

This Procedure was developed for typical BethGon may not be applicable to all BethGon's. May be used on FCA Tub Floor Part #'s 80953-000 and 91497-000. Please consult your original drawings or contact FreightCar America for details.

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BILL OF MATERIAL 33.125" Splice

Per Location

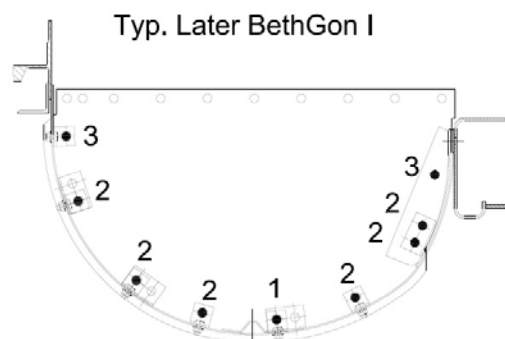
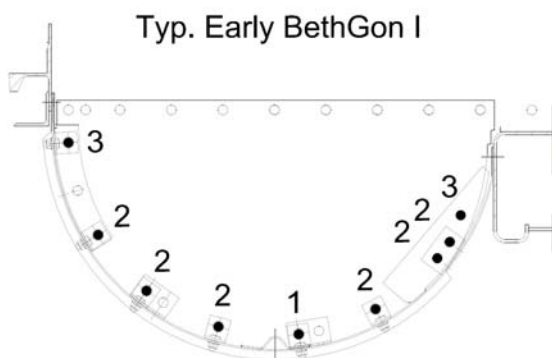
- (1) M110454-011 Tub End Section (AR/BL)
or
- (1) M110454-021 Tub End Section (AL/BR)
- (1) M109227-001 Backing Bar, Tub End Section
- (22) 10231-007 Huck Bolt, 5/8", plated, PN C50L30-BR20-04GA
- (4) 10231-008 Huck Bolt, 5/8", plated, PN C50L30-BR20-08GA
- (11) 10231-009 Huck Bolt, 5/8", plated, PN C50L30-BR20-12GA
- (39) 10231-013 Huck Collar, 5/8", plated, PN 3LC-2R20GAL
- (18) 10264-001 Una-Driv Bolt, 5/8" x 1-1/2", zinc plated
- (14) 10264-002 Una-Driv Bolt, 5/8" x 1-3/4", zinc plated
- (2) 10264-010 Una-Driv Bolt, 5/8" x 2-1/4", zinc plated
- (34) 10264-004 Una-Driv Nut, 5/8"-11, zinc plated, PN SN7516LB
- (2) 10231-010 Huck Bolt, 5/8", plated, PN C50L30-BR20-16GA
- (10) 10340-015 Washer, 5/8", 0.688" ID, 1.75" OD, 0.134"THK, Zinc Plated, GR 8
- (as req.) .. 10246-546 PE Foam Tape, 1/32"x4"x216 ft. Roll
- (as req.) .. M103723-001 or M103723-002 Tub Clip, See Clip Conversion

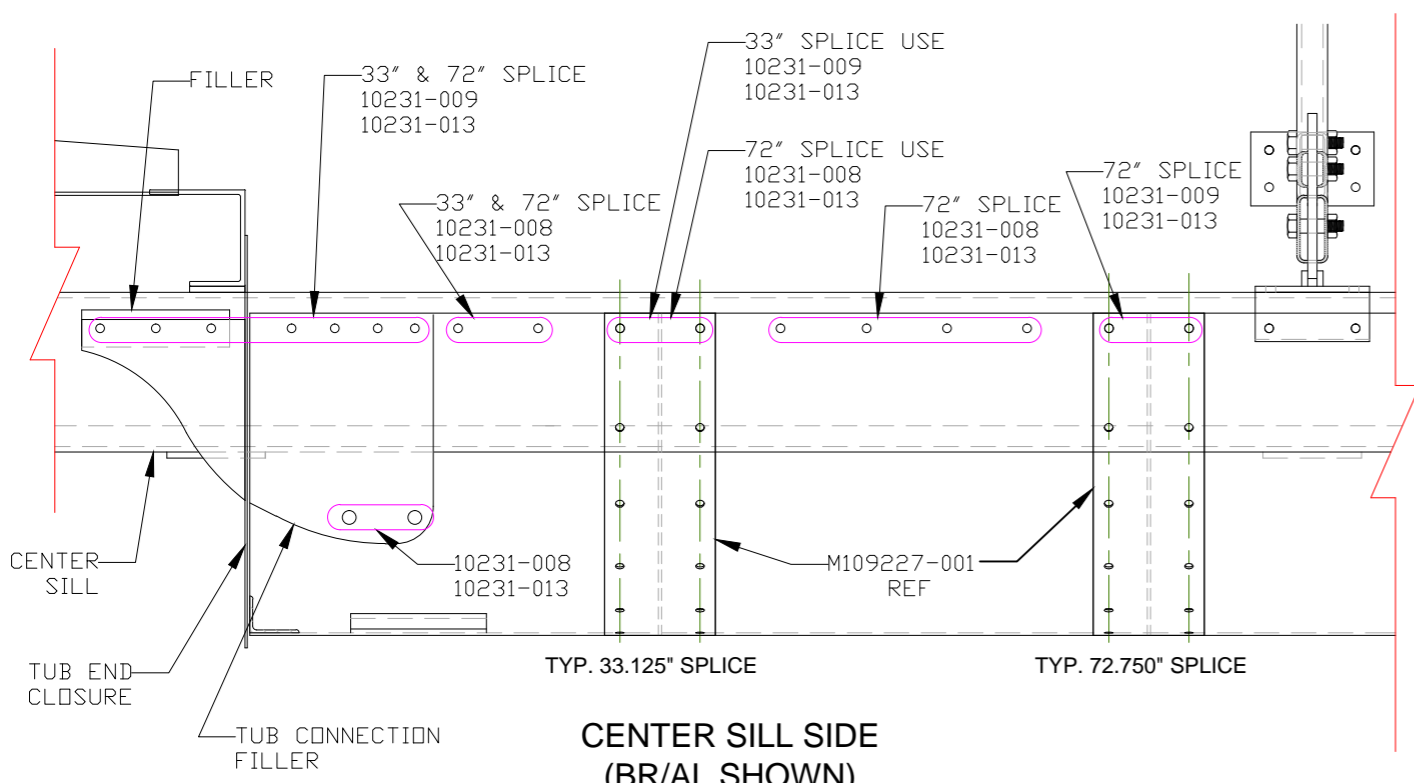
BILL OF MATERIAL 72.75" Splice

Per Location

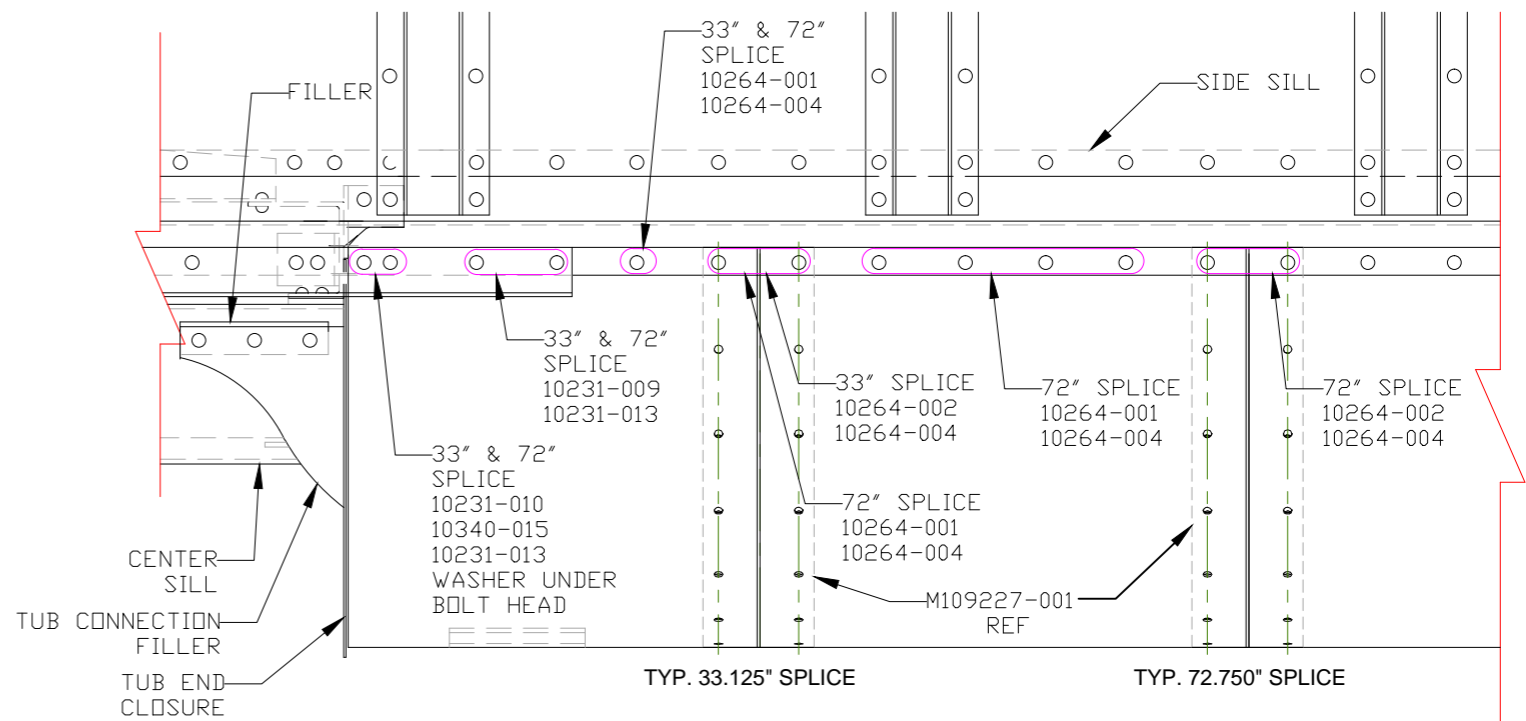
- (1) M110454-010 Tub End Section (AR/BL)
or
- (1) M110454-020 Tub End Section (AL/BR)
- (1) M109227-001 Backing Bar, Tub End Section
- (22) 10231-007 Huck Bolt, 5/8", plated, PN C50L30-BR20-04GA
- (10) 10231-008 Huck Bolt, 5/8", plated, PN C50L30-BR20-08GA
- (11) 10231-009 Huck Bolt, 5/8", plated, PN C50L30-BR20-12GA
- (45) 10231-013 Huck Collar, 5/8", plated, PN 3LC-2R20GAL
- (24) 10264-001 Una-Driv Bolt, 5/8" x 1-1/2", zinc plated
- (14) 10264-002 Una-Driv Bolt, 5/8" x 1-3/4", zinc plated
- (2) 10264-010 Una-Driv Bolt, 5/8" x 2-1/4", zinc plated
- (40) 10264-004 Una-Driv Nut, 5/8"-11, zinc plated, PN SN7516LB
- (2) 10231-010 Huck Bolt, 5/8", plated, PN C50L30-BR20-16GA
- (10) 10340-015 Washer, 5/8", 0.688" ID, 1.75" OD, 0.134"THK, Zinc Plated, GR 8
- (as req.) .. 10246-546 PE Foam Tape, 1/32"x4"x216 ft. Roll)
- (as req.) .. M103723-001 or M103723-002 Tub Clip, See Clip Conversion

- 7) Foam Tape or other suitable barrier must be maintained between the tub floor and the center sill.
- 8) Apply new tub end section and tub connection filler removed in step 4.
33.125" = M110454-011 (AR/BL) or M110454-021 (AL/BR)
72.750" = M110454-010 (AR/BL) or M110454-020 (AL/BR)
 - a) Insert the out board (11 for 33") or (17 for 72") fasteners along center sill, see Section "B-B". Fastener heads should be to the car interior.
 - b) Insert the out board (5 for 33") or (11 for 72") fasteners along the side sill, see Section "C-C". Fastener heads should be towards the car interior.
 - c) All fasteners should be inserted before tightening. Tighten the center sill fasteners only, leave the side sill fasteners loose until the backing bar is secure.
- 9) Apply the backing bar for the tub end section as follows (View "D"):
 - a) Insert permanent fasteners through the backing bar, tub and center sill.
 - b) Insert fit up bolts or drift pins through the backing bar, tub and side sill. Apply nuts hand tight only.
 - c) Tighten bolts applied in step 9a.
 - d) Using the backing bar as a template, drill and/or ream the next row (2nd) fastener holes. Apply & tighten fasteners.
 - e) Continue the row by row progression working towards the side sill. Remember to tighten one row before continuing to the next.
 - f) After the backing bar is secured, tighten the remaining fasteners at the side sill applied in step 8b and 9b.
- 10) Apply the drain cover. (View "D")
- 11) With the tub closure securely attached to the intermediate crossbearer and the tub clips snugly (not torqued) to the tub floor See Section "A - A":
 - a) Drill or ream a 11/16" diameter hole at clip #1 from inside of the car using the hole in the clip angle as a template. Apply a 5/8" x 1 1/2" Una Driv bolt and Stover top lock nut, tighten this connection (nut to be on the outside of tub closure). If the drilling or reaming operation creates a slot use the following criteria:
 - i) If the slot is 1" or less, use the Una Driv bolt and Stover lock nut.
 - ii) If the slot is greater than 1" but less than or equal to 1 1/2" use the Una Driv bolt with a 5/8" plate washer (1 3/4" O.D. .134" thick) under the Stover lock nut. This slot criterion applies to all steps below.
 - b) After completion of step 11a, drill or ream a 11/16" diameter hole at each of the #2 clip angles from inside of the car using the holes in the clip angles as a template. Apply all five 5/8" x 1 1/2" Una Driv bolts and Stover lock nuts and tighten.
 - c) After completion of step 11b, drill or ream an 11/16" diameter hole at each of the #3 clip angles from inside of the car using the holes in the clip angles as a template. Apply both 5/8" x 1 1/2" Una Driv bolts and Stover lock nuts and tighten.
 - d) Check the gap between the tub closure and the end of the tub, the gap should be 1/16" minimum and 1/4" maximum all around. If the gap is out of the tolerance range, loosen the tub clip to tub Una Driv and adjust, see Details "A & B".
 - e) After all adjustments are made torque all Una Driv bolts to 110-160 ft. lbs.





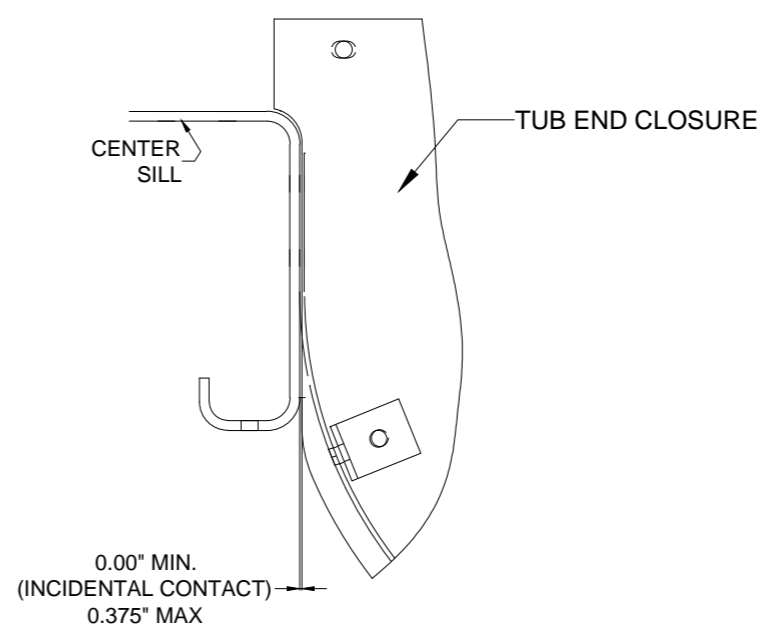
**CENTER SILL SIDE
(BR/AL SHOWN)
SECTION "B"-"B"**



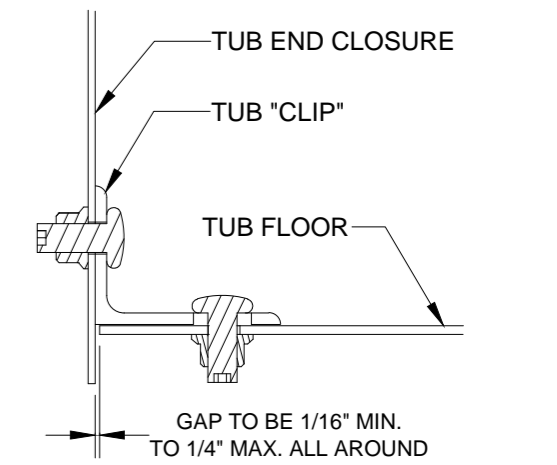
**SIDE SILL SIDE
(BR/AL SHOWN)
SECTION "C"-"C"**

FASTENER REFERENCE TABLE

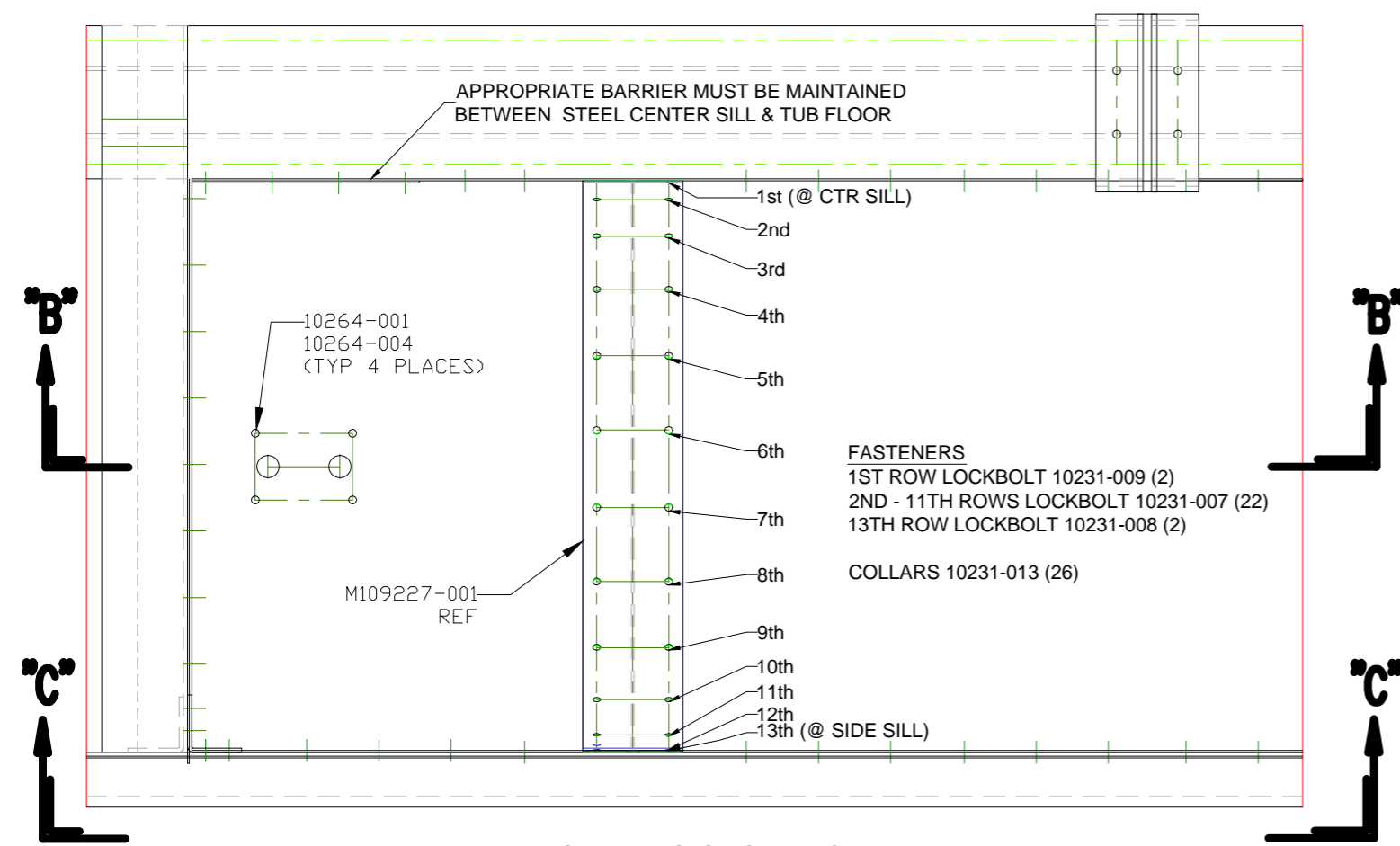
Part No.	Description
10231-007	LOCKBOLT, 20-04
10231-008	LOCKBOLT, 20-08
10231-009	LOCKBOLT, 20-12
10231-010	LOCKBOLT, 20-16
10231-013	COLLAR, 3LC-2R20GAL
10264-001	UNA-DRIV, 5/8" DIA X 1 1/2"
10264-002	UNA-DRIV, 5/8" DIA X 1 3/4"
10264-004	NUT, 5/8" UNA-DRIV STOVER
10340-015	WASHER, 5/8", GR8, ZINCPLATED



DETAIL "B"



**END CLOSURE FIT TOLERANCE
DETAIL "A"**



**FASTENING SEQUENCE
VIEW "D"**

Level	Date	Approved	Description
REVISIONS			
FreightCar America			
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Standard Tolerances (Unless Noted)			
Fractional dimensions $\pm 1/16"$		Hole diameters $\pm 1/32"$	
Decimal dimensions $\pm 0.063"$		Angles $\pm 1^\circ$	
Diagonals 1/8" max. variation		All dim's in [] are for reference only	
Radii will be thickness of material		Tolerances are not to be accumulative	
Made By: MAS	Date: 02-14-2014	Ref. Dwg: A110258-000	
Approved: MAS	Scale: FULL	PAGE 2 OF 2	
APPLICATION, TUB FLOOR SPLICE, BETHGON			
Size	Drawing/Part Number		Rev.
C	A110455-000		-

