
1934
1944
ELECTRO-
MOTIVE
DIVISION

1934
1934

GENERAL MOTORS DIESELS

In Review

10th Anniversary **OF DIESEL ROAD POWER**

ON AMERICAN RAILROADS

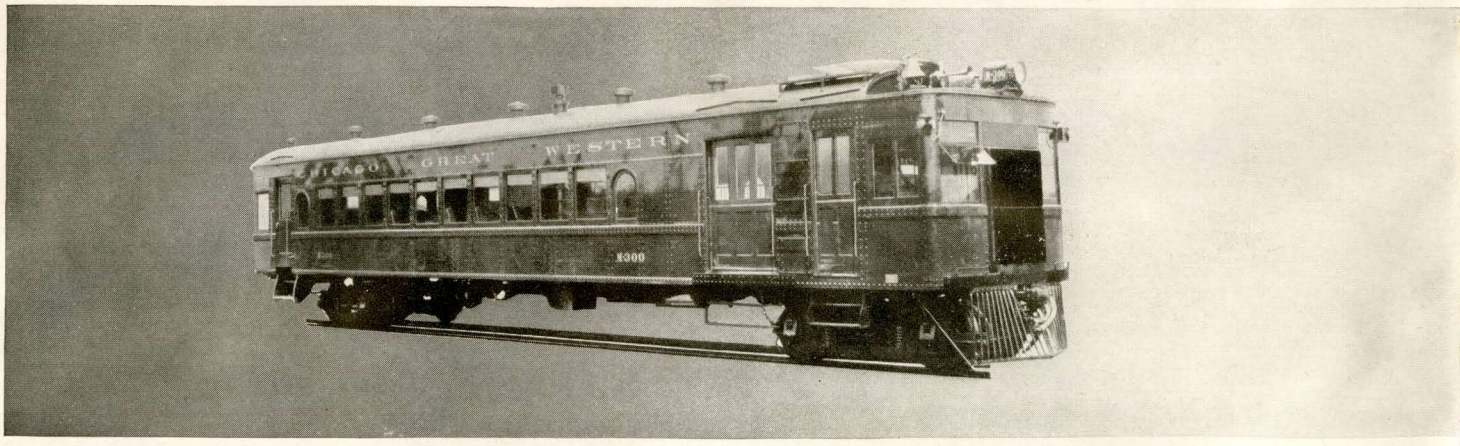
ELECTRO-MOTIVE DIVISION
GENERAL MOTORS CORPORATION LA GRANGE, ILLINOIS, U.S.A.

A DECADE OF PROGRESS

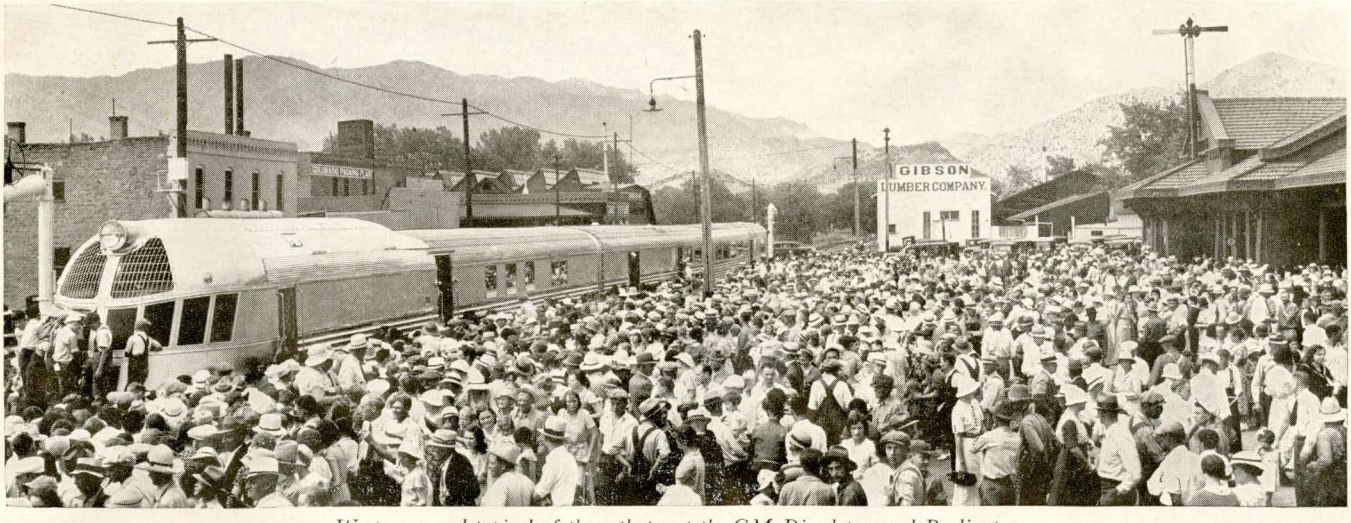
A DECADE OF PROMISE

TEN fleeting years ago the first Diesel streamlined train moved under its own power. The Burlington Pioneer Zephyr was hailed from coast to coast as the mechanical marvel of the day. Millions of persons came to stations or stood along tracks to see the new kind of train.

It has taken ten years for the full significance of that historic occasion to become apparent. What happened that bright day in April, 1934, was not just the birth of a shiny new train. The event represented the dawn of an entirely new era in transportation, an era in which the Diesel engine, freed at last of its shackles of excessive size and weight, was applied to the greatest mass movement of men and goods the world has ever known, the daily transportation of passengers and freight upon American railroads.



First rail car built by Electro-Motive in 1924 and sold to Chicago Great Western Railroad Company, forerunner of the modern Diesel road locomotive



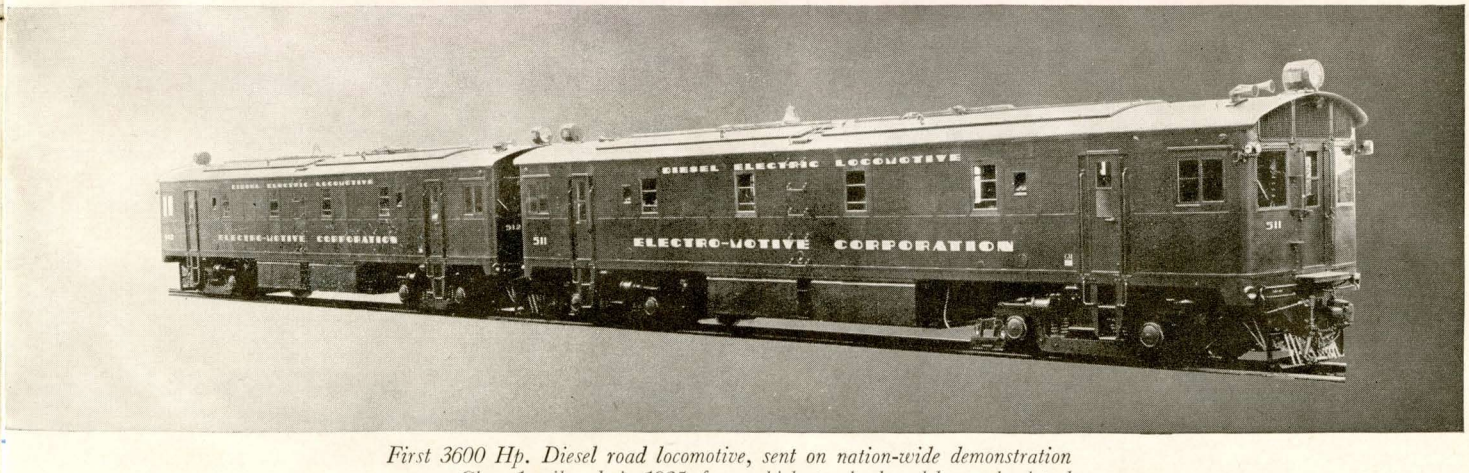
Western crowd typical of those that met the GM Diesel-powered Burlington Pioneer Zephyr on its triumphant inaugural tour from coast to coast in 1934

That first movement of the Pioneer Zephyr signalized the arrival of a new tool with which progressive American railroads could establish an entirely new level of public service.

In the ten year wake of the Pioneer Zephyr have come passenger schedules deemed impossible before General Motors Diesels took to the mainlines, a new conception of passenger comfort, a record for on-time performance never before approached, a new standard of sustained high speed with safety, above all, new records in the mass handling of freight beyond the capabilities of other forms of transportation, all with outstanding economy.

Today as we salute the gallant little Pioneer Zephyr with its one and two-thirds millions of miles of faithful service behind it—no one has attempted to forecast how many more years ahead of it—we stand well launched in the new era.

Electro-Motive Division of General Motors is dedicated to the maintenance of its leadership in the Diesel locomotive field and to render every possible assistance to the railroads in the utilization of this motive-power through the next decade and beyond.



First 3600 Hp. Diesel road locomotive, sent on nation-wide demonstration runs on Class 1 railroads in 1935, from which standard model was developed

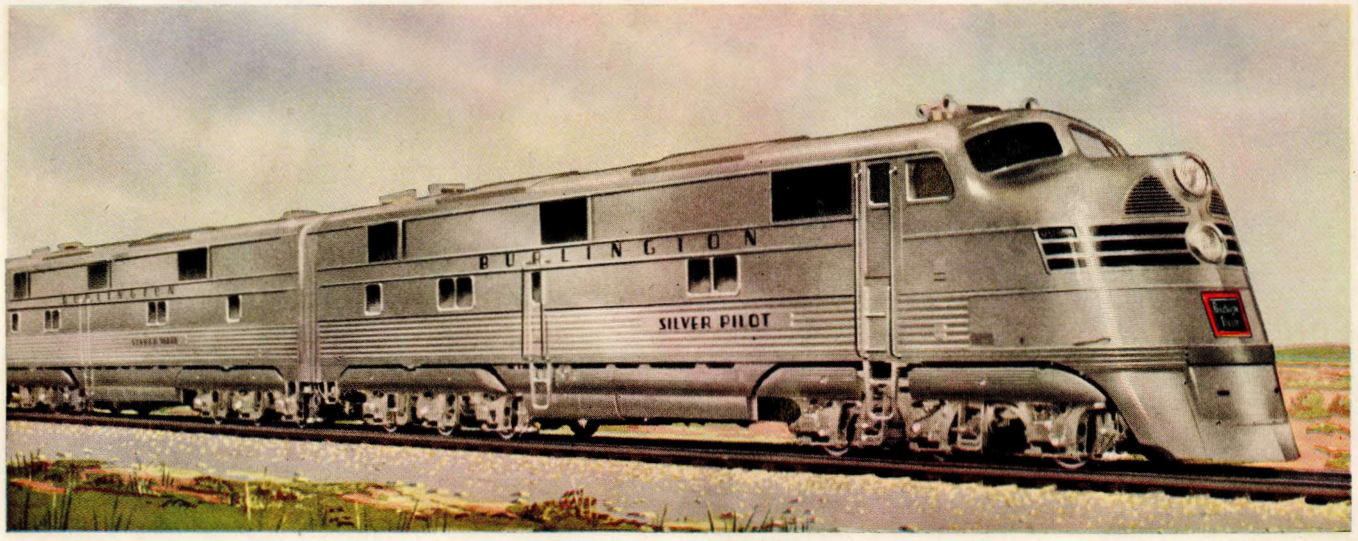
200 MILLION MILES

in Every Class of Service . . .

FOLLOWING the initial success of the General Motors Diesel power plant in the Pioneer Zephyr, Diesel locomotives to cover every class of railway service have been developed by Electro-Motive. More than 1400 units of this power are in service on more than seventy-five American railroads.

The full line of General Motors Diesel locomotives includes: 600 horsepower switchers; 1000 horsepower switchers; 1000 horsepower combination road and switcher locomotives; 2000 horsepower transfer locomotives; 2000, 4000 and 6000 horsepower passenger locomotives, and 2700 and 5400 horsepower freight locomotives.

Among advantages of these locomotives that have been established by more than two hundred million miles in the severest service, the more apparent are: Faster scheduled operations, greatly decreased operating and maintenance costs, higher availability, freedom from costly supporting services, less wear on track, uniform operation in all variations of weather, greater ease of service, and an important reduction in stand-by losses.



BURLINGTON—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

From Texas to Minnesota and from Chicago to the Rockies Burlington's famed Zephyrs honeycomb the Middle West. They are uniformly powered by GM Diesels, growing out of the Pioneer Zephyr. Other less streamlined but none-the-less useful trains, such as the Exposition Flyer are GM Diesel-powered. In addition to the Pioneer Zephyr the streamlined GM powered fleet includes the Mark Twain Zephyr, two Denver Zephyrs, two Twin City Zephyrs, two Texas Zephyrs, the Silver Streak Zephyr, the Zephyr Rocket, the Sam Houston Zephyr and the Ak-Sar-Ben. Some of the world's most spectacular schedules are included in the operation of these trains. Notable among these schedules is the sixteen hour run over the 1034 mile Denver-Chicago route of the two Denver Zephyr trains, as well as the six hour and fifteen minute normal schedule of the Twin City Zephyrs between Chicago and St. Paul. Many records have been set by the 27 GM Diesel units in the Burlington fleet, which have an average availability over a ten year period of 95.3 per cent. In December of 1943 twenty-six units operated 359,719 miles with 100 percent availability.

General Motors Diesel Passenger Locomotives make possible . . .

BOSTON AND MAINE—MAINE CENTRAL—600 H.P. DIESEL PASSENGER LOCOMOTIVE

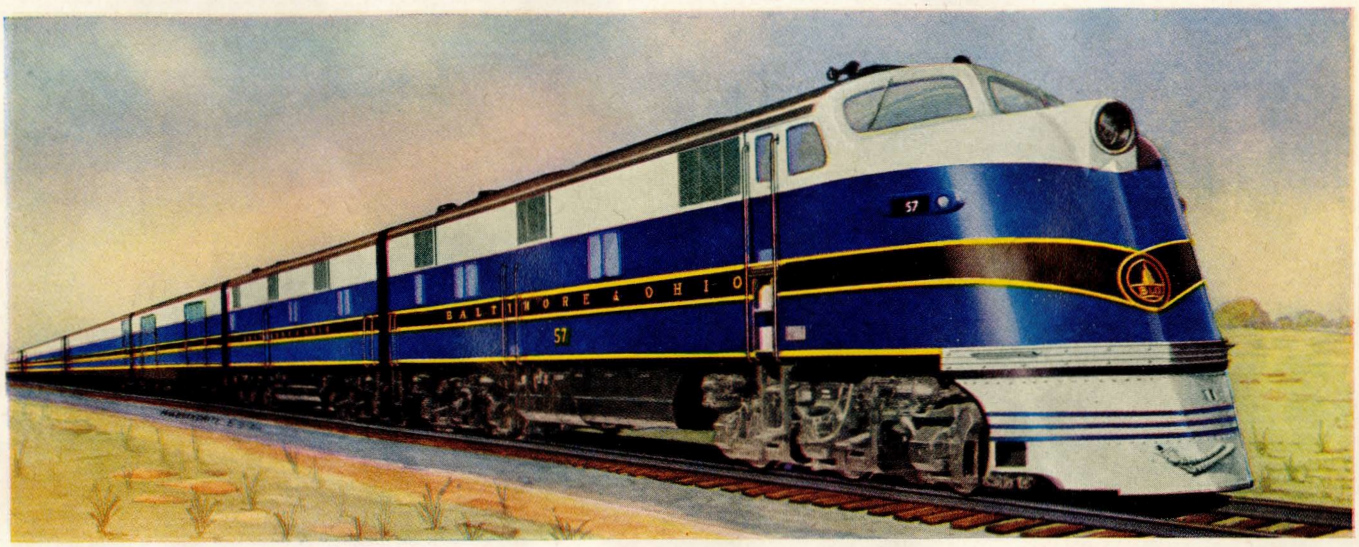
Blood brother to the Pioneer Zephyr and still faithfully operating on its daily round trip between Boston, Massachusetts and Bangor, Maine via Portland is the Flying Yankee, one of America's earliest Diesel-powered streamlined trains. Like the Pioneer Zephyr it is equipped with a GM Diesel power plant engineered and supplied by Electro-Motive. Its advent in February 1935 introduced Diesel motive-power to New England and evoked the same enthusiastic response from the public in that section that has followed the inauguration of Diesel service throughout the United States. Although it was of the earliest design of General Motors two-cycle Diesel engine, in fact one of the first dozen of the engines ever built, the 600 Hp. prime mover in this train still does its daily job of 500 miles after more than nine continuous years of service in which the train has been operated more than 1,500,000 miles. Like its fellow trail blazer, the Pioneer Zephyr, the Flying Yankee now boasts a fleet of Diesel descendants in the form of GM freight locomotives and switchers on the Boston and Maine.

UNION PACIFIC—CHICAGO AND NORTH WESTERN—SOUTHERN PACIFIC—6000 H.P. DIESEL PASSENGER LOCOMOTIVE

The City of San Francisco, jointly owned and operated by the Union Pacific, Chicago and North Western and Southern Pacific, is one of the world's longest, most luxurious and fastest scheduled streamliners, operating between Chicago and San Francisco. From its inception in June 1936, it has been powered by GM Diesel passenger locomotives. One 6000 Hp. and one 5400 Hp. GM Diesel handle the current service, likewise the two sister trains of the Union Pacific and Chicago and North Western, the City of Los Angeles between Chicago and Los Angeles. The original service of both the City of San Francisco and City of Los Angeles was handled by one train each. These proved so popular that a train was added to each schedule giving semi-weekly service in both directions. Other GM Diesel-powered trains in the famous Union Pacific fleet are the City of Portland, between Chicago and Portland, Oregon, and the two trains comprising the City of Denver in daily service between Chicago and Denver, Colorado. In addition, the Union Pacific uses GM Diesel 4000 horsepower passenger locomotives between Kansas City and Denver.

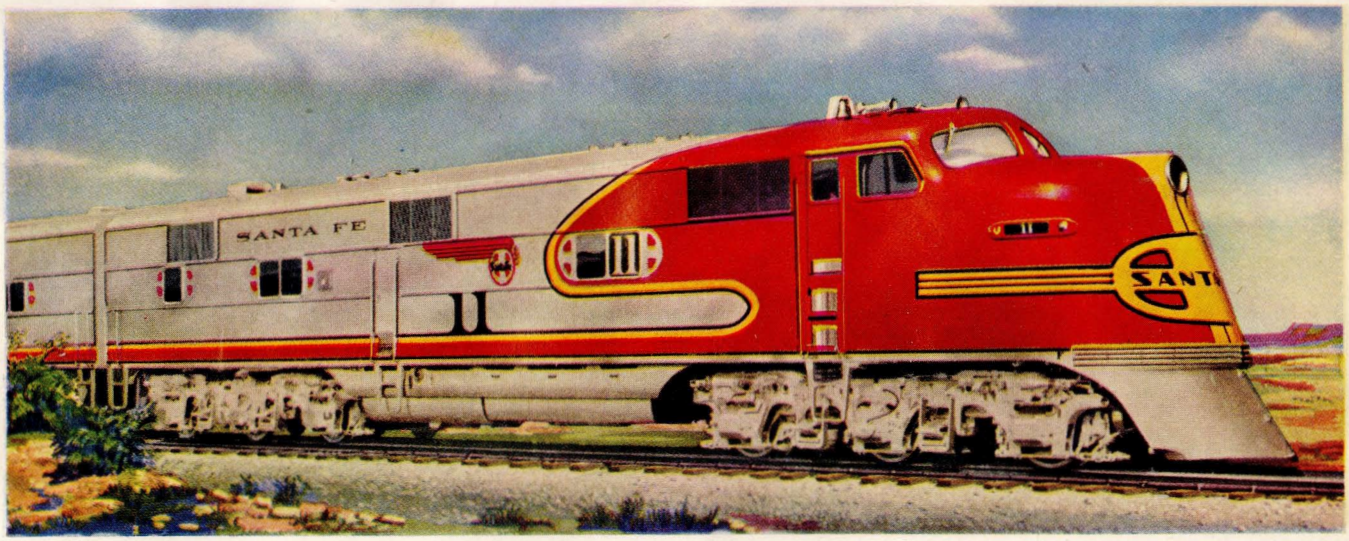
GENERAL MOTORS LOCOMOTIVES

New standards in fast passenger train operation . . . . .



BALTIMORE AND OHIO—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

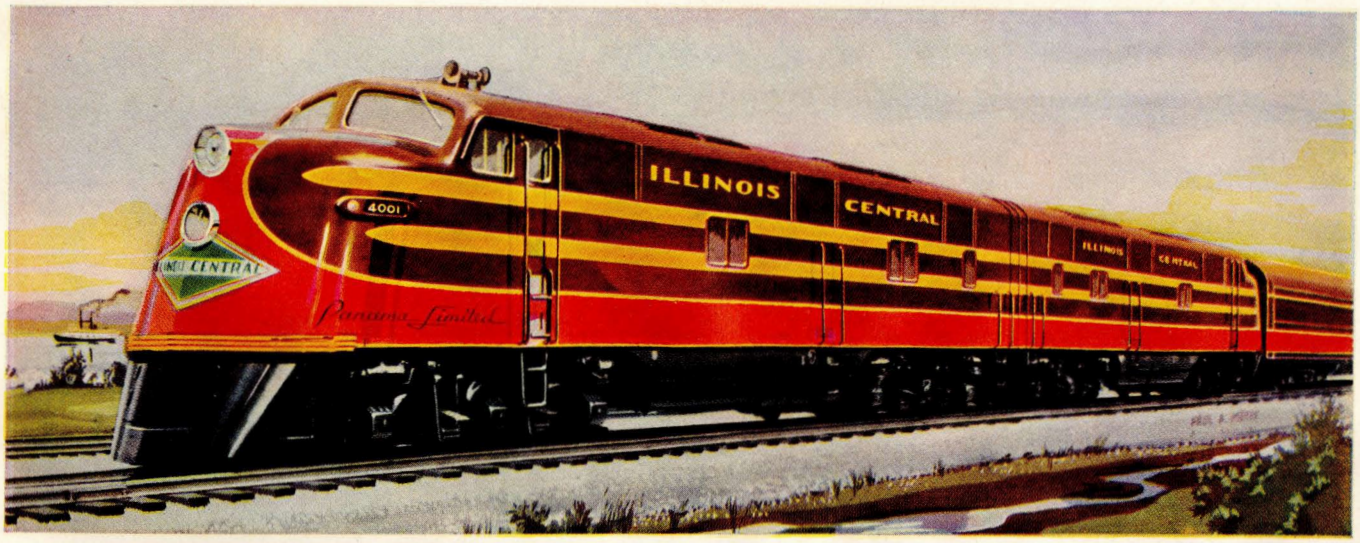
Late in 1830, Peter Cooper's "Tom Thumb" became the first steam locomotive on the Baltimore and Ohio, leading the way to a new era in transportation. More than a century later (*August 1935*), the B&O again took the lead by placing in service the first separate Diesel road locomotive on any American Railroad. Today, General Motors Diesel road locomotives haul their fleet of famous passenger trains—the Capitol Limited, National Limited, Royal Blue, Columbian, Diplomat, Ambassador, and Shenandoah. One of the high lights of Diesel operation was the performance of Diesel locomotive No. 56 which powered the "Capitol Limited" between Washington, D.C. and Chicago for 365 consecutive runs of 771 miles, totaling 281,415 miles, without missing a trip. Between the date of delivery, June 28, 1938 and February 27, 1940 locomotive No. 56 operated 436,718 miles with only three days out of service for repairs—an availability record of 99.6 percent . . . Today, the B&O leads the east with 85 General Motors Diesel Locomotive Units totaling 108,000 horsepower in all classes of service—with more to follow.



SANTA FE—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

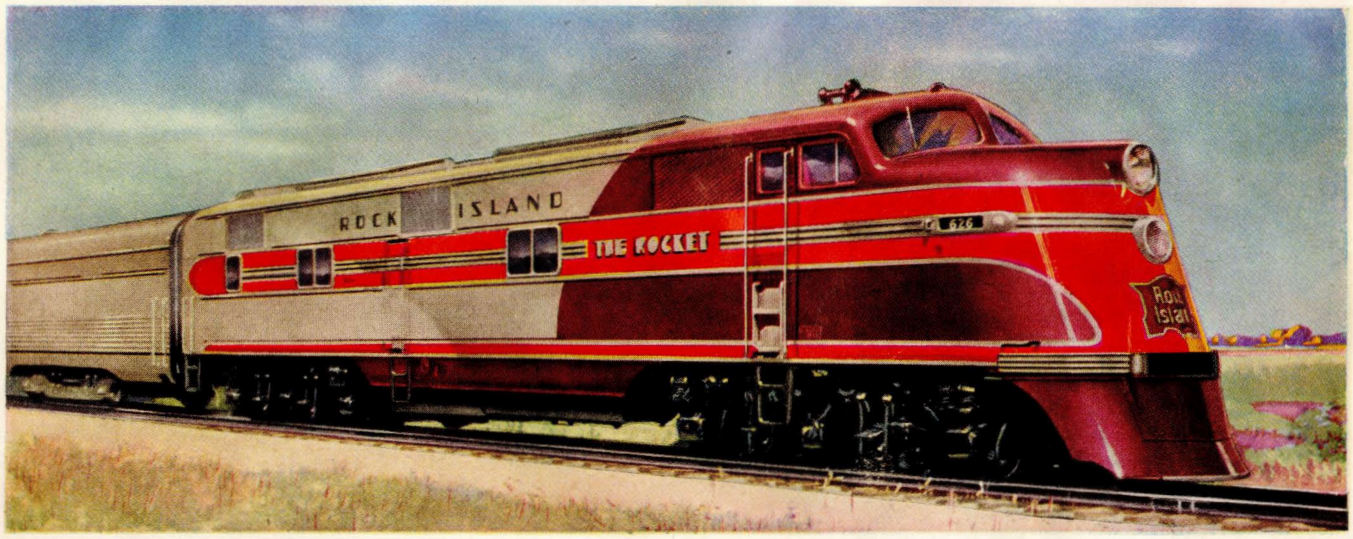
In May 1936, the Santa Fe inaugurated a revolutionary new transcontinental flier, the Super Chief, to bring California within one business day of Chicago and within two business days of the eastern seaboard. Powered by a General Motors 3600 Hp. Diesel locomotive, it made the 2,227 miles between Chicago and Los Angeles in 39 hours and 45 minutes—an average speed of 56 miles per hour. This was the forerunner of the new era of deluxe high speed passenger service on the Santa Fe, whose famous fleet now consists of the widely known Diesel-powered trains, the Super Chief, El Capitan, Chicagoan, Kansas Cityan, San Diegan, the Tulsan and Golden Gate, and frequently the Chief. While the Super Chief is the outstanding example of the heavy high-speed long distance trains, the Kansas Cityan and the Chicagoan, powered by 1800 Hp. GM Diesel locomotives, are typical examples of Santa Fe's faster service with shorter trains. Diesel service calls for a seven and one-half hour run between Chicago and Kansas City. The Santa Fe Diesel passenger fleet operated more than sixteen million locomotive miles up to February 1944.

Smooth starts and stops for greater travel comfort . . . .



ILLINOIS CENTRAL—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

The Illinois Central was one of the early railroads to apply GM Diesel power to passenger operation in the Green Diamond, still doing its daily fast schedule, deluxe stint between Chicago and St. Louis. To this has been added the unique Panama Limited deluxe Pullman train between Chicago and New Orleans and the deluxe coach train, the City of Miami, between Chicago and Miami, Florida. The Panama Limited, conceived long before, went into service just as war clouds broke over the United States and immediately began a contribution to winning the war which it has maintained ever since, namely, the rapid transportation of vital military and civilian personnel between the production centers of the Middle West and the military camps scattered along the southern end of its run, and New Orleans, an important ocean shipping point. Its GM Diesel maintained record for on-time service through all kinds of weather has been a high factor in its usefulness. The Illinois Central also is an important user of GM switchers and transfer locomotives to move freight trains through the Chicago switching area.



ROCK ISLAND LINES—1200 H.P. DIESEL PASSENGER LOCOMOTIVE

The six-year (*1937-1943*) performance records of three "Rocket" Trains of the Rock Island are remarkable. In September 1937, "Peoria Rocket," No. 601, the first of 15 General Motors passenger Diesels, was placed in service between Chicago and Peoria. In six years of operation, this train as a unit was out of service only ten of 8,816 consecutive trips—*99.8 percent operation*—and had substitute service for only 9,044 of the 1,400,000 miles operated in that same period—*99.3 percent operation*. The Peoria Rocket negotiates the 161 mile trip four times daily (644 miles) at an average speed somewhat more than a mile-a-minute. An even more remarkable record is that of the Rocket operating between Kansas City and Minneapolis, 489 miles. Since the inauguration of this service, the train has made every one of its 4,386 schedule trips, totaling more than 2,150,000 miles, with protection service required on only 7,555 miles—*99.9 percent operation*. The Chicago-Des Moines Rocket recently rounded out six years, having completed 1,565,053 miles, with substitute service required on only five of 4,390 trips—*99.8 percent operation*.

Decreased operating and maintenance costs . . . . . .

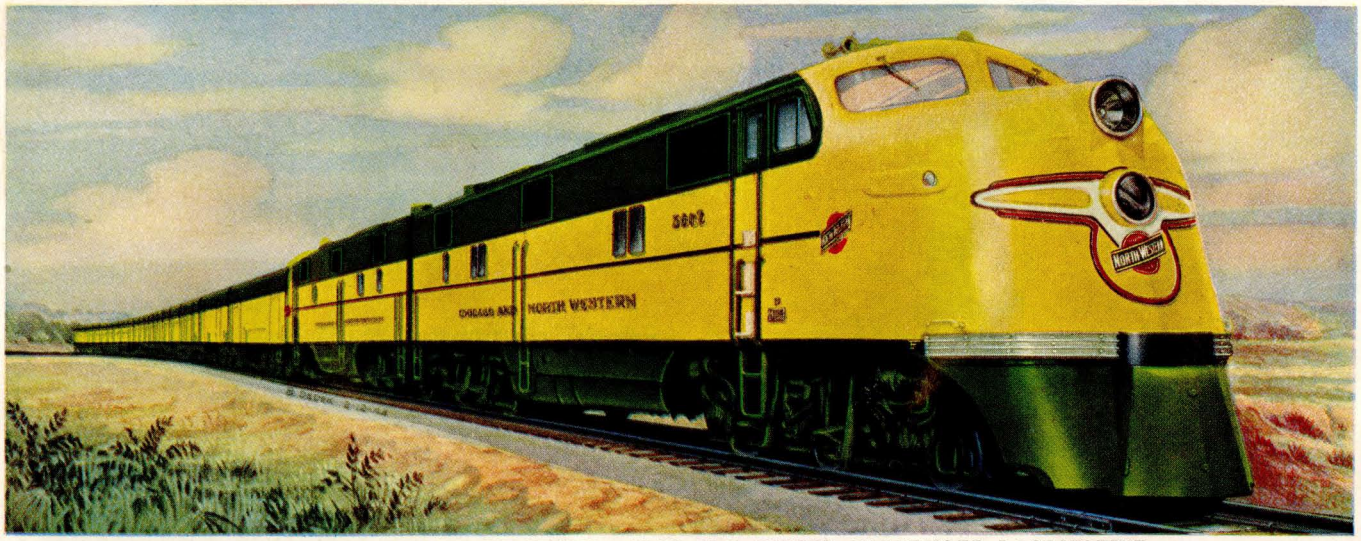
SEABOARD RAILWAY—6000 H.P. DIESEL PASSENGER LOCOMOTIVE

In January 1926, the Seaboard placed in service its first Electro-Motive gas-electric rail motor car. This is worthy of mention because it was in the production of this type of equipment that Electro-Motive gained its early experience and from which very logically evolved the modern Diesel locomotives for all classes of service. Two GM Diesel-powered rail motor cars, the first of their kind, were installed in April 1936. In October 1938, the Seaboard became the first railroad in the South to adopt Diesel power for mainline service when it put GM Diesel locomotives on its great fleet of "Silver Meteor" and "Orange Blossom Special" ultra-modern high speed passenger trains, powered with General Motors Diesel passenger locomotives. This provided considerably faster schedules from New York and Washington to Florida. Today (*April 1944*), the Seaboard has in service 20 GM 2000 Hp. Diesel passenger units which have accumulated close to 23,000,000 miles and an average availability record of over 95 percent. On-time records of the New York-Florida service were greatly improved by Dieselization.

KANSAS CITY SOUTHERN—2000 H.P. DIESEL PASSENGER LOCOMOTIVE

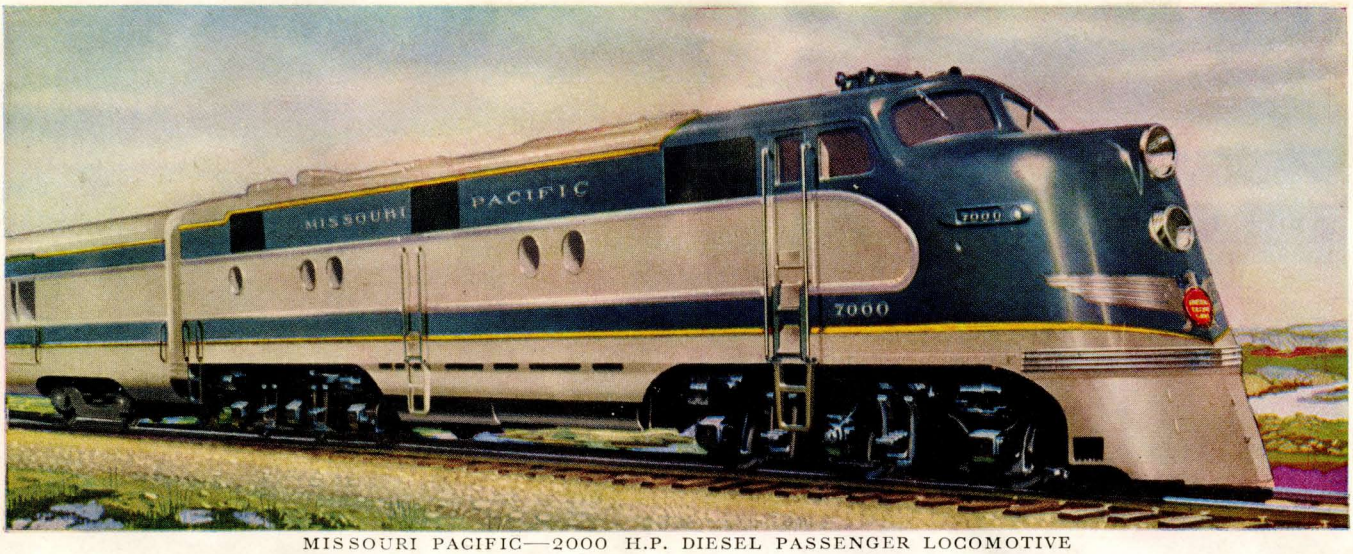
Modern deluxe fast passenger trains came to a section hitherto without the benefits of such service in 1939 when the Kansas City Southern put the Southern Belle into operation with GM Diesel passenger locomotives at the head of the three consists. Five 2000 Hp. Diesels maintain the twenty-four hour service on the 872 mile daily run between Kansas City and New Orleans. The route weaves through Kansas, Missouri, Oklahoma, Arkansas, Texas and Louisiana, encountering some difficult terrain through the Ozarks. High availability and on-time marks have been set in the operation. The on-time performance has been a prime factor in the rendering of a valuable wartime service to the section of the country traversed. The train connects two important war activity centers and taps territory in which vital raw materials and a number of military concentrations are located. Consequently it handles a heavy flow of military and civilian personnel engaged in vital war travel. The usual outstanding Diesel operating and maintenance economies prevail.

Freedom from costly supporting services . . . . . .



CHICAGO AND NORTH WESTERN—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

In addition to the notable fleet of jointly owned GM Diesel passenger locomotives which it operates with two other western roads, described elsewhere in this publication, the Chicago and North Western provides the state of Wisconsin with one of the finest fleets of Diesel operated trains enjoyed by any state in the nation. Flagships of this fleet are of course the two Twin Cities 400's which link Chicago and St. Paul, Minneapolis, via Milwaukee. Two 4000 Hp. GM Diesels are assigned to handle the Twin Cities 400 each direction in the afternoon and make the return trip at night with the standard Pullman North Western Limited. This required 841 miles of operation daily from each locomotive, half of it on a schedule requiring 63.3 miles per hour average. The two locomotives set up an amazing availability record when they handled this service for two full years with only one trip missed. They operated 1,200,000 miles with 100 percent availability. Other C & NW trains handled by GM Diesels are the Peninsula 400, Capitol 400, Shoreland 400, Valley 400, two Commuter 400's and four City of Milwaukee 400's.



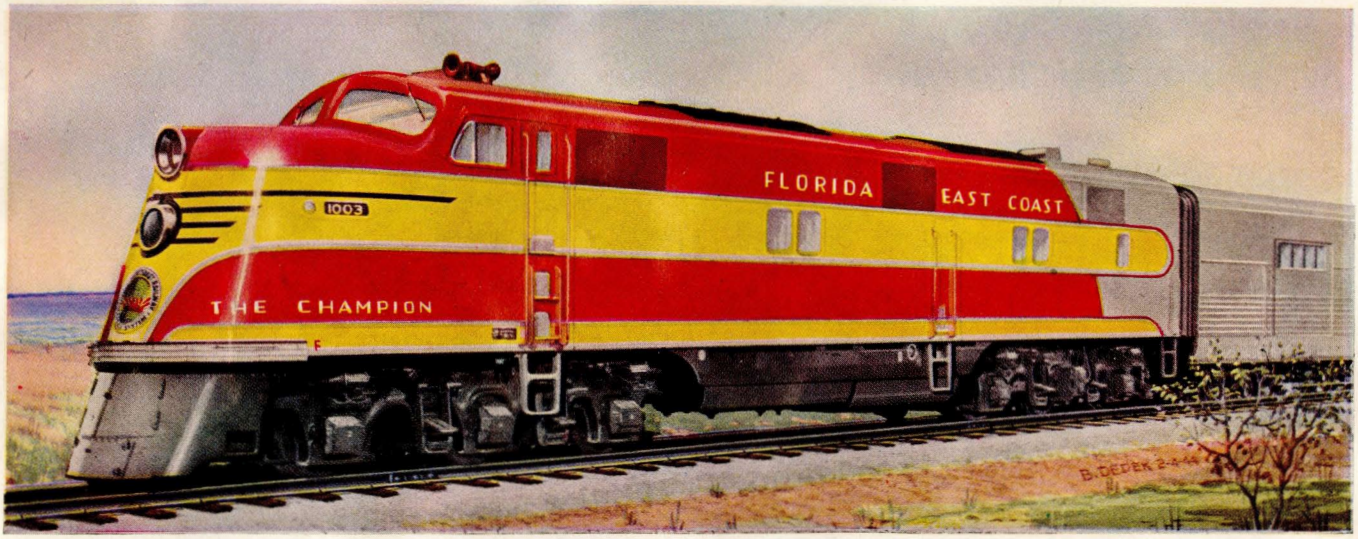
MISSOURI PACIFIC—2000 H.P. DIESEL PASSENGER LOCOMOTIVE

In October 1939, the Missouri Pacific inaugurated its fleet of General Motors Diesel-powered "Eagles," providing faster service with maximum safety and travel comfort between principal points on the system . . . Two 2000 Hp. Diesel locomotives Nos. 7000 and 7001, the first to be placed in operation, are providing deluxe daylight service between St. Louis and Omaha . . . In August 1940, Diesel No. 7100 started the very popular service between Memphis and Tallulah, La. To provide improved daily high-speed service between St. Louis and Denver, two 4000 Hp. General Motors Diesel-powered "Eagles" Nos. 7002 and 7003 entered service in October 1941. Today (*April 1944*), these five Diesel Passenger locomotives, comprising seven Diesel units and totaling 13,000 Hp., have accumulated 4,119,211 service miles with 96.2 percent availability. To complement Diesel freight and passenger service, the Missouri Pacific is operating 15 GM Diesel switchers, including two 900 Hp. road-switchers, which have operated 3,121,604 miles with an average availability of 93.6 percent.

Uniform operation in all kinds of weather . . . . . .

ATLANTIC COAST LINE—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

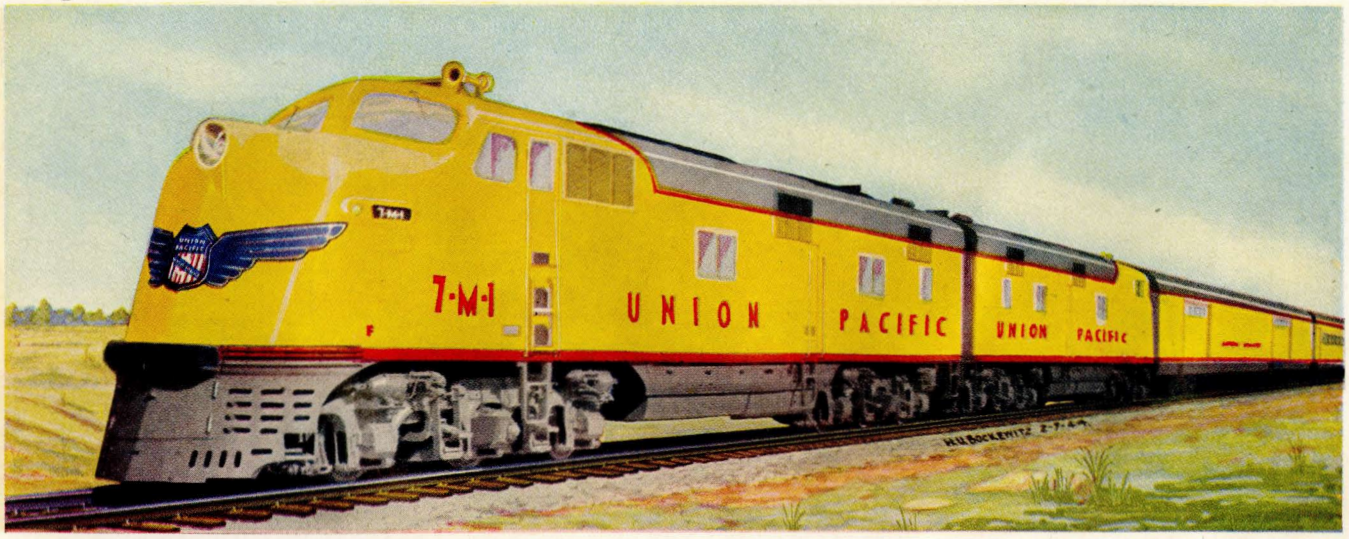
The pool of twenty-nine 2000 Hp. GM Diesel passenger locomotive units operated by the Atlantic Coast Line has been of great assistance in meeting especially difficult problems growing out of the heavy war load superimposed upon a peacetime passenger movement with high seasonal fluctuations. High availability and the flexibility features of the GM Diesel equipment have been thrown into great prominence in this situation. All of the featured trains of the ACL to Florida are operated behind GM Diesel power from Richmond, Virginia to their various southern terminals. Most famous of the several widely known ACL crack Diesel trains is the fleet of Champions, both deluxe Pullman and deluxe coach consists running to the east and west coasts of Florida from New York. Due to the location of many Army and Navy training centers along the route, the ACL is called upon for heavy troop movements which must dovetail into other military schedules. The ability of Diesels to keep closely to schedule has been of high usefulness in helping the railroad to discharge this responsibility.



FLORIDA EAST COAST—2000 H.P. DIESEL PASSENGER LOCOMOTIVE

Besides operating its own deluxe Henry M. Flagler in high speed service between Jacksonville and Miami, Florida, with GM Diesel power, the Florida East Coast maintains a pool of GM Diesel passenger locomotives for the joint operation with the Atlantic Coast Line of the famous fleet of Champions between Richmond and Miami on the New York to Miami run. Thus the FEC shares all the wartime problems of the long run down the coast made more serious by the concentration of Army and Navy training centers to take advantage of southern climatic conditions. Some outstanding records have been set by this fleet of GM Diesel passenger locomotives. Among them is the 95.7 percent availability mark set by six locomotives in 4,300,000 miles of operation. Locomotive No. 1002 in the Champion pool operated 22,000 miles a month for four years on 2,210 mile round trips, a total of one million miles without major overhaul. The Florida East Coast has placed an important order for additional GM passenger locomotives to increase the present Diesel service.

High availability with fewer "time-outs" for service . . .



UNION PACIFIC—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

The locomotive pictured here is one of the pool of GM Diesel passenger locomotives which the Union Pacific has in operation in the regular service between Denver and Kansas City. They round out the GM Diesel fleet which the Union Pacific operates jointly with the Chicago and Northwestern on the City of Denver, City of Los Angeles, and City of Portland trains and with the Chicago and Northwestern and Southern Pacific on the City of San Francisco trains. Here again the high availability, flexibility, economy, on-time dependability and ability to operate at sustained high speeds with safety stand out in regular passenger service as these advantages do in the more spectacular Streamliner service. The Union Pacific fleet grew out of America's first streamlined train, the City of Salina, with a distillate engine power plant designed and supplied by Electro-Motive. In addition to the thirty-one GM Diesel passenger locomotive units operating on the Union Pacific system, a fleet of thirty-six 1000 Hp. GM Diesel switching locomotives helps keep the heavy wartime freight tonnage of the UP moving.

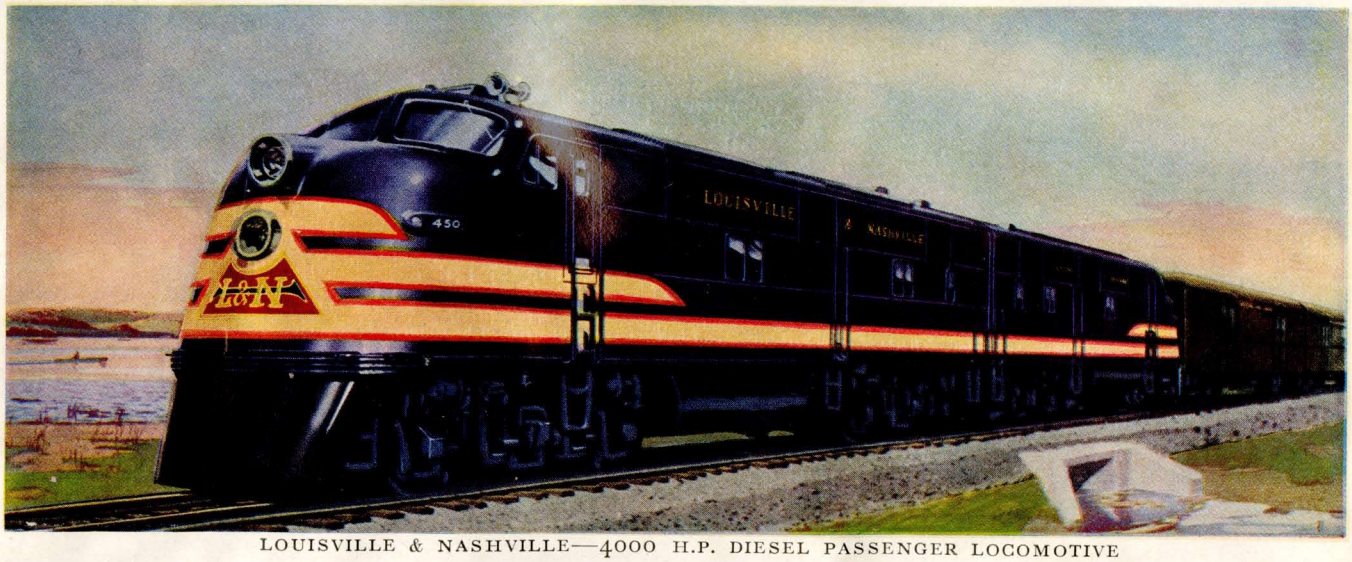
SOUTHERN—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

The Southern Railway uses GM Diesel passenger locomotives for its three crack trains linking the greatest cities of the Old South with the national capital. Two of these trains were created after Diesel mainline power was made available by Electro-Motive to serve special traveling needs that had become apparent as the Diesel motive power decade advanced. These trains are The Southerner, high speed streamlined deluxe coach train operating between New Orleans and Washington, D. C., and The Tennessean, streamlined Pullman train connecting Memphis and Washington. Co-incident with the appearance of these new trains in 1941, The Crescent, fast Pullman train between Washington and Atlanta, also was Dieselized. A high on-time record has marked the locomotive fleet since it was put into service, despite its severity, and the remarkable availability record of 96.4 percent of the eleven passenger units was established in the operation up to February 29, 1944. The total mileage amassed by the locomotives up to that date was 4,600,000.

Standardized parts with greater ease of service.

MILWAUKEE—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

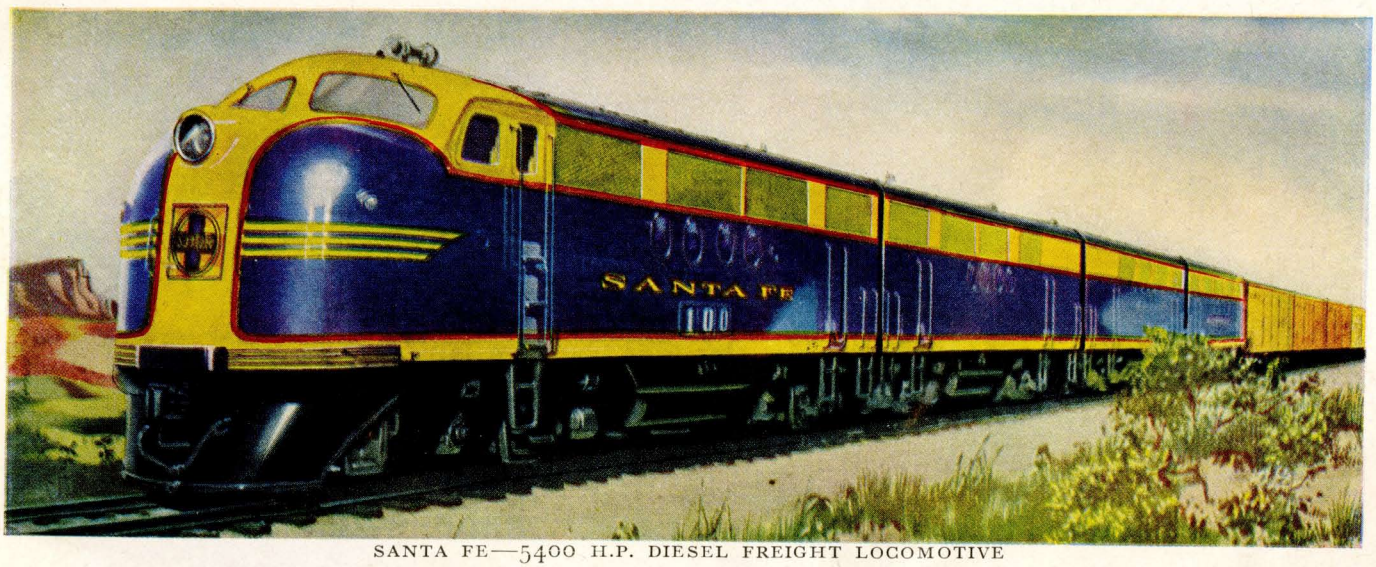
The beautiful Morning Hiawatha of the Milwaukee Road long has been known as one of America's most profitable passenger trains. A GM Diesel 4000 Hp. passenger locomotive was applied to its operation in September, 1941. This locomotive handled the fast schedule service between Chicago and St. Paul-Minneapolis with high availability continuously for two years and four months before major overhaul. It was kept in operation with only "running repairs" at terminals between trips. As in other trains operating in the severe winter climate conditions prevalent throughout the northern tier of states the record for on time performance, regardless of weather, traceable to the fact that operating efficiency of GM Diesels is not affected by outside temperatures has contributed heavily to the high favor in which travellers regard the Hiawatha. The Milwaukee is another of the growing list of railroads which now have Diesel coverage of all classes of service, using GM freight locomotives on a western run and being the owner of thirty GM Diesel switchers.



LOUISVILLE & NASHVILLE—4000 H.P. DIESEL PASSENGER LOCOMOTIVE

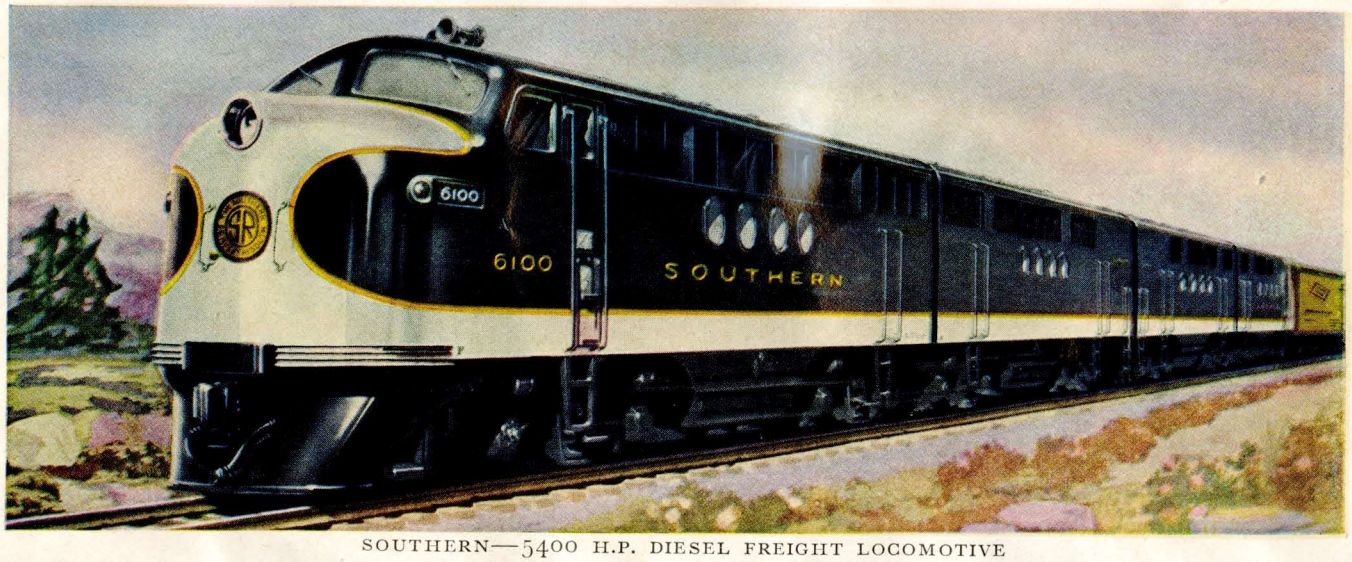
Because of the marked increase in normal passenger traffic and, in addition, the large number of trains required for the movement of our armed forces, the Louisville & Nashville, like many other larger railroads not having surplus heavy passenger power, was forced to haul these extra passenger trains with freight locomotives . . . The need for freight power became extremely critical, and to relieve this condition most expeditiously, the Louisville & Nashville placed in service eight 4000 Hp. General Motors Diesel road locomotives . . . These eight GM Diesels relieved the situation with a minimum expenditure of critical materials and with outstanding economy and operating efficiency. Performance of the eight GM Diesels made it possible not only to relieve the situation as to freight locomotives but also to release heavy passenger locomotives to help relieve the freight locomotive shortage. For example, from July to November of 1943, they operated at 100 percent availability. From May 1942 to April 1944, these eight passenger Diesels operated approximately 2,700,000 miles with an average availability of 98 percent.

GM Diesel Freight Locomotives provide . . . . . .



SANTA FE—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

Transportation history was made in April 1941, when the Santa Fe inaugurated the world's first main-line Diesel freight service. Because of the GM Diesel freight locomotive's ability to outperform any other type of freight locomotive, proven as the Santa Fe's Diesel fleet was rapidly increased, this motive power has from the start been assigned to the divisions where operating conditions were most difficult due to profile and traffic congestion. On one of the early trips, with no attempt for speed or tonnage records, Santa Fe No. 100 with a maximum of 68 cars (3,150 tons) made the 1761.8 mile run between Argentine, Kansas and Los Angeles in 54 hours, 35½ minutes running time—an average speed of 32.3 miles per hour. As of April, 1944, the Santa Fe has increased its total of GM freight Diesels in service to 184 units (with more to follow) to lead the world with 228 General Motors Diesel locomotive units, in all classes of service, totaling 309,900 Hp., with an accumulated mileage of well over 26 million and an availability record exceeding 91 percent. Locomotives on order will greatly increase the Santa Fe Diesel fleet.



SOUTHERN—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The Southern Railway System is one of the great arteries for the flow of vital war materials from the south and southwestern sections of the country. One of these vital materials is oil. Immediately upon delivery of the first of its fleet of eight 5400 Hp. GM Diesel freight locomotives, the Southern put it into the handling of these symbol oil trains through a section of the line that had been a bottleneck. As other Diesels on order became available they were thrown into this service with the result that the Southern established an enviable record for the rapid delivery of oil to the Eastern seaboard at a time when this was one of the nation's most pressing war needs. The Southern, at the time this was written, was using its GM Diesel freight locomotives on the mountain divisions between Danville, Kentucky and Oakdale, Tennessee, and between Chattanooga, Tenn. and Meridian, Mississippi, as well as from Alexandria to Monroe, Virginia. GM switchers, with the GM passenger locomotives described elsewhere in this brochure round out the Southern's rapidly growing Diesel service.

Increased tonnage hauling capacity . lower operating costs

GREAT NORTHERN—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

Movement of ore is one of the heavy war contributions of the Great Northern. Government demands required a great increase in tonnage moved from Butte to Great Falls, Montana. To move heavier tonnage required more powerful locomotives but the increase in the form of power then used would have required strengthening of bridges and other extensive alterations in the right of way. The problem was solved by putting 2700 Hp. GM Diesel freight locomotives on this job. Tonnage was increased without alteration of track, tunnels or bridges. Schedules also were speeded.

The Great Northern uses 5400 Hp. General Motors Diesel locomotives to speed up the movement of the long, heavy through freights on its mainline. The 5400 Hp. locomotive makes time not only going up the long grades due to its higher tractive effort but also on the down grade due to the ability to maintain higher down speed with safety through the use of the Electro-Motive development of the electric brake. The Great Northern also has a fleet of 47 GM Diesel switchers. The freight fleet has an average availability of 95.6 percent and switchers 94.8 percent.

MILWAUKEE—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The Milwaukee Road is noted throughout the railroad world for its two sections of electrified line in the Rocky and Cascade Mountains, totalling 656 miles. When originally installed, these two stretches of electrification cut many hours off of Milwaukee freight and passenger train operation between Chicago and Tacoma, Washington. Between the two electrified sections, however, there remained a 226 mile mountain division from Avery, Idaho to Othello, Washington, full of difficult operating conditions, such as grades and curves necessitating slow-downs. Wartime freight movement brought this situation into abnormal prominence and Milwaukee officials sought a way of eliminating it. They found the answer in two 5400 Hp. GM Diesel freight locomotives which now keep the heavy flow of freights moving between the two electrified sections without congestion and with such dispatch that if war need arises additional tonnage can be handled. The Milwaukee has placed an important additional order for GM locomotives for further expediting of freight movement.

Faster schedules with smoother handling of equipment . .

WESTERN PACIFIC—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

War more than doubled the normal volume of freight handled by the Western Pacific between Salt Lake City and the Pacific Coast through Feather River Canyon. Starting in November 1941 the Western Pacific received delivery of six 5400 Hp. GM Diesel freight locomotives which have been put into service wherever the job was most difficult in the mountain territory. These locomotives are credited by the Western Pacific with having materially aided it in meeting its tremendous war load. Up to February 29, 1944 the fleet had covered 834,525 miles. The locomotives were averaging 9149 miles per month, all in mountain service. They were regularly assigned to the difficult divisions between Oroville, California and Elko, Nevada; Elko and Salt Lake City, and Keddie and Bieber, California. On the basis of the outstanding improvement accomplished by the locomotives now in service, the Western Pacific has orders on file which will double their present fleet. The Western Pacific supplements the advantages gained by the use of GM freight locomotives by the use of GM switchers at several points.

DENVER & RIO GRANDE WESTERN—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The Denver & Rio Grande Western assigns General Motors Diesel freight locomotives to the heavy war tonnage movement on the mainline Moffat Tunnel route between Denver and Salt Lake City. This 570 mile line is widely known for its sharp curves and unusual number of heavy grades, due to the ruggedness of the terrain in the vicinity of the Continental Divide. In fifteen months of operation on this rugged route the first three 5400 Hp. GM Diesels to go into service handled tonnage 13.7 per cent faster than on previous schedules with an increase in availability of 36 per cent. The success of the earlier installations in this severe service led to the decision by this railroad to further apply the advantages of Diesel motive power. Nine 5400 Hp. GM locomotives were in service as of April 1944 with more to be added as war manufacturing conditions permit. This successful operation has been watched with unusual interest because so much of it is in high altitude. (*Moffat Tunnel, 9,238 feet.*) Due to certain features of their design GM Diesel engines are not materially affected by such altitude.

GENERAL MOTORS LOCOMOTIVES

Elimination of expensive supporting facilities . . . . . .

SEABOARD—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The torpedoing of coast-wise shipping, particularly petroleum, forced upon the railroads an enormous volume of "water traffic" in addition to the already unprecedented record volume of freight. The Seaboard route made it particularly susceptible to increased traffic from this cause, since it follows the Atlantic seacoast. GM Diesel freight locomotives were ordered to help meet the problem. The first 5400 Hp. locomotive was delivered in June 1942 and since then a total of eight have been put into service between Richmond, Virginia and Savannah, Georgia. Up to January 31, 1944 this fleet had covered 2,620,944 miles with outstanding records as to tonnage, speed and availability. The Seaboard already had been an important user of GM passenger and switching locomotives. These locomotives in all classes of service totalled a fleet of 62 units with 92,000 horsepower. The road locomotives alone had covered more than 25,000,000 miles of service by the end of February 1944, practically all of which called for superior performance over former power with respect to tonnage, speed and adherence to schedules.

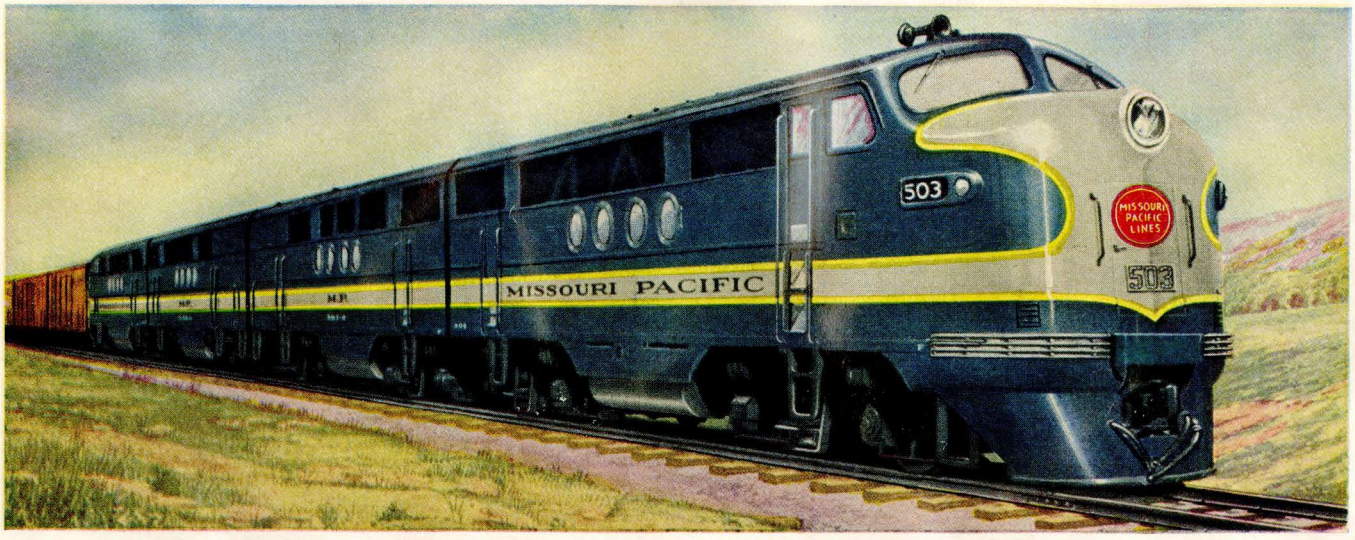
BALTIMORE AND OHIO—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The Baltimore and Ohio, the first eastern railroad to adopt Diesel passenger locomotives, again made history when one of their new 5400 Hp. General Motors Diesel freight locomotives hauled a solid train of 81 tank cars of oil—715,000 gallons—5300 gross tons—from Chicago to Philadelphia (Twin Oaks), Pa. . . . This was an unusually heavy through-rail shipment of oil and the entire run of 911 miles was made with the same locomotive. Five stops were made for customary crew changes and inspections, but at only two of these stops was it necessary to refuel the locomotive . . . Today (*April 1944*), six of these Freight Diesels are in service—three between Willard, Ohio, and Philadelphia—three between Cumberland, Md., and Washington, Indiana . . . These new GM Diesels have made it possible to release a considerably larger number of other heavy locomotives for important services elsewhere. Complementing GM passenger and freight Diesels are 35 GM Diesel Switchers with an accumulated mileage of more than 4,000,000 and with 96.1 percent availability.

Higher availability . . minimum service and repair time losses .

BOSTON AND MAINE—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

A new record for performance over the 186 miles between Boston and Mechanicville, N. Y., was recently established by the Boston and Maine on a regularly-scheduled freight train run—"B-M 5." The average load of this train is 3000 actual tons. One of their new 5400 Hp. GM Diesel freight locomotives, hauling 125 freight cars (*more than a mile of train*), totalling 3839 actual tons, made a non-stop run in six hours and twenty-five minutes as compared with the usual average run of approximately ten hours and requiring stops for water enroute. 28% More Tons—36% Less Time. Four of these freight Diesels are now (*April 1944*) in service with more to follow. Complementing Diesel road power are 16 GM Diesel switchers, the first of which went into service in August 1936. Up to April 1944, these switchers have operated well over three million miles with an average availability of 91 percent. In keeping with this national reputation, these switchers have contributed heavily to keeping up the flow of vital war freight through yards and terminals.



MISSOURI PACIFIC—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

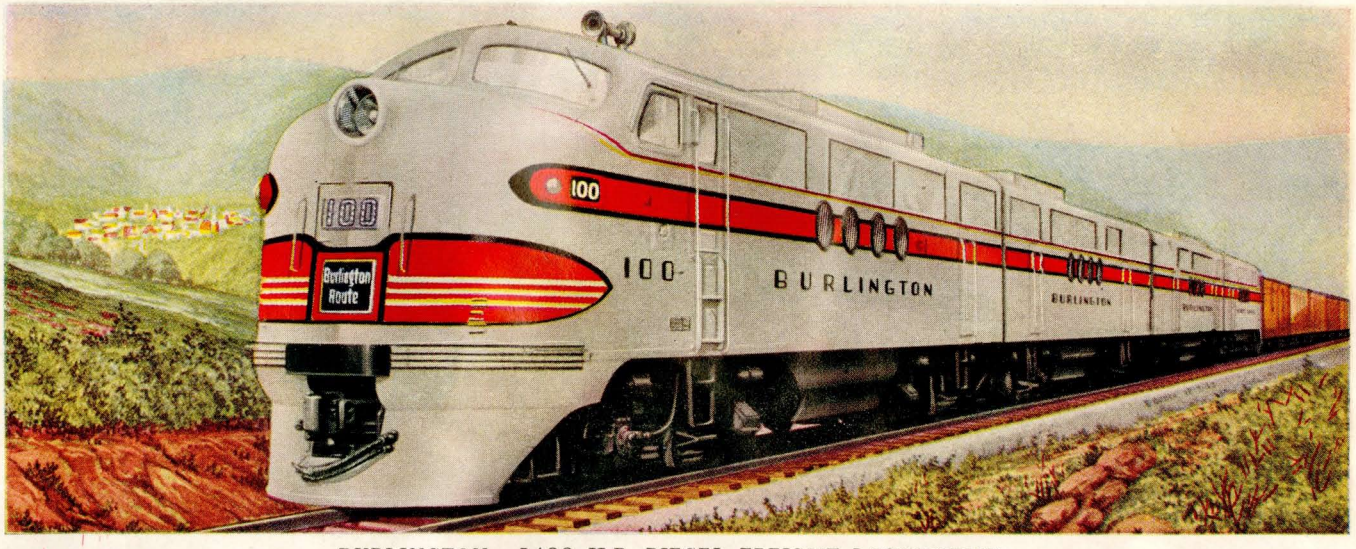
The Missouri Pacific is another railroad which has joined the ranks of those using triple GM Diesel motive-power service, with switching, passenger and freight locomotives in its fleet, which is to be greatly augmented when war conditions permit deliveries upon current orders. This railroad uses both 2700 Hp. and 5400 Hp. GM Diesel freight locomotives between Dupo, Illinois, and Texarkana, Texas, including the hard pull through the Ozarks. On a test run, a 5400 Hp. locomotive just delivered handled 7,064 actual tons, on the 515-mile run between Dupo and Texarkana. On another test run the same locomotive handled 6835 actual tons over the 515-mile route in eighteen hours and fifteen minutes less than the symbol train schedule for this mileage. Fifteen GM switchers complement the work which the freight locomotives are doing toward easing the war load upon Missouri Pacific equipment while seven passenger locomotives handle the road's famous fleet of Eagles in fast service between principal points with high availability, economy and on-time records.

GENERAL MOTORS LOCOMOTIVES

Increased carrying capacity on existing track facilities . .

ATLANTIC COAST LINE—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

Railroads operating along the southern sector of the Atlantic seacoast faced a peacetime problem of meeting high fluctuations in seasonal loads due to the fact that they link the North with vacationland Florida, plus serving a rapidly growing southern industrial section in the intermediate territory. The war superimposed upon the Atlantic Coast Line the increased freight traffic incident to the establishment of many Army and Navy training centers in the favorable southern climate plus the natural location of ports of embarkation and defense all along the coast. To help meet this situation, the ACL ordered GM Diesel freight locomotives which, as rapidly as conditions permit, are being delivered to augment the important fleet of GM Diesel passenger locomotives and switchers which the road already had in service. The ACL has been using its GM Diesel freight locomotives in the divisions between Waycross, Georgia to Richmond, Virginia; Waycross, Georgia to Jacksonville, Florida and in some operations between Jacksonville and Richmond, chiefly in the critical movement of perishable foods so badly needed in northern cities.



BURLINGTON—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

Diesel operation in all classes of service became a fact upon the Burlington Lines December 31, 1943 when the first of a large order of GM 5400 Hp. Diesel freight locomotives was delivered. A second and third followed shortly and others will be put in operation as war conditions permit. The locomotives were immediately assigned to the uphill operation between Lincoln and Denver this being the point wherein it was decided their ability to move high tonnage faster would be the most useful contribution to ultimate victory over the Axis. Others will be assigned in accordance with war freight movement needs as rapidly as they go into service. The freight movement is further assisted by the forty-three GM Diesel switchers which help keep yards clean at various points on the Burlington system. The 27 GM passenger locomotive units complete the Burlington's Diesel fleet. The Burlington's Diesel freight locomotives are equipped with the Electro-Motive development of the electric brake which is proving a factor in eliminating delays on long grades.

without costly alterations of existing rails, bridges or tunnels

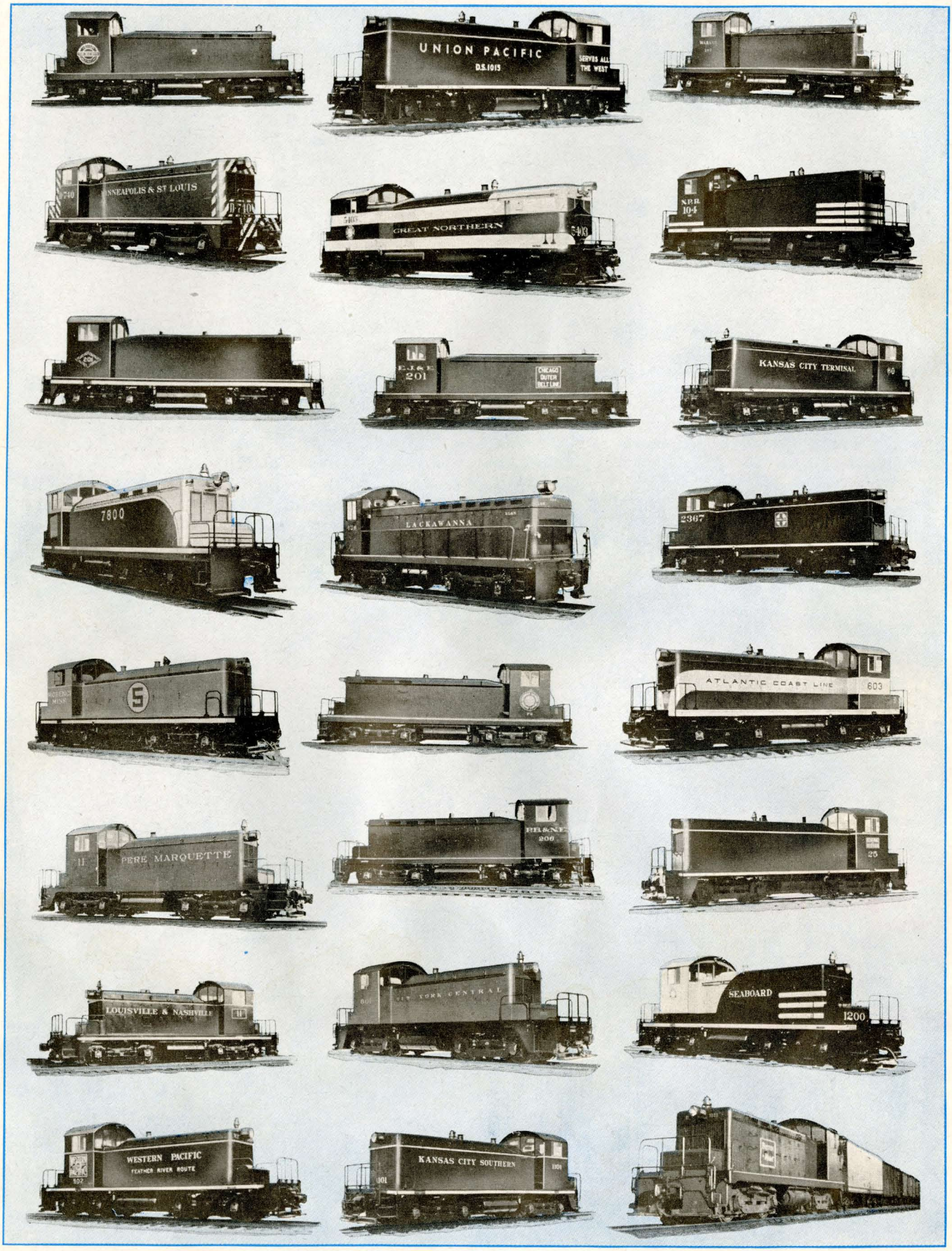
NORTHERN PACIFIC—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The handling of long heavy tonnage battle-destined freight over single track mountain grades is one of the pressing wartime problems of many American railroads. These grades are one of the most serious bottlenecks. Practically all railroads with such a problem which have received delivery of GM Diesel freight locomotives during the war have immediately assigned them to such difficult spots. The ability of these locomotives to not only get the tonnage up the grades faster but also to take them down in less time due to the several advantages of the Electro-Motive development of the electric brake recommends them for this service, along with their outstanding superiority in operation upon level profiles. In keeping with this general trend the Northern Pacific which has just recently received delivery of the first two of its order of 5400 horsepower GM Diesel freight locomotives has put them to work in the division between Mandan, North Dakota and Glendive, Montana. The Northern Pacific already was a long-time user of GM Diesel switching locomotives.

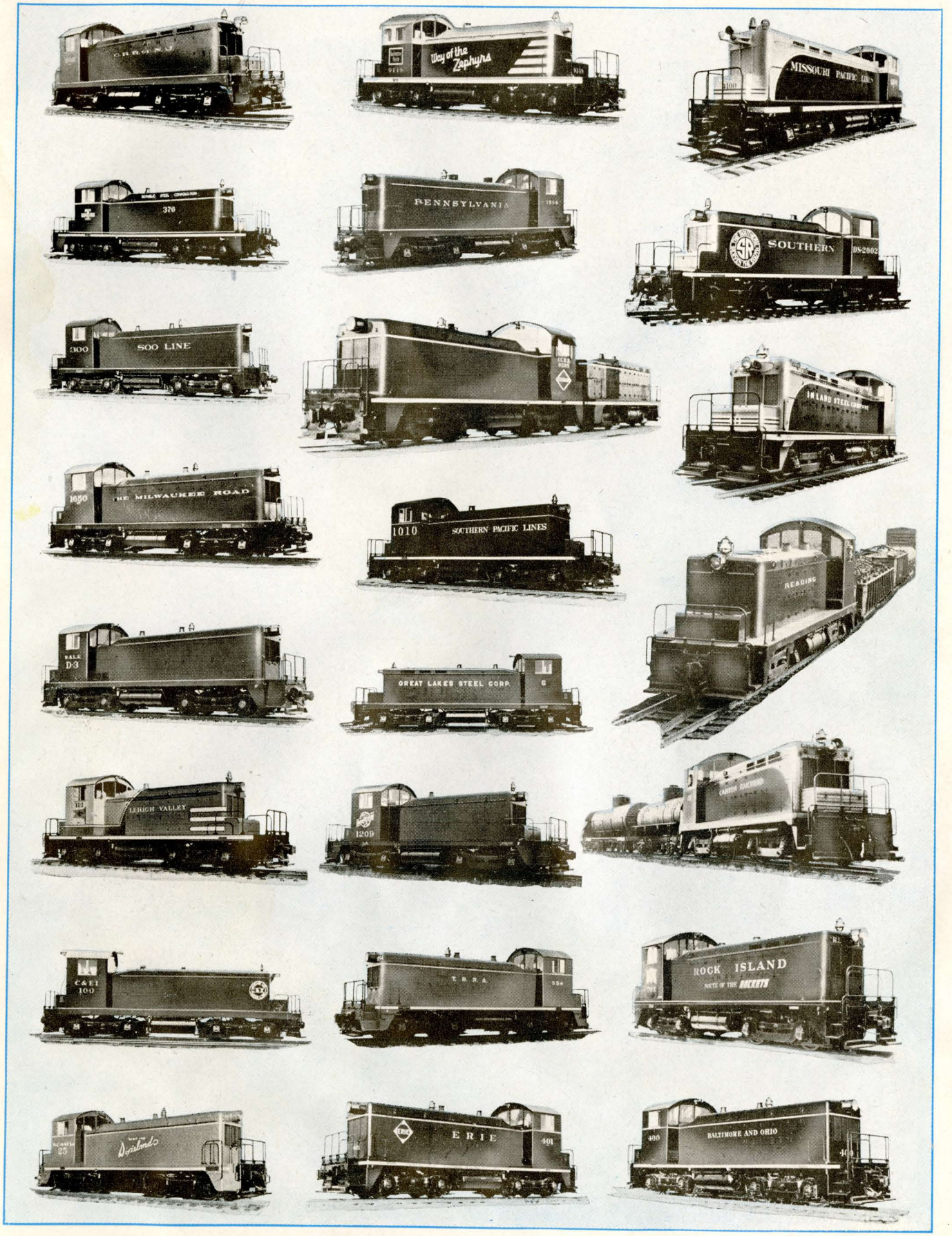
ROCK ISLAND—5400 H.P. DIESEL FREIGHT LOCOMOTIVE

The Rock Island was one of the early roads to adopt GM Diesel power for passenger trains, following this move with extensive utilization of GM switchers in yard service at several points on the system. The Rock Island has moved to complete coverage of all classes of service with representation in Diesel motive-power with a heavy order of 5400 Hp. GM Diesel freight locomotives for assistance in handling its heavy war lading between the Middle West and far western points and in preparation for more efficient operation in the post-war period. Nine of these freight locomotives are to go into service as fast as war conditions permit their construction, and they are expected to maintain the reputation of GM Diesel power on this road established by the performance of the passenger locomotives on the Rockets and the switchers in yard service. Up to April 1944, the forty-five switchers had turned in over 9,000,000 miles with an average availability record of 92.5 percent while the fifteen passenger units had traveled fifteen million miles on the fastest passenger schedules on the road.

GM Diesel Switchers . . the perfect complement to GM Diesel road



locomotives . . speed up yard movements . . cut terminal delays



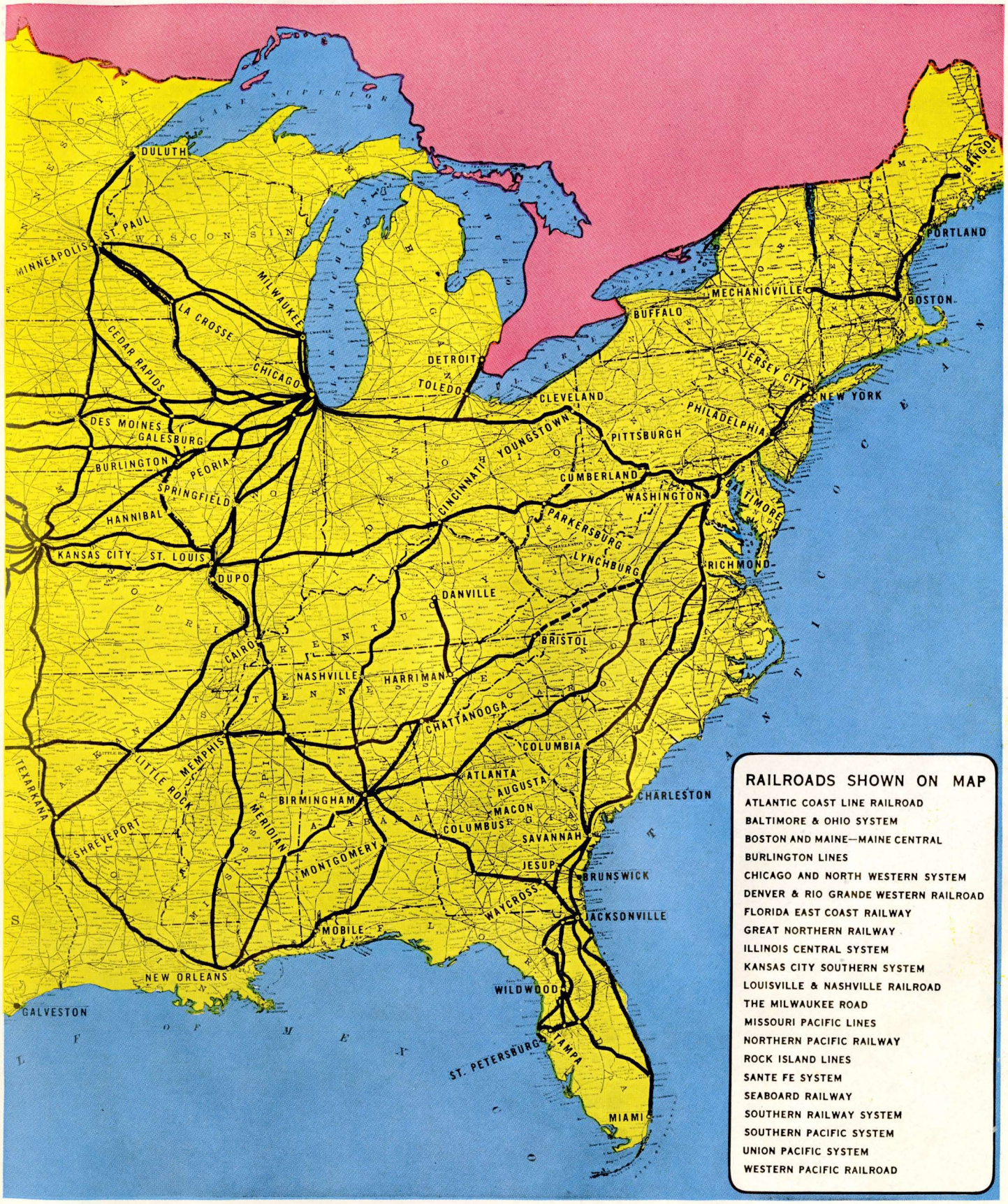
ROUTES OF

GENERAL MOTORS LOCOMOTIVES

DIESEL-POWERED

FREIGHT AND PASSENGER TRAINS

. . A nationwide net-work of high speed transportation



RAILROADS SHOWN ON MAP

ATLANTIC COAST LINE RAILROAD
BALTIMORE & OHIO SYSTEM
BOSTON AND MAINE—MAINE CENTRAL
BURLINGTON LINES
CHICAGO AND NORTH WESTERN SYSTEM
DENVER & RIO GRANDE WESTERN RAILROAD
FLORIDA EAST COAST RAILWAY
GREAT NORTHERN RAILWAY
ILLINOIS CENTRAL SYSTEM
KANSAS CITY SOUTHERN SYSTEM
LOUISVILLE & NASHVILLE RAILROAD
THE MILWAUKEE ROAD
MISSOURI PACIFIC LINES
NORTHERN PACIFIC RAILWAY
ROCK ISLAND LINES
SANTE FE SYSTEM
SEABOARD RAILWAY
SOUTHERN RAILWAY SYSTEM
SOUTHERN PACIFIC SYSTEM
UNION PACIFIC SYSTEM
WESTERN PACIFIC RAILROAD

GENERAL MOTORS DIESELS

Cover the Field of Railroad Motive Power

FREIGHT *5400 Hp. Diesel Locomotive*

This Diesel Freight Locomotive consists of two cab sections and two booster sections arranged for double end control from either cab, each being equipped with one General Motors, sixteen cylinder, V-type, 2 cycle Diesel engine having a bore of 8½", stroke 10" with unit injection system, rated at 1350 Hp. at 800 R.P.M., and developing a total of 5400 Hp. Each engine is direct connected to a D.C. generator, the current of which is distributed to the traction motors mounted on the trucks which in turn are geared to the axles. There are a total of eight 4-wheel trucks under the four sections comprising this locomotive, each being equipped with two traction motors or a total of sixteen motors.

Length	*193'-0"*	*Height*	*15'-0"*	*Traction Horse Power*	*5400*
Width	*10'-6⅛"*	*Weight*	*900,000 lbs.*	*Tractive Effort*	*225,000 lbs.*

PASSENGER *4000 Hp. Diesel Locomotive*

This Diesel Passenger Locomotive consists of one cab section and one booster section, each being equipped with two General Motors twelve cylinder, V-type, 2 cycle Diesel engines having a bore of 8½", stroke 10" with unit injection system, rated at 1000 Hp. each, developing a total of 4000 Hp. Each engine is direct connected to a D.C. generator, the current of which is distributed to the traction motors mounted on the trucks which in turn are geared to the axles. There are a total of four 6-wheel trucks under the two sections comprising this locomotive, each being equipped with two traction motors or a total of eight motors. Engines in the booster unit are arranged for multiple control from the operator's cab.

Length	*141'-0"*	*Height*	*14'-0"*	*Traction Horse Power*	*4000*
Width	*10'-7"*	*Weight*	*616,000 lbs.*	*Tractive Effort*	*110,000 lbs.*

SWITCHER *1000 Hp. Diesel Locomotive*

This locomotive is powered with one General Motors, twelve cylinder, V-type, 2 cycle Diesel engine having a bore of 8½", stroke 10" with unit injection system rated at 1000 Hp. The engine is direct connected to a D.C. generator, the current of which is distributed to the traction motors mounted on the trucks which in turn are geared to the axles.

Length	*44'-5"*	*Height*	*14'-6"*	*Traction Horse Power*	*1000*
Width	*10'-0"*	*Weight*	*248,000 lbs.*	*Tractive Effort*	*62,500 lbs.*

600 Hp. Diesel Locomotive

This locomotive is powered with one General Motors, six cylinder, V-type, 2 cycle Diesel engine having a bore of 8½", stroke 10" with unit injection system rated at 600 Hp. The engine is direct connected to a D.C. generator, the current of which is distributed to the traction motors mounted on the trucks which in turn are geared to the axles.

Length	*44'-5"*	*Height*	*14'-4⅝"*	*Traction Horse Power*	*600*
Width	*10'-0"*	*Weight*	*198,000 lbs.*	*Tractive Effort*	*50,000 lbs.*

GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION • LA GRANGE, ILLINOIS, U.S.A.