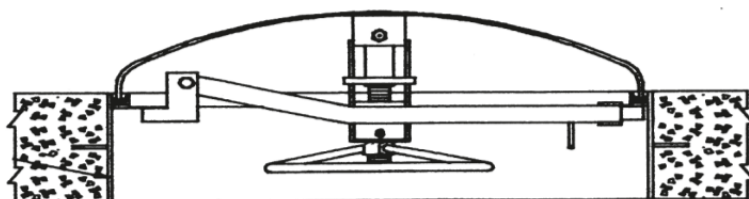
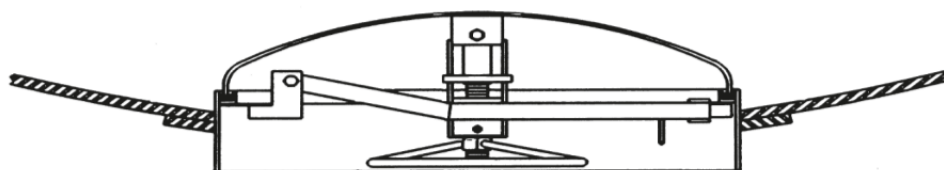




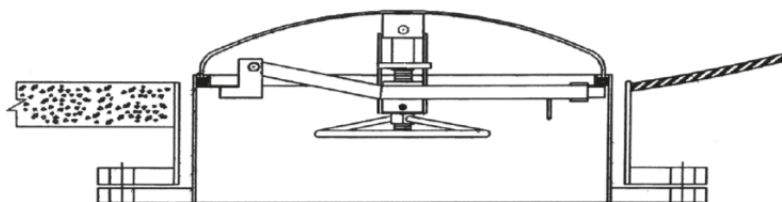
Installation Instructions for Quick-Opening Manways Models



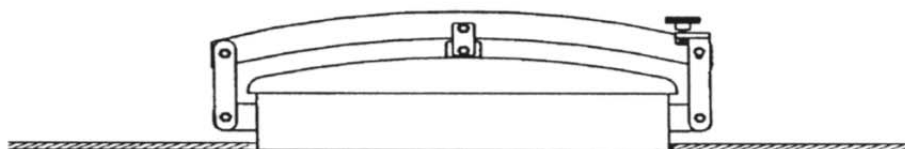
CM-1



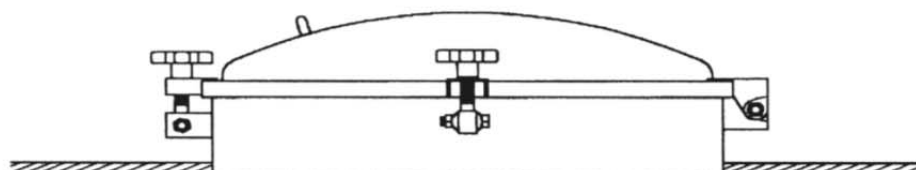
CM-2 and CM-2P



CM-3



CM-4

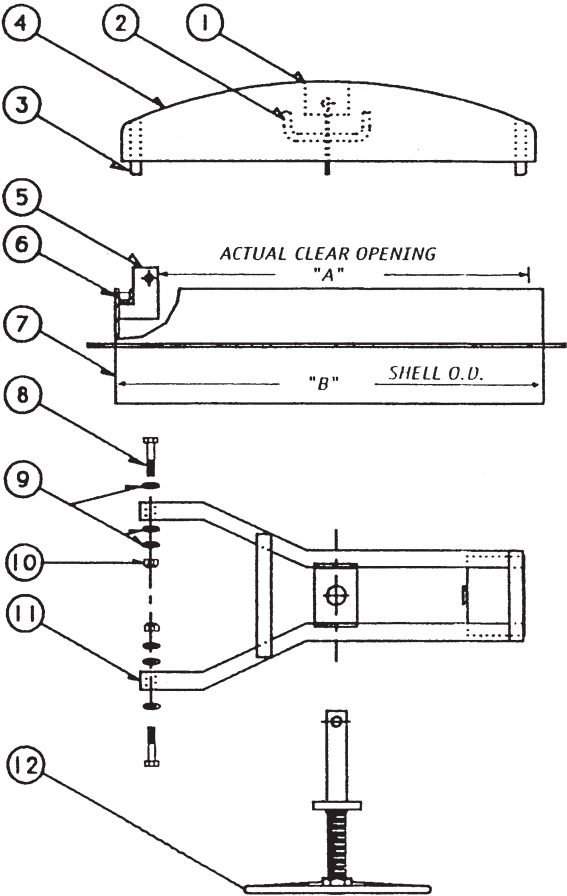


CM-12

REPLACEMENT PARTS	
1	CENTER BOLT CLIP
2	COVER HANDLE (2)
3	COVER GUIDE (5)
4	COVER SUBASSEMBLY
5	YOKE HINGE (2)
6	GASKET
7	SHELL SUBASSEMBLY
8	1/2"-13X2 1/2" H.H.C.S. (2)
9	1/2" S.S. FLAT WASHER (6)
10	1/2"-13 LOCKNUT (2)
11	YOKE SUBASSEMBLY
12	WHEEL & SHAFT ASSEMBLY

CHECK SIZE DESIRED			
(✓)	SIZE	"A"	"B"
	20"	20"	25"
	24"	24"	31"
	30"	30"	37"
	34"	34"	41"
	36"	36"	43"
	42"	42"	49"

(✓)	CHECK MATERIAL TYPE		
	304L		6% MOLY
	316L		C.S.
	317L		OTHER



REMARKS:

Drawing CM-1B

Important Notices

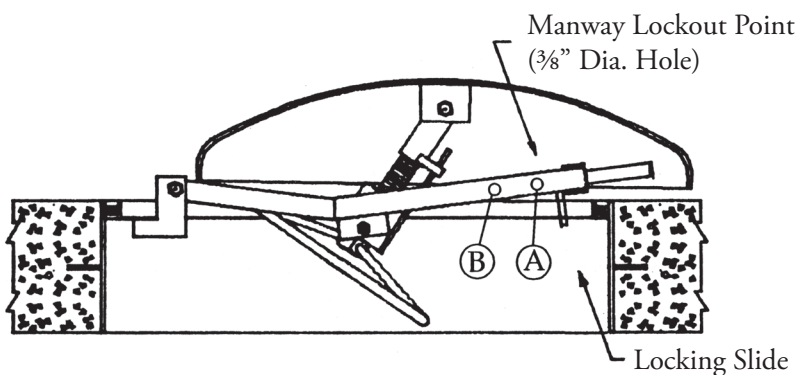
1. We palletize all manways to avoid damage during shipment and subsequent handling at the jobsite. We suggest that the manway remain on the pallet until installation.

2. When Model CM-1, CM-2 or CM-2P manway **Cover** is removed prior to installation in a concrete wall, steel or poly tank, it **Must** be placed inside the chest or tank prior to **Sleeve** installation if there is no other access to the vessel interior such as a sufficiently sized top hatch. **The Cover Will Not fit** through the installed Sleeve from outside the tank.

Manway Lockout Point

We provide two (2) lockout points on our Quick-Opening Manways. Position A prevents accidental closings and position B prevents accidental openings. Lockout points are identified with a yellow sticker on the YOKE assembly.

MANWAY LOCKOUT POINT

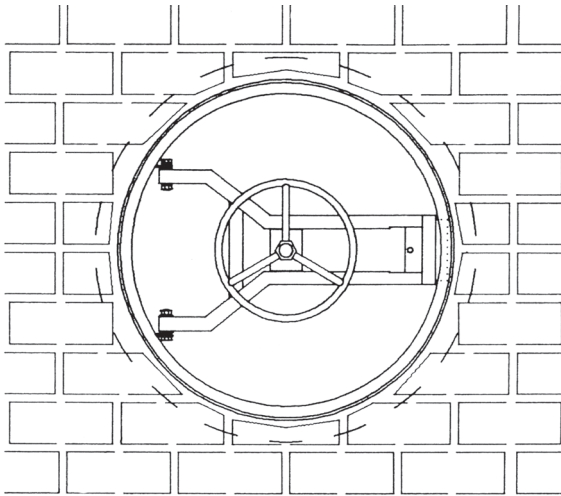


For product descriptions, drawings and technical information visit www.manways.com or call toll free 888-626-9297 (888-MANWAYS)

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December 21, 2009

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Model CM-1 Elevation View Outside Chest

Installing CM-1 Manway in Concrete Wall or Tile Lined Chest

We suggest that the **Cover** and **Yoke** be removed prior to installation. See Important Notices on Page 3. We strongly suggest that 'kicker bars' be placed in the **Sleeve** (on the **Cover** end) to insure that the **Sleeve** is not distorted during the pouring process. The greatest source of leaking can be traced to out-of-round **Sleeves**. The **Sleeves** are rounded to within 1/16" at our plant before shipment. If any of the **Sleeve** measurements reflect a difference of greater than 3/16", the **Sleeve** should be re-rounded before pouring.

Decide at this time if the **Cover** is to open to the left or right. If you want the **Cover** to swing to the left inside the chest, the **Hinges** should be placed on the left side viewed from outside the chest; reverse this procedure for right opening **Cover**.

Position the **Sleeve** in the chest wall opening, allowing for the thickness of any exterior or interior tile lining. The **Sleeve** should be flush with the finished wall on the horizontal plane. The **Sleeve** should be plumb on the vertical plane and the **Hinges** should be plumb and level.

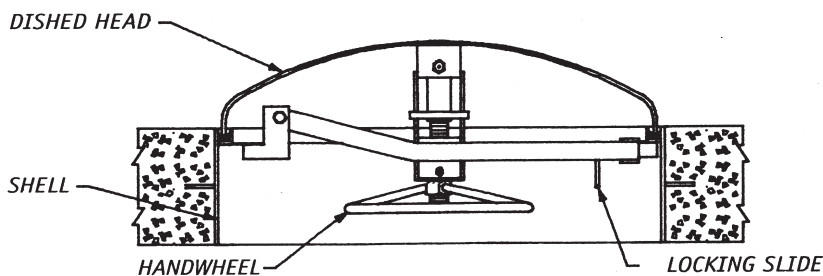


Figure 1

Re-bar should be welded to the Grout Ring only. Re-check **Sleeve** for plumb after attaching re-bar.

After chest construction and tiling have been completed, clean any concrete or mortar debris from the **Gasket**. Care must be taken to clean the **Gasket** thoroughly before **Cover** and **Yoke** are reinstalled.

If the **Cover** and **Yoke** have been removed prior to installation, replace the **Yoke** first, following instructions outlined in **Hinge Mechanism** (page 15). Position **Cover** so that the center clip is horizontal and the single guide is located on the same side as the **Hinges**. See **Cover Positioning** (page 14) for correct position measurements.

Welding CM-2 Manway into Steel or Stainless Steel Tank

See figure 2 - tank installation instructions on page 7

We suggest that the **Cover** and **Yoke** be removed prior to installation. See important notices on page 3.

Gasket must be removed prior to welding.

Use **Sleeve** od + .125" (1/8") To determine maximum size hole. Welding the manway into an oversized hole may cause installed sleeve to be out-of-round and greatly increase the possibility of leaking.

Verify at this time that the tank or vessel is empty.

After hole is cut, position manway **Sleeve** into tank at least 2" (50mm) at the horizontal center line.

The **Sleeves** are rounded to within 1/16" at our plant before shipment. If the **Sleeve** measurements reflect a difference of greater than 3/16", the **Sleeve** should be re-rounded before installation.

Decide at this time if the **Cover** is to open to the left or right. If you want the **Cover** to swing to the left inside the chest, the **Hinges** should be placed on the left side looking from outside the chest; reverse this procedure for right opening cover.

Important note: be sure to allow additional projection into the tank for any interior tile lining that may be installed later.

Carefully level the manway **Sleeve** in the hole and confirm gasket has been removed. The **Sleeve** should be plumb on the vertical plane and the **Hinges** should be plumb and level. Tack **Sleeve** in place staggering opposed strong block tacks every 5"-6" around circumference. Verify **Sleeve** roundness after tacking in place. Make sure the **Sleeve** does not warp from the intense heat during the welding process.

After tacking the **Sleeve** to the tank wall and rechecking measurements, a series of short 6"-8" welds should be made 180 degrees apart, per weld pattern shown in figure 2, until the full circumference is welded. We do not advise a continuous 360 degree weld around the **Sleeve**.

Recommended Welding Specifications:

C.S. M/W to C.S. Tank	MIG	Dual Shield 11 70 Ultra .045 w/C-25 Shield Gas
	STICK	AWS E7018 H8 1/8"
C.S. M/W to S.S. Tank	MIG	SFA 5.22 DW-309L .045 Kobelco or Equal
S.S. M/W to C.S. Tank		w/C-25 Shield Gas
S.S. M/W to S.S. Tank	STICK	AWS E308L-16 3/32" or 1/8" Hobart or Equal

Recommended Weld Size (In & Out) = Thickness of Manway Sleeve (Weld Neck)

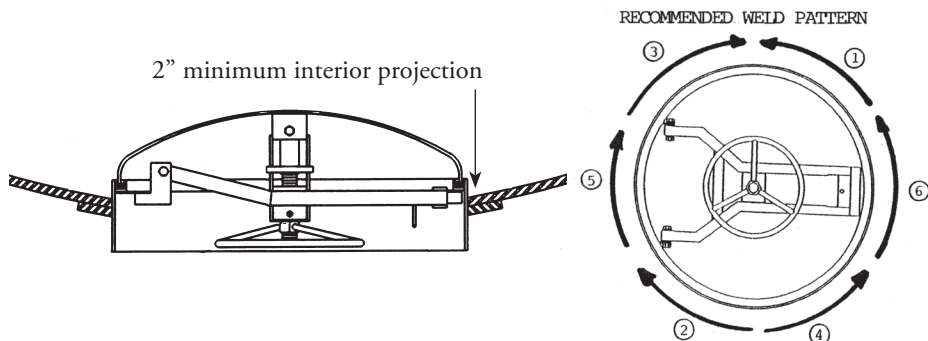
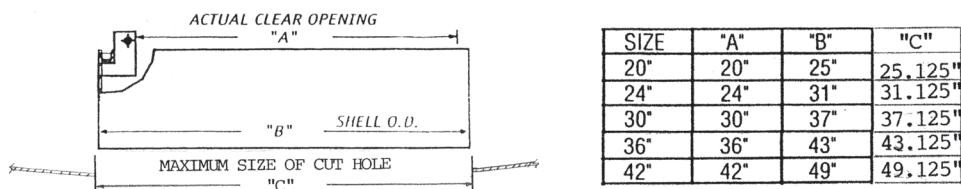
After the Manway is completely welded, place reinforcing pad (if required) around Manway and against the outside wall of the tank. Weld the pad to both the wall and Manway using caution against warping from heat.

After allowing welded areas to cool completely, install **Gasket** with adhesive and brush provided. Refer to **Replacing Gasket** page 12.

If the **Cover** and **Yoke** have been removed prior to installation, replace the **Yoke** first, following instructions outlined in **Hinge Mechanism** (page 15). Position **Cover** so that the center clip is horizontal and the single guide is located on the same side as the **Hinges**. See **Cover Positioning** (page 14) for correct position measurements.

Tank Installation Instructions

Figure 2

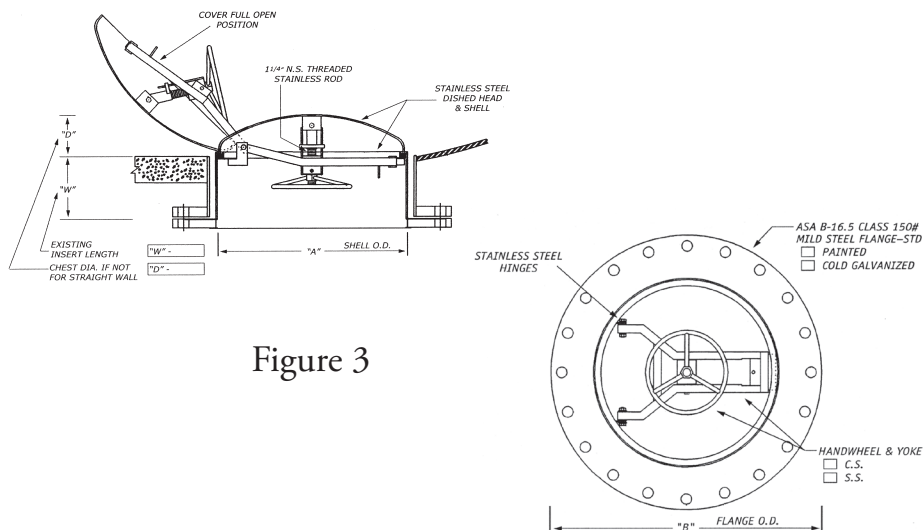


Installing CM-3

Chase Model CM-3 Manway has been fitted with a bolt-up flange drilled to match ANSI B16.1, Class 125 or B16.5, Class 150 hole pattern and size. If manway **Cover** is removed prior to installation, it must be placed inside the tank before Step 6 is completed.

- 1 Have new **Gasket**, Gasket adhesive and bolt-up hardware ready for installation. Verify at this time that the bolt circle pattern and bolt hole diameter of existing flange match the manway flange.
- 2 After verifying that tank or chest is empty, remove blind flange from existing insert.
- 3 Clean old **Gasket** residue, adhesive and particulate matter from face of existing back-up flange.
- 4 Decide at this time if the **Cover** is to open to the left or right. If you want the **Cover** to swing to the left inside the tank, the hinges should be placed on the left side looking from the outside of the tank; reverse this procedure for right opening **Cover**.
- 5 Apply **Gasket** adhesive and gasket to clean back-up flange face.
- 6 Position manway in insert and bolt manway flange to back-up flange.

If the **Cover** and **Yoke** have been removed prior to installation, replace the **Yoke** first, following instructions outlined in **Hinge Mechanism** (page 15). Position **Cover** so that the center clip is horizontal and the single guide is located on the same side as the **Hinges**. See **Cover Positioning** (page 14) for correct position measurements.



Installing CM-4 and CM-12 Manway in Steel or Stainless Steel Tank

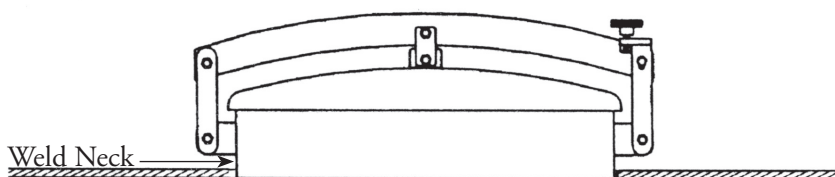
Use Weld Neck as a template to mark and cut hole.

Position Manway Weld Neck into tank. Decide at this time if the **Cover** is to open to the right or left. Remove **Cover**. Remove CM-4 Gasket before welding.

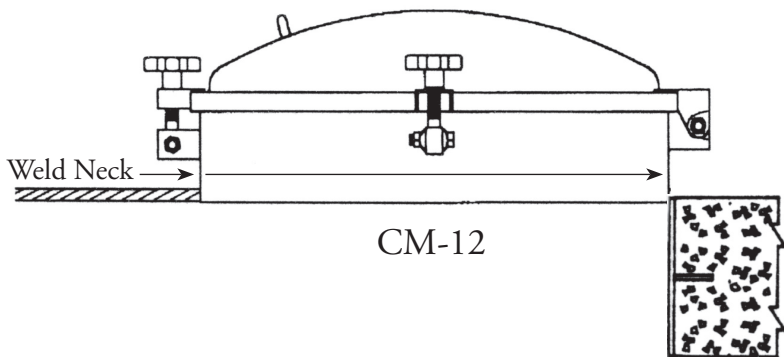
Carefully level the Manway in the hole. The Weld Neck should be plumb and level. After tacking the Weld Neck to the tank wall, a series of short 6"-8" welds should be made 180 degrees apart until the full circumference is welded.

We do not advise a continuous 360 degree weld around the Weld Neck.

Refer to Page 7 for Recommended Welding Specifications.



CM-4



CM-12

Installing CM-12 Manway in a Concrete Wall.

Be sure to allow a minimum 6" exterior projection of the **Cover** end of the manway **Sleeve** (Neck) to allow for the proper operation of the **Hinge** and toggle bolts.

Follow instructions for Model CM-1 on Page 5 with respect to **Sleeve** positioning, **Hinge** location, re-bar attachment and **Gasket** care.

CM-2P with Welded Mounting Flange Ring

We suggest that the **Cover** and **Yoke** be removed prior to installation. See Important Notices on Page 3.

Use **Sleeve** to determine proper size hole.

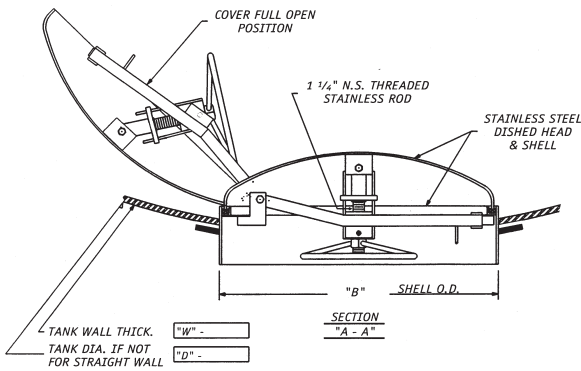
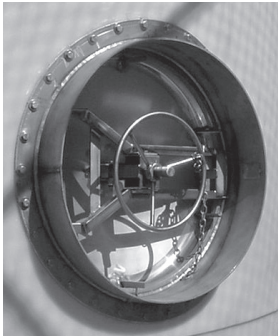
Verify at this time that the tank or vessel is empty. Cut hole.

After hole is cut, position Manway **Sleeve** with Mounting Flange Ring into tank and use flange ring as template to drill bolting holes.

Decide at this time if the **Cover** is to open to the left or right. If you want the **Cover** to swing to the left inside the chest, the **Hinges** should be placed on the left side viewed from outside the chest; reverse this procedure for right opening **Cover**.

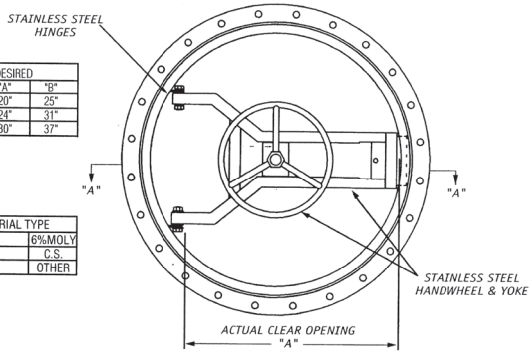
Position flange **Gasket** against tank wall with adhesive and bolt-up Manway **Sleeve** with Mounting Flange Ring to tank wall. Use anti-seize provided on bolt threads. Tighten nuts and bolts being careful not to overtighten.

Replace **Yoke** and **Cover** following instructions. Allow proper cure time for sealant before putting tank into operation.



CHECK SIZE DESIRED			
✓	SIZE	IN	IN
	20"	20"	25"
	24"	24"	31"
	30"	30"	37"

✓	CHECK MATERIAL TYPE		
	304L		6% MOLY
	316L		C.S.
	317L		OTHER



Technical Information Regarding Weeping or Leaking Manway

for Model CM-1 – Concrete Wall Installation or Model CM-2 — Steel Tank Installation

Each Chase Manway is palletized to avoid damage during shipment and subsequent handling at the jobsite. We have found leaking to be a very rare occurrence when the manway has been installed according to our instructions. Generally, any weeping/seeping that may occur during initial testing stops shortly after the tank contents rise above the location of the manway due to the additional pressure of the **Cover** against the **Gasket**. If leaking or weeping continues after the tank is completely filled, it is usually due to one of the following causes:

Sleeve

Each **Sleeve** is rounded to within 1/16" at our plant prior to shipping. If the **Sleeve** has been distorted during concrete pouring or welding installation or damaged during shipment, the cover may not be seating properly on the gasket. Refer to Page 5 for CM-1 concrete installation procedures and Pages 6 & 7 for CM-2 recommended welding specifications.

If new concrete construction, have all cement particles been thoroughly cleaned off the **Gasket** surface and the square sealing edge of the **Cover**?

ASME Cover

Each **Cover** is manufactured to ASME tolerances for circumference (+/- 1/8"), out-of-round tolerance (not to exceed 1 % of diameter), overall height and straight flange.

If the cover has been damaged during shipment or installation it may not be seating properly on the **Gasket**. If the **Cover** was removed prior to installation, improper re-installation may be the problem. Page 14 outlines the proper positioning procedures.

Hinge Mechanism

Before the **Yoke** assembly is re-installed, the **Hinges** should be inspected for damage. Bent or twisted **Hinges** will result in the cover not aligning properly on the **Gasket**.

The **Yoke to Hinge** assembly system is an adjusting point that provides for the raising and lowering of the **Cover** in relationship to the **Gasket**. Care must be taken in re-assembling the **Yoke** to the **Hinges**. Refer to Page 15 for **Hinge** and **Yoke** mechanism details.

Gasket

The original **Gasket**, as well as any subsequent replacement **Gaskets**, must be glued into the **Gasket** seat per Pages 12 & 13. The **Gasket** is glued into the **Gasket** seat at the factory on all CM-1 Models and shipped un-glued on all CM-2 Models. Check the **Gasket** for nicks, cuts or buildup of particulate matter on the sealing surface. Be sure that the **Gasket** seat has been thoroughly cleaned prior to gasket installation and is free of any weld spatter, concrete matter and old adhesive residue prior to installing **Gasket**.

Gaskets

Gaskets are glued into the manway Gasket seat at the factory on all Models CM-1, CM-2P and CM-3 and should be left in place during installation.

Gaskets must be removed prior to welding and reinstalled on Models CM-2 and CM-4 using adhesive and brushes provided by Chase Associates.

Some **Gaskets**, after construction, may have substantial buildup of concrete and mortar on the exposed surface. Care must be taken to clean the **Gasket** thoroughly before **Cover** and **Yoke** installation. Extreme care must be observed during construction to avoid causing damage to the **Gasket** surface.

Gasket rolling is directly attributable to the roundness of the installed Sleeve and the correct centering of the **Cover**.

If the **Gasket** is rolling inwards or outwards when the tank is being tested, the **Cover** should be realigned via the **Hinge Mechanism** (page 15) until the **Cover** position measurements are within the tolerances as shown on Figure 6. Be sure to verify that the **Gasket** has been glued into place.

Extreme distortion of the Gasket caused by improper **Cover** alignment may require replacing the **Gasket** before the chest is refilled with water or stock contents.

Replacing Gasket

Replacement **Gaskets** are provided with adhesive, application brush and instructions. **Ring Gaskets** are fabricated to fit a particular size manway, no cutting is necessary. Confirm that you have the correct size **Gasket** prior to replacement. Refer to Drawing CM-1B for sizes.

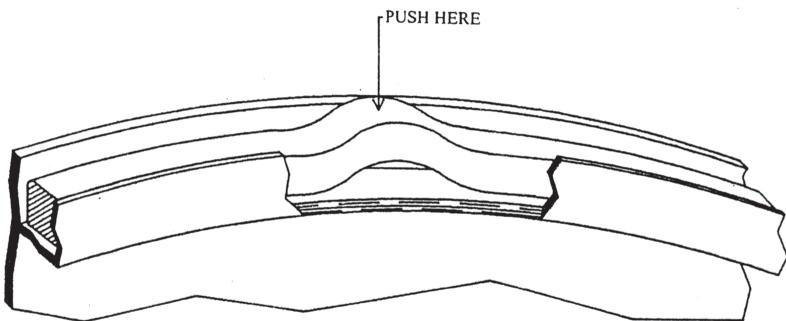
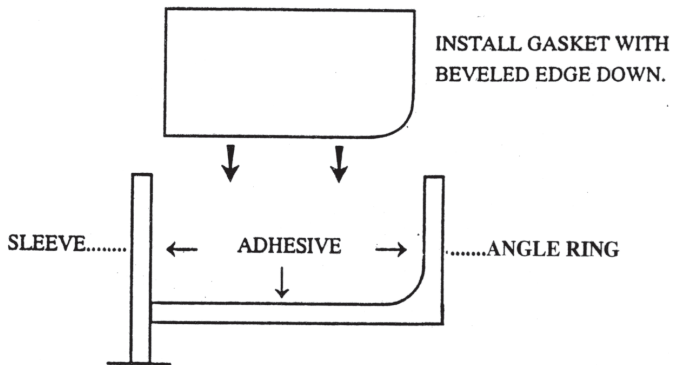
Remove old **Gasket** and clean off any adhesive residue on **Sleeve** and **Angle Ring** with acetone or thinner. Care should be taken to insure that there is no cement or mortar particles on the metal surfaces. Any chest or tank contents particles on the metal surfaces should also be removed.

Position replacement **Gasket** in angle ring to confirm correct size before applying adhesive to metal surfaces. Remove and apply adhesive to the three metal surfaces as shown in Figure 5 and install new **Gasket**. It may be necessary to briefly apply finger pressure on any bulges to insure correct **Gasket** seating.

Tighten **Cover** against **Gasket** with Handwheel to apply firm pressure. Do not overtighten. Allow 3-4 hours for adhesive to set and cure.

Replacing Gasket

Figure 5



Cover Positioning for CM-1, CM-2, CM-2P, CM-3 Models

Proper **Cover** positioning on the **Gasket** will eliminate leaking and **Gasket** rolling (see **Hinge Mechanism**).

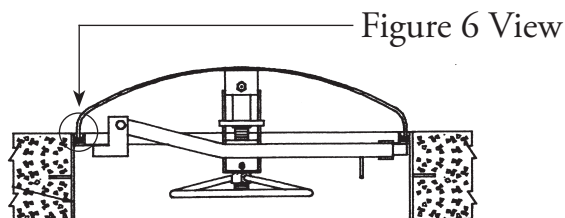
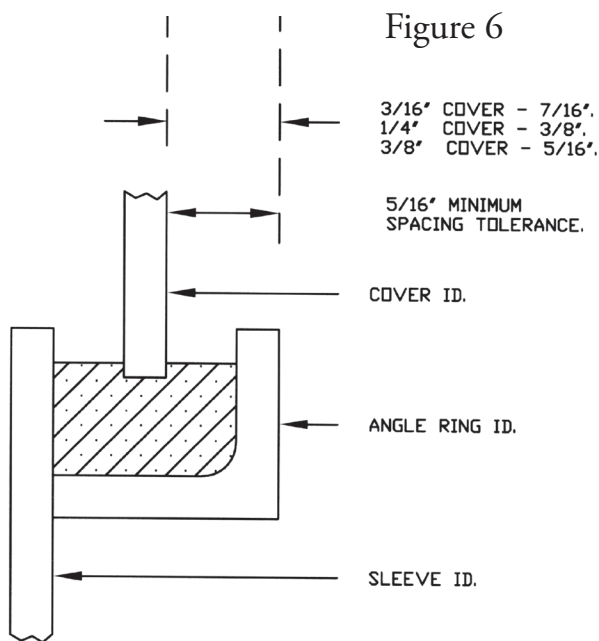
When the **Cover** is positioned correctly and is centered on the **Gasket**, the measurement of the distance from the inside of the **Cover** to the ID of the Angle Ring should be as follows:

3/16" Thick **Cover** = 7/16" distance

1/4" Thick **Cover** = 3/8" distance

3/8" Thick **Cover** = 5/16" distance

If the distance is greater or less than the allowable tolerance, the **Cover** must be repositioned via **Hinge Mechanism** on page 15. Failure to adjust the **Cover** position may result in leaking and/or **Gasket** rolling.

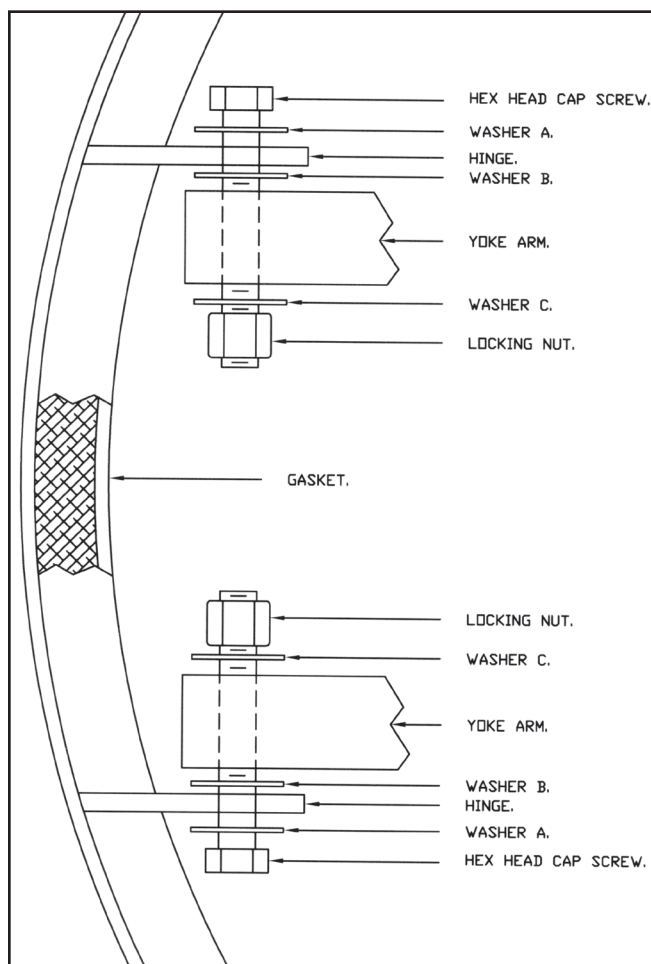


Hinge Mechanism for CM-1, CM-2, CM-2P, CM-3 Models

Before **Yoke** Assembly is replaced, the **Hinges** should be inspected for damage. Bent or twisted **Hinges** may result in the **Cover** not aligning properly with the **Gasket**. Both **Hinges** should be level front to back and side to side.

The two 1/2-13 x 2-1/2" SS hex head cap screws (HHCS), washers and locking nuts that affix the **Yoke** to the **Hinges** must be properly reinstalled on the Manway.

The **Yoke** to **Hinge** assembly system is an adjusting point that provides for the raising or lowering of the **Cover** in relationship to the **Gasket**. Care must be taken in replacing the **Yoke** to the **Hinges**. The proper sequence of washers is critical. See Figure 7.



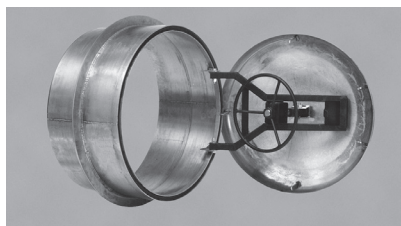
Washer B can be removed from the top **Hinge** to bring the **Cover** up (stack top Washer B with bottom Washer B to hold **Yoke** position); this procedure can be reversed to lower **Cover**.

Care should be taken when the Locking Nuts are tightened to avoid bending the **Hinges**. Do not overtighten Locking Nuts.

Figure 7

Chase Associates, Inc.

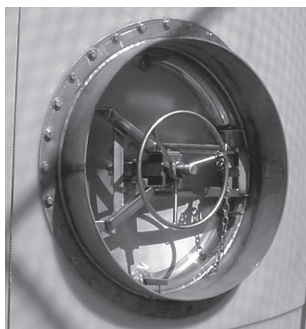
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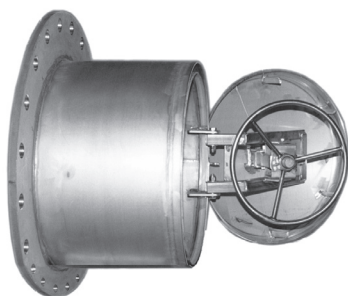
Product No. CM-1



Product No. CM-2



Product No. CM-2P



Product No. CM-3



Product No. CM-4



Product No. CM-12

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visit www.manways.com or call toll free 888-626-9297 (888-MANWAYS)