage after any electrical problem.
- Never operate this product in or near explosive atmospheres or where aerosol (spray) products are being used.
- Do not use air compressor to pump anything other than atmospheric air.
- Do not pump combustible liquids or vapors with this product or use in or near an area where flammable, explosive liquids, or vapors may exist.
- Do not use this product near flames.



Caution: To prevent injury

- Never operate machine while unattended.
- Inspect machine for damage after use.
- Close supervision is necessary when this product is used near children or invalids.
- Never allow children to operate this machine.
- All electrical components generate heat. To avoid serious burns never touch internal components immediately after use.
- The air compressor in this unit may be thermally protected and may automatically restart when the protector resets. Always disconnect power source before servicing.
- Wear safety goggles and all proper clothing when operating, servicing or refilling this machine. Always read and follow manufacturer recommendations when handling any chemicals.
- Richway foam markers are designed to operate at low pressure. Personal injury may result when air pressure exceeds 15 psi.
- Do not attempt, for any reason, to remove tank cap while machine is turned on.
- After machine is turned off pressure may remain in the system. Remove tank cap slowly allowing pressure to exhaust.
- Chemical mist or liquid can cause permanent eye, skin or lung damage or death. Always wear proper protective clothing, goggles, aspirator, gloves or other protective garments as recommended by the labels of the chemicals used.

INSTALLATION

To install TurfMarker foam markers, several components must be connected. Every application may be slightly different. The following is a guide to help you choose the best locations for installing its components.

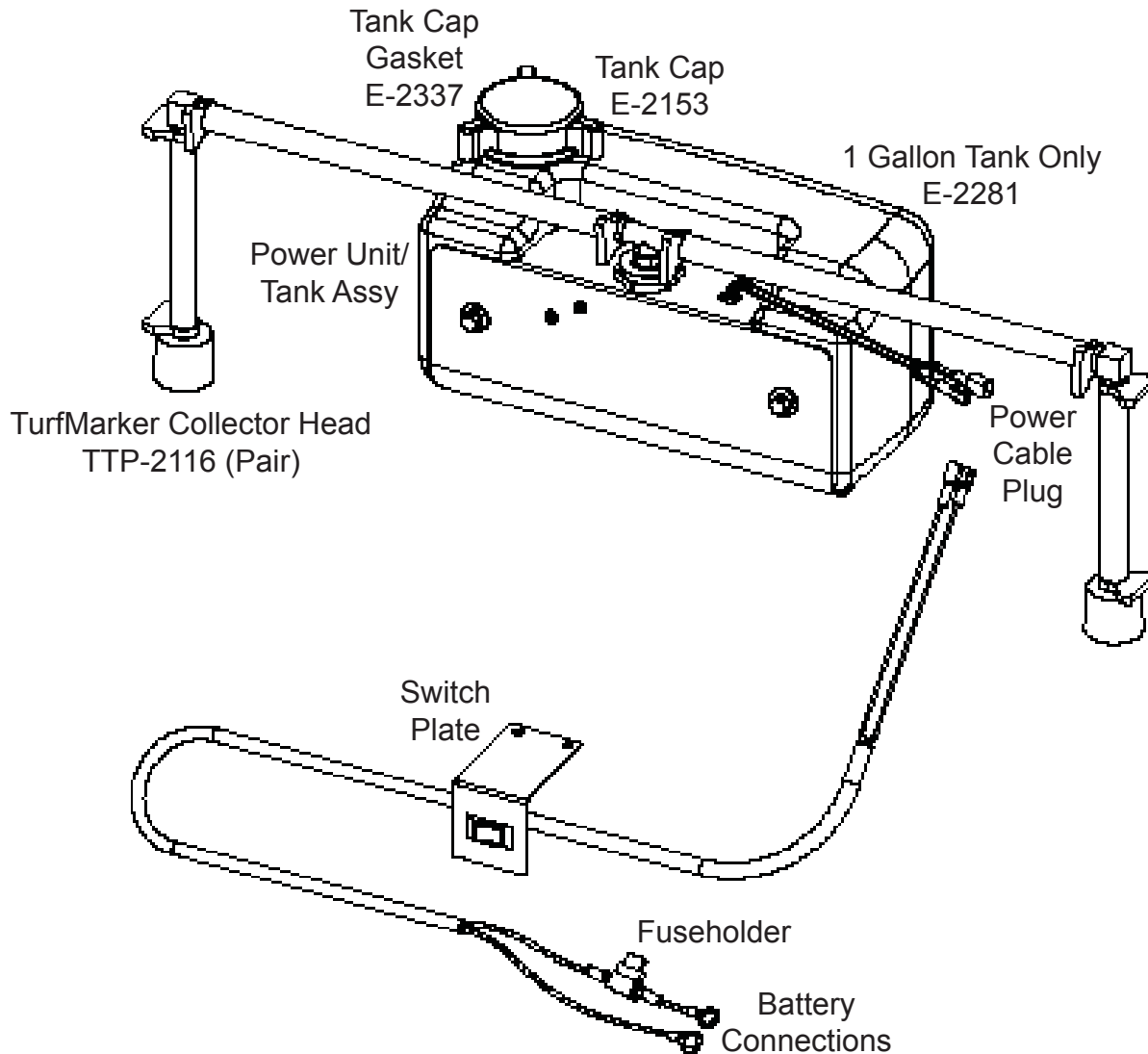


FIGURE 1 - TurfMarker Model TF-2010 Foam Marker

TANK & POWER UNIT ASSEMBLY

When considering a location for mounting the tank and power unit assembly, it will be important that the assembly is accessible for easy filling. The TurfMarker tank is designed to be mounted to a vertical frame. The assembly should be attached to the frame using the 1/4" bolts, with flat washers and lock washers, that secure the power unit to the tank.

It is best if the assembly is mounted in a contaminant free area to insure efficient, trouble-free operation.

FOAM TUBING

The TurfMarker 2010 comes with 20 foot of 1/2" clear tubing. TurfMarker 2010SD comes with 10 foot of 1/2" clear tubing.

Route the 1/2" clear tubing from the hosebarb tee or elbow at the power unit as shown in Figure 1. Beginning at the end of your boom, attach the tubing using nylon cable ties, provided, to secure the tubing at 3 to 6 foot intervals. These ties assure a positive clamping without damaging the tubing. Be sure to leave enough slack at the hinge to fold and extend the spray boom. Repeat this procedure for the other side of your boom on dual drop units.

SWITCH PLATE

Mount the switch plate in a location convenient to the operator. TurfMarker foam markers are equipped with an electrical plug assembly. This plug assembly allows for easy separation of the switch plate from the power unit. After the switch plate and power unit are installed, connect the plug assembly.



Caution

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- Do not operate this machine without covers in place.
- Never operate this machine with a damaged electrical cable.
- Only qualified personnel should perform repair service.
- Do not remove covers or attempt repairs while connected to electrical source.
- Never attempt to replace electrical wires and cables with smaller gauge or inferior products.
- Do not operate machine without the appropriate fuse.
- Do not attempt to bypass fuse.
- Never replace fuse with a higher amperage fuse.
- Inspect all components for damage after any electrical problem.
- Never operate this machine in or near explosive atmosphere or where aerosol products are used.

BATTERY CONNECTIONS

The battery cable from the switch plate connects to a 12 volt DC battery supply. The black wire of the battery cable connects to the negative terminal post, and the white wire of the battery cable connects to the positive terminal post. Be certain the connections are properly secured before operating your TurfMarker Foam Marker.

When connecting to an electrical system with two 6 volt batteries wired in series, be certain to connect the battery terminals so that a full 12 volts is supplied. If connected to 6 volts, the compressor will run slowly and the system will not operate correctly.

OPERATION

COMPRESSOR CHECK

After checking all wiring for accuracy, turn switch box to the “on” position and check that air is flowing out of the compressor.

MIXING FOAM

Foam mixing takes some experience. Different water sources may require different amounts of concentrate to obtain the desired foam density. Water hardness, pH, and impurities will all affect the rate of concentrate required for a consistent, long-lasting foam.

Different conditions may require different mixing ratios to produce desirable results. It is worthwhile to determine the proper foam/water mixing ratios for your water source with the initial filling. Doing so will save time in the future and aid in consistent foam quality.

If hard water is a problem, commercial softening agents are available. You can make your own softening agent by dissolving a commercial water softening powder (available in most grocery stores) in hot water and adding a portion of this mixture to your tank each time you fill. Experimentation will reveal the correct amount to use. A good starting point is 1 1/2 ounces per gallon of water.

Mix ratios for foam concentrates advertised as 80:1 or 160:1 must be adjusted for use with your water, such ratios are only a guideline.

Heat, humidity, and wind will also affect the life of foam. Using a good quality marking agent, such as FOMALOT Turf Special, may be very important. Liquid dish detergent also works in the TurfMarker system. You will want to experiment with detergents before using on any special turf applications.

FOMALOT: Specially formulated foam concentrate that is gentle on turf.

FILLING THE TANK



Caution

- Wear safety goggles and all proper clothing when operating, servicing or refilling this machine.
- Always read and follow manufacturers recommendations when handling any chemical.
- Do not pump combustible liquids or vapors with this product.

1. **BE SURE POWER UNIT IS TURNED OFF.** Remove the cap from the top of the tank.
2. Starting with a small amount of water (1/2 gal), mix the foam concentrate according to the label directions. If considerably more concentrate is needed above the manufacturer's suggested ratio (usually 2-5 ounces per gallon) to produce good foam, use of a softener or soft water may be required. If the foam is too stiff (dry), it may surge out at irregular intervals. Under this condition, water should be added until the foam becomes more wet.
3. To ensure proper mixing of foam concentrate and water, you may find it necessary to partially fill the tank, add the foam concentrate, then completely fill the tank.
4. Replace cap at the top of the tank.

MAINTENANCE

WINTERIZATION

Follow the procedure below to prevent component damage.

1. Flush the tank with warm water.
2. Turn on machine and allow to operate until no foam is generated.
3. Add anti-freezing solution such as windshield washer solvent to tank.
4. Turn on machine until anti-freezing solution reaches the collector heads.
5. Check the tubing for holes and replace as required. **Be sure to flush, then drain, all liquid from the system prior to storage in freezing temperatures.**

IMPORTANT

The tank and tubing must be drained completely prior to storage. If liquid in this system is allowed to freeze, several components may be damaged.

TROUBLE-SHOOTING

If you do not get foam:

1. Be sure the tubing does not have a hole or is not pinched.
2. Be sure you have enough foam concentrate in the tank. Very hard water may require a great amount of concentrate to produce good foam. Not having enough foam concentrate in the tank may make good foam, but may not make enough foam. Be sure to use a high quality concentrate such as FOMALOT Turf Special.
3. Be sure the threaded tank cap and gasket are securely installed.
4. If the foam mixture in the tank is several days old, it is possible that the solution is no longer able to foam or produces little foam. Drain tank, rinse, and start with a fresh solution.
5. Check battery connections to be certain the positive and negative terminals are not reversed.

Problem	Solution
Not enough foam	<ul style="list-style-type: none">• Add more foam concentrate to tank• Check for holes in tubing• Check for pinched tubing
Wet foam	<ul style="list-style-type: none">• Add more foam concentrate to tank
Foam is surging	<ul style="list-style-type: none">• Use less concentrate
Foam does not last on the ground	<ul style="list-style-type: none">• Add more foam concentrate to tank• Use a high quality foam concentrate like FOMALOT• Use collector heads
Blowing foam in windy weather	<ul style="list-style-type: none">• Use less concentrate to make wetter foam• Add more water to foam solution

APPENDIX 1

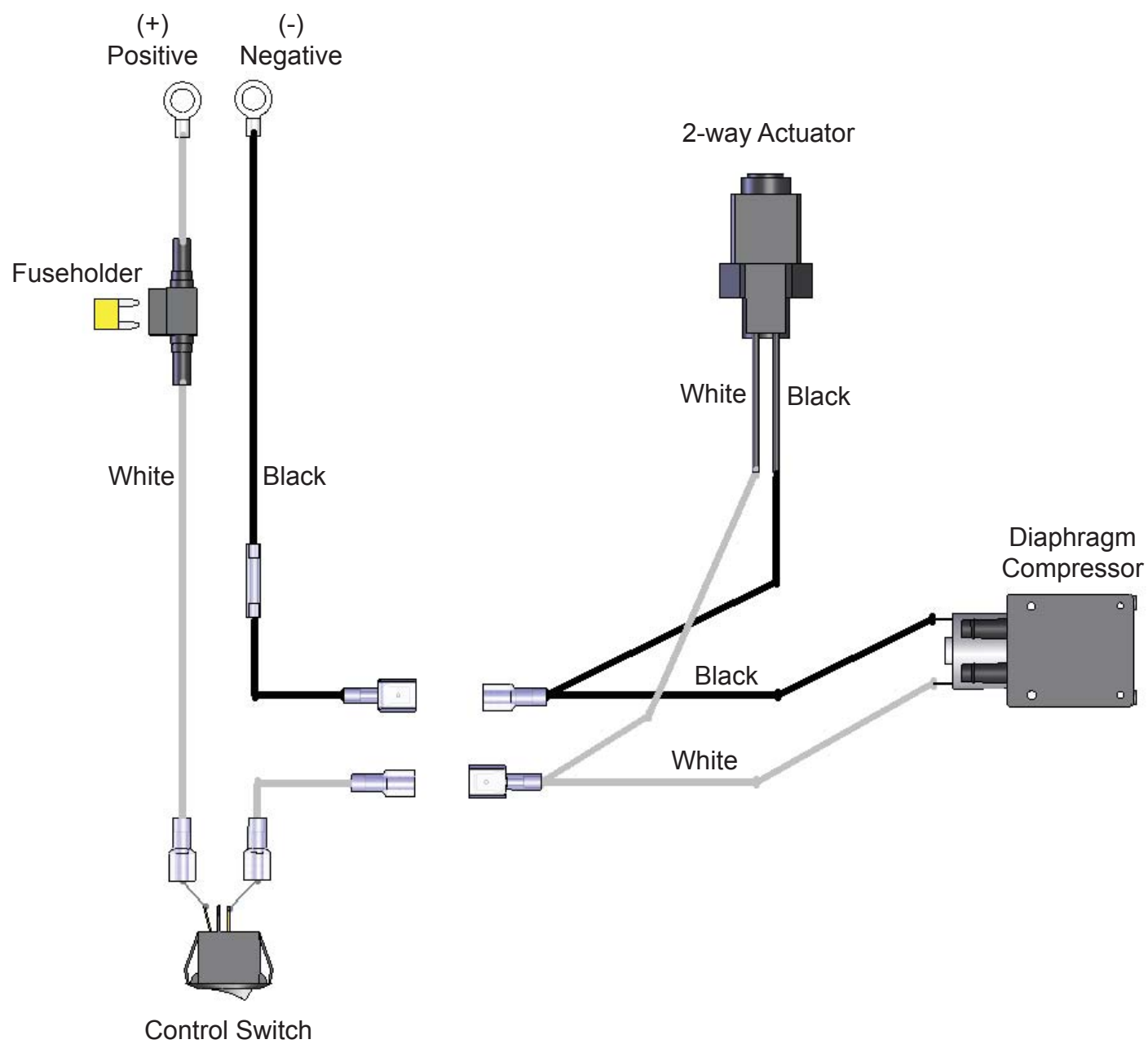


FIGURE 2 - TurfMarker 2010 Wiring Diagram

APPENDIX 2

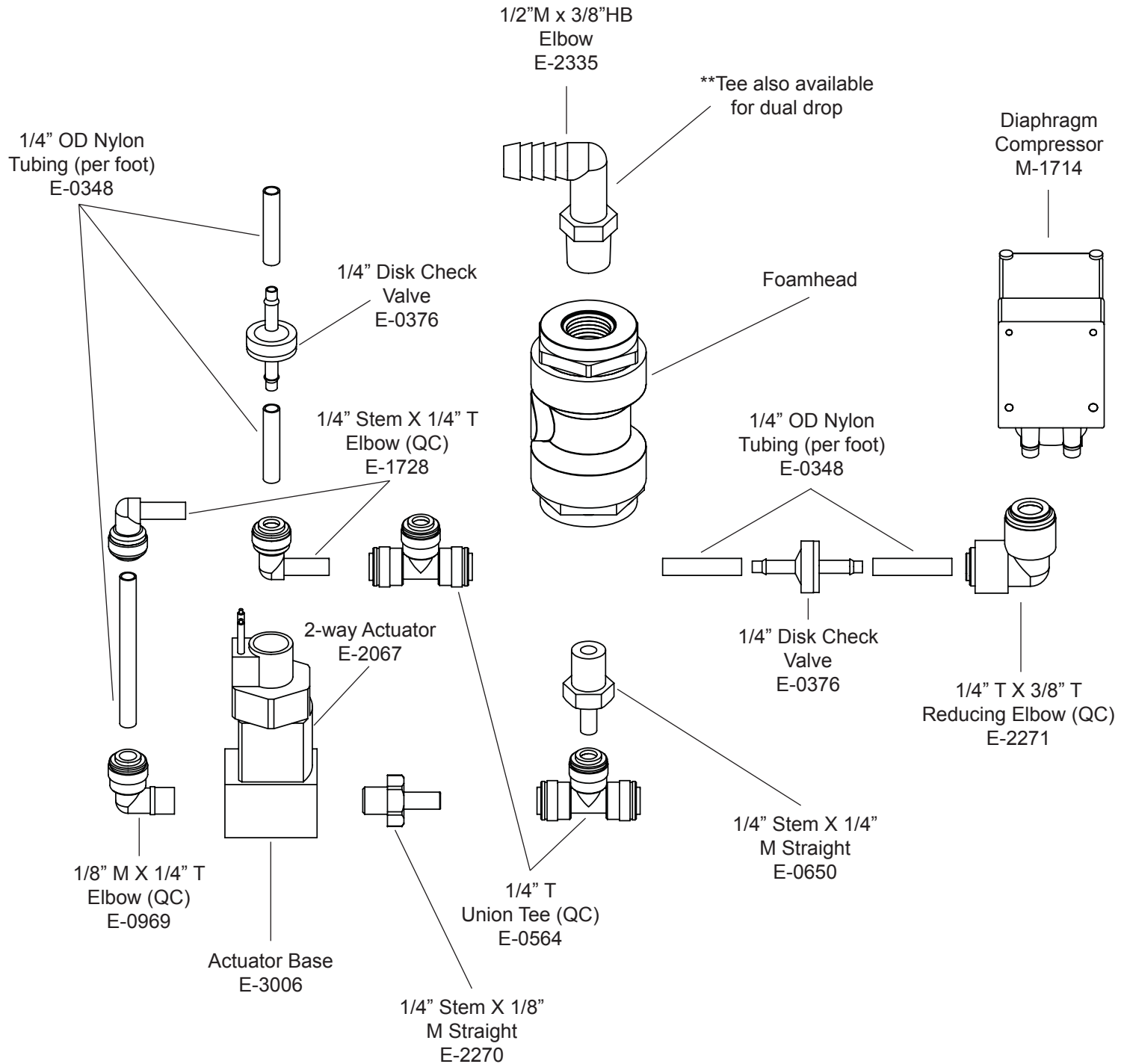


FIGURE 3 - TurfMarker 2010 Power Unit Internal Components

WARRANTY INFORMATION

Limited Warranty

Richway Industries, Ltd., foam marking systems and components are warranted against defects in materials and workmanship for a period of 1 year from date of shipment.

During this warranty period, Richway will repair or replace at no charge, those parts or components which upon receipt by Richway, following warranty analysis, prove to be defective.

This warranty does not apply to parts or products not manufactured by Richway Industries, Ltd., including but not limited to solenoid valves, diaphragm compressors, etc., the warranty of such items being limited to the actual warranty extended to Richway Industries, Ltd., by its supplier.

Further, this warranty does not cover part or component failures or damage due to misapplication, misuse, abuse, breakage, or improper installation, storage or handling, abnormal conditions of temperature, water, dirt, corrosive or other contaminants.

Products covered by this warranty must be used in compliance with all federal, state, and local regulations.

Disclaimer of Other Warranties

The foregoing limited warranty is in lieu of all other warranties, expressed or implied, including merchantability or fitness for a particular purpose. In no event shall Richway Industries, Ltd., be liable for indirect, consequential or special damages of any nature, whatsoever.

COMPANY INFORMATION

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