

Betts Industries, Inc.

1800 Pennsylvania Ave. West
Warren, PA 16365 U.S.A.

Engineering Bulletin 8-2003

Date: October 27, 2003

Subject: Maintenance and Use of Betts Sanitary Manway

To ensure optimal performance of your Betts Sanitary Manway, the following steps must be followed. This information is intended to be used as a general guide. The end user may develop a more detailed maintenance procedure depending on product being hauled and service conditions.

1. **Proper Manway Installation:** Exercise care to insure collar remains flat and round during installation in the tank. If necessary, a welding fixture should be used to prevent distortion. Heat generated by welding should be kept to a minimum. A warped collar will not function properly.
2. **Visual Inspection:** It is important to visually inspect the manway for potential problems. Recognizing and addressing problems before there is an issue will help to reduce the probability of a costly accident.

a. **Gasket Inspection:** The collar gasket is the most important component to ensure proper sealing of the manway. Inspect the gasket before each load for nicks, wear or cracking. A damaged or worn gasket must be replaced. Use only genuine Betts Industries replacement gaskets to insure proper manway sealing (see the image of the cross section in figure 1). Select gasket material to ensure compatibility with product carried.

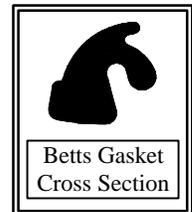


Figure 1

b. **Sealing surface inspection:** The gasket seals against the interior surface of the inner head and the top edge of the collar. A smooth finish in both areas is required for the gasket to seal. Nicks, gouges, or damage to the seat or cover may cause the manway to leak. Inspect sealing surfaces before each load for damage. The interior surface on the inner head should be maintained to meet the 3A sanitary requirements.

c. **Breather Grommet Inspection:** Inspect the breather grommet (located under the dust cover hinge) at least monthly for damage or deterioration. The breather grommet may harden and the edges of the slits may curl due to age or exposure to heat or cleaning agents. The breather must remain soft and pliable. Replace the breather grommet as needed.

Engineering Bulletin 8-2003 (continued)

d. Hold Down Inspection: The hold down dogs, wingnuts and hold down studs must be in good condition to ensure integrity of the manway. Damaged or worn components must be replaced.

- 3. Closing Instructions:** The covers should never be slammed or forced shut. Gently lower the inner head into position followed by the dust cover. If either cover binds, gently wiggle the cover from side to side until the hinge allows the cover to close freely. Rotate the hold-down dogs into position and tighten the wingnuts following the closing sequence in figure 2. Start with #1 and snug all the wingnuts but do not completely tighten on the first go around. Repeat the sequence until all wingnuts are tightened enough to seal the manway. Hand tighten, do not use a hammer or extension pipe.

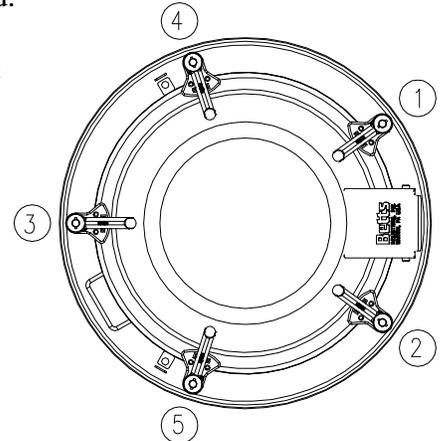


Figure 2

- 4. Opening Instructions:** All pressure must be relieved from the tank prior to loosening wingnuts.



Failure to relieve tank pressure may result in sudden, unexpected loss of pressure from manway causing cover to blow open. Severe personal injury or death may result.

- Position your body off to the side of the manway while opening. Never lean directly over the manway or behind the hinge. Escaping air may blow up dust from top of tank; safety glasses are recommended
- Begin loosening the wingnuts in the same sequence as shown in figure 2. If air begins to escape from the manway back away from the manway until pressure is fully released.
- Make sure every wingnut is loose and rotate dogs 1 & 2 to the open position. While keeping dogs 3, 4, & 5 in place, grasp the hinge as shown in Figure 3. Pull up firmly on **both the inner head and dust cover**. Both covers must lift slightly (about .25") and release any residual pressure. Only after all pressure is released, may you continue to open the manway.
- Use caution when lifting the covers. If the tank still has residual pressure and the inner cover was not properly lifted from the gasket, the cover could open violently when released.



Figure 3