

# Man-Out-of-Hole (MOH) Straps Instructions

## 1. GENERAL

1.1. These instructions for installation of anchors and straps do not require a person to enter the hole while installing the anchor straps. They supplement the Anchoring Tanks Section of the Xerxes Installation Manual and Operating Guidelines (subsequently referred to as "Installation Manual").

1.2. Before beginning the tank installation and installing tank hold-down straps, read through the entire Installation Manual. Installation instructions are also laminated onto each tank.

1.3. It is the responsibility of the owner, installer and operator to comply with all federal, state and local laws, regulations, codes and safety precautions.

1.4. It is important to follow the procedures and instructions in the Installation Manual in order to safely and properly install a Xerxes underground storage tank and accessories. Failure to follow those instructions will void the tank warranty and may cause tank failure, death, serious personal injury or property damage.

1.5. Xerxes must authorize, in writing and prior to tank installation, any variation to, or deviation from, the Installation Manual and the Man-Out-of-Hole Straps Instructions.

1.6. All correspondence regarding variations must be retained for any warranty claim to be valid.

1.7. If you have questions or encounter situations not covered in these installation instructions, contact technical support at Xerxes Minneapolis, 952-887-1890.

## 2. ANCHORING TANKS

### CAUTION

*Failure to follow this document's instructions on proper placement of hold-down straps, deadmen and anchor slabs may damage the tank, cause property damage and void the tank warranty.*

### 2.1. Hold-Down Straps

2.1.1. Only Xerxes straps may be used when anchoring a Xerxes tank.

2.1.2. The only allowed locations for hold-down straps on each tank are marked on the tank by the arrowhead symbols ▶◀.

2.1.3. Straps must be used on all marked hold-down locations.

### CAUTION

*Do not place straps between ribs (except on 4-foot-diameter tanks). Failure to properly place straps may result in tank damage.*

### 2.2. Backfill Material

2.2.1. Xerxes tanks must be installed with backfill material as described in the Backfill Material Section of the Installation Manual.

2.2.2. Using other than approved backfill material without prior written authorization from Xerxes will void the tank warranty.

### 2.3. Deadmen

2.3.1. Align the deadmen with the tank.

2.3.1.1. If using Xerxes deadmen, align (within a tolerance of  $\pm 1$  inch) all anchor points with the marked arrowhead symbols ▶◀ on the tank.

2.3.1.2. If using deadmen other than Xerxes deadmen, check alignment of all anchor points to insure that they are within a tolerance of  $\pm 1$  inch.

**Note: The anchor point must be a minimum of 3 inches over the top of the deadmen to accommodate the strap hook.**

2.3.1.3. Always provide sufficient clearance to allow the deadmen to be set outside of the tank "shadow." See Tank Spacing subsection in the Excavation Parameters section of the Installation Manual. (See FIGURE 2-1.)

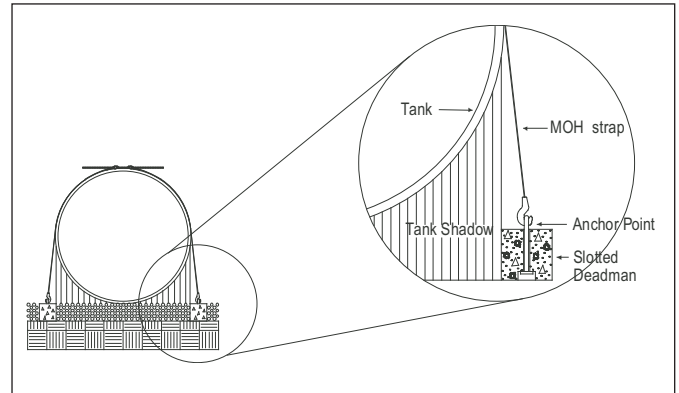


FIGURE 2-1

2.3.1.4. The top of the deadmen should be aligned to the bottom of the tank.

2.3.3. Position the deadmen so they are parallel with the centerline of the tank. (See FIGURE 2-2.)

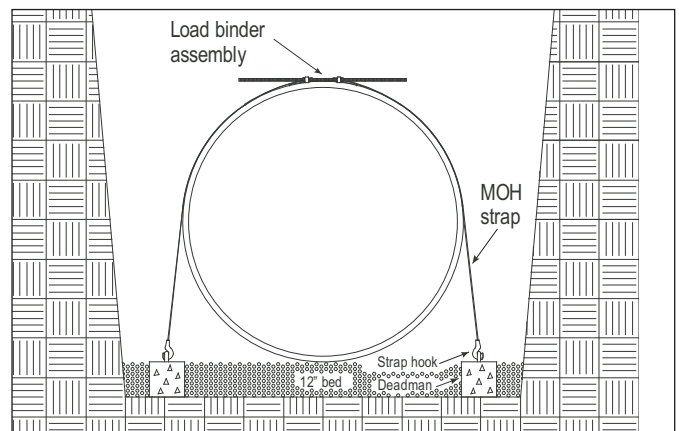


FIGURE 2-2

2.3.4. Place backfill between deadmen, and level backfill so it is 12 inches deep.

2.3.5. When setting the tank, make sure that the tank is aligned with the deadmen.

### 2.4. Anchor Slab

2.4.1. If an anchor slab is used, align (within a tolerance of  $\pm 1$  inch) the anchor points on the anchor slab with the marked arrowhead symbols ▶◀ on the tank.

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2.4.2. The bottom of the anchor points must be 15 inches above the top of the slab and positioned the distance from the tank centerline that is shown in TABLE 2-1

**Note: The straps provided will not work unless the proper elevation for anchor points is maintained.**

Nominal Tank Diameter	Nominal distance between tank centerline and anchor point (and tolerance)
8'	55" (±3 inches)
10'	72" (±3 inches)

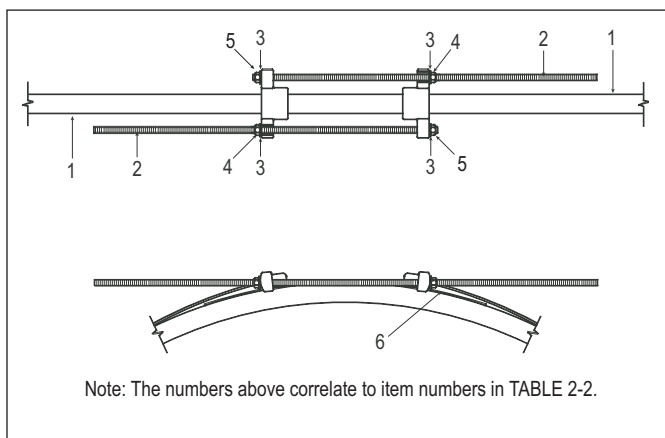
**TABLE 2-1**

2.4.3. Place 12 inches of level backfill over the slab.

2.4.4. When setting the tank, make sure that the marked arrowhead symbols ►◄ on the tank are aligned with the anchor points on the anchor slab.

### 2.5. Installing Man-Out-Of-Hole Straps

2.5.1. Each load binder assembly consist of the items shown in FIGURE 2-3 and TABLE 2-2.



**FIGURE 2-3**

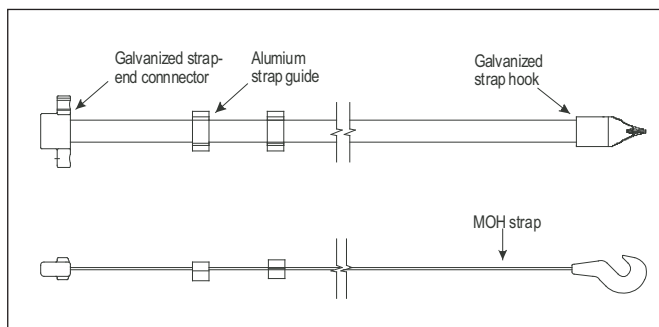
Load Binder Assembly Parts List		
Item	Quantity	Description
1	2	MOH Hold-down strap
2	2	5/8"-diameter threaded rod
3	4	5/8" washer
4	2	5/8" nuts
5	2	5/8" blind nuts (acorn nuts)
6	1	Wear plate

**TABLE 2-2**

**Note: Some contractors prefer to perform Points 2.5.5 through 2.5.7 outside the tank excavation before moving the strap to the tank.**

2.5.2. Clean debris from the top of the tank rib marked with the arrowhead symbols ►◄.

2.5.3. Lift the strap with the hook end down and the hook facing away from the tank. (See FIGURE 2-4.)



**FIGURE 2-4**

2.5.4. Lower the hook end of the strap between the tank and the anchor point, and hook the strap to the anchor point.

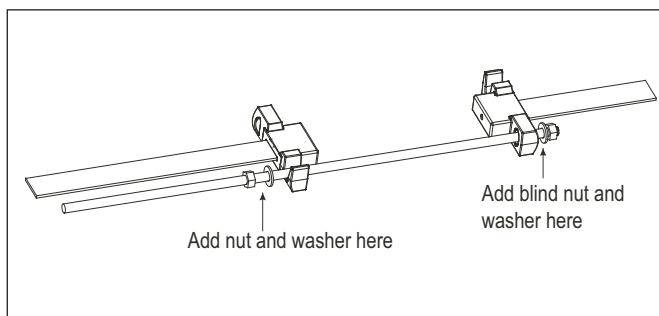
2.5.5. On one end of the threaded rod, put a washer and a blind nut (acorn nut).

2.5.6. Feed the rod through the hole in the strap-end connector. (See FIGURE 2-5.)

2.5.7. On the other end of the threaded rod, put a washer and a nut.

2.5.8. Center the wear plate on the top center line of the marked ribs.

2.5.9. Lower the threaded rod, washer and nut into the channel section on the strap-end connector, taking care to place the washer and nut on the outside of the connector. (See FIGURE 2-5.)



**FIGURE 2-5**

2.5.10. Hand-tighten the nuts.

2.5.11. Repeat POINTS 2.5.5, 2.5.6, 2.5.7, 2.5.9 and 2.5.10 for the second rod of the assembly.

2.5.12. After the two threaded rods are placed, tighten the threaded rods, using a torque wrench to tighten to 25-30 foot-pounds, or until snug.

2.5.13. Repeat POINTS 2.5.2 to 2.5.12 for each of the load binder assemblies.

### **CAUTION**

**When tightening straps, do not cause deflection of more than 3/16-inch to the tank diameter.**

2.5.14. Tank deflection should be checked by taking the tank diameter before and after tightening straps as explained in the Deflection Measurement Section of the Installation Manual.

2.5.15. All exposed metal on the anchoring system must be coated with a corrosion-protection material. Previously coated metal that has been damaged must be recoated.

2.5.16. Continue installing the tank according to the Installation Manual.