Thank you for purchasing a TRAC MASTER™ model “TMR” 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: _____

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 12volt 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 with out 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 or 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 manufacturers recommendations when handling any chemicals.
- Inspect pressure relief valve periodically for proper operation.
- The compressor is designed to opeate at low pressures. Do not attempt to increase the output of the unit.
- Richway foam markers are designed to operate at low pressure. Personal injury may result when air pressure exceeds 20 psi.
- The foam tank is pressurized with air from the compressor. Do not attempt, for any reason, to remove tank cap while machine is turned on.
- After machine is turned off pressure remains in the system. Remove tank cap slowly allowing pressure to exhaust.
- Agricultural chemical mist or liquid 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 Trac Master 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.

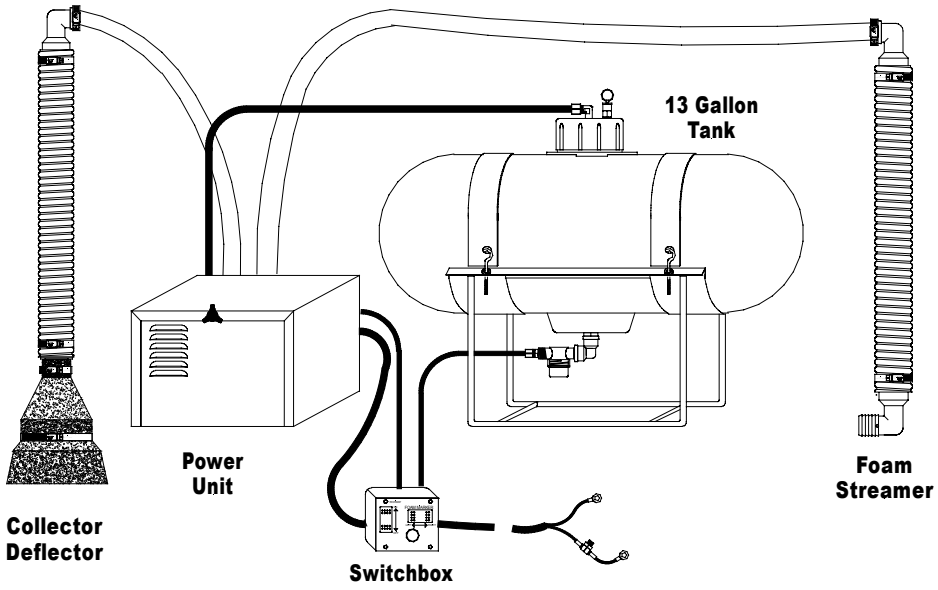


FIGURE 1- Trac Master Model TMR-2130 Foam Marker

TANK

When considering a location for mounting the tank, it will be important that the assembly is accessible for easy filling. The Trac Master tank stand is designed to be mounted to a horizontal frame member or platform. The tank and power unit need not be mounted adjacent to each other.

NOTE:
The power unit cover removed for illustrationpurposes only.
Do not operate without power unit cover in place.

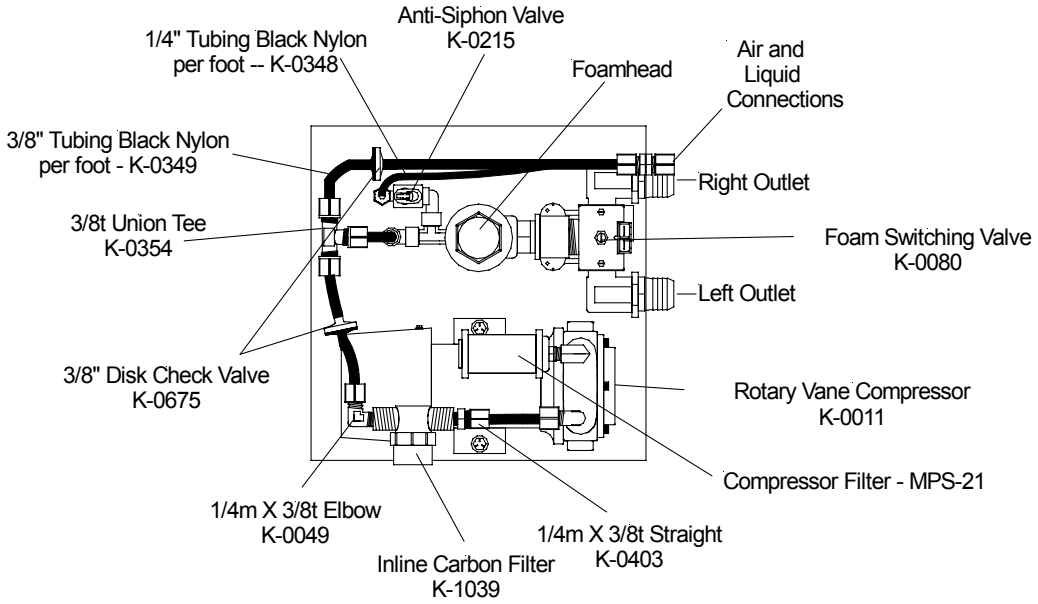


FIGURE 2 - TMR Power Unit

POWER UNIT

It is possible to mount the power unit so that the lid is at the side or the top. If the power unit is mounted so that the lid is at the top it will be necessary to adjust the foamhead so the cap faces upward. Failure to mount the unit in this manner will result in poor performance. The power unit should be attached to a platform or frame using fasteners of an appropriate size.

IMPORTANT: The power unit should be mounted in a contaminant free area to insure an efficient, trouble-free compressor. If the power unit is mounted outside, regular cleaning of louver and compressor filters are necessary.

NOTE:
The power unit cover removed for illustration purposes only.
Do not operate without power unit cover in place.

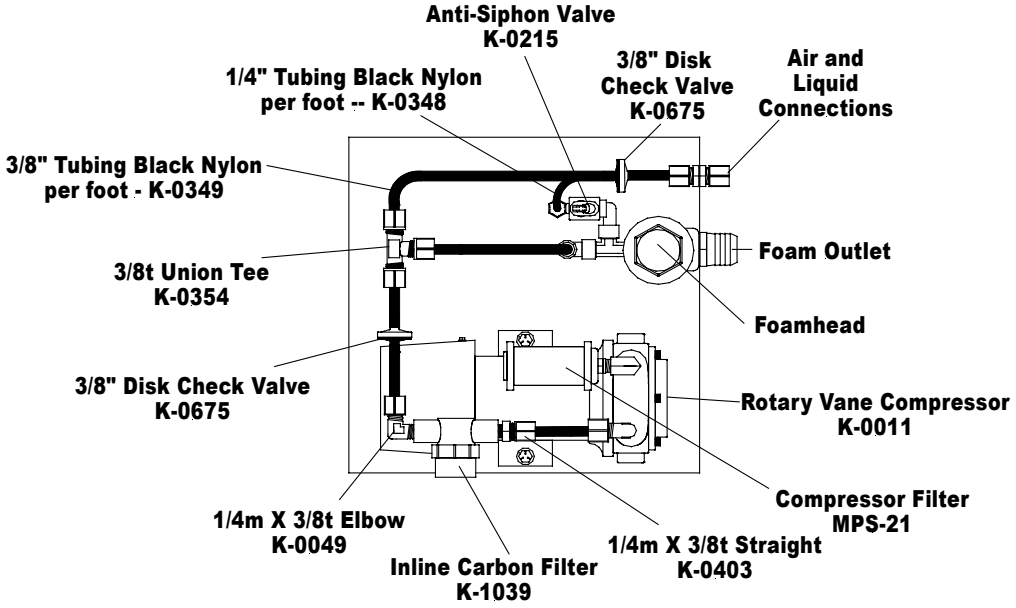


FIGURE 3 – TMR Single Drop Power Unit

SWITCH BOX

Mount the switch box in a location convenient to the operator. For maximum liquid flow, the highest point of the liquid line should not be more than three feet above the bottom of the tank.

NOTE: If it is necessary to mount the switch box higher above the tank, the system may take longer to prime after emptying the tank.

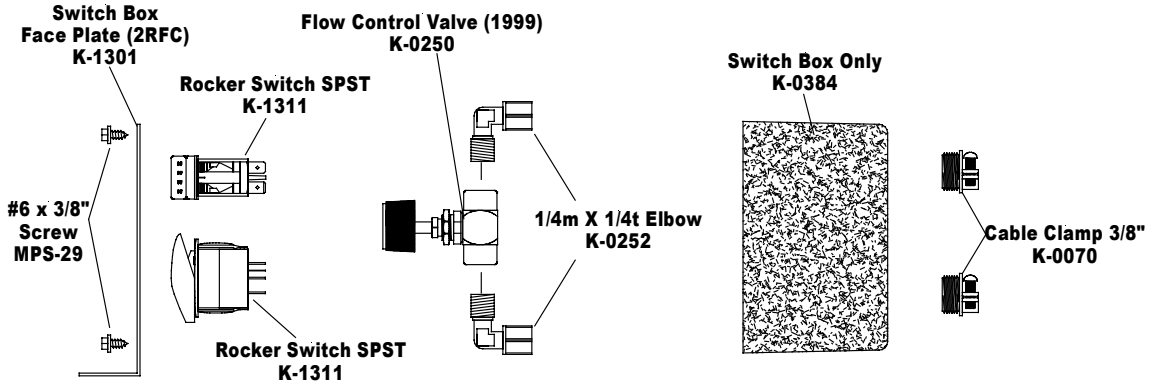


FIGURE 4 – Trac Master TMR Switch Box

HOSE

To install foam hose attach a boom end elbow to one end of the 1 1/4" ID foam hose with a #20 hose clamp provided. This assembly is then fastened to the end of your boom. Beginning at the end of your boom, attach the foam hose using nylon cable ties, provided, to secure the foam hose at 3-6 foot intervals. These ties assure a positive clamping without damaging the hose (See figure 5). Route the foam hose to the power unit box, where the foam outlets are located.

Be sure to leave enough slack to fold and extend the spray boom. Repeat this procedure for the other half of your boom.

Single drop systems have a single foam outlet to equip broad cast spreaders and sprayers.

After the foam hose and elbows are in place, the 2" drop hoses are secured onto the boom end elbows with the #32 hose clamp provided. The drop hose should be trimmed so the discharge end is left approximately 1 foot above the ground or to desired length. If collector heads are to be used, it may be desirable to trim drop hoses higher. This will prevent loss of the collectors from impact with the ground.

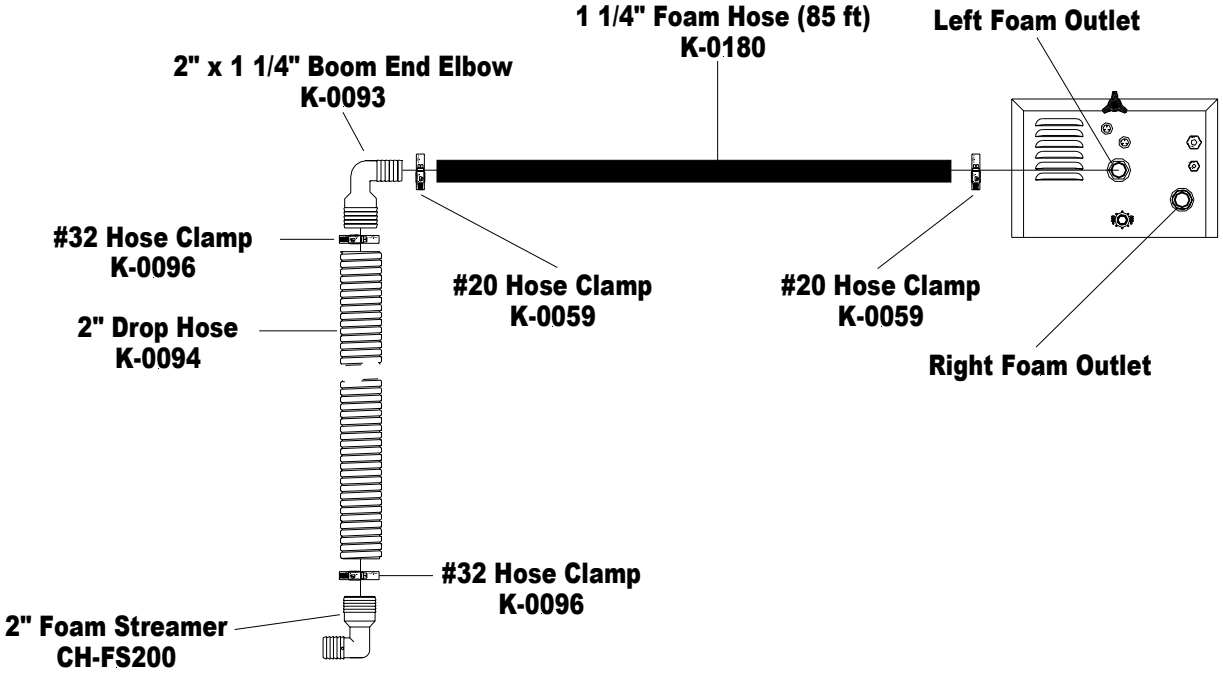


FIGURE 5 - Hose Installation

FOAM STREAMERS™

Foam Streamers are standard equipment with all Trac Master foam markers. When placed on the drop hose, these attachments produce a stream of foam. This will be particularly effective in “over the top” post emergent crop conditions.

COLLECTOR DEFLECTORS

Collector Deflectors are standard equipment on Trac Master foam markers. Collector Deflectors, when attached to the drop hose, will produce a larger, denser, foam ball. The resulting foam ball will be more visible due to its size, and will last longer on the ground. However, the heavier foam from collecotr deflectors normally will not stay atop vegetation when post-emergent spraying. You may choose to remove the deflector heads under these or similar conditions.

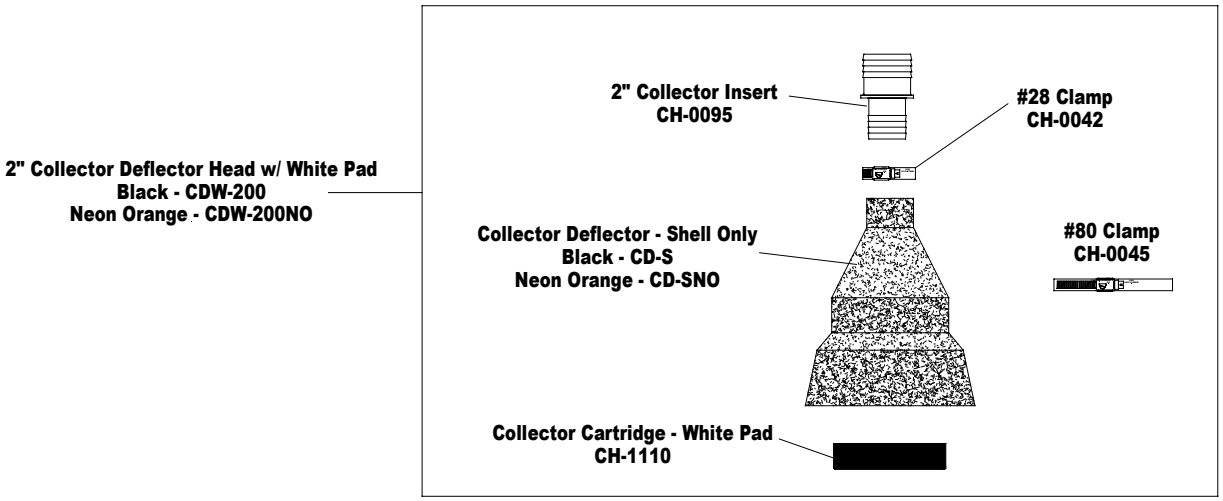


FIGURE 6 - Collector Deflector Assembly

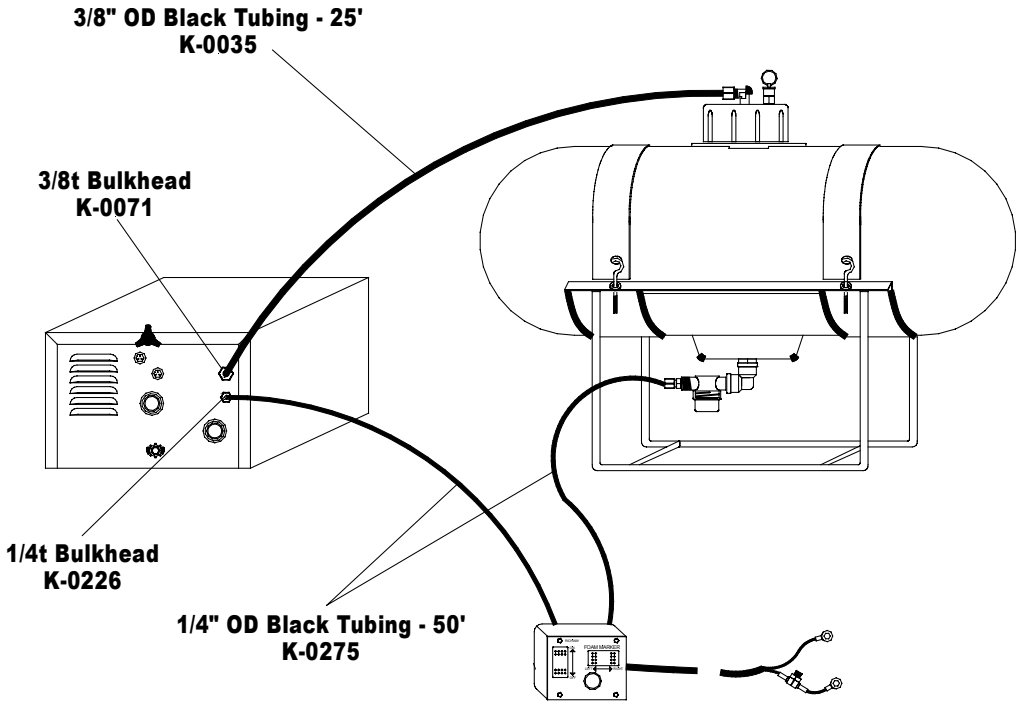


FIGURE 7 - Air and Liquid Line Installation

LIQUID LINE INSTALLATION

Route 1/4” OD liquid line tubing from the switch box to the liquid filter outlet located at the bottom of the tank. The second tube is connected between the 1/4" bulkhead in the power unit and the switch box. It is important to protect these liquid lines from sharp edges to prevent leakage (see Figure 7)

AIRLINE INSTALLATION

Cut appropriate lengths of 3/8" OD air tubing to route from power unit to the tank cap. Be sure to provide slack for ease of cap removal during filling (see Figure 7). To install airline loosen the compression nut, insert hose, and hand tighten until hose is secure.

NOTE: Securing airline with nylon cable ties or metal cable clamps with a plastic coating provide a convenient way of routing air line to prevent pin holes or pinching.

WIRING

⚠ CAUTION

- This machine is designed to operate off of a 12 volt DC power supply only
- 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.

To prevent accidental grounding of circuit, do not connect two wire battery cable until all other connections have been made and checked for accuracy. If a greater length of wiring cable is needed, additional lengths are available. When adding wire, be sure to use wire of the same or larger gauge. Ten gauge wire is preferred. Using smaller wire can cause poor performance, blown fuses, and rapid compressor motor failure.

Route the 3-wire cable from the switch box to the power unit. Pass the cable through the cable clamp located in the power unit box wall. Connect the red and black wires of the three wire power cable to the matching colored wire connectors in the power unit. The red wire connects to the red wire from the compressor. The black wire attaches to one black wire of the wiring harness. The white wire is connected to the foam switching valve (See Figure 8). Secure cable into cable clamp by tightening screws.

To complete TMR single drop connections, connect the red and black wires of the switch box cable to the like colored wires inside the power unit.

Route the two wire battery cable from the switch box to the battery. Be sure it is out of the way and secure it using plastic coated clamps to prevent damage from rubbing off insulation by sharp edges. The red wire of the battery cable should be attached directly to the positive (+) post of the battery by use of the cable mounting bolt. The black wire of the battery cable should be attached directly to the negative (-) mounting bolt. Check all connections for accuracy before completing battery connections.

NOTE: Trac Master TMR model foam markers normally draw 14-16 amperes.

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, compressor will run slowly and foam switching valve will not operate correctly.

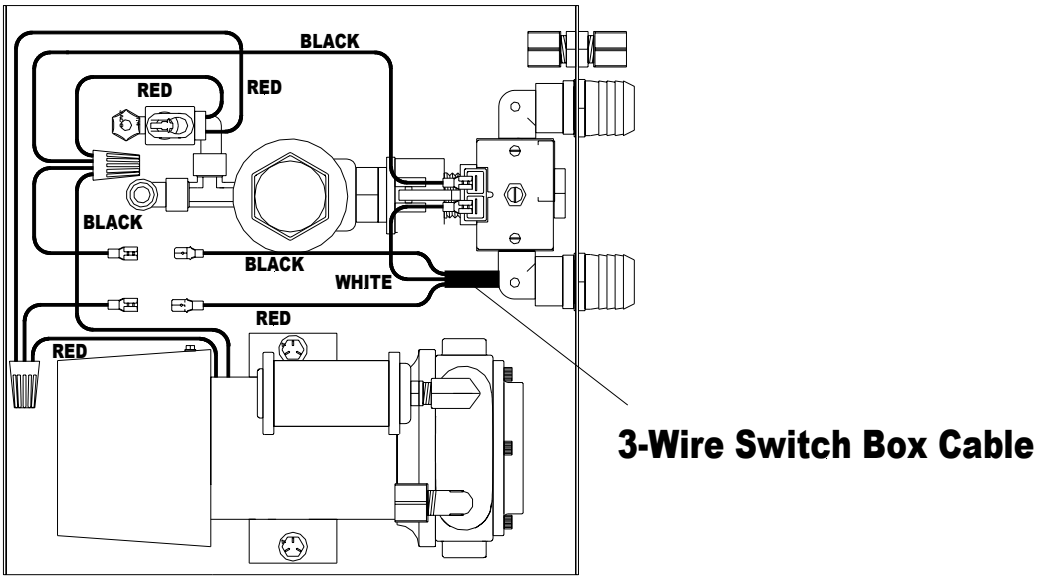


FIGURE 8 - Trac Master TMR Power Unit Wiring

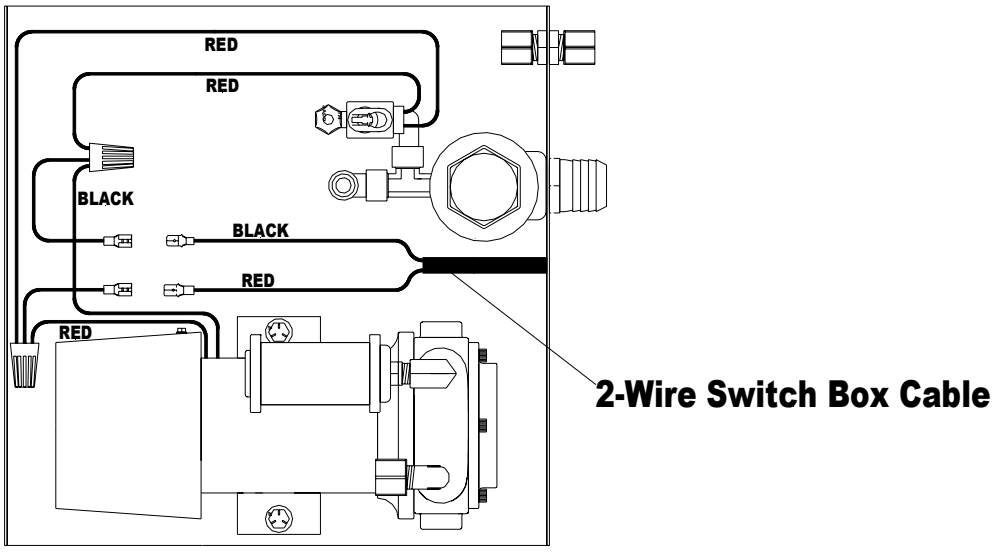


FIGURE 9 – Trac Master TMR Single Drop Power Unit Wiring

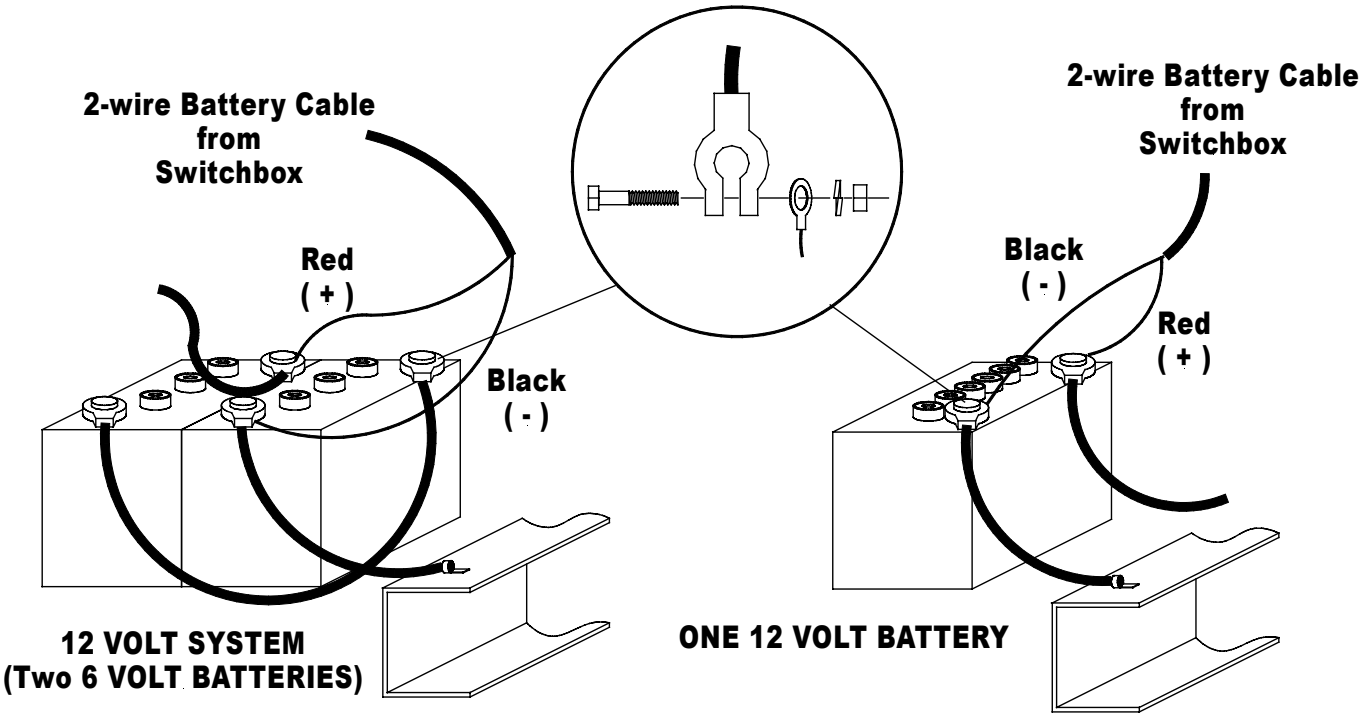


FIGURE 10 - Battery Connections

OPERATION

⚠ CAUTION

- Do not attempt to operate machine without covers in place.
- Never operate machine while unattended.
- Inspect machine for damage after use.
- Close supervision is necessary when this product is operated near children or invalids.
- Never allow children to operate this machine.
- Wear safety goggles and all proper clothing when operating, servicing or refilling this machine.
- Agricultural chemical mist or liquid can cause permanent eye, skin or lung damage or death.
- Always read and follow manufacturers recommendations when handling any chemical.
- Never operate this product in or near explosive atmospheres or where aerosol 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 or explosive liquids or vapors may exist.
- Do not use this product near flames.
- The foam tank is pressurized with air from the compressor. Do not attempt, for any reason, to remove tank cap while machine is turned on.
- After machine is turned off pressure remains in the system. Remove tank cap slowly to allow pressure to exhaust.

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. CAUTION: RUNNING THE COMPRESSOR THE WRONG DIRECTION MAY DRAW SOLUTION INTO THE COMPRESSOR AND DAMAGE IT.

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.

It is worthwhile to determine the proper foam to 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 to 1 or 160 to 1 must be adjusted for use with your water, such ratios are only a guideline.

NOTE: When mixing foam, warm water will improve performance.

Heat, humidity, wind and crop cover will also affect the life of foam. Using a good quality marking agent, such as GOODMARK, may be very important.

GOODMARK Premium life, "hot weather" foam concentrate, up to one hour life in cooler weather, 20-40 minutes in hot weather, good hard water tolerance.

FILLING THE TANK

⚠ CAUTION

- The foam tank is pressurized with air from the compressor. Do not attempt, for any reason, to remove tank cap assembly while unit is in operation.
- After machine is turned off pressure remains in the system. Remove tank cap slowly to allow pressure to exhaust.
- 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.

CAUTION! Pressure is built in the tank. **Before attempting to remove the cap on the tank, pull the ring on the pressure relief valve mounted in the tank cap to release any pressure that might be built up in the tank.** Remove the tank cap slowly.

2. Starting with a small amount of water (2 gal), mix the foam concentrate according to the label directions. If considerably more concentrate is needed above the manufacturer's suggested ratio (usually 1 1/2-5 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 will surge out at irregular intervals. Under this condition,

water should be added until the foam becomes more wet. Note: In windy conditions, a wetter, heavier foam may be desired.

Good foam A blob of foam on your overturned palm should stay in place if properly mixed.

3. With the mixing ratio determined, fill the tank leaving about 4 inches of air space at the top of the tank. No agitation is present in the tank. You may find it necessary to partially fill the tank, then add the foam concentrate, before completely filling the tank.

4. Replace cap at the top of the tank.

FLOW CONTROL VALVE

The flow control valve regulates the amount of foam solution flowing to the foamhead. To increase liquid flow, turn the adjusting knob counter-clockwise. This valve has been factory preset at ¾ turn open. This setting provides for a moderate foam output.

Generally, increased liquid flow produces a wetter heavier foam. Dryer, stiffer, foam is produced at low liquid flow.

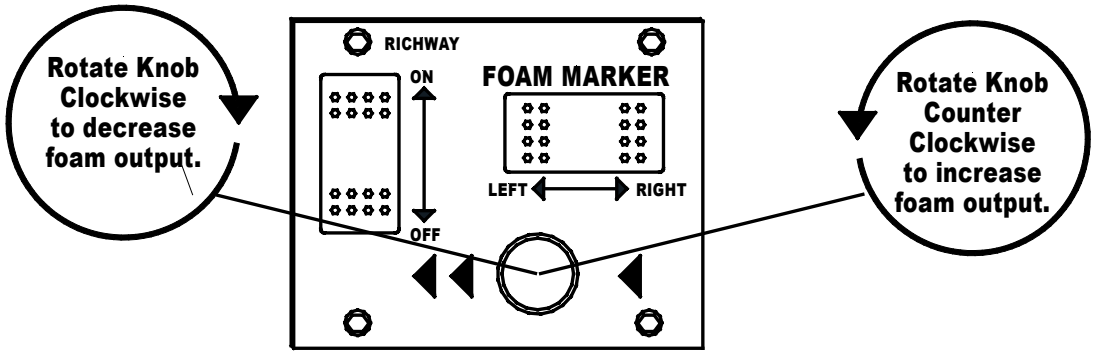


Figure 11 – Flow Control Valve

MAINTENANCE

CAUTION

- 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 goggles and all protective clothing when operating, servicing or refilling this machine. Always read and follow manufacturers recommendations when handling any chemical.
- Do not remove covers or attempt repairs while connected to electrical source.
- Disassembly or attempted repairs if accomplished incorrectly can create hazards. Only qualified personnel should perform repair service.

AIR FILTERS

The Richway Trac Master foam marking system needs little maintenance, but regular routine cleaning of the air filters is essential. **Every 40 operating hours, or more often if extremely dusty, remove the compressor intake and carbon filter and clean them by blowing out.** Replace as required. Clean the louvered primary filter pads located on the power unit box after every 100 hours of use. Remove the filter element and wash in warm water or blow dust free with compressed air.

The air filters must be kept clean. Dirty filters prevent proper operation of the marking system and will overload the motor. This will blow fuses and possibly lead to compressor failure. Compressor and carbon filters must be replaced periodically.

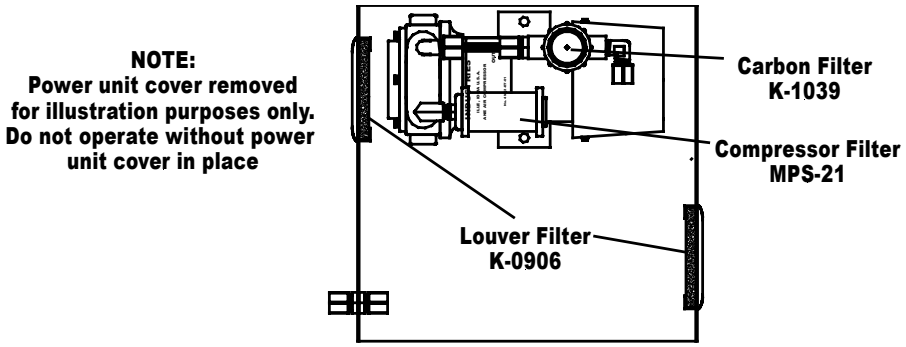


FIGURE 12 – Trac Master Model TMR Power Unit Filters

FOAMHEAD AND IN-LINE FILTER

The foamhead has been designed so that the elements inside may be cleaned as necessary. The screens inside this unit should be washed periodically with hot water. The in-line filter element, located at the bottom of the tank, should be cleaned occasionally to insure sufficient liquid flow to the foamhead assembly (See Appendix 2).

IMPORTANT: The liquid lines and tank need to be drained completely prior to storage. If liquid in this system is allowed to freeze several components may be damaged.

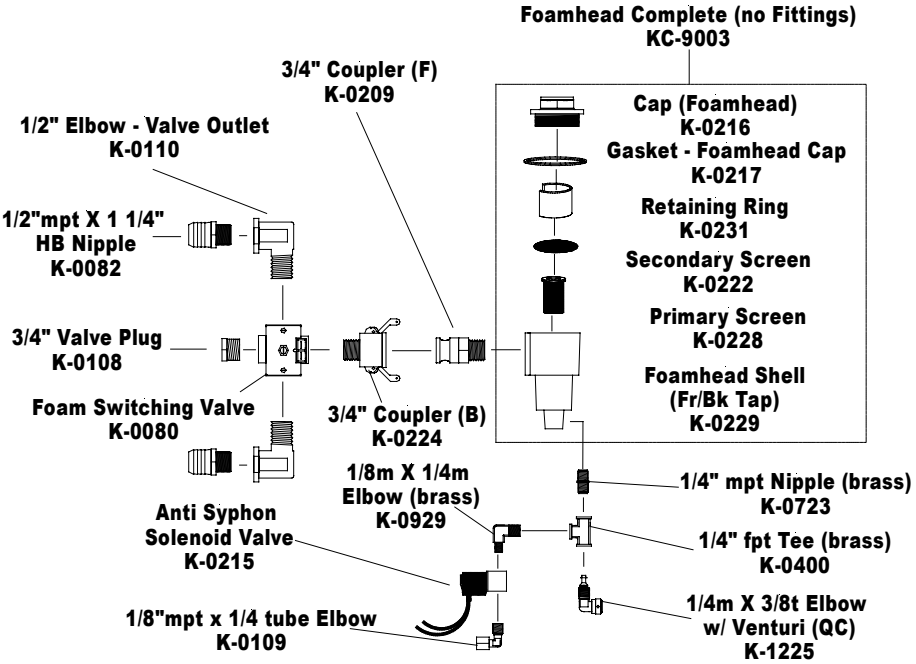


FIGURE 13 - Foamhead/Valve Assembly

COMPRESSOR

The rotary vane compressor is carefully designed and manufactured to provide long life and trouble-free service. However oil or other contaminants may cause the vanes to stick. Should this occur, in most cases it can be corrected by cleaning with a non-petroleum based solvent. Windshield washer solvent is adequate.

Remove the compressor end cap. Carefully remove and clean the vanes and rotor. **Do not force rotor off shaft, pry or strike.** If rotor is difficult to remove, use a solvent to dissolve deposits holding the rotor onto the motor shaft. Wipe the compressor housing checking for rough surfaces and/or pitting, replace as necessary. Make sure the vanes slide freely before reassembling. The compressor is designed to operate with no lubrication. Use of oils will cause particles to collect, preventing free vane movement.

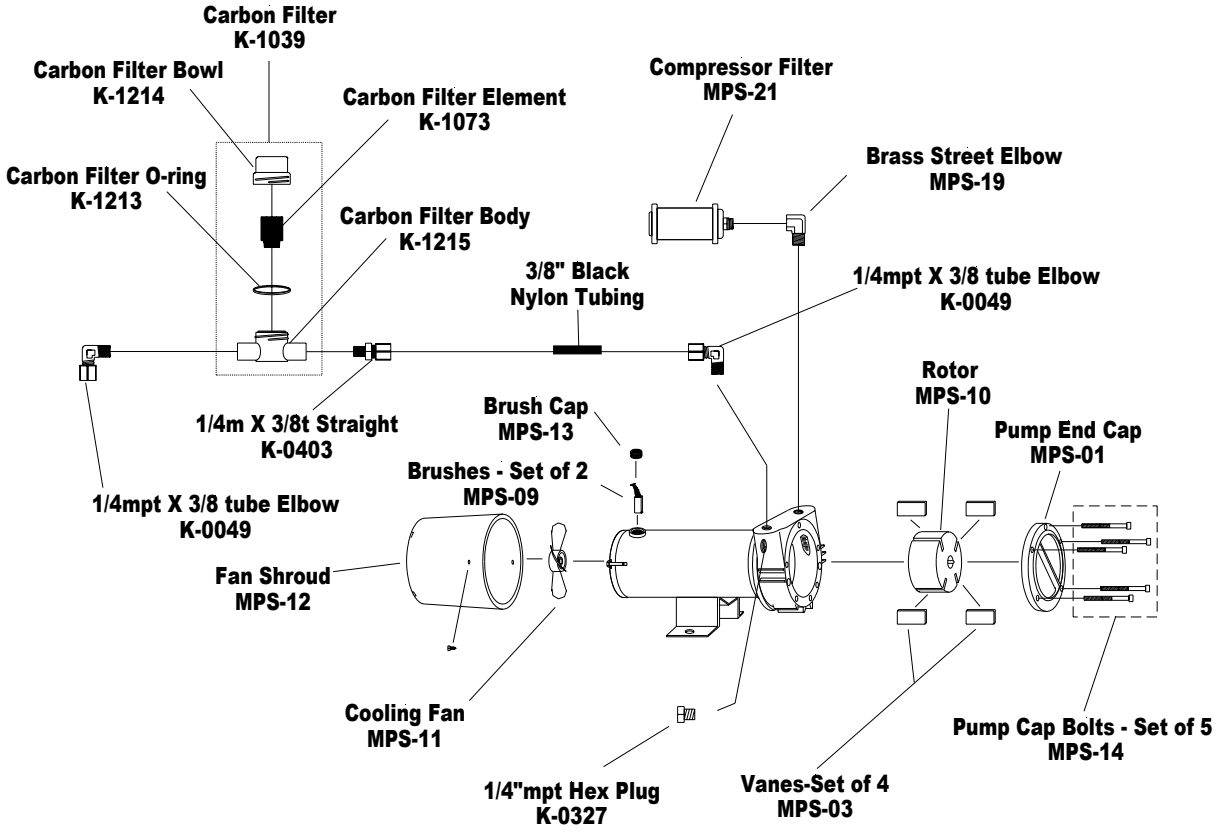


FIGURE 14 - Borg Rotary Vane Compressor Model RV12

Occasionally, the carbon vanes may have to be replaced due to wear. **After 600 to 800 hours of use inspect the vanes for wear.** This is easily done by removing the compressor end cap (See Figure 14). The vanes should fill at least two thirds of the slot in the rotor. If the vanes are worn to or past this point, replace immediately.

Brushes should be examined when inspecting the carbon vanes or every 800 to 1000 hours. Brushes are easily examined and replaced by removing the compressor from the power unit box, removing the fan shroud, unscrewing the brush caps, and examining the brushes for wear (See Figure 14). If brushes are 1/2 inch or less in length, replace immediately.

DISK CHECK VALVES

During operation, 3/8” disk check valves allow air to flow from the compressor through the airline. When the compressor is turned off, these valves prohibit foam solution from back flowing to the compressor through the airline. It is therefore essential, that these check valves function correctly. Symptoms of check valve failure are:

A. Traces of liquid in the airline. Remove fitting and inspect airline tubing periodically.

B. Fluid detected at the carbon filter bowl especially during initial compressor start up.

C. Failure of the compressor to operate when switch is activated may be due to water trapped in the compressor. Remove the end cap and dry the compressor.

WINTERIZATION

The liquid lines and tank must be drained completely prior to storage. If liquid in this system is allowed to freeze, several components may be damaged. Follow the procedure below to prevent component damage.

1. Remove the in-line filter bowl at the bottom of the tank and completely flush the tank with warm water.
2. Replace in-line filter. 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 and run until anti-freezing solution has been drained.
5. Check the airlines and liquid lines for holes and replace as required.

IMPORTANT Be sure **to flush, then purge, all liquid from the system prior to storage in freezing temperatures.** The liquid lines and tank must be drained completely prior to storage. If liquid in this system is allowed to freeze, several components may be damaged.

TANK AND HOSES

At the end of the season remove the in-line strainer bowl at the bottom of the tank and flush the tank with water. Check the airline, liquid line, and foam hose for holes, replace as required. Be sure to drain all liquid from the system prior to storage in freezing temperatures.

IMPORTANT Winterizing is necessary to prevent system damage. You must completely rinse and drain system. Anti-freeze may be run into tank, liquid lines and power unit to prevent freezing.

TROUBLE-SHOOTING

If you do not get foam:

1. Be sure that the compressor is connected properly and that air is blowing into the tank. Be sure the airlines and liquid lines do not have holes in them or are not pinched, loosen the 3/8" bulkhead at the power unit, remove the airline and check for proper air-flow. Be sure tank cap is securely attached.

2. Be sure you have enough foam concentrate in the tank. Very hard water may require a great amount of concentrate to produce a 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 Goodmark.

3. It is also possible that the foam hoses leading from the tank to the end of the boom are pinched.

4. Check and clean the in-line filter.

5. Be sure the liquid control valve is open. Remove the liquid line from the bulkhead at the power unit and check for liquid flow.

6. Check anti-siphon valve for proper operation.

7. 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.

PROBLEM: not enough foam - not enough foam concentrate in tank; hole in airline; pinched air or liquid lines. Clogged in-line filter. Adjust liquid control valve.

PROBLEM: wet foam - not enough foam concentrate; reduce liquid flow

PROBLEM: surging - if foam is "surging" out under considerable pressure, you probably are using too much concentrate.

PROBLEM: 3 - 4 hours per 10 gallon tank - not enough concentrate being used. Reduce liquid flow.

PROBLEM: foam does not last on the ground - use more concentrate or a higher quality foam concentrate such as Goodmark. Use collector heads.

PROBLEM: blowing foam in windy weather - mix foam solution with slightly less foaming agent or more water to produce wetter, heavier foam.

APPENDIX 1

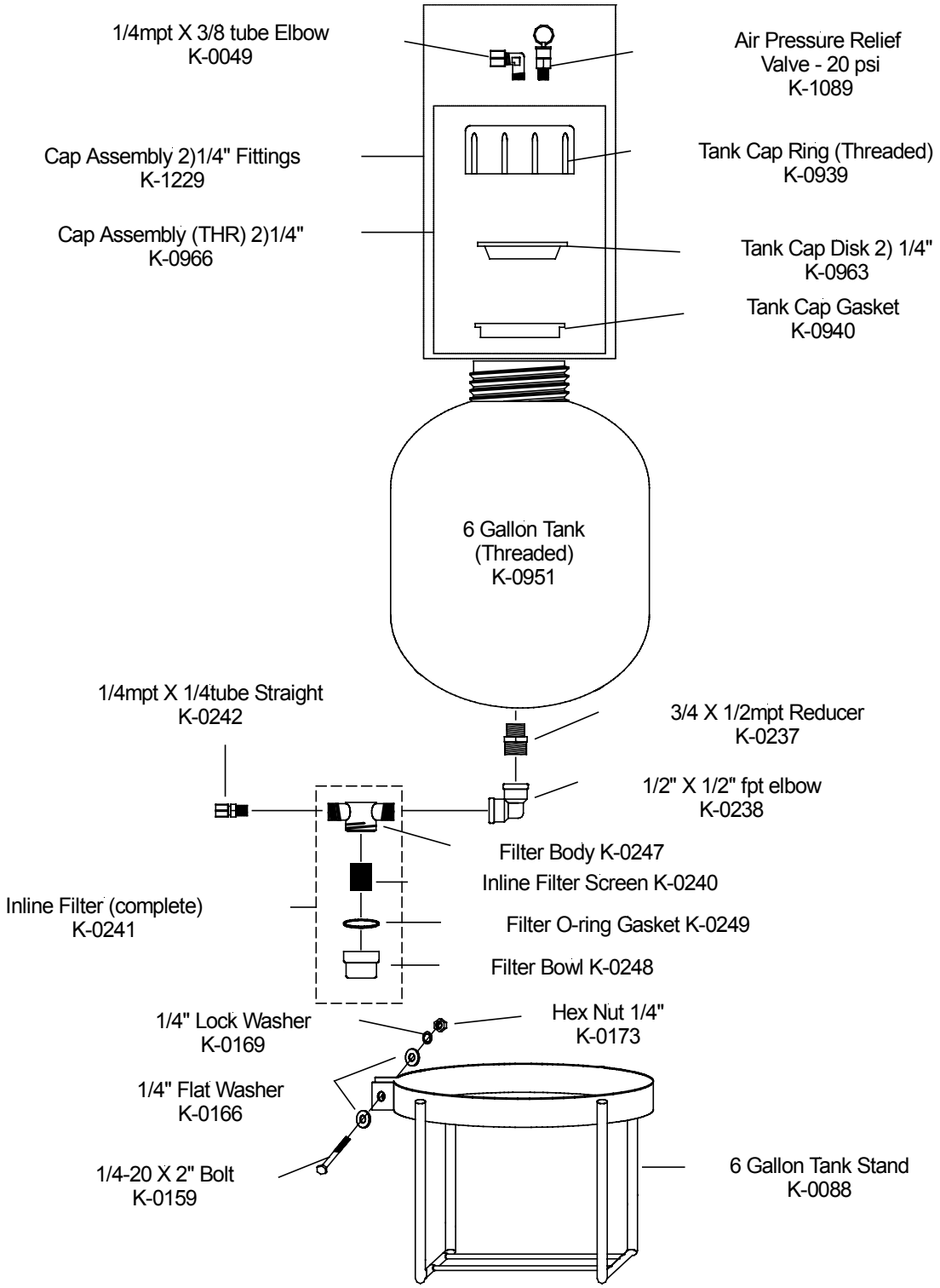


FIGURE 1- Trac Master 6 Gallon Tank

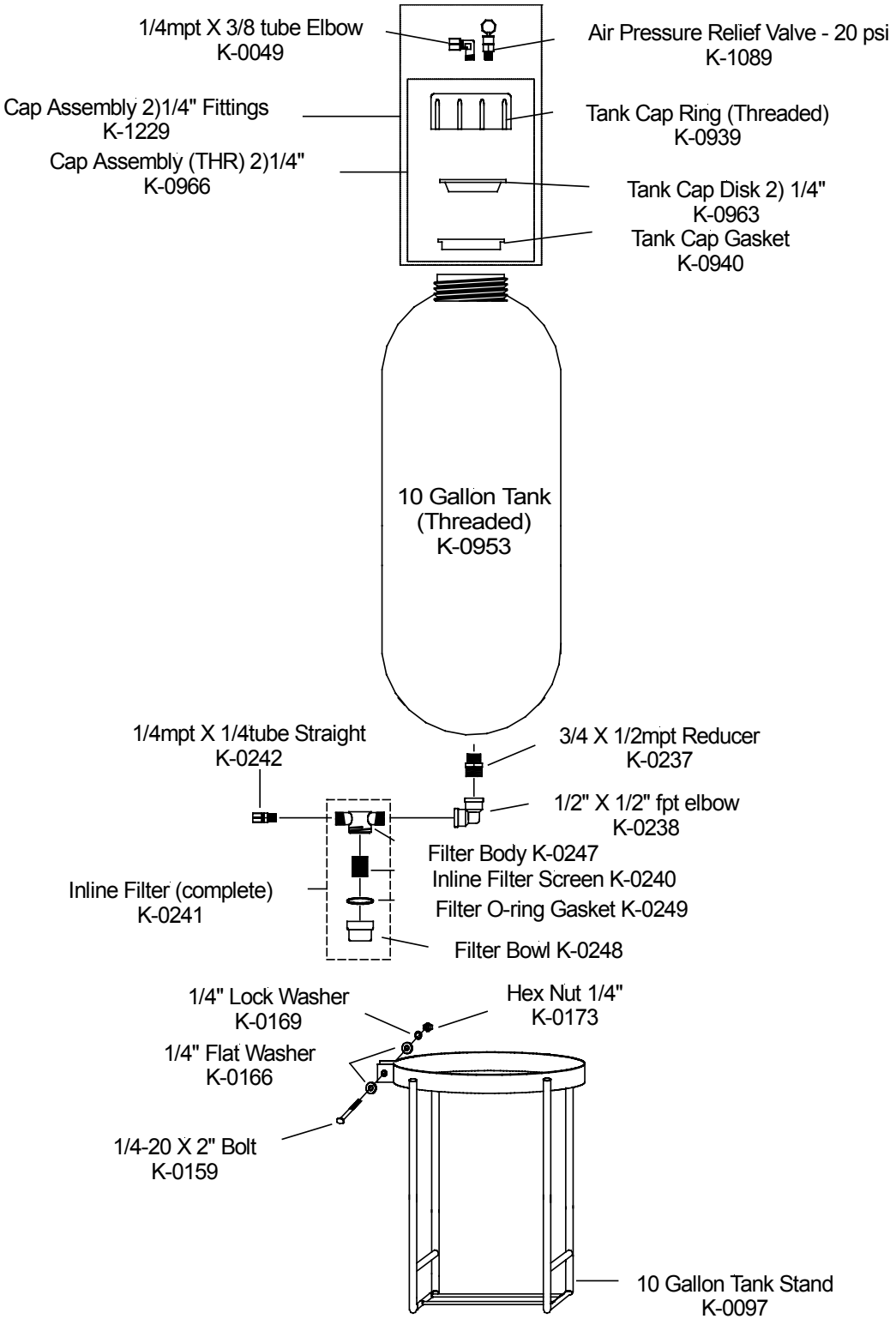


FIGURE 2- Trac Master 10 Gallon Tank Assembly

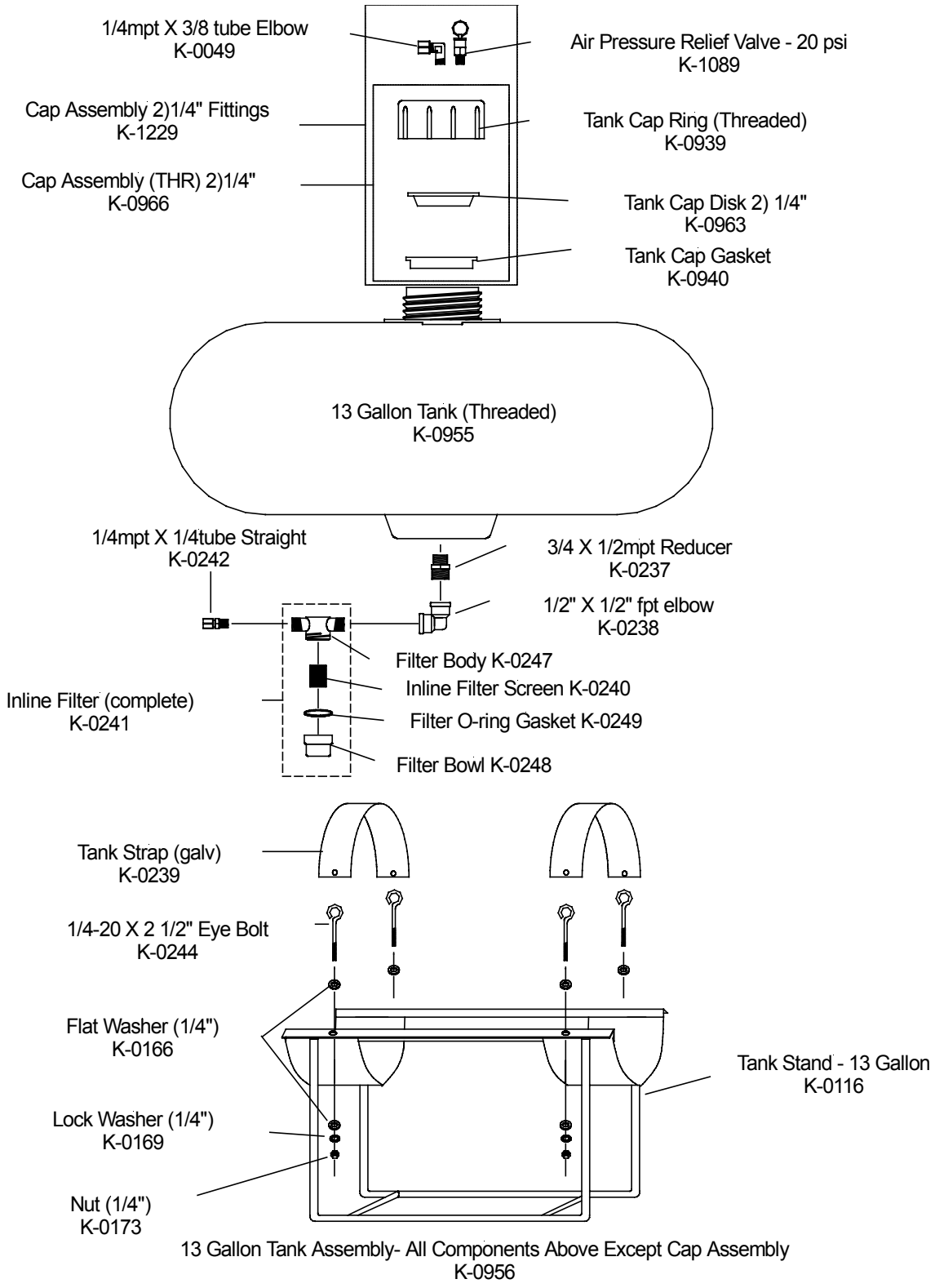


FIGURE 3 - Trac Master 13 Gallon Tank Assembly

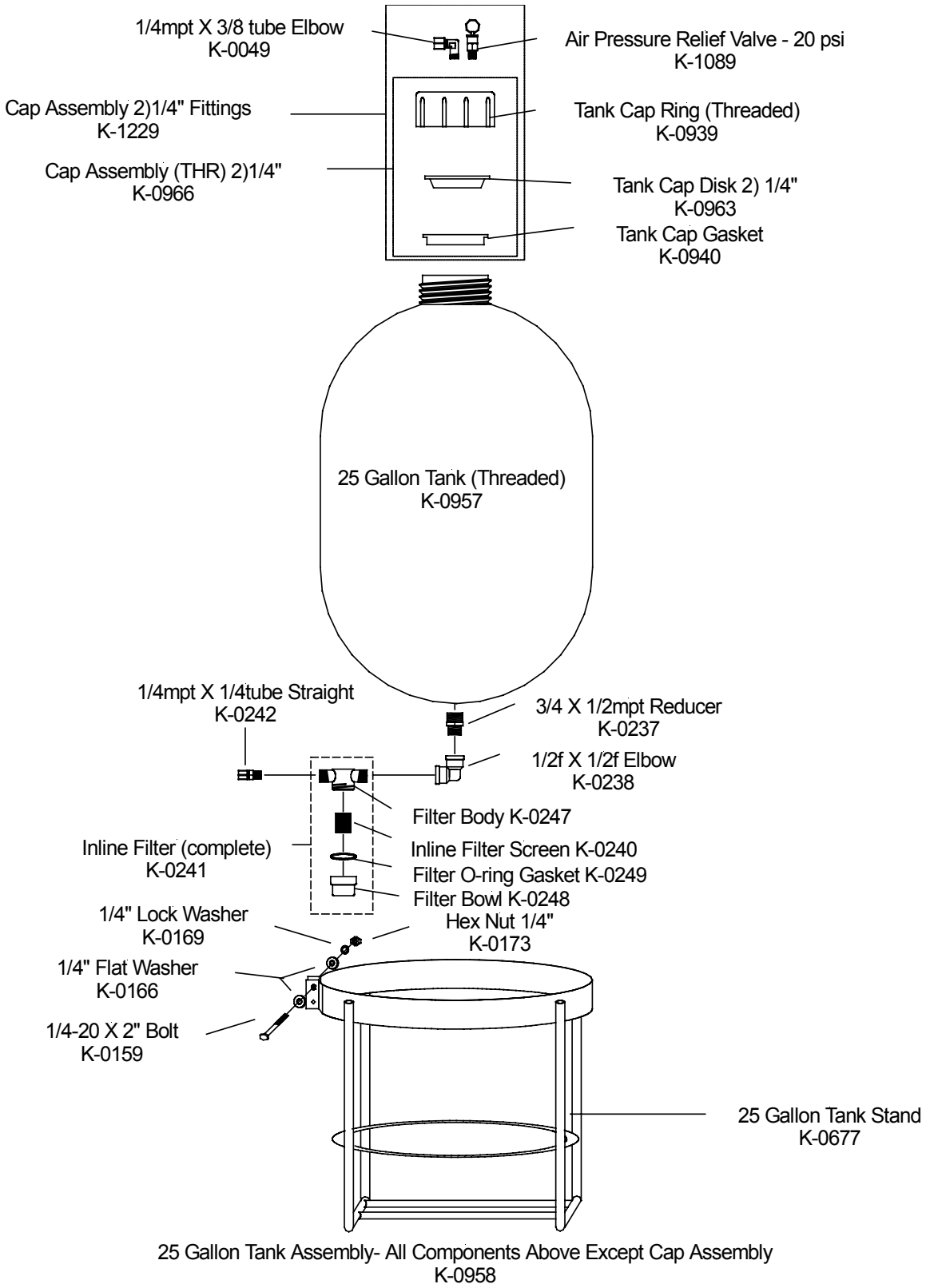
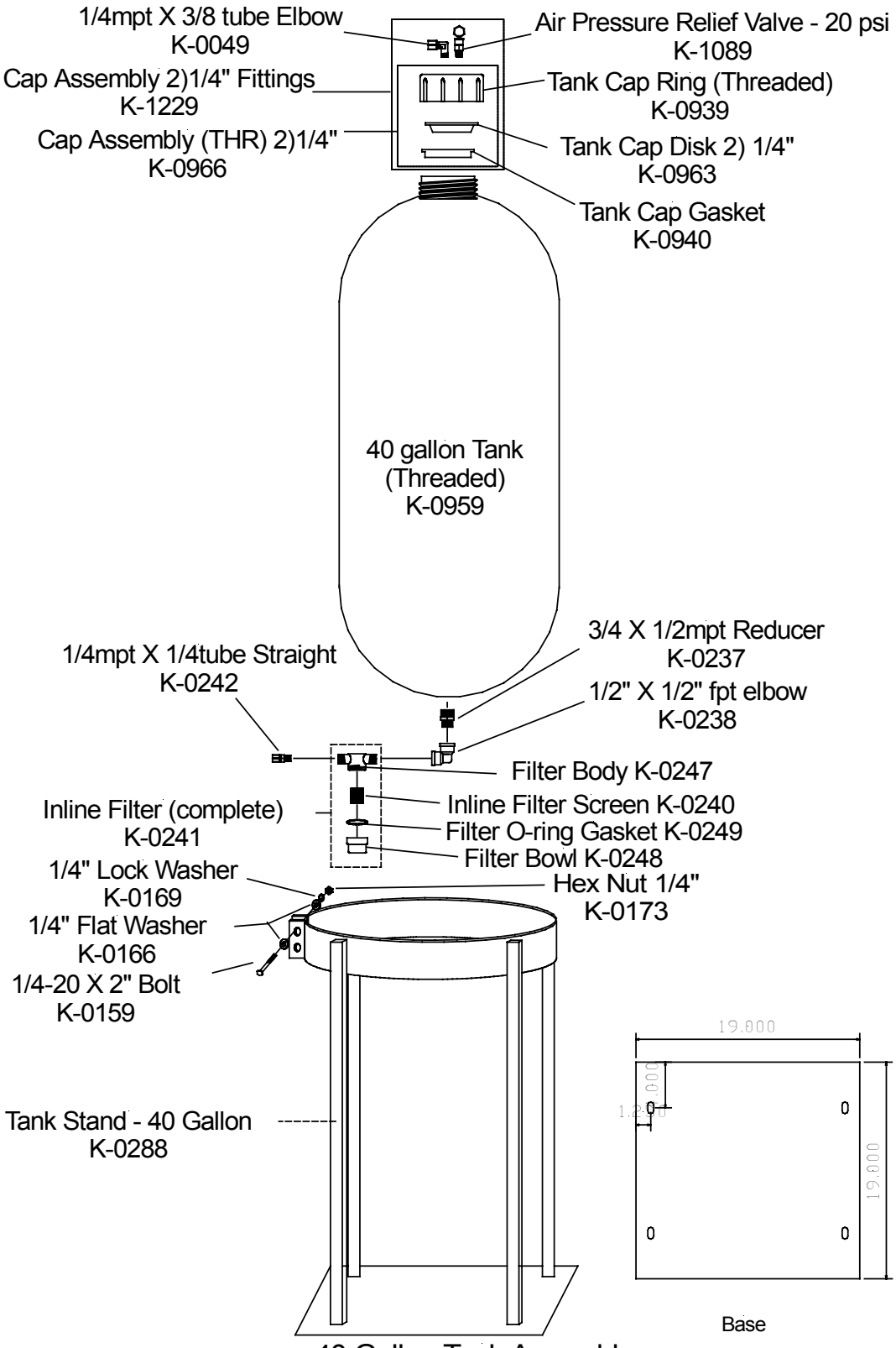


FIGURE 4 - Trac Master 25 Gallon Tank Assembly



40 Gallon Tank Assembly-
All Components Above Except Cap Assembly
K-0960

FIGURE 5 - Trac Master 40 Gallon Tank Assembly

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. Reimbursements of shipping charges are not included.

This warranty does not apply to parts or products not manufactured by Richway Industries, Ltd. The warranty of such items is 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.

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