

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

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SAFETY FIRST



IMPORTANT

Do not operate without reading and understanding
this owners manual



CAUTION: TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE

- This foam marker is designed to operate off of a filtered, 20psi maximum, air supply only.
- Do not attempt to operate machine without covers in place.
- Never operate this machine with damaged components. Disconnect from air supply if machine is not working properly or is damaged.
- Disassembly or attempted repairs, if accomplished incorrectly can create hazards. Only qualified personnel should perform repair service.
- Do not remove covers or attempt repairs while connected to air source.
- Never attempt to replace tubing with inferior or lower pressure rated tubing.
- Do not attempt to operate this machine with out the pressure relief valve in place.
- Do not attempt to bypass or operate with out pressure relief valve. If pressure relief valve is exhausting or is not operating properly, a real hazard may exist.
- Never replace original pressure relief valve with a higher pressure valve.
- Inspect all components for damage after any problem.
- 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.
- Never operate machine while unattended.
- Inspect machine for damage after each use.
- Close supervision is necessary when this product is used 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. Always read and follow manufacturers recommendations when handling any chemicals.
- Inspect pressure relief periodically for proper operation.
- The pressure relief valve will produce a 20 psi maximum output. Do not attempt to increase this pressure output.
- Richway foam markers are designed to operate at low pressure. Personal injury may result when low air pressure circuit 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.

TANK

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

When mounting the 40 gallon tank, be certain to fasten it securely to an adequate platform or frame member. When filled, this tank assembly will have a weight of 400 to 450 pounds.

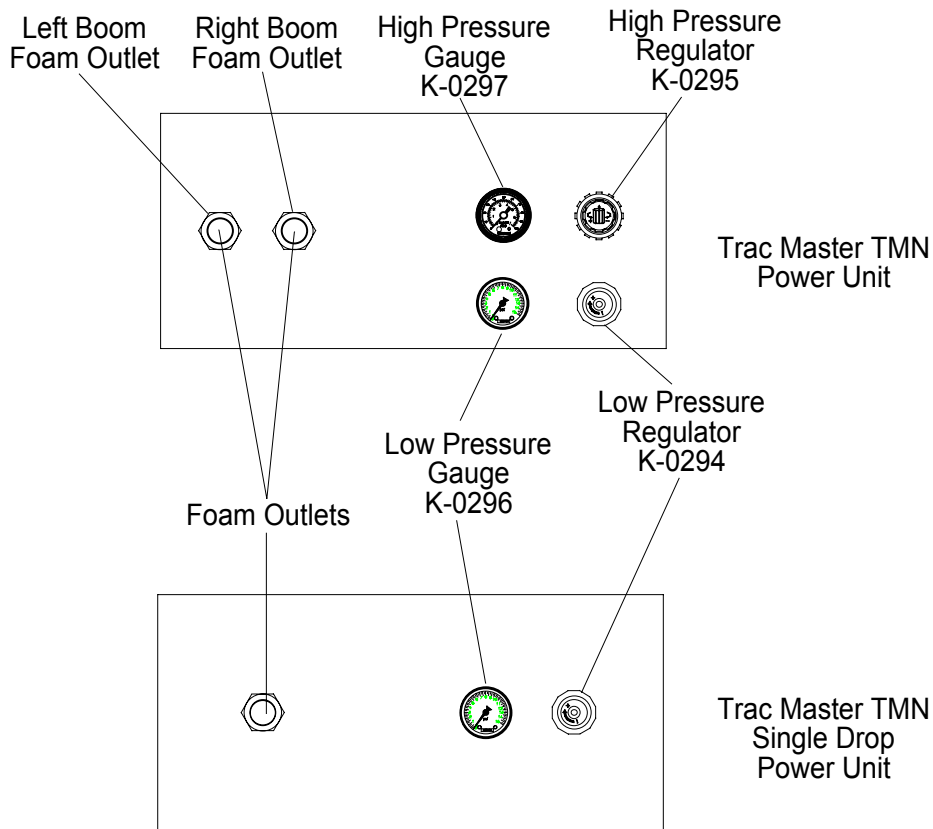


FIGURE 1 - Power Unit Mounting

POWER UNIT

The power unit must be mounted so that the lid is on top. 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.

The standard power unit contains 2 regulators and 2 gauges. The top regulator and gauge adjust the high pressure air used to close the Nozzle Stop™ valves. The lower regulator and gauge adjust the low pressure air supplied to the tank and foamhead. This low pressure regulator should not be adjusted above 20 psi. Single drop power units contain only a low pressure regulator and gauge.

CAUTION: The low pressure air regulator is equipped with an air pressure relief valve. The relief valve will exhaust when pressure exceeds 20 psi. **Do not alter the relief valve.** Operating the foam marker at pressures above 20 psi may cause personal injury property damage or system failures. Check the relief valve operation periodically to assure that it exhausts at pressures over 20 psi.

Power unit cover removed for illustration purposes only. Do not attempt to operate without power unit cover in place.

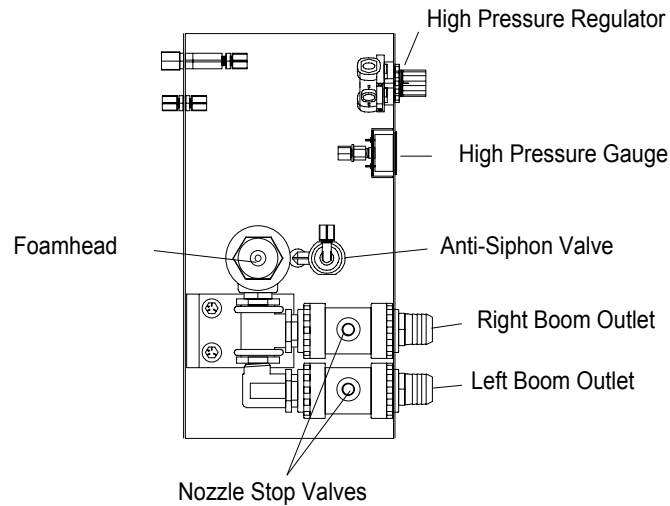


FIGURE 2 – Trac Master TMN Power Unit

Power unit cover removed for illustration purposes only. Do not attempt to operate without power unit cover in place.

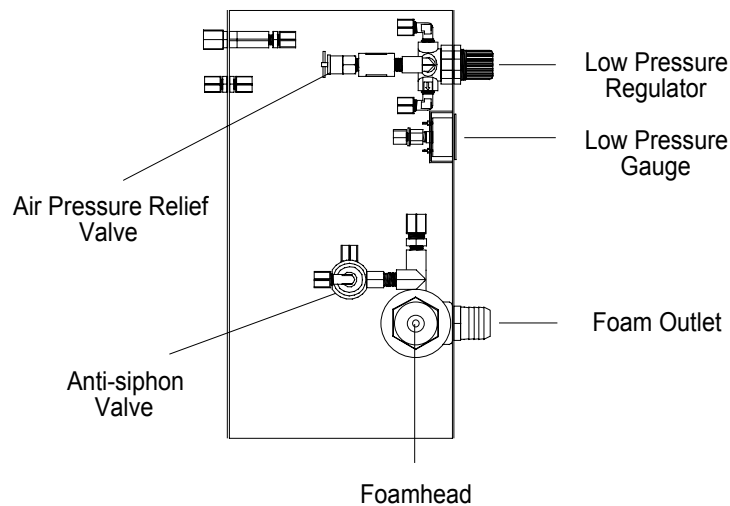


FIGURE 3 – Trac Master TMN Single Drop Power Unit

CONTROL BOX

Mount the control 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 than 3 feet above the tank bottom, the system may take longer to prime after emptying the tank.

The standard control box contains three components. The left toggle switch directs the foam output to the left, right, or both boom outlets. The center toggle switch turns the system on and off. The liquid control valve adjusts the liquid flow to the foamhead. Single Drop systems do not contain the side selector switch.

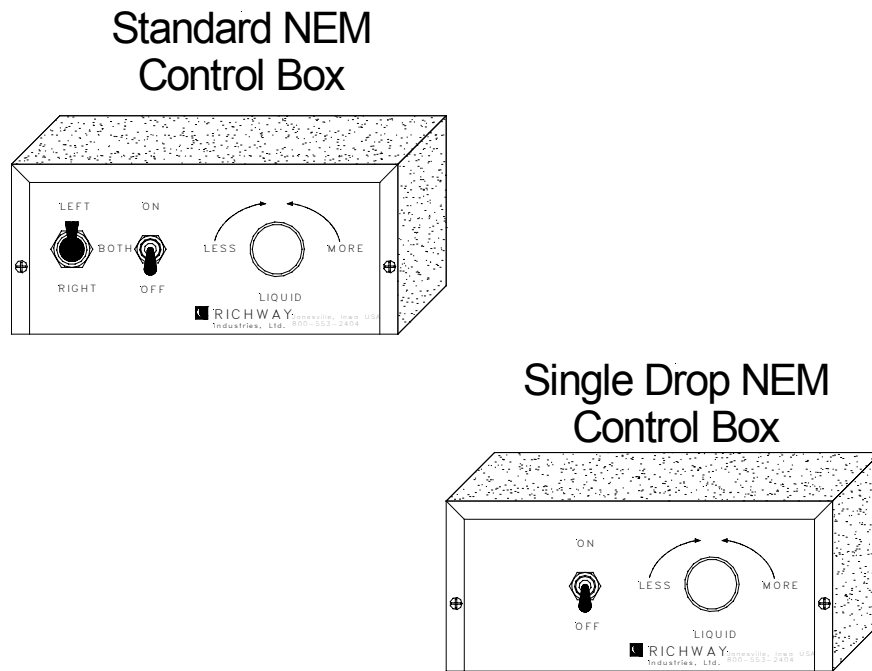


FIGURE 4 – Trac Master TMN Control Boxes

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. Fasten this assembly to the end of your boom. Beginning at the end of your boom, attach the foam hose using nylon cable ties to secure the foam hose at 3-6 foot intervals. These ties assure a positive clamping without damaging the hose.

Be sure to leave enough slack to fold and extend the spray boom. Repeat this procedure for the other 1/2 of your boom. Route the foam hose to the power unit box, where the foam outlet(s) are located.

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. 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.

Single drop markers have only one foam outlet, as they are designed for broadcast type sprayers/spreaders. The drop hose and collector assembly are normally mounted in the center of the applicator.

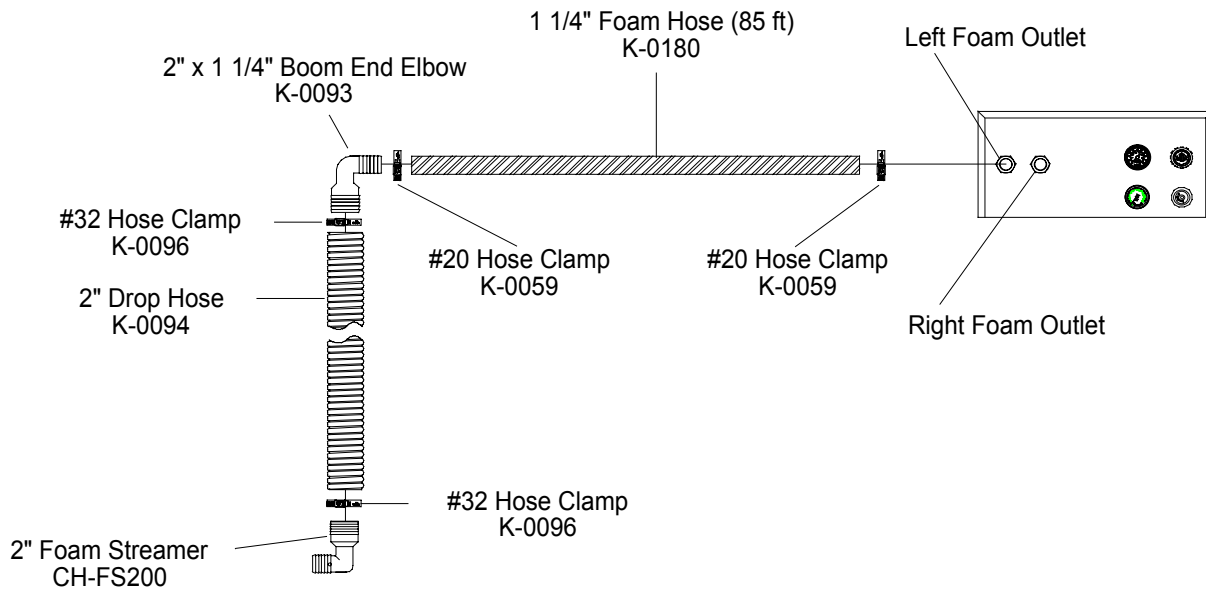


FIGURE 5 - Foam Hose Installation

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.

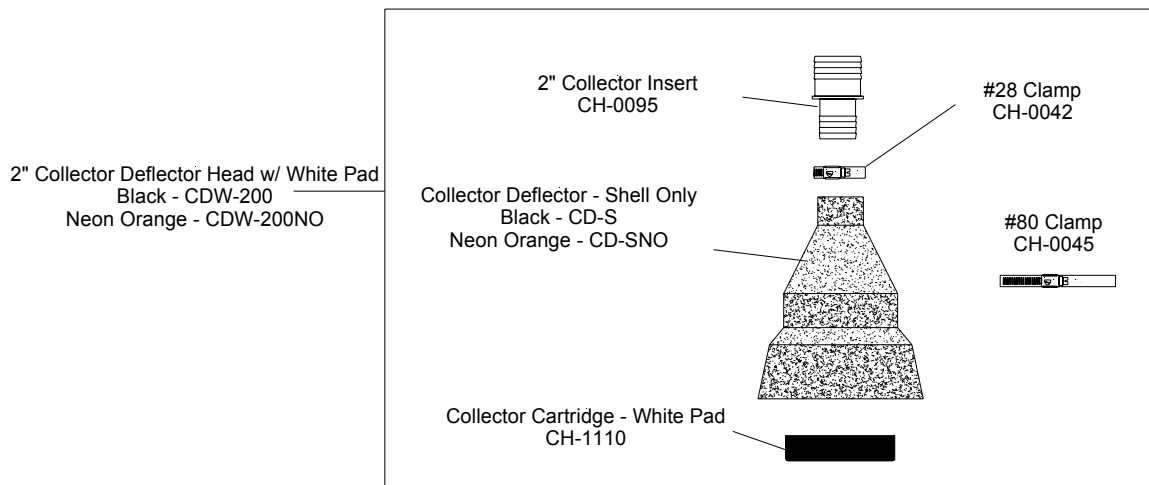


FIGURE 6 – Collector Deflector

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. This foam ball will be more visible due to its size, and will last longer on the ground. However, the heavier foam from Collector Deflector normally will not stay on top of vegetation when post-emergent spraying. You may choose to remove the Collector Deflector under these or similar conditions.

NOZZLE STOP™ SWITCHING VALVES (STANDARD MODELS)

The NOZZLE STOP foam switching valves are located inside the power unit. Install the two 3/4" by 1 1/4" hose barb connectors into the foam switching valve (See figure 2). Secure the foam hose. See appendix 1 for additional information. **Do not over tighten fittings. If fittings are over tightened the valve housing may be damaged.**

LIQUID LINE INSTALLATION

Route one liquid line from the control box inlet to the liquid filter outlet located at the bottom of the tank. The second liquid line is connected between the liquid inlet of the power unit and the control box outlet. It is important to protect the liquid line from sharp edges to prevent leakage.

AIRLINE INSTALLATION



- This machine is designed to operate off of a filtered, 150psi maximum, air supply only.
- Do not operate this machine without covers in place.
- Never operate this machine with damaged components.
- Disconnect from air supply if machine is not working properly or is damaged.
- Only qualified personnel should perform repair service.
- Do not remove covers or attempt repairs while connected to air source.
- Never attempt to replace tubing with inferior or lower pressure rated tubing.
- Do not operate machine without the pressure relief valve in place.
- Do not attempt to bypass pressure relief valve.
- Never replace original pressure relief valve with a higher pressure valve.
- Inspect all components for damage after any problem.

STANDARD MODELS

To install airline, loosen the compression nuts, insert tubing, and hand tighten until tubing is secure. Cut appropriate length of 3/8" OD air tubing to route from power unit (low pressure inlet) to the tank cap. Be sure to provide slack for ease of cap removal during filling (See figure 7).

The air supplied to the cab control box must be free of oil and other contaminants. Oils that enter from the compressor system may foul switches. It may be necessary to filter the air supply to prevent oil from reaching the control box. If oil is present in the control box, clean the system thoroughly with compressed air.

Route airline between power unit and control box as follows:

<u>POWER UNIT</u>	<u>CONNECT TO</u>	<u>CONTROL BOX</u>
Control pressure inlet		High pressure from power unit
On/off control inlet		On/Off control to power unit
Right valve inlet		Right control valve to power unit
Left valve inlet		Left control valve to power unit

Connect high pressure inlet, at power unit, to air supply.

NOTE: Securing airline with cable ties or plastic coated clamps will provide a convenient way of routing airline to prevent pin holes or pinching.

SINGLE DROP MODELS

To install airline, loosen the compression nuts, insert tubing, and hand tighten until tubing is secure. Cut appropriate length of 3/8" OD air tubing to route from power unit (low pressure inlet) to the tank cap. Be sure to provide slack for ease of cap removal during filling (See figure 8).

Route airline between power unit and control box as follows:

<u>POWER UNIT</u>	<u>CONNECT TO</u>	<u>CONTROL BOX</u>
Control pressure inlet		On/Off control to power unit

Connect high pressure inlet, at control box, to air supply. Route liquid line as described on page 7.

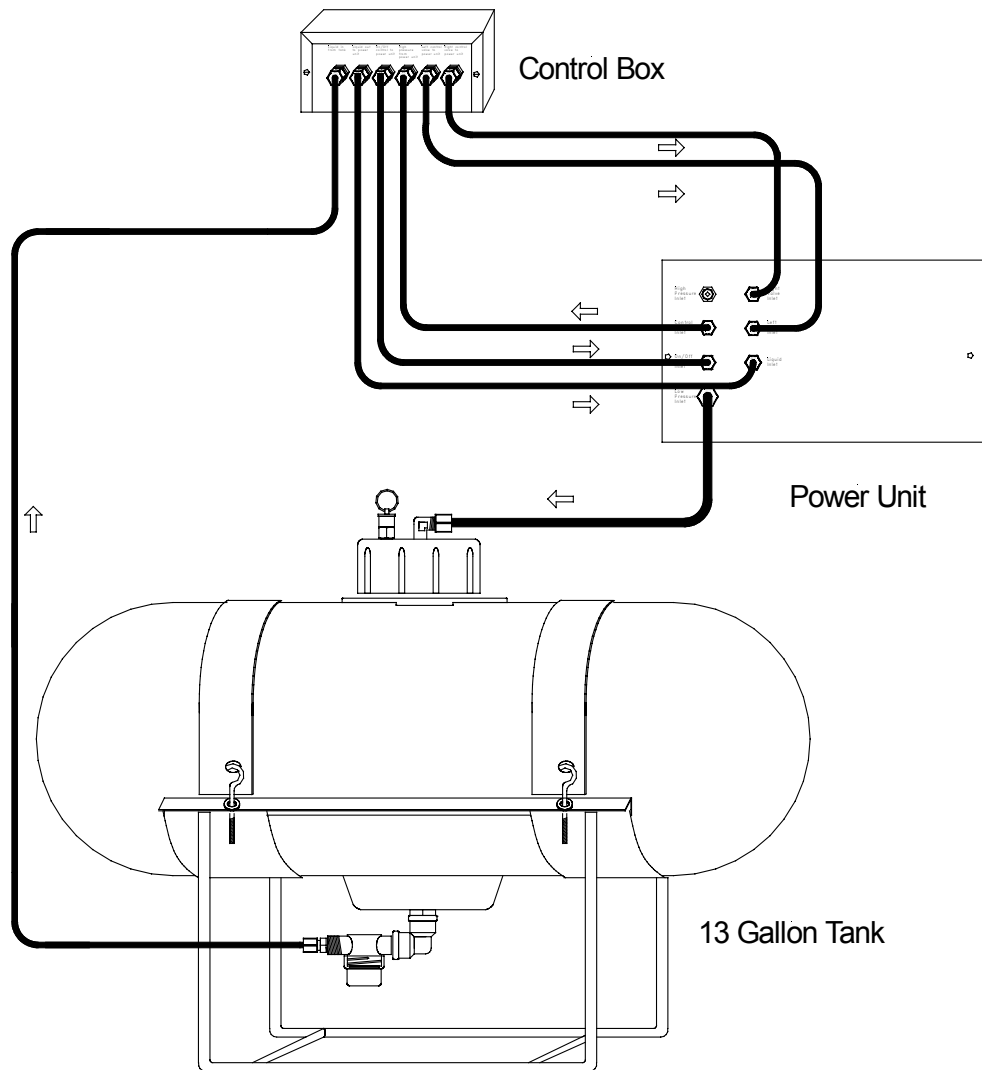


FIGURE 7 – TMN Air and Liquid Line Installation

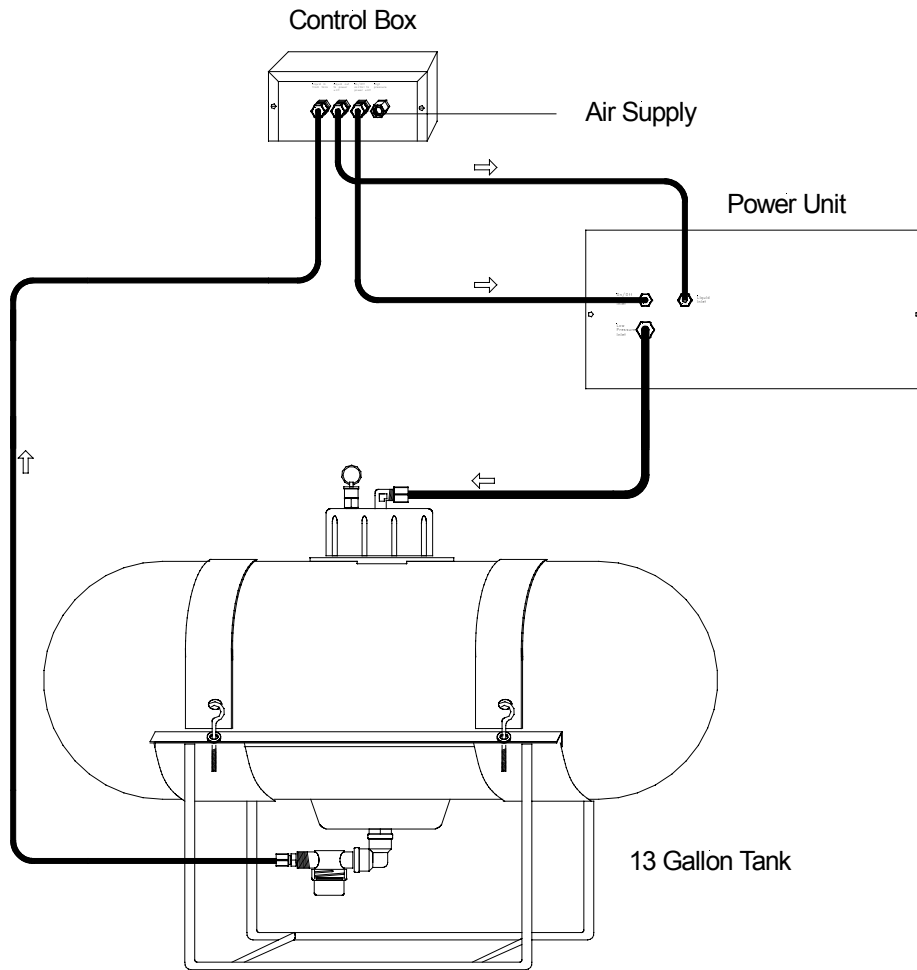


FIGURE 8 – TMN Single Drop Air and Liquid Connections

OPERATION



CAUTION

- Do not attempt to operate machine without covers in place.
- Never operate machine while unattended.
- Inspect machine for damage after use.
- Disconnect from air supply if machine is not working properly or is damaged.
- 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.
- 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.

- Inspect pressure relief valve periodically for proper operation.

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, temperature, and impurities will all affect the rate of concentrate required for a consistent long-lasting foam.

NOTE: 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.

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

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

GOODMARK Richway's premium life, "hot weather" foam concentrate. Provides up to one hour life in cooler weather, 20-40 minutes in hot weather.

FILLING THE TANK

1. BE SURE POWER UNIT IS TURNED OFF.

CAUTION! Pressure is built up 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 foam ball 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, before adding the foam concentrate.

4. Replace cap on the tank and secure.

AIR PRESSURE ADJUSTMENT

Trac Master non-electric foam markers allow for adjustment of air pressure and liquid flow. To adjust air pressure, pull adjustment knob on regulator out. Rotate this knob clockwise to increase air pressure, counter-clockwise to decrease pressure.

The Nozzle Stop control valves, used on standard models, have a maximum operating air pressure of 90 psi. Do not adjust high pressure regulator to pressures greater than the minimum needed for rapid closure. Using the least air pressure necessary will promote longer valve life (See Appendix 1, page 15).

The low pressure regulator, used on standard and single drop models, adjusts the pressure provided to the tank and foamhead. Richway foam markers are designed to operate at low air pressures. This regulator should not be allowed to exceed 20 psi.

CAUTION: The low pressure air regulator is equipped with an air pressure relief valve. The relief valve will exhaust when pressure exceeds 20 psi. **Do not alter the relief valve.** Operating the foam marker at pressures above 20 psi may cause personal injury, property damage, or system failures. Check the relief valve operation periodically to assure that it exhausts at pressures over 20 psi.

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 2 1/2 turns open. This setting provides for a moderate foam output.

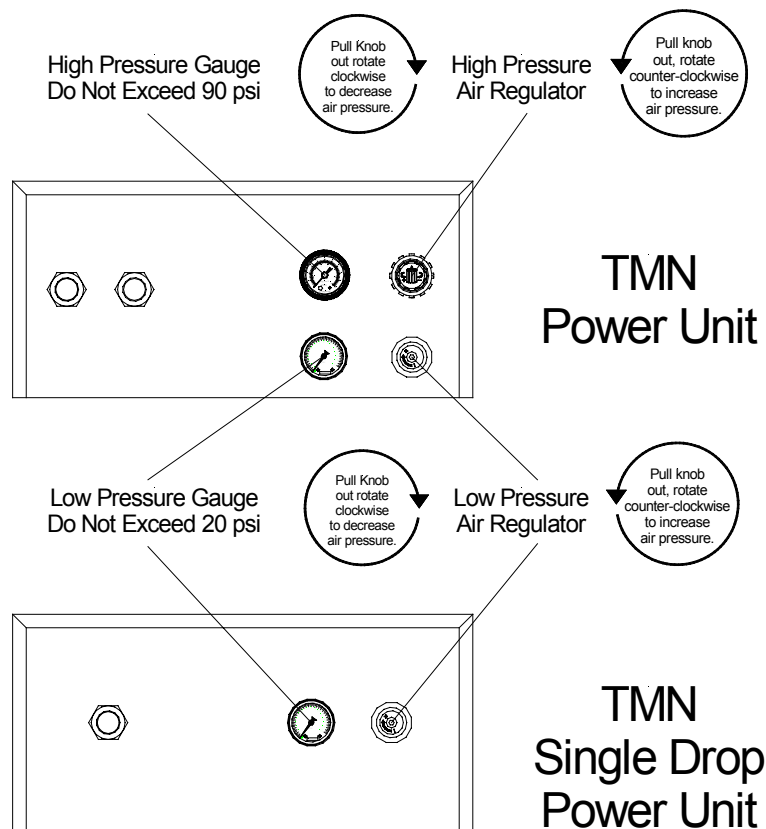


FIGURE 9 – TMN Air Pressure Adjustment

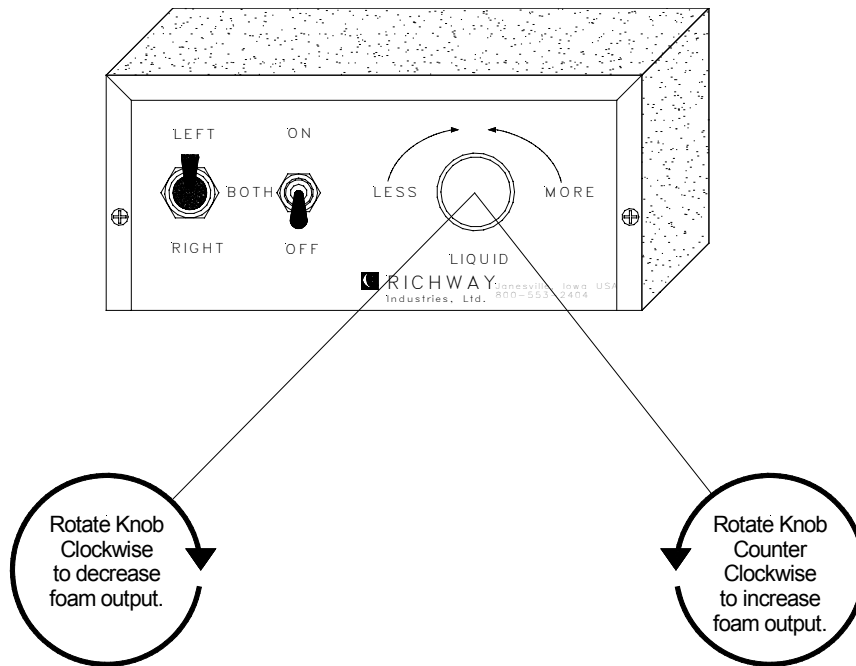


FIGURE 10 – Flow Control Valve Adjustment

MAINTENANCE

CAUTION

- Always disconnect from air source before servicing.
- Do not attempt to operate machine with out covers in place.
- Disconnect from air supply if machine is not working properly or is damaged.
- 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 air source.
- Disassembly or attempted repairs if accomplished incorrectly can create hazards. Only qualified personnel should perform repair service.

FOAMHEAD AND IN-LINE FILTER

The foamhead has been designed so that the elements inside may be cleaned. The screens inside this unit should be washed periodically with hot water. The in-line filter element should be cleaned occasionally to insure sufficient liquid flow to the foamhead assembly (See Appendix 3).

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.

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.

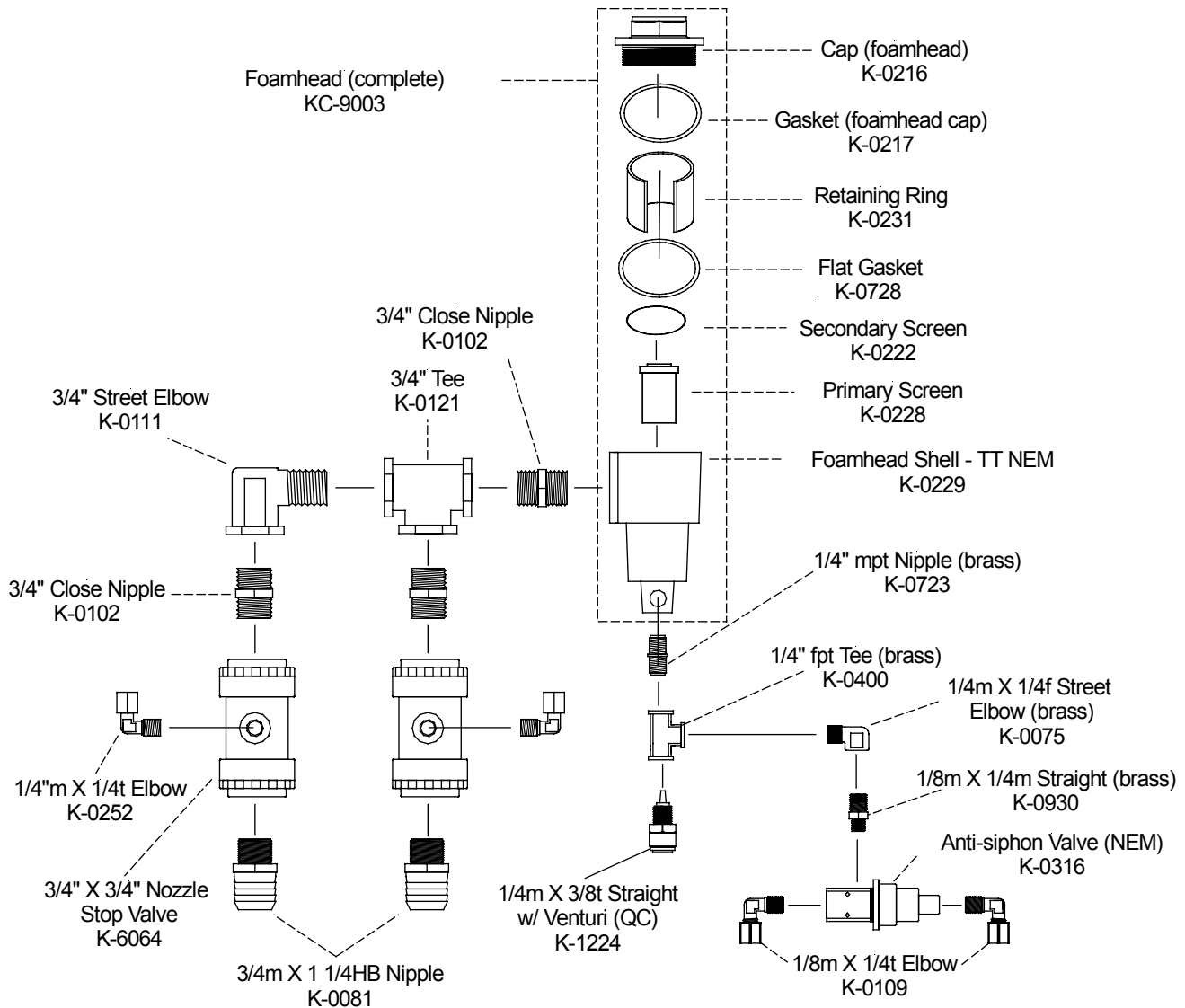


FIGURE 11 - NEM Foamhead/Valve Assembly

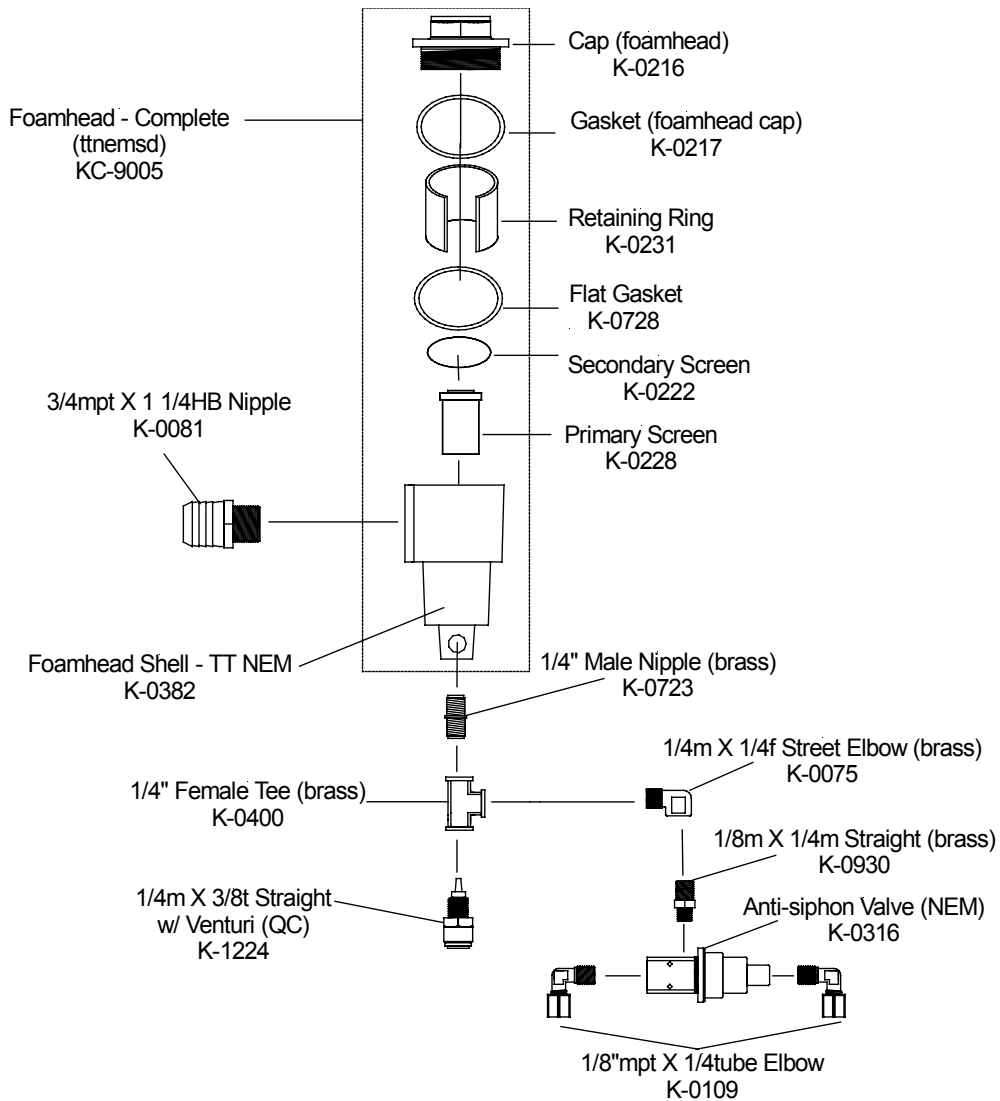


FIGURE 12 - Single Drop Foam Head Assembly

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 if necessary. Be sure to drain all liquid from the system prior to storage in freezing temperatures.

TROUBLE-SHOOTING

If you do not get foam:

1. Be sure that the power unit is connected properly and that air is blowing into the tank. To be sure the airlines and liquid lines do not have any 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 greater 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. Check the foam hoses leading from the tank to the end of the boom. Assure they are not pinched.
4. Check and clean the in-line filter.
5. Be sure the liquid control valve is open. You may 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 may produce 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" 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

NOZZLE STOP™ VALVE

Each Nozzle Stop valve body is molded of glass-filled nylon. The complete valve body is 4 inches long, weighs approximately 9 ounces, and has either 3/4 or 1 inch female pipe thread end caps. The normal operating air pressure required is 60 to 90 psi. Higher pressures are not recommended and may cause excessive and unnecessary wear on the internal sleeve, resulting in early sleeve failures.

NOTE: Nozzle Stops require a minimum air pressure of approximately 60 psi to assure quick response and complete shut-off against most pressures. Using the lowest air pressure necessary will promote maximum sleeve life. Excessive air pressure will shorten sleeve life. Maximum system air pressure should not exceed 90 psi.

SLEEVE REPLACEMENT: **WARNING ! SLEEVE FAILURE MAY OCCUR AT ANY TIME.**

1. Disconnect foam marker from air supply, be certain all air pressure is exhausted from system.
2. Disconnect the airline that enters the valve. Remove valve from foamhead assembly.
3. Remove the outlet end cap from the Nozzle Stop body.
4. Remove the body from the inlet end cap.
5. Push the damaged sleeve out of the body.
6. Lubricate the body and new sleeve with a detergent or foam concentrate solution. DO NOT use any petroleum based product (such as WD-40).
7. Pinch the flanges of the new sleeve together and start it into the body. You may use a BLUNT tool to help push the sleeve into the body. DO NOT use anything sharp, such as a screwdriver! Sleeve replacement tools are available to assist in new sleeve installation.
8. Make certain the new sleeve is properly seated.
9. Lubricate the ends of the sleeve and end caps using a detergent or foam solution, and reassemble the valve. Be certain the sleeve is not twisted before reinstalling the valve into foamhead assembly.
10. If liquid has entered the airline system, clean and inspect all parts of the system.

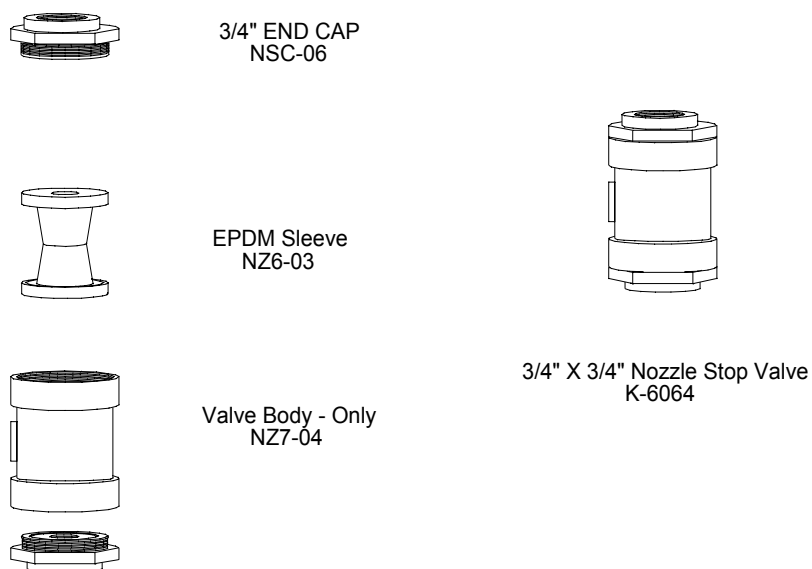


FIGURE 1 - Nozzle Stop Components

APPENDIX 2

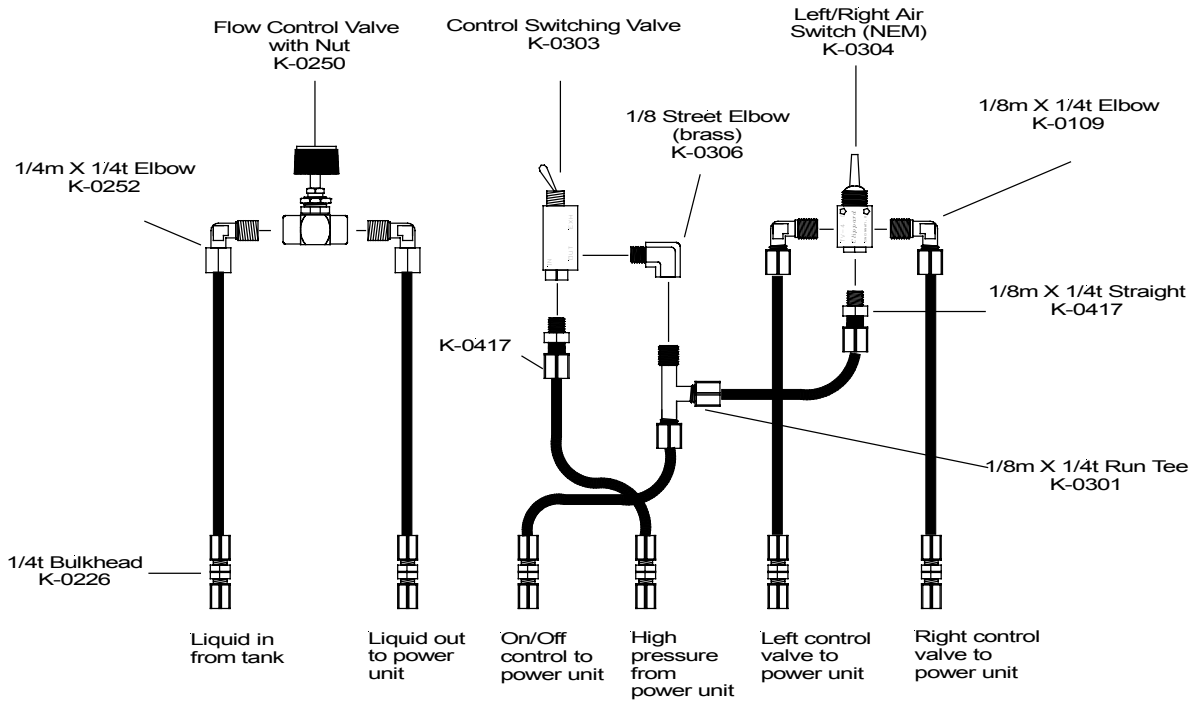


FIGURE 1 – Trac Master TMN Control Box

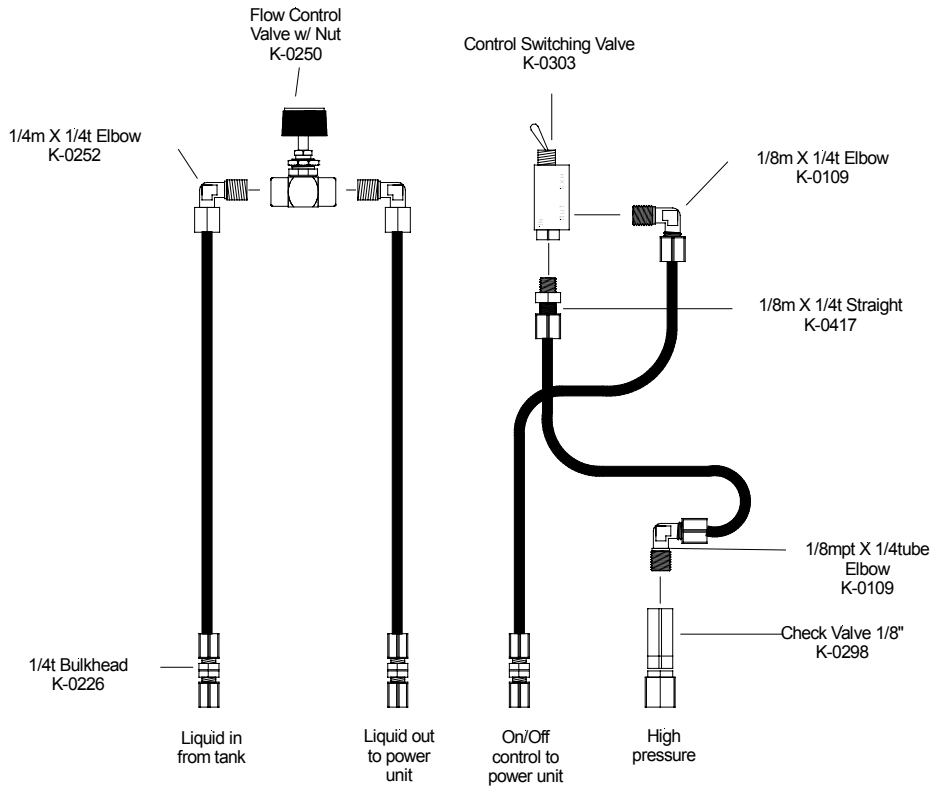


FIGURE 2 – Trac Master TMN Single Drop Control Box

APPENDIX 3

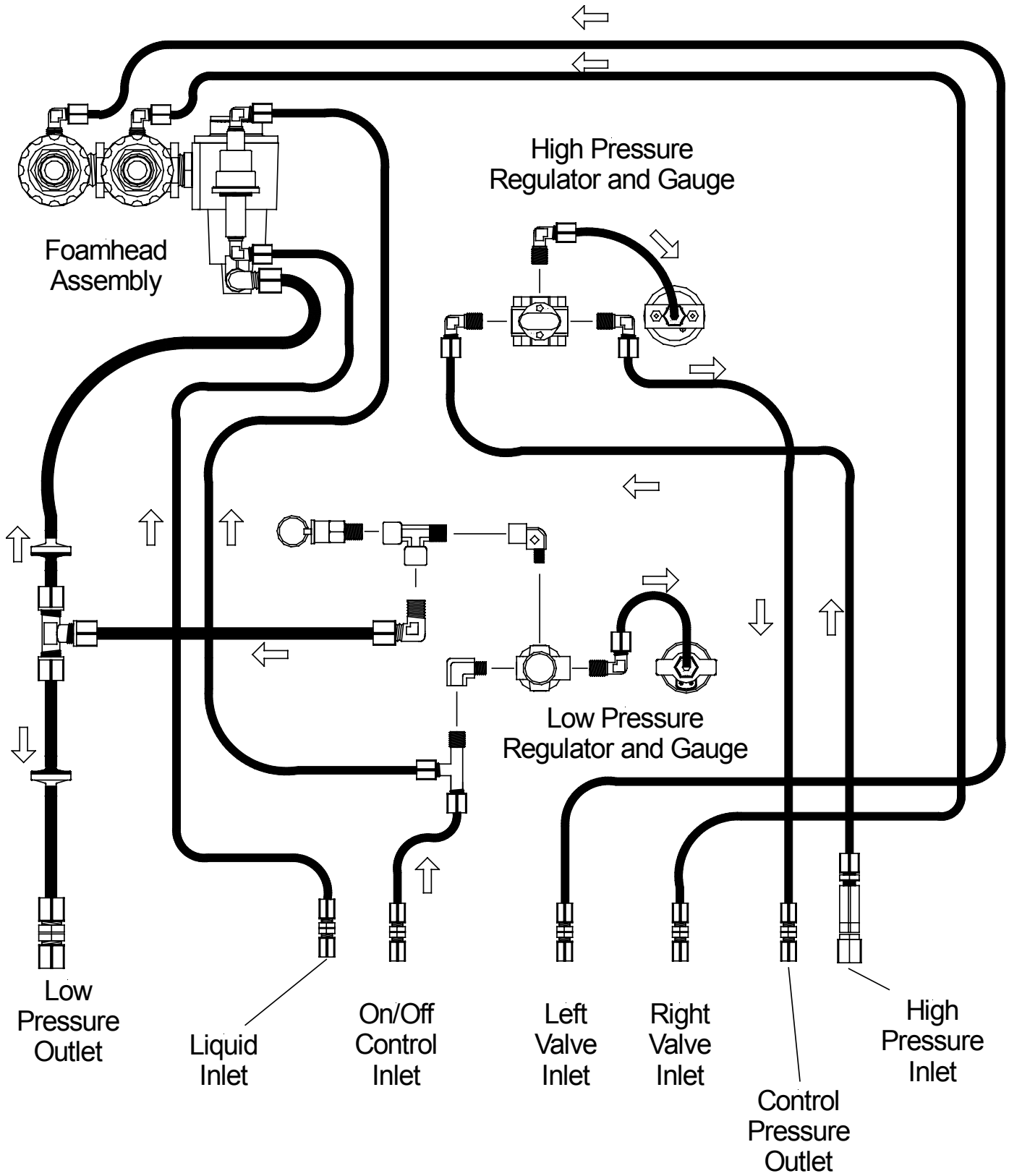


FIGURE 1 – Trac Master TMN Power Unit Flow Diagram

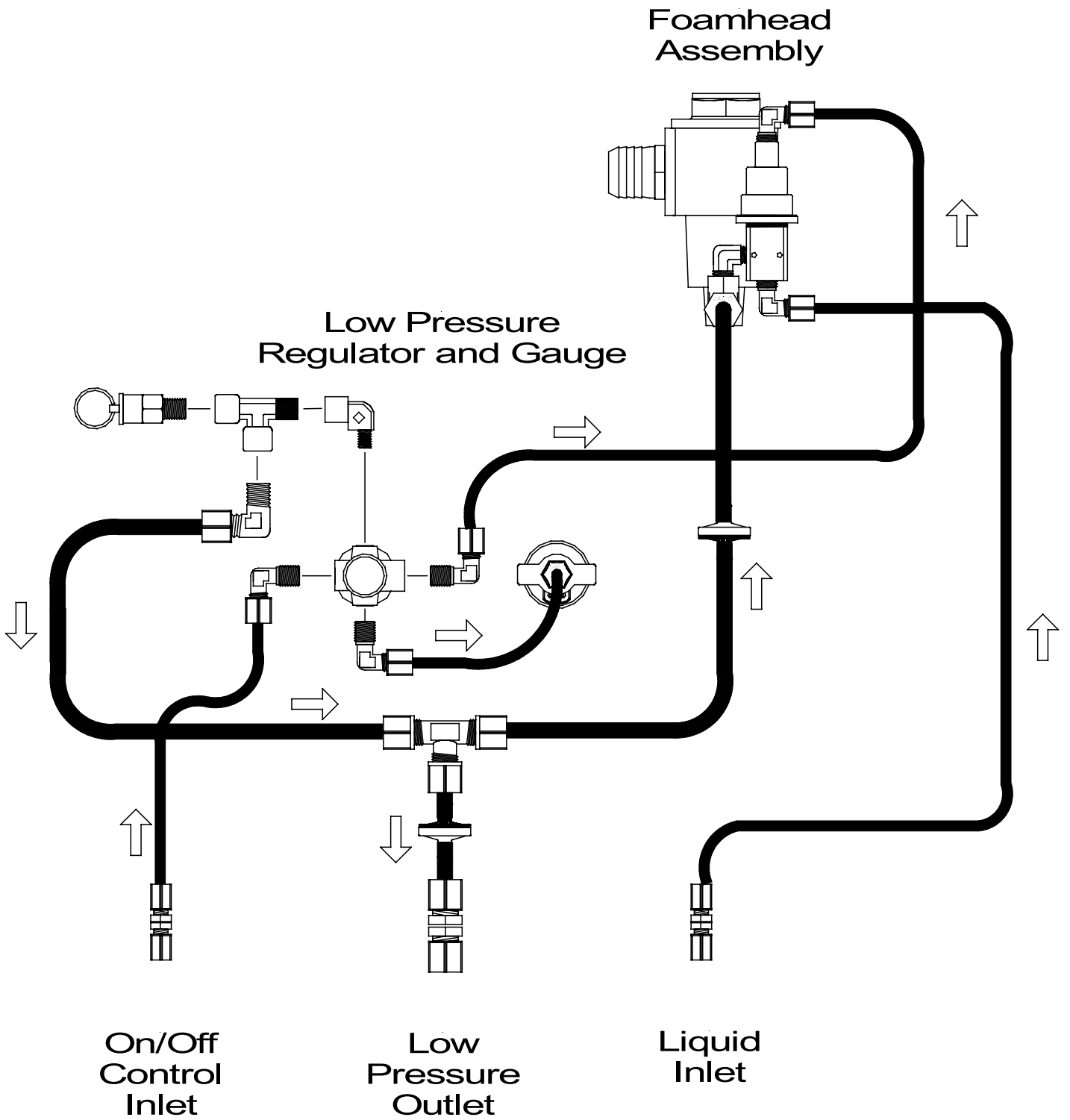


FIGURE 2 – Trac Master TMN Single Drop Flow Diagram

APPENDIX 4

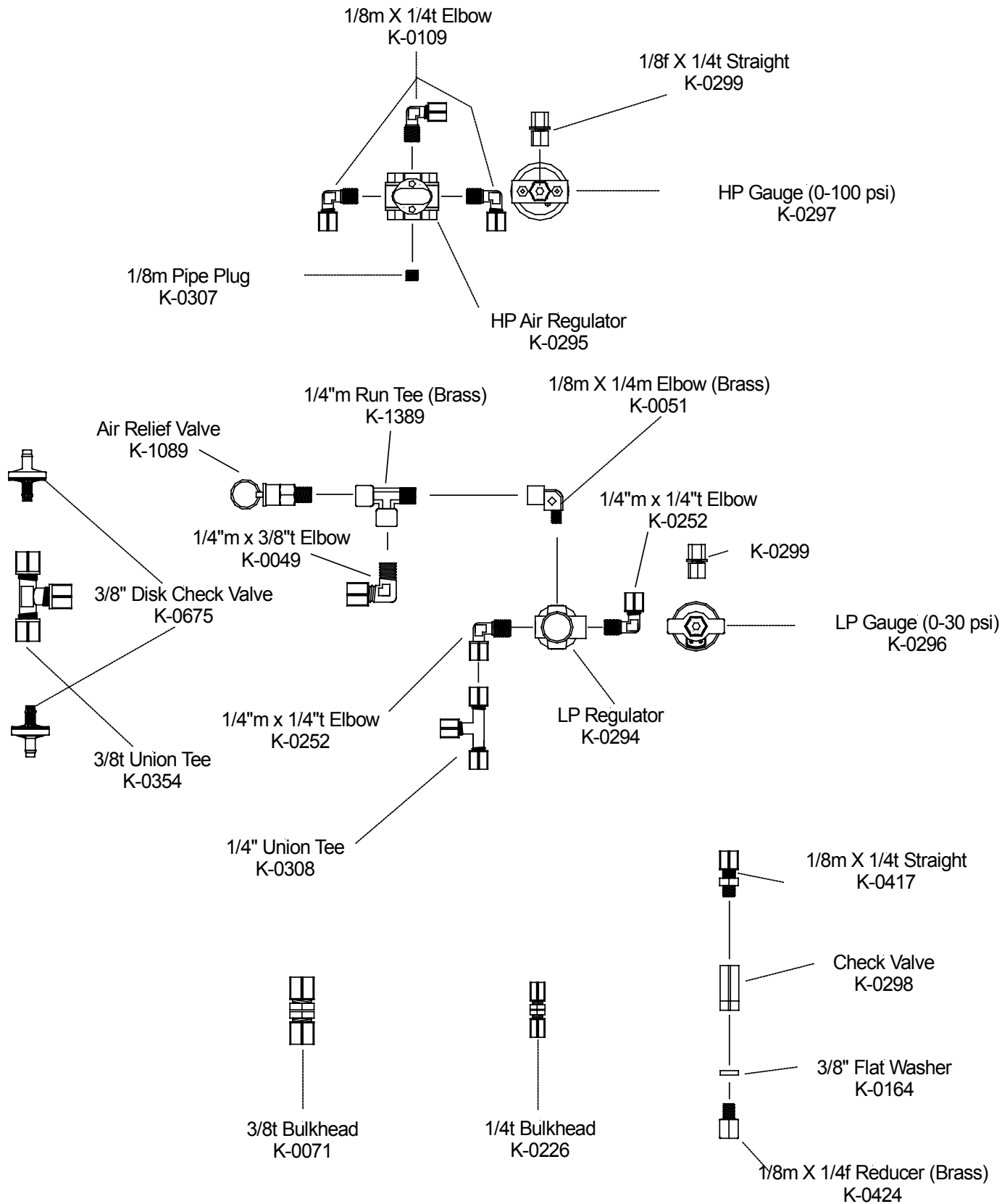


FIGURE 1 – Trac Master TMN Power Unit Components

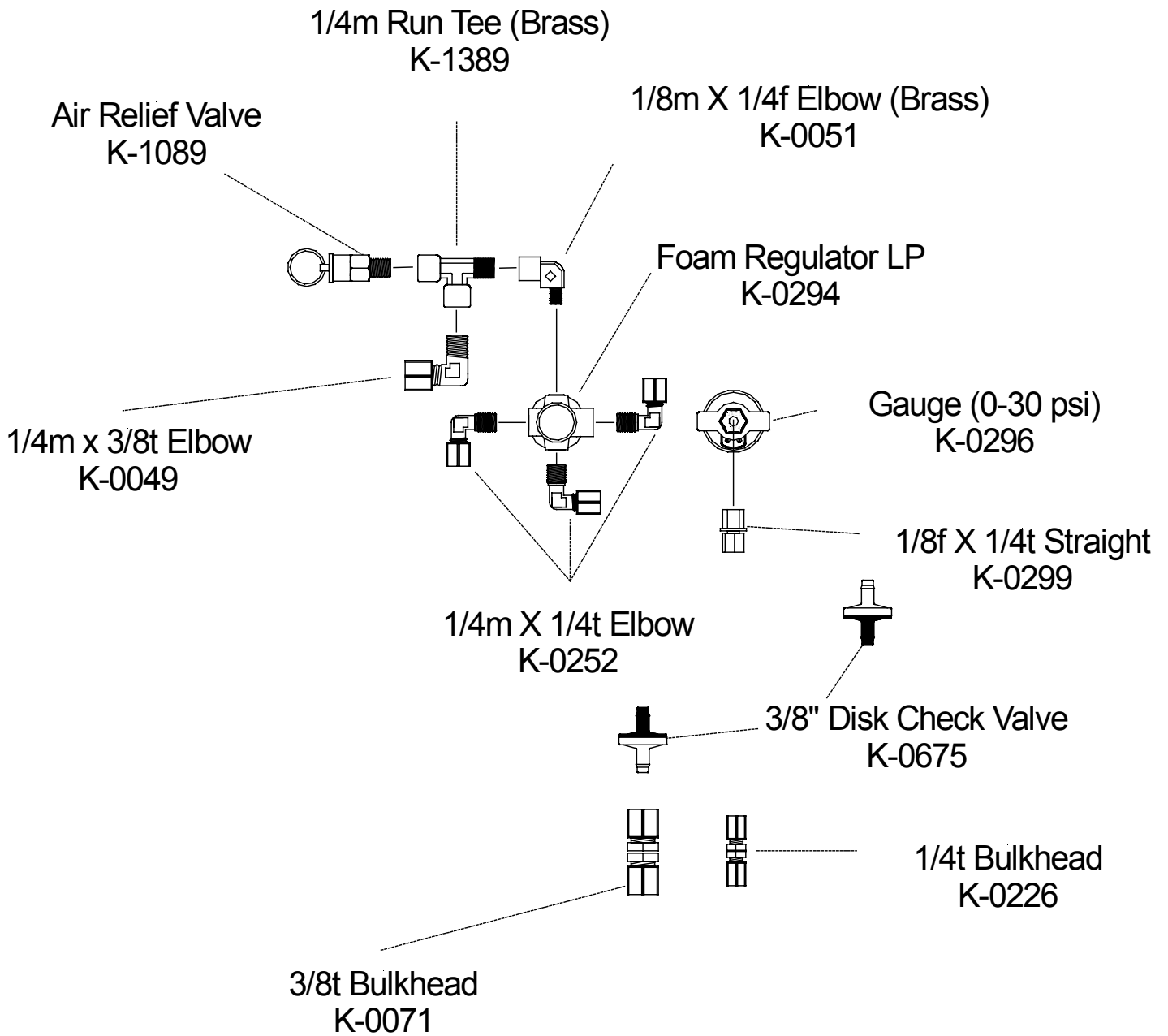


FIGURE 2 – Trac Master NEM Single Drop Power Unit Components

APPENDIX 5

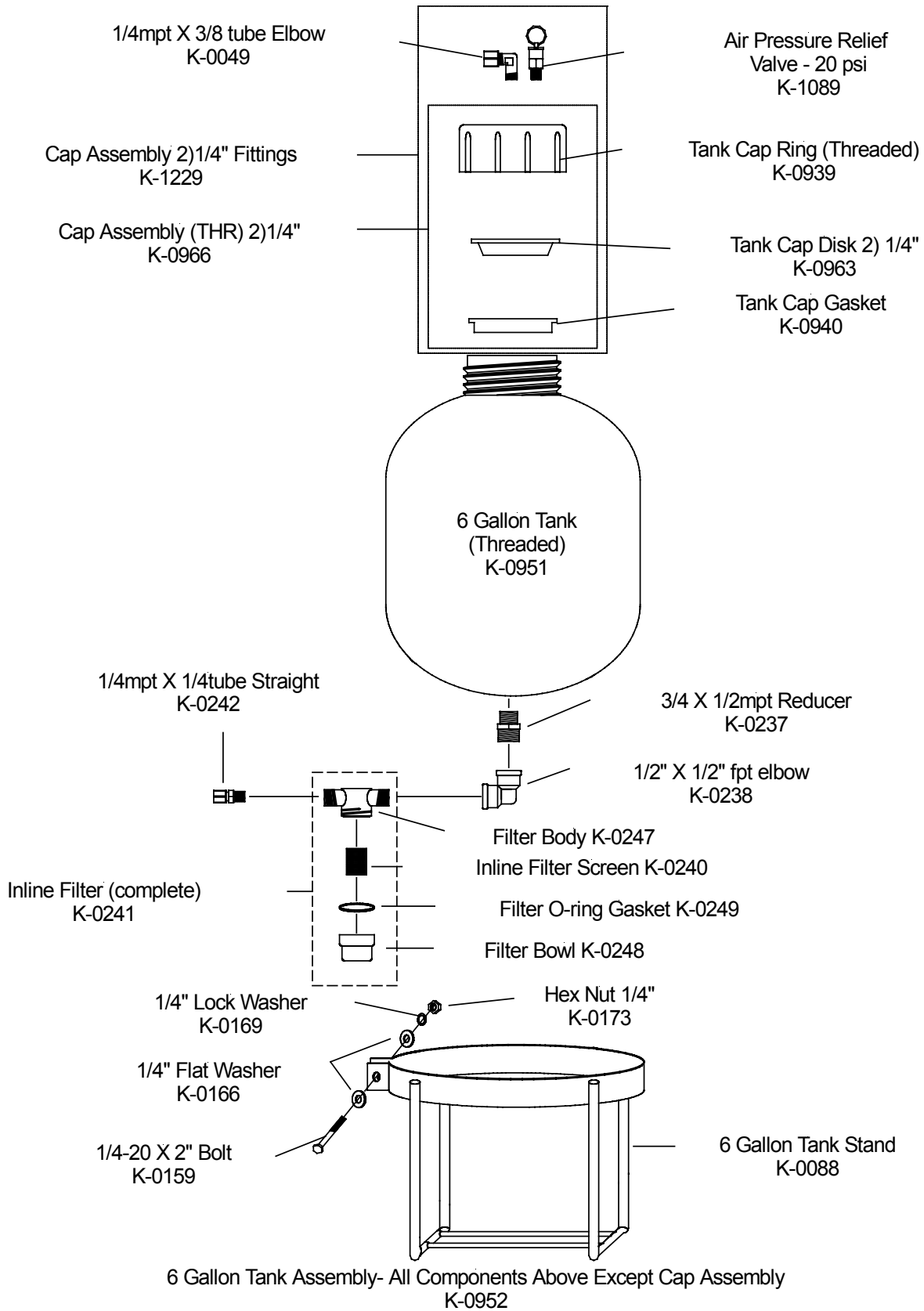


FIGURE 1 – Trac Master 6 Gallon Tank

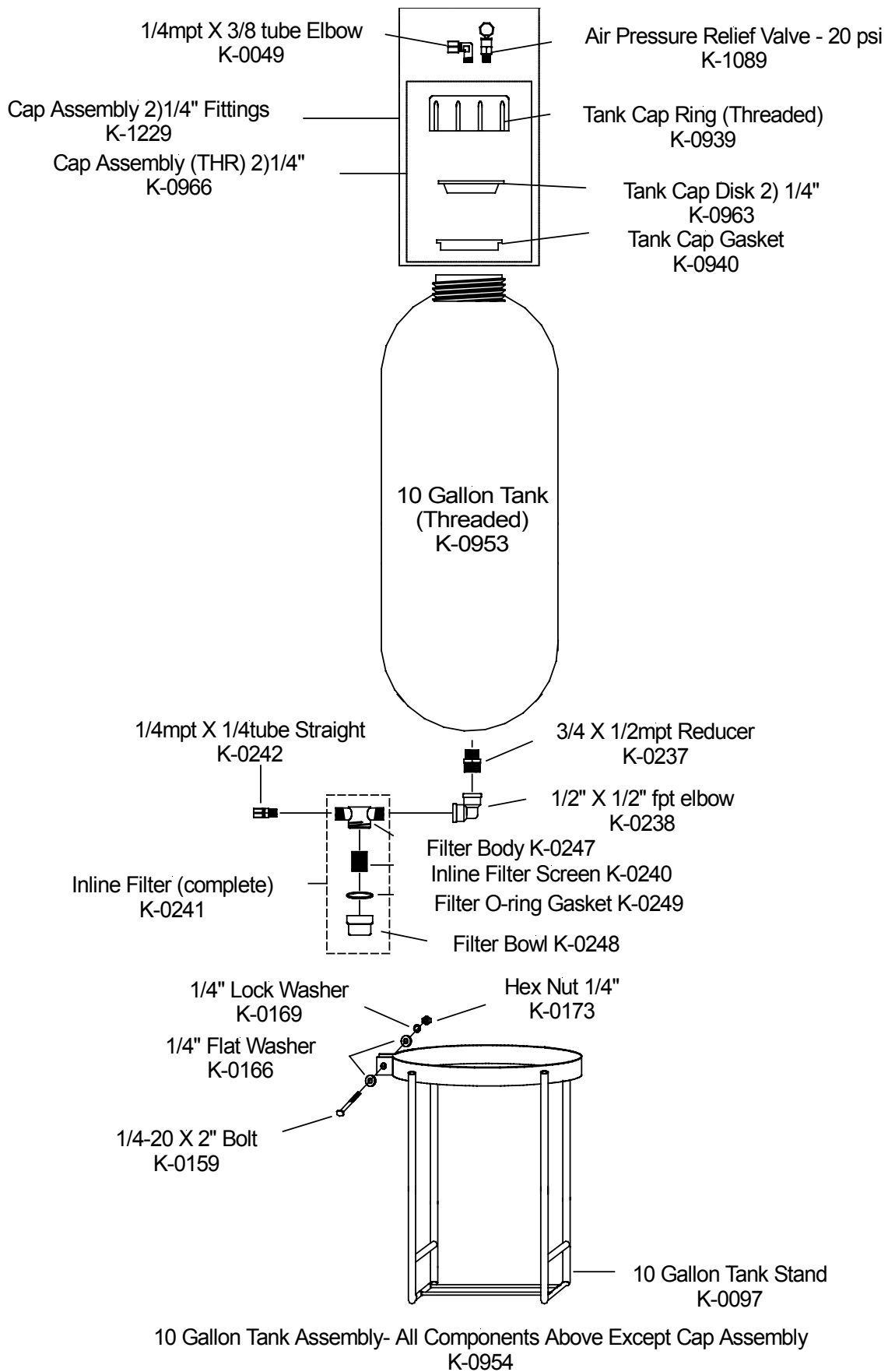


FIGURE 2 – Trac Master 10 Gallon Tank Assembly

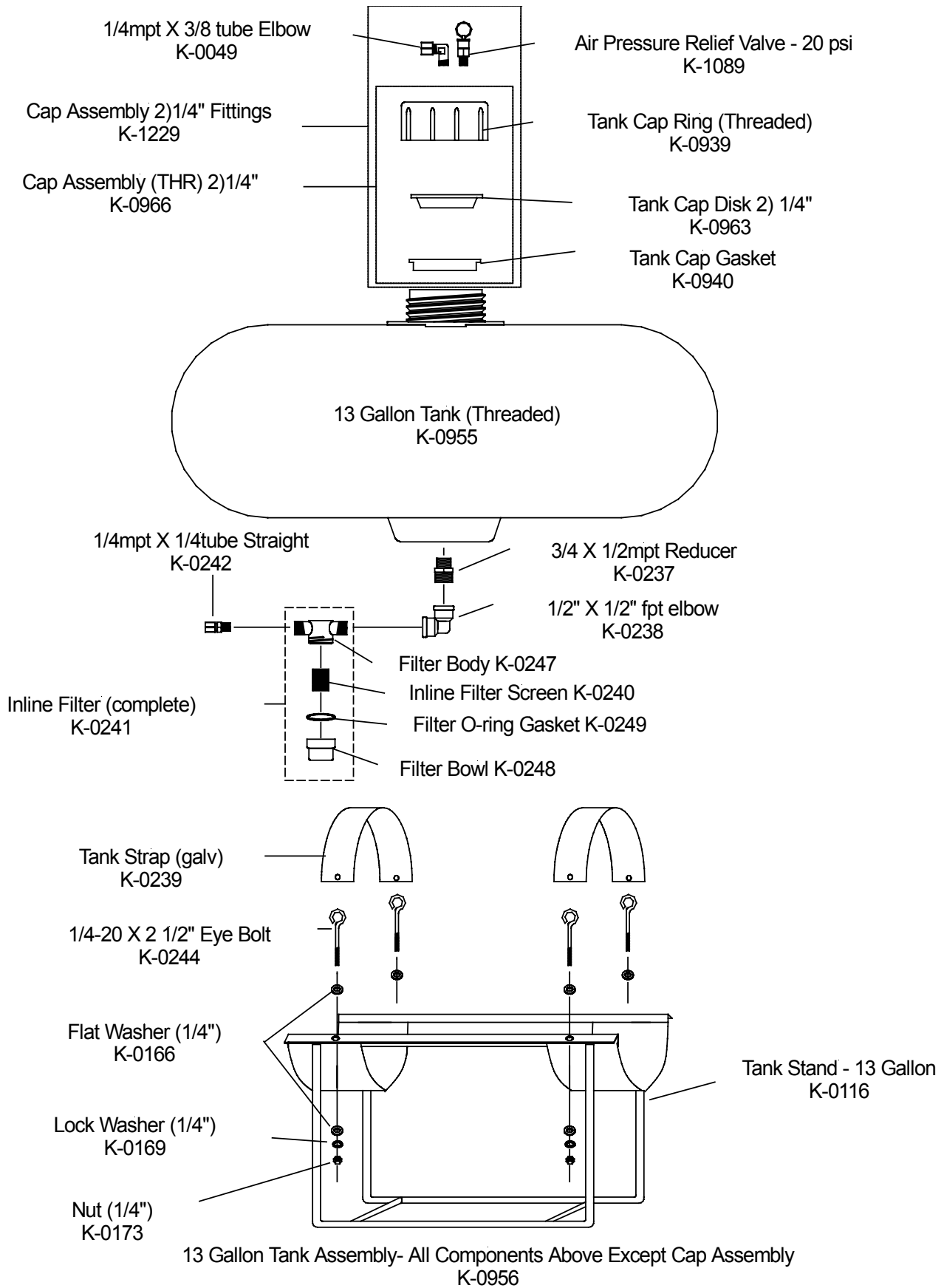


FIGURE 3 – Trac Master 13 Gallon Tank Assembly

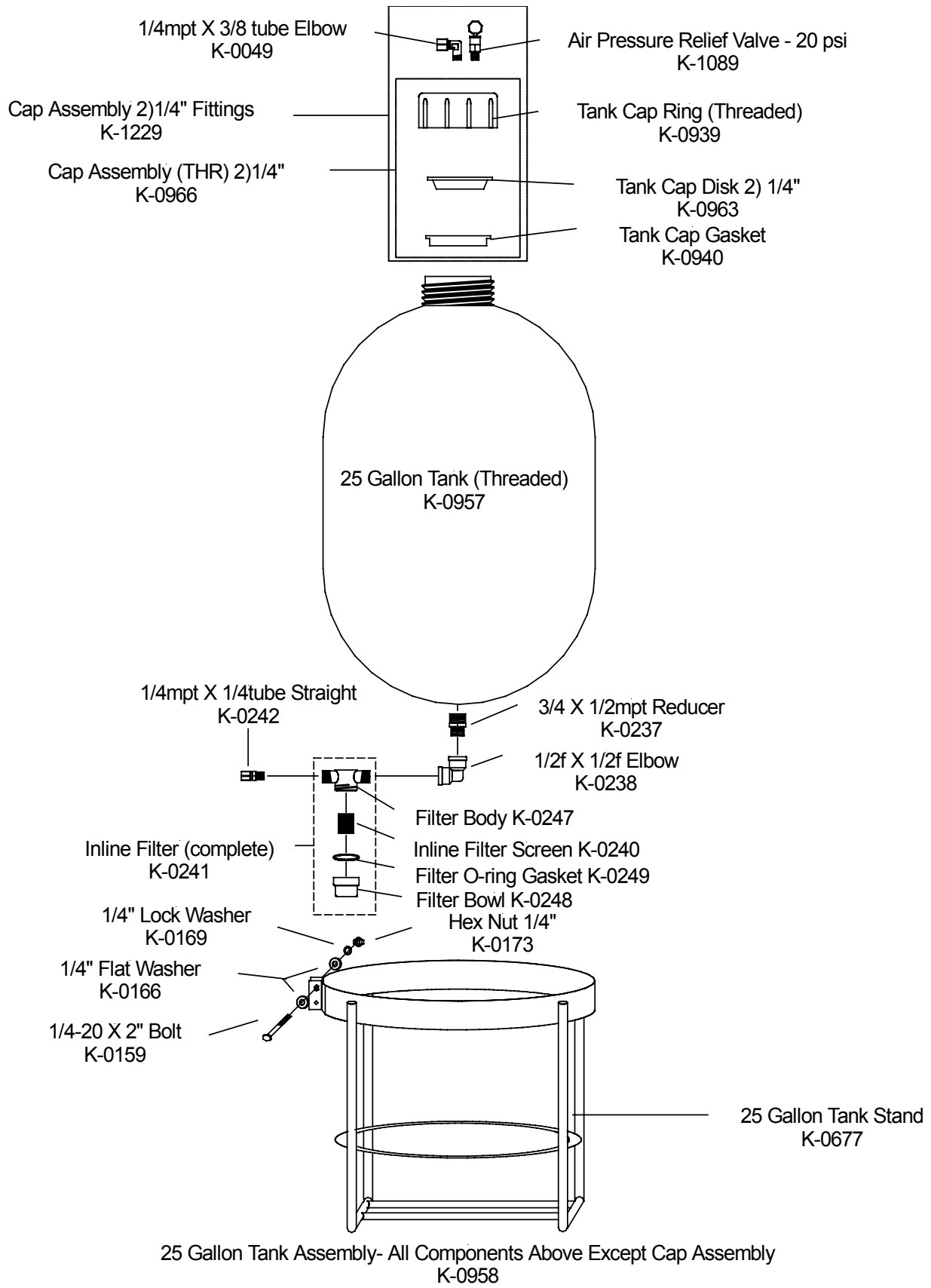
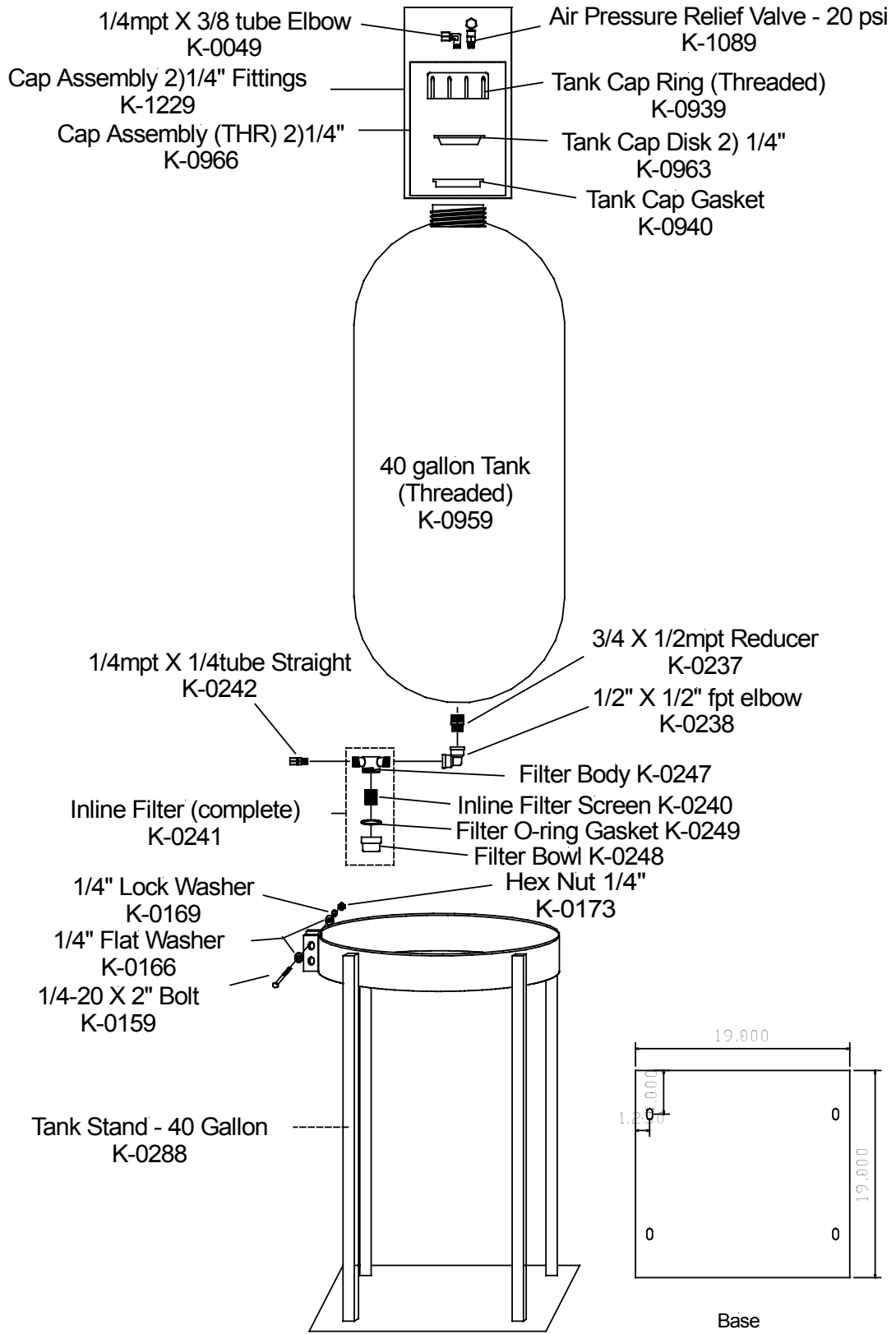


FIGURE 4 – Trac Master 25 Gallon Tank Assembly



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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