

Auto Frame Loads

Automobile frames have special shipping problems: they are light and bulky; they are unwieldy to handle in closed equipment; yet they demand protection from shifts and shocks. And, of course, loading and unloading must be a simple “assembly line” operation to fit the production stream of the automobile and parts manufacturers.

B&O's frame flat fleet meets all these requirements. Each car is equipped with frame cradles on the car floor, holddown harnesses, and tiedown rods to permit auto body frames to be loaded horizontally. The holddown equipment contains cushioning devices to absorb normal shocks. Loading and unloading is done quickly by fork-lift trucks. The normal capacity of B&O's is about 90 frames per car, but in some cases more is possible. All of our frame flats are in assigned service, and individual cars are equipped to carry specific frame designs for specific auto makers and models.

This was from a book “B&O Railroad freight cars of the 1960's. Scott Heiden thinks it was published by the B&ORRHS and was a compilation of freight car loading info for salesmen.

A. O. Smith of Milwaukee since 1899 has been making automobile frames for first Peerless Automobile Company. In 1903 A. O. Smith supplied frames to Cadillac and to Henry Ford in 1906. By 1910 A. O. Smith is North America's largest frame manufacturer supplying assembly plants like Ford in Detroit. to an assembly plant. Scott Heiden has supplied me with a photo of a DT&I gondola being loaded or unloaded from 1930 to 1932 from a Ford Motor Company Picture. I know there were other manufacturers of frames I have not delved into that aspect of the industry only interested in the cars that carried the frames.

This clinic is about some of the prototype Railroads that I have managed to acquire pictures of the following railroads that had gondolas or flat cars that carried auto frames. Detroit Toledo & Ironton, Wabash, Pere Marquette/Chesapeake & Ohio, New York Central, Baltimore & Ohio, Reading, Milwaukee Road, Chicago & Eastern Illinois, Grand Trunk Western, Erie, Central Railroad of New Jersey and Atchison Topeka & Santa Fe.

This clinic got its start when John Spring admired one of my DT&I 41' 6" gondolas one of 8 different auto frame loads I have built and suggested I do a clinic. At the time I had no idea of the depth this would lead to.

I was given Scott Heiden's email and with his help got more information on the DT&I carframe gondolas and he also suggested I do a clinic

Even though I model the Chesapeake & Ohio 1956 era around Thurmond W, Va. coal fields,

I have been fascinated with auto frame loads the first time I saw a model of one.

I think it was 1978 or 1979 issue of Model Railroader from the W. I. S. E. division of the NMRA out of Milwaukee. They were offering their fourth limited run series car, an Athearn 50' flat car and plastic auto frames that would make up a car that was used in the 1950's.

At the time Athearn was the only 50' flat car available that looked prototypical.. The car was supposed to have been correctly lettered for the Milwaukee Road number 65637 with a 52'6" length, built 7-36 and had return to A. O. Smith Milwaukee and a 1958 rebuilt date with a RPKD Milw 6-6 8, which made the Auto Frames. As of today I have a report sheet from the Milw. Road that they had a 52' 6" flat car 65637 , built 1938 from the series 65500-66367 but has no mention of ever having been fit for Auto racks and I can't confirm that the car and lettering were correct.

PERE MARQUETTE - CHESAPEAKE & OHIO

A year after the W.I.S.E Division came out with their Milwaukee Road flat car they came out with their fifth car in their Limited run series. This time it was a Roundhouse (MDC) 40' 6", high sided Gondola lettered for the Pere Marquette, using their plastic auto frames once again.

This was lettered for the 10200-10249 series

In the June 1979 issue of the Chesapeake and Ohio Historical newsletter Carl Shaver wrote the following page on PM frame cars.

In 1934,1935 and 1936 cars from PM series 17650-18399 (high-side gons built by Ralston Steel car in 1930) were modified with racks for handling auto frames.

Interestingly, the diagram for this series indicted that these cars (17700-17874) were modified to handles transmissions, not frames. Equipment Registers confirm that the cars were in frame service, though.

The January, 1941. issue of Equipment Register shows 125 cars from this series (17700-17824) as being restricted to auto frame service. In addition, 85 cars from a series of 52' 6" low-side gondolas had racks for auto frames, installed the year before. These cars (18450-18534) came from a series of 250 built by Greenville Steel Car in 1930.

During WW 2, production of private automobiles was cut off, and the demand for the auto frames cars curtailed.

Equipment Register listings of 1943 and 1945 show no cars from either series as being restricted to auto frame or any other service. By 1947, though the auto frame gons were back in the Register, but renumbered into a series of their own. The cars from series 17700-17824 had been renumbered into PM series 10000-10072 and 10200-10249 (we haven't discovered any differences between the two groups) and the low-side cars were numbered into series 10100-10186.

Already by the time of the C&O merger, a number of these cars (PM 10050-10072, 10170-10186, and twenty cars from series 10200-10249) had been returned to general service, thought they retained their 10000 series numbers. By 1950, some of the general service cars in these series were being relettered and renumbered into the C&O series – but not the 210000 series, as might be expected. They were being given numbers in the 217000 series, corresponding to their original numbers. Also by 1950, cars from the other PM series were being modified for auto frames, without being renumbered. By 1952 more frame cars from the 10000 series were being restored to general service, and the first car in the 210000 series #210171 had shown up. (As it turned out, the 10100 series was the only group to have cars renumbered into corresponding C&O series.)

The first C&O auto frame gondola cars to be renumbered from ex-PM series showed up in 1954, and by 1956 there were frame cars in the C&O 210100 series, as well as series

218400-218649 and 218650- 218849. Three auto frame cars showed up in C&O series 217650-218399, but these were gone by 1957, leaving only sixteen high-side gondola cars (PM 10000-10015) in the auto frame service.

During 1957 and 1958, the auto frame cars in PM series 10100-10186 and C&O series 210100-210186 were all placed in C&O series 218400-218649, so that except for the PM 10000-10015 all of the C&O auto frame gondolas were numbered in the C&O 218000 series. The C&O 210100 series which had never contained more than 15 cars, disappeared in 1958.

By 1965, the use of gondolas for transporting auto frames was declining sharply, as the C&O dedicated fleets of flat cars (originally C&O as well as ex-PM) to frame service. The last of the high-side auto frame gondolas in the PM 10000 series were gone by the end of 1967, and by early 1970 there were no more auto frame gondola cars in former PM series.

Ironically, one car PM 10145 remained in the 10000 series until 1971, at least a year after all the auto frame gondolas were reconverted.

The C&O today (1979) has close to sixty flat cars in the auto frame service. On the flats, the frames are stacked on top of each other, instead of against each other in long rows, as they were in the gons. Much of the C&O's current frame carrying capability comes from the fleet of the Trailer Train Company.

Trailer Train has over 1800 cars for the auto frame service, identified by the reporting marks FTTX. These cars have special tiedown devices to hold about thirty frames in each of the six (on 60 foot cars) or ten (on 89 foot cars) stacks.

In the C&OHS book C&O Hopper and Gondola Cars by Al Kreese, Jr there is mentioned that the PM 50 ton 40' gondolas in the 17650-18399 series later to be renumbered 217650-218399 in the C&O series, with 175 cars out of that series were equipped with racks for Auto Frames.

In the PM freight car book by Art Million there are pictures of two cars from that series.

In the W.I.S.E. Division information they mentioned that if one got an old Revel 50 Gondola it could be lettered for PM 18450-18534 series.

I now find that the Revel car which is an ACF is not correct but the Proto 2000 Life-Like Greenville 52'6" is correct.

There were 85 cars from the 18450-18534 series car originally outfitted for auto frames in 1940 but were relegated to general service with the curtailment of Automobile manufacturing by the War Production Board.. As automobile production began to resume in 1945 80 of the cars were reassigned and renumbered into the 10100-10199. From PM Freight Car book is a picture of 10133 gondola a 52'6" with auto frames. These cars continued well into the C&O era. In 1954 there were still 67 auto frame cars supplemented by 18404 and 18455 and an additional 29 cars from the C&O (ex PM) 218400-218649 series.

By 1965, 23 cars were still hauling auto frames

Also in the W.I.S.E. information was two pictures of PM gondola numbered 18926 and a C&O 52'6" gondola numbered 218407. The C&O would have been 18407 for PM.

In Art Million's Pere Marquette Freight Cars he mentions that 95 gondolas from the 17782 series were in use as late as 1954.

142 gondolas from the 17650 series were in use as late as 1954.

507 gondolas from the C&O that were PM cars being renumbered into the 217650-218349 for a total of 744 of the original PM gondolas.

By 1957 there were 70 cars in service, 6 in the PM 17650 series and 134 in the C&O 21765 series.

According to the information supplied with the kits from W.I.S.E. the frames were held down with chains, but from the pictures I have seen the chains have been replaced with a threaded rod and washers and a large nut to secure the load in place

In the April 1961 ORER they list the C&O 80625-80724, 81000-81249 and 216500-216849 series of 53' 6" flat cars as having Auto racks. Not all cars in those three series were equipped.

The C&O placed in service 10 cars for Cadillac frames 4 packs per car plus room for returning tie downs. The cars were 52' 1"

DETROIT TOLEDO & IRONTON

In a Prototype Modeler Magazine Nov-Dec 1987, Richard Hendrickson showed how to cut down two Athearn gondolas to make a DT&I 41' 6" fishbelly Auto frame gondola. DT&I had the cars in the 7000-7299 series. That were built in 1941. Scott Heiden says cutting a Life-Like Proto 2000 up would also do the job and would be easier.

Scott Heiden has sent me a picture and information on DT&I gondolas and from a 1930's book from "Ford Industries" Publication by Ford Motor Car. The frames are being loaded at the Ford Rouge plant in Dearborn Mich. and looks like the frames were stacked 5 at a time from an overhead crane laying down in the gondolas, 2 layers deep.

Some time between 1930 and 1932 the DT&I changed to stacking the autoframes on the diagonal. Here is 6263 in a wreck. Notice the frames are still in the gondola, and even thought in a wreck are still secure in the gondola.

This picture was interesting in that there were three rows of frames side by side compared to the usual two series. This picture was taken in 1948, so were these frames Jeeps for the Army due to the narrower frames? Notice the labour intensive operation.

In the January 5th 1959 issue of Railway Age was a picture of 5, 41'6" DT&I gondolas in the series 7000-7299. It is interesting to note that in the pictures of 7063 and 7024 is that on one of the side panels on the gondolas says " Automobile gear frame assembly return to DT&I when empty", while the pictures in the Railway Age magazine has a large letter "M" and "return to DT&I Detroit Michigan when empty", Therefore the Railway Age picture is at a later date naturally.

In the ORER January 1953 it lists DT&I 6050-6249 series , 41'6" gondolas. Not all cars in this series carried the racks.

In the Railmodel Journal November 1996 there is an article on Gondolas by Life-Like Proto 2000 built by Greenville for a number of different railroads and mention was made that the DT&I 52'6" 9000-9099 were painted mineral red and were converted to carry auto frames after WW2.

As for the colour of the DT&I gondolas Richard Hendrickson mentions in the June 1997 Railmodel Journal gondolas were mineral red when new and by 1947's the DT&I went

to the black paint scheme.. So one could paint a gondola mineral red and have the reweigh and shop letters in a black spot on the car after 1947.
DT&I I think is a 52'6" black gondola 9155 with I think is a Wabash gon 376?62
In RP CYC #20 there is a picture of a 53'6" flat car painted and lettered for the DT&I in the 900-949 series but taken in 1955. I am sure that many of these were equipped to carry auto frames but with this picture of 911 taken in 1955 it is carrying Ford tractors. Obviously it was after 1955 that they added the auto frame racks. Scott Heiden has informed me that the Intermountain flat car is correct for the as delivered flat car. Scott can't confirm what paint scheme they carried when they were in use as auto frame carriers. and how the frames were carried.

MILWAUKEE ROAD

In 1920 the Milwaukee Road added a large number of 45 foot, 50 ton flat cars to its freight car fleet. These flat cars were numbered in the 63001-63999 odd numbers only. After the WW2 100 of these flat cars were equipped with tie down anchors for auto frame loading. I have not seen a picture of these cars nor do I have any idea what numbers the cars had. Maybe they were renumbered?. Richard Hendrickson wrote an article on how to shorten an Athearn 50' flat car to make one in the Nov-Dec 1983 issue of Prototype modeler. Mr. Hendrickson modeled the plain flat car only.

I contacted Gayle Ecklund in the Milwaukee Public Library and the Library is the source of the Milwaukee Road archives. Gayle sent me two pictures of Milwaukee Road flat car dedicated to A. O. Smith. I was expecting to see a flat car much like the one I got from the W.I.S.E. division with the frames loaded or an empty car for carrying loads horizontally I was flabbergasted to say the least when I opened the 2 TIFFS and saw Milw Road flat car with an A Frame much like the gondola end with two movable blocking fixtures one half way and the other about $\frac{3}{4}$ of the length of the flat car. The car 601261 in the picture and the photo has November 1952 with a "return CMSTP&P at Milwaukee Wis". These movable end frames were secured in place after the frames were in place on the flat car much like the gondola loads threaded rod, washers and a nut. The ORER Jan 1953 issue states that the flats were in the 601200-601269 series 52'6" flat cars.

Now that I have seen a picture of 60121 flat car I can assume that the 45 foot 63001-63999 series carried the auto frames in an upright diagonal style much like the gondola loads of the DT&I.

Consequently this predates my W.I.S.E, Division Milwaukee flat car in the way the auto frames were shipped.

Maybe the W.I.S.E. Division had more information on that series 65637 and maybe the frames had been redesigned to carry the frames horizontally.

Also mentioned in the ORER January 1953 issue I found Milwaukee had 44'6" gondolas in the 362000-362059 series that were equipped to carry auto frames.

These gondolas would be an interesting project to build due to the war emergency sides and the height of the sides. I am assuming the frames were stacked on the diagonal as the structural frames are identical at each end.

PENNSYLVANIA RAILROAD

In the Railway Age Jan 5th 1959 issue as the five DT&I gons is a picture of a PRR 469410 which has an elaborate flat upright frame that stated it carried station wagon bodies. I contacted Elden Gatwood from the PRRHS and he said that car was a class F41 52'6" flat car. He mentioned that it carried body subassemblies, but didn't mention a date or if more than one was in use.. He stated that after a year or two in service it was withdrawn as he figures it was not working out. Not sure if he meant cost wise in the number of sub assemblies or labour wise in loading and unloading In 1937 PRR modified gondolas in the G24 series for auto frame use.

PRR as early as 1940 started to equip their G-27 war emergency gondolas 344500-348999 series 52' 6" designed a wood and steel frame that held auto frames in place, The clamping device was changed in 1947 when a single "L" frame clamp was applied to the top of the car sides at the "B" end. There were 30 cars had the frames in Jan 1940. By 1942 there were 60 cars equipped by Oct 1948 245 cars and as late as Jan 1953 there were 2185 gondolas with racks.

I have not found the series or numbers that had frames. Elden did mention that PRR switched to cut down gondolas in the FG 27a and b class and loaded the frames in stacks diagonally.

In the January 1953 ORER lists G28, 342600-344499 series and G27, 344500-348999 52'6" gondolas which correspond with Elden's email. Not all the cars in those series had racks.

BALTIMORE & OHIO

From Bob's Photos a picture of a B&O flat car 8620. A 53'6" 70 ton class P-25 A.A.R. 8100-8249 built by the B&O at Dubois Pa using Greenville Steel Car kits that were modified to handle Auto frame in the horizontal position and renumbered 8600-8629. When the flat cars were modified I have no idea but the 8620 has a re weight WA 9-64 on the side, and the picture was taken in June 1968.

WABASH

In ORER Jan 1953 issue it lists Wabash 13000-13249, 41'6" gondolas for Gear frame loading. Gear Frame loading label was on the original DT&I 7000-7299 gondolas. Series 13500-14849 41'6" gondolas were equipped with racks for Ford passenger car frames.

In Ian Wilson's book "Steam Through London" is a back half shot of a Wabash Gondola taken in the CNR/Wabash yard in Windsor Ontario in the mid 50's.

Mark Vaughan of the Wabash H. S. gave me the following information from the 1956 Wabash Freight Equipment Register.

Wab 12500 to 12599 were built in 1942 and had racks added in 1953

Wab 12650 to 12799 were built in 1954 and had racks added in 1956

Wab 12800 to 12896 were built in 1956 and had racks added in 1956

Wab 13500 to 14849 were built in 1944/45/46 and had racks added in 1952.

Mark mentions that he seriously doubts all of the cars in the series had auto racks. Gary Roe of the Wabash H.S emailed me and stated that the picture in Ian's book was probably 12800-12896 series built in Decatur shops in 1956. Gary Roe has said the Wabash had 53'6" flat cars in 1957. The flat cars were in the 100-239 series, but only 13 of the flats had auto racks for GM frames. By 1964 only four cars had racks. In 1964 59 flats in the series 450-599 were equipped with racks for Ford Passenger frames one of the cars 25542 had racks for A. O. Smith K. D. frame loading. Gary says that over the years Wabash continually installed and removed racks from various gondolas including war Emergency gons and 41" steel gons. Many of the auto racks installed were owned by the DT&I Railroad. As I showed before a picture from Richard Hendrickson looks like a Wabash Red gondola number 376?62 with frames. A picture from Mark Vaughan collection from Dick Keulb's collection shows auto frames stacked diagonally much like the Milwaukee Road's flat car 601261 that I showed you earlier. In the RP CYC #20 is a Wabash flat car 60' carrying 60' steel flat car underframes. These 60' flat cars series 450-599 were built in Decatur Ill shops in May 1959 and by January 1961 all 150 cars were equipped for Automobile frame loading. Gary Roe says that Chet French supplied him with all of the information and Gary passed it on to me. Scott Heiden sent me a web sight to go to for the month of June 1954 for Ford Freight Car Traffic Detroit MI to Buffalo NY on the Wabash RR via St. Thomas ON. http://dti.railfan.net/Equipment_Database/TrainConsists/BlackRockFord54/BlackRockFordBuffaloCars.html

ATCHISON TOPEKA & SANTA FE

In the ORER Jan 1953 issue lists the following railroads that had cars equipped for carrying auto frames.
AT&SF 169200-169499 53'6" gondolas
In 1936 70 of the 50' version were adapted for autoframes and became Ga-44, the Santa Fe's first frame loading car. They were rebuilt with wood flooring, tie downs, braces and brackets to handle autoframe shipments from the Midwest to auto assembly plants in Texas and California. During WW2 they reverted to general service. In 1947, fifty cars were returned to autoframe service again. They were the ATSF's main equipment for this important trade until the early 1950's. Their original numbers were 169500-169899. Sunshine Models has a picture of their kit car numbered 176642 on their website. The Ga-44 were numbered 168900-168969 before WW2 and 176600-176649 after the war. AT&SF 176650-176718 52'6" gondolas. In the American Model Builders Auto Frame and Blocking Kit #350 is a war emergency gondola HO model numbered 176685 a GA61 class.
In the Sunshine Models kit listing they mention that in 1939, 50', 10 flats in the series 91201-91210, FT O's and P's were modified to carry Oldsmobile and Pontiac frames. As was typical of the era two rows of frames were nested against a rigid frame on the "A" end of the cars at an angle of roughly 30 degrees from the vertical

On their websight they have a model of ATSF 91215 with car frames. By 1942 they were returned to flat car status. In 1946, 36 had been restored to service and lasted in service till 1960 when they reverted to their original numbers as flat cars.

GRAND TRUNK WESTERN

I have a picture of 145000 gondola with auto racks installed. As of now I have not found what the series was and how many had racks
In the April 1961 ORER issue the following are listed
56'1" flat cars 616400 -616499, 616500-616599

CHICAGO & EASTERN ILLINIOS

Chicago & Eastern Illinois 95000-95299 40'9" gondolas. 30 cars in that series had the racks.

ERIE RAILROAD

Erie Railroad 5005-5008 52'6" gondolas. Have no pictures or information from the Erie Historical Society as to date.

READING RAILROAD

Reading Railroad 26100-26899 series 20 cars, and 32000-32996 series 31 cars both 52'6" gondolas.

NEW YORK CENTRAL

NYC 699000-699219 series 41'6" gondolas.
NYC 699220-699268 series 41'6" gondolas.
NYC 699500-699513 series and 699700-699715 series 50' gondolas.
NYC 710000-710999 series and 712500-71299 series 52'6" gondolas.
Not all gondolas in those series had racks. In the ORER 1961 issue NYC had the following gondolas
698505-698758 series 41' 6"
698759-698979 series 41' 6"
699281-699298 series 52' 6". Once again not all cars in the series carried racks,
From an April 1956 issue of Trains magazine is a picture taken by Tom Mulaniff of a former P&LE Berkshire 9402 in the fall of 55 with a mixed merchandise rolling west out of Bellefontaine Ohio and the 4th to 10th cars are frames in gondolas stacked diagonally.
Another version of the railroads using cars was to have bodies sent by flat car or automobile box car.
According to Scott Heiden auto bodies were assembled at Iona Mich and shipped to regional assembly plants for final assembly.

Dick Keulb's also informed me that the Wabash shipped partially assembled Studebaker bodies from South Bend Ind on the Wabash subsidiary NJI&I via Wabash to Kansas City enroute to Los Angels were the partially assembled cars were mated and finished.

CENTRAL RAILROAD OF NEW JERSEY.

In the material I have present I have not seen anything on CNJ except a picture of #350

Al Kresse Jr emailed me and said the auto frames were made at the A. O. Smith company in Milwaukee Wisc and they were shipped via Michigan Car ferries of the PM fleet to Ludington. Then to Detroit's Rouge Mere Yard, then a transfer down to Del Ray Crossing to be interchanges with the Wabash (or had trackage rights) to the Cadillac Fort street Plant for assembly. Interesting to note that the first use of an electronic eye was on the car ferries to make sure the auto frames were stacked properly and not to be over a certain height or they would snag the ceiling of the car ferries.

I have not delved into were any manufacturers were located that shipped auto frames other than A. O. Smith from Milwaukee Wisconsin.

Scott Heiden in formed me that Wabash regularly shipped Auto frames across southern Ontario from Detroit/Windsor coming across the Detroit River by car ferry to Buffalo NY to a Ford Assembly plant there.

Dick Keulb's informed me that the Wabash shipped autoframes to Arlington Tx for a GM plant there

Scott Heiden mentions an article in the April 1997 Mainline Modeler and MM stated that in the late 60's GM frames are stacked upside down and both stacks face the same direction. (Car must be unloaded from one side of the car in order to keep all frames oriented the same way)

Ford frames are stacked upright and each stack is rotated 180 degrees from the one along side of it. (The Ford cars were unloaded from both sides of the car: by rotating the stacks 180 degrees. The front end of the frame would always be on the left side of the crane. Another difference is GM put each top harness back on its own base when empty. Ford stacks all their top harness up on one base.

GM connector baskets have solid corrugated steel sides and Ford baskets have wire mesh sides.

I mentioned to Richard Hendrickson about the ATSF cars having the "RETURN TO PHILMONT PA READING RR" and the "RETURN TO NYC RR CLEVELAND" and Richard said "Those were pool cars. When auto parts shipments traveled via two or more railroads, each railroad contributed cars especially equipped for that service to a pool of cars, with each participating railroad contributing a number of cars approximately proportional to its share of the route mileage. Since the ATSF carried a lot of auto parts long distances to auto assembly plants in Calif and Texas, it had many cars in pool service. In the examples you cite, other railroads participating in the pool would have been, in the first case, the Reading and (probably) the PRR which had the most direct route west from Philadelphia, area. In the second case the main pool partner would have

been the NYC. Some other railroads might have had a piece of the action as well, depending on routing, since the NYC and the PRR could both have handed off cars directly to the Santa Fe at Chicago, but not all, for example Peoria and Kansas City.

Sunshine Models has Gondola and Flat cars for autoframes, see their website..

Auto Frame rack and blocking is available from American Model Builders as Kit #350 and gives you a great laser cut kit that includes the "A" frame end braces, floor positioning rack and opposite hold down frame.

Auto frames are available from J. J. M. Railroad Enterprises Box 1273 Elgin IL 60121 has the frames for sale, 80 frames. For flat cars over 45' one needs two boxes.

According to the W.I.S.E. information instructions that came with the kits Mr Carl Traub former owner of Globe Models (those beautiful metal cars from the 50's) who made the patterns for the Auto Frames, Bill Hansen of A. O. Smith a rail shipper who supplied pictures, plans, and drawings to insure accuracy.

As far as I know the information in this clinic is accurate and I would be glad for any errors or missing information. My thanks goes to John Spring who made up this power point presentation. John Spring and Scott Heiden who suggested I do this clinic. Scott who help out with photos and information on the DT&I cars from the 1930's and other frame car photos. Mark Vaughan, Chet French of the Wabash HS who went out of his way to help. Thanks to Richard Hendrickson for supplying many of the photos, Gayle Ecklund from the Milwaukee Public Libraries, information from Sunshine Models website pages on ATSF and PRR cars, and those Railroad Historical Societies and individuals that supplied pictures or information I mentioned in this clinic for their help.

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