



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C (CR8970) LOT NUMBER 28-70278
 A CAR NOS CBTX 743140 -743329 AAR APP. 131078
 NO. CARS: 190
STATUS: Final Rev A DATE: 3/15/2013

A CUSTOMER CIT Rail Inc.
 CAR TYPE: 100-Ton, 31,809 Gal. Shell Full, DOT 111S100W1, Non-Coiled, Non-Insulated Stub Sill Sloped Bottom Tank Car

DATE OF ORDER: 7/12/2012 PROJECT ENGINEER: tcs
 A COMMODITY GENERAL ARRGT. DWG.: 7-Y-7794-00-A

NAME: Crude Oil (UN 1267)
 HAZARD CLASS: Flammable Liquid (CL3, PG I)
 COMMODITY STENCIL: None OUTAGE (%): 2.00%
 MAX WEIGHT:(lbs/gal) 6.77 TANK OUTAGE: 636
 Maximum lading weight of 6.77 lb/gal based on 31172.82 gal. and G.R.L 286000 lbs.

GENERAL INFORMATION PLANT: Marmaduke

GAUGE TABLE: Innage and Outage available on line at www.americanrailcar.com
 A EXTREME HEIGHT: 15' 5-15/16" EXTREME WIDTH: 10' 7-7/8"
 CNTR of GRAVITY:(in.) approx 91.86 EST. LIGHTWEIGHT: (lbs) 74,900
 AAR CLEARANCE: Plate C GRL:(lbs) 286,000

MINIMUM CURVE CHARACTERISTICS:
 A) ON CURVE & UNCOUPLED: (ft.) 150
 B) COUPLED TO LIKE CAR - ONE ON CURVE & ONE ON TANGENT: (ft.) 216
 C) COUPLED TO AAR 40' BASE CAR W/ CAR ON CURVE & BASE CAR ON TANGENT:(ft.) 214

REMARKS: This car is designed for Medium Hazard (P.G. II) or High Hazard (P.G. I) materials which are required to meet criteria of MS & RP C-III, Chapter 2 Para. 2.7 for cars transporting "Petroleum Crude Oil, Alcohols, N.O.S and Ethanol Gasoline Mixture" as well as Para. 2.5 "Requirements for DOT/TC Tank Cars Weighing Over 263,000 lb GRL" . Car is designed to meet 1,000,000 miles fatigue life for cars in general interchange service. If this car is intended for unit train and high utilization service, the tank and underframe should undergo an initial inspection at 500,000 miles and subsequent inspections every 100,000 miles thereafter.

TANK

A STAMPED SPEC: DOT 111A100W1 TANK DWG: 5-Y-5581-00-C
 TANK TEST PRESSURE: 165 (psi) ESTIMATED SHELL FULL: 31809
 SHELL DESIGN: 6 Course @ 1/2" nom thickness HEAD DESIGN: 2:1 Ellipsodal @ 1/2" nom
 TANK PLATE MTL: AAR TC128 Gr B Normalized Throughout (Heads normalized during forming)
 INSIDE DIAMETER: 122-1/2" (2" drop, approx.)
 LENGTH OVER HEADS: 53' 11-13/16"
 LENGTH OF CENTER TO CENTER HEAD WELDS: 48' 5-3/8" Top & 48'-7 1/8" Bottom
 HEAT TREATMENT: 1100 deg F. minimum at least one hour.
 X-RAY: In accordance with AAR Appendix "W".
 NOZZLES: MNWY: 20" I.D. C.S. ASTM A516 Gr. 70-9° Bevel DWG: 7-Y-6853-00-B
 TOP UNLOADING: 22" I.D. C.S. ASTM A516 Gr. 70 DWG: 7-Y-6747-03-A
 SAFETY RELIEF DEVICE On fittings cover plate. DWG:
 SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump Casting DWG: 5-Y-2171-00-G
 A FIT ARRGT (TANK FIT) Enhanced nozzle reinforcement pad for top fittings protection w/ holes for direct communication to vapor space. DWG: 7-Y-6651-00-C
 A WELD ATTACHMENTS: 3' Extended Sill & 12" Continuous Cradle Pad DWG: 7-Y-6987-00-B
 SKID ASSEMBLY: Two (2) piece cast skid assy; AAR M201 Gr. B+
 REMARKS: No Grinding on Car Longitudinal Bottom Centerline.



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C (CR8970)

LOT NUMBER 28-70278

INSULATION & JACKET

INSULATION SYSTEM: None
 JACKET CTR DESC: None CTR DWG: None
 JACKET END DESC: None
 REMARKS: 1/2" thick, 1/2 height, trapezoidal head shields. DWG: 5-Y-5981-00-E

A FITTINGS	FITTINGS ARRGT. DWG	7-Y-7651-00-A1
A MANWAY ARRGT:	20" ID CS with enhanced eyebolts and lift assist. (CR9112)	DWG: 7-Y-7624-18-D
MANWAY COVER:	Cast Steel Gr. "B", 6 Bolt; designed for 165psi; Manway Style AAR-1.	
A SAFETY RELIEF VALVE:	75 psi Kelso CS flanged w/ flue stack JS75XH-516-09-A-G Carbon Steel - Viton® GFS (Carolina Seals 5350) O-rings.	DWG: See Top Fittings
BOT OUTLET ARRGT:	4" Full Port, Low Profile, C.S. with SST trim ARI 2040A Bottom Operated Ball Valve.	DWG: 5-Y-1362-00-G
BOT OUTLET FLANGE	ASTM A350 LF2 Normalized	
BOT OUTLET FITTINGS:	C.S. non-jacketed chamber with 4" CS cap and 2" CS plug and chain assy.	
SUMP	M201 Gr. B+; Integral part of BOV Skid/Sump	
A TOP UNLOADING ARRGT	22" I.D. C.S. top unloading w/ C.S. separable base plate, Carbon Steel Siphon Guide Pads, and a Multi-Port Type 316L Stainless Steel Siphon Pipe Guide Assy. Pressure Style Protective Housing with lift assist. (CR 9112, CR9113)	DWG: 7-Y-7632-00-C
SIPHON PIPE & VALVE	3" Schedule 40 C.S. pipe and flange assy., with screwed-end, stainless steel trim, ball valve, Jamesbury 6FR-2236-TT, closed with CS plug and chain.	
AIR INLET	2" Schedule 80 Type 304L stainless steel pipe nipple with 2" stainless steel trim, screwed-end ball valve, Jamesbury 6FR-2236-TT, closed with a CS plug and chain assy.	
VACUUM RELIEF VLV:	ARI S1626A Stainless Steel VRV (-3.0 psi)	
OUTAGE MARKER:	316L SST 2% marker visible through open manway	
A GAUGING DEVICE:	Midland B-612S 60" Magnetic Gauge Device. (Crude Oil @ 0.825 sp.gr. & Condensate @ 0.705 sp.gr. @ 60 deg. F in Inches). (CR9113)	
THERMOWELL	2" CS plug for future application.	
TEST TUBE	2" CS plug for future application.	
A GASKET MATL	Garlock 3000; Manway gasket Durlon 9000 & Bottom Outlet Cap Viton® GFS, O-rings are Viton®-GFS (Carolina Seals 5350).	DWG: 4-Y-5954-00-D
REMARKS:		
MOUNTING		
CARD HOLDER APPLN	COLOR: Black QTY: 4	DWG: 5-Y-5909-03-A
A BRACKET ARRGT		DWG: 5-Y-5961-00-C
SIDE HDRAIL APPLN		DWG: 5-Y-5958-03-A2
END ASSY "A" END		DWG: 5-W-9332-00-D
END ASSY "B" END		DWG: 5-W-9322-00-D1
RUNNING BOARDS:	Galvanized (Plate type)	
SAFETY PLATFORM	ARI 2-Level; ladders on center of car. (plate Type)	DWG: 7-Y-6729-00-B
A REMARKS:	Six (6) Grounding studs; Four (4) Brass grounding studs, applied diagonally opposite corners of top platform (AR & BL), and at the Side Ladders (AR & BL). Two (2) SST grounding studs located on bolster cover (AR & BL). (CR9140)	DWG: 5-W-8338-17-E



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C (CR8970) LOT NUMBER 28-70278

UNDERFRAME DESIGN: 286,000 G.R.L

A **SILL TYPE:** HB1 Stub Sill (ARI 300 Fig. 1) (65-1/8" overhang & 3' inboard extended sill). DWG: 7-Y-6957-00-B

LENGTH OVER STRIKER 56' 7-15/16" **LOPF =** 59' - 3-7/16" **TRUCK CTRS** 45' 9-11/16"

A **ANCHORAGE CALC:** DWG: 7-Y-7210-00-A

DRAFT GEAR ARRGT: AAR M-901E DWG: 5-Y-5523-00-F

COUPLER/YOKE: AAR SE60EE / AAR SY40AE with 16" low profile center plates.

BOLSTER 120 Deg. 9/16 web element DWG: 7-Y-6979-00-A

REMARKS:

BRAKES DESIGN: 286,000 G.R.L

A **BRAKE** 10 x 12 ABU Body Mounted System; Rod Through Design (No Test Plate) END DWG: 5-Y-5960-00-B
CTR DWG: 5-Y-5959-00-B

EMPTY LOAD SYSTEM: Side Frame Actuated 50%

SLACK ADJUSTER AAR Group E; Mechanical Double Acting Automatic

BRAKE LEVERS/BEAMS: ARI and AAR No. 18

HAND BRAKE: AAR 1993 Vertical Wheel w/66 Bell-Crank - Long Handle DWG: 4-Y-3692-00-A

REMARKS: Brake Rod Wear Liners. DWG: 4-W-0284-00-D

TRUCKS DESIGN: 286,000 G.R.L.

TYPE: 100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. DWG: 5-Y-0575-01-C
M976 Two Piece Adapters.

WHEEL TYPE: 36" DIA. One-Wear, H-36 or CH-36, Class C

AXLE: 6-1/2" x 9" AAR M-101

ROLLER BEARING: AAR Std. Class "K" 6-1/2"x 9"

S.F. & BOLSTERS: Cast steel Grade "B+". Narrow Jaw Pedestal S.F.'s.

SIDE BEARINGS: Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT/Stucki 4500XT/ Wabtec SBX-45) ARI Preference

REMARKS: Column wear plates bolted only. Trucks are M-976 compliant.

PAINT & LINING

CLEANING TANK INTR: Interior surfaces to be free of visible oil, grease, dirt, dust, loose mill scale, and loose rust.

TANK LINING: None

EXTERIOR PAINT PREP: Gritblast completed car exterior - Commercial (SSPC-SP-6) before painting.

A **PAINT SYSTEM:** One (1) Coat, Black Epoxy DTM System Williams Hayward, (68-12925-80 Black), 4-6 mil DFT.

STENCILED SPEC: DOT 111S100W1 TEMP. STENCIL DWG: N/A

A **STENCIL REQUIREMENT** AAR & DOT. Reporting Marks on top of car B-end. DWG: 7-Y-6945-02-B

REMARKS: Riveted or bolted connections to have faying surfaces painted prior to assembly. All markings to be decals. Anti-skid coating applied to tank within platform area. Gratings Galvanized and Not Painted.

LT. WT. has been adjusted as specified below after scaling and prior to rounding and stencilling.

Lbs estimated for Exterior Coating: ___ YES (___ LBS) X NO (Weighed Painted)

Lbs estimated for Interior Coating. ___ YES (___ LBS) X NO (No Lining)

Lbs estimated for fittings not shipped with car. ___ YES (___ LBS) X NO (Weighed Complete)

ADDENDUM NO. 1 REINFORCED OPENING CALCULATIONS

	DESCRIPTION	CALC DWG
A	1 NOZZLES: MNWY:	7-Y-7510-00-A
A	2 TOP UNLOADING:	7-Y-7510-00-A
	3 SAFETY RELIEF DEVICE:	N/A
	4 SUMP/SKID	7-Y-6058-00-A
	5 BOT OUTLET FITTINGS:	7-Y-6008-00-A



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C LOT NUMBER 28-70246
 A CAR NOS CTCX 742991 - 743079 AAR APPLICATION L121031A
 NO. CARS: 89
 A STATUS: Final Rev A DATE: 4/11/2012

CUSTOMER The CIT Group / Equipment Financing, Inc.
 CAR TYPE: 100-Ton, 31,809 Gal. Shell Full, DOT 111S100W1, Non-Coiled, Non-Insulated Stub Sill Sloped
 Bottom Tank Car
 DATE OF ORDER: 2/17/2012 PROJECT ENGINEER: cae

COMMODITY GENERAL ARRGT. DWG.: 5-Y-5580-00-B

NAME: Crude Oil (UN 1267)
 HAZARD CLASS: Flammable Liquid (CL3, PG I)
 COMMODITY STENCIL: None OUTAGE (%): 2.00%
 MAX WEIGHT:(lbs/gal) 6.77 TANK OUTAGE: 636
 Maximum lading weight of 6.77 lb/gal based on 31172.82 gal. and G.R.L 286000 lbs.

GENERAL INFORMATION PLANT: Marmaduke

GAUGE TABLE: Innage and Outage available on line at www.americanrailcar.com
 EXTREME HEIGHT: 15' 5-3/4" EXTREME WIDTH: 10' 7-1/2"
 CNTR of GRAVITY:(in.) approx 91.86 EST. LIGHTWEIGHT: (lbs) 74,900
 AAR CLEARANCE: Plate C GRL:(lbs) 286,000

MINIMUM CURVE CHARACTERISTICS:

- A) ON CURVE & UNCOUPLED: (ft.) 150
- B) COUPLED TO LIKE CAR - ONE ON CURVE & ONE ON TANGENT: (ft.) 216
- C) COUPLED TO AAR 40' BASE CAR W/ CAR ON CURVE & BASE CAR ON TANGENT:(ft.) 214

REMARKS: This car is designed for Medium Hazard (P.G. II) or High Hazard (P.G. I) materials which are required to meet criteria of MS & RP C-III, App. E Para 10.2 for Top Fittings Protection as well as Chapter 2 Para. 2.7 for cars in Crude Oil Service. Car is designed to meet 1,000,000 miles fatigue life for cars in general interchange service. If this car is intended for unit train and high utilization service, the tank and underframe should undergo an initial inspection at 500,000 miles and subsequent inspections every 100,000 miles thereafter

TANK

STAMPED SPEC: DOT 111A100W1 TANK DWG: 5-Y-5581-01-B

A TANK TEST PRESSURE: 165 psi ESTIMATED SHELL FULL: 31809
 SHELL DESIGN: 6 Course @ 1/2" nom thickness HEAD DESIGN: 2:1 Ellipsodal @ 1/2" nom
 TANK PLATE MTL: AAR TC128 Gr B Normalized Throughout (Purchased Heads)
 INSIDE DIAMETER: 122-1/2" (2" drop, approx.)
 LENGTH OVER HEADS: 53' 11-13/16"
 LENGTH OF CENTER TO CENTER HEAD WELDS: 48' 5-3/8" Top & 48'-7 1/8" Bottom
 HEAT TREATMENT: 1100 deg F. minimum at least one hour.
 X-RAY: In accordance with AAR Appendix "W".
 NOZZLES: MNWY: 20" I.D. C.S. ASTM A516 Gr. 70 DWG: 5-W-5407-00
 TOP UNLOADING: 22" I.D. C.S. ASTM A516 Gr. 70 DWG: 3-Y-3883-02
 SAFETY RELIEF DEVICE: On fittings cover plate. DWG:
 SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump Casting DWG: 5-Y-2171-00-F
 FIT ARRGT (TANK FIT) Enhanced nozzle reinforcement pad for rollover protection. DWG: 5-Y-5896-00-B
 WELD ATTACHMENTS: 3' Extended Sill & 12" Continuous Cradle Pad DWG: 5-Y-5874-00-H
 SKID ASSEMBLY: Two (2) piece cast skid assy; AAR M201 Gr. B+
 REMARKS: No Grinding on Car Longitudinal Bottom Centerline.



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C

LOT NUMBER 28-70246

INSULATION & JACKET

INSULATION SYSTEM: None
 JACKET CTR DESC: None CTR DWG: None
 JACKET END DESC: None

A REMARKS: 1/2" thick, 1/2 height, trapazoidal head shields. DWG: 5-Y-5981-00-D

FITTINGS FITTINGS ARRGT. DWG 5-Y-5953-00A1

MANWAY ARRGT: 20" ID CS with enhanced eyebolts. DWG: 5-Y-5025-18B3
 MANWAY COVER: Cast Steel Gr. "B", 6 Bolt; designed for 165psi; Manway Style AAR-1.
 SAFETY RELIEF VALVE: 75 psi Kelso CS flanged with flue stack JS75H-516-09-A-G Carbon Steel - Viton GFS O-rings and Flue Stack. (CR 8880) DWG: See Top Fittings
 BOT OUTLET ARRGT: 4" Full Port, Low Profile, C.S. with SST trim ARI 2040A Bottom Operated Ball Valve. DWG: 5-Y-1362-00F2
 BOT OUTLET FLANGE ASTM A350 LF2 Normalized
 BOT OUTLET FITTINGS: C.S. non-jacketed chamber with 4" CS cap and 2" CS plug and chain assy.
 SUMP M201 Gr. B+; Integral part of BOV Skid/Sump

A TOP UNLOADING ARRGT 22" I.D. C.S. top unloading w/ C.S. separable base plate, Carbon Steel Siphon Guide Pads, and a Multi-Port Type 316L Stainless Steel Siphon Pipe Guide Assy. Pressure Style Protective Housing. DWG: 5-Y-5952-03C2

SIPHON PIPE & VALVE 3" Schedule 40 C.S. pipe and flange assy., with screwed-end, stainless steel trim, ball valve, Jamesbury 6FR-2236-TT/MT, closed with CS plug and chain.

AIR INLET 2" Schedule 80 Type 304L stainless steel pipe nipple with 2" stainless steel trim, screwed-end ball valve, Jamesbury 6FR-2236-TT/MT, closed with a CS plug and chain assy.

A VACUUM RELIEF VLV: ARI S1624A Stainless Steel VRV (-3.0 psi) (CR8871)

OUTAGE MARKER: 316L SST 2% marker visible through open manway
 GAUGING DEVICE: Provisions on baseplate closed with CS Blind Flange.
 THERMOWELL 2" CS plug for future application.
 TEST TUBE 2" CS plug for future application.
 GASKET MATL Garlock 3000; Manway gasket Durlon 9000 & Bottom Outlet Cap DWG: 4-Y-5954-00-B
 Viton GFS, O-rings are Viton-GFS.

REMARKS: Customer to verify gasket and o-ring material compatability with commodity.

MOUNTING

CARD HOLDER APPLN COLOR: Black QTY: 4 DWG: 5-Y-5909-03-A
 BRACKET ARRGT DWG: 5-Y-5961-00-A
 SIDE HDRAIL APPLN DWG: 5-Y-5958-00A1
 END ASSY "A" END DWG: 5-W-9332-00-D
 END ASSY "B" END DWG: 5-W-9322-00-D
 RUNNING BOARDS: Galvanized (Plate type) DWG: 5-W-8338-14D1
 SAFETY PLATFORM ARI 2-Level; ladders on center of car. (plate Type) (CR 8763) DWG: 5-Y-5828-00-B
 REMARKS: Two (2) Brass Grounding studs, applied diagonally opposite corners of top platform. DWG: 5W-8338-00D1



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C LOT NUMBER 28-70246

UNDERFRAME DESIGN: 286,000 G.R.L.

SILL TYPE: HB1 Stub Sill (ARI 300 Fig. 1) (65-1/8" overhang & 3' inboard extended sill). DWG: 5-W-6429-00-B

LENGTH OVER STRIKER 56' 4-15/16" LOPF = 59' - 3-7/16" TRUCK CTRS 45' 9-11/16"

A ANCHORAGE CALC: DWG: 7-Y-6071-00-A

DRAFT GEAR ARRGT: AAR M-901E - NEW DWG: 5-Y-5523-00-D

COUPLER/YOKE: AAR SE60EE / AAR SY40AE with 16" low profile center plates.

BOLSTER 120 Deg. 9/16 web element DWG: 5-Y-5639-00-A

REMARKS:

BRAKES DESIGN: 286,000 G.R.L.

BRAKE NYAB; 10 x 12 ABU Body Mounted System; Rod Through Design (No Test Plate) END DWG: 5-Y-5960-00-A CTR DWG: 5-Y-5959-00-A

EMPTY LOAD SYSTEM: Side Frame Actuated 50%

SLACK ADJUSTER AAR Group E; Mechanical Double Acting Automatic

BRAKE LEVERS/BEAMS: ARI and AAR No. 18

HAND BRAKE: AAR 1993 Vertical Wheel w/66 Bell-Crank - Long Handle DWG: 4-Y-3692-00-A

REMARKS: Brake Rod Wear Liners. DWG: 4-W-0284-00-C

TRUCKS DESIGN: 286,000 G.R.L.

TYPE: 100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. M976 Two Piece Adapters. DWG: 5-Y-0575-01-C

WHEEL TYPE: 36" DIA. One-Wear, H-36 or CH-36, Class C

AXLE: 6-1/2" x 9" AAR M-101

ROLLER BEARING: AAR Std. Class "K" 6-1/2"x 9"

S.F. & BOLSTERS: Cast steel Grade "B+". Narrow Jaw Pedestal S.F.'s.

SIDE BEARINGS: Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)

REMARKS: Column wear plates bolted only. Trucks are M-976 compliant.

PAINT & LINING

CLEANING TANK INTR: Interior surfaces to be free of visible oil, grease, dirt, dust, loose mill scale, and loose rust.

TANK LINING: None

EXTERIOR PAINT PREP: Gritblast completed car exterior - Commercial (SSPC-SP-6) before painting.

PAINT SYSTEM: One (1) Coat, Black Epoxy DTM System Williams Hayward (68-12925-80 Black)

STENCILED SPEC: DOT 111S100W1 TEMP. STENCIL DWG: N/A

STENCIL REQUIREMENT AAR & DOT. Reporting Marks on top of car B-end. DWG: 5-Y-5957-01B1

REMARKS: Riveted or bolted connections to have faying surfaces painted prior to assembly. All markings to be decals. Anti-skid coating applied to tank within platform area. Gratings Galvanized and Not Painted. Chemtrec Decals.

LT. WT. has been adjusted as specified below after scaling and prior to rounding and stencilling.

Lbs estimated for Exterior Coating: ___ YES (___ LBS) X NO (Weighed Painted)

Lbs estimated for Interior Coating. ___ YES (___ LBS) X NO (No Lining)

Lbs estimated for fittings not shipped with car. ___ YES (___ LBS) X NO (Weighed Complete)

ADDENDUM NO. 1 REINFORCED OPENING CALCULATIONS

DESCRIPTION	CALC DWG
1 NOZZLES: MNWY:	4-Y-5983-00B
2 TOP UNLOADING:	4-Y-5983-00B
3 SAFETY RELIEF DEVICE:	N/A
4 SUMP/SKID	7-Y-6058-00-A
5 BOT OUTLET FITTINGS:	7-Y-6008-00-A



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C LOT NUMBER 28-70231
 CAR NOS CBTX 741425 -742240, & CBTX 742762 - 742845 AAR APP. 121031

D NO. CARS: 900

E STATUS: Final Rev E DATE: 7/16/2012

CUSTOMER CIT Rail LLC / USD
 CAR TYPE: 100-Ton, 31,809 Gal. Shell Full, DOT 111S100W1, Non-Coiled, Non-Insulated Stub Sill Sloped Bottom Tank Car

DATE OF ORDER: 9/23/2011 PROJECT ENGINEER: cae

COMMODITY GENERAL ARRGT. DWG.: 5-Y-5580-00-B

NAME: Crude Oil (UN 1267)
 HAZARD CLASS: Flammable Liquid (CL3, PG I)
 COMMODITY STENCIL: None OUTAGE (%): 2.00%
 MAX WEIGHT:(lbs/gal) 6.77 TANK OUTAGE: 636
 Maximum lading weight of 6.77 lb/gal based on 31172.82 gal. and G.R.L 286000 lbs.

GENERAL INFORMATION PLANT: Marmaduke

GAUGE TABLE: Innage and Outage available on line at www.americanrailcar.com
 EXTREME HEIGHT: 15' 5-3/4" EXTREME WIDTH: 10' 7-1/2"
 CNTR of GRAVITY:(in.) approx 91.86 EST. LIGHTWEIGHT: (lbs) 74,900
 AAR CLEARANCE: Plate C GRL:(lbs) 286,000

MINIMUM CURVE CHARACTERISTICS:
 A) ON CURVE & UNCOUPLED: (ft.) 150
 B) COUPLED TO LIKE CAR - ONE ON CURVE & ONE ON TANGENT: (ft.) 216
 C) COUPLED TO AAR 40' BASE CAR W/ CAR ON CURVE & BASE CAR ON TANGENT:(ft.) 214

REMARKS: This car is designed for Medium Hazard (P.G. II) or High Hazard (P.G. I) materials which are required to meet criteria of MS & RP C-III, App. E Para 10.2 for Top Fittings Protection as well as Chapter 2 Para. 2.7 for cars in Crude Oil Service. Car is designed to meet 1,000,000 miles fatigue life for cars in general interchange service. If this car is intended for unit train and high utilization service, the tank and underframe should undergo an initial inspection at 500,000 miles and subsequent inspections every 100,000 miles thereafter

TANK

D STAMPED SPEC: DOT 111A100W1 TANK DWG: (311 cars) 5-Y-5581-01-B
 (589 cars) 5-Y-5581-00-B

TANK TEST PRESSURE: 165 (psi) ESTIMATED SHELL FULL: 31809
 SHELL DESIGN: 6 Course @ 1/2" nom thickness HEAD DESIGN: 2:1 Ellipsodal @ 1/2" nom
 TANK PLATE MTL: AAR TC128 Gr B Normalized Throughout (Purchased Heads and Fabricated Heads)
 INSIDE DIAMETER: 122-1/2" (2" drop, approx.)
 LENGTH OVER HEADS: 53' 11-13/16"
 LENGTH OF CENTER TO CENTER HEAD WELDS: 48' 5-3/8" Top & 48'-7 1/8" Bottom
 HEAT TREATMENT: 1100 deg F. minimum at least one hour.
 X-RAY: In accordance with AAR Appendix "W".
 NOZZLES: MNWY: 20" I.D. C.S. ASTM A516 Gr. 70 DWG: 5-W-5407-00
 TOP UNLOADING: 22" I.D. C.S. ASTM A516 Gr. 70 DWG: 3-Y-3883-02
 SAFETY RELIEF DEVICE: On fittings cover plate. DWG:

SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump Casting DWG: 5-Y-2171-00-F
 D FIT ARRGT (TANK FIT) Enhanced nozzle reinforcement pad for rollover (25 cars)DWG: 5-Y-5896-00-B
 protection. (875 cars)DWG: 7-Y-6019-00-A

E WELD ATTACHMENTS: 3' Extended Sill & 12" Continuous Cradle Pad (287 cars)DWG: 7-Y-6209-00-A
 (613 cars)DWG: 7-Y-6320-00-A

SKID ASSEMBLY: Two (2) piece cast skid assy; AAR M201 Gr. B+
 REMARKS: No Grinding on Car Longitudinal Bottom Centerline.



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C

LOT NUMBER 28-70231

INSULATION & JACKET

INSULATION SYSTEM: None

JACKET CTR DESC: None

CTR DWG: None

JACKET END DESC: None

A REMARKS: 1/2" thick, 1/2 height, trapezoidal head shields.

DWG: 5-Y-5981-00-C

C FITTINGS

FITTINGS ARRGT. DWG

5-Y-5953-00A2

C MANWAY ARRGT: 20" ID CS with enhanced eyebolts.

DWG: 5-Y-5025-18B3

MANWAY COVER: Cast Steel Gr. "B", 6 Bolt; designed for 165psi; Manway Style AAR-1.

C SAFETY RELIEF VALVE: 75 psi Kelso CS flanged w/ flue stack JS75H-516-09-A-G Carbon Steel - Viton GFS O-rings. (CR 8880/8849)

DWG: See Top Fittings

BOT OUTLET ARRGT: 4" Full Port, Low Profile, C.S. with SST trim ARI 2040A Bottom Operated Ball Valve.

DWG: 5-Y-1362-00F2

BOT OUTLET FLANGE: ASTM A350 LF2 Normalized

BOT OUTLET FITTINGS: C.S. non-jacketed chamber with 4" CS cap and 2" CS plug and chain assy.

SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump

D TOP UNLOADING ARRGT: 22" I.D. C.S. top unloading w/ C.S. separable base plate, Carbon Steel

(558 cars) DWG: 5-Y-5952-03C2

Siphon Guide Pads, and a Multi-Port Type 316L Stainless Steel Siphon

(342 cars) DWG: 5-Y-5952-02C2

Pipe Guide Assy. Pressure Style Protective Housing.

SIPHON PIPE & VALVE: 3" Schedule 40 C.S. pipe and flange assy., with screwed-end, stainless steel trim, ball valve, Jamesbury 6FR-2236-TT/MT, closed with CS plug and chain.

AIR INLET: 2" Schedule 80 Type 304L stainless steel pipe nipple with 2" stainless steel trim, screwed-end ball valve, Jamesbury 6FR-2236-TT/MT, closed with a CS plug and chain assy.

D VACUUM RELIEF VLV: ARI S1624A Stainless Steel VRV (-3.0 psi) (558 cars)(CR8874)

ARI S1626A Stainless Steel VRV (-3.0 psi) (342 cars)

OUTAGE MARKER: 316L SST 2% marker visible through open manway

GAUGING DEVICE: Provisions on baseplate closed with CS Blind Flange.

THERMOWELL: 2" CS plug for future application.

TEST TUBE: 2" CS plug for future application.

A GASKET MATL: Garlock 3000; Manway gasket Durlon 9000 & Bottom Outlet Cap

DWG: 4-Y-5954-00-B

Viton GFS, O-rings are Viton-GFS. (CR 8849)

REMARKS: Customer to verify gasket and o-ring material compatibility with commodity.

MOUNTING

CARD HOLDER APPLN COLOR: Black QTY: 4

DWG: 5-Y-5909-03-A

BRACKET ARRGT

DWG: 5-Y-5961-00-A

E SIDE HDRAIL APPLN

(287 cars) DWG: 5-Y-5958-00A2

(613 cars) DWG: 5-Y-5958-02A2

END ASSY "A" END

DWG: 5-W-9332-00-D

END ASSY "B" END

DWG: 5-W-9322-00-D

RUNNING BOARDS: Galvanized (Plate type)

E SAFETY PLATFORM: ARI 2-Level; ladders on center of car. (plate Type)

(287 cars) DWG: 5-Y-5828-00-B

(613 cars) DWG: 7-Y-6311-00-A

B REMARKS: Two (2) Brass Grounding studs, applied diagonally opposite corners of top platform, and at the Side Ladders.

DWG: 5-W-8338-14D1



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 11-ARI-345C LOT NUMBER 28-70231

UNDERFRAME DESIGN: 286,000 G.R.L.

SILL TYPE: HB1 Stub Sill (ARI 300 Fig. 1) (65-1/8" overhang & 3' inboard extended sill) DWG: 5-W-6429-00-B

LENGTH OVER STRIKER 56' 4-15/16" LOPF = 59' - 3-7/16" TRUCK CTRS 45' 9-11/16"

C ANCHORAGE CALC: DWG: 7-Y-6212-00-A

A DRAFT GEAR ARRGT: AAR M-901E - RECONDITIONED (CR 8832) DWG: 5-Y-5523-00-D

COUPLER/YOKE: AAR SE60EE / AAR SY40AE with 16" low profile center plates.

BOLSTER 120 Deg. 9/16 web element DWG: 5-Y-5639-00-A

REMARKS:

BRAKES DESIGN: 286,000 G.R.L.

BRAKE NYAB; 10 x 12 ABU Body Mounted System; Rod Through Design (No Test Plate) END DWG: 5-Y-5960-00-A CTR DWG: 5-Y-5959-00-A

EMPTY LOAD SYSTEM: Side Frame Actuated 50%

SLACK ADJUSTER AAR Group E; Mechanical Double Acting Automatic

BRAKE LEVERS/BEAMS: ARI and AAR No. 18

HAND BRAKE: AAR 1993 Vertical Wheel w/66 Bell-Crank - Long Handle DWG: 4-Y-3692-00-A

REMARKS: Brake Rod Wear Liners. DWG: 4-W-0284-00-C

TRUCKS DESIGN: 286,000 G.R.L.

TYPE: 100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. M976 Two Piece Adapters. DWG: 5-Y-0575-01-C

WHEEL TYPE: 36" DIA. One-Wear, H-36 or CH-36, Class C

AXLE: 6-1/2" x 9" AAR M-101

ROLLER BEARING: AAR Std. Class "K" 6-1/2"x 9"

S.F. & BOLSTERS: Cast steel Grade "B+". Narrow Jaw Pedestal S.F.'s.

SIDE BEARINGS: Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)

REMARKS: Column wear plates bolted only. Trucks are M-976 compliant.

PAINT & LINING

CLEANING TANK INTR: Interior surfaces to be free of visible oil, grease, dirt, dust, loose mill scale, and loose rust.

TANK LINING: None

EXTERIOR PAINT PREP: Gritblast completed car exterior - Commercial (SSPC-SP-6) before painting.

PAINT SYSTEM: One (1) Coat, Black Epoxy DTM System Williams Hayward (68-12925-80 Black)

STENCILED SPEC: DOT 111S100W1

TEMP. STENCIL DWG: N/A

E STENCIL REQUIREMENT AAR & DOT. Reporting Marks on top of car B-end. DWG: 5-Y-5957-00-C

REMARKS:

LT. WT. has been adjusted as specified below after scaling and prior to rounding and stencilling.

Lbs estimated for Exterior Coating: ___ YES (___ LBS) X NO (Weighed Painted)

Lbs estimated for Interior Coating. ___ YES (___ LBS) X NO (No Lining)

Lbs estimated for fittings not shipped with car. ___ YES (___ LBS) X NO (Weighed Complete)

ADDENDUM NO. 1 REINFORCED OPENING CALCULATIONS

	DESCRIPTION		CALC DWG
A	1a NOZZLES: MNWY:	(25 cars)	4-Y-5983-00
A	2a TOP UNLOADING:	(25 cars)	4-Y-5983-00
C	1b NOZZLES: MNWY:	(791 cars)	7-Y-6087-00-B
C	2b TOP UNLOADING:	(791 cars)	7-Y-6087-00-B
A	3 SAFETY RELIEF DEVICE:		N/A
A	4 SUMP/SKID		7-Y-6058-00-A
A	5 BOT OUTLET FITTINGS:		7-Y-6008-00-A



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 10-ARI-350-A1 LOT # 28-70225
 A CAR NOS CBTX 736186 - 736369 AAR APPLICATION 111019
 NO. CARS: 184

A STATUS: FINAL Rev A DATE: 2/29/2012

CUSTOMER The CIT LLC
 CAR TYPE: 100-Ton, 30,000 Gal. Shell Full, DOT 111A100W1, General Service - Non-Coiled, Non-Insulated Stub Sill Sloped Bottom Tank Car

DATE OF ORDER: 8/16/2011 PROJECT ENGINEER: cae

COMMODITY GENERAL ARRGT. DWG.: 5-Y-5369-00A1

NAME: Petroleum Crude Oil
 HAZARD CLASS: Class 3 - Flammable Liquid; Packing Group III (low hazard) with no special requirements.
 COMMODITY STENCIL: None OUTAGE (%): 2.00%
 MAX WEIGHT:(lbs/gal) 6.71 TANK OUTAGE (gal): 600
 REMARKS: Maximum lading weight of 6.71 lb/gal based on 29400 gal. and G.R.L 263000 lbs.

GENERAL INFORMATION PLANT: Marmaduke

GAUGE TABLE: Innage and Outage available on line at americanrailcar.com
 EXTREME HEIGHT: 15' 5-3/4" EXTREME WIDTH: 10' 7-1/2"
 CNTR of GRAVITY:(in.) approx 90.98 EST. LIGHTWEIGHT: (lbs) 65,700
 AAR CLEARANCE: Plate C GRL:(lbs) 263,000

MINIMUM CURVE CHARACTERISTICS:
 A) ON CURVE & UNCOUPLED: (ft.) 150
 B) COUPLED TO LIKE CAR - ONE ON CURVE & ONE ON TANGENT: (ft.) 217
 C) COUPLED TO AAR 40' BASE CAR W/ CAR ON CURVE & BASE CAR ON TANGENT:(ft.) 215

REMARKS: Car is designed to meet the AAR M-1001 Chapter 7 requirement of 1,000,000 miles fatigue life for cars in general interchange service. This car is not specifically designed to meet the service environment of unit train and high utilization cars as defined by AAR M-1001 Chapter 7. This car is designed for Non-Hazardous or Non-Regulated or (P.G. III) Low Hazard materials which are not required to meet criteria of MS & RP C-III, App. E Para 10.2 for Top Fittings Protection.

TANK

STAMPED SPEC: DOT 111A100W1 TANK DWG: 5-Y-1913-03-A

TANK TEST PRESSURE: 165 (psi) ESTIMATED SHELL FULL: 30000

SHELL DESIGN: 6 Course @ 7/16" nom thickness HEAD DESIGN: 2:1 Ellipsodal @ 7/16 nom

TANK PLATE MTL: ASTM A516 Gr. 70 Heads & AAR TC128 Gr B Shell Courses(Heads Normalized during forming)

INSIDE DIAMETER: 119 -1/8" (2" drop to center)

LENGTH OVER HEADS: 53' 10-1/2"

LENGTH OF CENTER TO CENTER HEAD WELDS: 48' 3-1/4" Top / 48' 4-7/8" Bottom

HEAT TREAT/X-RAY: 1100 deg F. minimum at least one hour. X-ray in accordance with AAR Appendix "W".

NOZZLES: MNWY: 20" C.S. ASTM A516 Gr. 70 MANWAY: 5-W-5407

TOP UNLOADING: 15" I.D. ASTM A53 Type S, Gr. B TOP NOZZLE DWG: 3-W-4136-01

SAFETY RELIEF DEVICE: 6-1/2" I.D. ASTM A513 Gr. 1026 tubing SAFETY VALVE NOZ: 3-U-1592-04

SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump Casting DWG: 5-Y-2171-00-F

FIT ARRGT (TANK FIT) DWG: 5-Y-2895-00-A

WELD ATTACHMENTS: 3' Extended Sill & 12" Continuous Cradle Pad DWG: 5-Y-5803-00-A

SKID ASSEMBLY: Two (2) piece cast skid assy; AAR M201 Gr. B+

REMARKS: No Grinding on Car Longitudinal Bottom Centerline. Car equipped with Brake Hanger Bracket Pads.



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 10-ARI-350-A1

IOT # 28-70225

HEATING SYSTEM

NO. OF LINES & TYPE: None

DWG: n/a

COIL TEST PRESSURE: n/a

INSULATION & JACKET

INSULATION SYSTEM: None

JACKET CTR DESC: None

CTR DWG: None

JACKET END DESC: None

REMARKS:

FITTINGS

FITTINGS ARRGT. DWG 5-Y-1921-00-C

MANWAY ARRGT: 20" ID. C.S.

DWG: 5-W-6186-18-T

MANWAY COVER: Cast Steel Gr. "B", 6 Bolt; designed for 165psi; Manway Style AAR-1.

SAFETY RELIEF VALVE: 75# ARI 1148 Carbon Steel - Viton A O-rings.

DWG: 4-W-6798-14J1

BOT OUTLET ARRGT: 4" Full Port, Low Profile, C.S. with SST trim ARI 2040A Bottom Operated Ball Valve.

DWG: 5-Y-1362-04F2

BOT OUTLET FLANGE: ASTM A350 LF2 Normalized

BOT OUTLET FITTINGS: C.S. non-jacketed chamber with 4" CS cap and 2" CS plug.

SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump

TOP UNLOADING ARRGT: 15" I.D. C.S. top unloading nozzle with C.S. separable base plate, Carbon Steel Siphon Guide Pads, and a Multi-Port Type 316L Stainless Steel Siphon Pipe Guide Assy.

DWG: 5-Y-5372-00-B

SIPHON PIPE & VALVE: 3" Schedule 40 C.S. pipe and flange assy., with screwed-end, stainless steel trim, ball valve, Jamesbury 6FR-2236-TT/MT, closed with CS plug and chain.

AIR INLET: 2" Schedule 80 Type 304L stainless steel pipe nipple with 2" stainless steel trim, screwed-end ball valve, Jamesbury 6FR-2236-TT/MT, closed with a CS plug and chain.

VACUUM RELIEF VLV: 2-1/2" CS plug for future application.

OUTAGE MARKER: 316L SST 2% marker visible through open manway

GAUGING DEVICE: Provisions on baseplate closed with CS Blind Flange.

THERMOWELL: 2" C.S. plugged hole for future application.

TEST TUBE: 2" C.S. plugged hole for future application.

GASKET MATL: Static Gaskets Garlock 3000 (Nitrile); O-rings are Viton A; Manway is Durlon 9000 (CR8586), BOV Cap is Nitrile (Buna-N).

DWG: 4-Y-2026-00-B

REMARKS:

MOUNTING

CARD HOLDER APPLN COLOR: Black QTY: 4

DWG: 5-Y-4473-00-B

BRACKET ARRGT

DWG: 4-Y-3699-00-A

SIDE HDRAIL APPLN

DWG: 5-Y-5367-00-A

END ASSY "A" END

DWG: 5-W-9332-00-D

END ASSY "B" END

DWG: 5-W-9322-00D1

RUNNING BOARDS: Galvanized (Plate type)

SAFETY PLATFORM: ARI 2-Level; ladders at longitudinal center of car. (CR8589)

DWG: 5-Y-5383-00-A

REMARKS: Brass Grounding Lugs at Side Ladders. (CR 8730)

DWG: 5-W-8338-12D1



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.:	10-ARI-350-A1	LOT NUMBER	28-70225
UNDERFRAME		DESIGN: 286,000 G.R.L	
SILL TYPE:	HB1 Stub Sill (ARI 300 Fig. 1) (65-1/8" overhang & 3' inboard extended sill)	DWG:	5-W-6429-00-B
LENGTH OVER STRIKER	56' 7-15/16"	LOPF =	59' 3-7/16"
ANCHORAGE CALC:		TRUCK CNTR	45' 9-11/16"
A DRAFT GEAR ARRGT:	AAR M-901E - RECONDITIONED GROUP J	DWG:	5-V-5051-00G1
COUPLER/YOKE:	AAR SE60EE / AAR SY40AE w/ 16" diameter low profile center plates	DWG:	5-Y-5523-00-B
BOLSTER	120 Deg. 1/2 web weldment.	DWG:	5-W-7509-01-C
REMARKS	Lifting provision at body bolsters.		

BRAKES		DESIGN: 286,000 G.R.L	
BRAKE	NYAB; 10 x 12 ABU Body Mounted System; Rod Through Design (No Test Plate)	END DWG:	5-Y-5665-00-A
EMPTY LOAD SYSTEM:	Side Frame Actuated 50%	CTR DWG:	5-Y-5795-00-A
BRAKE REGULATOR:	AAR Group E		
BRAKE LEVERS/BEAMS:	ARI and AAR No. 18		
HAND BRAKE:	AAR 1993 Vertical Wheel w/66 Bell-Crank - Long Handle	DWG:	4-Y-3692-00-A
REMARKS:	Brake Rod Wear Liners	DWG:	4-W-0284-00-C

TRUCKS		DESIGN: 263,000 G.R.L.	
TYPE:	100 Ton Capacity SSRM, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. Shoulder Hardened Adapters.	DWG:	5-Y-2205-00A1
WHEEL TYPE:	36" DIA. , H-36 or CH-36, Class C - CUSTOMER SUPPLIED-RECONDITIONED		
AXLE:	6-1/2" x 12" AAR M-101 CUSTOMER SUPPLIED - RECERTIFIED		
ROLLER BEARING:	AAR Std. Class "F" 6-1/2" x 12" Roller Bearing - CUSTOMER SUPPLIED		
S.F. & BOLSTERS:	Cast steel Grade "B+". Narrow Jaw Pedestal.		
SIDE BEARINGS:	Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)		
REMARKS:	Transdyne Wear Liners; Column wear plates bolted only. Trucks are NOT M-976 compliant.		

PAINT & LINING			
CLEANING TANK INTR:	Interior surfaces to be free of visible oil, grease, dirt, dust loose mill scale and loose rust.		
TANK LINING:	None		
EXTERIOR PAINT PREP:	Gritblast completed car exterior - Commercial (SSPC-SP-6) before painting.		
PAINT SYSTEM:	One Coat Black Epoxy DTM System - Williams Hayward (68-12925-80 Black)		
STENCILED SPEC:	DOT 111A100W1	TEMP. STENCIL DWG:	N/A
A STENCIL REQUIREMENT	AAR & DOT. Reporting Marks on top of car B-end.	DWG:	5-Y-5370-03-B
REMARKS:	Riveted or bolted connections to have faying surfaces painted prior to assembly. All markings to be decals. Anti-skid coating applied to tank within platform area. Gratings Galvanized and Not Painted. Chemtrec Decals.		

ADDENDUM NO. 1
REINFORCED OPENING CALCULATIONS

DESCRIPTION	CALC DWG
1 NOZZLES: MNWY:	5-U-8291-01-A18
2 TOP UNLOADING:	5-Y-2983-01A1
3 SAFETY RELIEF DEVICE:	5-U-8423-01-D2
4 SUMP/SKID	5-Y-2274-00-B
5 BOT OUTLET FITTINGS:	5-Y-2599-04-B



TANK CAR DETAIL SPECIFICATION

E ESTIMATE NO.: 10-ARI-350-A(+ CR's 8585-8587, and 8589) LOT NUMBER 28,A8,B8-70219
AAR # 111019

F CAR NOS 28-70219 CTCX 735655 - 735747 (93 cars Recon WAB-Viton A)
28-70219 CTCX 735748 - 736018 & CTCX 736045 - 736051 (278 cars Recon WAB-GFS(CR8837))
B8-70219 CTCX 736019- 736031 (13 cars Recon WAB-GFS-Recon Bol/SF)
A8-70219 CTCX 736032-736036 (4 cars New WAB, Viton A)
A8-70219 CTCX 736036 - 736044 (9 cars New WAB, GFS (CR 8837))

E NO. CARS: 28-70219 93+271 =371
A8-70219 4 + 9 = 13
B8-70219 13 = 13

F STATUS: FINAL Rev F DATE: 4/27/2012 total (397)

CUSTOMER The CIT Group / Equipment Financing, Inc.
CAR TYPE: 100-Ton, 30,000 Gal. Shell Full, DOT 111A100W1, General Service - Non-Coiled, Non-Insulated
Stub Sill Sloped Bottom Tank Car
DATE OF ORDER: 6/23/2011 PROJECT ENGINEER: cae

A COMMODITY GENERAL ARRGT. DWG.: 5-Y-5369-00A1

NAME: Petroleum Crude Oil (UN1267)
HAZARD CLASS: Class 3 - Flammable Liquid; Packing Group III (low hazard) with no special requirements.
COMMODITY STENCIL: None OUTAGE (%): 2.00%
MAX WEIGHT:(lbs/gal) 6.71 TANK OUTAGE (gal): 600
REMARKS: Maximum lading weight of 6.71 lb/gal based on 29400 gal. and G.R.L 263000 lbs.

GENERAL INFORMATION PLANT: Marmaduke

GAUGE TABLE: Innage and Outage available on line at americanrailcar.com
EXTREME HEIGHT: 15' 5-3/4" EXTREME WIDTH: 10' 7-1/2"
CNTR of GRAVITY:(in.) approx 90.98 EST. LIGHTWEIGHT: (lbs) 65,700
AAR CLEARANCE: Plate C GRL:(lbs) 263,000
MINIMUM CURVE CHARACTERISTICS:
A) ON CURVE & UNCOUPLED: (ft.) 150
B) COUPLED TO LIKE CAR - ONE ON CURVE & ONE ON TANGENT: (ft.) 217
C) COUPLED TO AAR 40' BASE CAR W/ CAR ON CURVE & BASE CAR ON TANGENT:(ft.) 215

REMARKS: Car is designed to meet the AAR M-1001 Chapter 7 requirement of 1,000,000 miles fatigue life for cars in general interchange service. This car is not specifically designed to meet the service environment of unit train and high utilization cars as defined by AAR M-1001 Chapter 7. This car is designed for Non-Hazardous or Non-Regulated or (P.G. III) Low Hazard materials which are not required to meet criteria of MS & RP C-III, App. E Para 10.2 for Top Fittings Protection.

TANK

STAMPED SPEC: DOT 111A100W1 TANK DWG: 5-Y-1913-03-A
TANK TEST PRESSURE: 165 (psi) ESTIMATED SHELL FULL: 30000
SHELL DESIGN: 6 Course @ 7/16" nom thickness HEAD DESIGN: 2:1 Ellipsodal @ 7/16 nom
TANK PLATE MTL: ASTM A516 Gr. 70 Heads & AAR TC128 Gr B Shell Courses(Heads Normalized during forming)
INSIDE DIAMETER: 119 -1/8" (2" drop to center)
LENGTH OVER HEADS: 53' 10-1/2"
LENGTH OF CENTER TO CENTER HEAD WELDS: 48' 3-1/4" Top / 48' 4-7/8" Bottom
HEAT TREAT/X-RAY: 1100 deg F. minimum at least one hour. X-ray in accordance with AAR Appendix "W".
NOZZLES: MNWY: 20" C.S. ASTM A516 Gr. 70 MANWAY: 5-W-5407
TOP UNLOADING: 15" I.D. ASTM A53 Type S, Gr. B TOP NOZZLE DWG: 3-W-4136-01
SAFETY RELIEF DEVICE: 6-1/2" I.D.ASTM A513 Gr. 1026 tubing SAFETY VALVE NOZ: 3-U-1592-04
SUMP: M201 Gr. B+; Integral part of BOV Skid/Sump Casting DWG: 5-Y-2171-00-F

FIT ARRGT (TANK FIT) DWG: 5-Y-2895-00-A
A WELD ATTACHMENTS: 3' Extended Sill & 12" Continuous Cradle Pad DWG: 5-Y-5803-00-A

SKID ASSEMBLY: Two (2) piece cast skid assy; AAR M201 Gr. B+

A REMARKS: No Grinding on Car Longitudinal Bottom Centerline. Car equipped with Brake Hanger Bracket Pads.



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 10-ARI-350-A(+ CR's 8585-8587, and 8589)

LOT NUMBER 28,A8,B8-70219

HEATING SYSTEM

NO. OF LINES & TYPE: None

DWG: n/a

COIL TEST PRESSURE: n/a

INSULATION & JACKET

INSULATION SYSTEM: None

JACKET CTR DESC: None

CTR DWG: None

JACKET END DESC: None

REMARKS:

A **FITTINGS** **FITTINGS ARRGT. DWG** 5-Y-1921-00-C

B **MANWAY ARRGT:** 20" ID. C.S. **DWG:** 5-W-6186-18-T

MANWAY COVER: Cast Steel Gr. "B", 6 Bolt; designed for 165psi; Manway Style AAR-1.

D **SAFETY RELIEF VALVE:** 75# ARI 1148 Carbon Steel - Viton A= (97 cars) **DWG:** 4-W-6798-14K1
Viton GFS O-rings. (CR8837) = (300 cars) **DWG:** 4-W-6798-30K1

BOT OUTLET ARRGT: 4" Full Port, Low Profile, C.S. with SST trim ARI 2040A Bottom Operated Ball Valve. **DWG:** 5-Y-1362-04F2

BOT OUTLET FLANGE ASTM A350 LF2 Normalized

BOT OUTLET FITTINGS: C.S. non-jacketed chamber with a 4" Cap and 2" Plug and chain assembly.

SUMP M201 Gr. B+; Integral part of BOV Skid/Sump

TOP UNLOADING ARRGT 15" I.D. C.S. top unloading nozzle with C.S. separable base plate, Carbon Steel Siphon Guide Pads, and a Multi-Port Type 316L Stainless Steel Siphon Pipe Guide Assy. **DWG:** 5-Y-5372-00-B

SIPHON PIPE & VALVE 3" Schedule 40 C.S. pipe and flange assy., with screwed-end, stainless steel trim, ball valve, Jamesbury 6FR-2236-TT/MT, closed with CS plug and chain.

AIR INLET 2" Schedule 80 Type 304L stainless steel pipe nipple with 2" stainless steel trim, screwed-end ball valve, Jamesbury 6FR-2236-TT/MT, closed with a 2" CS plug and chain assembly.

VACUUM RELIEF VLV: 2-1/2" C.S. plugged hole for future application.

OUTAGE MARKER: 316L SST 2% marker visible through open manway

GAUGING DEVICE: Provisions on baseplate closed with CS Blind Flange.

THERMOWELL 2" C.S. plugged hole for future application.

TEST TUBE 2" C.S. plugged hole for future application.

D **GASKET MATL** Static Gaskets Garlock 3000 (Nitrile) O-rings are Viton GFS (CR 8837); **DWG:** 5-Y-2026-00-B
Manway is Durlon 9000 (CR8586), BOV Cap is Nitrile (Buna-N).

REMARKS:

MOUNTING

CARD HOLDER APPLN COLOR: Black QTY: 4 **DWG:** 5-Y-4473-00-B

BRACKET ARRGT **DWG:** 4-Y-3699-00-A

B **SIDE HDRAIL APPLN** **DWG:** 5-Y-5367-00-A

END ASSY "A" END **DWG:** 5-W-9332-00-D

END ASSY "B" END **DWG:** 5W-9322-00D1

RUNNING BOARDS: Galvanized (Plate type)

SAFETY PLATFORM ARI 2-Level; ladders at longitudinal center of car. (CR8589) **DWG:** 5-Y-5383-00-A

REMARKS: Brass Grounding Lugs at Side Ladders. (CR 8730) **DWG:** 5W8338-12D1



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.:	10-ARI-350-A(+ CR's 8585-8587, and 8589)	LOT NUMBER	28.A8.B8-70219
UNDERFRAME		DESIGN: 286,000 G.R.L.	
SILL TYPE:	HB1 Stub Sill (ARI 300 Fig. 1) (65-1/8" overhang & 3' inboard extended sill)	DWG:	5-W-6429-00-B
LENGTH OVER STRIKER	56' 7-15/16"	LOPF =	59' 3-7/16"
		TRUCK CNTR	45' 9-11/16"
ANCHORAGE CALC:		DWG:	5-V-5051-00G1
DRAFT GEAR ARRGT:	AAR M-901E	DWG:	5-Y-5523-00-B
COUPLER/YOKE:	AAR SE60EE / AAR SY40AE w/ 16" diameter low profile center plates		
BOLSTER	120 Deg. 1/2 web weldment.	DWG:	5-W-7509-01-C
REMARKS	Lifting provision at body bolsters.		
BRAKES		DESIGN: 286,000 G.R.L.	
BRAKE	NYAB; 10 x 12 ABU Body Mounted System; Rod Through Design (No Test Plate)	END DWG:	5-Y-5665-00-A
B		CTR DWG:	5-Y-5795-00-A
EMPTY LOAD SYSTEM:	Side Frame Actuated 50%		
BRAKE REGULATOR:	AAR Group E		
BRAKE LEVERS/BEAMS:	ARI and AAR No. 18		
HAND BRAKE:	AAR 1993 Vertical Wheel w/66 Bell-Crank - Long Handle	DWG:	4-Y-3692-00-A
REMARKS:	Brake Rod Wear Liners	DWG:	4-W-0284-00-C
TRUCKS		DESIGN: 263,000 G.R.L.	
F TYPE:	100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. Shoulder Hardened Adapters.	Lot 28-70219	(371 cars) 5-Y-2205-00A1
B WHEEL TYPE:	36" DIA. One-Wear, H-36 or CH-36, Class C	CUSTOMER SUPPLIED (RECONDITIONED)	
C AXLE:	6-1/2" x 12" AAR M-101	CUSTOMER SUPPLIED (RECERTIFIED)	
C ROLLER BEARING:	AAR Std. Class "F" 6-1/2"x 12" Roller Bearing	CUSTOMER SUPPLIED	
S.F. & BOLSTERS:	Cast steel Grade "B+". Narrow Jaw Pedestal.		
SIDE BEARINGS:	Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)		
REMARKS:	Transdyne Wear Liners; Column wear plates bolted only. Trucks are NOT M-976 compliant.		
D TRUCKS		DESIGN: 263,000 G.R.L.	
F TYPE:	100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. Crown and Shoulder Hardened Adapters.	Lot A8-70219	(13 cars) 5-Y-2205-01A1
D WHEEL TYPE:	36" DIA. One-Wear, H-36 or CH-36, Class C	NEW	
D AXLE:	6-1/2" x 9" AAR M-101	NEW	
D ROLLER BEARING:	AAR Std. Class "K" 6-1/2"x 9" Roller Bearing	NEW	
D S.F. & BOLSTERS:	Cast steel Grade "B+". Narrow Jaw Pedestal.		
D SIDE BEARINGS:	Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)		
D REMARKS:	Transdyne Wear Liners; Column wear plates bolted only. Trucks are NOT M-976 compliant.		
E TRUCKS		DESIGN: 263,000 G.R.L.	
E TYPE:	100 Ton Capacity, 5' 10" wheel base, 3-11/16" spring travel, heavy duty. Shoulder Hardened Adapters.	Lot B8-70219	(13 cars) 5-Y-5378-00B1
E WHEEL TYPE:	36" DIA. One-Wear, H-36 or CH-36, Class C	CUSTOMER SUPPLIED (RECONDITIONED)	
E AXLE:	6-1/2" x 12" AAR M-101	CUSTOMER SUPPLIED (RECERTIFIED)	
E ROLLER BEARING:	AAR Std. Class "F" 6-1/2"x 12" Roller Bearing	CUSTOMER SUPPLIED	
E S.F. & BOLSTERS:	Cast steel Grade "B+". Narrow Jaw Pedestal.	CUSTOMER SUPPLIED RECONDITIONED	
E SIDE BEARINGS:	Constant Contact Metal Cap Extended Travel (Miner TCIII-45LT)		
E REMARKS:	Column wear plates bolted only. Trucks are NOT M-976 compliant.		



TANK CAR DETAIL SPECIFICATION

ESTIMATE NO.: 10-ARI-350-A(+ CR's 8585-8587, and 8589) 28,A8,B8-70219 28,A8,B8-70219

PAINT & LINING

CLEANING TANK INTR: Interior surfaces to be free of visible oil, grease, dirt, dust loose mill scale and loose rust.

TANK LINING: None

EXTERIOR PAINT PREP: Gritblast completed car exterior - Commercial (SSPC-SP-6) before painting.

PAINT SYSTEM: One Coat Black Epoxy DTM System - Williams Hayward (68-12925-80 TRA Black)

STENCILED SPEC: DOT 111A100W1

TEMP. STENCIL DWG: N/A

C STENCIL REQUIREMENT AAR & DOT. Reporting Marks on top of car B-end.

DWG: 5-Y-5370-02-B

REMARKS: Riveted or bolted connections to have faying surfaces painted prior to assembly. All markings to be decals. Anti-skid coating applied to tank within platform area. Gratings Galvanized and Not Painted. Chemtrec Decals.

ADDENDUM NO. 1 REINFORCED OPENING CALCULATIONS

DESCRIPTION	CALC DWG
1 NOZZLES: MNWY:	5-U-8291-01-A17
2 TOP UNLOADING:	5-Y-2983-01A1
3 SAFETY RELIEF DEVICE:	5-U-8423-01-D2
4 SUMP/SKID	5-Y-2274-00-B
5 BOT OUTLET FITTINGS:	5-Y-2599-04-B