

# APPLICATION FOR APPROVAL AND CERTIFICATE OF CONSTRUCTION

Page 1 of 2

1 APPROVAL REQUESTED OF:  PRECEDENT  TANK CAR COMMITTEE  
 2 TYPE:  CONSTRUCTION  WELDED REPAIRS  ALTERATION  OTHER  CONVERSION  
 3 AAR NO. \_\_\_\_\_  
 4 DATE: SEPTEMBER 26, 1995  
 5 APPLICANT'S NO. 9598  
 7 TANK SPECIFICATION: DOT 111A100W1  
 8 STENCILED SPEC.: DOT 111A100W1  
 9 REPORTING MARKS & CAR NUMBERS \_\_\_\_\_  
 10 NUMBER OF CARS 37

11 Initial commodity <u>SEE NOTES</u>	12 Density, lb. per gallon <u>7.5</u>
13 Full water capacity, gal. <u>25,498</u>	14 Dome capacity or outage, gal. <u>510</u>
15 Material type & grade - heads <u>ASTM A516-70</u>	16 Material type & grade - shell <u>ASTM A516-70</u>
17 Material thickness - heads, in. <u>7/16 MIN.</u>	18 Material thickness - shell, in. <u>7/16</u>
19 Lining type <u>SIGMA 7400</u>	20 Inside diameter - center, in. <u>110-1/4</u>
21 Inside diameter - end rings, in. <u>110-1/4</u>	22 Head radius, main, in. (if not 2:1) <u>2:1 ELLIPSOIDAL</u>
23 Test pressure, psi <u>100</u>	24 Insulation type <u>GLASSWOOL BLANKET</u>
25 Insulation thickness, in. <u>4</u>	26 Thermal conductivity, Btu-in/hr · ft <sup>2</sup> · F <u>0.26</u>
27 Type and number of safety relief devices <u>VALVE (1)</u>	28 Safety device start-to-discharge, psi <u>75</u>
29 Safety device flow cap., cfm mod. <u>291</u>	30 Safety device flow capacity, cfm, actual <u>1113</u>
31 Tank surface area, sq. ft. <u>1605</u>	32 Underframe type <u>STUB SILL</u>
33 Center of gravity, loaded, in. <u>83.12</u>	34 Est. light weight, lb. <u>72,000</u>
35 AAR clearance diagram <u>C</u>	36 Rail load limit, lb. <u>263,000</u>
37 Truck capacity, tons <u>100</u>	38 Head shields <u>NONE</u>

NOTES: STYRENE MONOMER, INHIBITED AND PRODUCTS AUTHORIZED IN DOT PART 173 FOR WHICH THERE ARE NO SPECIAL COMMODITY REQUIREMENTS AND NONREGULATED COMMODITIES COMPATIBLE WITH THIS CLASS OF CAR.

Orig. Cert. \_\_\_\_\_  
 Builder \_\_\_\_\_  
 Date \_\_\_\_\_  
 Former lading \_\_\_\_\_

The Following Drawings Apply:	Drawing Number	The following prior approvals apply:	
		Drawing Number	Application/Certificate No.
39 General Arrangement	D-40913A	D-40469A	A916001 ✓
40 Arrangement, Tank	D-42922 SH. 1	D-42549 SH. 1	A916001 ✓
41 Reinforced Openings,	D-42922 SH. 2 & 3	D-42549 SH. 2	A916001 ✓
42 BOLSTER & DRAFT SILL, ARRGT.	D-140465 SH. 1M & 2B	D-140465 SH. 1K & 2	A946089B ✓
43 Fittings Arrangement	D-45184	D-45102	A946006 ✓
44 Manway Assembly	D-443664	D-243650S	A946084 ✓
45 Protective Housing	D-45184	D-45102	A946006
46 Venting, Loading and Discharge Valves	D-45184	D-45102	A946006
47 Safety Relief Devices	MIDLAND A-1079		A916004
48 Heater Systems (Int. /Ext. )	NONE		
49 Gaging Devices <u>VISUAL SCALE</u>	D-42922 SH. 2	D-42549 SH. 2	A916001
50 Bottom Outlet Valve	MIDLAND A549		A906001
51 JACKET ANCHOR	B-23653		A946104A
52 Manway cover	D-243649B		A946104A
53 Calculations	D-243972 SH. 1A & 2A	D-343955 SH. 1 & 2	A916093

REVISIONS:

APPLICATION BY: SANDY L. McQUEEN

I certify that the foregoing conforms to all applicable DOT and AAR requirements including Specifications, Regulations, Rules of Interchange, and the DOT Railroad Safety Appliance Standards.

SIGNATURE S. L. McQueen  
 TITLE ENGINEERING MANAGER - PRODUCTION

APPROVAL - AAR Tank Car Committee

OCT 27 1995 P. J. Payne, Secretary  
 Date Approved \_\_\_\_\_  
 Signature of behalf of Tank Car Committee \_\_\_\_\_

CERTIFICATION: The cars enumerated below conform to the above approved description and to all applicable DOT and AAR requirements, including Specifications, Regulations, Rules of Interchange and the DOT Railroad Safety Appliance Standards. Copy of this Certificate of Construction will be furnished to the owner and others as required by 49 CFR Part 179.5 before these cars are placed in service.

Initials and Car Numbers: \_\_\_\_\_  
 Name Lee R. Vintery Date 11/9/96  
 Title Division QA Manager, Tank Car

AAR NO. F956141  
Applicant's No. 9598  
Date 9-26-95

## APPLICATION FOR APPROVAL AND CERTIFICATE OF CONSTRUCTION

<u>THE FOLLOWING DRAWINGS APPLY</u>	<u>DRAWING NUMBER</u>	<u>PRECEDENT DRAWING NO.</u>	<u>PRECEDENT APPLICATION NO.</u>
54 SAFETY VALVE NOZZLE ASSY	B-27514F		A946104A
55 SAFETY VALVE ARRANGEMENT	D-45524	D-45523B	A916009B
56 BOTTOM OUTLET VALVE ARRGT	D-45710		A916060

GENERAL ARRANGEMENT - D-40913A  
DRAWING D-40913A IS THE SAME AS D-40469A EXCEPT THAT LIGHT WEIGHT HAS BEEN REDUCED FROM 75,400 TO 72,000 AND THE BOTTOM OUTLET VALVE STEAM PIPING HAS BEEN DELETED.

TANK ARRANGEMENT - D-42922 SH. 1, 2 & 3  
DRAWING D-42922 SH. 1, 2 & 3 IS THE SAME AS D-42549 SH. 1 & 2 EXCEPT THAT THE BOLSTER AND DRAFTSILL ARRANGEMENT NUMBERS REFERENCED IN THE PARTS LIST HAVE BEEN REVISED TO REFLECT OUR CUSTOMER'S REQUIREMENT FOR SINGLE COUPLER CARRIER WEAR PLATES.

BOLSTER AND DRAFT SILL ARRANGEMENT - D-140465 SH. 1M & 2B  
DRAWING D-140465 SH. 1M & 2B IS THE SAME AS D-140465 SH. 1K & 2 EXCEPT THAT WELDING SYMBOLS ON BOTH SHEETS HAVE BEEN REVISED TO INCLUDE WELD CLASSIFICATION NUMBERS FOR USE IN OUR MANUFACTURING PROCESS.

FITTINGS ARRANGEMENT - D-45184  
DRAWING D-45184 IS THE SAME AS D-45102 EXCEPT THAT THE 3" LIQUID VALVE HAS BEEN REPLACED WITH A 2" VALVE. VALVE DESCRIPTION IS PRINCETON 2" FULL PORT BALL VALVE WITH STAINLESS STEEL BODY AND TRIM (AAR APPROVED).

CALCULATIONS - D-243972 SH. 1A & 2A  
DRAWING D-243972 SH. 1A & 2A IS THE SAME AS D-343955 SH. 1 & 2 EXCEPT THE BOTTOM OUTLET VALVE FLANGE IS FOR A MIDLAND A549 VALVE INSTEAD OF A JAMESBURY AZFRC. CALCULATIONS FOR THE MOUNTING FLANGE FOR THE MIDLAND A549 AS SHOWN ON D-243972 SHEET 2 ARE IDENTICAL TO THE CALCULATIONS OF D-443907 SHEET 2 (A946002).

SAFETY VALVE ARRANGEMENT - D-45524C  
DRAWING D-45524C IS THE SAME AS D-45523B EXCEPT THAT THE SAFETY VALVE O-RING HAS BEEN CHANGED FROM EPDM TO VITON.

APPLICATION BY SANDY L. McQUEEN

I certify that the foregoing conforms to all applicable DOT and AAR requirements, including Specifications, Regulations, Rules of Interchange and the DOT Railroad Safety Appliance Standards.

SIGNATURE S. L. McQueen  
TITLE ENGINEERING MANAGER - PRODUCTION

APPROVAL AAR Tank Car Committee

Date Approved

OCT 27 1995

P. J. Payne, Secretary

(Signature) on behalf of Tank Car Committee

\*MODEL NUMBER 30-255-5 FILE NUMBER 9598.a  
\*REVISION 10-20-95 EST/QTE # 3639:95/3010  
CUSTOMER Chevron DATE September 7, 1995  
\*DOT SPECIFICATION 111A100W1 COMMODITY Styrene WEIGHT/GAL. 7.857# @ 60 deg. F

GENERAL DATA:

SHELL CAPACITY 25,498 Gallons <sup>2%</sup> OUTAGE 510 Gallons NOMINAL CAPACITY 24,988 Gallons  
MAXIMUM WEIGHT ON RAILS 263,000# LIGHTWEIGHT 72,000# ALLOWABLE WEIGHT PER GALLON 7.64#  
LENGTH OVER STRIKERS 56' 7 3/4" LENGTH OVER TRUCK CENTERS 45' 8 3/4"  
HEIGHT OVER RAILS 14' 10 5/8" WIDTH 10' 7 3/8" CLEARANCE DIAGRAM C

TANK:

PLATE SPECIFICATION A516 Grade 70 DIAMETER 110 1/4" ID LENGTH OVER SEAMS 48' 4 5/8"  
PLATE THICKNESS 7/16" HEAD THICKNESS 7/16" Min. TANK TEST 100 PSI  
SLOPE 0.2181"/Ft. to Centerline SKID None SAFETY PLATFORM 2 Board, 2 Way, X 6'-0" long

INSULATION:

TYPE Fiberglass THICKNESS 4" (1#/CF Density) JACKET 11 Ga. Shell  
11 Ga. Heads

HEATER COIL:

DESIGN None NO. LINES \_\_\_\_\_ SIZE \_\_\_\_\_ INLETS/OUTLETS \_\_\_\_\_  
STEAM JACKET: OUTLET VALVE ( ); MANWAY NOZZLE ( ); MULTIHOUSE ( ); SAFETY VALVE ( )

FITTINGS:

BOTTOM UNLOADING: VALVE Midland A-549 SIZE 4" MATERIAL: BODY CS TRIM SS  
CONNECTION Cap & Plug SIZE 4" & 2" MATERIAL CS OUTLET SADDLE CS  
TOP UNLOADING: MULTIHOUSE SIZE 14" insert nozzle MATERIAL CS w/ bolted CS coverplate  
VALVE Screwed end ball type (full port) SIZE 2" MATERIAL: BODY SS BALL & STEM SS  
\*SIPHON PIPE SIZE 3" schedule 40 MATERIAL 304 SS w/ SS guide & pads  
AIR VALVE Screwed end ball type (full port) SIZE 1" MATERIAL: BODY SS BALL & STEM SS  
\*SAFETY RELIEF VALVE Midland A-1079F, 75# MATERIAL SS SEATS/SEALS Viton  
MANWAY: SIZE 20" Flued MATERIAL CS COVER MATERIAL Ductile Iron, 6 bolt casting  
Extended  
GAUGING DEVICE SS Visual Bar TELL TALE None SAMPLE LINE None THERMOWELL None  
GASKET MATERIAL Viton GF flange gaskets SUMP None WASHOUT None VACUUM RELIEF Midland A209W  
Garlock 3000 @ manway

TRUCKS:

CAPACITY 100 Ton TYPE Ride Control WHEELS Class C 36" 1 Wear CENTER PLATE 16" Low Profile  
JOURNAL BEARINGS Roller (NFL) SPRING TRAVEL 3 11/16" STABILIZER Mechanical  
COUPLER SE60DE BRAKES Body Mounted HAND BRAKE Vertical Hand Wheel

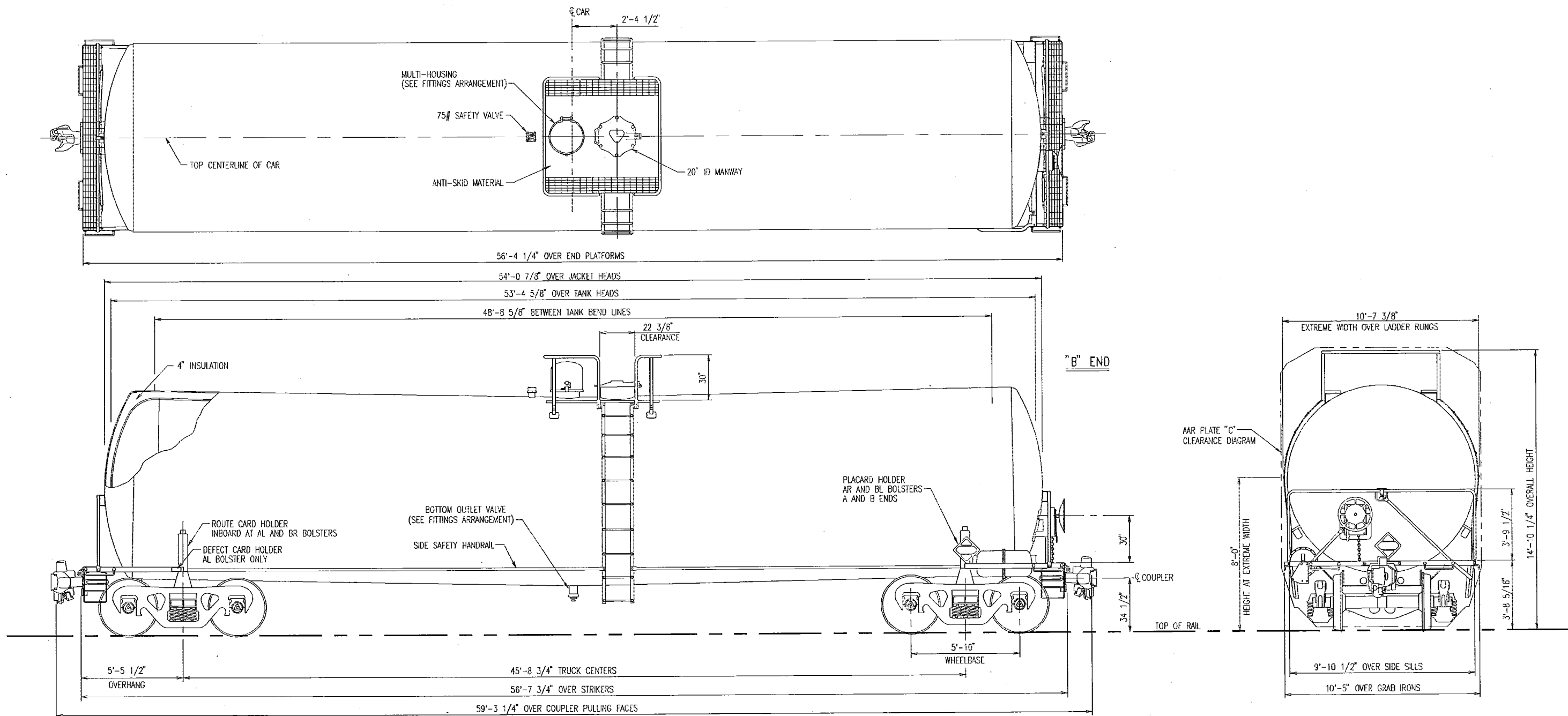
OTHER:

\*INTERIOR PREP Prepare for lining LINING Sigma #7400 (two coat application) blue topcoat  
\*PAINT Ameron 385/450HS E/U paint (black) ADVERTISING None STENCILLING AAR-DOT Vinyl Decals  
Chemtrek Decals

FEATURES:

The outlet valve is a bottom operated, low profile valve that meets AAR E10.00 specifications.  
Pads for future application of full head shields. Outlet valve handle extension. CW Mark 50  
draft gear. Galvanized top and end platform boards. Buffalo brake beams. ACF metal defect card  
\*holder. Standard forge axles. Griffen wheels. AEI tags. Holland "Hollube" wear package.

\*Denotes line revision dated 10-20-95

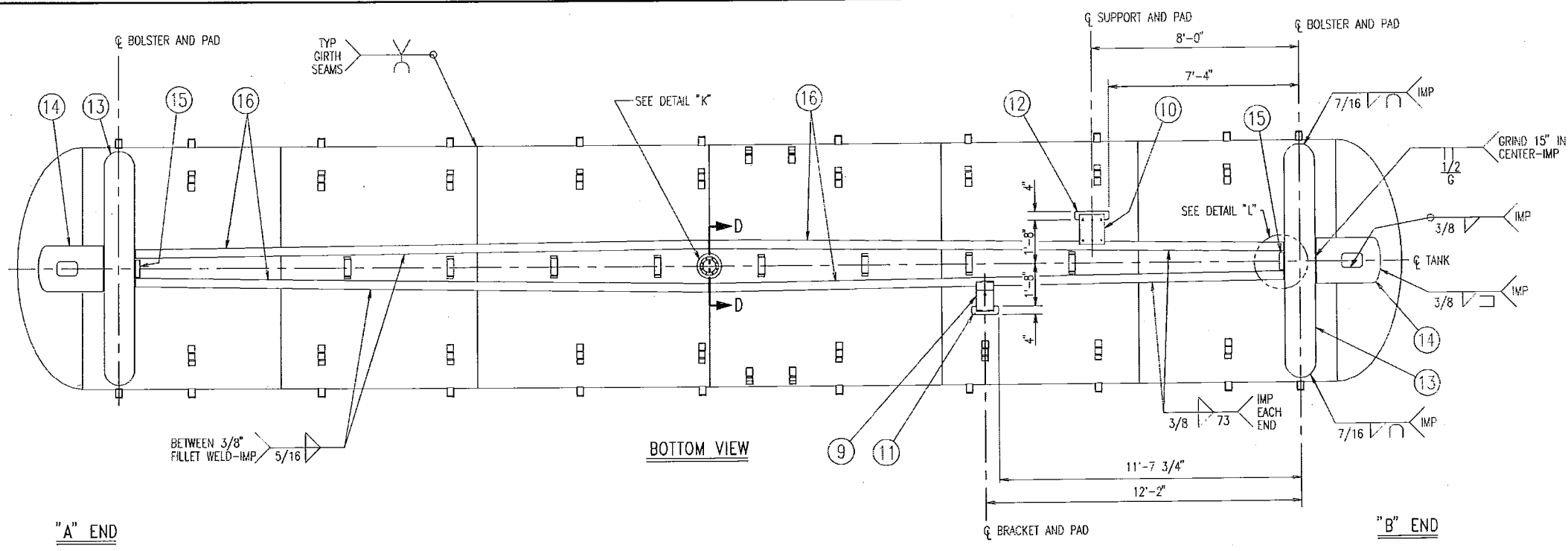


**SPECIFICATIONS**

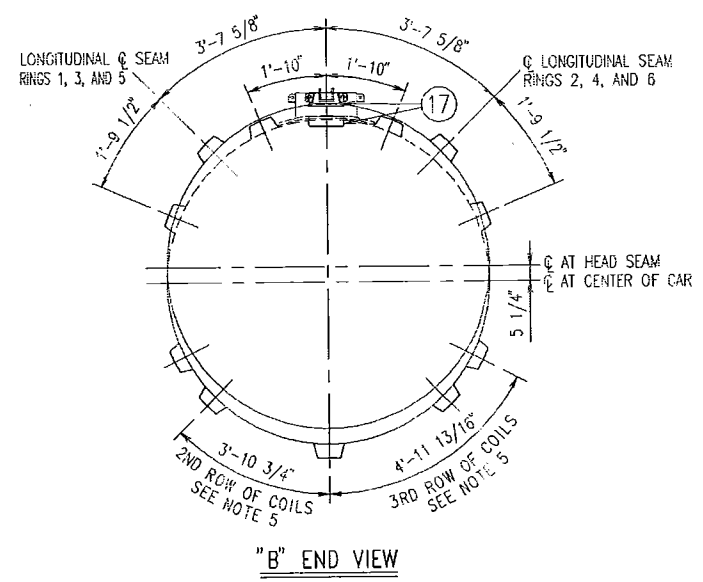
VENDOR OF MECHANICAL PARTS MAY BE SPECIFIED, SEE BILL OF MATERIAL

- |   |  |
|---|--|
| <p>1. TANK -----</p> <p>2. COIL ----- NONE</p> <p>3. UNDERFRAME ----- TYPE 20 STUB SILL DESIGN WITH LIFT PROVISION</p> <p>4. JACKET ----- ASTM A569 SHEET<br/>A. 119 1/8" ID<br/>B. SHELL AND HEAD THICKNESS-11 GAUGE</p> <p>5. INSULATION ----- 4" FIBERGLASS AT 1#/CF DENSITY</p> <p>6. TRUCKS ----- 100 TON<br/>A. JOURNALS - 6 1/2" X 12", AAR APPROVED ROLLER BEARINGS<br/>B. WHEELS - AAR H-36 OR CH-36, CLASS "C", 1 WEAR<br/>C. SPRINGS - AAR D-5 (3 11/16" TRAVEL)<br/>D. BLOCK TYPE SIDE BEARINGS</p> <p>7. DRAFT EQUIPMENT ----- 24 5/8" DRAFT GEAR POCKET<br/>A. COUPLERS - AAR SE60DE<br/>B. COUPLER YOKES - AAR SY40AE<br/>C. DRAFT GEAR - AAR M-901E</p> | <p>8. AIRBRAKE ----- CONVENTIONAL FREIGHT BRAKE EQUIPMENT WITH ABU-1, 8 1/2" X 12" CYLINDER, AUTOMATIC SLACK ADJUSTER, DOUBLE ACTING<br/>A. BRAKE BEAMS - AAR #18<br/>B. BRAKE SHOES - 2" HIGH FRICTION COMPOSITION, AAR #H-4<br/>C. PISTON TRAVEL - REGULATED AT 7"</p> <p>9. HANDBRAKE ----- AAR APPROVED VERTICAL WHEEL UNIT WITH AAR #66 BELL CRANK</p> <p>10. GRATING ----- AAR APPROVED, STEEL</p> <p>11. HANDRAIL ----- 1 1/4" SCHEDULE 40 PIPE WITH REINFORCED ENDS</p> <p>12. ESTIMATED LT WT ----- 72,000 POUNDS</p> <p>13. CENTER OF GRAVITY ----- 83.12" LOADED</p> <p>14. CURVE NEGOTIATION:</p> <p>MINIMUM RADIUS OF TRACK CURVATURE - HORIZONTAL CURVES:</p> <p>UNCOUPLED CAR ----- 150 FT.<br/>COUPLED CAR (TANK ON CURVE, STANDARD CAR ON TANGENT) ----- 215 FT.<br/>COUPLED CAR (STANDARD CAR ON CURVE, TANK ON TANGENT) ----- 155 FT.<br/>COUPLED CAR(TWO LIKE CARS) ----- 217 FT.</p> <p>MINIMUM RADIUS OF TRACK CURVATURE - VERTICAL CURVES:</p> <p>UNCOUPLED CAR ----- 513 FT.<br/>COUPLED CAR (TANK CAR ON CURVE, STANDARD CAR ON TANGENT OR TWO LIKE CARS) ----- 630 FT.</p> |
|---|--|

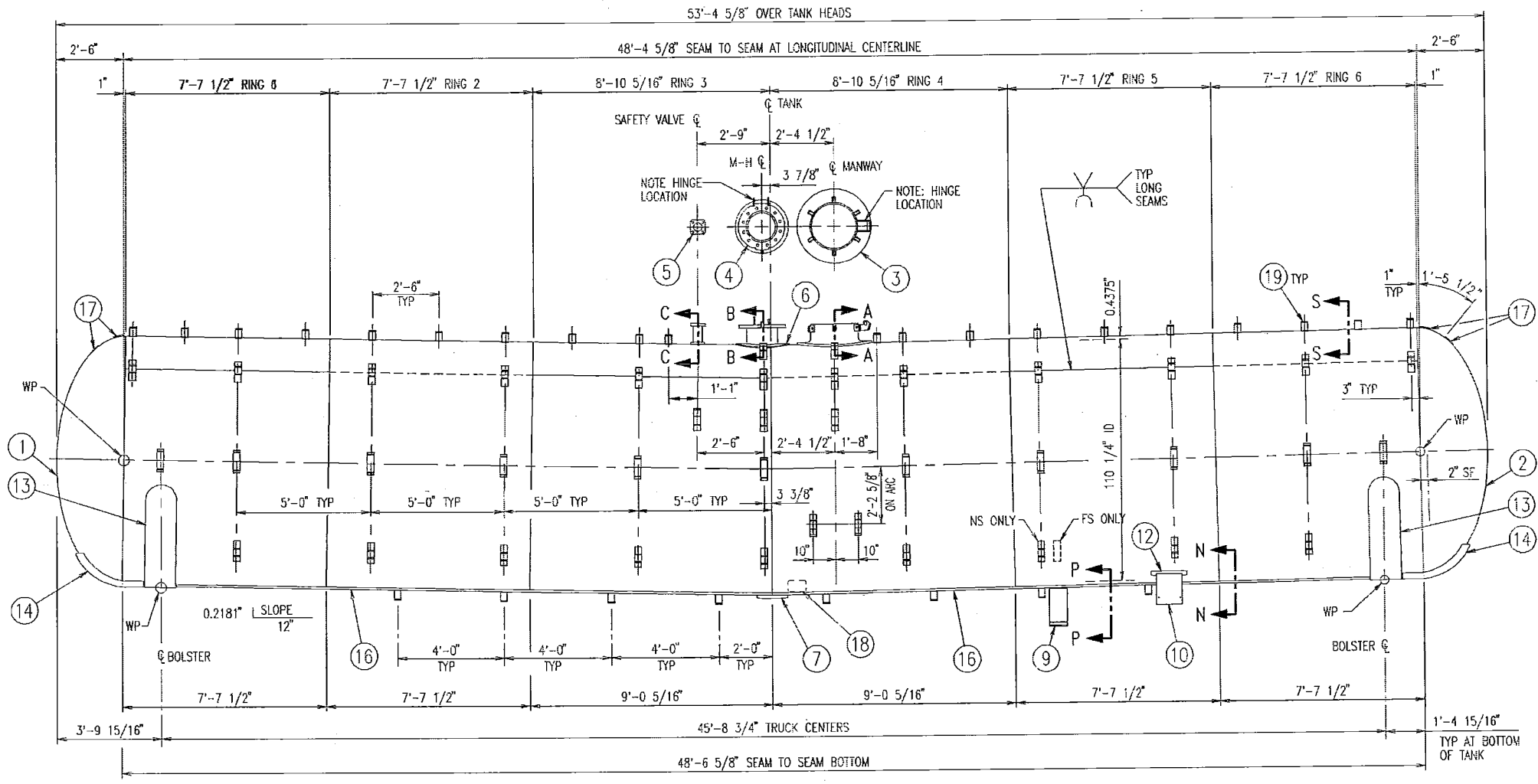
REV	BY	DATE	REVISION
A.A.R. APPLICATION NO. F956141			
<b>FILE:</b>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
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DRAWN	WIT	9-19-95	<b>GENERAL ARRANGEMENT</b> 25,450 GALLONS NOMINAL AFTER LINING DOT 111A100W1, 110 1/4", STB, LINED, NC & 41
CHKD	ACE	9-21-95	
APPD	MSR	9-21-95	
1st FILE	9598		
NLA			
WEIGHT			DRAWING NO: <b>D-40913</b>
	SHEET	REV	SIZE
	1	1	D



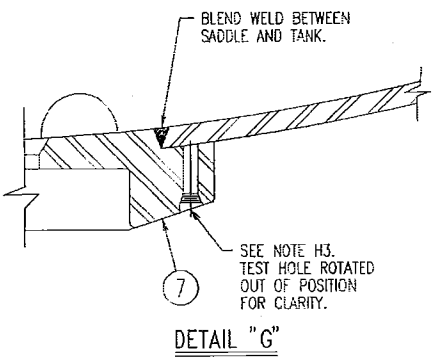
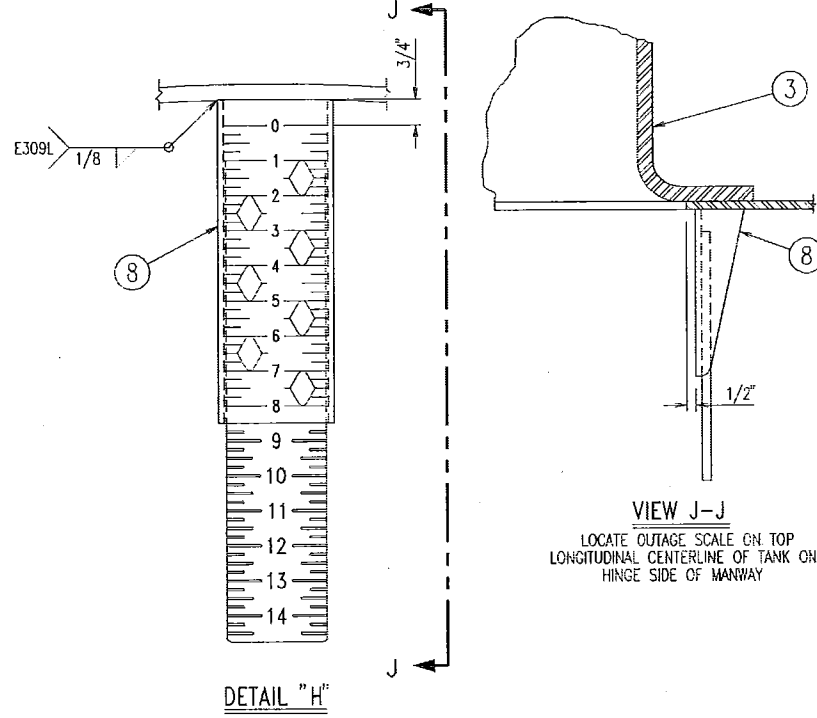
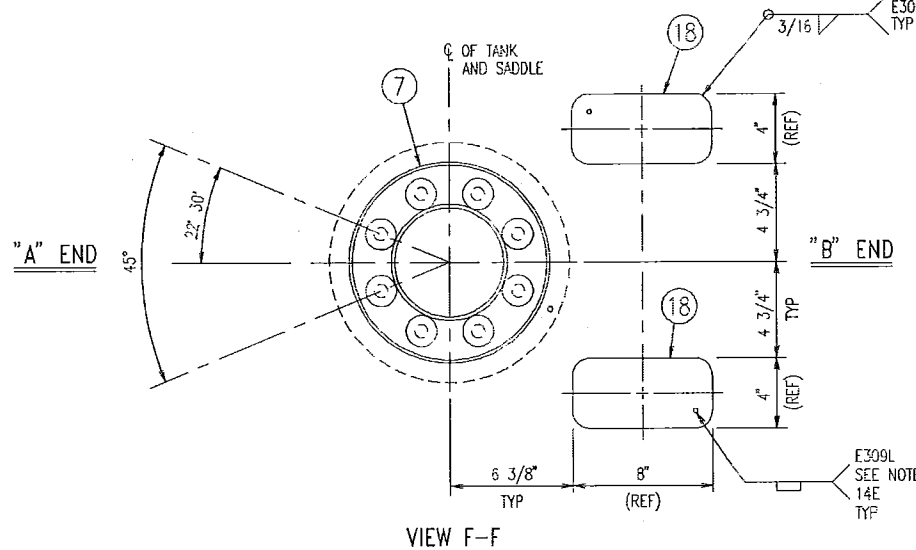
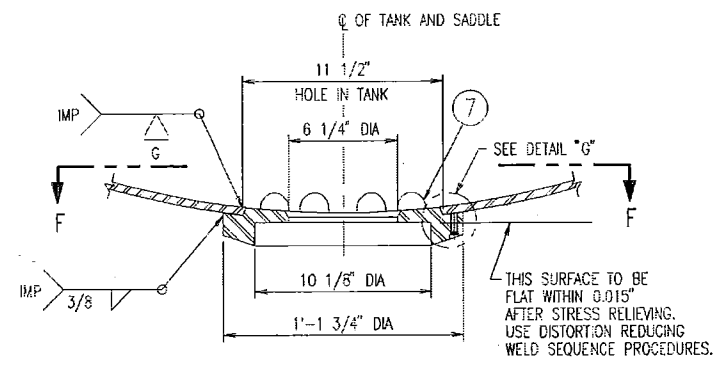
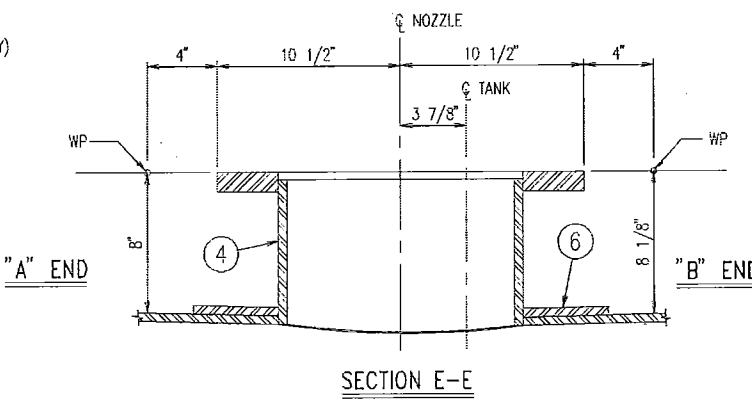
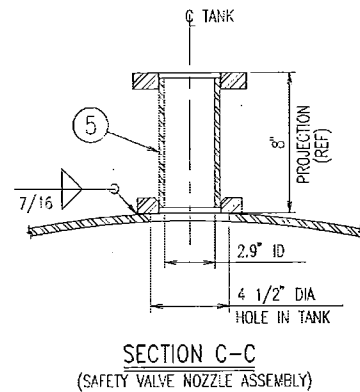
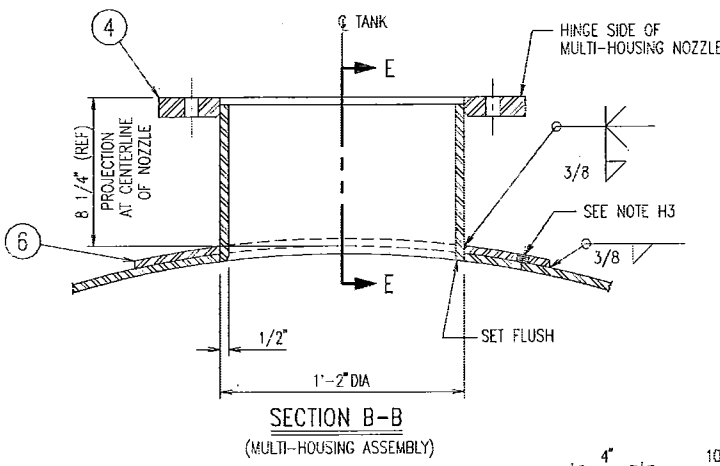
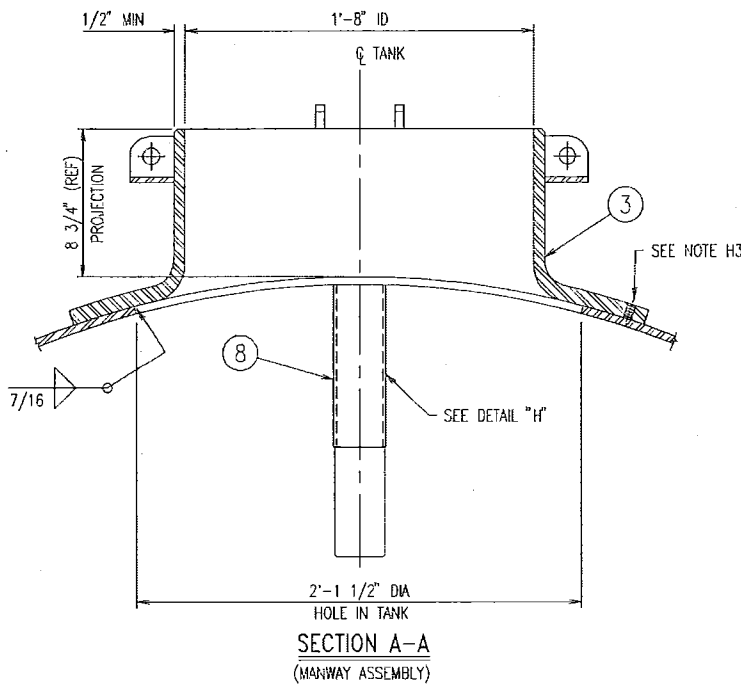
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	B-127263	1	PREFAB BARREL
2	B-127189	1	HEAD, 110 1/4" ID, 2:1 ELLIP, 2" SF, 7/16" MIN THK
3	D-240018	1	NOZZLE ASSEMBLY, 20" MANWAY, 6-BOLT, FLUED
4	D-340103	1	NOZZLE ASSEMBLY, 14" MULTI-HOUSING, INSERT
5	B-27514-03	1	SAFETY VALVE NOZZLE ASSEMBLY, 3"
6	A-119131-01	1	REPAD, MULTI-HOUSING NOZZLE
7	075-71306-MI	1	SADDLE, 4" MIDLAND BOTTOM OUTLET VALVE, B-363, A105
8	B-124243	1	OUTAGE SCALE EXTENSION ASSEMBLY, 316L SS
9	B-20564	1	DEAD LEVER BRACKET ASSEMBLY
10	B-20565	1	SUPPORT, BRAKE CYLINDER
11	A-114050	1	PAD, 7/16" X 4" X 12 1/2"
12	A-114049	1	PAD, 7/16" X 4" X 16"
13	B-29527	2	BOLSTER PAD, 110 1/4" ID TANK
14	B-29575	2	FRONT SILL PAD, 110 1/4" ID HEAD
15	B-29695	2	REAR SILL PAD, TANK
16	B-29569-17	4	REINFORCING BAR, 4" X 1"
17	A-119085	4	PAD, 1/4" X 4" X 1'-0"
18	A-118567	2	PAD, 1/4" X 4" X 8", 316L SS
19	B-23753-03	106	SUPPORT, JACKET
20	D-140465-01 2SH	1	BOLSTER AND DRAFT SILL ARRANGEMENT, "A" END
21	D-140465-02 2SH	1	BOLSTER AND DRAFT SILL ARRANGEMENT, "B" END
22	D-46691-01	1	APPLICATION OF FLASHING



- NOTES:
- DIMENSIONS SHOWN ARE SYMMETRICAL ABOUT CENTERLINE UNLESS NOTED.
  - LOCATE JACKET SUPPORTS SO THAT THEY ARE NOT WELDED TO ANY TANK SEAMS.
  - BOLSTER AND DRAFT SILL OMITTED FOR CLARITY.
  - COILS OMITTED FOR CLARITY.
  - DIMENSIONS FOR LOWER JACKET SUPPORTS ARE MEASURED AT CENTER GIRTH SEAM OF THE TANK. CENTER SUPPORTS OVER COIL RUN NEAREST DIMENSION SHOWN.



REV	BY	DATE	REVISION
A.A.R. APPLICATION NO. F956141			
<b>FILE:</b>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
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DRAWN	WIT	9-18-95	<b>TANK ARRANGEMENT</b> 25,498 WG, 110 1/4" ID, STB, 5 1/4" DROP DOT 111A100W, NC & 41
CHKD	AEE	9-26-95	
APPD	SLM	9-26-95	
1st FILE		9598	
NLA			
WEIGHT			
DRAWING NO:		D-42922	
1147-0453-023		SHEET	REV
		1	D



**DESIGN AND CONSTRUCTION NOTES**

- 1) TANK SHALL BE FABRICATED IN ACCORDANCE WITH TANK CAR SPECIFICATION DOT 11A100W1.
- 2) HYDRO-TEST TANK IN ACCORDANCE WITH HYDRO-TESTING NOTES (SEE THIS SHEET)
- 3) 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.
- 4) RADIOGRAPH IN ACCORDANCE WITH AAR APPENDIX W, SECTION 19.00. PARTIAL X-RAY REQUIRED PER PARAGRAPH W19.03.
- 5) STRESS RELIEVING IS REQUIRED IN ACCORDANCE WITH AAR APPENDIX W, PARAGRAPH 17.00. TANK TO BE SUPPORTED AT BOLSTERS.
- 6) FLANGE BOLT HOLES TO STRADDLE NORMAL TANK CENTERLINES UNLESS OTHERWISE NOTED.
- 7) TANK SHALL BE CLEANED INSIDE AND OUT, FREE OF DIRT, GREASE, DEBRIS, LOOSE MILL SCALE, WELD SPATTER, ETC.
- 8) 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.
- 9) ALL CIRCUMFERENTIAL WELDS CROSSING THE BOTTOM LONGITUDINAL CENTERLINE ON INSIDE SURFACE OF THE TANK SHALL BE GROUND FLUSH 8" EACH SIDE OF CENTERLINE.
- 10) STAMP EACH HEAD PER TANK CAR STAMPING DRAWING. (3/8" LETTERS)
- 11) GRIND TANK WELDS LOCATED UNDER PADS FLUSH AT LEAST 1 INCH BEYOND EDGE OF PAD.
- 12) SEE BOLSTER AND DRAFT SILL ARRANGEMENT DRAWING FOR WELDS TO BOLSTER PADS AND DRAFT SILL TO REINFORCING BAR.
- 13) 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.
- 14) INTERIOR SURFACE PREPARATION OPTIONS:
  - INTERIOR SURFACE PREPARATION IS NOT REQUIRED.
  - INTERIOR SURFACE PREPARATION IS REQUIRED.
    - A) ALL INTERIOR WELDS SHALL BE FREE OF UNDERCUTS, BURRS, POROSITY AND SHARP EDGES THAT WOULD DAMAGE COATING.
    - B) WELDS AROUND INTERIOR BRACKETS SHALL BE FREE OF UNDERCUTS BURRS, POROSITY AND SHARP EDGES THAT WOULD DAMAGE COATING.
    - C) SHARP CORNERS ON THE INTERIOR OF THE TANK AND NOZZLES SHALL BE GROUND TO A MINIMUM 1/8" RADIUS.
    - D) CAVITIES AND INDENTIONS THAT WOULD DAMAGE COATING ON THE INTERIOR SURFACE OF TANK SHALL BE FILLED WITH WELD METAL AND GROUND FLUSH.
    - E) FOR CARS WITH HIGH BAKE COATING, SEAL WELD WEEP HOLES IN INTERNAL PADS AFTER STRESS RELIEF AND BEFORE HYDRO-TEST. GRIND 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 100 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, BOTTOM OUTLET SADDLE, AND NOZZLE REINFORCING PADS TO BE PRESSURE TESTED WITH 30 PSIG AIR AND SOAP SUDS OR OTHER APPROVED METHOD BEFORE STRESS RELIEVING TO PROVE WELD INTEGRITY.

**MATERIAL NOTES**

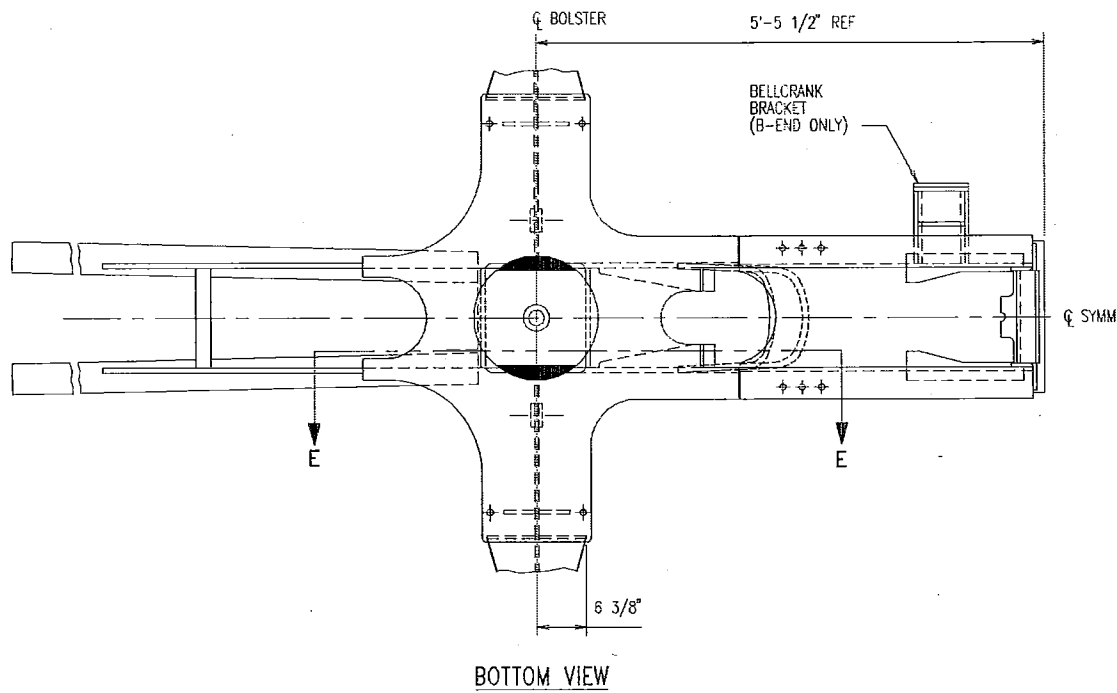
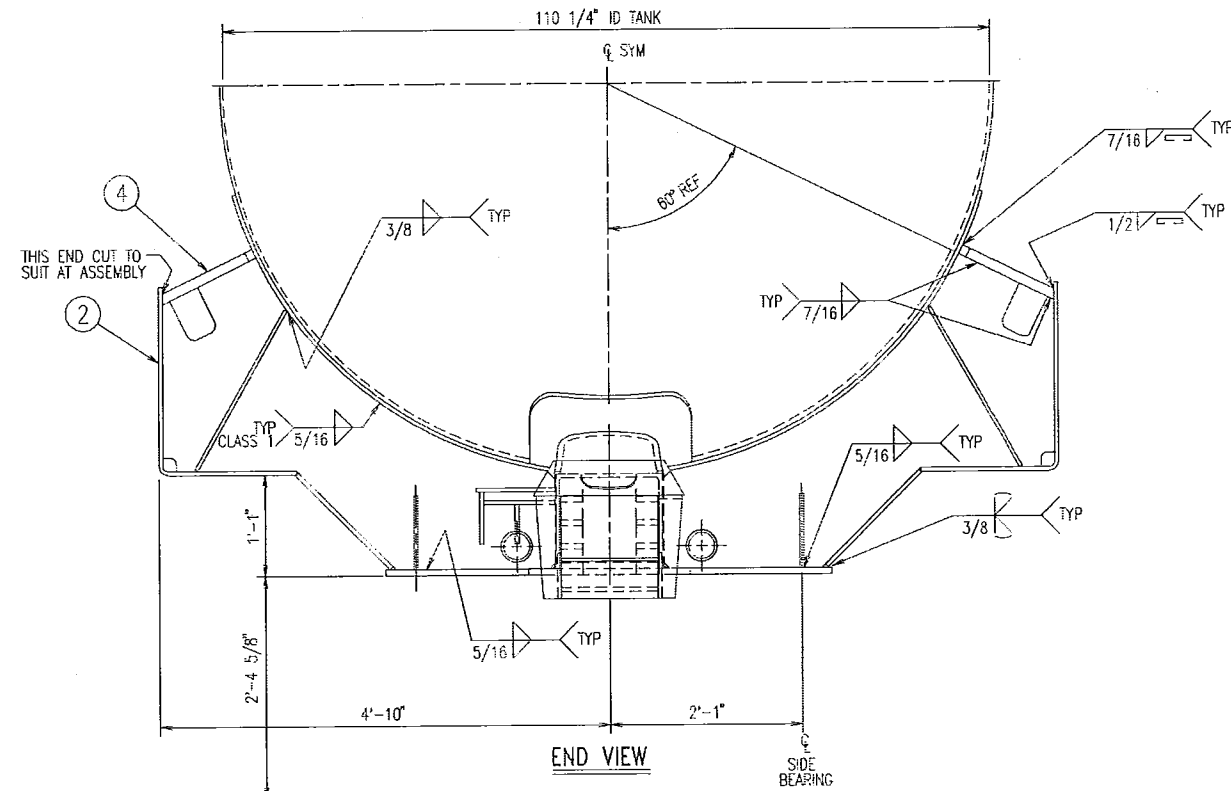
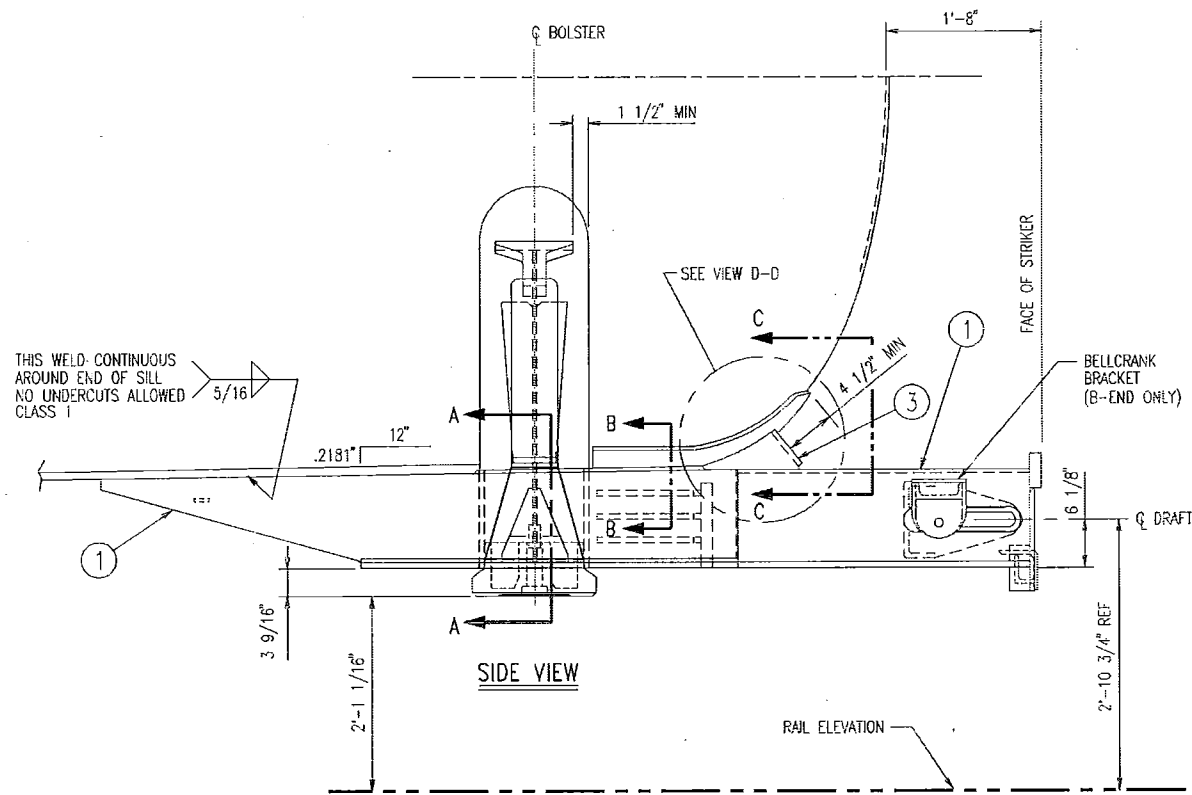
- HEADS: ----- A516-70  
 SHELL: ----- A516-70  
 BOLSTER PADS: ----- A516-70  
 FRONT SILL PADS: ----- A516-70 NORM  
 REAR SILL PADS: ----- A572-50 TYPE 2  
 REINFORCING BARS (ITEM 11): ----- A572-50 TYPE 2
- MANWAY:  
 A. FLUED NOZZLE: ----- A516-70
- BOTTOM OUTLET SADDLE: ----- A105  
 EXTERNAL COILS: ----- A589, A36 OR A570-33
- MULTI-HOUSING NOZZLE:  
 A. REINFORCING PAD: ----- A516-70  
 B. NECK: ----- A53B TYPE S  
 C. FLANGE: ----- A516-70
- SAFETY VALVE NOZZLE:  
 A. TANK FLANGE: ----- A516-70  
 B. NECK: ----- A53B TYPE S  
 C. SAFETY VALVE FLANGE: ----- A516-70

REV	BY	DATE	REVISION
A.A.R. APPLICATION NO. F958141			
<b>FILE:</b>			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
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DRAWN	WIT	9-18-95	
CHKD	AEE	9-26-95	
APPD	SLM	9-26-95	
1st FILE	9598		
NLA			
WEIGHT			
DRAWING NO:		SHEET	REV
1147-0453-023		2	D
D-42922		3	
<b>TANK ARRANGEMENT</b> 25,498 WG, 110 1/4" ID, STB, 5 1/4" DROP DOT 11A100W1, NC & 41			



LINE	DESCRIPTION	ITEM 1
01	A-END ARRANGEMENT WITHOUT BELLCRANK BRKT	D-140250-01
02	B-END ARRANGEMENT WITH B-20431 BELLCRANK BRKT	D-140250-02
03	B-END ARRANGEMENT WITH B-20661 BELLCRANK BRKT	D-140250-03

PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	SEE LINE CHART	1	DRAFT SILL ASSEMBLY
2	D-140434	2	BOLSTER WEB AND COVER PLATE ASSEMBLY
3	D-240204	1	HEAD BRACE, 110 1/4" ID HEAD
4	A-115654	2	LIFTING BAR BOLSTER
5	D-340436	3SH	DRAFT SILL AND HEAD BRACE INSTALLATION PROCEDURE



NOTES:

1. ALL WELDS ARE TO BE INSPECTED IN ACCORDANCE WITH SECTION 23 OF AWS SPECIFICATION D15.1 (LATEST EDITION). TABLE E3 DEFINES UNDERCUT AND POROSITY CRITERIA FOR CLASS 1, 2, AND 3 WELDS. ALL WELDS ARE CLASS 2 EXCEPT THOSE THAT ARE INDICATED CLASS 1 IN THE TAIL OF THE WELD SYMBOL. CLASS 1 WELDS MUST BE MADE WITH FILLER METAL FROM AN AWS CLASSIFICATION THAT REQUIRES, AS A MINIMUM, CHARPY IMPACT VALUES OF 20 FT-LB AT 0 DEGREES F.
2. IF TRIMMING IS REQUIRED TO OBTAIN PROPER FIT UP, NOTCHES AND SLAG MUST BE REMOVED FROM ALL TRIMMED SURFACES BY GRINDING BEFORE WELDING.
3. AT WELD TERMINATIONS RETURN WELD BACK OVER ITSELF AS REQUIRED TO ELIMINATE ANY CRATERS.
4. DRAFT SILL AND HEAD BRACE INSTALLATION PROCEDURE IS DETAILED ON DRAWINGS D-340436. ALL TRIMMING, FITTINGS, GRINDING, GOUGING, TACK WELDING AND WELDING IS TO BE PERFORMED IN STRICT ACCORDANCE WITH THIS PROCEDURE.

M	CCH 4-12-95	REVISED NOTE 1	
L	CCH 10-12-94	ITEM 3 WAS B-29529	M
K	CCH 4-14-94	NOW 2 SHEETS, ADDED INTERNAL WELDING	M
J	CCH 7-9-91	ADDED SECTIONS F-F AND G-G	M
H	TBC 8-24-89	DELETED WEAR PLT, SHIMS & HARDWARE	M
G	CCH 6-5-89	ADDED LINE CHART	M
F	CCH 5-17-88	EXTENDED DRAFT SILL BEVEL	M
E	CCH 8-26-87	REVISED NOTES	M
D	CCH 7-30-86	REVISED DRAFT SILL TO REINFORCING BAR WELD	M
C	CCH 4-4-86	REVISED SIDE BEARING STIFFENER WELD	M
B	MSR 2-13-86	GUSSETS ADDED AT JACKING	M
A	MSR 9-13-85	2'-10 3/4" WAS 2'-10 1/2", 2'-1 1/16" WAS 2'-0 13/16"	M
REV	BY	DATE	REVISION

A.A.R. APPLICATION NO. A946089

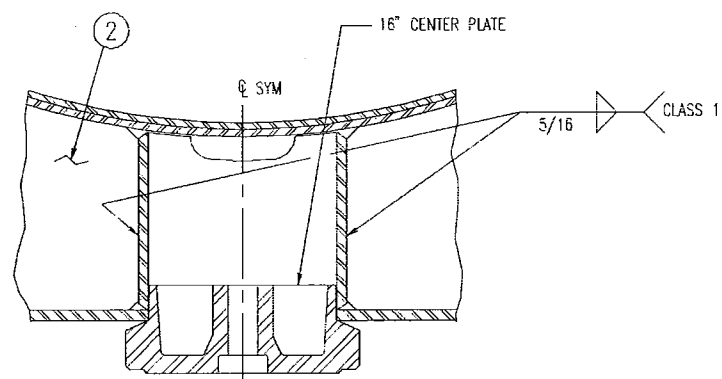
FILE:

**TRINITY INDUSTRIES, INC.**  
RAILCAR DIVISION

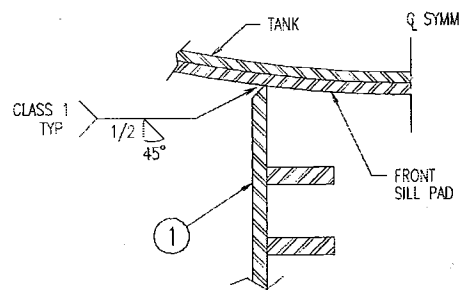
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DRAWN	JSS	3-25-85	<b>BOLSTER AND DRAFT SILL ARRANGEMENT</b> 110 1/4" ID, SLOPING TANK, 16" CTR PL WITHOUT COIL CUTOUPS
CHKD	RLP	3-25-85	
APPD	AEN	3-25-85	
1st FILE		9573A	
NLA			
WEIGHT			
DRAWING NO.	D-140465		
SHEET	1	REV	M
OF	2	SIZE	D
1185-0169-000			

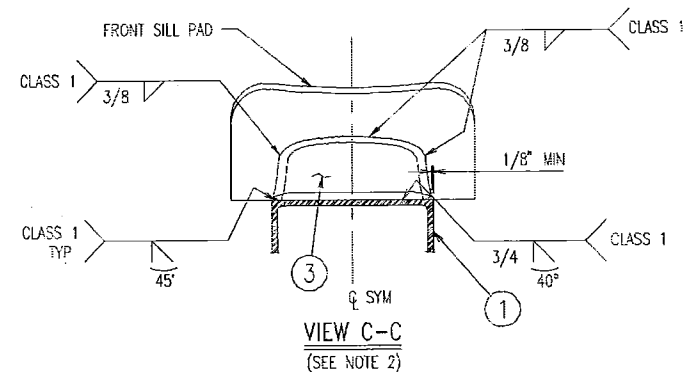




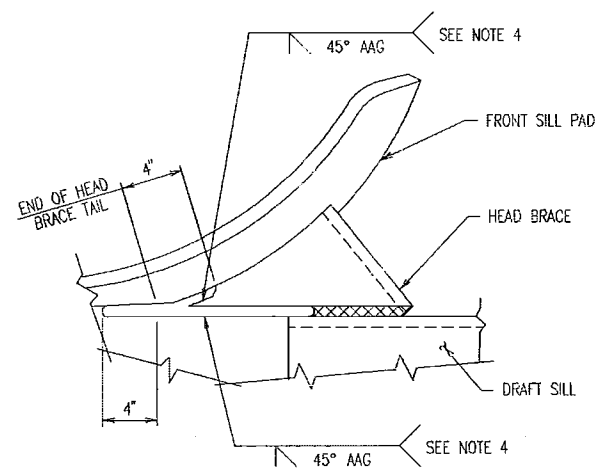
SECTION A-A



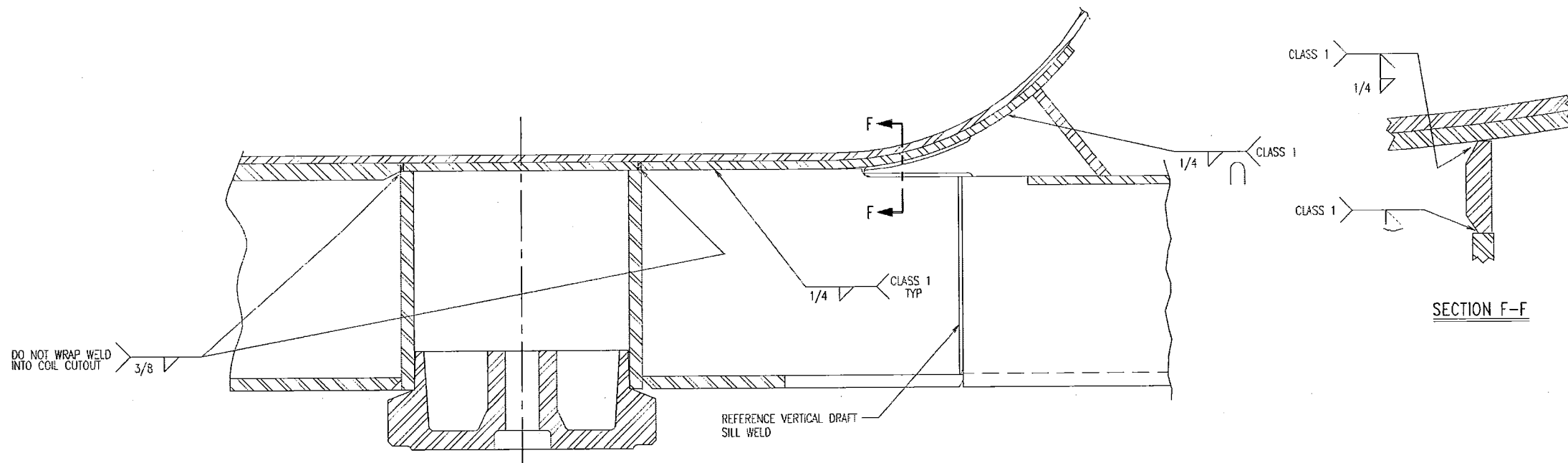
SECTION B-B



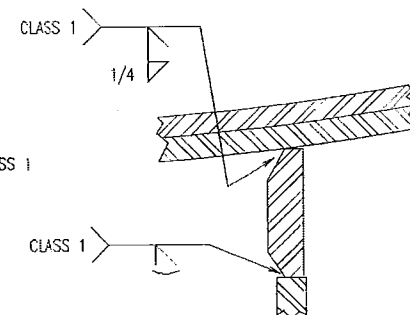
VIEW C-C  
(SEE NOTE 2)



VIEW D-D  
HEAD BRACE EXTERIOR



SECTION E-E  
DRAFT SILL INTERIOR



SECTION F-F

NOTES:

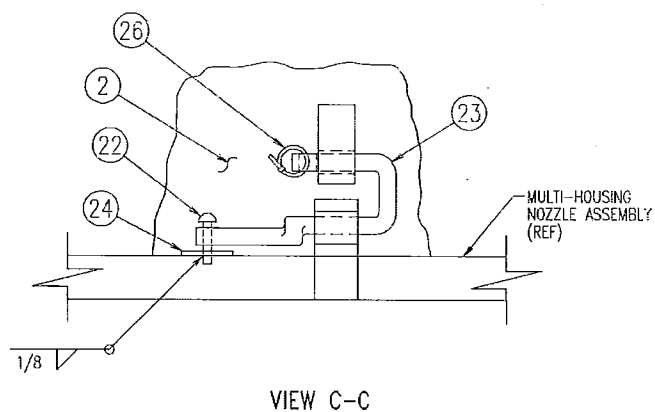
- ALL WELDS ARE TO BE INSPECTED IN ACCORDANCE WITH SECTION 23 OF AWS SPECIFICATION D15.1 (LATEST EDITION). TABLE E3 DEFINES UNDERCUT AND POROSITY CRITERIA FOR CLASS 1, 2, AND 3 WELDS. ALL WELDS ARE CLASS 2 EXCEPT THOSE THAT ARE INDICATED CLASS 1 IN THE TAIL OF THE WELD SYMBOL. CLASS 1 WELDS MUST BE MADE WITH FILLER METAL FROM AN AWS CLASSIFICATION THAT REQUIRES, AS A MINIMUM, CHARPY IMPACT VALUES OF 20 FT-LB AT 0 DEGREES F.
- IF TRIMMING IS REQUIRED TO OBTAIN PROPER FIT UP, NOTCHES AND SLAG MUST BE REMOVED FROM ALL TRIMMED SURFACES BY GRINDING BEFORE WELDING.
- AT WELD TERMINATIONS RETURN WELD BACK OVER ITSELF AS REQUIRED TO ELIMINATE ANY CRATERS.
- DRAFT SILL AND HEAD BRACE INSTALLATION PROCEDURE IS DETAILED ON DRAWINGS D-340436. ALL TRIMMING, FITTING, GRINDING, COUING, TACK WELDING AND WELDING IS TO BE PERFORMED IN STRICT ACCORDANCE WITH THIS PROCEDURE.

B	CCH 4-12-95	REVISED NOTE 1	
A	CCH 10-12-94	ITEM 3 WAS B-29529	M
REV BY	DATE	REVISION	M
A.A.R. APPLICATION NO. A946089			
FILE:			
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION			
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DRAWN	LHR	4-14-94	
CHKD	CH	4-18-94	
APPD	CCH	4-18-94	
1st FILE			
NLA			
WEIGHT			
1185-0169-000	DRAWING NO:	D-140465	SHEET 2 OF 2
	REV	B	SIZE D

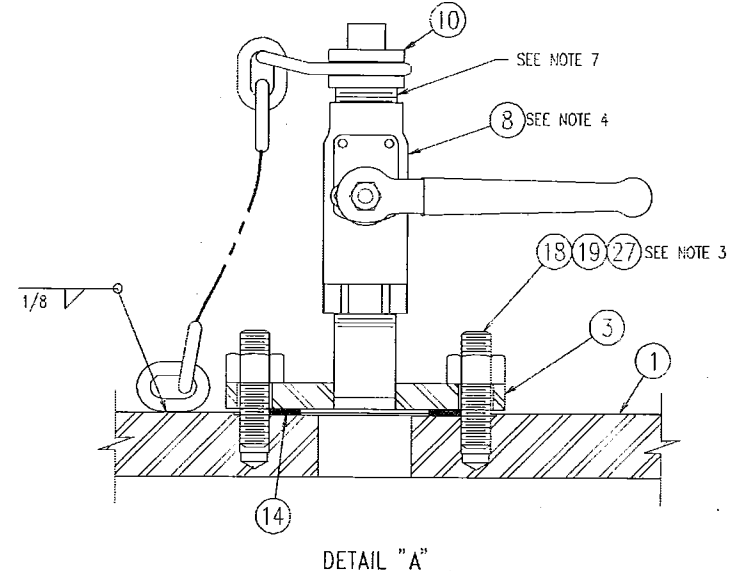
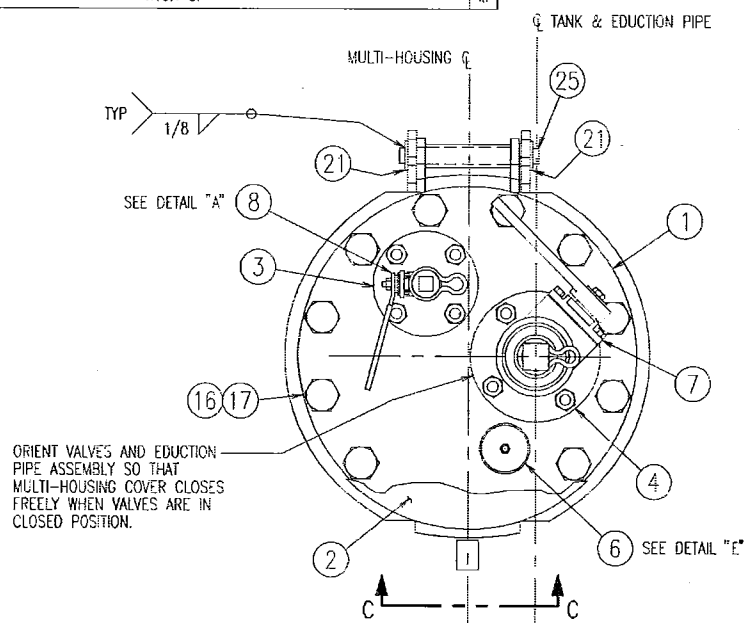
**BOLSTER AND DRAFT SILL ARRANGEMENT**  
110 1/4" ID, SLOPING TANK, 16" CTR PL  
WITHOUT COIL CUTOUTS

LINE	ITEM 11 PART NO	ITEM 12 PART NO	ITEM 13 PART NO	ITEM 14 PART NO	GASKET MATERIAL	M
01	089-75887-25	089-74301-09	089-71024-21	089-72497-18	VITON GF	M

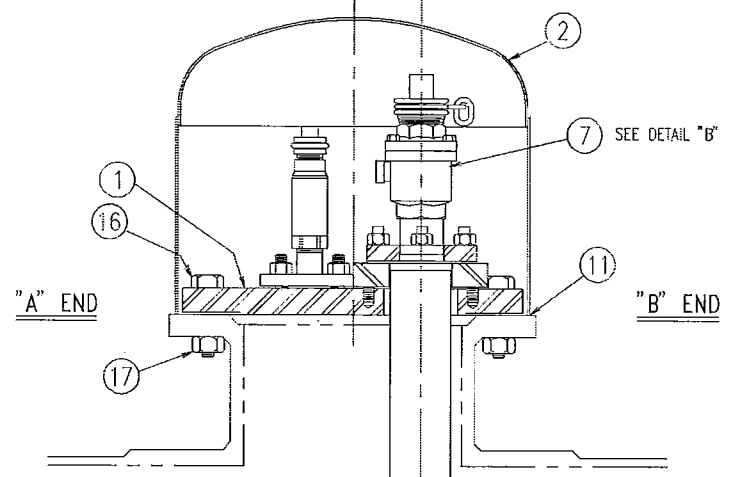
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	D-240188	1	COVER, FLANGE, 14" MULTI-HOUSING, CS
2	B-26667	1	PROTECTIVE HOUSING ASSEMBLY, 14" NOZZLE
3	B-23360	1	FLANGE ASSEMBLY, 1"
4	B-22925	1	EDUCATION PIPE ASSEMBLY, 3" SCH 40, 304 SS
5	B-23391	1	FLANGE ASSEMBLY, 2" NPT
6	075-71838-03	1	VALVE, VACUUM RELIEF, MIDLAND A-209-W-VG VITON
7	075-70453-PV	1	VALVE, BALL, 2" SCREWED END, FUEL PORT FIRESAFE, PRINCETON ZS685-FPMP-2, SS
8	075-70456-PV	1	VALVE, BALL, 1" SCREWED END, FUEL PORT FIRESAFE, PRINCETON ZS685-FPMP-100, SS
9	B-22620-01	1	PLUG AND CHAIN ASSEMBLY, 2", MI OR DI
10	B-22619	1	PLUG AND CHAIN ASSEMBLY, 1", MI OR DI
11	SEE LINE CHART	1	GASKET, 14" ID X 16 1/8" OD X 1/8" THK
12	SEE LINE CHART	1	GASKET, 3 9/16" ID X 4 1/8" OD X 1/8" THK
13	SEE LINE CHART	1	GASKET, 4 1/8" ID X 5 3/8" OD X 1/8" THK
14	SEE LINE CHART	1	GASKET, 2 3/4" ID X 4 1/8" OD X 1/8" THK
15	B-124098	1	GUIDE, EDUCATION PIPE, 3", 15 DEGREES, 304L SS
16	063-75872	12	BOLT, HVY HEX HD, 1"-8 UNC-2A X 4 1/4" LG, A193-B7
17	063-70774	12	NUT, HVY HEX 1"-8 UNC-2B, A194-2H
18	063-71160	8	STUD, TFL, 5/8"-11 UNC-2A X 2 1/2" LG, A193-B7
19	063-73901	8	NUT, HEX, 5/8"-11 UNC-2B, A194-2H
20	063-75987	4	CAPSCREW, HEX SOC. HD, 5/8"-11 UNC-2A X 1" LG, A193-B7
21	063-71905	2	WASHER, 7/8" N. TYPE A PLAIN, CS
22	063-72555	1	RIVET, BUTTON HEAD, 1/4" X 1 1/4" LG
23	063-72787	1	PIN, LOCKING, PROTECTIVE HOUSING (A-111603)
24	063-72012	1	WASHER, 1/4" W. 0.312" ID X 0.734" OD X 0.065" THK
25	A-10169-01	1	PIPE, 1/2" SCH 80, PLAIN
26	064-73322	1	SEAL, SURE LOCK, 3/8" WIDE X 8 1/2" LG
27	040-73401-LT	1	SEALANT, THREADLOCKING, RED NO. 271



VIEW C-C

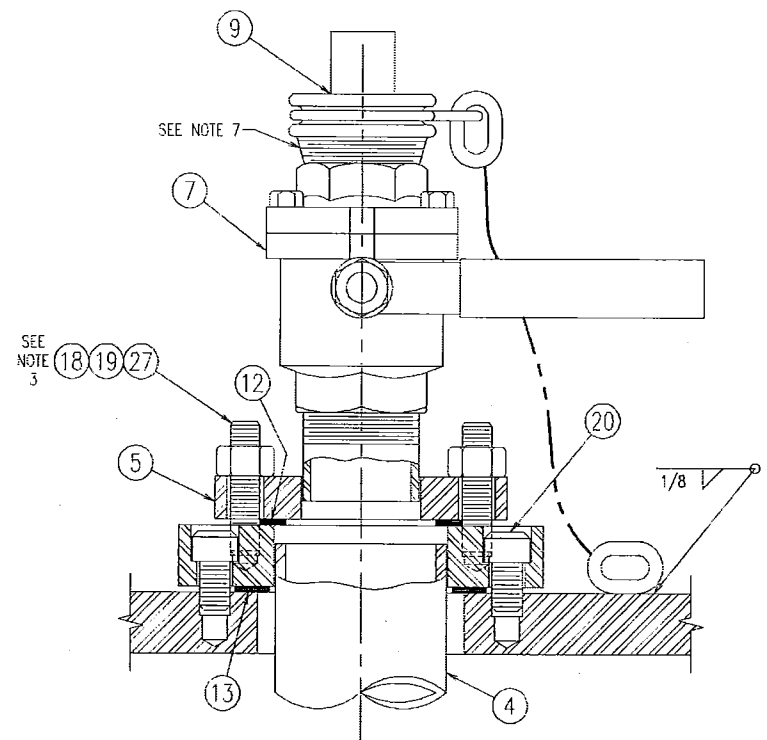


DETAIL "A"

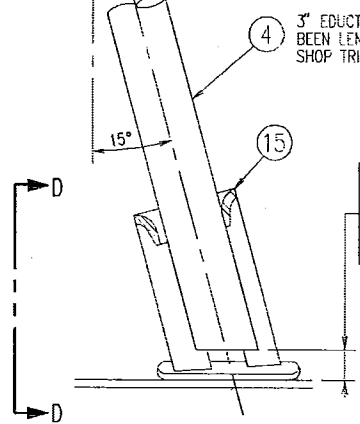


SECTION D-D

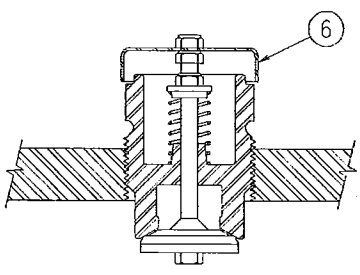
(EDUCATION PIPE NOT SHOWN FOR CLARITY)



DETAIL "B"



TRIM EDUCATION PIPE PARALLEL TO INSIDE BOTTOM OF TANK AT ASSEMBLY TO PROVIDE 2" (+1/4", -0") CLEARANCE ABOVE BOTTOM OF TANK SHELL



DETAIL "E"

- NOTES:
1. ALL INTERIOR WELDS SHALL BE FREE OF UNDERCUTS, BURRS, POROSITY AND SHARP EDGES.
  2. ROUND OFF ALL SHARP EDGES TO 1/8" RADIUS.
  3. APPLY THREAD SEALANT TO THREADS BEFORE INSTALLATION.
  4. THE 1" VALVE IS TO BE INSTALLED WITH THE SCREWED-IN PIECE OF THE VALVE TOWARD THE TANK.
  5. 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 PUBLIC LAW 101-592.
  6. FEMALE COMPONENT OF THREADED FASTENERS MUST BE FULLY ENGAGED AND NO THREADS MAY BE VISIBLE IN THE FEMALE PART. NYLON INSERT ON LOCKNUTS MUST BE FULLY PENETRATED BY THE MALE THREADED PART.
  7. IN ORDER TO PREVENT FOULING OF PLUG AND VALVE THREADS DURING BLAST AND PAINT, WRAP THE 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 THE FINAL ASSEMBLY AREA.

A	AEE	10-5-95	ITEM 3 WAS B-22569; ITEM 5 WAS B-22691	
REV	BY	DATE	REVISION	M
A.A.R. APPLICATION NO. F956141				
FILE:				
<b>TRINITY INDUSTRIES, INC.</b> RAILCAR DIVISION				
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DRAWN	WIT	9-19-95		
CHKD	AEE	9-21-95		
APPD	SLM	9-21-95		
1st FILE	9598			
N/A				
WEIGHT				
DRAWING NO:			SHEET	REV
1136-1331-000			1	A
D-45184			OF	0

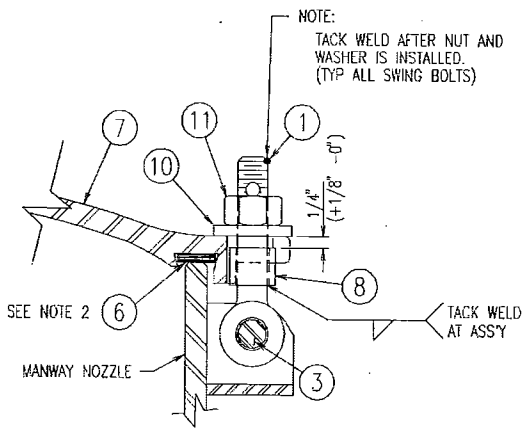
14" MULTI-HOUSING ARRANGEMENT

110 1/4" ID STB TANK CAR

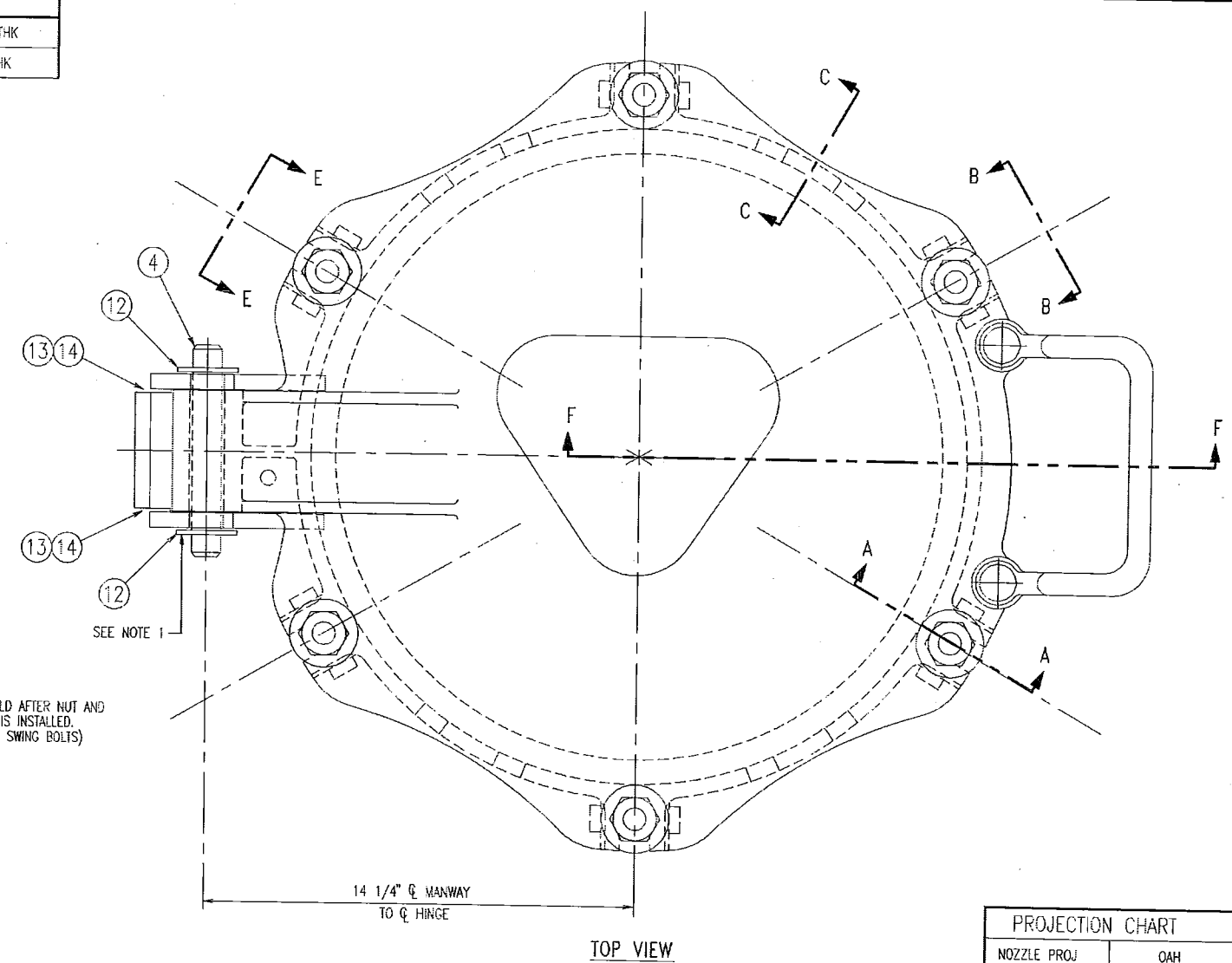
LINE	PART NO	GASKET MATERIAL	SIZE
01	089-72803-16	GARLOCK 3000	19 5/8" ID X 21 11/16" OD X 1/8" THK
02	089-72803-04	TEFLON® <sup>®</sup> , BRAIDED (SEE DETAIL "D")	1 1/8" WIDE X 67" LONG X 1/4" THK

® REGISTERED TRADEMARK OF DUPONT

PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	063-74514	2	EYEBOLT W/SEAL HOLE, 7/8"-9UNC-2A X 6" LG, A449 TP 1, (A-111107)
2	063-72261	4	EYEBOLT, 7/8"-9UNC-2A X 6" LG, A449 TP 1, (A-111047)
3	B-24665	6	HINGE PIN, 7/8" DIA X 3" LG, CS
4	B-24651	1	HINGE PIN, 31/32" DIA X 7" LG, CS
5	063-70381	12	WASHER, FLT, 7/8W, HARDENED, F436
6	SEE LINE CHART	1	GASKET
7	D-243649	1	MANWAY COVER ASSEMBLY
8	B-25503-01	1	COLLAR, PIPE 1" SCH 80 X 1 1/16"
9	064-73322	2	SEAL, SURE DOOR LOCK, 3/8" WIDE X 8 1/2" LG
10	A-111048	6	WASHER, 15/16" ID X 2 1/4" OD X 5/16" THK, A36
11	063-76486	6	NUT, HAY HEX, 7/8"-9UNC-2B, A194-6F (416SS HT)
12	063-77421	2	WASHER, 1 1/16" ID X 2" OD X 1/8" THK, CS
13	063-20287	AR	SHIM, 1.015" ID X 2" OD X 14 GA, CS
14	063-20288	AR	SHIM, 1.015" ID X 2" OD X 18 GA, CS

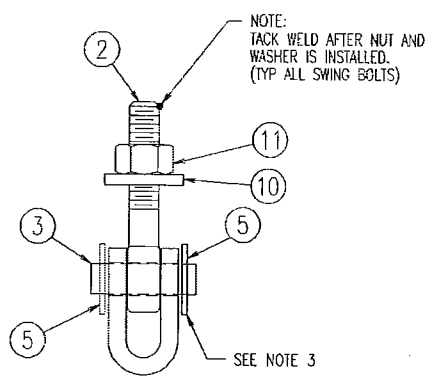


SECTION A-A



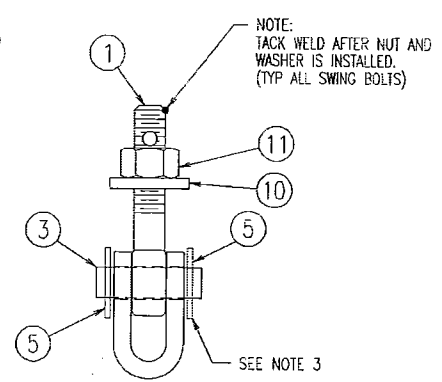
PROJECTION CHART	
NOZZLE PROJ	OAH
8 3/4"	11 3/4"
10 3/4"	13 3/4"
11 1/2"	14 1/2"
14"	17"
15 3/4"	18 3/4"
16 1/4"	19 1/4"

NOTE: SEE SHEET 2 OF TANK ARRANGEMENT FOR NOZZLE PROJECTION



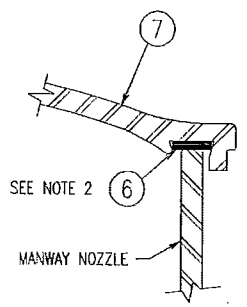
VIEW B-B (TYP 4 PLACES)

NOTE: COVER OMITTED FOR CLARITY

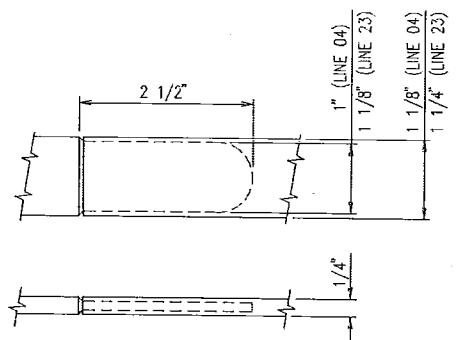


VIEW E-E

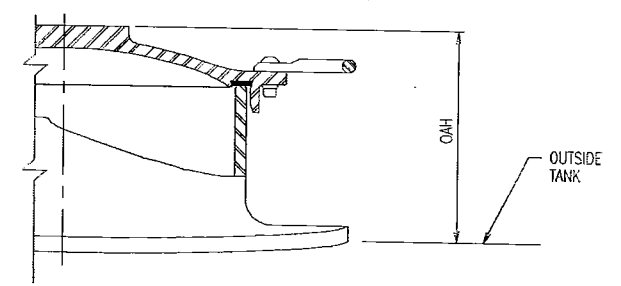
NOTE: COVER OMITTED FOR CLARITY



SECTION C-C



DETAIL "D" (BRAIDED GASKET INSTALLATION)



SECTION F-F

NOTES:

- A. THE HINGE PIN SHOULD FIT TIGHTLY IN BOTH THE COVER AND THE HINGE LUGS, WITH THE PIN INSTALLED AND THE COVER CLOSED, CENTER THE COVER TO THE MAXIMUM EXTENT POSSIBLE ON THE NOZZLE. REMOVE THE HINGE PIN AND REAPPLY WITH SHIM WASHERS AS REQUIRED EITHER SIDE OF THE LUG ON THE COVER TO REMOVE ALL END PLAY IN THE HINGE.
- B. OPEN AND CLOSE THE COVER TO CHECK FOR CONTACT BETWEEN COVER AND NOZZLE. NO CONTACT IS PREFERRED, BUT LIGHT (BUSHING) CONTACT BETWEEN COVER AND THE OUTSIDE EDGE OF THE NOZZLE IS PERMITTED. REINSTALL SHIMS IF NECESSARY TO ACCOMPLISH THIS.
- C. ENSURE THAT THE COVER OPENS SMOOTHLY AND THAT THERE IS SUFFICIENT CLEARANCE IN THE HINGE SLOTS BELOW THE PIN TO COMPRESS THE GASKET. WELD THE WASHERS ON THE HINGE PIN WITH HALF INCH LONG, 1/8" FILLET WELDS - TWO PLACES 180° APART.
2. REMOVE OR PROTECT GASKET DURING PLAST LINING AND PAINTING OPERATION.
3. FIT WASHERS SNUG AGAINST MANWAY LUG AND WELD TO HINGE PIN WITH HALF INCH LONG, 1/8" FILLET WELDS, TWO PLACES 180° APART.
4. "AR" SHOWN IN QUANTITY COLUMN OF PARTS LIST DENOTES "AS REQUIRED".

B	SLM 12-18-97	REV. ITEMS 3 & 5
A	SLM 11-27-95	REV ITEM 4, REV QTY ITEM 5 & ADDED ITEMS 12,13 & 14
REV BY	DATE	REVISION
A.A.R. APPLICATION NO. F956141		

FILE:

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

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DRAWN	RWH	9-21-95	MANWAY COVER INSTALLATION DI GA COVER, CS BOLTS AND WASHERS AND 416SS HEX NUTS
CHKD	GE	9-22-95	
APPD	SLM	9-22-95	
1st FILE		9598	
NLA			
WEIGHT			
DRAWING NO:			
1078-0680-000			D-443664
SHEET	REV	SIZE	
1	B	D	