Installation Instructions

1. Consult local authorities before installing this tank. Local codes and separation distance requirements may dictate whether a tank buyer purchases a single or double wall UL-142 tank or a UL-2085 fire-resistant tank. Fire-resistant tanks are generally allowed shorter separation distances by code, and therefore may be specified even if the application does not require insulated above ground storage tanks. Some codes differentiate between private fueling operations and retail operations in the establishment of required separation distances—that is, less separation distance may be allowed for private fueling facilities such as fleets.

2. Foundation. Stability of the tank is critical for proper operation and safety for the life of the tank. Depending on the tank capacity, undisturbed native soil may support a typical shop-fabricated aboveground tank. However, the impact of tank settlement can be severe and the ability of the soil to support the tank and its contents must be considered. The greatest threat posed by tank settlement is the resulting stress that may be placed upon the piping and electrical conduit attached to the tank. This, of course, points out the importance of building flexibility into the piping and electrical system, as well as the need to prevent tank settlement. If there is any question in of areas where native soils may not support an aboveground tank, care must be taken to avoid locating a tank over a previously excavated area that may not have been properly compacted. If the soil support is suspect, several options are recommended:
    - Change the location of the tank to avoid an area with potential problems.
    - Place the tank on a reinforced concrete pads designed to bridge across the area.
    - Replace the questionable soil with compactable materials.
    - Purchase a tank with a full-length skid.

    For example, a large tank resting on two saddles requires a foundation of greater strength than a small 500-gal tank resting on a full-length skid. In many areas of the country it may be necessary to have a professional engineer design drawing for the tank's support system to meet applicable local codes.

3. This tank shall be investigated to determine acceptability for use after fire exposure damage, physical damage, or misuse.

4. Applicable codes. This tank is intended for installation in accordance with National Fire Protection Association (NFPA) NFPA 30, NFPA 30A, and the Uniform Fire Code.

5. Instructions for lifting and handling. Tank should only be lifted with the factory installed lifting lugs with a lifting device rated for the load as per applicable Occupational Health and Safety Administration (OSHA) standards. If the tank is equipped with a factory installed full-length skid assembly, the tank may be lifted with a forklift or lift truck rated for the load using the fork pockets in accordance with OSHA standards.

6. Periodic inspection, testing and servicing.

   Check operating and maintenance manuals for installed equipment for additional instructions.

   The primary sources of fuel contamination are water and bacteria. Due to the absence of fuel additives such as lead from the fuel, the prevention of microbial growth is no longer present. Indications that a bacterial contamination is present include a rotten egg smell from either the fuel itself or the filter in conjunction with a waxy appearance.

   Additional indications of contamination include: quality of fuel causing poor performance of equipment, a slower rate of flow from the dispenser. Tank owners should monitor fuel contamination to ensure the structural integrity and the containment of the fuel tanks.

   <u>Daily</u>

   - Check and remove sources of water such as snow and mud that could allow water to splash or seep in to the tank openings such as the atmospheric vents and fill inlet.
   - Inspect the caps of the fill inlet for proper operation and installation to prevent water from entering the tank.

   <u>Monthly</u>

   - If the tank is a double walled tank, monitor the interstitial space (the space between the primary tank and the secondary tanks) for leakage of the primary tank or for seepage of water. See “Interstitial Space Monitoring” instructions below.
   - Visually inspect the tank exterior for perforations and cracks. Routine surveys eliminate the risk of major contamination directly through structural damage.

- Visually check fuel filters and water block for discoloration or indication that water is present. Replace per original equipment manufacturers recommendation.

Annually

- Visually inspect for leaks at hoses, connections, tank welds or around pump seals. One indicator of leaks is hydrocarbon stains around fittings and connections that are not normally made or broken.
- Visually inspect the tank exterior for perforations and cracks.
- Check functionality of emergency shutoff switches and valves (if equipped).
- Check the operation of the atmospheric and emergency vents.
- Clean the interior tank bottom by employing certified tank maintenance professional. Water, sludge and slime build up in the tank may affect fuel and vehicle performance.
- Check tank gauge and meters and reconcile levels. A discrepancy should alert operators to the presence of a fluid other than pure fuel in the storage tanks.

7. Protective Barriers. Ballards, barriers, guard posts or other barriers shall be installed in accordance with local codes to provide protection from vehicle impact.

8. Flame Arresters. Flame Arresters are designed to be used on aboveground tanks to help prevent the transmission of heat and/or an ignition source into the tank. If equipped, install flame arresters in atmospheric vents in accordance with original equipment manufacturer's instructions.
   - Inspect unit for shipping damage. Do not use if damage is found.
   - Check flame arrester openings for foreign matter such as packaging material. Remove any that is found.
   - Apply a fuel resistant, non-hardening, anti-seize sealant to the threads on the riser pipe. Do not use Teflon tape.
   - Thread flame arrester onto riser pipe avoiding excessive torque which could damage the flame arrester.
   - Insure mounting pipe (riser) is in a vertical (plumb) position.
   - Do not paint or cover the flame arrester and vent in any manner. This may inhibit proper vent operation.

9. Interstitial Space Monitoring (if equipped). The space between the primary tank and the secondary containment wall is capable of being monitored for leakage. The interstitial space may be void or contain thermal insulating material. Interstitial monitoring detects the presence of liquid in the interstitial space.

Double-walled tanks are designed for continuous electronic monitoring, analog gauge monitoring or visual inspection of the interstitial space for signs of leakage. If a double-walled tank is monitored for leaks using visual monitoring, the operator must manually check the tank's interstitial space for fuel or water. To find the interstitial access, locate a 2" fitting on the end of the tank. The fitting may or may not have a label identifying it as a leak detection port. If equipped, the tank may have a leak detector gauge installed. Observe the leak detector gauge to determine if a red or orange indicator is present to determine if water or fuel is present. If the tank is not equipped with a leak detector, the following steps should be used to visually check the interstitial space of the tank:

- Apply water-detecting paste to the bottom inch of one side of a CLEAN gauge stick.
- Apply fuel-detecting paste to the bottom inch of the opposite side of the stick.
- Insert the gauge stick into the interstitial space until it touches the bottom of the tank interstitial space.
- Leave the stick in the bottom of the interstitial space for the amount of time recommended by the paste manufacturer (usually less than a minute).
- Remove the stick and check to see if the paste has changed color. A color change in either paste indicates the presence of liquid and is evidence of a possible leak.
- What to do if visual monitoring indicates a leak? Contact a certified tank service immediately to determine the cause of the leak. Interstitial monitoring is the only release detection method that can actually PREVENT a leak from getting into the soil or groundwater.

10. Grounding. Use of Two ½" grounding conductors sized and installed on the tank in accordance with NFPA 780, Installation of Lightning Protection Systems is recommended. Install tank in accordance with NFPA 780 and local applicable codes.

11. Emergency Vents. UL Listed Emergency vent (pressure relief only) are used on aboveground storage tanks, as a code requirement, to help prevent the tank from becoming over-pressurized and possibly rupturing if ever exposed to fire. An emergency vent must be used in conjunction with a atmospheric vent. Correct application of this vent requires proper vent size and selection for the tank system in order to meet the specific venting capacity. The tank was designed with the correct vent size in accordance with UL-142 Steel Aboveground Tanks for Flammable and Combustible Liquids standard. Emergency vent devices are provided with a tank. If they are not factory installed, install the emergency vents per the original equipment manufacturer instructions.
    - Inspect unit for shipping damage. Do not use if damage is found.
    - Check emergency vent openings for foreign matter such as packaging material. Remove any that is found.

- Apply a fuel resistant, non-hardening, anti-seize sealant to the threads on the fitting on the tank. Do not use Teflon tape.

12. Atmospheric Vents. An aluminum “T” style vent is used primarily on fuel/oil storage tanks. The “T” style vent has outlet ports on either side of the inlet that have 20 mesh stainless steel screens that keep debris out of the airway. Install the vent per NFPA 30. The opening of the vent should be a minimum of 12 feet above grade. Install the atmospheric vents on a riser pipe connected to the tank.
    - Inspect unit for shipping damage. Do not use if damage is found.
    - Check atmospheric vent openings for foreign matter such as packaging material. Remove any that is found.
    - Apply a fuel resistant, non-hardening, anti-seize sealant to the threads on the fitting on the tank and the riser pipe. Do not use Teflon tape.