Worthington Industries furnishes this manual for information purposes only, and shall not incur any obligation or liability for damages arising out of or in connection with the use, interpretation of, or reliance upon the included information. Worthington Industries makes no warranty or guarantee in connection with this manual, and disclaims any liability or responsibility for loss or damage from its use. Please contact Worthington Industries with any questions concerning the use of this manual, or the information included within.
TABLE OF CONTENTS

Warranty Information ................................................. pg. 2

1. Handling and Installation Instructions ......................... pg. 3
   1.1 Offloading Instructions .................................. pg. 4
   1.2 Storage Instructions ..................................... pg. 7
   1.3 Notes Concerning Handling and Installation .......... pg. 9

2. Installation and Start-up Procedure .......................... pg. 11
   2.1 Intermediate Pad ....................................... pg. 11
   2.1.1 Tank Grade Bands ................................... pg. 12
   2.2 Anchor Lugs ............................................. pg. 13
   2.3 Anchor Bolts ............................................. pg. 14
   2.4 Tank Appurtenances ..................................... pg. 15
   2.5 Venting .................................................... pg. 15
   2.6 Hydro-test ............................................... pg. 16
   2.7 Re-check Anchors ....................................... pg. 16
   2.8 Connect Piping ......................................... pg. 16
   2.9 Flange Information and Bolt Torques ................... pg. 17
   2.10 Troubleshooting ........................................ pg. 18
   2.11 Disassembly and Reassembly of Tank ................. pg. 18

3. Operation and Maintenance Instructions ..................... pg. 19
   3.7 Equipment Function and Operation ...................... pg. 20
   3.8 Insulation and Heating Elements ....................... pg. 20
   3.9 Annual Inspection Procedures .......................... pg. 22

4. Safety Concerns ................................................. pg. 24
   4.5 Lubrication ............................................. pg. 24
   4.6 Recommended Spare Parts ............................... pg. 24

Hydrostatic Test Instructions and Form ......................... pg. 25
WARRANTY

LIMITATION

This warranty is limited to new products manufactured and sold by Westerman, Inc. Westerman, Inc. is a subsidiary of Worthington Industries, Inc.

DURATION

FIVE (5) years for Fiberglass Tanks and ONE (1) year for Steel Tanks. Warranty will be valid from date of the title transfer. Any warranty outside of this standard warranty may be negotiated on an individual basis. In the event no additional warranty is negotiated, this standard warranty will apply.

Worthington Industries warrants its Fiberglass and Steel products to be free from defects in manufacture, materials, and/or workmanship under normal and designated use and service to the original purchaser or user. All specifications and materials are approximate, and may vary slightly due to manufacturing techniques by either Worthington Industries or the suppliers furnishing the raw materials in the manufacturing process.

Specifically normal use and service requires:

1. That the tanks be installed according to manufacturer’s recommendations and according to the nature of its originally intended purpose.
2. That chemicals stored therein must be of the nature and percentage of solution designated on the tank and on the invoice.
3. That excessive weight due to valves, heavy pipes or strainers, etc., must not be carried by outlets.

Normal use and service EXCLUDES damage due to breakage during shipping, vandalism, flood, fire or other acts of God. Worthington does not warranty any damage caused by lighting or any other weather-related or natural disaster occurrence.

Any noncompliance with the above-mentioned requirements shall cause this warranty to become VOID.

Worthington Industries’ liability shall not exceed the purchase price of the products sold individually, F.O.B. point of delivery and at the option of Worthington Industries. Repair or replacement may be initiated or an allowance of credit may be granted the buyer. In the event remedy is sought for defect, notification in writing must be given to Worthington Industries within one (1) year after the date of delivery in order for warranty to be valid. Reasonable time must be allowed for replacement or repair of any product.

Products of a nature that can be easily transported must be shipped prepaid to Manufacturer. Any repair to warranted products must be performed by authorized personnel of Worthington Industries or by an authorized representative thereof.

This warranty is expressly in lieu of any other warranty, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose.

WORTHINGTON INDUSTRIES SHALL NOT BE liable for any direct or consequential damages, including materials lost, labor or installed cost, injury, or property damage caused by any defect in any product sold by it. There are no warranties that extend beyond the description of the face hereof.
1. HANDLING AND INSTALLATION INSTRUCTIONS

These instructions are recommendations only and do not relieve the purchaser of the responsibility for properly handling the tanks. Any damage resulting from improper handling is the sole responsibility of the purchaser. If the purchaser fails to comply with the following handling requirements, all warranties, expressed and/or implied, become null and void.

1. NEVER move tank when it contains any fluid. Drain tank contents completely before moving.

2. NEVER roll, slide, or drag tank. Lift tank with crane or other approved method.

3. NEVER allow tank to swing or sway when moving or installing.

4. NEVER drop anything on the tank or allow sudden impacts to the tank shell, heads, fittings, protective coating, etc.

5. NEVER allow any equipment inside the tank that could damage the inner shell, heads, fittings, protective lining, etc.

6. NEVER use cables, chains or abrasive tie-downs to anchor the tank before or during installation.

7. Lift tank ONLY by the lifting lugs or approved methods. (Refer to Section 1.1.4)

8. BE SURE the temporary storage surface is free of debris, protrusions, and other foreign objects that could damage the tank. (Refer to Section 1.1.4A)

9. Flat bottom tanks must be permanently set on an appropriate intermediate pad across the ENTIRE TANK BOTTOM. (Refer to Section 2.1)

10. There should be sufficient grout or shims under each anchor lug. BE SURE all anchor bolts are securely in place before putting the tank into operation. DO NOT OVERTIGHTEN BOLTS. (Refer to Sections 2.2 and 2.3)

WARRANTY WILL BECOME NULL AND VOID IF THESE PROCEDURES ARE NOT FOLLOWED.
1.1
OFF-LOADING INSTRUCTIONS

1.1.1
Before any tank is unloaded, the receiving agent is responsible for inspecting the tank for damage during transit. If tanks appear damaged, or any piece parts are missing, it should be immediately noted on the bill of lading and a claim filed with the carrier.

Notify Worthington Industries of any receiving problems so that proper remedies or precautionary measures may be taken before the tank is put into service.

1.1.2
The purchaser is responsible for offloading and setting the tanks in place. All tanks should be handled with extreme caution to prevent scratching, puncturing, or denting any portion of the tank. Care should also be taken to avoid sliding, rolling, or dropping the tank. The receiving agent is responsible for ensuring all appropriate safety precautions are implemented and all governmental requirements are adhered to, including local regulations. Cables, chains or slings must be of sufficient size and strength to lift and handle the tank. Unless the tank is...
very small, lifting lugs have been permanently attached for use in lifting and positioning of the tank. The following instructions are provided as general guidelines only, and cannot address safety and handling issues that are specific to all installations.

1.1.3

It is the purchaser’s responsibility to arrange for timely and safe off-loading of tanks. Before lifting any tank, be sure the cranes are capable of lifting and handling the weight of the tank.

1.1.4

For smaller tanks, one crane with a dual line may be used.

For larger tanks, two cranes will be necessary. The first crane should attach to both lifting lugs on the tank top. The second crane should attach to a single lifting lug on the tank side shell, near the bottom of the tank. Lift the tank straight into the air and clear of the trailer. The first crane should now begin lifting the tank to a vertical position, and the second crane ensures the tank bottom does not contact the ground or trailer.

Once vertical, the second crane’s line should become slack or can be removed. The first crane may then lower the tank slowly onto the suitable storage surface. BE SURE the surface the tank is set on is smooth and free of any debris or foreign objects that may damage the tank bottom. (Refer to Section 2.1)

The surface the tank is set on is smooth and free of any debris or foreign objects that may damage the tank bottom. (Refer to Section 2.1)
1.1.4A
Lifting of the tank from both lugs on the side shell is acceptable if the tank is to be temporarily laid horizontally on the ground. In this case, be sure the tank is laid on a suitable surface that will not damage the tank. A bed of fine sand or loose dirt is suggested.

![TEMPORARY STORAGE OF TANK ON PROTECTIVE MAT](image)

1.1.4B
Horizontal tanks on cradles or underground tanks must be lifted with the lugs on the top of the tank shell.

![HORIZONTAL TANK OFF-LOADED USING THE TOP OF THE TANK SHELL LIFTEYES](image)

An alternative method is to use heavy straps under the tank near each end where the heads offer support for lifting. A spreader bar may also be used.

![HEAVY STRAP METHOD OF OFF-LOADING](image)

1.1.4C
After off-loading the tank, it should again be inspected for any damage incurred during transit. If any part of the tank is damaged, the purchaser must call the carrier for instructions immediately, before accepting the tank. The purchaser assumes all responsibilities and claims for a damaged tank once the tank is off-loaded.

Note: The purchaser is responsible for off-loading, setting, and handling of the tank, even if a Worthington Industries representative is present.
1.2 STORAGE INSTRUCTIONS FOR FIBERGLASS TANKS

1.2.1 Storage tanks fabricated from fiberglass may be stored for extensive periods of time before being placed into service. An annual inspection is recommended for tanks that are placed in storage, and all tanks that have been in storage should be inspected immediately prior to placing into service. A record of all inspections must be sent to Worthington Industries within one week of the inspection. (Refer to Section 3.9)

1.2.2 Tanks should always be temporarily anchored or stored in a protected place. Vertical tanks can be stored in a horizontal position, and anchored with nylon straps, much as they are tied to a truck for transportation.

Appropriate care needs to be taken when temporarily anchoring the tank to not over-tighten and damage the tank. Use chock blocks to keep the tank from rolling, if necessary.
1.2.3

All openings should be closed off with PVC plugs for female NPT fittings, and plastic inserts or wood blinds for flanges. For both types, an air hole (minimum 1/4”) should be drilled in one insert or wood blind to allow for airflow due to expansion and contraction caused by temperature fluctuations. Always position venting plug where moisture will not gather in the plug.

![PLASTIC FLANGE PROTECTION INSERTS](image)

1.2.4

If stored outside, tanks that are designed for inside service may suffer some deterioration on the outer surface over time, which may need treatment before the tank can be installed.

1.2.5

The ideal situation would be to store all new tanks indoors until they are placed into service. Even so, fitting-closure procedures should be followed.
1.3 NOTES CONCERNING HANDLING AND INSTALLATION

1.3.1
The concrete tank pad is the sole responsibility of the purchaser. It should be designed with sufficient strength to support the tank operating under wind and seismic conditions. Worthington Industries recommends that flat bottom fiberglass tanks **SHOULD NOT** be set directly on concrete and require an intermediate pad across the entire bottom of the tank. (Refer to Section 2.1)

1.3.2
Horizontal or cone/dome bottom tanks require specially designed support structures. Generally, Worthington Industries will design and attach the support structure as an integral part of these tanks. Customer-designed support structures must be approved in writing by Worthington Industries or the tank warranty may become null and void.

1.3.3
Shims or non-shrink grout must be used under any portion of a tank saddle or leg that does not sit level on the concrete pad. The entire saddle or baseplate of the leg must be supported. Shims or non-shrink grout must also be placed under all the anchor lugs on flat bottom tanks. (Refer to Section 2.2)

1.3.4
Worthington Industries must approve in writing any platforms, handrails, or any other structure that is to be mounted to the tank. It is critical that these structures be incorporated into the tank design before building the tank. The tank purchaser is responsible for assuring that all load requirements to the tank have been addressed before tank production.

1.3.5
All piping connected to the tank is the sole responsibility of the purchaser. All piping should be self-supporting or should be attached to the tank wall or pipe racks with pipe brackets. Tank fittings are not designed to carry the load applied by valves, piping, or other appurtenances. (Refer to Section 2.8)
1.3.6

Worthington Industries supplies all fiberglass tanks with anchor lugs or anchor chairs unless specified otherwise. **The anchor bolts are to be supplied by the purchaser.** Due to manufacturing variables, Worthington Industries recommends that the anchor bolts not be set in the concrete until the tank is on site. (Refer to Sections 2.2 and 2.3)
The following are recommended installation and start-up procedures for vertical above-ground tanks. Underground installation is more complex and detailed instructions will be furnished separately from this manual. Customers may use their own procedures as long as those procedures will not cause damage to the tank. It is the customer’s responsibility to ensure compliance with all federal, state and local regulations that may apply to the installation.

Flat bottom tanks must be set on an appropriate intermediate pad across the entire tank bottom before securing the anchors to the concrete tank pad. Worthington Industries recommends using a 1” min. layer of Owens Corning Extruded Polyurethane Insulation, FOAMULAR® 150, or equivalent.
Most major hardware stores such as Home Depot carry 4’ x 8’ x 1” sheets that are relatively inexpensive and easy to handle. After the tank is set into place on the pad, trim the pad to within 1” of the tank diameter. Cone and dome bottom tanks that are furnished on legs may require grouting or shims if they do not sit level on the concrete.

In most cases the 1” FOAMULAR® pad should be compatible with the contents being stored. However it is a good idea to take a small piece and field test it to verify.

2.1.1. TANK GRADE BAND

Alternatively, the tank can be set on a grade band full of pea gravel. Grade bands can be used on concrete or dirt unlike an intermediate pad, which can only be used on concrete.

Grade bands are normally 6” high steel or galvanized steel sections formed in a circle approximately 1’ larger than the diameter of the tank. They are then filled with pea gravel or sometimes sand.
2.2 ANCHOR LUGS

Worthington Industries offers several different types of anchors. There are lifteye/tiedown, anchor lugs, or load ledge anchor systems.

All anchor lugs must be grouted or shimmed between the anchor lug and the concrete, prior to tightening the anchor bolts. This support is critical to ensure the tank wall is not damaged when the anchor bolts are secured. (Refer to Section 1.3.3)
2.3 ANCHOR BOLTS

Secure the tank by tightening the concrete-embedded anchor bolts to the anchor lugs furnished on the tank. Anchor bolts should be torqued to approximately 20 foot-pounds. This torque requirement may vary with the size and type of bolt. Do not over-tighten bolts or damage to the tank may occur.

Tanks furnished on legs will not have anchor lugs attached, but rather base plates with properly sized holes to attach to the embedded anchor bolts.
2.4 TANK APPURTENANCES

Attach ladders, platforms, handrails, sight gauges, and other appurtenances to the tank. Ladders attached to fiberglass tanks must be supported at the bottom and anchored to concrete. Platform and handrail attachment details are provided on the shop drawings. Sight gauges and other equipment furnished by Worthington Industries will be shipped with the equipment manufacturer's instructions included. Worthington Industries must approve all installations that are to be mounted on the tank.

2.5 VENTING

Ensure the tank is properly vented. Most fiberglass tanks are designed to operate at atmospheric conditions, with no pressure or vacuum. If a vent assembly is furnished, attach it to the tank before proceeding. Many installations require venting to an outside location, and piping must be installed to vent the tank before it is put in use or tested. Vent piping should always be of equivalent size or larger than the vent fitting included on the tank. Improper venting will cause the tank to explode upon filling, or implode upon draining of the stored product, and will void the tank warranty.
2.6 HYDROSTATIC TEST

Before testing, the tank has to be in its final location and anchored. To perform a hydro-test, ensure the vent and overflow fittings remain unobstructed, and then attach blinds or caps to all fittings below the overflow. Make sure all bolts are secure to prevent leaking. Fill the tank with water only to the overflow height or top/side shell seam (knuckle). Leave the tank full for a minimum of twenty-four (24) hours and check for leaks, particularly around the seams and fittings. If signs of leakage are found, the tank must be repaired, and tested again before put into use. A record of the field hydro-test results must be submitted to Worthington Industries within one week of testing to validate the warranty. There is a form at the end of this document to fill out and mail in.

2.7 RE-CHECK ANCHORS

After a successful hydro-test, empty the tank and check the anchor bolts once again to ensure torque requirement is still met. Check that the grout or shims under each anchor lug retains support of the lug. No more than 20 foot-pounds of torque should be applied to the anchor bolts. Improper support in this area will cause damage to the tank. (Refer to Section 2.3)

2.8 CONNECT PIPING

After a successful hydro-test, piping may be connected. Care must be taken that no weight or pressure is put on any of the tank fittings, and all piping is properly aligned and supported. All piping shall be plumbed so that no additional torque, forces, or moments are applied to the tank shell during operation. Non-rigid or flex joints are recommended.
2.9 FLANGE INFORMATION AND BOLT TORQUES

The following information is taken from ASME RTP-1 1992 Edition. Proper bolt torque will ensure that fittings and gaskets will not become damaged and begin to leak. Use LOCTITE® Anti-seize lubricant on stainless steel bolts. Proper sequence for tightening of the bolts is located in the diagram below.

**BOLT PATTERNS**

![Bolt Patterns Diagram](image)

**BOLT SIZE**

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Bolt Diameter</th>
<th>Torque (ft.-lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>5/8”</td>
<td>25</td>
</tr>
<tr>
<td>3”</td>
<td>5/8”</td>
<td>25</td>
</tr>
<tr>
<td>4”</td>
<td>5/8”</td>
<td>25</td>
</tr>
<tr>
<td>6”</td>
<td>3/4”</td>
<td>25</td>
</tr>
<tr>
<td>8”</td>
<td>3/4”</td>
<td>25</td>
</tr>
<tr>
<td>10”</td>
<td>7/8”</td>
<td>25</td>
</tr>
<tr>
<td>12”</td>
<td>7/8”</td>
<td>25</td>
</tr>
<tr>
<td>14”</td>
<td>1”</td>
<td>30</td>
</tr>
<tr>
<td>16”</td>
<td>1”</td>
<td>30</td>
</tr>
<tr>
<td>18”</td>
<td>1 1/8”</td>
<td>35</td>
</tr>
<tr>
<td>20” Manway</td>
<td>5/8”</td>
<td>25</td>
</tr>
<tr>
<td>24” Top Manway</td>
<td>1/2”</td>
<td>25</td>
</tr>
<tr>
<td>24” Side Manway</td>
<td>5/8”</td>
<td>45–55</td>
</tr>
</tbody>
</table>
2.10 TROUBLESHOOTING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange face is cracked or cracking.</td>
<td>Bolts are torqued over the maximum limit. Piping is misaligned or not properly supported. Temperature of contents is too high. Flange may have to be replaced. (Refer to Sections 2.8 and 2.9)</td>
</tr>
<tr>
<td>Leakage from a flanged connection.</td>
<td>Tighten bolts or replace gasket. (Refer to Section 2.9)</td>
</tr>
<tr>
<td>Anchor clips can swivel.</td>
<td>Tighten anchor bolts. (Refer to Section 2.3)</td>
</tr>
<tr>
<td>Tank implodes.</td>
<td>A vacuum was created that exceeded the vent’s capacity. Tank will have to be repaired or possibly replaced. (Refer to Section 2.5)</td>
</tr>
<tr>
<td>Tank explodes.</td>
<td>An internal pressure was created that exceeded the vent’s capacity. Tank will have to be repaired or possibly replaced. (Refer to Section 2.5)</td>
</tr>
<tr>
<td>Cracking around the bottom knuckle.</td>
<td>Tank not set on a proper intermediate pad. (Refer to Section 2.1)</td>
</tr>
<tr>
<td>Exterior deterioration or blossoming.</td>
<td>Gelcoat tank exterior needs repair. Call tank manufacturer.</td>
</tr>
</tbody>
</table>

2.11 DISASSEMBLY AND REASSEMBLY OF TANK

The following instructions are for disassembly, reassembly, and moving of the tank. These guidelines should be used to ensure that the tank will not be damaged.

2.11.1. DISASSEMBLY

After tank is completely drained, disconnect all piping to tank fittings. Remove ladder, handrail, sight gauge, level sensor, and any additional accessories. After all accessories are removed, the anchors can be unsecured. Caution shall be taken when moving the tank to avoid damage to the tank. All obstacles and hazards should be removed from the path where the tank will be moving.

2.11.2. REASSEMBLY

After the tank is placed on the pad, the anchor lugs shall be grouted or shimmed. Then secure the anchors before connecting the accessories and piping to the tank. If bolts are stripped, bent, or worn, they should be replaced. Any worn gaskets should be replaced at this time also. A hydrostatic test is recommended to ensure that no damage was caused to the tank during disassembly and/or reassembly. (Refer to Section 2.6)
A fiberglass tank’s high corrosion resistance, structural integrity, and light weight contribute greatly to its extremely low maintenance. The following guidelines have been provided by Worthington Industries to increase the durability of the tank and help eliminate possible future problems.

3.1 If the tank is designed for atmospheric pressure, do not operate the tank under any pressure, positive or negative. If the tank is designed for pressure, this pressure must never exceed design conditions because the tank could fail. If allowed, open the top manway during the filling process. If this is not allowed, caution should be used when the filling process is nearly complete to prevent additional pressure. Do not allow excessive pressure into tank. For filling and safety purposes, be sure the vent is as large as or larger than the largest inlet or outlet, and it remains unobstructed at all times. (Refer to Section 2.5)

3.2 Liquid level in the tank is not to exceed the level of the overflow fitting. The area inside a dome or cone top is not considered useable space. Do not fill the tank above the knuckle where the sidewall meets the top.

3.3 Tank is warranted for the chemicals listed on the nameplate. Please consult the factory before filling the tank with a chemical not listed on the nameplate.

3.4 Periodically check all piping connections for corrosion resistance and tightness. Also check that all piping attached to the tank remains supported, and is not placing stress on the tank or fittings.

3.5 Periodically check the interior and exterior of the tank for damage. The exterior should be recoated when visual inspection shows signs of wear or sun damage. Contact Worthington Industries for recoating methods applicable to each tank.

3.6 Cleaning agents should be limited to a mild soap/detergent and water. Tank may be cleaned as often as necessary, using non-abrasive cloth or brushes.
3.7 EQUIPMENT FUNCTION AND OPERATION

3.8 INSULATION AND HEATING ELEMENTS FOR FIBERGLASS TANKS

The function of the tank, normal operating characteristics, and limiting conditions are all on the shop drawings. This information can normally be found on the right hand side of the drawing in the note section, and bottom right hand corner in the title information block.

3.8.1 INSULATION

Insulated tanks have a given thickness of polyurethane foam with a 100 mil fiberglass overcoat. In corrosive environments, the resin used for the overcoat is capable of withstanding contact with the chemicals stored. However, it is not advised to continually spill the chemicals on the exterior of the tank. If a spill should occur, be sure the tank is cleaned immediately.

TWO 2" INSULATION SHEETS APPLIED TO THIS TANK
3.8.2 HEATING ELEMENTS

When a tank must be heated, there are three commonly used methods: heat panels, heat tape, and immersion heaters. These are properly installed at the Worthington Industries plant and are ready for hook-up upon acceptance of tank.

Caution should be used when supplying power to the heating element. This must be done by a licensed electrician. The element is designed to the specifications supplied by the purchaser. If the wrong power is supplied, high or low, the element can either burn up very quickly or quite slowly. The element can even melt the inner shell if the wrong power is connected, causing extensive damage. All tanks with insulation and heating elements have set operating conditions, and these conditions must be strictly adhered to for the warranty to remain in effect.
3.9

ANNUAL INSPECTION PROCEDURE FOR FIBERGLASS TANKS

EXTERNAL
VISUALLY OBSERVE THE EXTERIOR OF THE ENTIRE TANK WALLS CHECKING FOR:

3.9.1
Spots of abrasion or cracks and/or indentations indicating the tank has received exterior blows, scrapes or other trauma, such as chemical spills on the exterior.

3.9.2
Check sidewalls for any signs of weeping (liquid seeping through the sidewall in very small areas). Sometimes this can only be felt as slight sweating, or perhaps dried stains, and frequently beads or rivulets of liquid on the tank wall.

3.9.3
Check the floor around the base of the tank wall, looking for any damp or stained spots indicating seeps from the bottom of the tank, or rivulets down the sidewalls. Check particularly around tiedowns that may have been torqued down too tight and cracked the shell, and around fittings in the lower sidewall.

3.9.4
Generally note whether the tank is clean and has a good appearance, or if it is dirty and has chemical spills and stains. This can often be a good indication of the care the tank has received and what conditions you might find on the interior.

INTERNAL
VISUALLY OBSERVE THE INTERIOR OF THE ENTIRE TANK:

3.9.5
Drain the tank completely. Remove the manway cover making special note of any corroded or rusty bolts and any leaks that may be occurring through the gasket.
3.9.6
Remove the gasket checking it for any signs of failure or seeps. Replace the gasket with a new one, and the bolts as well, if they are corroded, when the cover is replaced.

3.9.7
Before entering a tank, all OSHA confined-space requirements must be met

3.9.8
After the tank has been thoroughly cleaned and dried, enter the tank with a light and examine the knuckle areas for horizontal cracks or crazing in the fiberglass. Cracks are generally visible; crazing can be difficult to see requiring very close examination. Examine the floor for cracks and for problems where the tank may have been set on a pebble or sharp object that may be wearing through.

3.9.9
Be sure to examine closely any areas where external abuse was noted, for cracks and crazing.

3.9.10
Observe the entire inner surface for any areas of de-lamination, which usually appear as places where fiberglass layers are loosening, scaling or peeling. Inner surface wall should be slick and shiny.

3.9.11
Check closely around the manway for any sign of de-lamination or cracks. Follow the same procedure around fittings.

3.9.12
Check for any bleached or darkened areas or appearances that indicate possible chemical bleaching or acid burns. Tanks that have been overheated by chemical reactions or had unapproved chemicals stored in them may show these effects.

3.9.13
Generally, but not always, tank deterioration or damage will show up in the knuckle area or bottom, around the manway area for excess specific gravity, and at fittings where pipes have not been adequately supported and leverage is prying on the fitting. Causes can be products being stored that exceed the resin’s capability, from external blows and occasionally from excess heating. Determine if you can find any history of events the tank may have experienced.

3.9.14
Note the tank’s vent, be sure it is clean and unobstructed, and is sized equal to the largest liquid use fitting in the tank. (Refer to Section 2.5)

3.9.15
CAUTION: Follow all safety regulations and procedures when entering tanks, or working on top of them.

3.9.16
NOTE: Tanks often store hazardous products. You need to know what you are dealing with before you start, and handle appropriately.
4

SAFETY CONCERNS

Safety of people is always a concern for employers. The following items are recommendations only.

4.1 Have MSDS sheets on hand for the fluids used in the tank. It is the responsibility of the customer to get and maintain proper MSDS sheets.

4.2 Make sure ladders and handrails are properly secured to the tank. If cracking occurs on the ladder or handrail, inspect immediately then repair or replace as required.

4.3 Employees should wear proper Personal Protective Equipment when entering the tank. PPE should be worn in the tank during inspections, clean-up, maintenance, or any other time one enters the tank.

4.4 If a tank should fail or rupture, it should be emptied immediately, and not used until repairs and testing have been done. Though these incidents are rare, a plan of action should be implemented by the tank owner for such an occurrence, in order to maintain personnel safety.

4.5 LUBRICATION

There is no lubrication required for fiberglass tanks. LOCTITE® Anti-Seize lubricant should be used on all stainless steel bolts.

4.6 RECOMMENDED SPARE PARTS

There are no recommended spare parts to keep on hand. When needed, gaskets and bolting hardware may be purchased from Worthington Industries or from any local dealer.
HYDROSTATIC TESTING INSTRUCTIONS AND FORM

Before testing, the tank has to be in its final location and anchored. To perform a hydro-test, ensure the vent and overflow fittings remain unobstructed, and then attach blinds or caps to all fittings below the overflow. Make sure all bolts are secure to prevent leaking. Fill the tank with water only to the overflow height or top/side shell seam (knuckle). Leave the tank full for a minimum of 24 hours and check for leaks, particularly around the seams and fittings. Fill in the information below and copy this document. To activate the warranty, send the results of the test to the address below. Making a photographic record of before, during, and after the test is a very good idea. Sending the photos to Worthington Industries is beneficial, as they will be added to the permanent digital file at Worthington Industries.

COMPANY NAME

COMPANY ADDRESS

TANK LOCATION

P.O.#

SERIAL NUMBER(S) ON TANK NAMEPLATE

Pre-test Inspection

SURFACE THE TANK IS SITTING ON (I.E. DIRT, SAND, GRAVEL, CONCRETE WITH FOAM PAD)?

IS TANK ANCHORED? HOW?

ARE THE FITTINGS (I.E., GLANGES, COUPLINGS, MANWAY) PLUGGED OR BLINDED AND BOLTS SECURED?

IS OVERFLOW PRESENT?

Post-test Inspection

BOTTOM SEAM (KNUCKLE) CHECKED?

FITTINGS CHECKED?

SIDE SHELL CHECKED?

IS THE SURFACE THE TANK IS SITTING ON WET?

HOW MANY GALLONS WERE USED (IF KNOWN)?

DATE

START TIME

END TIME

NAME OF TESTER

SIGNATURE

Mfd. By: Worthington Industries
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