

Shipping Autos by Rail – Part 2



TTX Collection

Shipping Autos by Rail – Part 2

- Addendum for Part 1 (Early fully-enclosed Auto Racks)
- Other rack types on TTX cars (CTTX, TTNX, TTQX, TT SX, TTVX)
- Q2
- Articulated Bi-Level (Thrall)
- Auto-Max
- Union Pacific Auto-Flex
- National Steel Car auto rack
- Gunderson Multi-Max
- Uni-Level Cars
- Paint Schemes
- Autos shipped in Containers (Auto-Stack)

Early Fully-Enclosed Auto Racks Portec RailPac

- Fiberglass roof, expanded metal side screens.
- Tri-fold end doors.
- Chessie (C&O), GTW, and PC logos.
- Rack scrapped in 1989, car placed into wide-body program.



Stu Thomson Photo

Early Fully-Enclosed Auto Racks Portec RailPac

- ETTX 900344, class F89CH flatcar, with FEC auto rack.
- Portec early partially enclosed auto rack (No end doors).
- Mesh-type side screens (used on Railpac).
- Note car body is as built (Not wide-body).
- Approximately 1975-1976?



TTX Co. collection

Early Fully-Enclosed Auto Racks Whitehead & Kales Snap-Pak and Safe-Pak

- SNAP-PAK "Ship New Auto Protected Package".
- Ford Motor with DT&I, N&W, SCL/L&N and UP.
- Semi-automatic tie-down system.
- 17-ft., 7-in. high and 89-ft., 4-in. long over end sills.



Ken Donnelly collection

Snap-Pak and Safe-Pak Whitehead & Kales

- Snap-Pak led to Safe-Pak.
- Integral car body and rack.
- Bi-level or tri-level configuration.
- Radial end door.



Jim Panza Photo

Low-Clearance Auto Racks

CTTX

- CTTX "Cover-Less" tri-level wide-body auto rack with end doors and side screening.
- Prevalent during 1980s.
- Converted to fully enclosed by adding roofs (note rack has roof rails as built).



TTX Co. Photo

Low-Clearance Auto Racks

TTSX

- "Cover-Less" wide-body bi-level auto rack with end doors and side screening.
- Prevalent during 1980s, but only 326 in service.
- Converted to fully enclosed by adding roofs (note rack has roof rails as built).

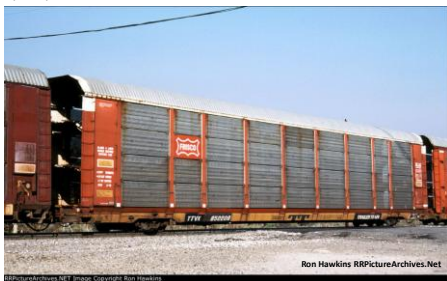


TTX Co. Photo

Enclosed Tri-Levels without End Doors

TTVX

- Wide-body tri-level auto rack without end doors, but with roof and side screening.
- 1987 (855) down to 561 in 1988.



Ron Hawkins RRPictureArchives.Net

Tri-Level to Bi-Level Conversions

TTNX

- Ex-ETTX Tri-Level with B-deck removed making it essentially a bi-level with higher B-deck setting.
- 264 in 1998, all gone by 2000.



TTX Co. Photo

20-ft., 2-in. Tri-Level Auto Racks

TTQX

- Low-level flatcar.
- Chrysler request to ship minivans in B- and C-decks.
 - Could only load minivans on C-deck of 19-ft. 0-in. racks.
- BNSF, CSX, FEC, NS and UP, with NS and UP having the most.
- 1997 (997 cars) until 2009 (68 cars), 1,090 was the most (1999).



← Note difference in roof contour with 19-ft., 0-in. auto rack.

Jim Panza Photo

20-ft., 2-in. Tri-Level Auto Racks

Thrall Car Manufacturing Q2

- Integral Rack and Car Body built June 2000-March 2001.
- Owned by CIT Group – Originally leased to UP 800000-800425.
- Stored during the Great Recession – Reporting Marks ATW.
- 126 leased to FSRR. All others scrapped or stored?



Jim Panza Photo

Articulated Bi-Level TTGX 110053

- Built June 1991 by Thrall Car Manufacturing .
- Length: 156-ft. with truck centers being 66-ft. and 12-ft. spacing from end trucks to strikers. (Same as 90-ft. flatcars).



Dick Dawson Photo

Articulated Bi-Level TTGX 110053

- Radial End Doors.
- Translucent Side Panels.
- Rotating bridge plate assemblies at articulation on both decks.



Dick Dawson Photo

Articulated Bi-Level TTGX 110053

- Not entirely successful but lessons were learned.
- Scrapped May 2003.



TTX Co. Photo

Articulated Bi-Level BTTX 110095 & 110096

- Built May 1995 by Thrall Car Manufacturing at Winder, GA.
- Length: 140-ft.
- 110095 sent to TTCI (Transportation Technology Center).
- 110096 placed in service for testing.



Dick Dawson Photo

Articulated Bi-Level BTTX 880000-880419 TMB20

- First production cars with TTX-owned auto racks
- Integral design (Rack can't be removed and car body used for other service).
- First production auto racks to use the Seal-Safe door design.



Jim Panza Photo

Articulated Bi-Level BTTX 880000-880419 TMB20

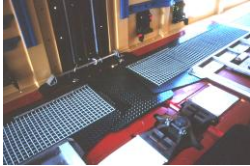
- Built Sept. 1997 – Oct. 1998 by Thrall at Winder.
- BTTX 880000-880099 had UP logos.
- Added white stripe, applied to 110095-110096 later on.
- NS largest user of BTTX cars, leased additional cars from FURX (1,070 cars).



Jim Panza Photos

Articulated Bi-Level BTTX 88000-880419 TMB20

- Vehicles can be loaded at the articulated connection.
- Increased interior width to provide ramp personnel with increased clearance.



A-deck



B-deck

Jim Panza Photos

Articulated Bi-Level TOAX 880000-880419 TMB20M

- B-deck raised to same height as C-deck on tri-level.
- Increased A-deck clearance for Cargo Vans.

BTTX (65)
Jim Panza PhotoTOAX (351)
Metro East Industries Photo

Greenbrier Auto-Max®

- Integral car body and rack design.
- Note lower side contour is similar to the Greenbrier double-stack side design.



Jim Panza Photo



Greenbrier Auto-Max®

- Bi-level or Tri-level Configuration.
- Tri-Level: 4,266.
 - B-deck hinged to provide clearance at A-deck during loading/unloading operations.
- Bi-Level: 69 cars.



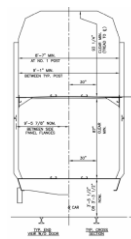
Greenbrier Photo

Greenbrier Auto-Max®

Reporting Mark	Tri or Bi	Category	Owned	Leased	Total	Lesser
CMO	Bi-Level	Lease		50	50	SOXX
CSXT	Bi-Level	Lease		19	19	
Total Bi-level			0	69	69	
AOK	Tri-Level	Lease		2626	2626	GBRX
COER	Tri-Level	Lease		234	234	CEFX
CRLE	Tri-Level	Lease		35	35	GBRX
OTDX	Tri-Level	Lease		1	1	GBRX
SOO	Tri-Level	Lease		5	5	CEFX
TR	Tri-Level	Lease		50	50	CEFX
UCRY	Tri-Level	Lease		50	50	GBRX
WCRG	Tri-Level	Lease		1	1	GBRX
WRWK	Tri-Level	Lease		22	22	GATX
Subtotal Leased Tri			0	3024	3024	
BNSF	Tri-Level	RR	401	293	694	AOK, CEFX, NRLX
CMO	Tri-Level	RR		25	25	GATX
CSXT	Tri-Level	RR		35	35	CEFX, GBRX
FSRR	Tri-Level	RR		22	22	GATX
FXE	Tri-Level	RR		140	140	FURX, GBRX
KCS/KCSM	Tri-Level	RR	324	1	325	GATX
RAIL	Tri-Level	RR		1	1	
Subtotal RR Tri			726	516	1242	
			726	3609	4335	

New Generation Auto Racks

- AAR provides the required criteria for design.
- Rack builders provide final design and prototype.
- AAR approval granted based on testing.



Drawings copyrighted by the AAR

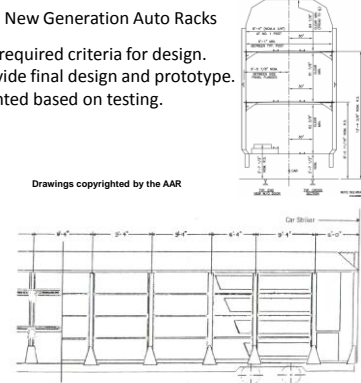


Fig. 4.1 AAR standard side-post configuration

Union Pacific AutoFlex®

- Union Pacific designed and built fully-enclosed auto rack.
- Convertible between bi-level and tri-level configuration.
- No exterior ladders, ladders in the interior of end doors.
- Built at Union Pacific De Soto Shops 2012-2015.



Jim Panza photos

Union Pacific AutoFlex®

- B-Deck must be removed to operate as Bi-level.
- Unique retracting sill step to access ladder on end door.
- Equipped with Holland chocks and grating (normally used on Tri's).



Jim Panza photos

National Steel Car Convertible Auto Rack

- NSC had built auto racks for Canadian railroads during 1970s.
- New design auto rack with tri-fold end door.



National Steel Car Photo

National Steel Car Convertible Auto Rack

- Shear Panel at ends of rack.
- BNSF 200 Bi-Levels (TTGX 967000-967199) 2013.
- All on NSC-built, class NSH80 flatcars.



National Steel Car Photo

National Steel Car Convertible Auto Rack

- All built on NSC-built, class NSH80 flatcars.
- CSXT 825 Tri-Levels (ETTX 715000, 715318-716342) 2012-2013.
- All on NSC-built, class NL18/NLH18A flatcars.



Jim Panza Photo

Greenbrier Multi-Max® Convertible Auto Rack

- B-deck is stored within the rack when in bi-level configuration.
- Search "Multi-Max" in YouTube to see a training video converting from tri-level to bi-level configuration.
- All on low-level, slope-deck flatcars built by Greenbrier in Mexico.



Jim Panza Photo

Greenbrier Multi-Max® Convertible Auto Rack

- Is this a bi-level or tri-level?
- Railroads resisted use of CTTX initials in place of ETTX or TTGX.
- All to be stenciled at BL and AR corners "BI" or "TRI".
- Identifying feature is the solid panels at the 5-ft. bay.



Jim Panza Photo

Greenbrier Multi-Max Convertible Auto Rack

- Those without the 3rd deck are given TTGX reporting mark.
- Rack is set up for application of 3rd deck at later date.
- Note even with TTGX reporting mark, still has "BI" stencil.



Jim Panza Photos

Greenbrier Multi-Max Convertible Auto Rack

TOCX

- 2nd deck (B-deck) set at same height as 3rd deck on tri-level (C-deck).
- Bi-level with increased clearance for cargo vans.
- NS is owner of 101.



Greenbrier Photo

Greenbrier Multi-Max Convertible Auto Rack

- Production began January 2013.
- 6,349 built with ~300 on order.
- Of the 6,349 built:
 - 3,280 are CTTX (Convertible racks).
 - ✓ 1,441 are in bi-level configuration.
 - ✓ 1839 are in tri-level configuration.
 - 2,968 are TTGX (Not equipped with 3rd deck).
 - 101 are TOCX.



Dick Dawson Photo

Note safety
appliance
location to
accommodate
door operation.

Uni-Levels

- Designed for large vehicles that will not fit into conventional auto racks.
- 3 prototypes and 200 production cars built.
- Production cars had first load out of Elkhart, IN on NS in May 2008.



TTX Co. Photo

Uni-Levels

- Southern Pacific fielded a prototype.



All: TTX Co. collection

Uni-Level Thrall Prototype

- Thrall Car modified an ABL by removing B-deck.
- Swing doors replaced SealSafe doors to increase inside width.
- Rack superstructure shortened at each end by approximately 5-ft. so that doors would not extend beyond the end of the car when opened.



Thrall Car Manufacturing – TTX Co. Collection

TTUX Uni-Level Prototypes

- TTUX 110099 from low-level, flush deck flatcar at Hamburg Div.
- Distance between truck centers reduced from 64-ft. to 56-ft, 9 in. by removing 7-ft., 3-in. from the center of the car.
- Length over strikers 82-ft, 9-in.
- Height: 17-ft., 4-in.
- Roll-up End Doors.
- Lexan translucent roof panels.



Dick Dawson Photo

TTUX Uni-Level Prototypes

- Exterior width of 10 ft., 5-1/2 in. and thinner side construction provided an inside width of 9 ft., 11-1/4 in. between side posts. (Compared to the 9 ft., 1 in. of conventional auto rack cars)
- Portec "Winchoc" tie-down system incorporating two winches that engaged the tie-down track in front of and behind each vehicle tire, with a strap extending between the winches and passing over the top of the tire.



TTX Co. collection



TTX Co. collection

TTUX Uni-Level Prototypes

- TTUX 110101 from standard-level, flush deck flatcar at Hamburg Div., renamed SRD-N. Augusta.
- Distance between truck centers reduced from 66-ft. to 58-ft, 8 in. by removing 7-ft., 8-in. from the center of the car.
- Length over strikers 82-ft., 4 in.
- Increased height to 18 ft., 5-1/2 in. with tapered roof profile.
- TTX designed tri-fold doors with composite panels.



Dick Dawson Photo

TTUX Uni-Level Production Cars

- TTUX 891000-891099 car bodies built by Kasgro.
- Superstructures built by National Steel Car.



TTX Co. Photo



TTX Co. Photo

TTUX Uni-Level Production Cars

- TTUX 891100-891199 car bodies and rack superstructures built by National Steel Car.



National Steel Car Photos

Paint Schemes

- Trailer Train agreed early on to paint car bodies to match rack.
- This practice seemed to end with the change to the yellow paint scheme late in 1970.



Paint Schemes

- With fully-enclosed auto rack cars:
 - Interior painted white (Excluding roof sheets).
 - Exterior of auto rack was painted per rack owner's spec.
 - Car body was painted per car owner's spec.
- Labor intensive requiring large amounts of masking tape and paper.



Paint Schemes

- TTX recommend painting rack and car body TTX yellow.
 - Optical ergonomic specialists conducted tests on a TTX yellow painted rack.
 - Results showed reduced glare and increased pupil dilation with the yellow interior paint.
 - AAR approved the painting of the rack interior with a specific shade of yellow.



Paint Schemes

- Union Pacific requested use of Armour Yellow in place of TTX yellow.
- TTX agreed.



Paint Schemes

- Not to be outdone, BNSF and KCS requested their corporate colors.
- History repeats itself again.



Greenbrier AutoStack

- Loading Device and Interior rack for 48-ft. containers.
- Patent applied for on April 14, 1988, approved April 24, 1990.

Atlanta Intermodal Show May 1992



Greenbrier AutoStack

- Vehicle decks positioned by mechanical loader.
- Rack placed inside the container by the mechanized loader.



Greenbrier Photos

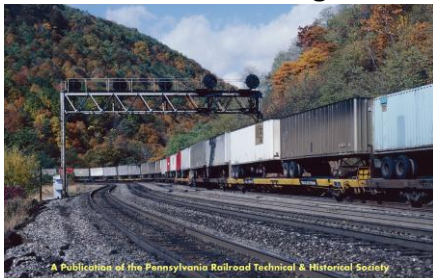
Greenbrier AutoStack

- June 1992: Agreement with Sea-Land to move Ford vehicles from west coast to Hawaii.
- September 1993: Joint partnership with Mitsui & Co.
 - AutoStack Partners Limited Partnership.
- 1995: 141,000 vehicles shipped via AutoStack.
- October 1997: "Expectations for AutoStack are tempered by the lack of market acceptance."
- May 2005: Patent expired due to failure to pay maintenance fee.



Greenbrier Photo

Shameless Plug



A Publication of the Pennsylvania Railroad Technical & Historical Society

The TTX Story

By
James D. Panza
Richard W. Dawson
Ronald P. Sellberg

Shipping Autos by Rail 2

- Questions?
- Comments?
- Topic for 2018?
- Email: JDPanza@comcast.net



Jim Panza Photo