

*This Procedure was developed for typical BethGon II (2<sup>nd</sup> generation) may not be applicable to all BethGon II's Please consult your original drawings or contact FreightCar America for details.*

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- Text Procedure ..... 3 Pages
- Illustrated Procedures..... A110258-000 (2 pgs) ..... 2 Pages

**BILL OF MATERIAL 39-5/8" Splice**

*Per Location*

- (1) ..... M109403-010 ..... Tub End Section (AR/BL)  
or
- (1) ..... M109403-020 ..... Tub End Section (AL/BR)
- (1) ..... M109405-000 ..... 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
- (14) ..... 10231-009 ..... Huck Bolt, 5/8", plated, PN C50L30-BR20-12GA
- (40) ..... 10231-013 ..... Huck Collar, 5/8", plated, PN 3LC-2R20GAL
- (22) ..... 10264-001 ..... Una-Driv Bolt, 5/8" x 1-1/2", zinc plated
- (8) ..... 10264-002 ..... Una-Driv Bolt, 5/8" x 1-3/4", zinc plated
- (2) ..... 10264-003 ..... Una-Driv Bolt, 5/8" x 2", zinc plated
- (32) ..... 10264-004 ..... Una-Driv Nut, 5/8"-11, zinc plated, PN SN7516LB
- (as req.) .. 10246-546 ..... PE Foam Tape, 1/32"x4"x216 ft. Roll

**BILL OF MATERIAL 72-3/4" Splice**

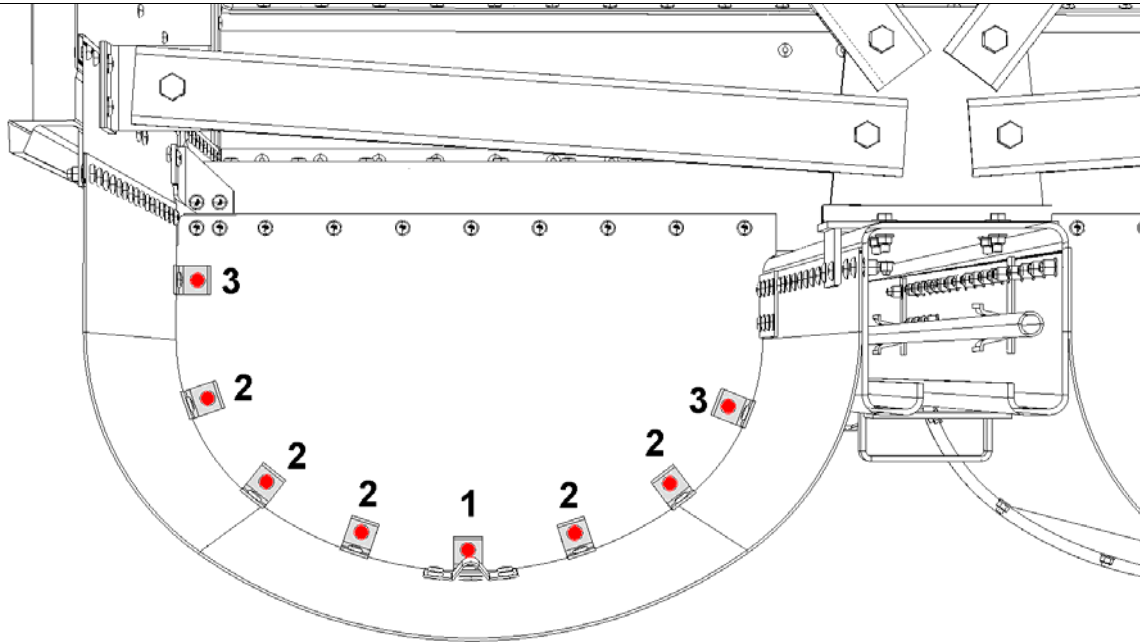
*Per Location*

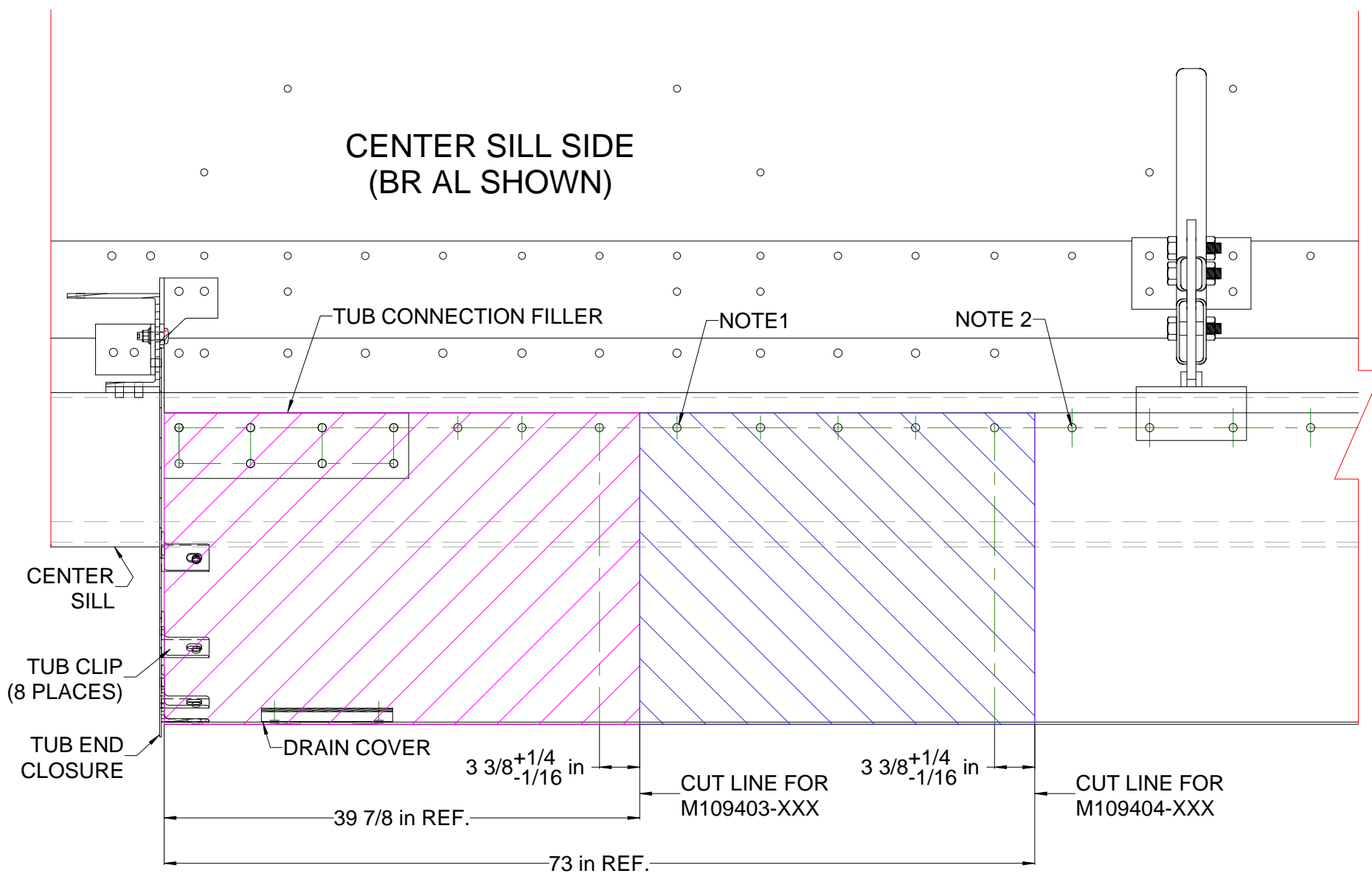
- (1) ..... M109404-010 ..... Tub End Section (AR/BL)  
or
- (1) ..... M109404-020 ..... Tub End Section (AL/BR)
- (1) ..... M109405-000 ..... Backing Bar, Tub End Section
- (22) ..... 10231-007 ..... Huck Bolt, 5/8", plated, PN C50L30-BR20-04GA
- (9) ..... 10231-008 ..... Huck Bolt, 5/8", plated, PN C50L30-BR20-08GA
- (14) ..... 10231-009 ..... Huck Bolt, 5/8", plated, PN C50L30-BR20-12GA
- (45) ..... 10231-013 ..... Huck Collar, 5/8", plated, PN 3LC-2R20GAL
- (27) ..... 10264-001 ..... Una-Driv Bolt, 5/8" x 1-1/2", zinc plated
- (8) ..... 10264-002 ..... Una-Driv Bolt, 5/8" x 1-3/4", zinc plated
- (2) ..... 10264-003 ..... Una-Driv Bolt, 5/8" x 2", zinc plated
- (37) ..... 10264-004 ..... Una-Driv Nut, 5/8"-11, zinc plated, PN SN7516LB
- (as req.) .. 10246-546 ..... PE Foam Tape, 1/32"x4"x216 ft. Roll)

### Tub Floor End Section Replacement

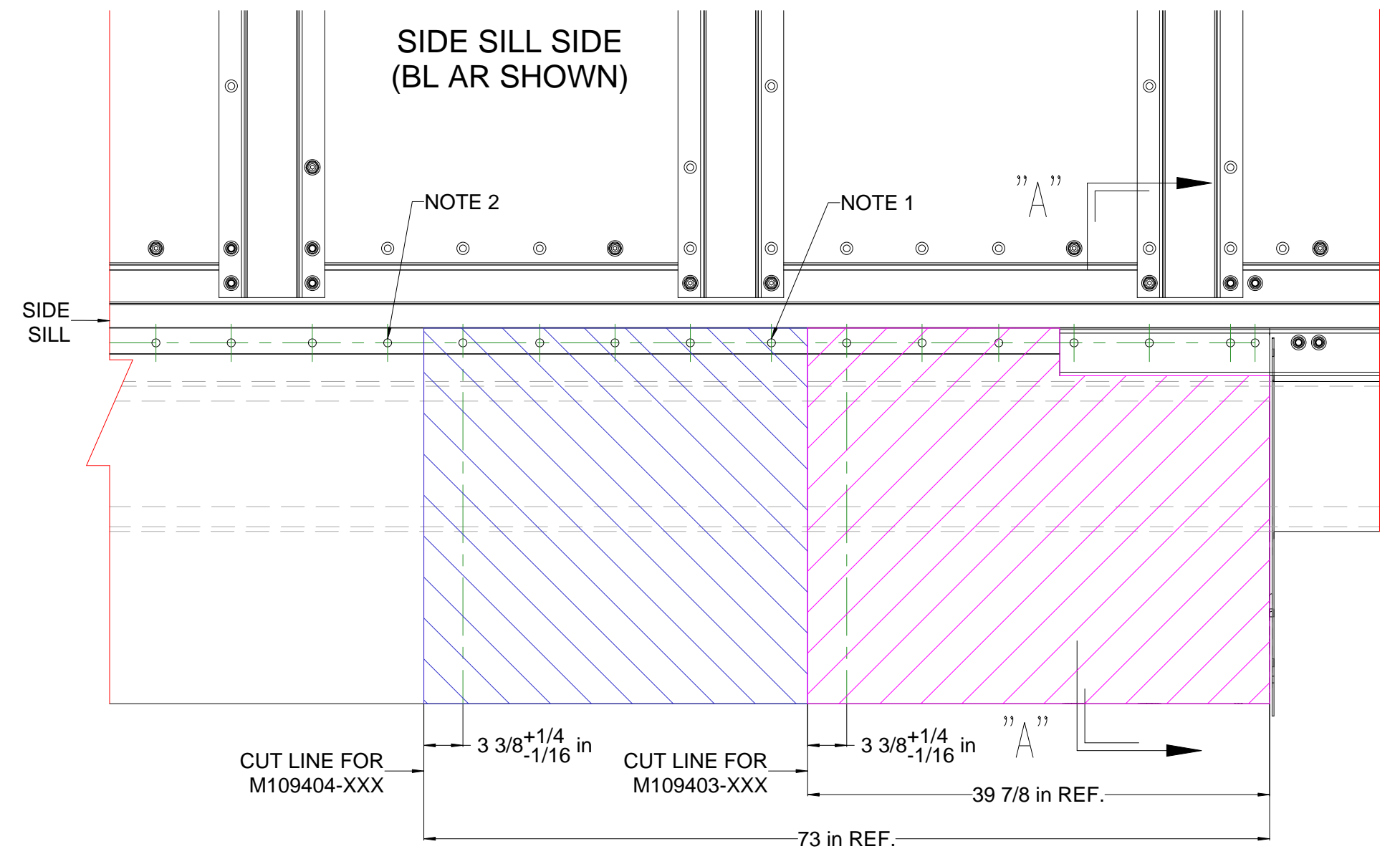
- 1) **INSPECTION:** This Procedure describes the repair of tub floor plates which have been damaged in service. *FreightCar America, Inc. does NOT recommend the use of a spliced section as a repair for the following:*
  - a) Stress corrosion cracking. Tubs found with stress corrosion cracking should be replaced in their entirety
  - b) Tub edge cracks. Engineered repairs have been developed for these conditions based on the tub style your car was originally equipped with. Please contact FreightCar America Customer Service for details.
- 2) **REPAIR (reference drawing A110258-000):** This repair describes the steps necessary for one end of one tub, repeat for multiple locations. The tub floor must have any coal residue removed from the end closure to at least 8 ft. inboard.
- 3) Tub end closure attachment
  - a) BethGon II 2<sup>nd</sup> generation car ((8) two bolt tub clips), the tub clip holes should be drilled per the pattern shown on View "A".
  - b) BethGon II 1<sup>st</sup> generation car and the end closure is also being renewed, FCA recommends that the 2<sup>nd</sup> gen. tub clip arrangements be used.
  - c) BethGon II 1st generation car and the end closure is being reused, use the existing four bolt clip/end closure as a template to drill the tub clip holes.
- 4) Remove and save for reapplication if not damaged;
  - a) tub end closure
  - b) tub clip angles (8)
  - c) tub connection filler
  - d) drain cover nearest the end closure
- 5) **For a 39-3/8" splice,** remove:
  - a) the first (8) fasteners securing the tub to the side sill. see View "B".
  - b) the (4) fasteners inboard of the tub connection filler securing the tub to the center sill, see View "C".
  - c) All (8) fasteners at the tub connection filler, see View "C".**For a 72-3/4" splice,** remove:
  - a) the first (13) fasteners securing the tub to the side sill, see View "B".
  - b) the (9) fasteners inboard of the tub connection filler securing the tub to the center sill, see View "C".
  - c) All (8) fasteners at the tub connection filler, see View "C".
- 6) Mark & cut the tub as follows:
  - a) **For a 39-3/8" splice,** cut the tub 3-3/8" inboard of the center of the 7<sup>th</sup> fastener on each side, see Views "B & C".
  - b) **For a 72-3/4" splice,** cut the tub 3-3/8" inboard of the center of the 12<sup>th</sup> fastener on each side, see Views "B & C".
  - c) DO NOT use the measurement from the tub edge, it is for reference only.
  - d) Cut by either mechanical means (preferred) or plasma arc. CARE MUST BE TAKEN NOT TO GOUGE SIDE SILL OR CENTER SILL. Cut edge must be free of slag, nicks or gouges.
  - e) Backing bar M109405-000 can be used as a straight edge to mark the cut line.
- 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.
  - 39-3/8" = M109403-010 (AR/BL) or M109403-020 (AL/BR)
  - 72-3/4" = M109404-010 (AR/BL) or M109404-020 (AL/BR)
  - a) Insert the out board (10 for 39") or (15 for 72") fasteners along center sill, see Section "B-B". Fastener heads should be to the car interior.
  - b) Insert the out board (6 for 39") 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 (see 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.
- 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" and the illustration below:
- 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 11 a, drill or ream a 11/16" diameter hole at each of the #2 clip angles (5 places ) 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 11 b, drill or ream an 11/16" diameter hole at each of the #3 clip angles (2 places) 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.

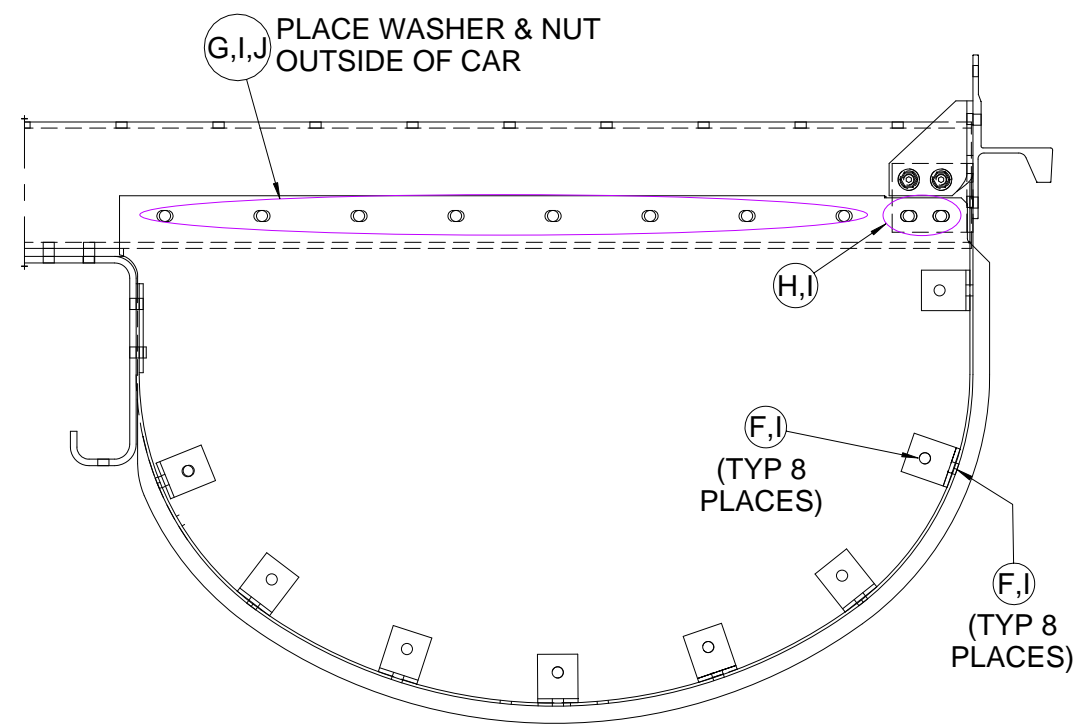




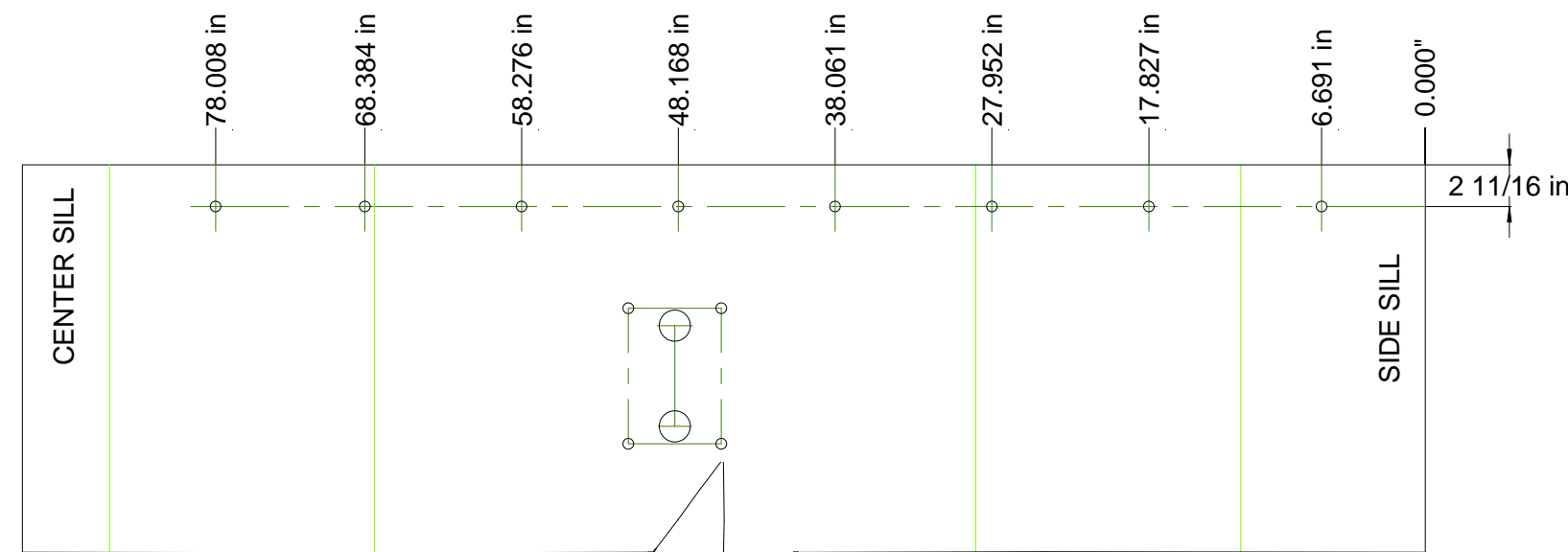
VIEW "C"



VIEW "B"



SECTION "A"-"A"



VIEW "A"

TUB FLOOR FLAT PATTERN FOR TUB CLIP HOLES BETHGON II 2ND GEN.

- NOTES:  
 1. ALSO REMOVE THIS FASTENER FOR THE 39" SPLICE  
 2. ALSO REMOVE THIS FASTENER FOR THE 72" SPLICE

FASTENERS			QTY.	
Item	Part No.	Description	39"	72"
A	10231-007	LOCKBOLT, 20-04	22	22
B	10231-008	LOCKBOLT, 20-08	4	9
C	10231-009	LOCKBOLT, 20-12	14	14
D	10231-010	LOCKBOLT, 20-16	--	--
E	10231-013	COLLAR, 3LC-2R20GAL	40	45
F	10264-001	UNA-DRIV, 5/8" DIA X 1 1/2"	22	27
G	10264-002	UNA-DRIV, 5/8" DIA X 1 3/4"	8	8
H	10264-010	UNA-DRIV, 5/8" DIA X 2 1/4"	2	2
I	10264-004	NUT, 5/8" UNA-DRIV STOVER	34	37
J	10340-015	WASHER, 5/8", GR8, ZINCPLATED	8	8

Level	Date	Approved	Description
REVISIONS			

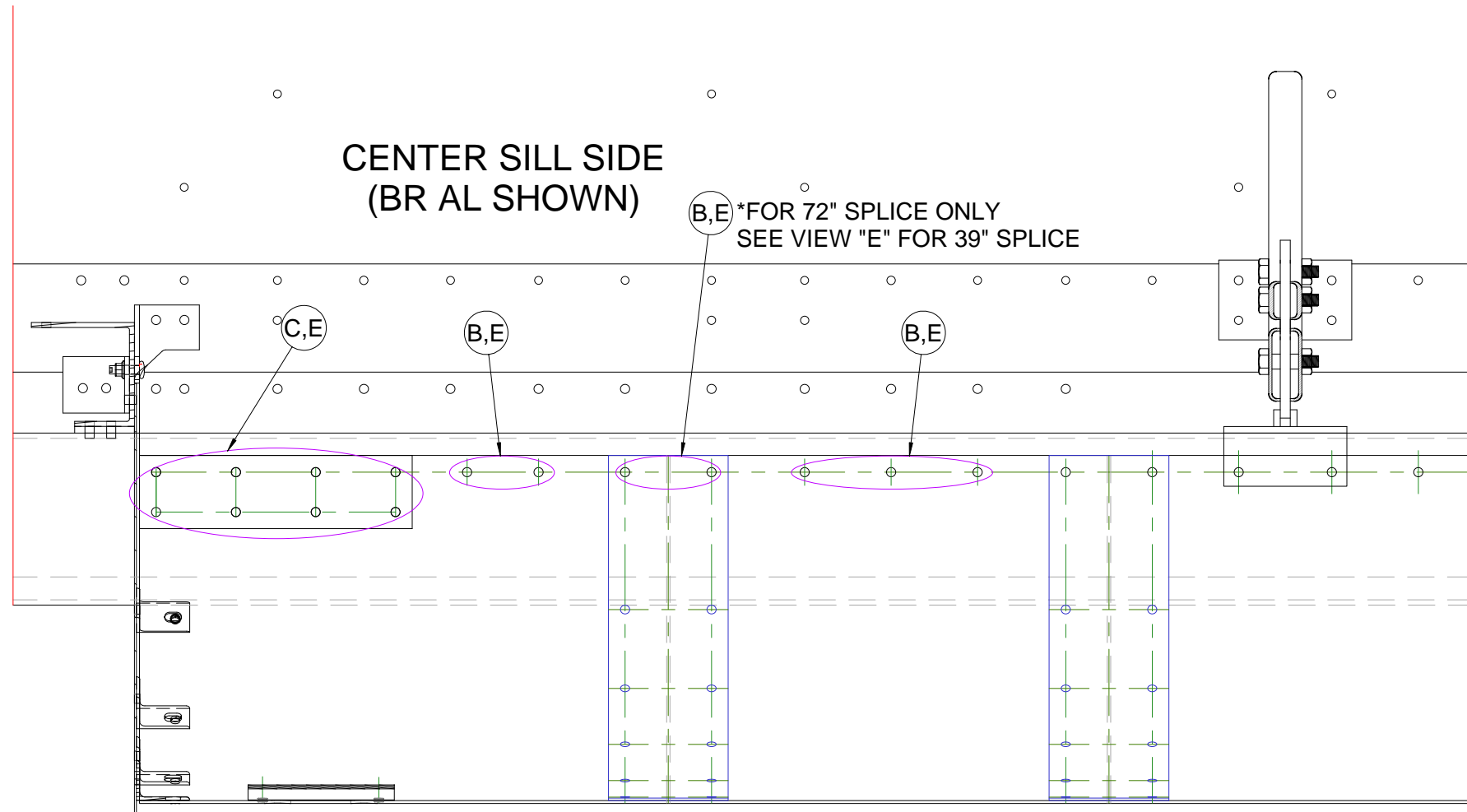


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Standard Tolerances (Unless Noted)		
Fractional dimensions ±1/16"	Hole diameters ±1/32"	
Decimal dimensions ±0.063"	Angles ±1°	
Diagonals 1/8" max. variation	All dim's in [ ] are for reference only	
Radii will be thickness of material	Tolerances are not to be accumulative	

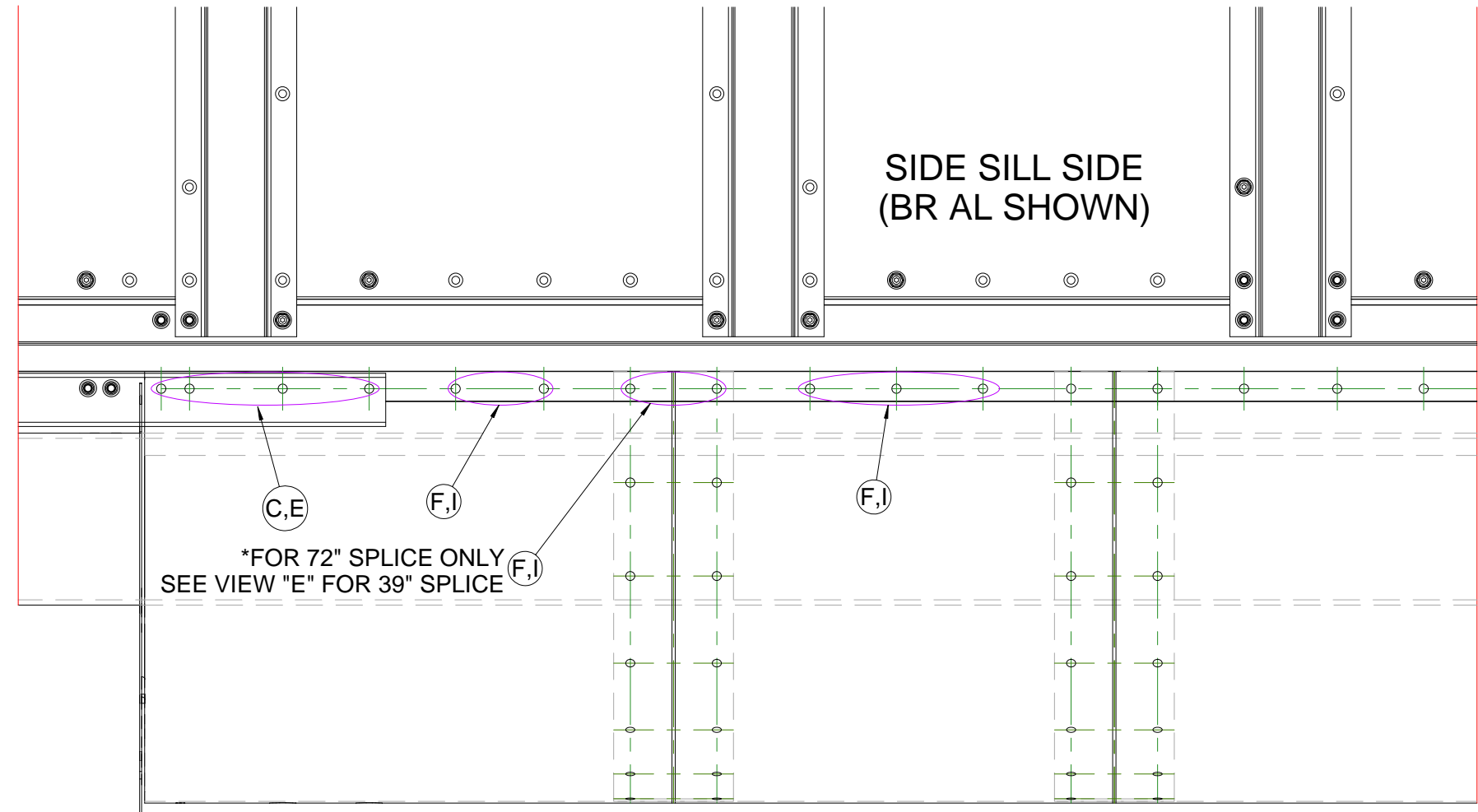
Made By: KRK	Date: 08-06-2013	Ref. Dwg: A093802-000
Approved: .	Scale: FULL	PAGE 1 OF 2

APPLICATION, TUB FLOOR SPLICE, BG-II		
Size	Drawing/Part Number	Rev.
C	A110258-000	-



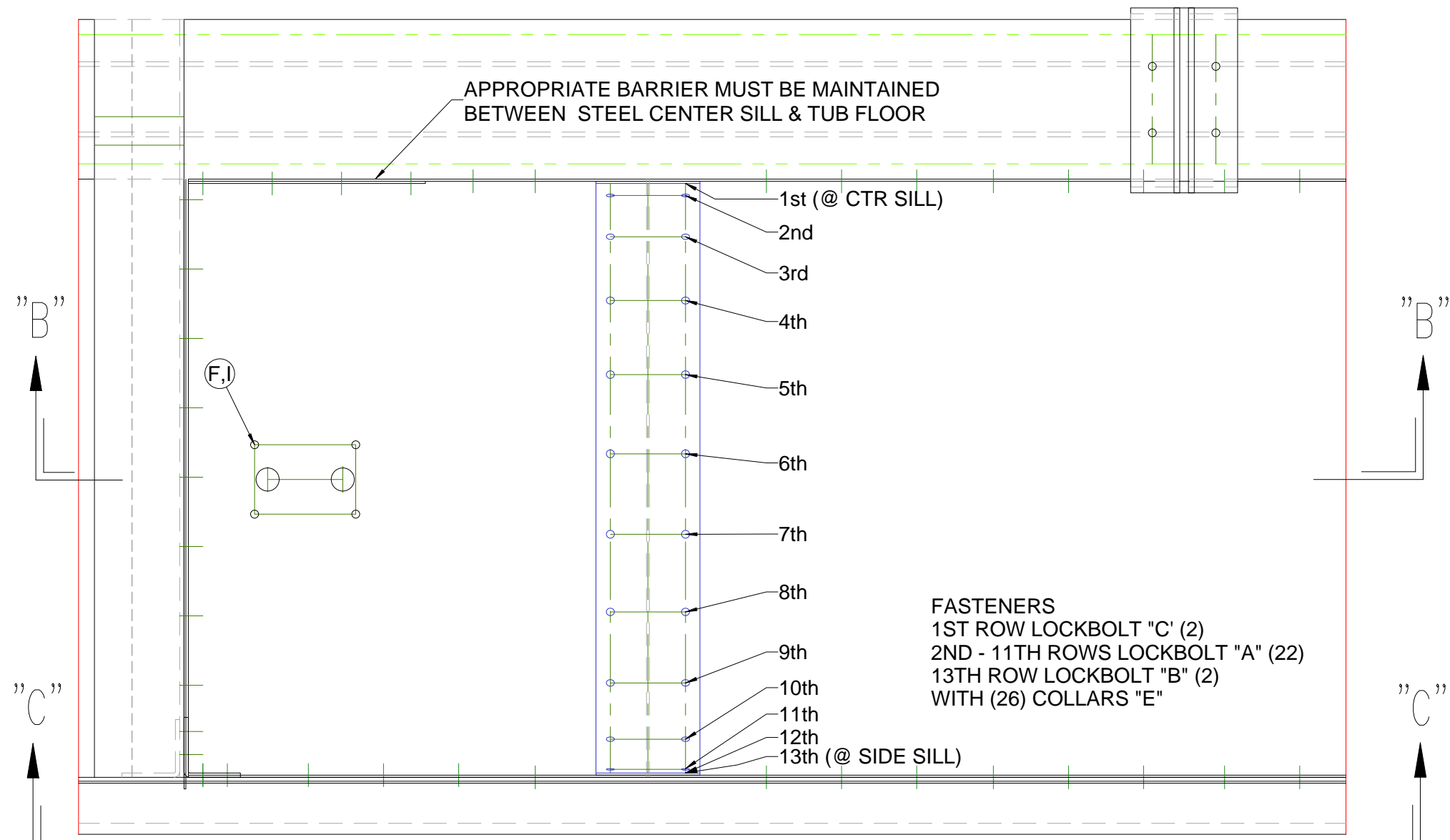
TYP. 39-5/8" SPLICE TYP. 72-3/4" SPLICE

SECTION "B"-"B"



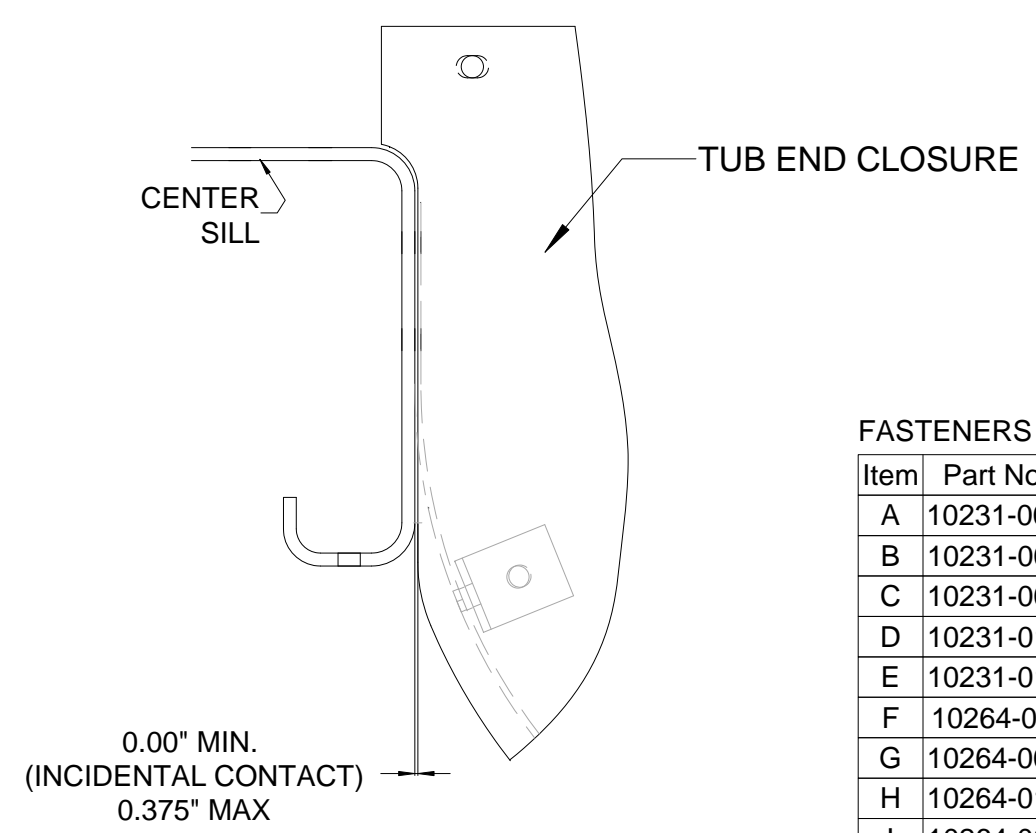
TYP. 39-5/8" SPLICE TYP. 72-3/4" SPLICE

SECTION "C"-"C"

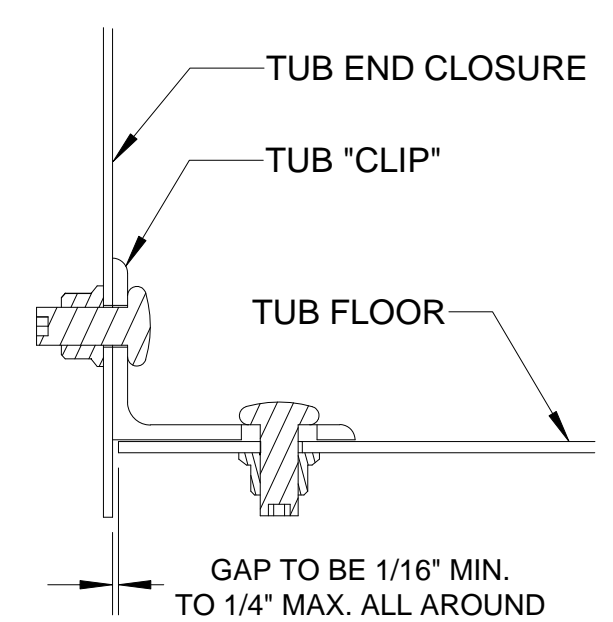


VIEW "D"  
FASTENING SEQUENCE

FASTENERS  
1ST ROW LOCKBOLT "C" (2)  
2ND - 11TH ROWS LOCKBOLT "A" (22)  
13TH ROW LOCKBOLT "B" (2)  
WITH (26) COLLARS "E"



DETAIL "B"



DETAIL "A"  
END CLOSURE FIT TOLERANCE

FASTENERS			QTY.	
Item	Part No.	Description	39"	72"
A	10231-007	LOCKBOLT, 20-04	22	22
B	10231-008	LOCKBOLT, 20-08	4	9
C	10231-009	LOCKBOLT, 20-12	14	14
D	10231-010	LOCKBOLT, 20-16	--	--
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F	10264-001	UNA-DRIV, 5/8" DIA X 1 1/2"	22	27
G	10264-002	UNA-DRIV, 5/8" DIA X 1 3/4"	8	8
H	10264-010	UNA-DRIV, 5/8" DIA X 2 1/4"	2	2
I	10264-004	NUT, 5/8" UNA-DRIV STOVER	34	37
J	10340-015	WASHER, 5/8", GR8, ZINCPLATED	8	8

Level	Date	Approved	Description
REVISIONS			
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<small>Fractional dimensions ±1/16"</small> <small>Decimal dimensions ±0.063"</small> <small>Diagonals 1/8" max. variation</small> <small>Radii will be thickness of material</small>		<small>Hole diameters ±1/32"</small> <small>Angles ±1°</small> <small>All dim's in [ ] are for reference only</small> <small>Tolerances are not to be accumulative</small>	
<small>Made By: KRK</small> <small>Approved: .</small>	<small>Date: 08-06-2013</small> <small>Scale: FULL</small>	<small>Ref. Dwg: A093802-000</small> <small>PAGE 2 OF 2</small>	
APPLICATION, TUB FLOOR SPLICE, BG-II			
<small>Size</small> <b>C</b>	<small>Drawing/Part Number</small> <b>A110258-000</b>		<small>Rev.</small> <b>-</b>