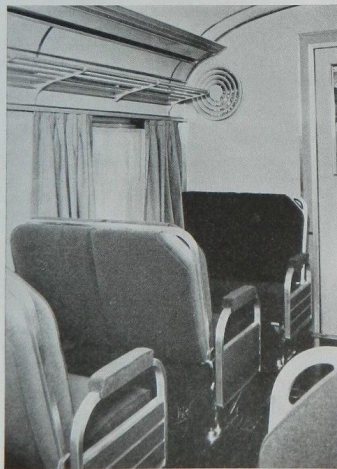
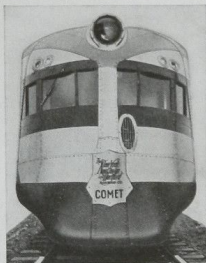


Two Views of the New Haven "Comet"

The New Haven's "COMET"

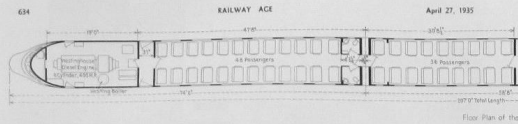


Arrangement of Seats, Draperies, Luggage Racks and Grille

WITHIN the past week there has been delivered to the New York, New Haven & Hartford an articulated three-car, high-speed streamline train to be known as the "Comet" which, after a series of exhibition runs, will be placed in service early in June between Boston, Mass., and Providence, R. I. The Comet is the first American train built with Diesel power plants at both ends of the train. It was designed and built by the Goodyear-Zeppelin Corporation, Akron, Ohio, in collaboration with the New Haven.

Unlike its predecessors in the field of light-weight, high-speed streamline trains, the Comet was built for a special service—to furnish rapid, frequent transportation between two New England points a short distance apart, in a territory of dense traffic where turn-arounds were not possible. For this reason the double-end design was selected and all of the space in the train not used for power plants is arranged to accommodate only coach passengers on a journey involving less than an hour.

The Comet's tentative schedule calls for five round trips between Boston and Providence each 24 hours, starting at Providence at 7:30 a.m. and finishing the day at Boston at 11 p.m. The schedule calls for making the actual distance of 43.25 miles in 44 min. in each direction,



Floor Plan of the

on vestibule doors, walls and ceilings. The door frames and the panels below the window sills to the side-wall heating ducts are a dark tan and the duct itself is finished in brown. Clear varnish is used on all extruded moldings, inside window frames, baggage racks and all bare or unpainted surfaces. The trucks, end sills, outside end walls and engine bed are finished in grey and the walls and structure in the operator's cabs are finished in grey enamel with black enamel for instruments and apparatus.

The floor covering in the passenger compartments is a continuous rubber covering which is brown in tone. The seats are of the "walk-over" type, furnished by the Sterling Fibre Company, with aluminum frames and malleable securing parts. The seat cushions are one-piece and the back cushions are divided as far as the cushion springs are concerned. The rust-colored mohair upholstery was furnished by the Massachusetts Mohair Upholstery Company. The appearance and the color of the seats dominate the compartment interiors.

The draw curtains over the windows are suspended from carriers which are closely related in design and appearance to the rest of the interior. The curtains are somewhat lighter in color than adjacent chair upholstery. The reverse side of the window drapes, facing the outside of the car, is a rich ultramarine blue, matching the blue belt of the exterior at the window level.

To provide for lighting the train, careful studies were made with the object of obtaining the most uniform light distribution possible. Indirect lighting was adopted, employing 25-watt, S-17 lamps, placed 10 in. apart in troughs which run the full length of the passenger compartments, along either side of the car above the air-distribution outlets. The troughs are made of aluminum alloy, the inner surfaces of which are covered with a special highly reflective, but softly diffusing, aluminum sheet. The light is further diffused and distributed from the ceiling.

Good reflective factors from ceiling and side walls are

obtained by a ceiling finished in dead-flat, pink-white enamel, and side walls in three shades of tan. An illumination of from 6 to 8 foot-candles is obtained on a 45 deg. plane 33 in. above the floor.

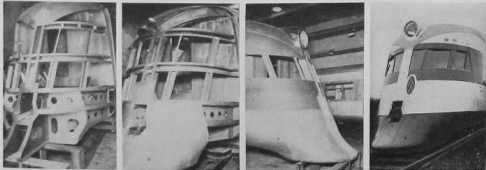
Structural Features

The Comet deviates from standard car construction in several fundamental features in that instead of being built on the center sill on truss principle it is constructed as a tube with flat sides and well arched roof and bottom and with shear and compression stresses absorbed by the outer sheets. This principle was used because of the fact that in bending and torsion the placing of the stressed material in the outer fibers of the tube circumference makes it possible to employ the metal most effectively.

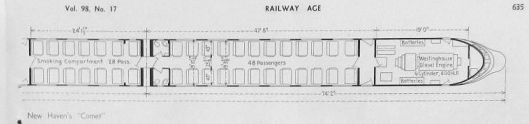
In place of the center sill and other longitudinal framing of the conventional train, four longitudinal tubular members run the entire length of each car at the four corners of the cross-section. They are held in place by the roof carlines, side posts and floor, and at the end of each car are connected by bulkheads rigidly cross-braced to transmit the stresses to the articulated connections.

The tubular construction employed places most of the material in the outer shell, and since the strength members are located at the greatest possible distance from the center of gravity of the cross-section and the maximum moment of inertia is obtained, the deflection in the fully loaded cars is said to be less than $\frac{1}{16}$ in.

With weight reduction and safety paramount factors in the design of the Comet, aluminum was selected as the main structural material. The resistance of aluminum to the corrosive conditions encountered on the sea-coast lines of the New Haven was also a factor in the selection of the material. The metal was furnished by the



The Nose is a Sturdy Structure with Contour and Finish Blending to Present an Attractive Color Scheme



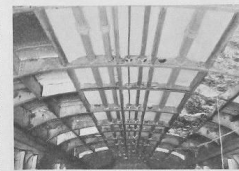
New Haven's "Comet"

Aluminum Company of America and this company cooperated with the car builder in developing the necessary extruded shapes. The four longitudinal tubular members are formed from extruded sections, except for the curved outer portion for which sheet is used. The carlines, floor cross-beams and horizontal connecting members are formed sheet.

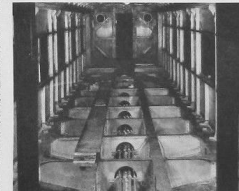
Aluminum castings are employed in many places throughout the superstructure, particularly as a reinforcement for the lower longitudinal tubular members and in order to change the cross-section of the power car from the normal cross-section of the cars to the larger cross-section of the engine room. Aluminum castings are used in the construction of the power plant and control apparatus and for many decorative purposes in the car interiors. The aluminum sections are assembled by means of aluminum rivets, driven cold. The rivet alloy was selected after a series of tests at the Goodyear-Zeppelin plant in Akron. The Comet is the first train which has been built with aluminum rivets throughout.

The four longitudinal tubular members are tied into heavy welded-steel end sills through the end bulkheads. These longitudinal members are so designed that it is possible to place the doors at any point on the sides of the cars, except over the trucks, and, in the case of the Comet, the center of each car was considered the most desirable location. The center vestibules are formed by two strong diagonally braced bulkheads, while diagonal members provide lateral rigidity at the corners of the end bulkheads and help carry the stresses of shock up into the circumference of the tubular car body. Since the shear is least at the center of the car the shear deflection is reduced appreciably by placing the door at this point. The doors and folding steps, pneumatically operated, are flush with the outer contour of the train when closed.

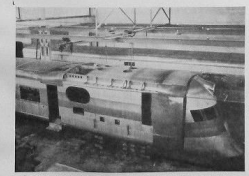
The underframe is formed by connecting the two lower longitudinal tubular members with transverse floor



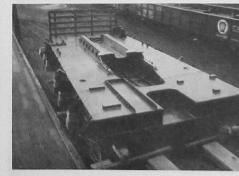
Roof Structure Showing Center, Conduits and Insulation



Structural Interior—Side Members, Underframe and Struts



Construction View Showing Tubular Member Without Shattering



The Engine Bed is a 19-Foot Fabricated Member