

# **TILC / I.C.E. Service Group**

**RA-4226**

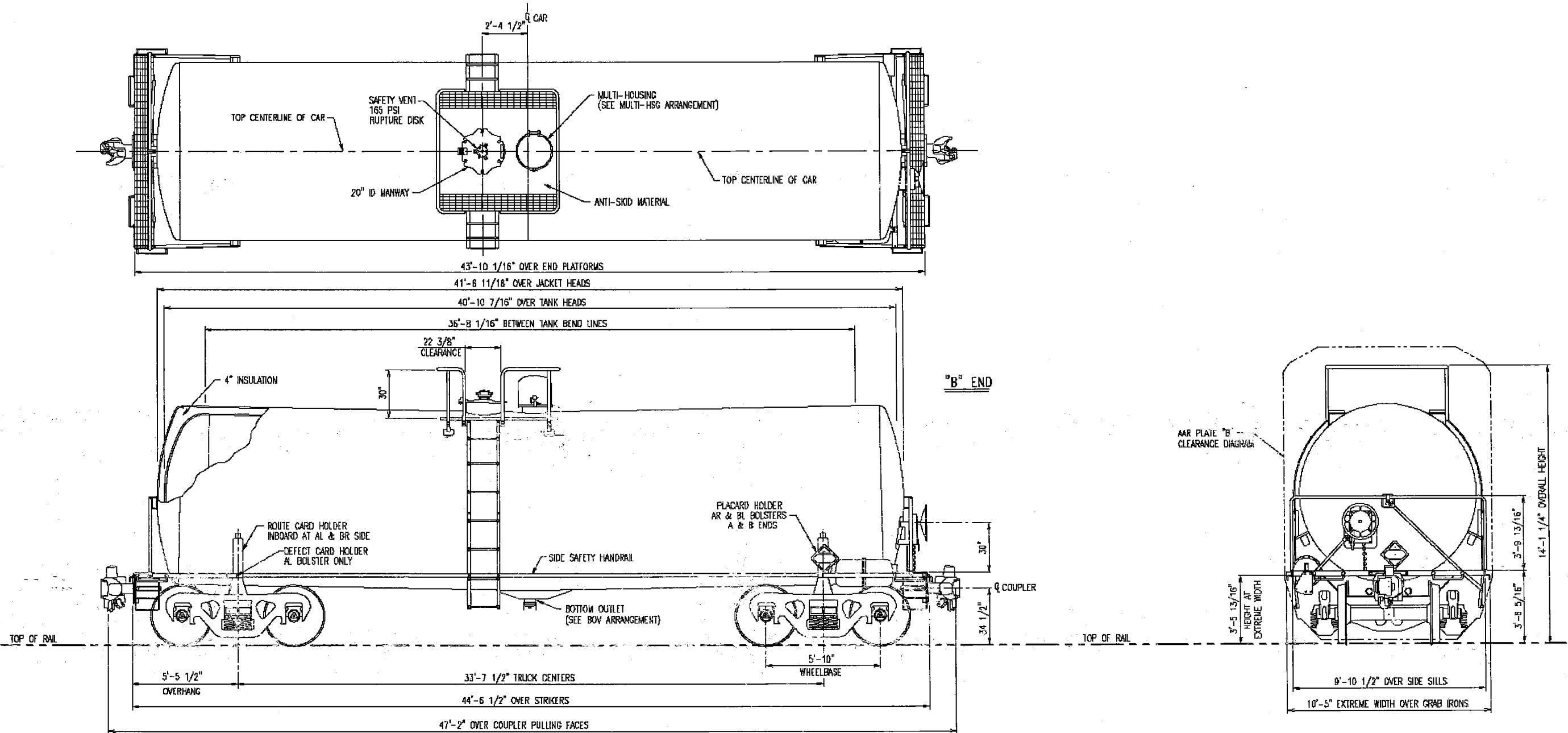
**Retrofit of Three (3) Cars**

**from File T01035**

**Ethylene Glycol Service**

**Oct. 2013**

K  
J  
I  
H  
G  
E  
D  
C  
B  
A

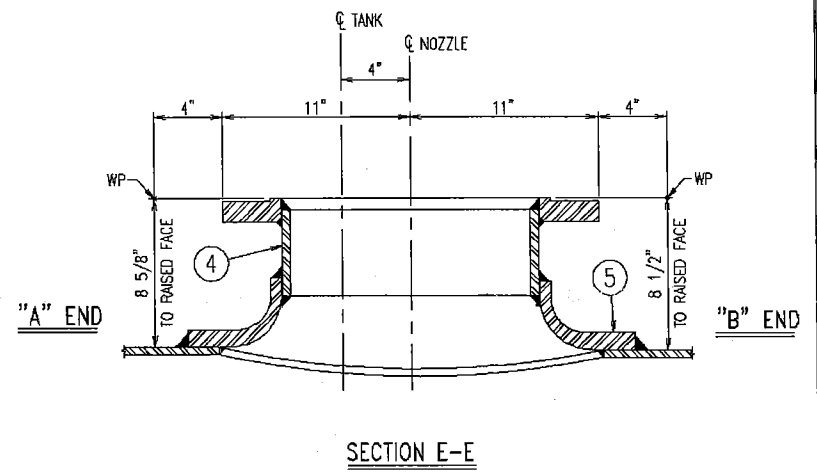
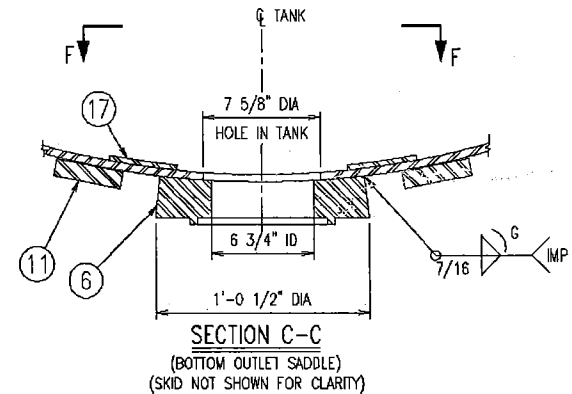
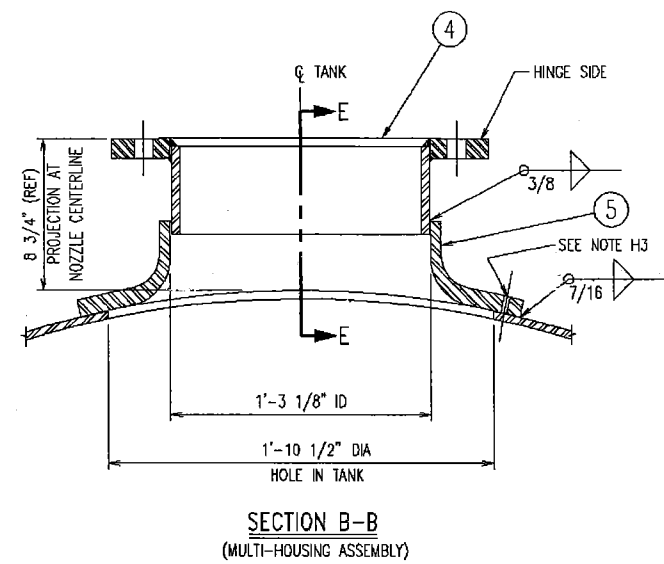
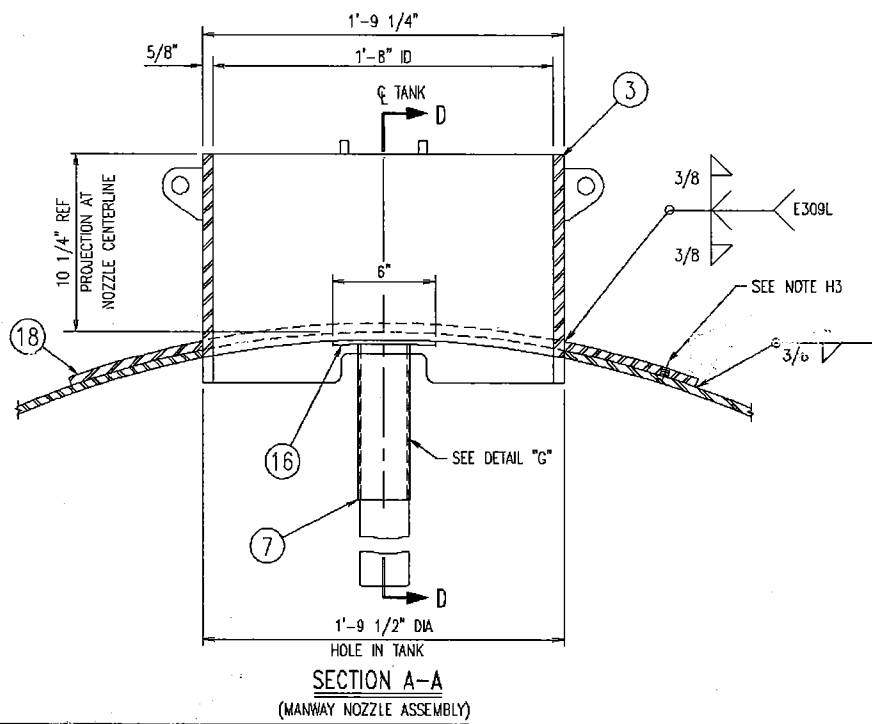


**SPECIFICATIONS**

- |   |   |   |   |
|---|---|---|---|
| <p>1. TANK -----</p> <p>2. COIL -----</p> <p>3. UNDERFRAME -----</p> <p>4. JACKET -----</p> <p>5. INSULATION -----</p> <p>6. TRUCKS -----</p> <p>7. DRAFT EQUIPMENT -----</p> | <p>A. THEORETICAL SHELL FULL CAPACITY - 15,877 GAL</p> <p>B. CLASS BUILT - DOT 111A100W1</p> <p>C. CLASS STENCIL - AAR 211A100W1</p> <p>D. SHELL AND HEAD MATERIAL - A516-70</p> <p>E. HEADS - 2:1 ELLIPTICAL, 7/16" MIN THICK, 99" ID</p> <p>F. SHELL - 99" ID, 7/16" THICK, 0.2161"/FT. TOP AND BOTTOM SLOPE</p> <p>NONE</p> <p>STUB SILL DESIGN WITH LIFT PROVISION</p> <p>ASTM A588 STEEL SHEET</p> <p>A. 107 7/8" ID</p> <p>B. SHELL AND HEAD THICKNESS - 11 GAUGE</p> <p>4" GLASSWOOL BLANKET AT 3/4" DENSITY</p> <p>100 TON, SUPER SERVICE RIDE MASTER</p> <p>A. JOURNALS - 6-1/2" X 12", AAR APPROVED ROLLER BEARINGS</p> <p>B. WHEELS - AAR H-36 OR CH-36, CLASS "C", 1 WEAR</p> <p>C. SPRINGS - AAR D-5 (3-11/16" TRAVEL)</p> <p>D. CONSTANT CONTACT TYPE SIDE BEARINGS</p> <p>24-5/8" GEAR POCKET</p> <p>A. COUPLERS - AAR SEB02E</p> <p>B. COUPLER YOKES - AAR SY40AE</p> <p>C. DRAFT GEAR - AAR M-9D1E</p> | <p>8. AIRBRAKE -----</p> <p>9. HANDBRAKE -----</p> <p>10. BRATING -----</p> <p>11. HANDRAIL -----</p> <p>12. EST. LT. WT. -----</p> <p>13. CENTER OF GRAVITY -----</p> <p>14. CURVE NEGOTIATIONS:</p> <p>MINIMUM RADIUS OF TRACK CURVATURE - HORIZONTAL CURVES:</p> <p>UNCOUPLED CAR ----- 150 FT.</p> <p>COUPLED CAR (TANK ON CURVE, STANDARD CAR ON TANGENT) ----- 164 FT.</p> <p>COUPLED CAR (STANDARD CAR ON CURVE, TANK ON TANGENT) ----- 154 FT.</p> <p>COUPLED CAR (TWO LIKE CARS) ----- 165 FT.</p> <p>MINIMUM RADIUS OF TRACK CURVATURE - VERTICAL CURVES:</p> <p>UNCOUPLED CAR ----- 500 FT.</p> <p>COUPLED CAR (TANK CAR ON CURVE, STANDARD CAR ON TANGENT OR TWO LIKE CARS) ----- 500 FT.</p> | <p>"CONVENTIONAL" FREIGHT BRAKE EQUIPMENT WITH ABU-1, B-1/2" X 12" CYLINDER, AUTOMATIC SLACK ADJUSTER, DOUBLE ACTING.</p> <p>A. BRAKE BEAMS - AAR #18</p> <p>B. BRAKE SHOES - 2" HIGH FRICTION COMPOSITION, AAR #H-4</p> <p>C. PISTON TRAVEL - AAR S-401 LATEST REVISION</p> <p>AAR APPROVED VERTICAL WHEEL UNIT WITH AAR #65 BELL CRANK</p> <p>AAR APPROVED, STEEL</p> <p>1 1/4" SCHEDULE 40 PIPE WITH REINFORCED ENDS</p> <p>60,500 POUNDS</p> <p>80.27" LOADED</p> |
|---|---|---|---|

A SLW 2-11-02 REVISED SIDE VIEW BOV CALLOUT			
REV BY	DATE	REVISION	
A.A.R. APPLICATION NO. L016064B			
UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY: SIZE 0-145000 FOR ADDITIONAL TANK CAR TOLERANCES, TOLERANCES MACHINED ±1/64" (0.0156") ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2" DECIMALS 3 PLACE ±.005, 2 PLACE ±.05, 1 PLACE ±.1 ANGLES MACHINED ±1/2 DEG, ALL OTHERS ±1 DEG.			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWING MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001			
DRAWN	KFC	7-12-01	<b>GENERAL ARRANGEMENT</b> 15,877 GAL, 99" ID, STD, NC AND 41 DOT 111A100W1 / AAR 211A100W1
CHKD	KHB	8-6-01	
APPD	KHB	8-6-01	
1st FILE	T01035		
NLA			
WEIGHT			DRAWING NO: D-41466
		SHEET 1 of 1	REV A
			SIZE D



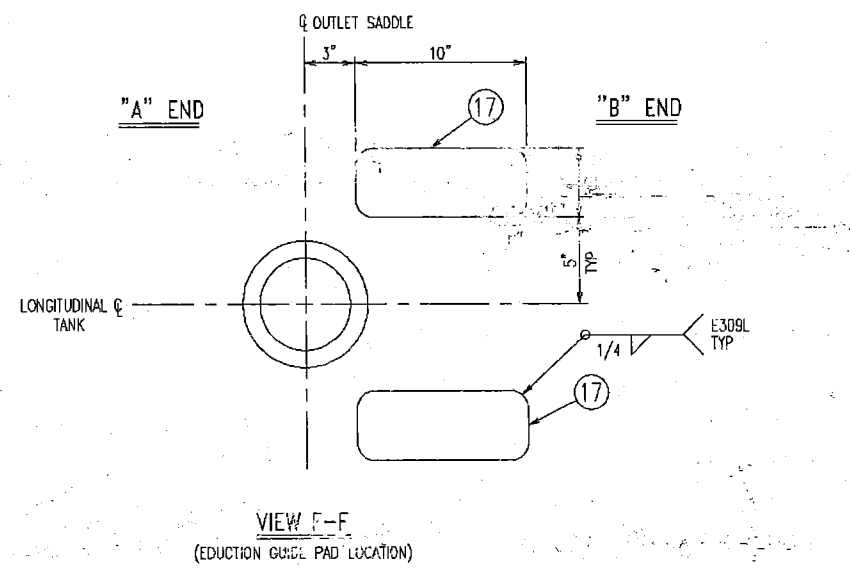
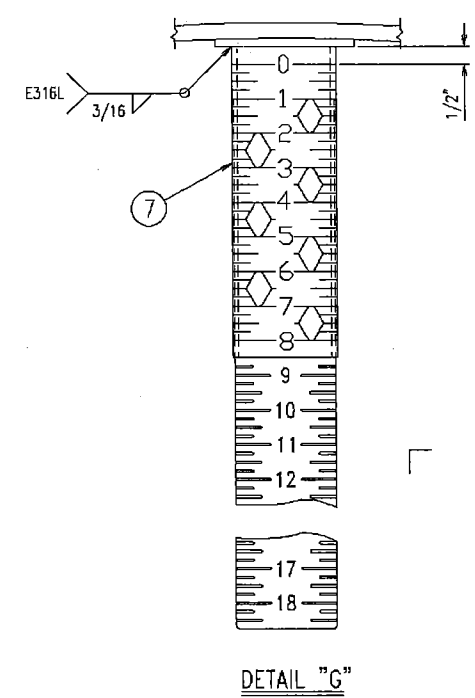
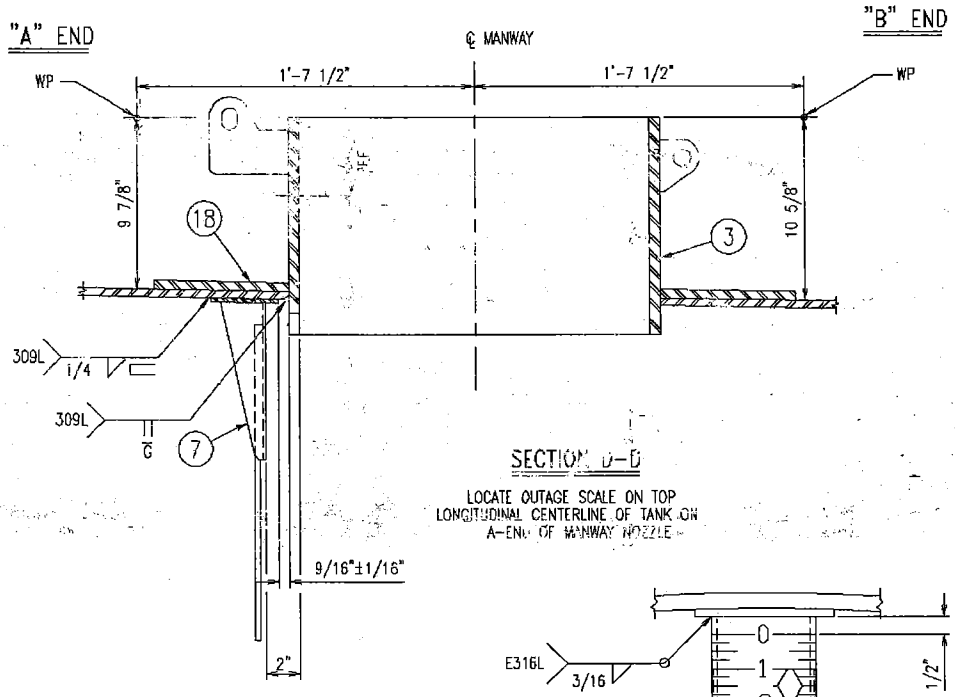


- DESIGN AND INSTRUCTION NOTES**
- TANK SHALL BE FABRICATED IN ACCORDANCE WITH TANK CAR SPECIFICATION DOT 111A100W.
  - HYDRO-TEST TANK IN ACCORDANCE WITH HYDRO-TESTING NOTES (SEE THIS SHEET).
  - ALL TANK SHELL AND HEAD SEAM WELDS SHALL BE FULL PENETRATION BUTT WELDS PER QUALIFIED AND APPROVED TRINITY INDUSTRIES WELD PROCEDURES. FOR WELDS MARKED "IMP" USE APPROVED "IMP" WELD PROCEDURES ONLY.
  - RADIOGRAPH IN ACCORDANCE WITH AAR APPENDIX W, SECTION 19.00. PARTIAL X-RAY REQUIRED PER PARAGRAPH W19.3.
  - STRESS RELIEVING IS REQUIRED IN ACCORDANCE WITH AAR APPENDIX W, PARAGRAPH 17.0. TANK TO BE SUPPORTED AT BOLSTERS.
  - FLANGE BOLT HOLES TO STRADDLE NORMAL TANK CENTERLINES UNLESS OTHERWISE NOTED.
  - TANK SHALL BE CLEANED INSIDE AND OUT, FREE OF DIRT, GREASE, DEBRIS, LOOSE MILL SCALE, WELD SPATTER, ETC.
  - THE SURFACE OF ANY BUTT WELD SHALL BE AT LEAST FLUSH WITH ADJOINING PLATE SURFACE AND MAY BE BUILT UP AS REINFORCEMENT WHICH SHALL NOT EXCEED 3/32" FOR PLATES 5/8" AND THINNER, NOR 1/8" FOR THICKER PLATES.
  - ALL CIRCUMFERENTIAL WELDS CROSSING THE BOTTOM LONGITUDINAL CENTERLINE ON INSIDE SURFACE OF THE TANK SHALL BE GROUND FLUSH 6" EACH SIDE OF CENTERLINE.
  - STAMP EACH HEAD PER TANK CAR STAMPING DRAWING. (3/8" LETTERS)
  - GRIND TANK WELDS LOCATED UNDER PADS FLUSH AT LEAST 1 INCH BEYOND EDGE OF PAD.
  - SEE BOLSTER AND DRAFT SILL ARRANGEMENT DRAWING FOR WELDS TO BOLSTER PADS AND DRAFT SILL TO REINFORCING BAR.
  - MATERIAL FOR PRESSURE PORTIONS OF TANK MUST HAVE HEAT AND SLAB IDENTIFICATION MARKINGS IN PLAIN VIEW WHEN TANK IS COMPLETE. SEE A.A.R. TANK CAR SPEC 5.1.4. ALL PRESSURE PARTS MUST BE LISTED ON MATERIAL USED RECORD SHEET. MILL TEST REPORTS MUST BE RETAINED.
  - INTERIOR SURFACE PREPARATION IS REQUIRED.
    - ALL INTERIOR WELDS SHALL BE FREE OF UNDERCUTS, BURRS, POROSITY AND SHARP EDGES THAT WOULD DAMAGE COATING.
    - WELDS AROUND INTERIOR BRACKETS SHALL BE FREE OF UNDERCUTS, BURRS, POROSITY AND SHARP EDGES THAT WOULD DAMAGE COATING.
    - SHARP CORNERS ON THE INTERIOR OF THE TANK AND NOZZLES SHALL BE GROUND TO A MINIMUM 1/8" RADIUS.
    - CAVITIES AND INDENTATIONS THAT WOULD DAMAGE COATING ON THE INTERIOR SURFACE OF TANK SHALL BE FILLED WITH WELD METAL AND GROUND FLUSH.

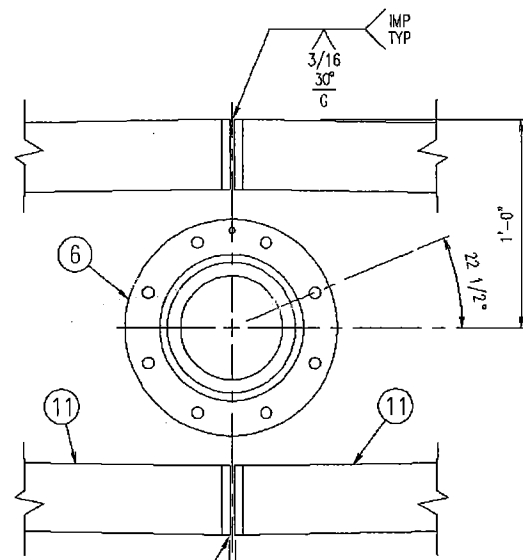
- SHOP RECORDS REQUIRED**
- MATERIAL USED RECORD
  - MILL TEST REPORTS (COPY TO ENGINEERING)
  - STRESS RELIEVING CHART
  - HYDRO-TEST CHART / TANK
  - STAMPING RUB OFF HEAD / COMPARTMENTS
  - DIMENSION SHEET
  - CERTIFICATE OF HYDRO-TEST (ORIGINAL)
  - BRINELL HARDNESS (PER CHECKLIST)
  - OTHER

- HYDRO-TEST AND WELD TEST NOTES**
- H1) TANK TO BE HYDROSTATICALLY TESTED AT 165 PSI FOR A MINIMUM PERIOD OF 10 MINUTES. WATER TEMPERATURE NOT TO EXCEED 100°F.
- H2) TANK MUST BE SUPPORTED AT BOLSTERS DURING TEST.
- H3) WELDS ON ALL NOZZLES AND NOZZLE REINFORCING PADS TO BE PRESSURE TESTED WITH 30 PSIG AIR AND SOLUTION OR OTHER APPROVED METHOD BEFORE AND AFTER STRESS RELIEVING TO PROVE WELD INTEGRITY.

- MATERIAL NOTES**
- HEADS:----- A516-70  
 SHELL:----- A516-70  
 BOLSTER PADS:----- A572-50  
 REAR SILL PADS:----- A572-50  
 FRONT SILL PADS:----- A572-50  
 REINFORCING BAR (ITEM 11):----- A572-50
- MANWAY:  
 A. NECK:----- A240-316L  
 B. REINFORCING PAD:----- A516-70
- BOTTOM OUTLET:----- A516-70 NORM
- MULTI-HOUSING NOZZLE:  
 A. FLUED NOZZLE:----- A516-70  
 B. NECK:----- A519-SLMS  
 C. FLANGE:----- A516-70

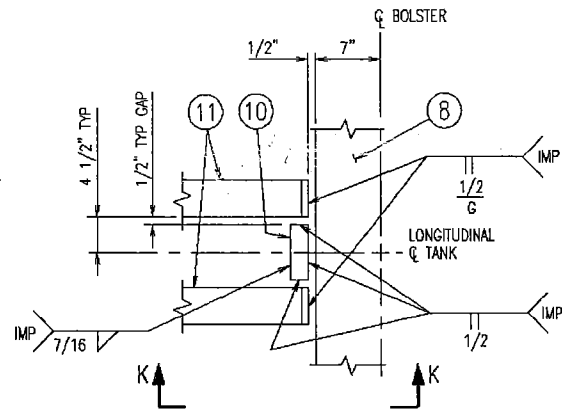


REV	BY	DATE	REVISION
A.A.R. APPLICATION NO. L016064			
<small>TOLERANCES UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY. SEE D-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (0.157) ALL OTHERS: (1" to 2")±1/16", (2" to 10")±1/8", (10" to 20")±1/4", (OVER 20")±1/2" DECIMALS: 3 PLACE ±.005, 2 PLACE ±.03, 1 PLACE ±.1 ANGLES: MACHINED ±1/2 DEG, ALL OTHERS ±1 DEG.</small>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
<small>THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001</small>			
DRAWN	DLB	8-3-01	<b>TANK ARRANGEMENT</b> 15,677 WG, 99" ID, STB, 4" DROP DOT 111A100W1, NC & 41
CHKD	KFC	8-7-01	
APPD	SLM	8-8-01	
1st FILE		T01035	
NLA			
WEIGHT			
DRAWING NO:		D-43573	
SHEET		2	
REV			
SIZE		D	

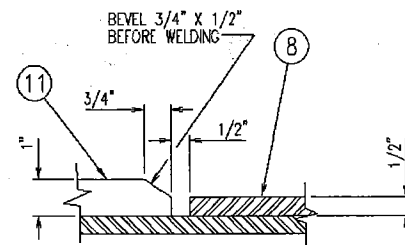


TRIM BARS AS NECESSARY TO MAINTAIN GAP, END OF BARS TO BE SMOOTH

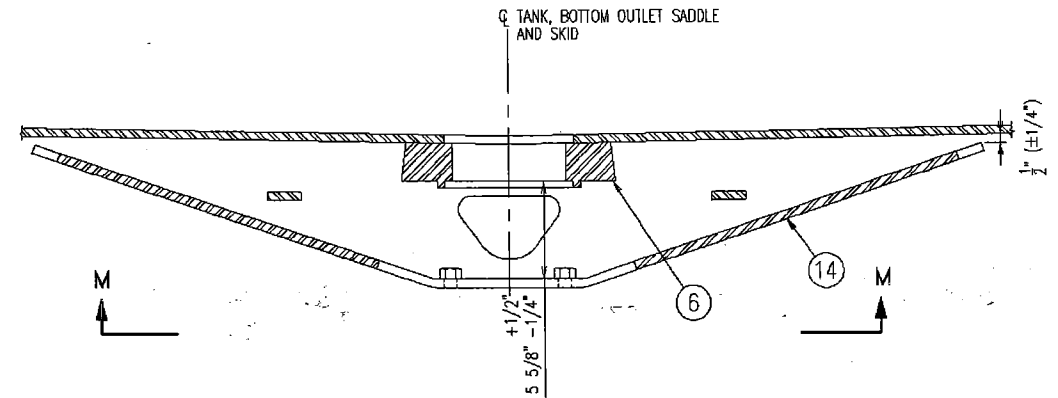
DETAIL (SKID OMITTED FOR CLARITY)



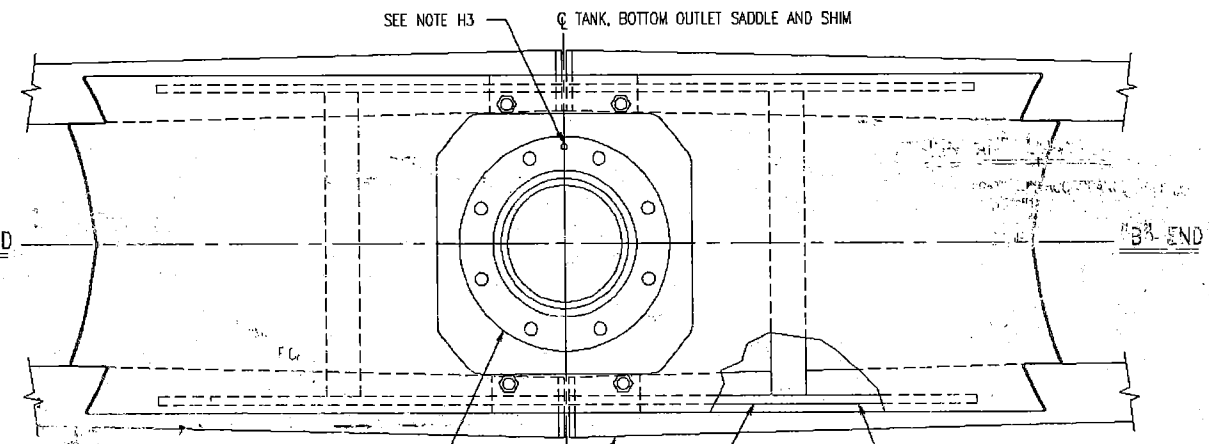
DETAIL "J"



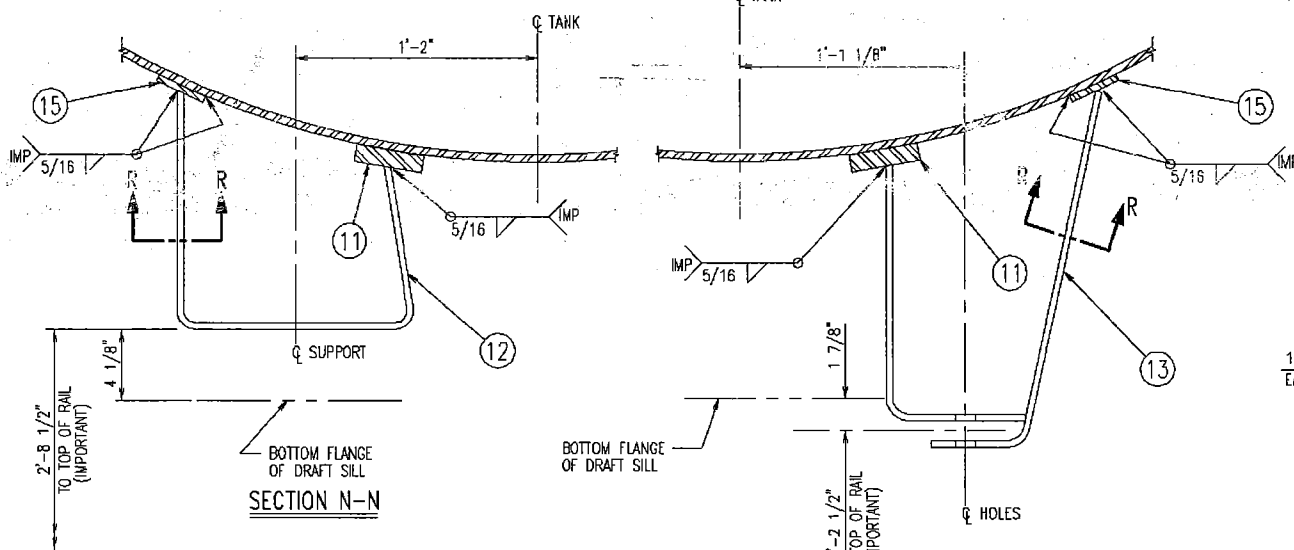
SECTION K-K



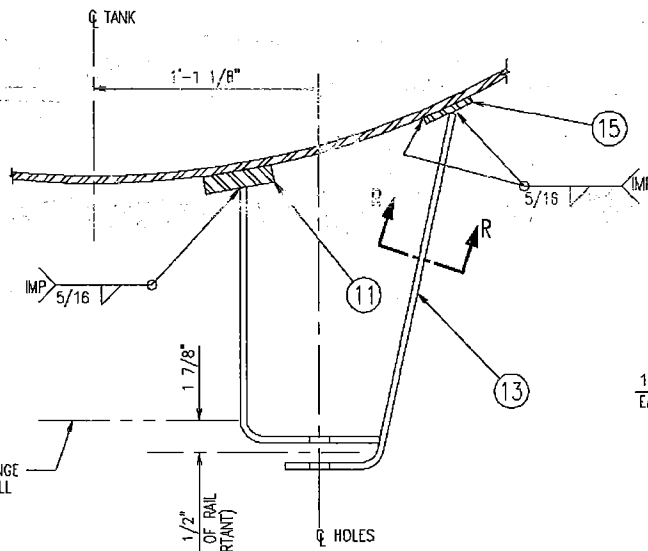
SECTION L-L



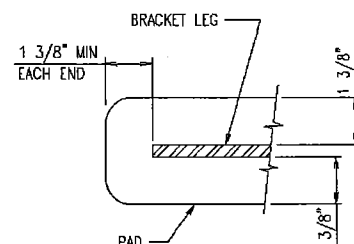
VIEW M-M



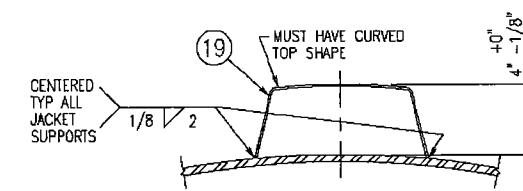
SECTION N-N



SECTION P-P



SECTION R-R (EDGE DISTANCE REQUIREMENTS)



SECTION S-S

REV	BY	DATE	REVISION
A.A.R. APPLICATION NO. L016064			
<small>UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY:            SEE B-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (D16)            ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2"            DECIMALS: 3 PLACE ±.005 2 PLACE ±.03 1 PLACE ±.1            ANGLES: MACHINED ±1/2 DEG. ALL OTHERS ±1 DEG.</small>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
<small>THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001</small>			
DRAWN	DLB	8-3-01	<b>TANK ARRANGEMENT</b> 15,677 WC, 99" ID, STB, 4" DROP DOT 111A100W1, NC & 41
CHKD	KFC	8-7-01	
APPD	SLM	8-8-01	
1st FILE	T01035		
NLA			
WEIGHT			DRAWING NO:
		D-43573	SHEET 3 OF 3
			REV 3
			SIZE D

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	B-26783	1	PROTECTIVE HOUSING ASSEMBLY, 15" NOZZLE
2	082-21274	1	PLUG AND CHAIN ASSEMBLY, 2", NITRONIC 60, SS CHAIN
3	082-21273	1	PLUG AND CHAIN ASSEMBLY, 1", NITRONIC 60, SS CHAIN
4	075-20313	1	VALVE, BALL, 2", SCREWED END, FIRESAFE, SS, FULL PORT
5	075-20312	1	VALVE, BALL, 1", SCREWED END, FIRESAFE, SS, FULL PORT
6	063-35273	12	BOLT, HYV HEX HD, 1"-BUNC-2A X 4 1/4" LG, A193-B8M
7	063-70774	12	NUT, HYV HEX, 1"-BUNC-2B, A194-2H
8	089-20907-26	1	GASKET, 15" ID X 17" OD X 1/8" THK, TEFLON
9	D-740110	1	COVER FLANGE ASSEMBLY, 15" MULTI-HOUSING, 316L SS
10	C-38520	1	GUIDE, EDUCATION PIPE, 2", 316L SS
11	063-72012	1	WASHER, 1/4" W, 0.312" ID X 0.734" OD X 0.065" THK
12	063-71905	2	WASHER, 7/8" N, TYPE A PLAIN, CS
13	063-72555	1	RIVET, BUTTION HEAD, 1/4" X 1 1/4" LG
14	063-72787	1	PIN, LOCKING, PROTECTIVE HOUSING (A-111803)
15	A-10168-01	1	PIPE, 1/2" SCH 80, PLAIN
16	064-73322	1	SEAL, SURE LOCK, 3/8" WIDE X 8 1/2" LG
17	075-74929-03	1	VALVE, VACUUM RELIEF, MIDLAND A-217-WO-WN
18	040-20663	0.1	ROLL, TEFLON TAPE

\* VALVE OPTIONS FOR ITEM 4

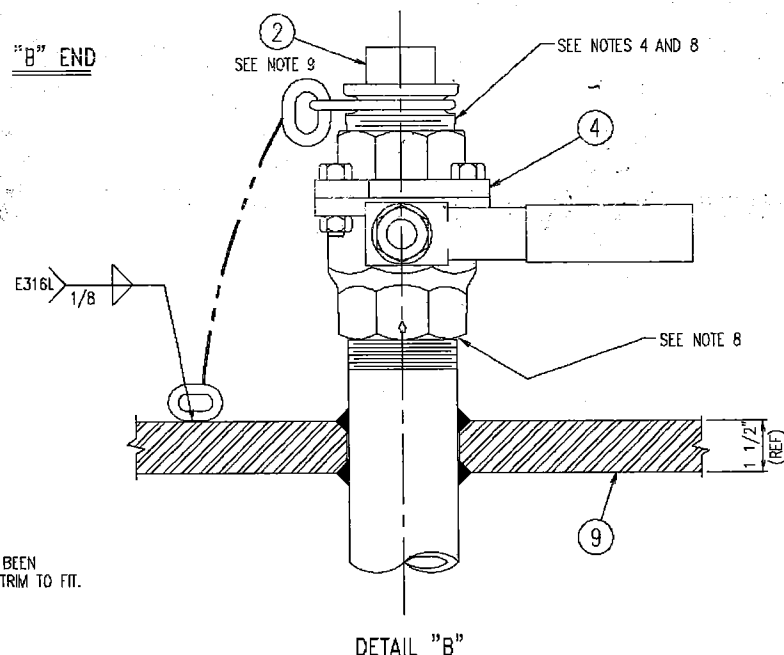
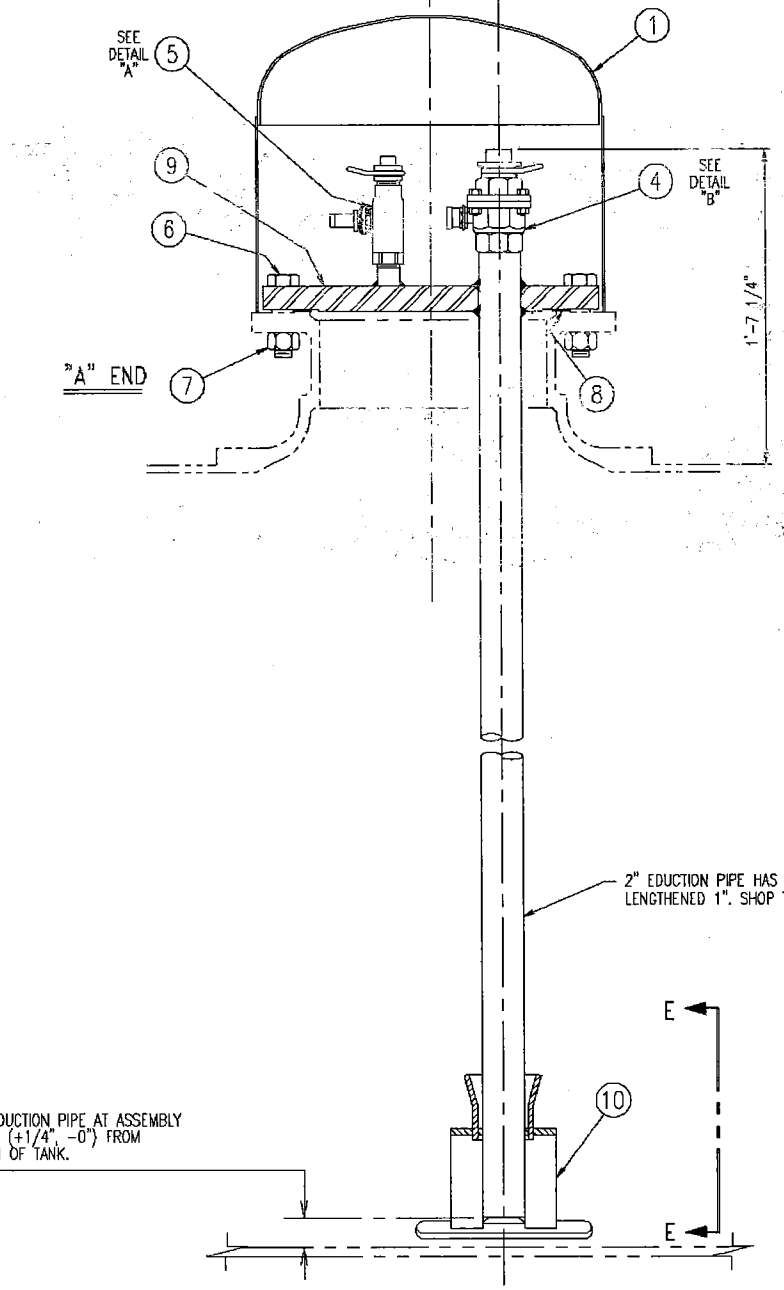
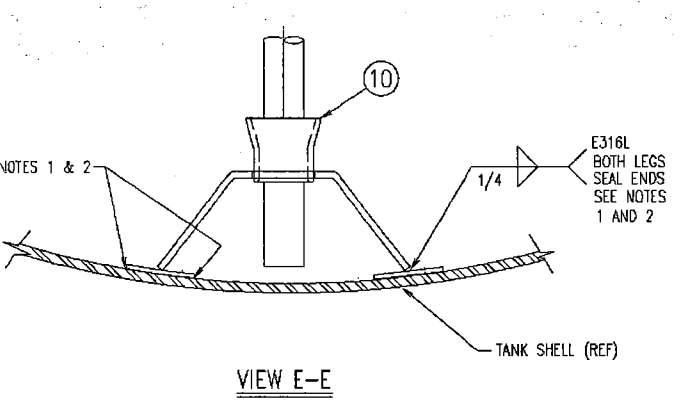
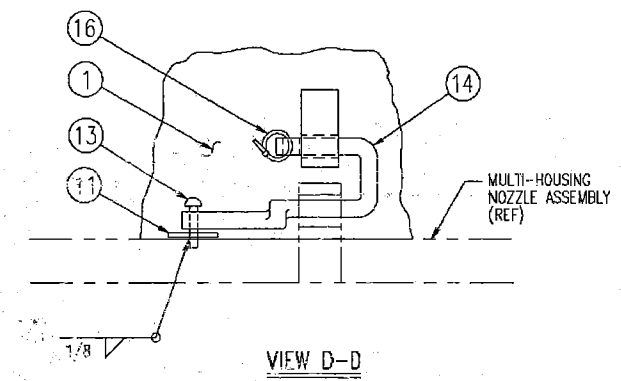
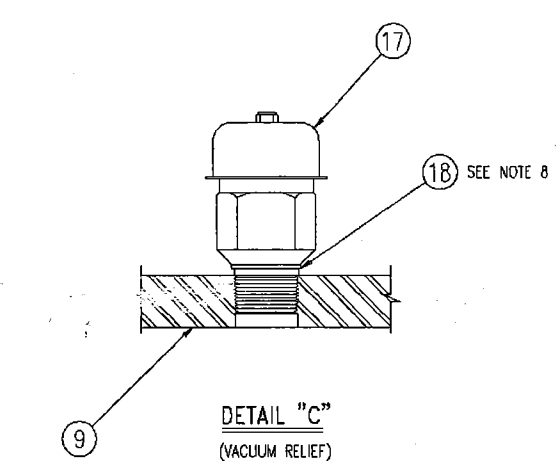
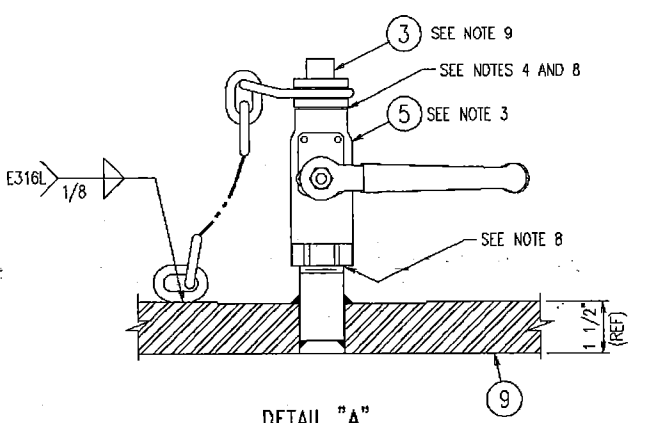
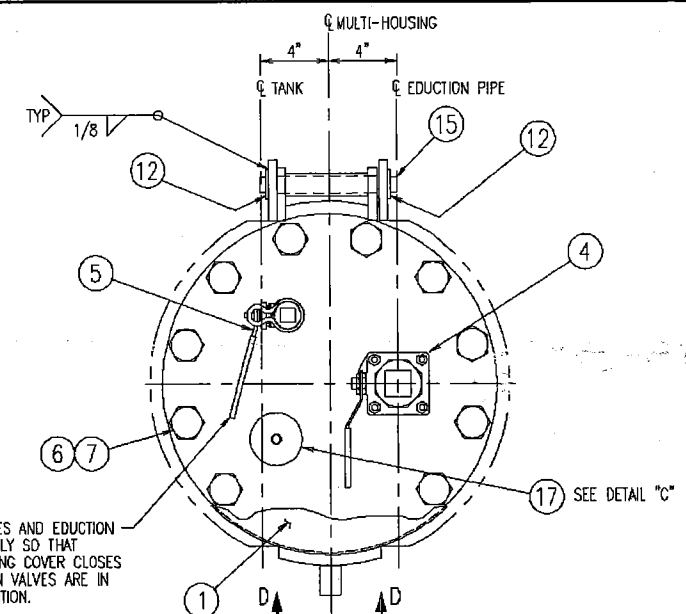
ITEM	PART NO.	QTY	DESCRIPTION
075-20313-WT	WATTS	2"	SFBV-AAR
075-20313-PV	ELLCON	2"	2S6BS-FPMP-2
075-20313-J3	JAMESBURY	2"	6FR-3600-MT

\* VALVE OPTIONS FOR ITEM 5

ITEM	PART NO.	QTY	DESCRIPTION
075-20312-WT	WATTS	1"	SFBV-AAR
075-20312-PV	ELLCON	1"	2S6BS-FPMP-1
075-20312-J3	JAMESBURY	1"	6FR-3600-MT

NOTES:

- ALL INTERIOR WELDS SHALL BE FREE OF UNDERCUTS, BURRS, POROSITY AND SHARP EDGES.
- ROUND OFF ALL SHARP EDGES TO 1/8" RADIUS.
- THE 1" AND 2" VALVES ARE TO BE INSTALLED WITH THE SCREWED-IN PIECE OF VALVE TOWARD TANK.
- IN ORDER TO PREVENT FOULING OF PLUG AND VALVE THREADS DURING BLAST AND PAINT; WRAP EXPOSED AREA FROM BELOW THE SWIVEL TO THE TOP 3/4" TO 1" OF VALVE BODY WITH DUCT TAPE PRIOR TO SHIPMENT OF CAR FROM FINAL ASSEMBLY AREA.
- FASTENERS MUST MEET ALL REQUIREMENTS OF THE SPECIFICATION AND MUST BE PROPERLY MARKED WITH MATERIAL GRADE AND MANUFACTURER'S REGISTERED SYMBOL. MUST COMPLY WITH THE NATIONAL FASTENER ACT.
- FEMALE COMPONENT OF THREADED FASTENERS MUST BE FULLY ENGAGED AND NO THREADS MAY BE VISIBLE IN FEMALE PART. NYLON INSERT ON LOCKNUTS MUST BE FULLY PENETRATED BY MALE THREADED PART.
- THE ROUNDED END OF ALL STUDS IS THE NUT END.
- USE TEFLON TAPE TO SEAL PIPE THREADS.
- COMPLETE ALL CHAIN WELDING PRIOR TO INSTALLING PLUGS.



TRIM EDUCATION PIPE AT ASSEMBLY 2 1/4" (+1/4", -0") FROM BOTTOM OF TANK.

B	SLM	9-17-01	REVISED HEIGHT OF 2" VALVE
A	KFC	9-14-01	REVISE ITEM 6 TO COLD ROLLED BOLT
REV BY	DATE	REVISION	

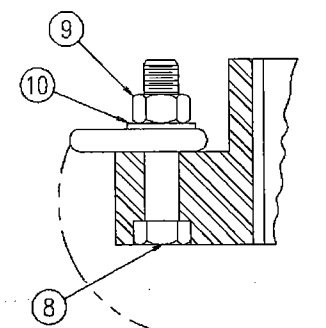
A.A.R. APPLICATION NO. LQ16064A  
 UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY.  
 SEE 9-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTURES MACHINED ±1/8" (D18)  
 ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2"  
 DECIMALS: 3 PLACE ±0.005, 2 PLACE ±0.03, 1 PLACE ±1  
 ANGLES: MACHINED ±1/2 DEG, ALL OTHERS ±1 DEG.

**TRINITY INDUSTRIES, INC.**  
 RAILCAR DIVISION

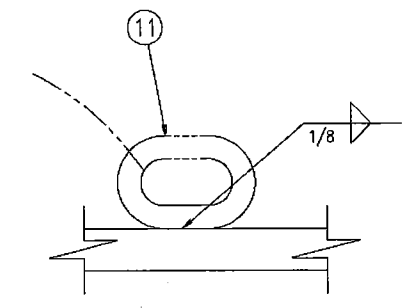
THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001

DRAWN	KFC	7-12-01	<b>15" MULTI-HOUSING ARRANGEMENT</b> 99" ID, WELDED FITTINGS
CHKD	KFC	8-6-01	
APPD	SLM	8-7-01	
1st FILE	T01035		
NLA			
WEIGHT			
DRAWING NO:		D-45477	
SHEET		1	
REV		B	
SIZE		D	

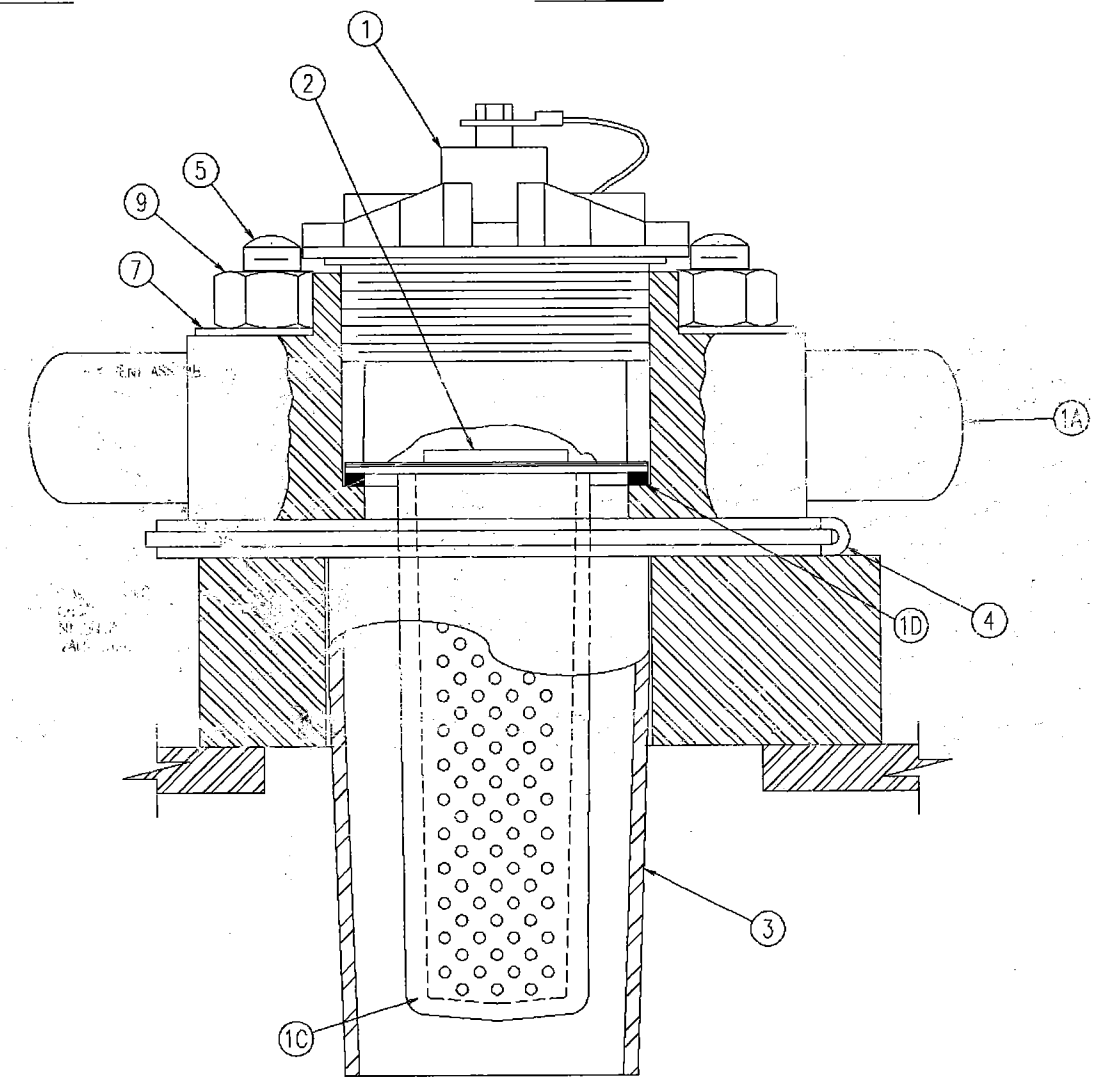
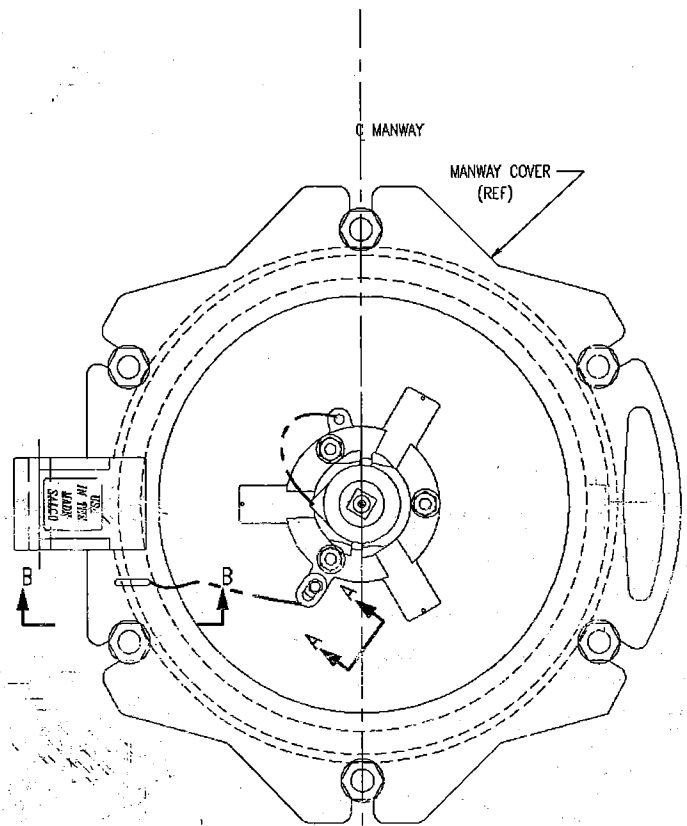
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	075-21831-03	1	SAFETY VENT ASS'Y, SALCO PART: Q1261A
1A	-	1	HOUSING ASSEMBLY
1B	-	1	FLANGE GASKET, WHITE NITRILE
1C	-	1	SURGE PROTECTOR, NORYL
1D	-	1	SURGE PROTECTOR GASKET, WHITE NITRILE
2	075-20788-06	1	RUPTURE DISK, RD166ST
3	075-22978-S1	1	DROP IN SLEEVE, TMCSPNS6
4	089-35163-SP	1	SLEEVE GASKET, WHITE NITRILE
5	063-35170-SP	3	MOUNTING STUDS, TBE, A9595
6	063-79059-SP	3	NUTS, SV5BW
7	063-77037-SP	3	WASHERS, SV5BW
8	063-79983	1	BOLT, HEX, 3/8"-16UNC-2A X 2" LG, A449 TPI PLATED
9	063-74040	1	LOCK NUT, HEX, 3/8"-16UNC-3B DEFLECTED THREAD, GR B PLATED
10	063-72107	1	WASHER FLAT, TYPE A, PL, 3/8"N, PLATED
11	032-74006-01	1	CHAIN, PROOF COIL, 1/4" NOM DIA. X 12" LG



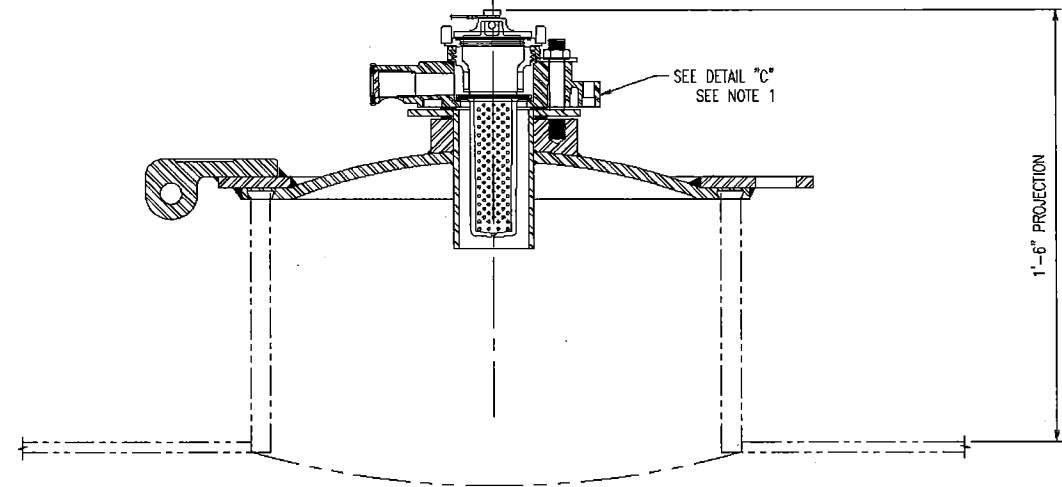
SECTION A-A



SECTION B-B

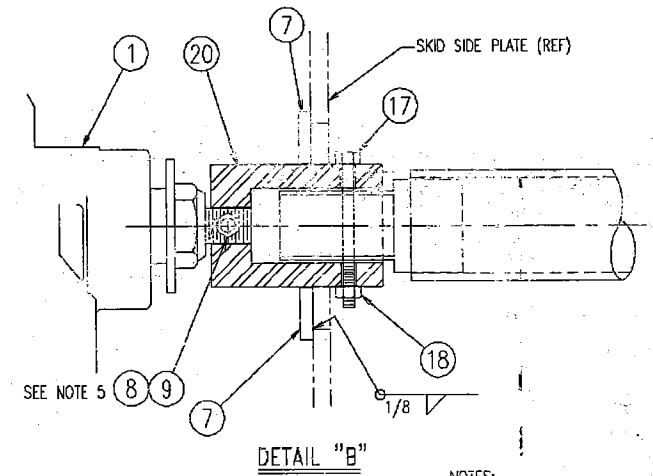
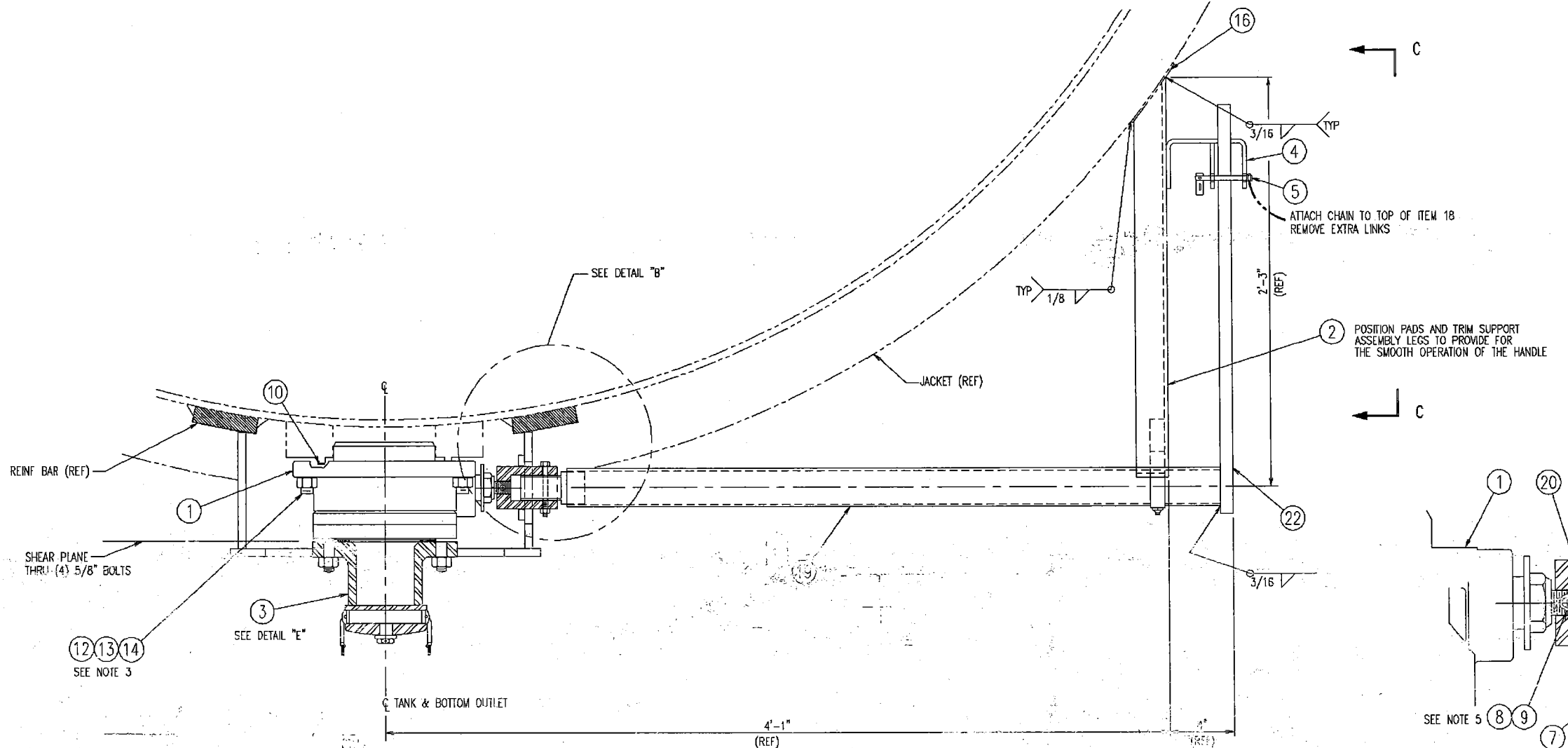


DETAIL "C"



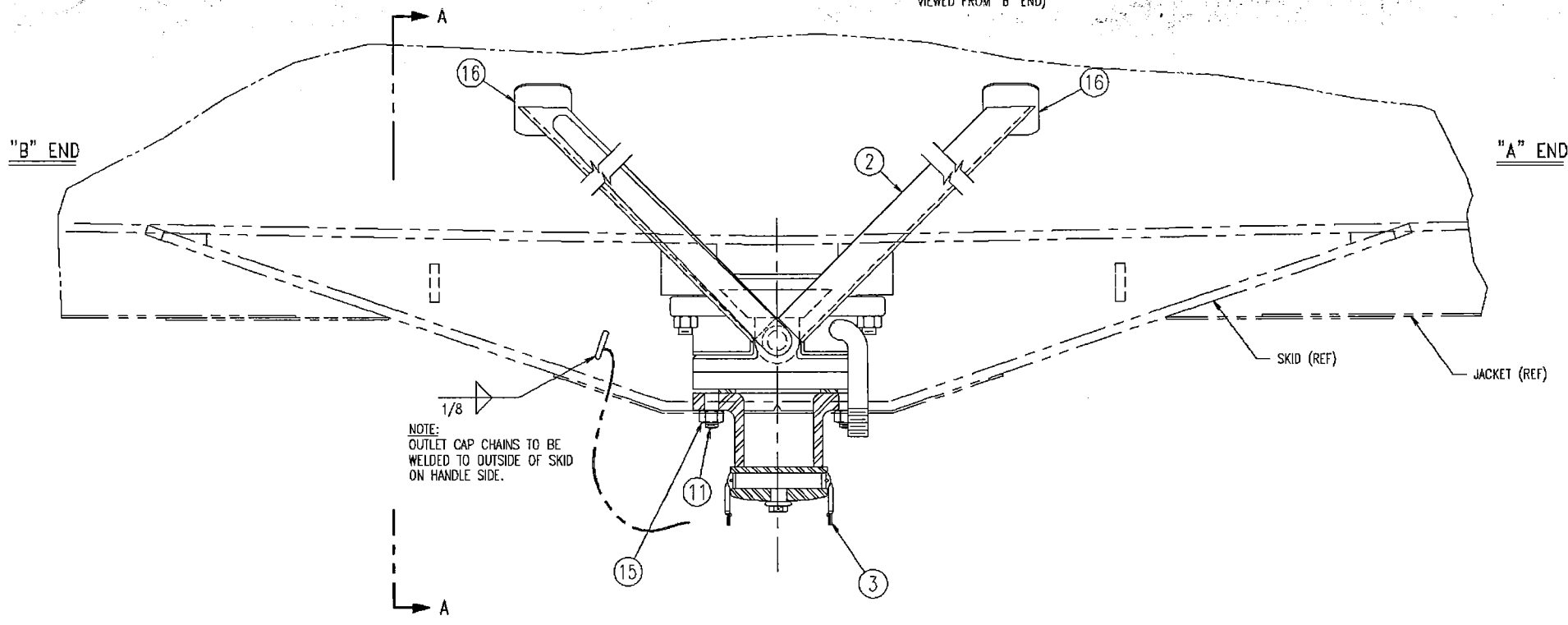
- NOTES:
- SAFETY VENT ASSEMBLY INCLUDING:
    - VENT HOUSING BODY ASSY
    - TOP CAP ASSY
    - RUPTURE DISK SECUREMENT CAP
    - SURGE PROTECTOR GASKET
  - APPLY THREAD SEALANT TO THREADS BEFORE INSTALLATION.
  - FASTENERS MUST MEET ALL REQUIREMENTS OF THE SPECIFICATION AND MUST BE PROPERLY MARKED WITH MATERIAL GRADE AND THE MANUFACTURER'S REGISTERED SYMBOL. MUST COMPLY WITH THE NATIONAL QUALITY FASTENER ACT.
  - FEMALE COMPONENT OF THREADED FASTENERS MUST BE FULLY ENGAGED AND NO THREADS 1/4" OR MORE VISIBLE IN THE FEMALE PART. NYLON INSERT ON LOCKNUTS MUST BE FULLY PENETRATED BY THE MALE THREADED PART.

REV	BY	DATE	REVISION
A	SLM	6-18-02	REVISED ITEM 1
A.A.R. APPLICATION NO. LO16064			
<small>TOLERANCES: UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY. SEE D-145009 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (018") ALL OTHERS: (1" to 2")±1/16", (2" to 10")±1/8", (10" to 20")±1/4", (OVER 20")±1/2" DECIMALS: 3 PLACE ±.005 2 PLACE ±.03 1 PLACE ±.1 ANGLES: MACHINED ±1/2 DEG. ALL OTHERS ±1 DEG.</small>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
<small>THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001</small>			
DRAWN	PLR	8-7-01	<b>SAFETY VENT ARRANGEMENT</b> SALCO SAFETY VENT AND DISC PROTECTOR WHITE NITRILE GASKETS
CHKD	KFC	8-7-01	
APPD	SLM	8-13-01	
1st FILE	T01035		
WEIGHT			
DRAWING NO:		SHEET REV SIZE	
D-45657		D-45628 1 of 1 A D	



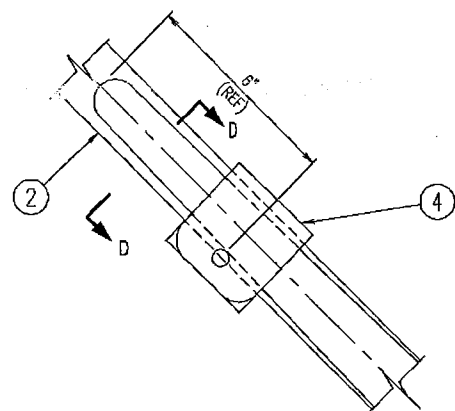
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	075-35094-UT	1	VALVE, BALL, FLANGED, 4" UNION UZFFR 3636TTSJ, SS
2	B-2895D	1	BRACKET ASSEMBLY, HANDLE, BOTTOM OUTLET
3	082-35090-SP	1	ADAPTER ASSEMBLY, Q-D, SALCO PART: K4SUTFG8A
4	B-29063	1	VALVE HANDLE LOCKING ASSY
5	063-20924	1	LOCKING PIN ASSY 7/16" DIA, 17" CHAIN (C-39083-01)
6	040-73401-LT	1	SEALANT, THREAD LOCKING, RED No. 272
7	B-125091	1	SUPPORT BRACKET, VALVE HANDLE, SKID
8	063-35234	1	BOLT, HEX, 5/16-18UNC-2A, A449 TYPE 1
9	063-77024	1	LOCKNUT, HEX, 5/16-18UNC-2B, DEFLECTED THREAD
10	089-70826-22	1	GASKET, 7 1/2" ID X 8 1/2" OD X 1/8" THK, TEFLON GF
11	063-20152	4	STUD, TBE, 5/8-11UNC-2A X 4" LG, A193-BBM (B-32652)
12	063-78873	8	STUD, TBE, 3/4-10UNC-2A X 3 1/2" LG, A193-B7 (B-23338)
13	063-70787	6	WASHER, SPRING LOCK, EXTRA DUTY, 0.763" ID X 1.361" OD X 0.241" THK
14	063-32057-ES	6	LOCKNUT, HEAVY HEX, 3/4-10UNC-2B, A194-2H NYLON INSERT
15	063-73391	4	LOCKNUT, HRY HEX HD, NYLON INSERT, 5/8-11UNC-2B, 303 SS
16	A-17343	2	PAD, 1/4" X 6" X 8"
17	063-20507	1	BOLT, HEX, 1/4-20UNC-2A X 3" LG, A449 TYPE 1
18	063-77023	1	LOCKNUT, HEX, 1/4-20UNC-2B, TOP DEFLECTED THD GR.B
19	C-39157	1	HANDLE AND EXTENSION ASSEMBLY
20	075-32171	1	COUPLING, VALVE HANDLE (B-29035)
21	063-77060	2	LOCKNUT, HEX, 3/4-10UNC-3B, NYLON INSERT, PLATED
22	B-2906D	1	HANDLE, VALVE

- NOTES:
1. MATERIAL GRADE TO BE STAMPED ON THE NUT END OF ALL STUDS AND ON THE HEAD OF ALL BOLTS. DOMESTIC MANUFACTURE IS REQUIRED.
  2. ROUNDED END OF ALL STUDS IS THE NUT END.
  3. APPLY THREAD SEALANT (ITEM 6) TO SEATING END OF ALL STUDS.
  4. USE TEFLON TAPE TO SEAL PLUG THREADS.
  5. INSTALL BOLT (ITEM 8) SUCH THAT WHEN THE VALVE IS ROTATED TO THE OPEN POSITION IT IS VERTICAL, HEAD ON TOP & NUT ON BOTTOM.



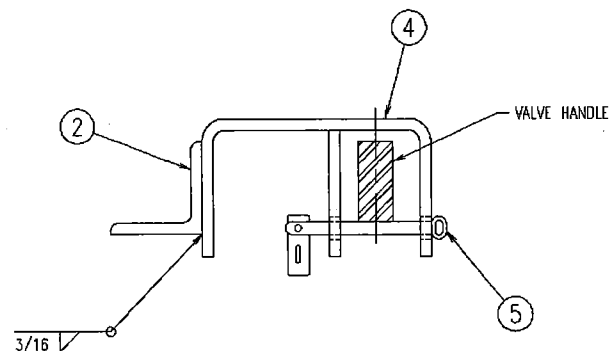
A KFC 9-11-01 UPDATE DWG	
REV BY DATE	REVISION
A.A.R. APPLICATION NO. L016064	
<small>TOLERANCES UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY. SEE 9-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (0.15625) ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2" DECIMALS: 3 PLACE ±.005 2 PLACE ±.03 1 PLACE ±.1 ANGLES: MACHINED ±1/2 DEG. ALL OTHERS ±1 DEG.</small>	
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION	
<small>THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001</small>	
DRAWN DLB 8-9-01 CHKD KFC 8-22-01 APPD TBC 8-22-01 1st FILE T01035 NLA WEIGHT	<b>BOTTOM OUTLET VALVE ARRANGEMENT</b> UNION UZFFR 3636TTSJ
DRAWING NO: D-45966	SHEET 1 OF 2 REV A SIZE D



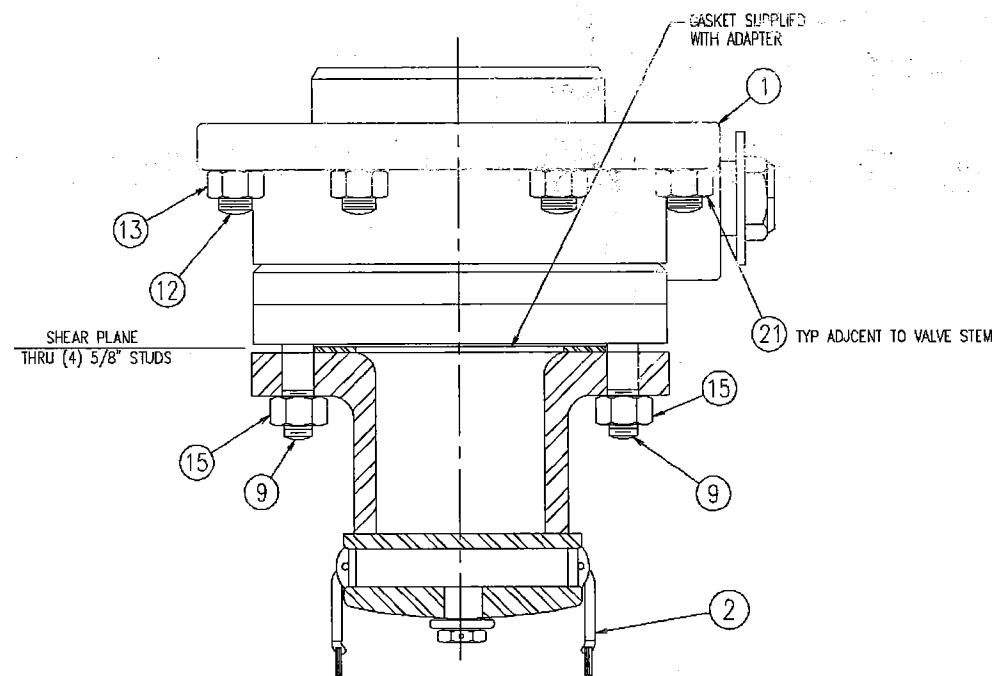


**VIEW C-C**

LOCATE ITEM 4 SUCH THAT HANDLE REST ON LOCKING PIN (ITEM 5) WHEN VALVE IS IN CLOSED POSITION. BRACKET WILL BE APPROX. 6" FROM END OF HANDLE.



**VIEW D-D**

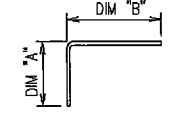


**SECTION D-D**  
OUTLET ADAPTER ASSEMBLY

A	KFC	9-11-01	UPDATE DWG	
REV	BY	DATE	REVISION	
A.A.R. APPLICATION NO. L016064				
TOLERANCES:	UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY: SEE 8-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED $\pm 1/64"$ (0.16") ALL OTHERS: (1" to 2") $\pm 1/16"$ , (2" to 10") $\pm 1/8"$ , (10" to 20") $\pm 1/4"$ , (OVER 20") $\pm 1/2"$ DECIMALS 3 PLACE $\pm 0.005$ 2 PLACE $\pm 0.03$ 1 PLACE $\pm 1$ ANGLES MACHINED $\pm 1/2$ DEG. ALL OTHERS $\pm 1$ DEG.			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION				
THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWINGS MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001				
DRAWN	DLB	8-10-01		
CHKD	KFC	8-22-01		
APPD	TBC	8-22-01		
1st FILE	T01035			
NLA				
WEIGHT				
D-45982			DRAWING NO:	D-55719
			SHEET	REV
			2	A
			OF	D
			2	

**BOTOM OUTLET VALVE  
ARRANGEMENT**  
UNION UZFFR 3636TTSJ

**BRACKET SIZE TABLE**  
CALCULATED TRIM LENGTH (REF)



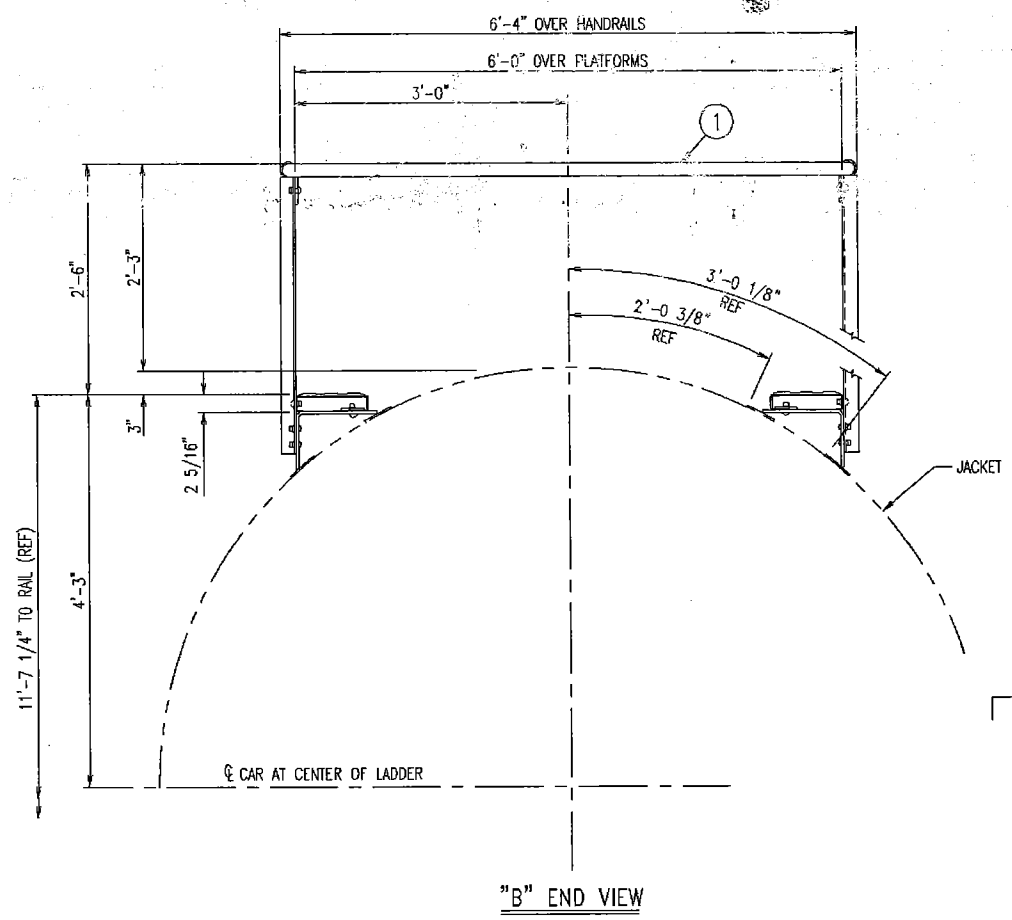
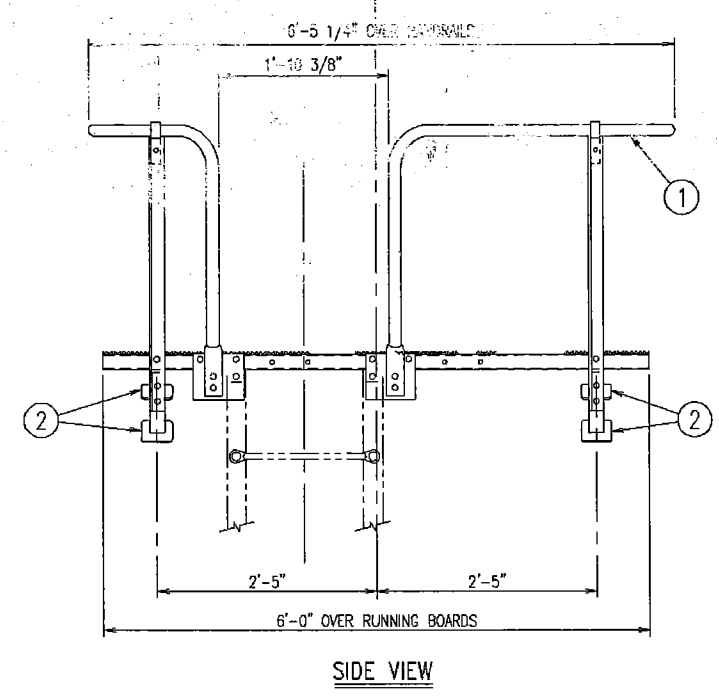
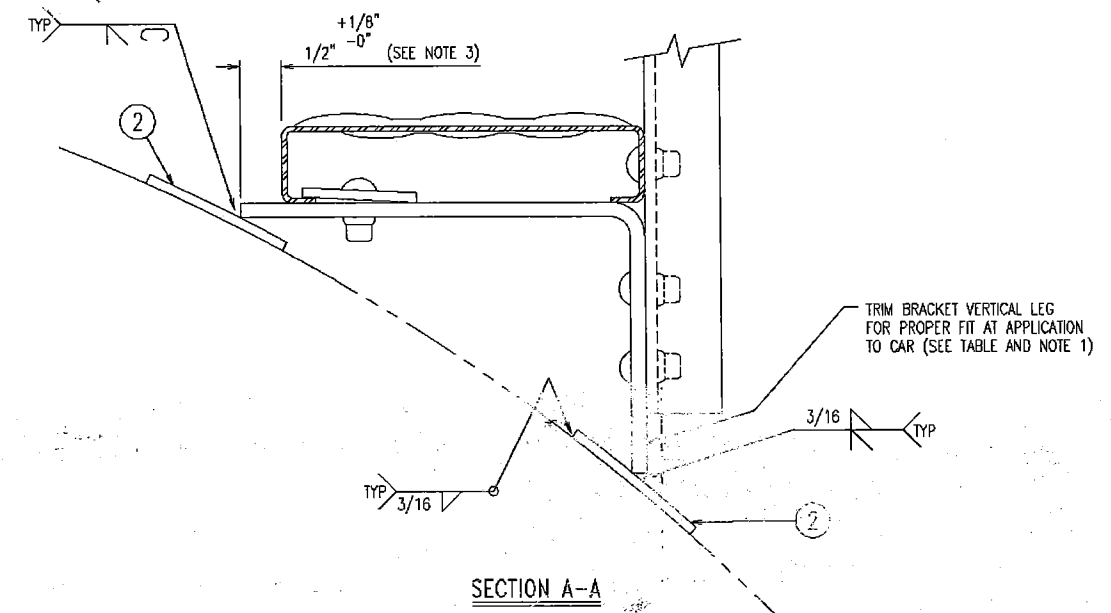
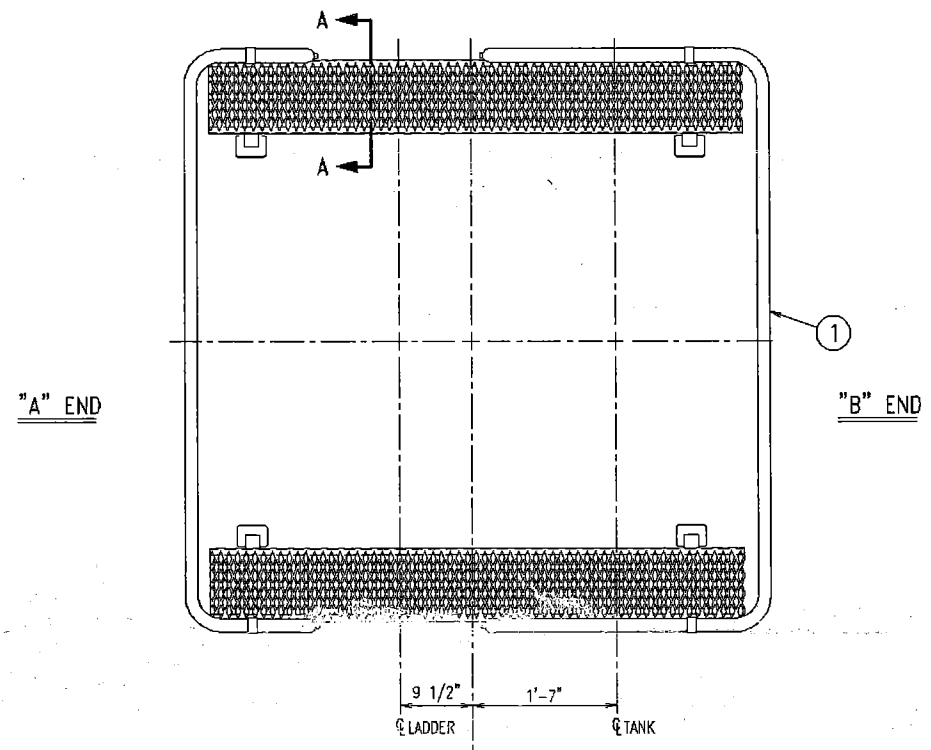
BRACKET LOCATION	DIM "A"	DIM "B"
"A" END	7 3/8"	10 5/8"
"B" END	8 1/16"	12"

**INSTALLATION PROCEDURE**

THE BRACKET THAT IS THE FARTHEST OFF THE CENTERLINE OF THE CAR MUST ALWAYS HAVE A HORIZONTAL LENGTH (DIM "B") OF 10 5/8". THE VERTICAL LENGTH OF (DIM "A") OF THIS BRACKET AND THE VERTICAL AND HORIZONTAL LENGTH OF THE OTHER BRACKET MUST BE TRIMMED TO HOLD THE TOP PLATFORM LEVEL.

**PARTS LIST**

ITEM	PART NO.	QTY	DESCRIPTION
1	D-59892	1	TOP PLATFORM ASSEMBLY
2	A-17395	8	PAD, 1/4" X 4" X 4"



- NOTES:**
1. PLATFORM BRACKETS MUST BE TRIMMED TO PROPERLY INSTALL THIS PLATFORM. REFER TO BRACKET SIZE TABLE AND INSTALLATION PROCEDURE.
  2. PRIME PAINT ALL LAPPED SURFACES BEFORE ASSEMBLY.
  3. B-END BRACKET TO BE TRIMMED TO 1/2" MINIMUM AT APPLICATION TO REDUCE TOE CLEARANCE.

REV	BY	DATE	REVISION
A	TBC	10-9-03	LENGTH OVER HANDRAILS WAS 6'-3 5/8"; ADDED NOTE 3

**TOLERANCES**

UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY. SEE D-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (0.015")

ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2"

DECIMALS: 3 PLACE ±.005, 2 PLACE ±.03, 1 PLACE ±.1

ANGLES: MACHINED ±1/2 DEG. ALL OTHERS ±1 DEG.

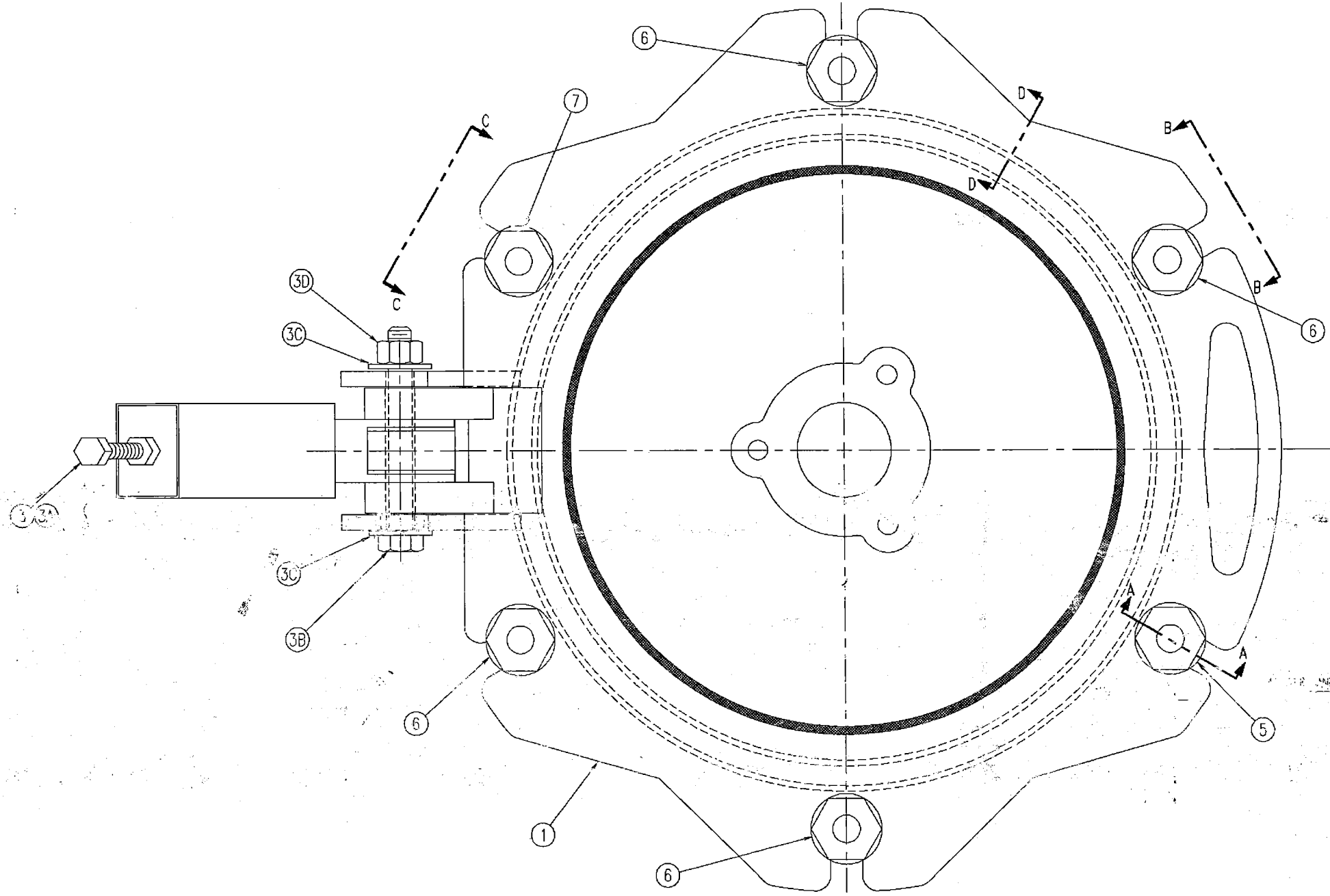
**TRINITY INDUSTRIES, INC.**  
RAILCAR DIVISION

THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWING MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001

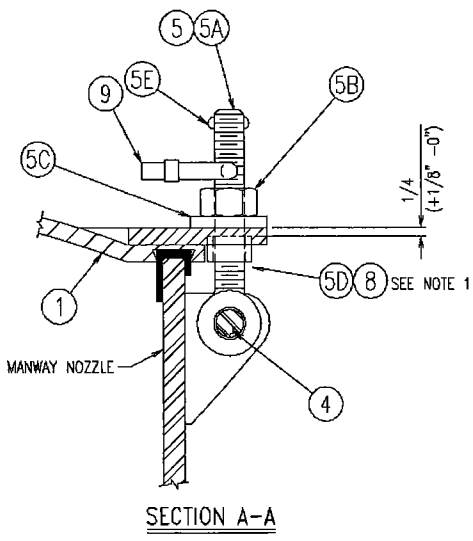
DRAWN	HRC	8-6-01
CHKD	KFC	8-6-01
APPD	SLM	8-7-01
1st FILE		101035
NLA		
WEIGHT		

**TOP PLATFORM APPLICATION**  
15,677 WG, TWO LEVEL, TWO WAY  
108 1/8" OD JACKET, 0.2181" SLOPE

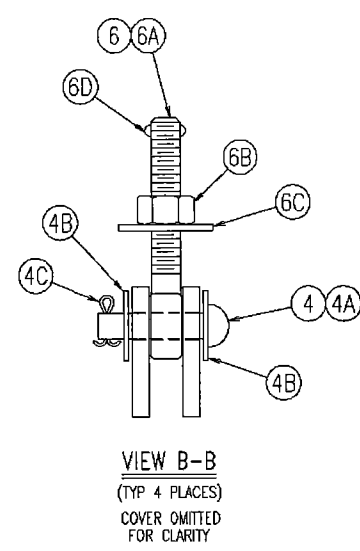
DRAWING NO:	SHEET	REV	SIZE
D-59925	D-69135	1	A



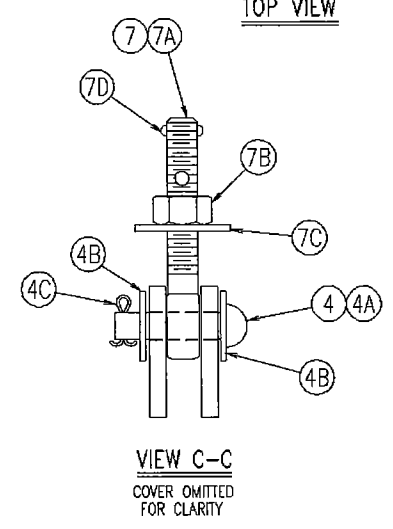
TOP VIEW



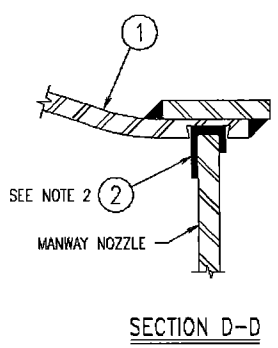
SECTION A-A



VIEW B-B  
(TYP 4 PLACES)  
COVER OMITTED  
FOR CLARITY



VIEW C-C  
COVER OMITTED  
FOR CLARITY



SECTION D-D

PARTS LIST

ITEM	PART NO.	QTY	DESCRIPTION
1	084-35092-SP	1	MANWAY COVER, 20", CS/SS, SALCO PART: TMC 2067 W/QI BOSS
2	089-20512-S2	1	GASKET, 20" MANWAY COVER, SALCO PART: TC20MGN
3	084-35099-SP	1	LIFT ASSISTER, 20" MANWAY COVER, SALCO PART: TCSLC152
3A		1	SWIFT LIFT-CENTER MOUNT
3B		1	AXLE BOLT
3C		2	FLAT WASHER
3D		1	AXLE NUT
4	084-33952-SP	6	BUTTON HEAD RIVET ASSEMBLY, 316 SS, SALCO PART: BHR783HS6A
4A		1	BUTTON HEAD RIVET, 7/8" X 3", 316 SS, SALCO PART: BHR783HS6
4B		2	WASHER, 7/8" STD, 316 SS, SALCO PART: WASH78S6STD
4C		1	COTTER PIN, 3/16" X 2", 316 SS, SALCO PART: CP3162S6
5	084-35109-SP	2	SAFETY SEAL BOLT, 316 SS, SALCO PART: EBR786H2AS6TC
5A		1	SEAL BOLT, 7/8" X 6", 316 SS, SALCO PART: EBR786HFTS6R
5B		1	HEX NUT, 7/8", 416 HT SS, SALCO PART: N78KAS6
5C		1	WASHER, 2" OD X 3/16" THK, 304 SS, SALCO PART: WASH78S4
5D		1	EYEBOLT COLLAR, 304 SS, SALCO PART: COLLAR154T
5E		1	RIVET, 1/4", 316 SS, SALCO PART: SN14S
6	084-27185-SP	4	EYEBOLT ASSEMBLY, 316 SS, SALCO PART: EBR786XAS6
6A		1	EYEBOLT, 7/8" X 6", 316 SS, SALCO PART: EBR786S6R
6B		1	HVY HEX NUT, 7/8", 416 HT SS, SALCO PART: N78KSS6
6C		1	WASHER, 2" OD X 3/16" THK, 304 SS, SALCO PART: WASH78S4
6D		1	RIVET, 1/4", 316 SS, SALCO PART: SN14S
7	084-35111-SP	1	SEAL BOLT ASSEMBLY, 316 SS, SALCO PART: EBR786XH2AS6
7A		1	SEAL BOLT, 7/8" X 6", 316 SS, SALCO PART: EBR786HS6R
7B		1	HEX NUT, 7/8", 416 HT SS, SALCO PART: N78KAS6
7C		1	WASHER, 2" OD X 3/16" THK, 304 SS, SALCO PART: WASH78S4
7D		1	RIVET, 1/4", 316 SS, SALCO PART: SN14S
8	040-73401-LT	1	SEALANT THREADLOCKING, RED No. 272
9	064-73322	1	SEAL, SURE LOCK, 3/8" WIDE X 8 1/2" LG

NOTES:

1. LOCATE COLLAR AND FIX THREADLOCKING PER SHOP PROCEDURE PA19-D3023
2. REMOVE OR PROTECT GASKET DURING BLAST, LINING AND PAINTING OPERATION.

REV	BY	DATE	REVISION
A	JCB	4-2-02	REVISED DESCRIPTION ON ITEM 5A
A.L.R. APPLICATION NO. L016064			REVISION
UNLESS OTHERWISE SPECIFIED ON THIS DRAWING THE FOLLOWING TOLERANCES SHALL APPLY: SEE D-145000 FOR ADDITIONAL TANK CAR TOLERANCES. FRACTIONS MACHINED ±1/64" (0.015") ALL OTHERS: (1" to 2") ±1/16", (2" to 10") ±1/8", (10" to 20") ±1/4", (OVER 20") ±1/2" DECIMALS: 3 PLACE ±.005, 2 PLACE ±.03, 1 PLACE ±.1 ANGLES: MACHINED ±1/2 DEG. ALL OTHERS ±1 DEG.			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
THIS DRAWING CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TRINITY INDUSTRIES, INC. THE DRAWING IS THE PROPERTY OF TRINITY INDUSTRIES, INC. AND IS LOANED FOR ENGINEERING REVIEW ONLY. THE DRAWING MAY NOT BE COPIED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF TRINITY INDUSTRIES, INC. AND SHALL BE RETURNED ALONG WITH ALL COPIES UPON DEMAND. © TRINITY INDUSTRIES, INC. 2001			
DRAWN	DLB	8-13-01	<b>MANWAY COVER INSTALLATION</b> 20", 6-BOLT, SALCO PRODUCTS
CHKD	KFC	8-16-01	
APPD	TBC	8-17-01	
1st FILE	T01035		
NLA			
WEIGHT			DRAWING NO: <b>D-643673</b>
		SHEET 1	REV A
		SIZE D	