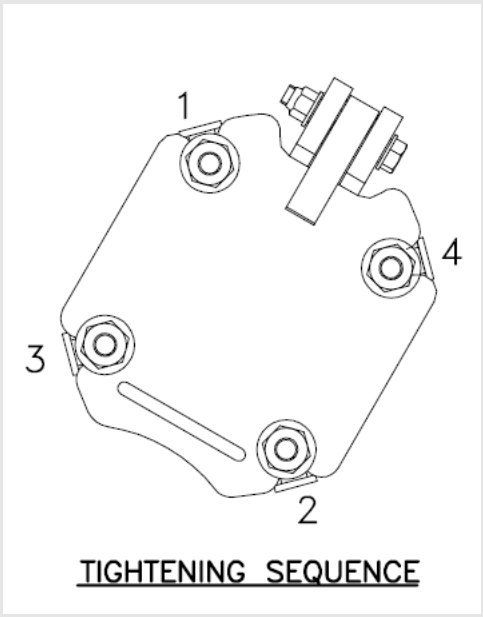
FOUR BOLT MANWAY COVER
(Reference: Greenbrier Torque and Gasket Summary for DOT 111A100 W2 Tank Car)

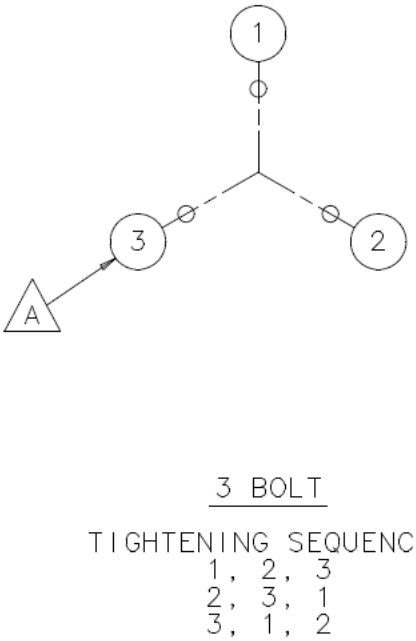


SEQUENCE	TORQUE
SNUG	NUG
FIRST	15 FT-LB
SECOND	30 FT-LB
THIRD	45 FT-LB
CHECK	45-55 FT-LB (50±5 FT-LB)

Notes:

1. Thread lubricant. Dow Corning MOLYKOTE 1000 Brush applied paste. Apply to threads and nut bearing surface.
2. Tightening sequence. Always start with the #1 bolt. Do not use a pipe wrench, this will under torque. Resulting in a leak. Do not use a cheater bar, this will over torque also resulting in a leak.
3. Torque values are for a VITON-B (black color) gasket

THREE BOLT MANWAY COVER
(Reference: ARI – American Railcar Industries)



FASTENER SIZE (Diameter)	Torque value for soft gaskets	Torque values for hard gaskets
7 / 8 IN	100 ± 5 FT-LB	240 ± 12 FT-LB

Notes:

1. Apply torque with a minimum of three approximately equal stages and in the sequence indicated above.
2. After the third or final sequence, torque each bolt again to the final torque value. The final tightening sequence is to be done in a rotational (clockwise) direction.
3. Torque values are for new nuts and bolts.
4. Recommended gasket material is a VITON-B

Summary of sulfuric acid railcar car manufacturer torque recommendations

Car Mark	Soft Gasket	Hard Gasket
GATX		285 FT-LB
GBRX	45-55 FT-LB	
KCCX	100 FT-LB	
SHPX	100 ± 5 FT-LB	240 ± 12 FT-LB
UTLX	75 FT-LB	