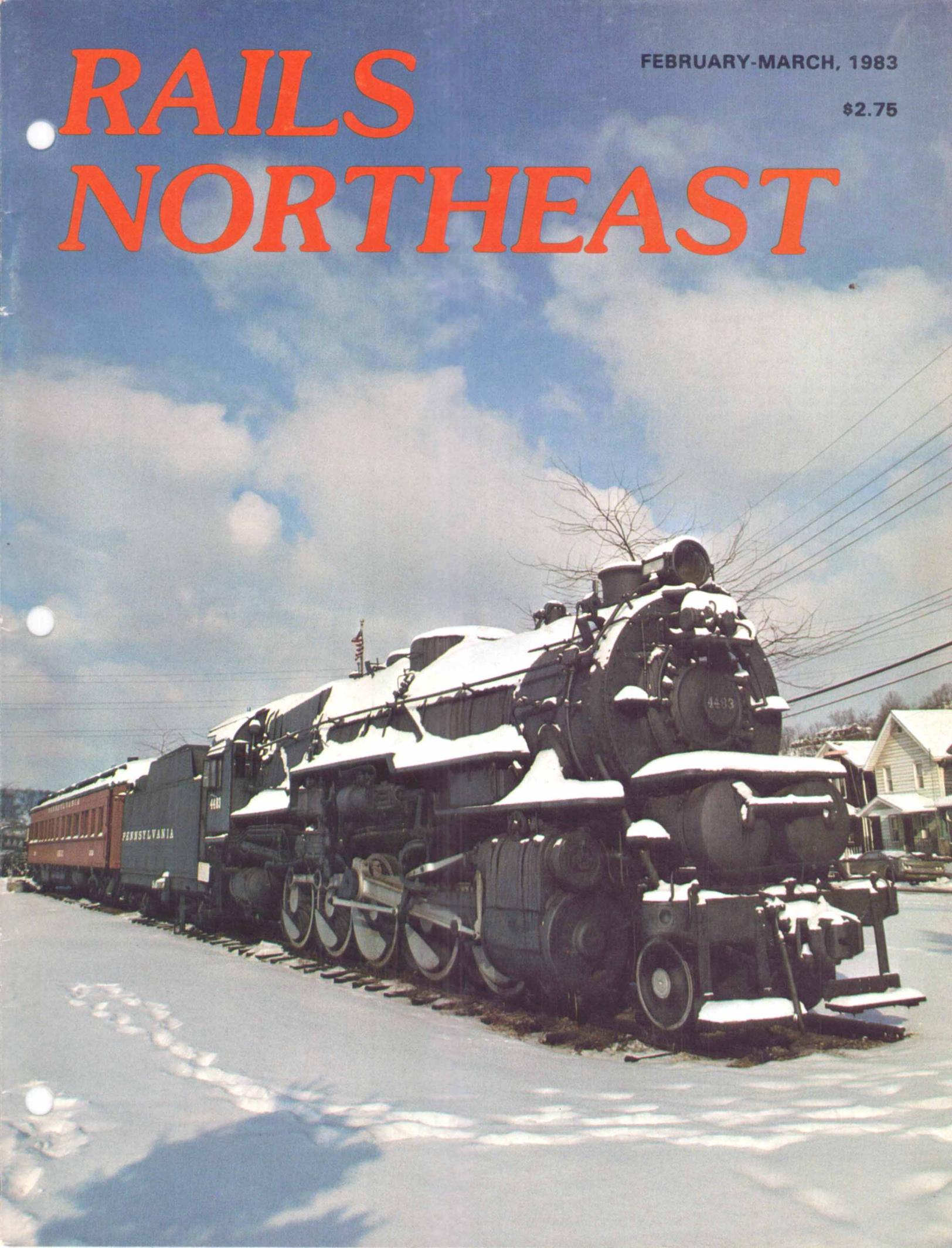


RAILS

NORTHEAST

FEBRUARY-MARCH, 1983

\$2.75



RAIL NORTH EAST WEST SOUTH

CONRAIL TO B&O

As of November 1, 1982, Conrail freights running over the Amtrak Northeast Corridor between Philadelphia and Potomac yard were switched to the B&O line. The routing through Philadelphia is from Belmont Jct. southward to Park Jct., 24th & Chestnut and East Side. At least until Conrail crews become qualified over the B&O, pilots are being used on all trains. This has caused confusion and delay because B&O does not have enough pilots to do this work and, as a result, numerous Conrail trains have been refused at Philadelphia until a pilot is available. Also, these Conrail trains have been interfering with B&O's own train makeup and dispatching late in the day, so B&O now will not accept any Conrail trains after 3 p.m. -Bert Pennypacker.

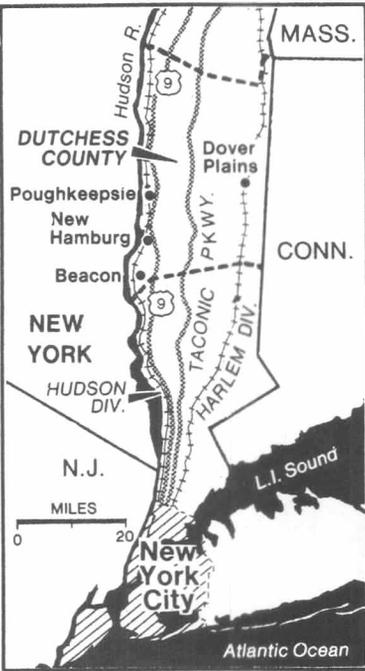
Opposite - Car handling damages run into the hundreds of thousands of dollars annually for American railroads. It's no wonder, then, that railroads spend a great deal of money on campaigns aimed at employee involvement in reducing freight damages caused by rough handling. Rolling caboose bill-boards on Chessie System Railroads have recently been inaugurated to encourage careful car handling practices, by freight crews. The brightly-painted orange cabooses, 3 C&O and 2 B&O, serve to carry the message to all parts of the System in a recent 6 month campaign that featured locally-displayed posters and the "reward" of a free CCH ball hat to employees spotting the roaming cabs. A total of six "CCH Cabs" are eventually planned to be painted in a scheme similar to 903758 photographed at Chessie's Queensgate yard in Cincinnati, Ohio on 1/8/83. Photo by Dwight Jones.

DUTCHESS COUNTY WANTS TO SEVER LINK WITH MTA

Dutchess County, NY is talking about seceding from the region served by the New York MTA. They feel they are being victimized by their proximity to New York City (see map). With a population of 245,055 and the manufacturing center for IBM Corp., site of Vassar and Marist Colleges, plus being a wealthy county, they feel that it costs them much more as part of the MTA commuter network. Lucille P. Pattison, County Executive said that if it gave each of its commuters \$10,000 to buy a new car, it would be cheaper than paying the MTA taxes. She conceded that getting out of the MTA would not be easy since it would represent a loss of several millions of dollars of revenue to the MTA. -NY Times, Jim Hurley.

MTA MAY HIKE FARES

New York transit officials warned that subway fares might have to rise by .15¢ or face a roll-back in the capital improvement plan if the Commerce Dept. decides to slap a \$137-million penalty on its subway car deal with a Canadian firm. The Commerce Dept. said the Canadian government gave a \$137-million unfair subsidy to finance the purchase of 825 subway cars from Bombardier of Montreal. -N.Y. Daily News, Jim Hurley.

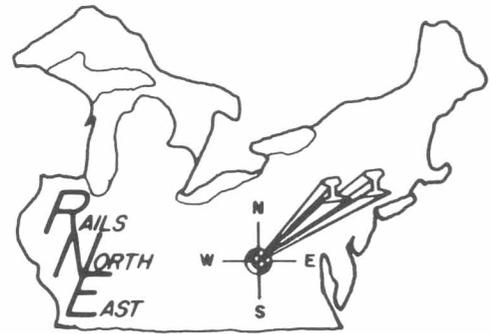


The New York Times / Jan. 4, 1983

Below - I-1sa #4483 being prepared for movement on Nov. 26, 1982. Crews of the Western New York Railway Historical Society prepare the former Pennsy Decapod for movement to Buffalo, NY for restoration and possible reactivation. The Westinghouse Air Brake Co. purchased the locomotive and business car "Ohio" in 1963 and placed it on display at the Company's plant entrance at Turtle Creek, PA. During the WABCO strike last year, strikers vandalized the engine and business car, breaking windows and other glass with rocks and bricks. The Western N.Y. Railway Historical Society is seeking donations of materials, tools, and money to restore the engine, tender and car. Donations are tax deductible. Write I-1 Fund, P.O. Box 416, Buffalo, NY 14221.



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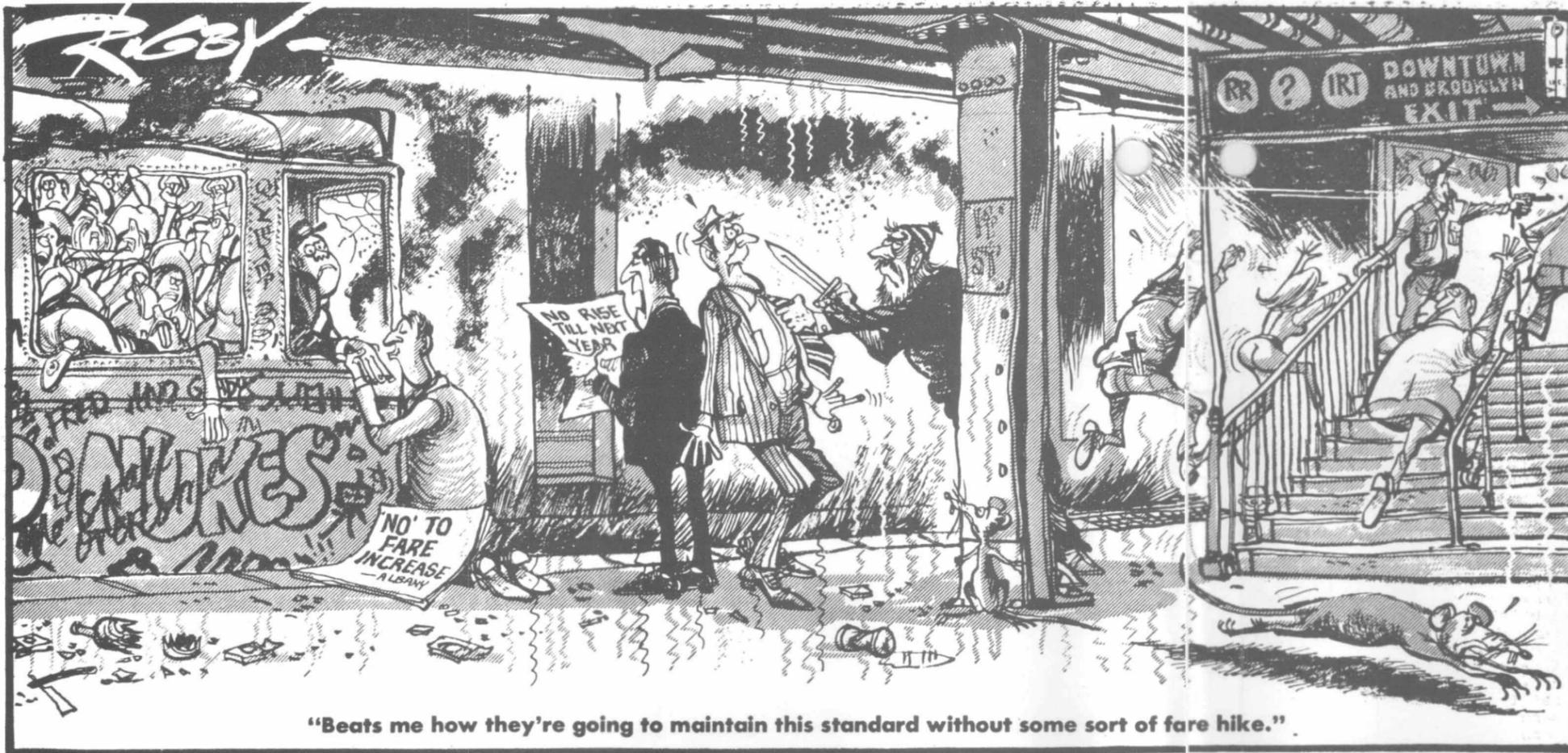
RAILS NORTHEAST
PO Box 135
East McKeesport, PA 15035



FRONT COVER — For nearly twenty years, this once mighty work horse, I-1sa #4483 along with a former PRR observation car was on display at WABCO's Turtle Creek entrance. In late November of last year, it was removed from its display site and removed for shipment to Buffalo, NY to become part of the Western New York Railway Historical Society's growing collection of prototype rolling stock. Photo by Bob Reid, taken in 1976.

FEBRUARY, 1983

REAR COVER — At the northern tip of Michigan's lower peninsula, in Mackinaw City, the Detroit & Mackinac Railway switches the carferry Chief Wawatam which carries the freight cars the 5 miles across the Straits of Mackinac to Saint Ignace in the upper peninsula and the SOO Line Railroad. It is on a cold December 22, 1980 that D&M RS-2 #977 is caught unloading cars from the old coal-burner Chief, built 1911, and the best ice-breaker ever to sail the Great Lakes. Photo by Byron Babbish.



"Beats me how they're going to maintain this standard without some sort of fare hike."

CONRAIL RESTRUCTURES CEREAL TRAFFIC

Conrail has restructured its service for Kellogg products moving out of Battle Creek, Michigan, in response to growing truck competition for cereal traffic. The weekly service, which began October 15, moves carloads of Kellogg products from Battle Creek to CR destinations in the East and to connections with other railroads. It is expected to improve transit time by at least 48 hours and to generate 70 carloads of traffic per week. -Ron Kari.

EDITOR NOTE:

In regards to my note in the December issue seeking fans interested in serving in a staff capacity for RNE this year, I just want to let those of you that responded that I will be in touch with you soon. My own work has me currently tied down such that I have not been able to reply. Also, I had a number of things that I wanted to cover and wanted to make sure my notes were complete. -Editor.

CORRECTION:

RNE - September, 1982 - Corrections to the Reading Camelback story. Two dates were misquoted, as follows: The year of the Paris Exposition was given as 1898. This should have been 1878. The year of the ICC ban on Camelback construction was given as 1922. This should have been 1927. -Bert Pennypacker.

CONRAIL FREIGHT SERVICE

CAP1 symbol freight rerouted. Due to switch replacement work at the east end of Zoo interlocking in Philadelphia, train CAP1 has been detoured via Morrisville and the Trenton Cutoff on Mondays through Thursdays. This has been accomplished with helpers pulling the train backwards up the main line from Shore (Frankford Jct.) to Morris interlocking at Morrisville, PA. -Bert Pennypacker.

THRALL DELIVERING HEAVY DUTY FLATS FOR DODX

Thrall Car Co. is delivering two to four cars a day of the new heavy duty 140-ton flat car designed to carry two of the new M-1 Abrams army tanks. 144 of the cars are being built to the prototype built a year ago for Pentagon tests. -Chicago Tribune.

ALASKA RAIL TRANSFER BILL CLEARS

Legislation authorizing the transfer of the Alaska RR to the state of Alaska cleared Congress during the waning hours of the lame-duck Congress. -Jrnl. of Commerce.

MCI LEASING CHESSIE LINES

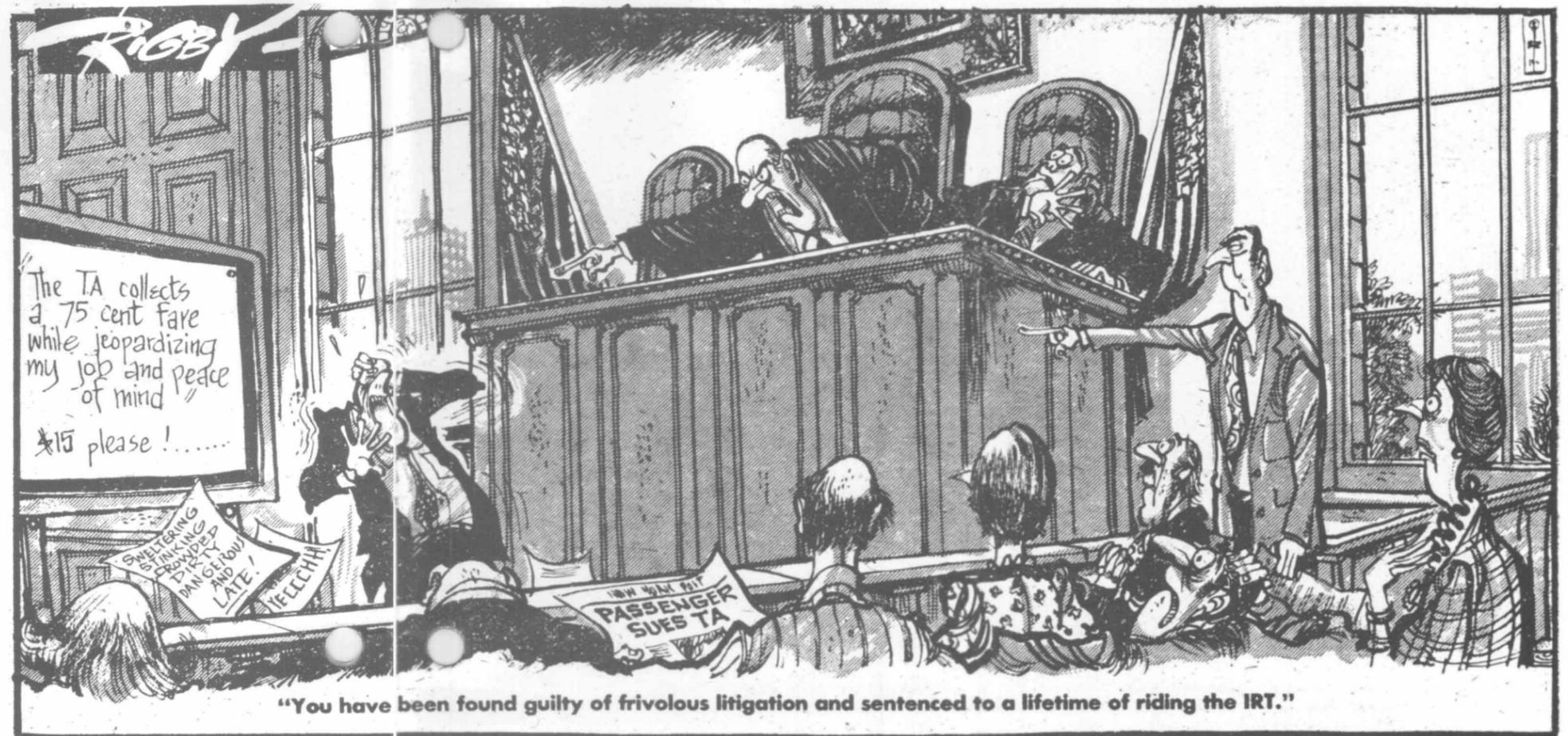
CSX Corp. will receive \$32-million from MCI Telecommunications Corp. for the use of 4,000 miles of railroad rights of way. The deal gives MCI a 25-year right to use CSX railroad rights of way for installing underground fibre-optic communications lines. -Wall St. Jrnl.

CONRAIL BACKS OFF CLOSING OF VAN YARD

After protests of Philadelphia's diverse port community, Conrail agreed to postpone the closing of a freight yard for piggyback truck trailers at Aramingo Ave. and to delay increased yard-to-dockside cargo transport charges. The postponement from Jan. 1 to April 15th came after port officials said that the change would harm the port's competitive position among North Atlantic ports by adding as much as \$125 per shipping container or trailer. Conrail had plans to close the yard in conjunction with the opening of its new yard at Morrisville, PA. -Philadelphia Inquirer.

SEPTA SAYS IT MAY CUT 300-400 CONRAIL JOBS

SEPTA says that it is planning to eliminate 300 to 400 jobs of an estimated 1,500 jobs now held by Conrail employees when it takes over the



"You have been found guilty of frivolous litigation and sentenced to a lifetime of riding the IRT."

commuter operations being run by Conrail in the Philadelphia metro region. Only 100 of its 450 conductors were offered jobs with SEPTA according to spokesmen for SEPTA. Philadelphia Inquirer.

D&H GIVEN PORT ACCESS AT PHILA.

The ICC in mid-December said that the D&H should be given access to serve points in the Port of Philadelphia area where Conrail currently enjoys a monopoly on the port. The ICC said that shippers would get better service if competition was existent in both service and rates.

RAILBOX BEING DERAILED BY DEPRESSION

RAILBOX has been negotiating a moratorium on all debt payments until the debt can be restructured. It said it would have to default on \$80-million of annual debt payments in January if it could not renegotiate the payback. -Wall St. Jrnl.

ICG TO POST LOSS FOR 1982

The ICG, hard hit by the mid-west depression said it expected to post financial losses for the year. -Chicago Tribune.

PITTSBURGH RAILCAR GETS REPAIR DEAL

Pittsburgh Railcar Inc. of Glassport, PA received its first major order, a contract to repair 80 100-ton open hoppers of Consolidation Coal, leased from Greenville Car Co. The new firm had to do five cars in a test program to win the order. The repair contract will keep the new company going into March of 1983. -Jrnl. of Commerce.

CONRAIL BOWS TO HUMANRELATIONS

Conrail hiring procedures have been changed to satisfy the Philadelphia Commission of Human

Relations. Written tests will no longer be used to bar black applicants from police security jobs on the railroad. The consent order will see the next four vacancies on the railroad police department filled by blacks. The railroad would drop the use of two written tests as part of the agreement. -Philadelphia Inquirer.

SUPER COAL PORT CANCELLED

The Pittston Co. plans to build a super coal terminal in the Baltimore area with a capacity of 30-million tons a year has been canceled. The price tag of the project was to be \$400-million. The soft coal market was the reason for the plan change. -Jrnl. of Commerce.

ICC MAY GET AXED

There are strong indications that the Reagan Administration plans to ask Congress in the next session to do away with the ICC, according to Traffic World Editor Robert M. Butler. He believes DOT will spearhead the drive for the demise of the nations oldest regulatory agency. -UTU News.

FLORIDA TO GET OWN AMTRAK RUN

Amtrak and Florida have agreed on daily passenger service between Miami and Tampa. The new run is called the Silver Palm and will serve Hollywood, Ft. Lauderdale, Deerfield Beach, Delray Beach, West Palm Beach, Sebring, Winter Haven and Lakeland. A connecting bus will serve Miami Beach, Orlando, St. Petersburg and Clearwater. -UTU News.

C&NW MAY BUY SEGMENTS OF RI

The C&NW has asked for ICC authority to issue \$80-million in notes to buy and rehabilitate 718 miles of line now owned by the Rock Island. It also

(Continued on page 36)

Conrail's Canadian Curtain Call

by *Byron C. Babbish*

Conrail's Canada Southern Division is a 242 mile expressway between Detroit and Buffalo through the southern portion of the Canadian province of Ontario. Once used as a shortcut to the Eastern United States by Conrail and its predecessors Penn Central, New York Central and Michigan Central, the Canada Southern Division offered an uncongested route which bypassed the major metropolitan areas located on the mainline on the U.S. side of Lake Erie. Late this summer, after 99 years under the control of Conrail and its predecessors, the Canada Southern Division will be sold to Canadian National Railways thus becoming once again a Canadian-owned road.

In 1868 the Canada Southern Railway Company was formed to run from Fort Erie (Buffalo's Canadian sister city) to Amherstburg, Ontario, located about twenty miles south of Detroit on the Detroit River. The goal of someday reach-

ing Chicago was begun but never fulfilled for a bridge and carferry operation was built across the Detroit River at Amherstburg to reach the Michigan mainland but the trackage never got much further west.

In 1883 the "Essex Cut-off" was built, shunting the mainline Northwest at the town of Essex into Windsor, Ontario (Detroit's Canadian Sister city). The carferries were moved up river to connect the trackage in Windsor with Detroit. The line from Essex to Amherstburg became a branchline to serve the many quarries located there, and today is abandoned.

Another important event occurring in 1883 to the Canada Southern Railway Company was its lease by Michigan Central Railroad, becoming its Canada Southern Division. Michigan Central soon became part of the New York Central System and the Canada Southern Division became



Conrail's Canada Southern Division is all flat farmland interrupted by an occasional rural town and grain elevator. Here a Canada Southern Division train rolls through Maidstone, Ontario on July 9, 1982.



The viaduct over the Niagara Escarpment just west of Saint Thomas, Ontario is the only scenic deviation from the flat farmland that prevails on Conrail's Canada Southern Division. Here, the westbound local to Windsor is just leaving Saint Thomas on July 9, 1982.



Conrail's ELDW (Elkhart-Detroit/Windsor) dragging its train through the Detroit River Tunnel and up the 1.4% grade that leads into Windsor, Ontario and Conrail's Canada Southern Division on March 14, 1982.

a high speed shortcut for NYC trains between Chicago and New York. Soon the Detroit River carfloat operation was moving some of the heaviest waterborn freight traffic in the world. Yet, ironically, the more traffic that moved this route the more of a bottleneck the Detroit River and its carferries became.

At the turn of the century the decision was made by NYC to alleviate the Detroit River bottleneck by constructing a tunnel underneath the river to connect the Detroit trackage with the Canada Southern Division. Using the most modern engineering techniques of the time, the NYC constructed a double-tracked tunnel of two-parallel-tubes design (see "Trains", Vol 24, October 1964, p40 "Tale of Two Tunnels" by Jerry A. Pinkepank). The Detroit River Tunnel was completed in 1909. The Michigan Central/New York Central carferry operation was discontinued at this time, though Pere Marquette, Wabash and CN/GTW continued operating carferries across the Detroit River with N&W still operating them today.

The Detroit River Tunnel is Conrail's Rocky Mountains in reverse. The gradient on the Detroit side of the tunnel is 2% while on the Canada side it is 1.4%. In addition to the steep grade the entire length of the tunnel has a constant curvature.

The Canada Southern Division was truly an expressway to the east for Conrail and its predecessors Penn Central and New York Central. The entire route is flat farmland with only small rural communities along its length. The only towns of any size on the Canada Southern are its two termini, Windsor and Fort Erie, and its division headquarters and the line's halfway point, Saint Thomas.

Possessed of a well-ballasted two-track mainline, the Canada Southern Division once saw dozens of hotshot freight and passenger trains racing between Chicago and New York via Detroit and Buffalo. Once Conrail inherited the Canada Southern the division was slowly down-graded from a high-speed, two-tracked corridor to a single-track branchline. To Conrail, the Canada Southern Division was redundant rural trackage which generated very little traffic and high maintenance expenses. Also, Conrail was reluctant to spend large sums of United States Government money repairing trackage in a foreign country. Conrail did keep the division in good shape for a while, though, largely because there was a passenger train using it, Amtrak's Michigan-subsidized "Niagara Rainbow". As soon as this train was discontinued in 1978 Conrail placed the entire westbound track out of service and has allowed the east-bound main to slowly deteriorate.

For the last few years and up to the last days the only trains on Conrail's Canada Southern Division were weekday locals out of Saint Thomas in both directions. The eastbound local went to Fort Erie and returned and the westbound local went to Windsor and returned five days a week. There has been no regularly scheduled through freights, though, if problems exist on the mainline on the south side of Lake Erie, Conrail will route trains through on Canada Southern. Chessie does have trackage rights from Saint Thomas, where its own Canada Division trackage meets Conrail's, to Fort Erie on the Canada Southern. The only power assigned by Conrail to this division is less than a dozen Canadian-built GP-7 and GP-9 locomotives. All are serviced at Saint Thomas.

Saint Thomas, the division headquarters, has a very long depot which houses the division offices and what remains of a roundhouse and car-shops. At one time this was a very busy place but now it is practically deserted. The only scenic deviation from the flat farmland terrain that dominates the Canada Southern Division is a huge viaduct where the tracks pass over the Niagara escarpment just west of town.

Between Saint Thomas and Windsor is a 15 mile long branch-line out of Comber affectionately known as the "catsup line." The tracks run south of the mainline to the town of Leamington on Lake Erie. Leamington is Canada's Tomato Capital and the line's reason for being is a large H.J. Heinz plant located there. Conrail assigns one geep to Leamington to switch the plant and power the Leamington local five days a week to Comber for the interchange with the main line and back. The depot at Leamington is still used by the crews and a part-time freight agent. It has the distinction of being the southern-most depot in Canada.

Windsor is where most of the action is on the Canada Southern Division, largely because of the Detroit River Tunnel. Conrail assigns two geeps to work the yard and switch the local industries. The majority of the activity here is due to the interchange traffic occurring between Conrail, C&O, GTW, CP Rail and Essex Terminal Railway. Conrail, of course, directly interchanges with CP Rail and Essex Terminal, a shortline that switches Windsor industries and the salt and chemical plants down-river. Chessie (C&O) sends trains through the tunnel on Conrail tracks to interchange with CP Rail. GTW likewise has trackage rights



The westbound local to Windsor is setting out a cut of cars for H.J. Heinz at Comber, Ontario on the Canada Southern Division. The Leamington Local will come up the 15 mile branchline later in the day to pick them up. The depot at Comber is still used for maintenance of way purposes. July 9, 1982.



Windsor, Ontario, the western terminus of Conrail's Canada Southern Division, has a rather good sized yard, various yard offices and facilities, and two geeps assigned. Freights from Detroit via the Detroit River Tunnel and from Saint Thomas terminate here. In this photo, the power from the westbound local has just cut-off its train and is drifting through the yard to the yardmaster's office on July 9, 1982.

over Conrail through the tunnel to interchange with parent Canadian National via Essex Terminal Railway.

Conrail has at least one freight train a day that terminates in Windsor via the Detroit River Tunnel. Seven days a week ELDW (Elkart-Detroit/Windsor) drops off its train in Windsor and returns to Detroit by a light engine move. Frequently a TODW (Toledo-Detroit/Windsor) uses the tunnel to terminate its run in Windsor. A Conrail interyard transfer ("liner") interchanges cars once a day between Detroit and Windsor yards.

By far the biggest user of the Detroit River Tunnel these past few years has been Chessie. Using trackage rights over Conrail in Detroit and Windsor, Chessie sends trains to and from its C&O Rougemere yard in Detroit through the tunnel onto its own Canadian trackage in Ontario. The majority of these trains then switch back over to Conrail trackage at Saint Thomas and use Conrail's Canada Southern trackage between there and Fort Erie.

Though an era has ended with the sale of Canada Southern to Canadian National, it will be the best thing that could have happened to these tracks. Whereas Conrail used this division as a mere branchline, CN will use it as a

mainline and will run trains - plenty of them. Also, CN will have an entrance into Detroit for the Detroit River Tunnel is included in the sale.

Presently CN has a well maintained single-track mainline between Windsor and London on their Windsor-Toronto corridor. This track sees a fair number of freight trains plus a dozen Via Rail passenger trains daily. In addition N&W runs at least one round-trip freight a day between Windsor and Buffalo on CN tracks, utilizing their carferries to get to Detroit. The City of Windsor has been pressuring CN to remove their riverfront yard where the carferry slips are located because it supposedly is an eyesore right along the most scenic strip in town. With CN's purchase of the Canada Southern line it can easily oblige and abandon the carferry slip and yard and move their operations to the Conrail yard. This would result in the N&W carferries only being serviced at the CP Rail slip in Windsor and possibly N&W trains using CP Rail trackage to Buffalo. N&W could use the Detroit River Tunnel and CN trackage but hi-cubes and tri-levels are too tall to pass through the tunnel so there will still be business for the carferries.

Canadian National will most likely downgrade their present main line into Windsor and use the Canada

RAILS NORTHEAST



The "Niagara Rainbow" was the only passenger train to run on the Canada Southern Division during Amtrak's time. It was subsidized by the State of Michigan and ran from Detroit to Buffalo on Conrail's Canadian trackage and then onto New York City. Here, about one year from its end, it has just exited the Detroit River Tunnel and is stopping to pick-up passengers at the Windsor Depot in December 1977.



The old stone depot at Essex, Ontario once serviced many Canada Southern Division trains for its one-time owner New York Central. Today all it sees is one freight train each way five days a week. Soon it will see Canadian National Railways freights and Via Rail passenger trains, one of which may even make a stop there. July 9, 1982.



Conrail assigns one geep to Leamington, Ontario to switch the H.J. Heinz plant located there and to power the Leamington Local the 15 miles up the "Catsup Line" to Comber where the mainline of the Canada Southern Division is. The depot in Leamington is still used by the crew and a part-time agent and has the distinction of being the southern-most depot in all of Canada. July 9, 1982.

Southern as their mainline, at least to Saint Thomas where they can connect with their present mainline in London to Toronto via Chessie trackage. Via Rail has been looking for a new depot in Windsor to handle the large crowds of mostly Detroiters who ride from Windsor to Toronto and the Canada Southern Division has a large old depot in Windsor close to the tunnel. In addition, Via Rail could run trains through the tunnel to Amtrak's Michigan Central Station in Detroit, located right at the tunnel's mouth.

As one can see, even though it is Conrail's Canadian Curtain Call, it is the Renaissance of the Canada Southern.



Above - C&O SD40 leading three other EMD units on the point of an eastbound coal drag at the mouth of Randolph Tunnel on 2-6-82. The train is headed for the export piers in Baltimore. Location of the photo is on the B&O mainline east of Cumberland, Maryland at milepost #145. Photo by Alex Mayes.

E-44's

Back in 1976, we ran a painting diagram of the E44 electric wearing the Conrail logo and livery. A number of letters followed saying that we should run the PRR/PC paint scheme for the E-44's. As most of you in the east know, the E44's and E33's have been placed into storage. There has been a feeling by many that we may never see the E44's and E33's in active service.

Eighteen years later, and for economic reasons their operational future is suspect at best. The passing of the GG-1 and the efforts by many to save as many for museums overshadows the E44, workhorse of the electric lines. With years of life remaining in them, we might assume they would be around for a long time. The current depression in the railroad industry has seen nearly a third of all diesel-electric units laid up in storage. Even some diesel units have been readied for return to the owners because their leases have expired and there is no need for them. Also casting shadows on the future of the E44's has been the transfer of ownership of the electrified lines to Amtrak. This led to the establishment of new freight routes, and thus rendering the E44's as well as the E33's surplus power.

The various factors mentioned tend to support the notion we may never see the E44's in service. Whatever the future holds for the E44's, the E44's will have a place with PRR/PC/CR modelers. Perhaps only the GG1 and the P5 surpass in the interests of this group. Even though it has been six years since we printed the Conrail painting and lettering drawing in RNE, better late than never, here we give you the appropriate schemes used by the PRR and PC.



Above - The crew of E44 #4465 takes "19" orders at North Baltimore. Photo by George Pitz. Opposite top - Trio of E44's - 4423-4421-4418 lead diesel units 6206-6329-6333-6257-3222-3062 southbound leaving Waverly S -Newark, NJ. Photo by Marc S. Balkin. Opposite bottom - Penn Central extra 4426 heading west on No. 2 track at Whitford, PA, passing beneath the overhead Philadelphia and Thorndale Branch. Photo by E. S. McKeown.



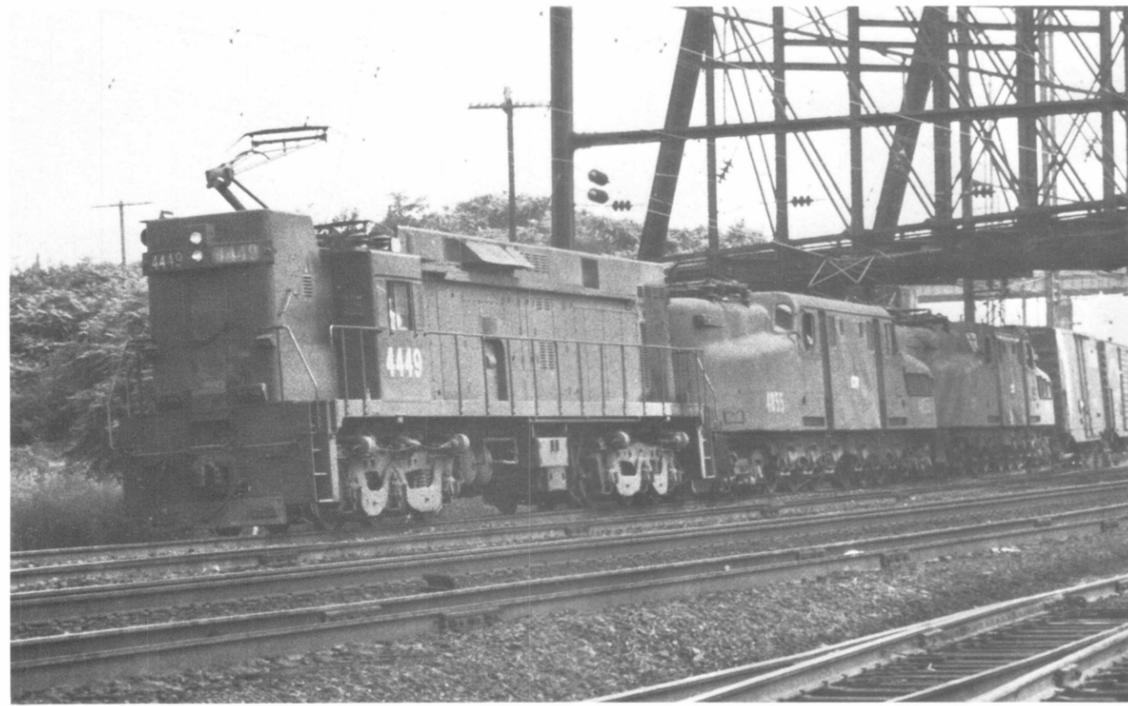


Photo by Marty Zak

LATE NEWS — On Jan. 18th it was learned that Conrail had moved eight of the E-44's for sale to N.J. Transit Authority. We understand that NJ Transit will outfit the eight units with steam generators for commuter passenger service. The units will be used in operation on the New York & Long Branch line being electrified. -Jim Boyle.

Photo by Marty Zak

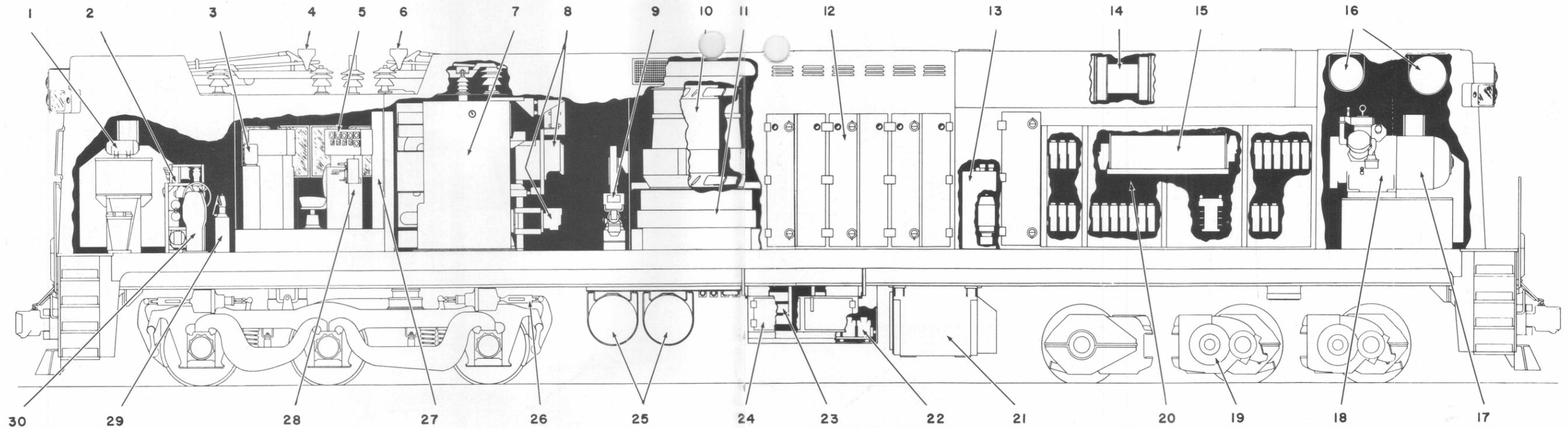




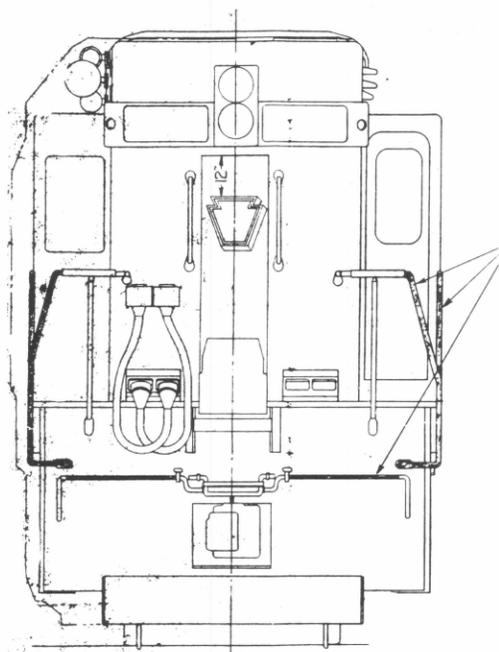
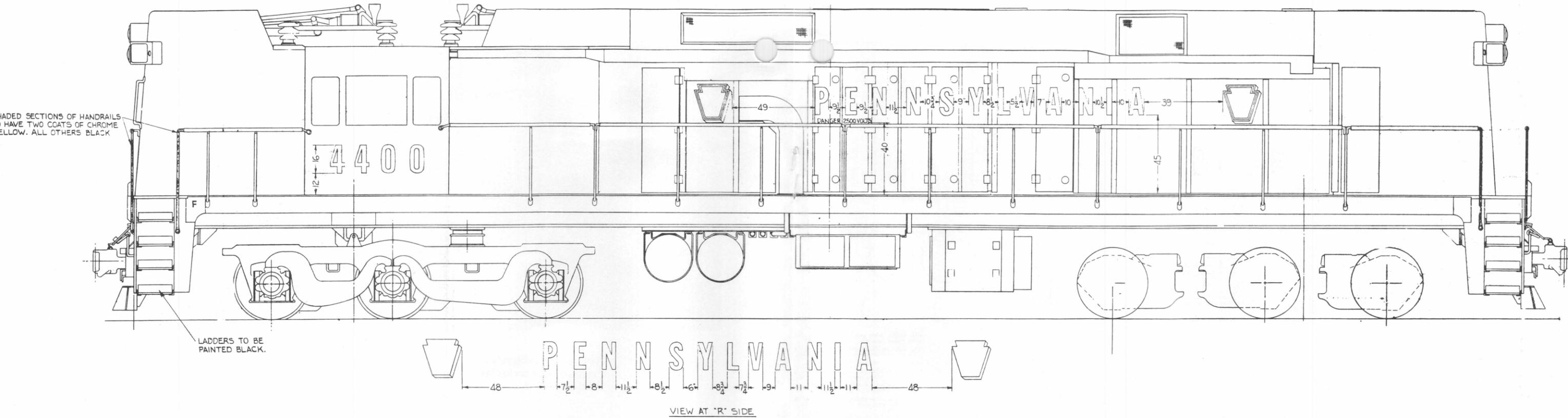
Above - E44 #4449 working as tunnel helper, Baltimore, MD. Photo by George Pitz.



Above - Southbound unit coal train powered by 2 E44's at Edgewood interlocking, Edgewood, MD. Photo by George Pitz.



- | | | | | | |
|----------------------------------|----------------------------|---|-----------------------------|--|---------------------------|
| 1 Cab signal motor-generator set | 6 No. 2 pantograph | 11 Radiator | 16 Auxiliary air reservoirs | 21 Smoothing reactor | 26 Slack adjuster |
| 2 Air brake rack | 7 High voltage transformer | 12 Rectifier compartment | 17 Compressor motor | 22 Battery compartment (right side) | 27 Relay compartment |
| 3 Drinking water stand | 8 High voltage contactors | 13 Rectifier temperature regulating element | 18 Air compressor | 23 Braking excitation resistors (center) | 28 Engineer's brake valve |
| 4 No. 1 pantograph | 9 Jr. breaker | 14 Resistor blower motor | 19 Traction motor | 24 Storage compartment (left side) | 29 Pantograph hand pump |
| 5 Engineer's gage panel | 10 Equipment blower | 15 Accelerating controller | 20 Control compartment | 25 Main air reservoirs | 30 Hand brake |



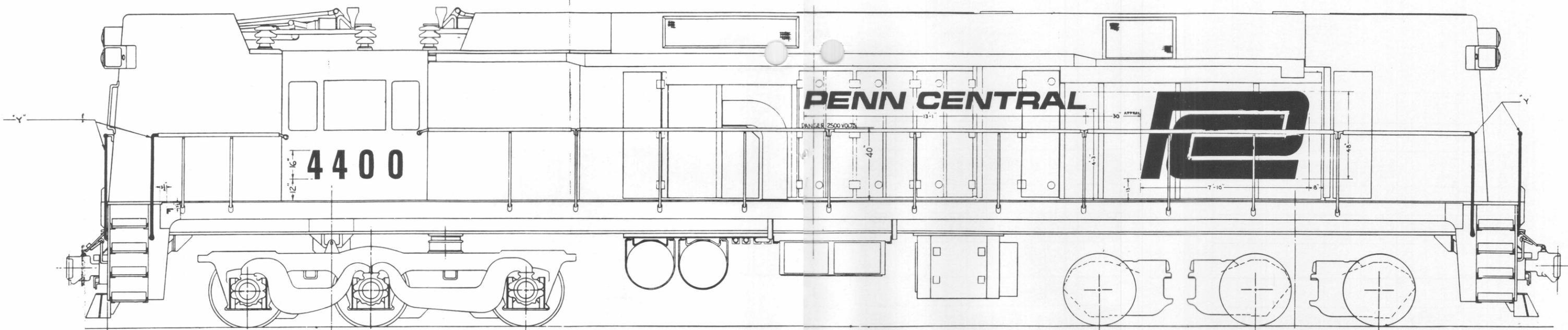
CAR BODY TO BE PAINTED WITH THREE (3) COATS OF DARK GREEN LOCOMOTIVE PAINT - PRR #47-2626, DUPONT #83-32550
 CHROME YELLOW FOR HANDRAILS - PRR #47-2617 - DUPONT #81-2350
 ALL SURFACE BELOW CAB & HOOD INCLUDING TRUCKS, EQUIP BOXES, ETC. (EXCEPT WHEELS) TO HAVE TWO (2) COATS OF BLACK ENAMEL - PRR #47-2218, DUPONT #613-8113
 KEYSTONES, LETTERS & NUMERALS TO BE "SCOTCHLITE" MATERIAL. REFER TO 41A211084 FOR ORDERING INFORMATION.

INTERIOR SURFACES OF MAIN CAB TO BE PAINTED TWO (2) COATS OF SUEDE GRAY ENAMEL - PRR #47-2597, DUPONT #81-66086.
 EQUIP CAB FLOORS TO HAVE TWO (2) COATS OF INDIAN RED ENAMEL - PRR #47-2334, DUPONT #631-829
 FOR DECALS SEE 41A211084 FOR ORDERING INFORMATION.
 FOR LETTERING USE POUNCE PATTERNS (1/2" HIGH WHITE LETTERS, EXCEPT WHERE OTHERWISE NOTED) ON OUTSIDE OF LOCO. & USE DECALS ON INSIDE.

LOCATIONS FOR LETTERING & DECALS		
	POUNCE PATTERN	DECAL
DANGER 2500 VOLTS	1 ON EACH DOUBLE RECTIFIER DOOR (6) 1 ON EACH DOOR TO H.V. COMPT. (2) 1 ON EACH DOOR TO CONT. COMPT. (2)	1 BELOW "RECTIFIER WATER FILL"
DANGER 250 VOLTS	1 ON EACH DOOR TO COMPRESSOR COMPT. ABOVE LOUVERS (2)	1 ON EACH RELAY COMPT. DOOR (3) 1 ON BACK OF EACH GAGE PANEL (2)
RECTIFIER WATER FILL	1 ON EACH NOSE DOOR 24 1/2" ABOVE PLATFORM (2)	1 ON WATER TANK ABOVE PUMP
FIRE EXTINGUISHER	1 ON EACH NOSE DOOR 24 1/2" ABOVE PLATFORM (2)	
TOOL BOX		1 ON SIDE TOWARD & LOCO.
SAND FILL	1 ON EACH SAND BOX DOOR (4)	
F (3" HIGH LETTER)	1 ON EACH SIDE NEAR #1 END	
FIRE EXT. (1" HIGH LETTERS)	1 ON EACH H.V. COMPT. DOOR (2) 1 ON COMPRESSOR COMPT. DOOR ("L" SIDE ONLY) ABOVE "DANGER 250 VOLTS"	
FIRST AID BOX (1" HIGH LETTERS)	1 ON COVER IN MAIN CAB	
CLASS E-44	IN MAIN CAB, CENTERED PANEL ABOVE RELAY COMPT. DOORS	
44 - -	CLASS E-44 - DECAL 44 - - - SPRAY PATTERN	

Photo by Marty Zak



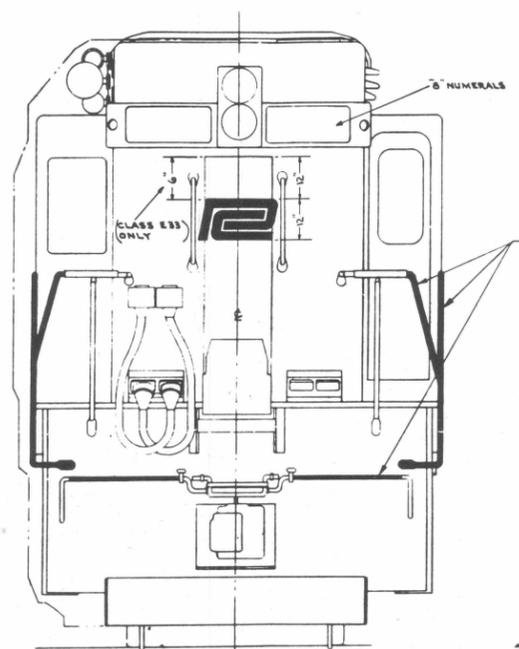


CAB, HOODS, SIDE AND END SURFACES TO BE PAINTED THREE (3) COATS DARK GREEN ENAMEL - REF. 47-266687.
 ALL UNDERFRAME SURFACES, INCLUDING TRUCKS, EQUIPMENT BOXES, ETC. TO HAVE TWO (2) COATS OF BLACK ENAMEL - REF. 47-266806.
 WHEELS NOT TO BE PAINTED.
 INTERIOR SURFACES OF MOTORMAN'S CAB SHALL BE PAINTED TWO (2) COATS OF WINTER GREEN ENAMEL - REF. 47-301300.
 OTHER INTERIOR SURFACES TO HAVE ONE (1) COAT OF SWIDE GREY ENAMEL - REF. 47-310406.
 ALL METALLIC INTERIOR WALKWAY AREAS TO BE COATED TILE RED COLOR - FLINTDEK NON-SLIP FLOOR COATING OR EQUAL.

BRAKE STAND AND CONTROL EQUIPMENT IN CAB TO BE BLACK ENAMEL.
 NUMBERS TO APPEAR ON BOTH SIDES AND TO BE AS SHOWN ON TRAC. A464664. PAINTED WHITE ENAMEL - REF. 47-281210.
 ROAD NUMBER AND CLASS TO APPEAR IN CAB. SEE TRACS. E456071 & E456467.
 THE METAL LETTER "P" TO APPEAR ON BOTH SIDES SEE TRAC. S-87380 - PAINTED WHITE ENAMEL.
 THE WORDS "FIRE EXTINGUISHER" TO APPEAR ON OUTSIDE SURFACE OF EACH HOSE DOOR IN 1/2" LETTERS SEE TRAC. D456428 PAINTED WHITE ENAMEL.
 EDGE OF FOOT BOARDS, HANDHOLDS, GRAB IRONS & SECTIONS OF HAND RAILS MARKED "Y" TO HAVE TWO (2) COATS OF CHROME YELLOW - REF. 47-317607. REMAINING PARTS, INCLUDING STEPS & LADDERS TO BE BLACK ENAMEL.

"PC" EMBLEM TO APPEAR ON BOTH SIDES SEE TRAC. E464770 LINE NE 4 & ON BOTH ENDS LINE NE 2 - PAINTED WHITE ENAMEL.
 "PENN CENTRAL" LETTERING TO APPEAR ON BOTH SIDES - SEE TRAC. Q-59410 - PAINTED WHITE ENAMEL.
 NUMBERS IN NUMBER BOX TO BE AS SHOWN ON TRAC. C462773.

Photo by Marty Zak



B PC EMBLEM ONE T-87465 CHANGED TO E-464770 0-18-79, 5th A 1-3-87 (EL-1-87) ISSUE	
CLASS PENN CENTRAL PHILADELPHIA, PENNSYLVANIA	
ELECTRIC LOCOMOTIVES LETTERING AND PAINTING	
E33 E44, E44A CLASS	4400-4410 4400-4403 ROAD NOS.
TOLERANCE UNLESS OTHERWISE SPECIFIED SCALE 3/4"=1'-0"	J. Johnson 464204 1-9-89

AUTHORIZED MAXIMUM TONNAGE RATINGS - ELECTRIC FREIGHT LOCOMOTIVES												
	Note	ONE UNIT			TWO UNITS				THREE UNITS			
		E-44 E-44A	GG-1 90 mph		E-44 E-44A	GG-1 90 mph			E-44 E-44A	GG-1 90 mph		
Bay View to Edge Moor		6000	4700		12000	9400			(a)	(a)		
Bay View to Enola (via Perryville and freight tracks at Lemo)		5400	4150		11000	8300			(a)	(a)		
	M	6000	4800		12000	9600			(b)	(b)		
	E	4400	3800		-	-			-	-		
Bay View to Potomac Yard, no helper		2000	1900		4300	3800			6000	5700		
Helper B&P Jct. to Fulton: GG-1		4000	3800		6300	5700			9400	8000		
Edge Moor to Bay View		5500	4100		11600	8200			(a)	(a)		
Edge Moor to Enola (via Perryville and freight tracks at Lemo)		5400	3800		11000	7600			(a)	-		
	M	6000	4400		12000	9200			(b)	-		
	E	4400	3500		-	-			-	-		
Edge Moor to Grays Ferry, if stopped at Baldwin		3900	3600		8700	7200			(a)	10800		
	M	3750	3300		7850	6800			13000	10500		
Momentum operation at Baldwin or with helper if stopped		5000	4700		12000	9400			(a)	(a)		
	M	5500	4400		11500	8800			(b)	13500		
Enola to Bay View, if stopped at Perryville		4200	3600		8700	7200			(a)	10800		
	M	4600	4400		9000	8500			13500	12800		
Momentum operation at Perryville or with helper if stopped		5900	4950		11800	9900			(a)	(a)		
	M	7000	5500		14000	11000			(b)	(b)		
Enola to Edge Moor, if stopped at Perryville		5200	3600		9700	7200			(a)	-		
	M	5500	4400		10300	8800			15200	-		
Momentum operation at Perryville or with helper if stopped		5900	4700		12000	9400			(a)	-		
	M	6350	5200		13500	12000			(b)	-		
Enola to Jersey City or Brown (via Low Grade)		5300	4250		10500	8500			(a)	(a)		
	M	6000	4800		12000	9600			(b)	14400		
Brown to South Amboy		3150	2600		7100	5650			(a)	10400		
	M	3200	2700		6800	5600			10700	8750		
Helper: 1 (BS-10)		4250	3600		8850	6800			(a)	(a)		
	M	4400	3700		8000	6700			12000	9750		
Helper: 2 (BS-10)		5450	4650		11300	8500			(a)	(a)		
	M	5600	4800		9200	7800			13100	11000		

AUTHORIZED MAXIMUM TONNAGE RATINGS - ELECTRIC FREIGHT LOCOMOTIVES												
	Note	ONE UNIT			TWO UNITS				THREE UNITS			
		E-44 E-44A	GG-1 90 mph		E-44 E-44A	GG-1 90 mph			E-44 E-44A	GG-1 90 mph		
Enola to Philadelphia (via Low Grade)		3500	3400		7300	6800			11000	10000		
	M	3800	3600		7600	7200			11400	10500		
Helper Thorndale to Paoli		5250	4200		10500	8500			(a)	(a)		
	M	6000	4800		12000	9600			(b)	14400		
Frankford Jct. to Pavonia		2700	2450		8700	6800			(a)	10500		
	M	2350	1900		6900	5300			11000	8200		
Grays Ferry to Edge Moor		6600	4400		13200	8800			(a)	(a)		
Grays Ferry to Jersey City Terminals, if Stopped at Grays Ferry.		3800	3300		10000	6600			(a)	10900		
	M	4200	3600		11000	7200			(b)	12000		
Momentum operation at Grays Ferry or with helper if stopped		6000	4700		12000	9400			(a)	(a)		
	M	6600	5250		13400	10500			(b)	(b)		
Harrisburg to Philadelphia (via Columbia Br.)		3000	2500		6200	5000			9500	8000		
	M	3200	2700		6550	5700			9800	8600		
Harrisburg to Philadelphia (via Main Line)		3700	3400		7500	6800			11300	10200		
	M	3800	3500		7600	7000			11400	10500		
Jersey City Terminals or Brown to Enola (via Low Grade)		3000	2600		6100	5200			10800	9000		
	M	3300	2900		6600	5800			10200	8500		
Helper Morrisville Yard: 2 (AS-10)		3500	2900		7200	5800			11200	9300		
Helper Morrisville Yard: 2 (AS-10)		4000	3300		8100	6600			12150	10000		
Jersey City Terminals or Brown to Morrisville or Grays Ferry		5100	4200		11000	8400			(a)	(a)		
South Amboy to Brown		2550	2000		5100	4000			8250	6000		
	M	4150	3700		6400	5550			9100	6600		
With 1 helper (BS-10)		5500	5100		8600	7550			10200	(a)		
With 2 helpers (BS-10)												

Pavonia to Frankford Jct.		1900	1650	4700	3700	(a)	6300
Philadelphia (52nd St. Yard) to Enola or Harrisburg (Via A&S Br., Columbia Br., or Main Line)		M 2050	1700	4100	3400	6200	5100
		2150	1800	4300	3600	6500	5400
Helper to Bryn Mawr or Paoli: 1 (EFS-17)		3600	2900	5800	5200	7800	6900
1 (E-44)		3600	2900	6400	5700	8500	8400
2 (EFS-17)		3600	2900	7300	5800	9700	8600
2 (E-44)		3600	2900	7300	5800	10900	8700
3 (EFS-17)		3600	2900	7300	5800	11200	8700
1 (EFS-17)		M 4000	3200	6200	5500	8400	7500
1 (E-44)		M 4000	3200	6600	5900	8800	8000
2 (EFS-17)		M 4000	3200	8100	6400	10300	9200
2 (E-44)		M 4000	3200	8250	6400	11200	9600
3 (EFS-17)		M 4000	3200	8250	6400	12300	9600
Philadelphia (Stadium) to Enola or Harrisburg (Via A&S Br., Columbia Br., or Main Line, not stopped on adverse grade)		M 2250	1950	4500	4000	6900	6000
		2400	2100	4850	4250	7250	6400
Helper, 34th Street to Bryn Mawr or Paoli:							
1 (EFS-17)		3600	2900	6250	5600	8650	7600
1 (E-44)		3600	2900	6750	5800	9200	8250
2 (EFS-17)		3600	2900	7300	5800	10400	8700
2 (E-44) or 3 (EFS-17)		3600	2900	7300	5800	11200	8700
1 (EFS-17)		M 4000	3200	6200	5500	8200	7500
1 (E-44)		M 4000	3200	7250	6400	9700	8800
2 (EFS-17)		M 4000	3200	8250	6400	11100	9600
2 (E-44) or 3 (EFS-17)		M 4000	3200	8250	6400	12300	9600

AUTHORIZED MAXIMUM TONNAGE RATINGS - ELECTRIC FREIGHT LOCOMOTIVES										
	Note	ONE UNIT			TWO UNITS			THREE UNITS		
		E-44 E-44A	GG-1 90 mph		E-44 E-44A	GG-1 90 mph		E-44 E-44A	GG-1 90 mph	
Potomac Yard to Bay View		3200	3050		7200	7100		12000	10700	
South Philadelphia to Enola (via Perryville and freight tracks at Lemo)	M	4900 4400	4150 3200		11000 10000	9000 8300		(a) 14400	- -	
South Philadelphia to 52nd St. Yard (52nd St. U.G. Br.)	M	3400 3100	2600 2500		9200 6500	7600 5200		(a) 10700	10200 8200	
Morrisville Yard to Enola, Harrisburg	M	3000 3300	2600 2900		6100 6600	5200 5800		10800 10200	9000 8500	
Helper Morrisville Yard: 2 (AS-10)		3500	2900		7200	5800		11200	9300	
Helper Morrisville Yard: 2 (AS-10)	M	4000	3300		8100	6400		12150	9600	
<p>These tonnage ratings require momentum operating on ruling grades and on some intermediate grades. In case train is stopped on such grades, assistance may be required to start train.</p> <p>All speed restrictions shall be observed, starting and acceleration closely watched, and weak field operation for long periods avoided as much as possible.</p>					<p>Helper to be Class E-44 or equivalent unless otherwise noted.</p> <p>For E-44 with one traction motor circuit cut out, use one-half (1/2) rating.</p> <p>Note M - Ratings thus marked may be used only for trains of mineral freight with average gross weight per car exceeding 80 tons.</p> <p>Note E - Empties.</p> <p>(a) - More than 12,000 tons.</p> <p>(b) - More than 15,000 tons.</p>					

Conrail — Coal — Competition

by Bob Reid

A few years back, Conrail set about to upgrade the Monongahela Branch or Secondary Track as it is known today. The line links the coal fields in northern West Virginia and southwestern Pennsylvania operated by the Monongahela Railway and the Waynesburg Southern line.

This past year construction was begun on a new branch of the Waynesburg Southern at the west end of Waynesburg, PA and running northwest to Sycamore and Ninevah. This also enhances the upgrading done by Conrail to the line from West Brownsville to Duquesne, PA, junction with the Panhandle line to Pittsburgh or across the river to the main line connection at Turtle Creek where traffic passes enroute to Philadelphia and eastern terminals.

When funding authorization was made to upgrade the Monongahela Secondary with continuous welded rail, it was deemed that Conrail would become a formidable competitor with the Pittsburgh & Lake Erie. The Detroit Edison unit-coal trains operate over the bridge (see drawing below) that links Brownsville/W. Brownsville, using P&LE tracks north to Pittsburgh and on to Youngstown, Ohio. Also, many of the Monongahela coal trains use P&LE as a bridge line connection.

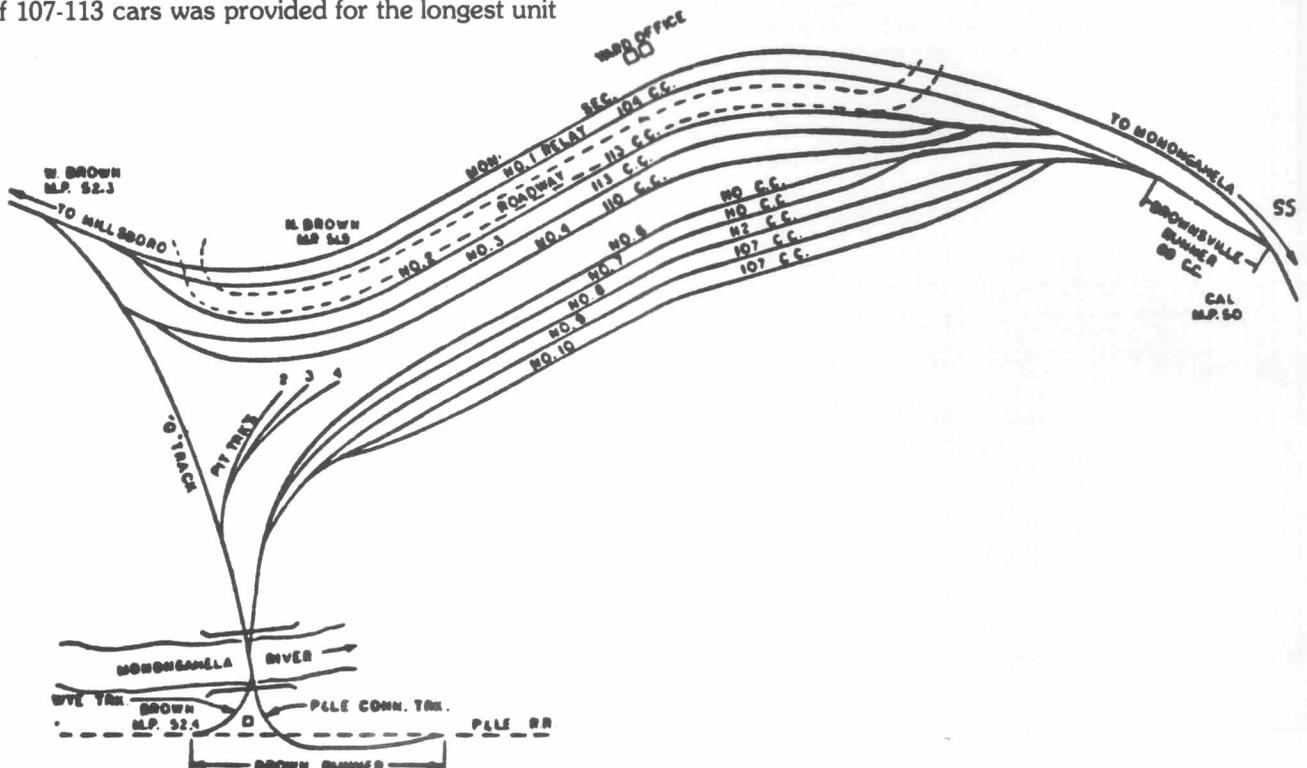
On this page is the schematic of the new rebuilt yard at West Brownsville. Conrail rebuilt entirely the facility with ten new relay tracks, 5 to serve (nos. 6-10) the connection with the Monongahela Railway. The other 5 tracks (nos. 1-5) are to serve the Waynesburg Southern line. Track capacity of 107-113 cars was provided for the longest unit

trains operated.

One of the reasons the Detroit Edison unit-trains are operated over the P&LE is because of their lack of congestion and restrictions. However, now that Conrail has upgraded what the Penn Central had to neglect, Conrail is a major threat to the P&LE's very survival.

The P&LE today is in very serious financial straits. With the steel industry in deep depression, the P&LE is on the verge of collapse. About the only traffic the P&LE has is the B&O trains using the P&LE's water level route and the bridge traffic coming off the Monongahela Railway. To lose the Detroit Edison traffic will possibly undermine the P&LE's strength. Its virtual dependence on the steel industry has led to its trying to lease out its largely idle fleet of cars. In a market that has RAILBOX on the ropes, it would seem the P&LE is going down for the count. Incidental to RAILBOX, there are new RAILGONS sitting on some Conrail branches property for over fourteen months that could carry the slogan "Next Load - No Load", having been in storage without having carried so much as one load. RAILBOX is trying to get its creditors to delay payments on its financial debt.

Even if the P&LE can avoid financial disaster, Conrail is destined to take back traffic that is vital to the P&LE's stability. It may seem ironic that the P&LE escaped becoming part of Conrail in 1976 but could well become taken over by another railroad.



Passenger Trains of the Northeast -- The Grand Central

By Frank E. Shaffer

Many trains bore the names of their railroads, one of its features or the name of an individual associated with the line. Some of the better known were **Royal Blue** (B&O), **Nickel Plate Ltd.**, **Pennsylvania Ltd.** (PRR), **Erie Ltd.**, **Southerner** (SR), **North Western Ltd.** (C&NW) and **Overland Ltd.** (C&NW-UP-SP).

The New York Central System led all others with six: **Grand Central**, **Michigan Central Ltd.**, **New York Central Ltd.**, **Water Level Ltd.**, and **Commodore Vanderbilt**.

"A brand new train with a grand old name" was the poetic introduction when No. 66, the **Grand Central**, began a seven month life on Sept. 29, 1940. Its Chicago departure at 2:30 pm made No. 66 one of four major afternoon trains. In that period, the all-coach **Pacemaker** departed at 2:00 pm, the **Commodore Vanderbilt/New England States** at 3:00 pm and the **Century** at 4:00 pm.

"This modern all-Pullman train offers the same hospitable service, spacious accommodations and fast schedules as its companion train, the famous **Commodore Vanderbilt**," the timetable advertisement heralded.

No. 66 operated on a 2:30 pm - 8:30 am schedule and offered two 18-roomette cars, a 13 double bedroom car, two cars with four compartments, four bedrooms and two compartments, two 14 section cars, and two lounge cars with six double bedrooms and a buffet. A diner gave the train its 10th car.

When the new schedules were published the following Spring, **Grand Central** disappeared and its place was taken by **Advance Commodore Vanderbilt**.

As so often happened in the NYC-PRR fight for business, PRR answered the advent of **Grand Central** by dropping its 1:30 pm **Golden Arrow** and replacing it with **Advance General** in the 2:30 pm period. Then, when **Advance Commodore Vanderbilt** started in 1941, PRR was ready with **Admiral** as a replacement for **Advance General**. Pennsy earlier had used the **Admiral** name briefly in New York-Washington service.

Pennsylvania Railroad BM70A Baggage Mail Car

The PRR BM70a baggage-mail car was a short distance inter-city baggage-mail car built during the summer of 1930. On the following pages is a general arrangement drawing of this special-duty head-end car. The small 15' mail compartment was adopted for short distance service. The long-distance trains operating east and west carried 30' and 60' mail compartment cars or combinations of both.

The service of the BM70a was pretty much limited to use on trains between Chicago and Cincinnati, Ohio; Chicago and Columbus, Ohio; Chicago and Louisville, Kentucky; Pittsburgh and Indianapolis, Indiana. The cars were used in the area west of Pittsburgh, Pennsylvania up til the beginning of 1940.

Ten cars carried the numbers 5421 - 5430 and were still in operation by 1952. Original numbers and quantity are unknown to the writer. Possibly one of our readers would have knowledge of these details.

The car was designed especially for service requirements established by the U.S. Postal Service for use in areas where light and medium density passenger service needs existed. Trains operating north and south on the Pennsylvania Railroad west of Pittsburgh where such services did not require the larger mail cars with 30' and 60' mail compartments. Around 1931 & 1932 the windows in the mail compartment were removed. It might be appropriate to recognize the fact the cars were modified and/or even rebuilt from their original intended service.

Service after 1940 may have been in the same area as that which the cars began their operation but changes in service needs may have led the cars to being assigned to other trains elsewhere. As traffic needs changed, equipment assignments changed not to mention the fact that substitutions were often common in the passenger traffic area. The need to shop cars for repairs or overhaul often led to unusual assignments of both head end and passenger assignments. Types of mail service cars were provided to meet the needs of the U.S. Postal Service. The railroad operated the RPO cars but leased the space to the Post Office that staffed and utilized the cars.

A New Coal-Fired Steam Locomotive For A New Era

David A. Berkowitz, Manager, System Analysis & Control, JAYCOR
William B. Benson, President, American Coal Enterprises
William L. Withuhn, Fellow, Smithsonian Institute

This paper describes the ACE 3000, a newly proposed coal-fired steam locomotive. As a basis for understanding the innovative aspects of its design, the state-of-the-art that was reached at the close of the steam locomotive era about thirty years ago is reviewed. Subsequently, railroads converted from steam power to diesel-electric. Engineering design criteria are suggested for a new generation of coal-fired steam locomotives that would meet today's environmental, operational, and economic constraints, and compete effectively with the diesel. The ACE 3000 satisfies the new constraints and promises to free the railroad industry from depending on liquid fuel resources. The performance, operational, and design features are described.

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INTRODUCTION

For approximately forty years, railroad motive power requirements have been met by the diesel-electric locomotive. The diesel has proven to be reliable and efficient; it has significantly increased railroad productivity in hauling a steadily increasing amount of tonnage. Railroad operating, maintenance and service procedures have evolved that are adapted to its unique characteristics; many are based on concepts of modularity and standardization. For example, diesel locomotives are operated in multiple unit lash-ups, with a single operating crew, to provide the aggregate power required to move a train on the desired schedule. In maintenance and servicing shops, component interchangeability and standardization insure minimum loss in unit availability, even when major repairs are required.

A new element in diesel locomotive operation, however, is cost of fuel oil which has risen dramatically in the last three years to become the largest cost element in diesel locomotive ownership⁽¹⁾. The modified economic picture has motivated exploration of alternate fuels for the diesel, as well as totally different types of locomotives that do not use fuel oil as their energy source⁽²⁾. One such class of locomotives are those that employ direct combustion of coal. It is practical to develop a new coal-fired locomotive that would compete favorably with today's diesel-electric with respect to operation, cost, reliability, and environmental impact?

This paper describes the ACE 3000, a locomotive that has been proposed for near term development. It is a new coal-fired steam locomotive that promises to fulfill requirements of the railroads in what has become a new operating era.

BACKGROUND

In the coal-fired locomotive era that ended in this country approximately thirty years ago, environmental acceptability, engine efficiency, low maintenance operation, and train-track

dynamics did not have the priority that they do today. Consequently, the coal-fired steam locomotive of that period is now unacceptable; it polluted, was inefficient, required frequent maintenance, and damaged track. Nonetheless, it is helpful to review state-of-the-art reached in steam locomotive development as guidance for engineering design of the next generation.

Emissions

The problem of excess smoke was inherent to coal-fired reciprocating steam locomotive design. Complete carbon utilization was impossible because of uncontrolled draft, high velocities of primary air through the firebed, and uneven firing. At higher boiler outputs, carbon loss increased as unburned fuel was drawn out the stack. At full output, carbon loss could reach 50%, resulting in a rain of cinders and particulates. Heavy emissions of NO_x, CO, SO₂, small and large particulates were unavoidable. In addition, water contaminated with ejected cylinder lubricant and boiler treatment chemicals was released as steam to the atmosphere and as water from boiler blowdown.

At the end of the steam era, some experimental steam turbine locomotives were constructed, notably by the Norfolk & Western and the Chesapeake & Ohio railroads⁽³⁾. Although a remotely fired, high pressure boiler was installed on the N&W locomotive, no basic change in emission characteristics was made. Combustion was still at relatively high temperature with a high level of induced draft, resulting in high carryover and loss of unburned fuel.

Engine Efficiency

The most advanced reciprocating steam locomotive developed in the United States in the 1950's was a freight locomotive with compound steam expansion in two separate engines; it achieved a drawbar thermal efficiency of 8%⁽⁴⁾. The more typical two-cylinder locomotives with simple expansion achieved drawbar thermal efficiencies of only 5 to 6%. The inefficiency was from poor combustion and engine losses. Engine losses derive from: flow loss due to excessive pressure drops incurred from boiler to cylinders (or boiler to turbine); expansion loss, or inefficiency due to incomplete expansion; and thermal loss within the cylinders (or within the turbine).

Designers strove to streamline steam passages and valves, following principles pioneered by A. Chapelon on French railways in the 1930s⁽⁵⁾. Expansion losses in reciprocating engines were reduced by using higher expansion ratios (as in compound cylinders) and valves capable of shorter cutoff (such as poppet valves), and reducing backpressure in the steam-induced furnace exhaust (as with Kylchap and Giesl exhaust devices). Thermal losses within cylinders or turbines were reduced by raising super-heat temperatures. Reciprocating locomotives were limited to steam

temperatures of 750°F due to breakdown of cylinder lubricants; turbines were not so limited.

Drawbar efficiencies of the best experimental turbine locomotives were no greater than 10 to 12% under controlled operating conditions. In normal service, the steam turbine was often no better than a compound expansion reciprocating locomotive; turbine efficiency fell off rapidly at part load, while the piston engine kept its efficiency over a wide range of operating load and had superior response to transient demands.

Maintenance

Of all traditional steam locomotive characteristics, the high level of maintenance was its major failing in the eyes of railroad managers.

Poorly treated water was endemic to railroad operations through the 1950s. Scale formation was rapid and always a serious limitation; monthly washout was required. Some railroads washed boilers weekly or daily. Despite this precaution, scale formation limited boiler pressures; 300 psi (14.4 kPa) was all that was deemed safe in a firetube boiler, and 600 psi (28.7 kPa) in a watertube boiler. Stress due to scale was a major source of boiler and firebox cracks.

High carryover of cinders and unburned coal eroded flue tubes, boiler sheets, and superheaters. Such carryover also prevented the use of economizers. Maintenance of fireside surfaces was difficult and time-consuming, often entailing replacement of flues and superheater tubes.

The riveted, firetube boiler with threaded staybolts was used from 1830 to 1950, with little change except in allocation of area between flue, furnace, and superheating surface. All-welded boilers were explored, but inability to insure safety of each weld prevented widespread adoption. Watertube boilers were tried to attain higher pressures. Their construction was relatively complex, however, and the hostile operating environment with frequent shocks up to 15 g put great strain on the boiler resulting in tube leaks. A great virtue of the firetube boiler was its inherent strength; the heavy barrel forms an important structural member of the boiler-frame unit, permitting the whole locomotive and boiler to survive normal duty and even severe derailments. The riveted seams and threaded staybolts, however, required the greatest percentage of maintenance hours compared to any other locomotive component.

The air/gas and water/steam pathways intersect in conventional steam locomotives; exhaust steam induces furnace draft. When the throttle is closed a partial vacuum draws flue gas into the cylinders carbonizing the lubricant and causing rings to stick and lubrication to fail. Close tolerance rings to reduce piston leakage were impossible. Reboring cylinders was a necessary and time-consuming requirement.

Steam turbines were also subject to high maintenance, often due to contaminated steam.

Although the direct-connected piston drive was simple, engine maintenance was high, requiring axle realignment, adjustment of rod and axle bearings, adjustment of bearing boxes in their frame guides, and valve gear resynchronization. Roller bearings, developed in the 1930's, solved many of the lubrication and realignment problems. However, other parts of the drive still required open lubrication; self-lubricating materials were unknown.

Train-Track Dynamics

The two-cylinder reciprocating drive is inherently unbalanced. Either revolving mass can be balanced, or reciprocating mass, but not both. Cyclic vertical loads increasing with speed were imposed on the track with every wheel revolution damaging rail and degrading track alignment.

High-speed steam locomotives were successfully designed, however, utilizing guiding trucks and lateral restoration devices on driving axles to reduce and cushion lateral flange forces. Operation at speeds up to 110 mph (180 km/h) was common, often with more stability than present diesel locomotives.

Fully-balanced four-cylinder engines were common in European practice, but were never popular in the United States. Such locomotives incorporated two cylinders mounted internally with crank axles, which were relatively inaccessible for maintenance.

Anti-slip and adhesion control on conventional steam locomotives was impossible because of manual throttle valve operation and manual adjustment of control valve timing. Successful slow-speed, heavy-drag performance of steam locomotives depended on the engineer's skill. Slow speed performance was a primary virtue of diesel-electric locomotives, limited only by amp-hour restrictions on traction motors to avoid burn-out. This limitation remains today. A reciprocating steam locomotive has no such power limitation, and within the adhesion limit can operate continuously at full power at both high and low speeds with high reliability.

DESIGN CRITERIA FOR A NEW COAL-FIRED STEAM LOCOMOTIVE

For a new locomotive to capture a portion of the replacement or growth market, it must result in reduced operating cost and improved performance with respect to modern diesels, and be otherwise acceptable to the railroad industry. Industry acceptability involves many factors, both economic, technical, and psychological.

The approach taken by American Coal Enterprises seeks to develop a locomotive whose performance characteristics would be operationally compatible with existing railroad practice, and whose impact would be minimal in terms of new facilities required to service, maintain and repair it.

Other major design criteria include environmental acceptability, efficient use of water and coal resources, reliability, and a two year development period. The criteria are summarized in Table 1 and will be discussed individually below.

Design Criteria for New Coal-Fired Locomotive

- ‡ Environmentally acceptable
- ‡ Efficient use of resources
- ‡ Reliable, low maintenance
- ‡ Compatible with railroad operating practice
- ‡ Minimum impact on existing service and support facilities
- ‡ Two year development time

Environmental Acceptability

Environmental standards applicable to a coal-fired locomotive do not currently exist. Nonetheless, in keeping with the current sensitivity to environmental issues, acceptability of a new locomotive could be strongly related to its environmental impact. An important design criterion for a new coal-fired locomotive is that it be perceived as being "clean", and that its emissions of NO_x, SO₂, particulate matter and discharged solids be within what can reasonably be anticipated to become future limits for sources of this type. Heat input to a locomotive is much closer to 50 x 10⁶ BTU/hr (14.6 MW) than to 250 x 10⁶ BTU/hr (73.2 MW) which is the minimum size of stationary power plant for which standards exist. In all probability, standards for small, mobile sources will be less stringent than for large, stationary sources. However, in the absence of emission standards, conservative design goals for a coal-fired locomotive can reasonably be set at current levels for large stationary plants.

The noncombustible ash component of coal can no longer be casually discharged as cinders along the right-of-way; it must be held on board for proper disposal at a locomotive servicing facility. That fraction of that ash which is entrained in flue gas as fly-ash must fall within the particulate emission standard, as well as any burning coal particles or glowing cinders.

A secondary consideration in setting design goals for a coal-fired locomotive is that it have less environmental impact than diesels for which emission of unburned hydrocarbons and nitrogen oxides (NO_x) emissions pose potential environmental problems. Unburned hydrocarbons emission is extremely low in coal combustion, and NO_x can be kept well below stationary standards by selection of an appropriate combustion scheme (see below).

In the process of combustion, sulfur in coal or in diesel fuel appears as sulfur dioxide (SO₂) in exhaust gases. In the absence of an emission standard for coal-fired locomotives, a reasonable goal for SO₂ emission level is that which is currently achieved in large stationary facilities. Such levels can be achieved by burning "compliance" coals whose weight-percent of sulfur is in the 1-2% range. Even assuming total conversion of all railroad locomotives to coal-firing, the total requirement for coal will only be a small fraction of all the coal burned for industrial purposes or power generation, so that adequate supply of low sulfur coal does not appear to be an issue. Once the use of coal as a transport fuel has been reestablished, fluidized bed combustion techniques could advantageously be developed for locomotive applications if SO₂ emissions or excessive cost of low sulfur coals become significant problems⁽²⁾.

Working Environment

The working conditions of an old steam locomotive are unacceptable today. A new coal-fired locomotive must provide a safe environment without occupational hazard, and provide other amenities for crew comfort.

Efficient Use of Resources

Facilities for supplying coal and water to steam locomotives have been entirely dismantled. Furthermore, the old coaling towers would now be unacceptable because of fugitive dust released in loading and unloading operations.

A coal-fired locomotive should have an operating range such that the required number of coaling and watering stations is minimized. A minimum range would be approximately every 500 miles (800 km), the distance at which current operating rules require a visual inspection of the entire train; refueling could be accom-

plished during the inspection. More advantageous, however, would be an operating range that would permit refueling to be done at major service or maintenance facilities located either at terminal points or enroute.

Efficient conversion of heat energy released in combustion into tractive effort is an important design goal that will reduce the amount of coal required, as well as reduce the required number and size of facilities that must be provided for locomotive servicing.

Because of the abundant supply of inexpensive coal years ago, poor combustion efficiency was not a major drawback. In addition, there were no compelling reasons for streamlining of steam pathways and optimization of the expansion cycle; these were not major design objectives and the "brute force" approach was acceptable for many years. Efficient use of resources has much greater importance today. Current diesel locomotives achieve efficiencies greater than 20% at the drawbar in normal operation, and that is certainly a reasonable design objective for coal-fired steam locomotives. However, because the cost of oil is several times the cost of coal per energy unit, it is possible to trade-off slightly lower efficiency when burning coal in order to shorten development time and produce a more rugged and reliable machine. It would still provide a far more cost effective locomotive^(2'6).

In a coal-fired steam locomotive, use of a condensing or partially condensing steam cycle can significantly reduce water consumption and increase locomotive range between water stops. There are additional benefits associated with reduction in cost of water treatment and waterside maintenance. Use of treated water in a fully condensing cycle with makeup water kept to approximately 10% for auxiliary use, boiler blowdown, etc. would minimize required water facilities and insure low maintenance, requiring no more than yearly washout⁽⁷⁾.

Reliability; Low Maintenance

The goal for locomotive availability is at least 90% in normal service. To achieve or surpass this goal will require rugged and reliable equipment capable of continuous normal operation in the severe railroad environment. Designs must employ standardization and modularization techniques to the greatest extent to facilitate service and repair operations. Preventive maintenance on a routinely scheduled basis is preferable to waiting for failures to occur.

The need for low maintenance also applies to track maintenance. Desirable characteristics of a locomotive with respect to track interactions are balanced drive, balanced wheelsets, and good curving performance with minimum hunting. The most successful locomotive is one which will not cause excessive wheel or track wear, nor result in widening of the gauge or misalignment.

Compatibility with Railroad Operating Practice

Railroad operations today are committed to the diesel engine (with the exception of a small fraction that is electrified). Any new locomotive that is introduced by the railroads will require some modifications in current operating practice. The greater the departures from current practice that a new locomotive will require, the less likely it is that the new locomotive will be adopted. Its advantages must be sufficiently compelling to compensate for the difficulties encountered bringing it into service. In conceptual design of the ACE 3000, a high value was placed on railroad acceptability; consequently, compatibility with existing practice influenced many aspects of the design.

At the present time, individual diesel units of about 3000 horsepower (2.2MW) are the most common; this seems to be an optimum size that is suitable for several types of duty and satisfactory for all railroads. For greater tractive effort, several units are combined in a multiple unit lash-up under control of a single engineer in the lead unit. Additional units can be added at mid-train or at the rear for helper and pusher service and controlled by radio dispatch from the lead unit. The units are about 60 feet long and spacing and layout of equipment in shop facilities has adapted to this length. Control of the diesel is with a single, multiple-notch throttle lever. The units are fully bi-directional and need only be turned for safety purposes associated with crew visibility.

With respect to maintenance and servicing, many diesel engine components are standardized and readily replaceable. For example, cylinders have replaceable liners and even individual cylinders can be replaced. Individual wheelsets and traction motors can be dropped out and replaced. Wheels can be trued in place on the locomotive. In some diesel locomotives, the manufacturer maintains a great degree of parts interchangeability even among succeeding models in the product line.

THE ACE 3000 LOCOMOTIVE

The ACE 3000 is a coal-fired reciprocating steam locomotive that will burn coal in an environmentally acceptable manner, three times as efficiently as steam locomotives previously built in the United States. It is fully compatible with present railroad operating practices. In general purpose service, the operational and performance characteristics are at least equivalent to those of the most modern diesel locomotives. It has been engineered for maintenance in existing shops with minimal additional facilities. Requirements for coal and water servicing facilities have been minimized by the unique coal pack and condensing steam cycle.

The locomotive consists of a power unit and support unit as shown in Figure 1 which are drawbar-coupled back-to-back with each unit having a cab in front. The power unit contains the furnace and combustion system to burn coal in a two-stage gas-producing mode, ash collection and storage, gas clean-up and exhaust, boiler and steam generator, steam engine, condenser and control cab. The support unit contains the storage area for enclosing modular coal packs and stoker-screw, water storage, heat transfer assemblies and fans for cooling circulating water, and control cab.

The Steam Engine

The ACE 3000 is powered by a 4-cylinder reciprocating steam engine incorporating an opposed-piston arrangement that is inherently balanced dynamically at all speeds. The steam expansion cycle is compounded: two high pressure cylinders exhaust into two opposing low pressure cylinders with all cylinders sized for equal thrust. Spent steam is further expanded through a small turbine for auxiliary power, then condensed, cooled on board the support unit and the recovered water is recycled through the boiler and steam generator.

Piston thrust is transmitted to the drive wheels by main rods. There are four pairs of drive wheels coupled into a single engine by pairs of connecting rods between each pair of adjacent wheels. The rods between Nos. 2 and 3 drive wheels are mounted internally on crank axles. This arrangement locks the pistons in phased opposition and automatically balances the reciprocating mass at all speeds.

The pistons are fully supported within the cylinders by extended piston rods and are designed for a precision fit within easily replaceable cylinder liners. The pistons have multiple diesel-type rings for low leakage and long wearing life. The cylinders themselves are jacketed with saturated steam at boiler pressure to reduce heat loss from the steam cycle and insure a uniform wall temperature that is within the range of available cylinder lubricants. Valves controlling steam flow incorporate improvements which reduce pressure loss.

The Furnace

The ACE 3000 gas-producing combustion technique was selected for its low carbon loss and favorable environmental characteristics. The gas-producer furnace burns coal in two stages. The coal is mechanically distributed across a thick fuel bed supported on an oscillating shuffle grate. In the first stage, coal devolatilizes in the fuel bed leaving behind the char component which gasifies. Char gasification is controlled by maintaining air flow up through the fuel bed at less than the amount required for complete combustion and by injection of steam into the air flow to enhance gas production. When burned in this fashion, temperature of the burning coal is relatively low, which facilitates agglomeration and collection of the noncombustible ash component of the coal, which in other combustion processes is discharged to the environment. In addition, the furnace design minimizes gas velocity through the fuel bed and reduces entrainment of fine particles of ash and coal in the flue gas. In the second stage of combustion, remaining volatile components and char gasification products are burned to completion with additional air injected into the furnace above the fuel bed. This type of gas-producing combustion has been employed in steam locomotives in Argentina and South Africa confirming that it is clean and efficient⁽⁸⁾. Ash is agglomerated and collected as a residue; there is no smoke; there is no fouling of heat transfer surfaces in the boiler; and coal burns to completion with very little carbon loss. Because of the reduced combustion temperature in a gas-producing furnace, emission of nitrogen oxides is also very low. Emission of sulfur oxides can be kept within proposed EPA emission standards by burning low sulfur coal (less than two percent) which is readily available in the quantities required for railroad locomotives.

The gas-producer combustion process is clean, efficient and by its very nature can burn a wide spectrum of coal types from high-BTU/high-ash types that are found in U.S. coal fields. It is well suited to the locomotive application.

The Boiler

The firebox chamber is confined within the boiler walls. Boiler steam pressure is normally 300 psi (14.4 kPa); structural integrity is maintained by staybolts in accordance with well established locomotive boiler design practice. All stays and seams are welded to reduce maintenance. The firebox transitions into a cylindrical firetube assembly that provides additional surface for raising steam as well as superheat surface. Steam collected from the top of the boiler drum passes through superheater tubes that loop into the firetubes and then return to a main steam collection header. Steam then passes to the throttle and high pressure cylinders.

Feedwater introduced into the boiler is preheated with a small amount of steam extracted from cylinder exhaust. It then passes through a finned-tube economizer where it is heated close to the saturation temperature.

The Steam/Water Flow

The ACE 3000 will be a condensing locomotive. The reasons for this are threefold: to extend the operating range of the locomotive between watering stops, to reduce boiler maintenance, and to improve engine cycle efficiency.

A condensing steam cycle greatly reduces requirements for make up water and thereby minimizes the need for new enroute watering facilities. Water introduced into the boiler is treated to remove dissolved solids and chemical impurities, eliminating waterside corrosion and scale formation in the boiler. The condensing cycle with water treatment makes ACE 3000 boiler maintenance similar to stationary boiler practice which typically requires no more than yearly washout⁽⁷⁾. The condensing cycle also improves engine efficiency by reducing back pressure into which spent steam is exhausted and enables the locomotive to derive more cylinder power from the same quantity of steam compared to conventional, noncondensing steam locomotives. Condensing of the steam is by a jet-eductor process which takes place on the power unit and utilizes recirculated water taken from the support unit.

Efficiency

Improvements in combustion efficiency and carbon utilization, increased steam cycle efficiency, reduction of heat losses, care in design of steam pathways to reduce pressure drops, and use of modern computer control techniques contribute to a three-fold increase in efficiency compared to conventional steam locomotives.

Measurements of drawbar thermal efficiency on gas-producer locomotives in Argentina indicated efficiencies of 15% in carefully controlled conditions and 12% in routine operation⁽⁸⁾. With the addition of a condensing steam cycle and micro-processor control, a drawbar thermal efficiency of 15% in normal operation is indicated for the ACE 3000 after deductions for piston leakage, cylinder wall temperature loss, engine resistance, etc.

Microprocessor Control

In order for the ACE 3000 to operate in multiple unit with the other ACE 3000's or with diesels under control of a single operator in the lead locomotive, the ACE 3000 will be equipped with a computer control system implemented with micro-processor-based hardware. The control system will respond to the operator's throttle and dynamic braking commands and automatically trim and adjust coal, air and steam flows, and cylinder cut-off, in accordance with speed, load, and emission control requirements. The control system will insure that the ACE 3000 is optimally controlled under all operating conditions and will enable the locomotive to respond in accordance with various operating strategies which are pre-programmed such as maximum adhesion at low speed, maximum fuel efficiency, or minimum environmental emission.

In addition, the control system will monitor and display furnace, boiler, and engine performance parameters on a cab mounted display and alert the operator to unusual or emergency conditions in any of the ACE 3000 locomotives in multiple unit. In the event of an unsafe condition or actual emergency, the control system will reduce load to a safe level or shut down the locomotive unit.

An inherent characteristic of the control system is rapid response time which gives the ACE 3000 its capability for effective adhesion control. When combined with fast acting actuators for throttle, cut-off and relief valves, control actions will occur within

the time of a single piston stroke in response to slip detector signals.

CONCLUSION

The ACE 3000 is a new locomotive for a new era. It incorporates major innovations in combustion, engine design, and locomotive control, each of which have been adequately demonstrated in other related applications. The innovative aspects of the design and its unique configuration distinguish it from previous locomotives insuring clean, efficient, reliable, and low maintenance operation that is entirely compatible with current railroad operating practice.

Economic aspects of locomotive operation have been discussed elsewhere, and present a picture that strongly favors conversion to coal, regardless of type of engine⁽²⁶⁾. The ACE 3000 has been designed as a near term alternative which its developers hope to have available for railroads in the United States and elsewhere early in this decade.

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Elizabethtown and Plainfield Railroad

W. G. Dorwart

January 1, 1839, was a transportation mile post in New Jersey, for on that date the first train traveled between old Elizabethtown and Plainfield. The road, founded in 1831, was then known as the Elizabethtown and Somerville Railroad.

The first locomotive, the *Eagle*, weighed nine tons and drew one passenger coach and four freight cars over wooden rails capped with a thin steel plate. Crowds watching along the way were dumbfounded when the train reached Plainfield in safety - and returned the same day.

The Elizabethtown and Somerville was the country's third oldest railroad. It linked a stage coach line terminating in Plainfield with the New York ferry and provided the beginning of the heavy commuter travel for which the railroad later became famous.

The railroad terminated at what is now the foot of Broad Street in Elizabethport. It was part of a through passenger and freight route between New York and the Delaware River, thence to the west. Its early history was deeply involved with the Elizabethport and New York Ferry Company, which operated from Elizabethport via Bergen Point to Pier 1, near the

Battery, in New York.

The original charter of the Elizabethtown and Somerville Railroad Company provided that the charge for carrying freight should not exceed six cents per ton per mile and the charge for passengers should not exceed six cents per passenger per mile. Originally, the road, although privately owned, was defined as "a public highway", and as such was exempt from all taxes unless and until the net income should exceed seven percent of the cost, after which a tax of one half of one percent of the cost was payable annually. In 1930 the tax on the Jersey Central Railroad property in New Jersey exceeded four percent of the cost and applied whether or not any net income was earned.

In 1846, the Elizabethtown and Somerville was sold under foreclosure. In 1847 the Legislature granted a charter to the Somerville and Easton Railroad Company, authorizing it to construct and operate a connecting railroad from Somerville to the Delaware River opposite Easton. In 1849 the Somerville and Easton Railroad Company acquired the Elizabethtown and Somerville, the railroad thereafter being known as the Central Railroad Company of New Jersey.

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(Continued from page 5)

won approval to abandon 130 miles of its own line between Norwood and Madison, MN. It wants to buy the 429 miles between Twin Cities and Kansas City. -UTU News.

AMTRAK & MCI SIGN DEAL

Similar to the Chessie deal signed with MCI, a \$4.4-million 20 year agreement with MCI to use Amtrak right-of-ways to install a 225-mile fibre optic telecommunications system has been signed. -UTU News.

CN WILL LAY OFF 900 REPAIR STAFF

Financially-troubled Canadian National Railway will lay off indefinitely 900 workers in its Moncton, Winnipeg and Montreal repair shops May 1. -Paul T. Meyers.

R.I. RECEIVES GRANT TO REMOVE DANGEROUS RAILROAD CROSSINGS

The Federal Highway Administration has given the Rhode Island DOT a \$6.5-million grant to eliminate railroad crossings in Warwick, East Greenwich, Richmond and South Kingstown. Some 20 grade crossings will be eliminated with the installation of eight bridges or underpasses. -Providence Journal, Richard C. Potter.

RAILROAD STAMP TO BE ISSUED

A new 3¢ stamp featuring an 1880 railroad hand car will be issued next month at a stamp show in Rochester, NY, the Postal Service said. -Lewis Schatz.

MCI PLANS NATION WIDE UNDERGROUND COMMUNICATIONS LINK USING RR'S

According to an article in "Information System News" MCI Corp. plans to provide a nationwide fibre optic network well before the end of this decade linking Eastern and Midwestern cities. This will be achieved by using the right-of-ways of various railroad systems (see previous paras. on Chessie and Amtrak). -Joseph Andrews.

CONGRESS PUTS \$30-MILLION ON TRACK FOR ATLANTIC CITY PHILA LINE

Congress approved legislation that would spend \$30-million over the next three years to upgrade the Philadelphia-Atlantic City (currently abandoned) rail line. The measure sent to Reagan for signature involved \$22-million in transition funds to help NJ Transit take over Conrail commuter lines in New Jersey. Legislators feel that the line could become the line could become the second busiest corridor in the nation. Newark Star Ledger, Lewis Schatz.

EX PC LINE TO BE REBUILT

A former Penn Central line between York, PA and New Freedom, PA is about to get a new lease on life. The line, out of service since Hurricane Agnes in 1972, will undergo restoration as early as this spring, at a cost of \$1.3-million. PennDOT owns the line now, and the Southern York Railroad Co. will lease and operate it. -Joel Altland, Brad Mann.

CSX PROFITS, REVENUE DOWN

Calling its earnings respectable, CSX reported profits of \$338.4-million on \$4.9-billion for 1982. These figures are roughly 10% below its record 1981 earnings and revenue. Coal loadings were down 8% for the year as a whole. -Washington Post, Gary Jani.

JUDGE RULES IN FAVOR OF MELLON TAKEOVER OF B&M D&H

A Federal Judge ruled in favor of the Mellon plan to permit the takeover of the B&M, D&H, leaving only the creditors of the two lines left to give their approval. -Scranton Tribune, Bill Farber.

COG RAILWAY TO BE SOLD

The 113-year old Cog Railway that chugs up Mount Washington, NH is to be sold for \$600,000 to a group of North Country businessmen. -Richard C. Potter.

MASS. WANTS TO BRING AMTRAK TO CAPE COD

State officials unveiled plans recently to bring Amtrak passenger service to Cape Cod from New York and Washington, DC, financed in part by a \$5-million federal appropriation. Completion of the \$2.06-million rehabilitation project on the Plymouth and West Hanover rail lines. -Richard C. Potter, Bob Newbegin.

SOUTH BUFFALO RWY TO BE HURT BY BETHLEHEM STEEL PLANT CLOSING

Bethlehem Steel announced the closing of its Lackawanna, NY facility and that 8,000 jobs would be lost. 235 of the South Buffalo Railway's 285 employees would also lose their job as a result of the plant's closing. By the end of 1983, the railroad expects to employ only 50 employees. -New York Times, Peter A. Brill.

CONRAIL EMPLOYEES ENDORSE ESOP PLAN

Conrail workers have voted overwhelmingly - by a 92% margin - to go ahead with an employee stock ownership plan to buy Conrail. -Ron Kari.

CLASSIFIED: Twenty Word Rate \$2.00. Each additional word .10¢.

Employee Timetables for sale. 1000 items. SSAE for list. John Carlson, 2 Surrey Lane, Allendale, NJ 07401.

Amtrak's Washington-New York Corridor (Maryland Historical Press, 1977). 49-page photo history. \$2.60 wholesale, \$4.35 retail. Send inquiries to Earl P. Williams, Jr., 1241 Shepherd Sts., N.W., Washington, DC 20011.

Wanted: Slides or photos of Penn Central rolling stock. Also back issues of Modern Railroads, Progressive Railroading, Railway Locomotives & Cars, Railway Age. Ron Kari, 1507 15th St., Two Harbors, MN 55616.

For Sale: Kodak processed original slides of Midwest railroads and duplicate slides of SOO Line, Milwaukee Road, WSOR and C&NW. Send LSSAE for free list (specify which one) to Patrick Wendt, 5133 Hidden Valley Dr., Slinger, WI. 53086.

Wanted: Info on Buffalo, NY. area for taking trip. -Mike Kuzemchak, 144 School St., Indiana, PA 15701.

Wanted: Cash or trade new brass for: Kemtron Aerotrains locomotive or coach trucks (brass or plastic), Custom Brass 4-track signal bridge, Nickle Plate PRR Dispatcher's Special, Lambert Wreck Crane, PFM 210-F82 tender, Soho Broadway cars, X-31b and X-32 brass box cars, 1925, 26, 27, 28, 29 and 31 complete PRR calendars, and any original PRR passenger car slides, or duplicating rights, PRR advertising posters, any photos in the Pittsburgh area. Thanks! Hugh Deberthine, 16703 Groverdale, Covina, CA 91722, 213-966-3007.

Back issues of all model and railfan magazines, RR books, maps, TT's, public and employee passes, maps, Official Guides, Frt & Pass Registers, many other railfan collectibles. Lists, info for SSAE. Collections also bought. Arnold B. Joseph, 2512 Tratman Ave., Bronx, NY 10461. Phone 212-532-0019, visiting by appointment only to my mid-town NYC store address which is 1140 Broadway, Room 1004.

UA Turbotrain: Slides, negatives, photos wanted. Buy/trade. Amtrak, VIA, NH, PC, DOT, U.S. Tour, etc. Particularly last VIA runs Oct. 82. Tom Marsh, PO Box 162, Sugar Land, TX 77478.

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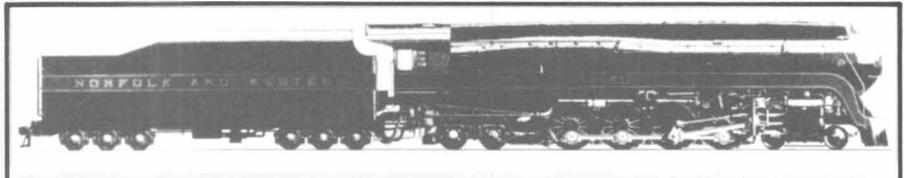
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PRR Pittsburgh Division TT #7, 1946 (\$5.00). PRR Cleveland Division TT#23, 1941 (\$5.00). PRR Erie & Ashtabula Division TT#11, 1948 (\$5.00). PRR Toledo Division TT#6, 1946 (\$5.00). PRR Grand Rapids Division TT#6, 1946 (\$5.00). PRR Chicago Terminal Division TT#1, 1941 (\$5.00). PRR Cincinnati Division TT#1, 1941 (\$5.00). PRR Fort Wayne Div. TT#6, 1946 (\$5.00). PRR Philadelphia Terminal Division TT#12, 1946 (\$5.00). PRR Philadelphia Division TT#3, 1921 (5.00). PRR St. Louis Division TT#6, 1946 (\$5.00). PRR Maryland Dist. TT#9, 1955 (\$5.00). PRR Philadelphia Dist. TT#4, 1953 (\$5.00). PRR Logansport Div. TT#9, 1947 (\$5.00). PRR Philadelphia Div. TT#19, 1929 (\$5.00). PRR Indianapolis Div. TT#5, 1945 (\$5.00). PRR Panhandle Div. TT#10, 1948 (\$5.00). PRR Columbus Div. TT#33, 1941 (\$5.00). PRR Maryland Div. TT#11, 1947 (\$5.00). PRR Conemaugh Div. TT#4, 1945 (\$5.00). New Haven Passenger Train Consists, 1957 (\$5.00). NH Passenger Train Consists, 1956 (\$5.00). New Haven Engine Assignment Books, 1952, 1956, 1957 (\$5.00 each). New Haven Assignment of Work Equipment, 1956 (\$5.00). PRR New York Division TT#28, 1937 (\$5.00). PRR Philadelphia Dist. TT#9, 1955 (\$5.00). PRR Monongahela Div. TT#7, 1928 (\$5.00). PRR Philadelphia Dist. TT#9, 1955 (\$5.00). PRR Philadelphia Terminal Dist. TT#21, 1950 (\$5.00). PRR Radio Communications Study, 1964, 60 page spiral bound for electric regions (\$6.00). PRR CT 4001 List of Reportable Locations, STations, Yards, Sidings, 1964 (\$5.00). Penn Central Rule Book (\$5.00). PC Eastern Region TT#5, 1970 (\$5.00). PC Northern Region TT#3, 1969 (\$5.00). PC Central Region TT#5, 1972 (\$5.00). PRR Central Region TT#4, 1967 (\$5.00). New York & Long Branch TT #373, 1974 (\$5.00). P&LE TT#12, 1976 (\$5.00). P&LE Rules Book (\$5.00). Will hold any item on reservation basis to avoid sold out situation. Order from Bob Reid, PO Box 135, East McKeesport, PA 15035.

E. McKeesport, PA. 15035.

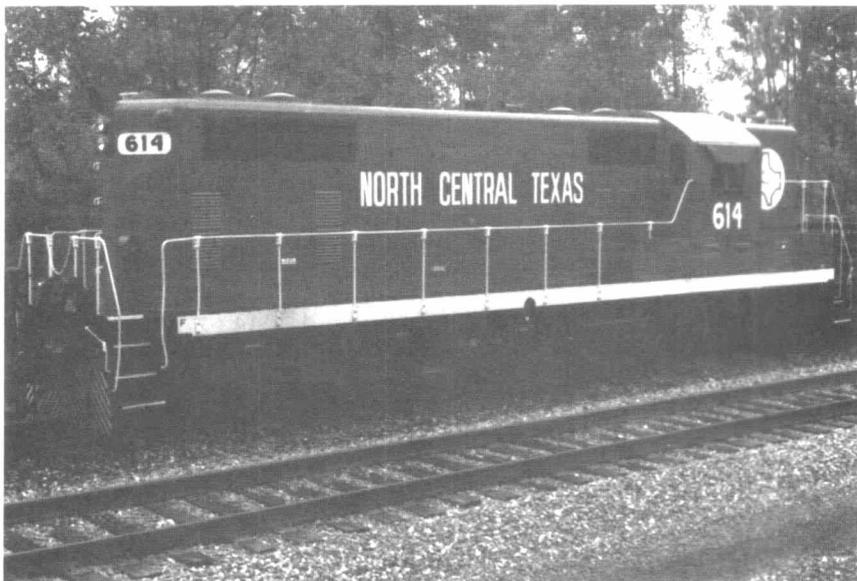
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Pittsburgh Rail Map	3.00
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(Above 3 maps sent folded - if wanted unfolded, include \$3.00 for special handling & mailing tube).	
1952 Railroad Map Book (collection of 100)	5.95
NYC 1943 Division Map Directory	5.00
PRR 1952 Locomotive Classification of Locomotives & Tenders	6.00
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NYC 1967 rolling stock (hoppers) drawings	3.00
1968 Penn Central passenger car directory	15.00

GARAGE SALE - The garage of the editor of Rails Northeast isn't used for its intended purpose and over the months existing space has been used to hold back issues, books, and other publications released by RNE. In a need to gain some additional working space, we are having a garage sale of items in cartons. The following items and publications are available. As an added bonus to move out this excess stock caused by ordering too big of a printing, I am offering any of the following at 20% off of their original list/cover price. Items are listed with original price. Just deduct 20% off your total order amount and I will ship all items postage paid. Send orders with payment to RAILS NORTHEAST, PO Box 135,

Some items are in very limited quantities while others (back issues mainly) are more plentiful. Refunds will be issued for items sold out.

Railroad Books at discount prices. SSAE for current list to HLW Industries, P.O. Box 541 Glenwood, IL 60425.

Original Slides Chicago area railroads, rolling stock and cabooses our specialty list and sample \$1.50. John Egan, 805 E. 14th St., Glenwood, IL 60425.



RECENT CONWAY VISITORS - Top & Center North Central Texas RR GP-7's 614 and 613 (614 is ex-CR 5848, 613 is ex-CR 5840). Units went through Pittsburgh this past fall. Bottom — Black River & Western SW1 #400 was in Conway during the fall of 1982. No info on reason or destination. Photos by Joe Jack.

CONRAIL -

Contrary to a report in a previous issue, the 2 CR SD7's have not been retired and sent to Altoona. 6998 is in Bethlehem and 6999 is in storage at Rutherford, PA, as of 1/1/83. -Jim Olmstead.

Conrail -

As of the first week of December, '82, Conrail switched routes of SEPY, SEPYX, AIPY, PYSEA. They were to buypass the N.E. Corridor, between Philadelphia and Perryville, MD by running west from Philadelphia on the "Atglen & Susquehanna Branch" low grade to Columbia, PA where they cut the diesels off and run around the train. They have two cabin cars, one behind the diesels and the other on the rear. From Columbia the run east on the "Columbia & Port Deposit Branch" "Port Road" to Perryville and then south. As far as I know PYSEB and PYAL are still running north from Perryville. The OIPY, CAPY, TV23, TV24, PYCA and the "Juice Train" which has a new symbol -ex-PYKE is now OJT - are still running north of Perryville. Also Conrail's mail trains - 8,9,10,11 are not using the Amtrak main line between Parkesburg and Middletown, PA. They are using the "Low Grade A&S Branch" and the "Columbia Branch". Also, another symbol change PIED is now TV26 and EDPI is now TV27. It's still a regular freight with tank cars and boxes, with trailvans and tri-levels, nothing unusual. -Brad Mann.

Conrail -

CR SD40-2 #6433 has been seen in Perryville a number of times with an "all weather window" on the engineman's side. -Brad Mann.

NYS&W-

The Susie Q acquired two more Alcos in mid-August with the purchase of Conrail C430's 2050 & 2052 (PC/NYC same numbers). They were repainted and renumbered 3000 & 3002, respectively and are used on the Northern division replacing GP18 1800 which will return to Little Ferry, NY. S-2 #206 is doing switching chores at Little Ferry but is running without a hood which had been at Naporano for work. -John Komanesky.

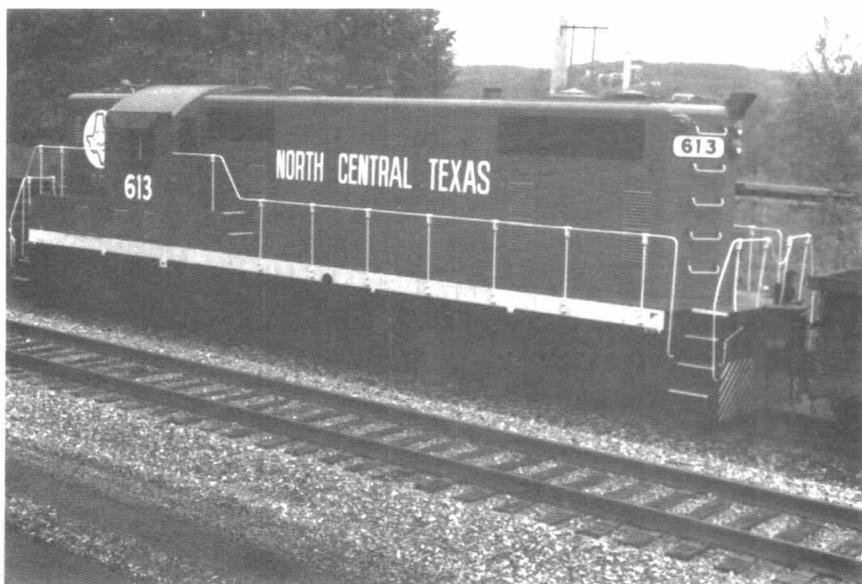
Amtrak -

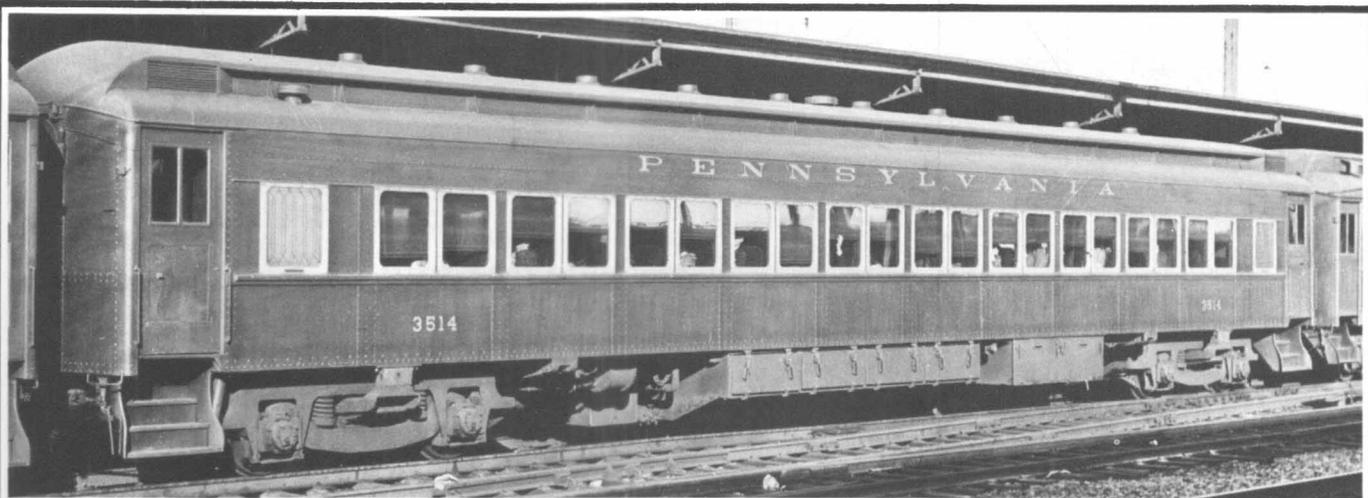
During the last week of October, '82, two Amtrak E60CH's departed Washington, DC on Amtrak train #441, the westbound *Capitol Ltd.* On 10/25/82, Amtrak E60CH #966 went west through Martinsburg, WV on Amtrak train #441 behind F40PH's #276 and 269. The following day Amtrak E60CH #968 also went west through Martinsburg, WV on the *Capitol*. Of special interest was the absence of any Amtrak lettering and number boards on E60CH #968. A cardboard sheet was placed over the locomotive cab window with the number 968 being the only identifying mark on the E60. -Charles McAtee.

Western Maryland -

As of late fall, '82, Western Maryland SD40 #7570 was still in Western Maryland black and gold. -Ken Dresser & Dan Dorko.

10th Anniversary Renewal offer mailed last October, expires effective March 10th, '83. -Editor.





First kit off of the assembly line will be similar to 3514 above

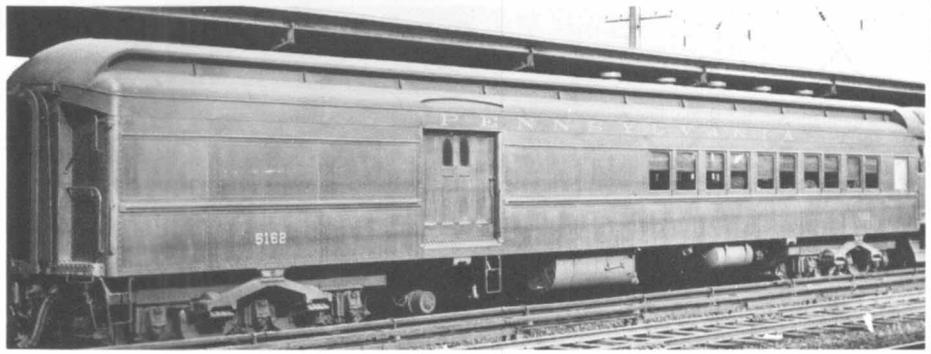
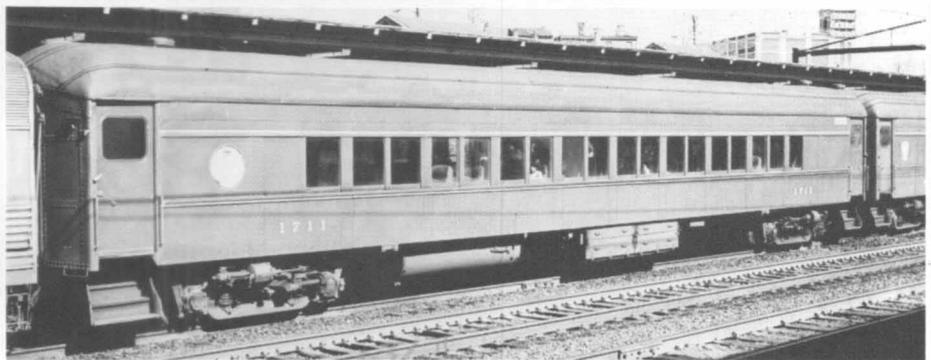
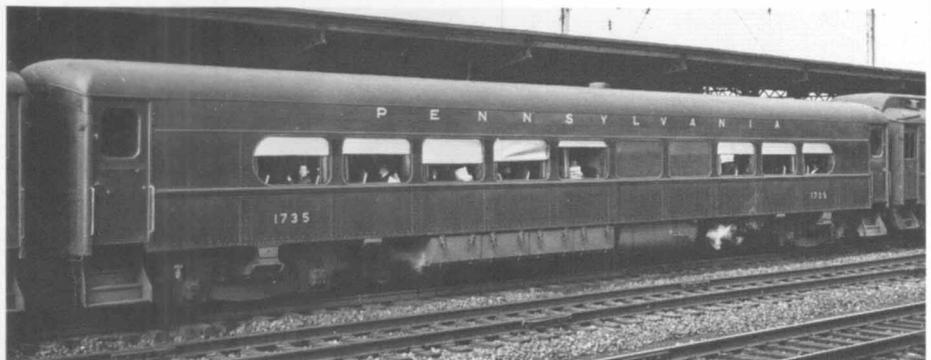
P.R.R. P-70's in HO

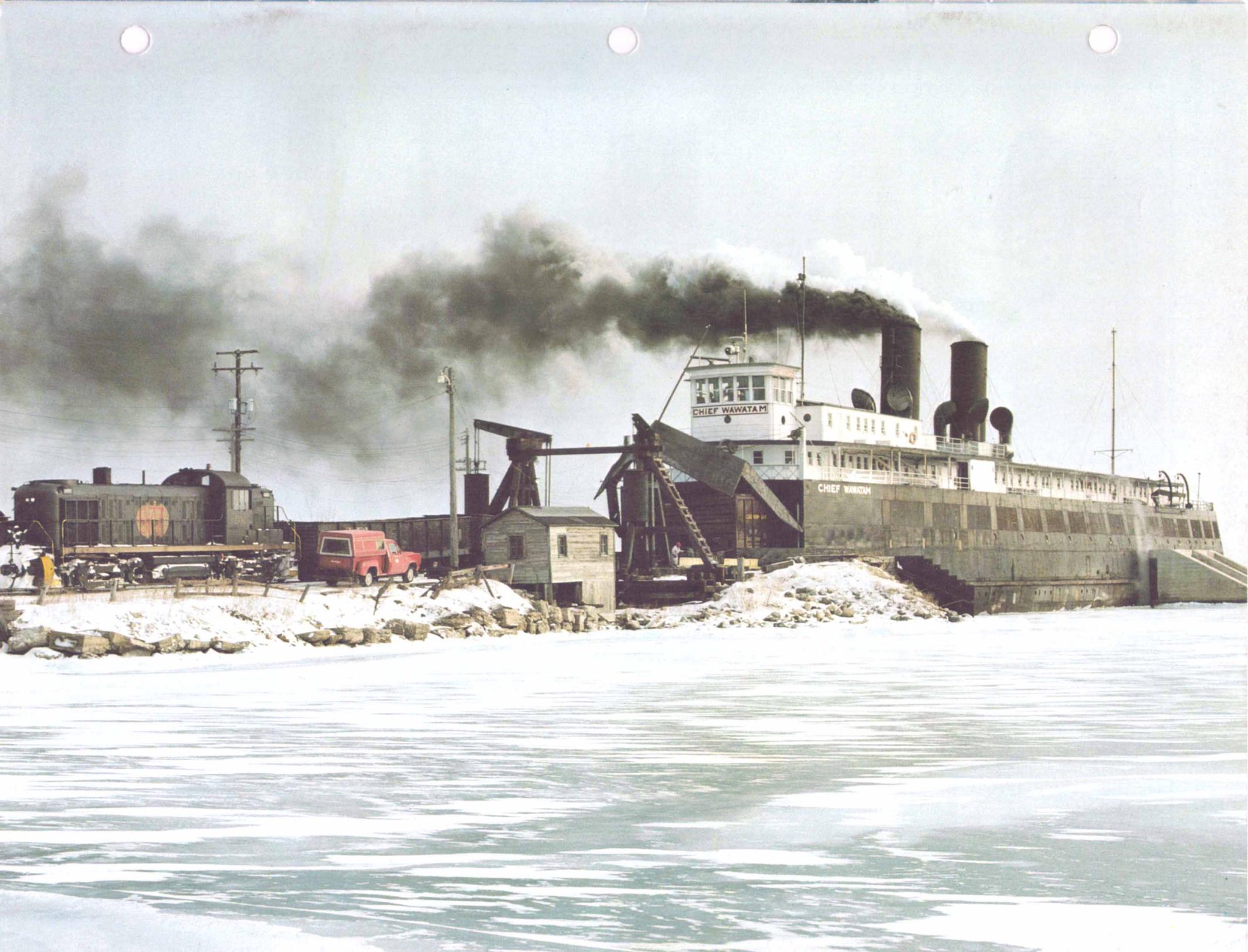
In 1907-08, the first Pennsy P-70 all-steel coaches rolled out of Altoona (PRR), Berwick (ACF) and Pittsburgh (Pressed Steel). Since then countless sister cars have roamed every corner of the Pennsy system. Over the years, countless rebuilds of these cars have covered countless car miles. Shortly, countless Alco models of countless (almost) versions of these famous cars will be rolling on countless (well, many) HO railroads. It won't take countless hours to assemble these hard-to-put-down kits, but it will be time well spent. Watch for the arrival of these finely detailed plastic kits at your dealer. Meanwhile, send us an SSAE for the latest ACTIONLINE.

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Prototype photos — George E. Votava collection





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