

One of the TWIN
Zephyrs
for the
TWIN
CITIES

Burlington's
Streamline
Motor Trains

Diesel
Powered

Built of
Stainless Steel

BY THE

CHICAGO — ST. PAUL — MINNEAPOLIS

EDW. G. BUDD MFG. CO.



The Zephyr Twins.

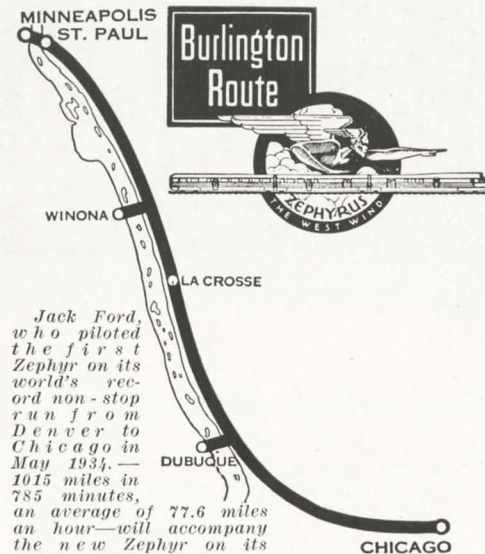
ing provide scientifically diffused illumination of just the proper intensity at eye level.

The Zephyrs are air-conditioned by a special system that supplies filtered and washed air to all passenger compartments. Automatic thermostat control provides the proper degree of warmth or coolness the year around, and forced ventilation results in a complete change of circulation every two minutes. The perfect functioning of the air-conditioning system is aided by hermetically sealed windows of shatter-proof glass having an air chamber between double panes to preclude frost and condensation, and to afford insulation against heat, cold and sound.

Special compartments for hand baggage supplement luggage racks overhead and under the seats.

All passenger compartments are equipped for radio reception.

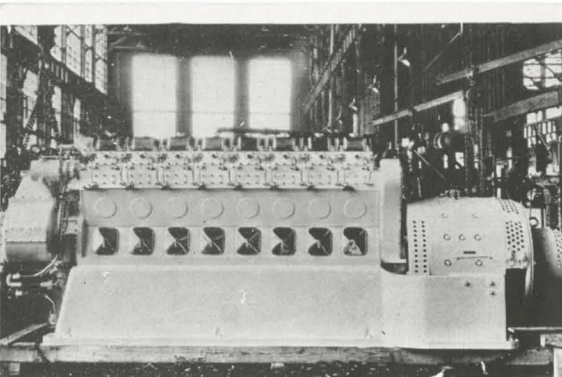
The Zephyrs are capable of a cruising speed exceeding 100 miles an hour. The rate of acceleration is so high that a speed of 60 miles an hour can be attained in less than a minute and a half from a standing start. Obviously the matter of deceleration from high speeds is of the utmost importance and has a vital relation to safety in operation, and also to the fast schedules which the trains will be called upon to maintain. The Zephyrs have a marvelous system of electro pneumatic brakes especially developed by Westinghouse for such high speed articulated trains.



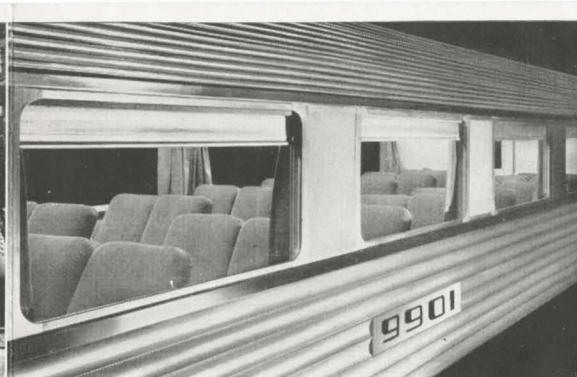
Jack Ford, who piloted the first Zephyr on its world's record non-stop run from Denver to Chicago in May 1934. — 1015 miles in 785 minutes, an average of 77.6 miles an hour—will accompany the new Zephyr on its Southern trip.

One of the new Twin Zephyrs will make an afternoon run every day from Chicago, 431 miles northwestward to St. Paul in 6½ hours, and 441 miles to Minneapolis in 7 hours, as the other Twin makes the afternoon run in the opposite direction in the same running time.

The route lies directly alongside the upper Mississippi River for almost three-quarters of the whole way through a region of rare charm embracing some of the best woods and water landscape in America. This part of the Burlington system is well known not only for its scenic attraction, but also as one of the best pieces of railroad track to be found anywhere. For in all its 300 miles alongside the big river, there is not a place where the track grade exceeds one-quarter of one per cent—a true and notable “Water Level Route.”



The power plant.



Views of the passenger compartments.



The solarium lounge.

HERE IS ANOTHER ZEPHYR

It is almost an exact counterpart of the first, the wonder train of 1934.

This is one of the heralded new "Twin Zephyrs for the Twin Cities" which will enter service in April over the Burlington between Chicago, St. Paul and Minneapolis. It is making a leisurely demonstration and exhibition tour from Philadelphia to Miami under the auspices of the Edw. G. Budd Mfg. Co. which built the train, the *Electro-Motive Corporation which built the Diesel engine that generates the motive power, and of the Burlington Railroad.

Like the first ZEPHYR which proved such a sensation, the "Twins" are self-propelled, light-weight, three-car assemblies of stainless steel with bullet-shaped front and rear, and satin smooth longitudinal surfaces. Aside from giving it grace and beauty, its streamline design has an extremely important scientific relation to speed and fuel economy, wind tunnel tests by the Massachusetts Institute of Technology having showed that at 95 miles per hour its streamline reduces "drag" or wind resistance to motion by more than 50%.

Its structural material is known as 18-8 stainless steel, a modern non-corrosive alloy consisting of 18% chromium and 8% nickel, that has a tensile strength three times greater than ordinary steel.

In its construction the parts instead of riveted are welded together by an electric method developed by the Budd Mfg. Co. known as *shot weld* which results in "vulcanized" joints and seams which have proved as strong as the metal itself.

The ZEPHYRS run by electric power generated by a 660-horse power, 8-cylinder, 2-cycle Diesel engine designed especially for this type of train by General Motors. It burns ordinary fuel oil and has no spark plugs or ignition system of the sort used in gasoline

engines, combustion being accomplished wholly through high compression.

The trains are 197 feet long and have seats for 88 passengers. They are designed for high speed daytime travel, and weigh only 227,000 lbs. which is not very much more than the weight of a single Pullman car.

The Zephyrs ride on articulated trucks equipped with roller bearings, and have only 16 wheels as against the 44 to 48 wheels of a conventional train consisting of steam engine and two cars. The front part of one car and the rear of the preceding one rest upon the same truck and are held together by a sleeve joint which permits them to round the curves efficiently, but yet eliminates slack between the cars and really unifies the entire train.

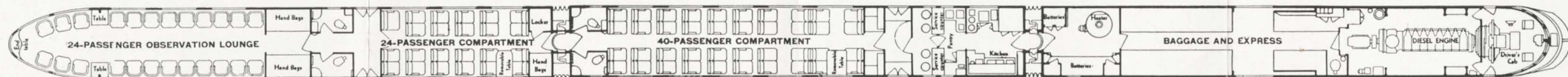
Aside from the big Diesel engine, the first car has floor and wall space for baggage, express and mail. The fore part of the second car contains kitchen, chef's pantry, and a service counter with seats for four. Next are sixteen seats grouped in "foursomes" facing

tables that can be set up at meal time and removed afterward. 24 additional chairs give this car seats for a total of 40 passengers. The forward half of the third car has coach seats for 24, while the rear half is a stunning solarium lounge with detached chairs for 24 more.

All the seats on the Twin Zephyrs will be reserved and sold by number.

Meals are prepared in the electric kitchen fitted with accessories of stainless steel, and will be served to all passengers upon trays than can be bracketed to each chair.

Ultra modern standards govern the design and color treatment of the interior. Pastel tints of green, blue and grey for the side walls and ceiling form a light and pleasing background for the flash of the stainless steel window frames, sills and trim. Aisle carpets and fine rugs of harmonizing hue, silk glass curtains, duotone chair fabrics, make the Zephyr as luxuriously modern as the moment. Reflected lighting from tubular ducts in the ceil-



*New Railroad Division of General Motors.