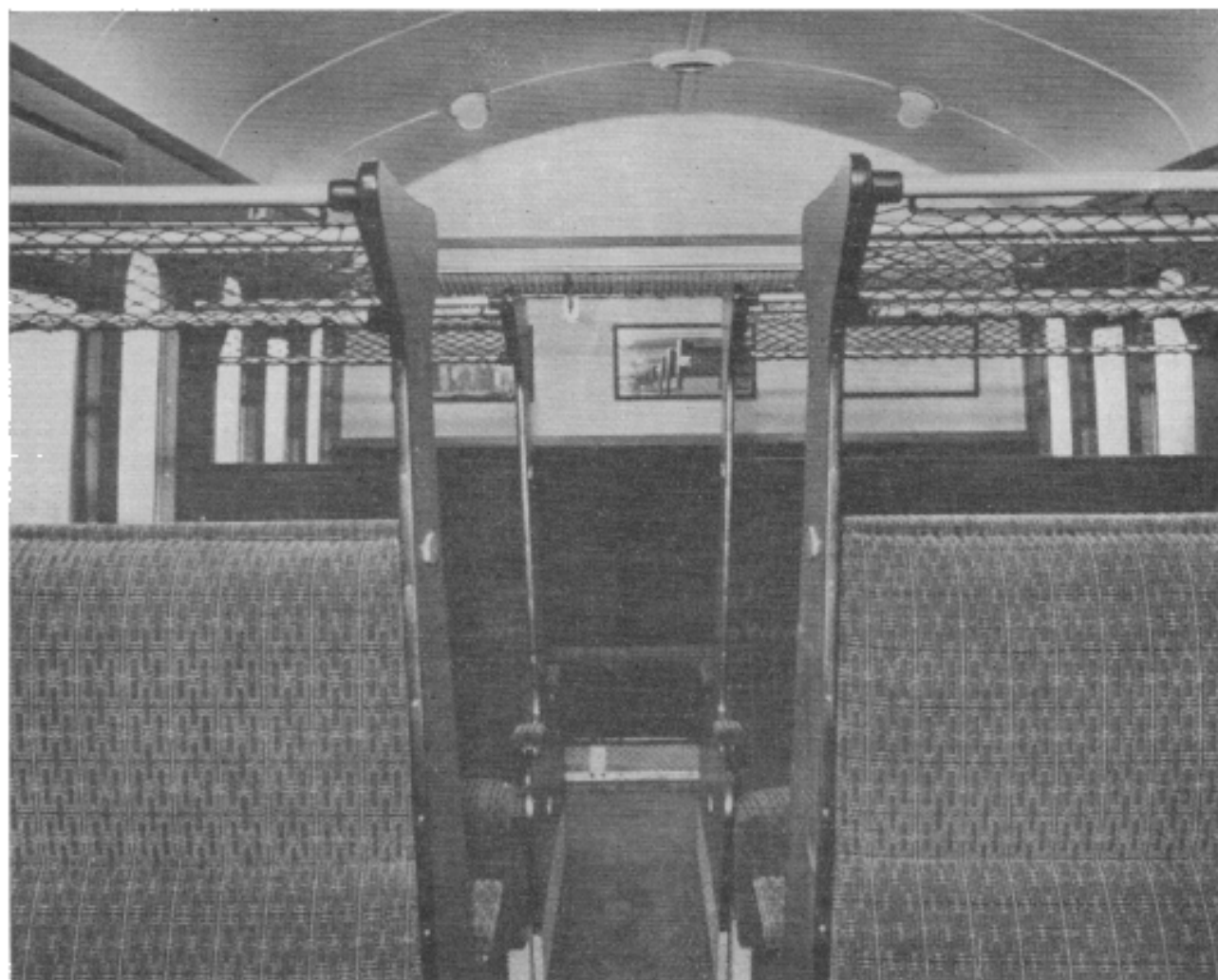


Two-Car Electric Units for Tyneside and Southern Region



Third class open saloon in one of the new two-car sets

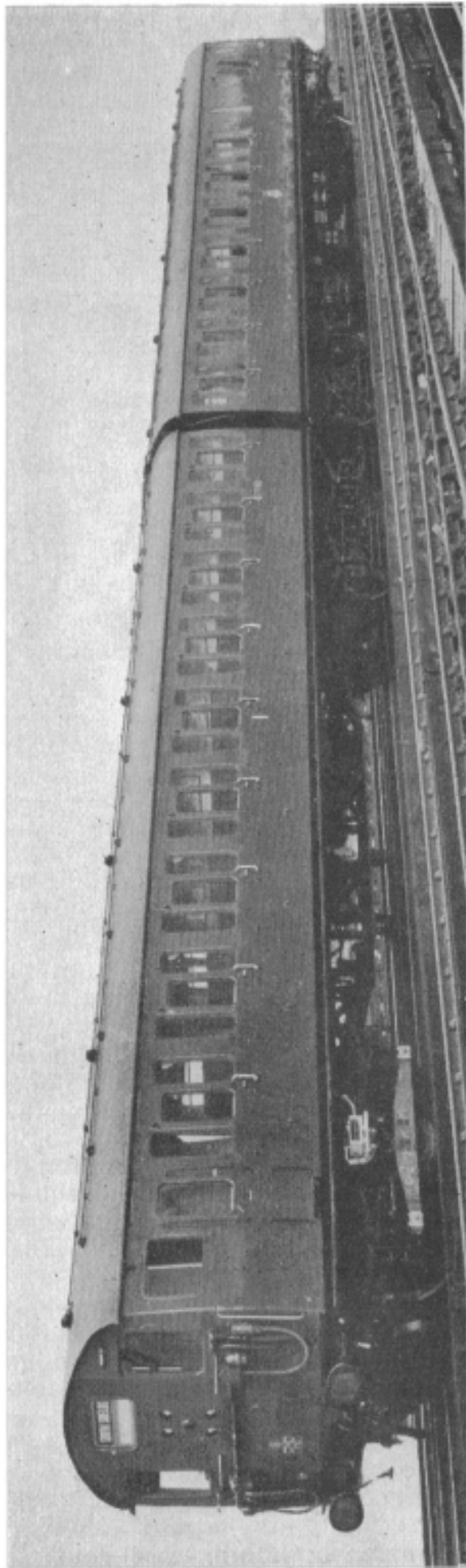
FIFTEEN new two-car units, built at the Eastleigh carriage works of the Southern Region, are being placed in service by the North Eastern Region on the South Tyneside electrified line. Basically, they are similar in design, particularly in regard to underframes, bogies, and fittings, to recent Southern Region two-car electric suburban units used, with two four-car units, to make up ten-coach trains.

The South Tyneside stock has a somewhat larger guards compartment and luggage space in the motor coach, and a first class compartment is provided in the driving trailer coach. Seating accommodation is provided for 172 passengers, 74 in the motor coach and 98 in the trailer car.

In the Southern Region stock, which provides third class accommodation only, the motor coach comprises two open

saloon portions, and the driving trailer coach has four compartments with the remaining portion of the coach an open saloon. Seating is provided for 186, with ample room for standing. The accommodation resembles very closely that of previous Southern Region suburban electric stock, which has proved so suitable to the requirements of that region.

The general construction of the body and roof framing is similar to that of the British Railways standard main-line steam stock coaches, which enables many standard components, such as body pillars, cantrails, and roof members to be used, so avoiding the necessity for provision of new press tools and construction jigs. All outside passenger doors are timber framed, steel-panelled, British Railways standard type, and are fitted with drop windows, inside actuating



Two-car electric suburban unit built at Eastleigh for the South Tyneside line of the North Eastern Region

locks, and hinges of the self-aligning, ball-seating type.

Many standard fittings are also used in the interior of the coaches, and wherever possible other standard B.R. main-line steam stock components have been adapted to meet the requirements of non-gangwayed suburban electric coaches.

The saloon seat ends are inclined from the floor towards the body sides, thus forming a centre gangway with maximum possible width at shoulder height and yet providing the widest possible seating room. This is arranged for two and three passengers either side of the gangways, with seating for six passengers at each transverse partition.

The seat and seat back frames are of aluminium sections with lace web interior springing. Parcel racks of aluminium castings and tubes, with special quality netting, are provided over seat backs and on transverse partitions. Electric heaters are fitted under all seats, with protection grids to prevent litter from accumulating round the heater.

The ceilings and transverse partitions above seat backs are finished in decorative plastic panels; the remaining interior panelling is of decorative veneers. The floor is constructed of multi-ply timber panels carried on pressed-steel framing members welded to the underframe, the whole being covered with linoleum.

The underframes are the British Railways standard all-welded type with deep main longitudinal centre girder and cantilever transomes to the 7 in. \times 3½ in. channel solebars. This type of underframe, without side truss angles, provides easier access to the electrical equipment underneath the coach and enables the frames to be built in existing jigs used for the construction of British Railways standard steam stock.

Buckeye drophead, automatic couplers are fitted to the outer ends of the two-coach unit, with retractable side buffers for emergency use; the coupling between the two coaches is standard Southern Region centre buffer with three-link coupling; all underframes are similarly equipped.

Westinghouse electro-pneumatic brakes are fitted, each coach being equipped with one brake cylinder with slack adjuster. The brake rigging is partly compensated, adjustable, and fitted with

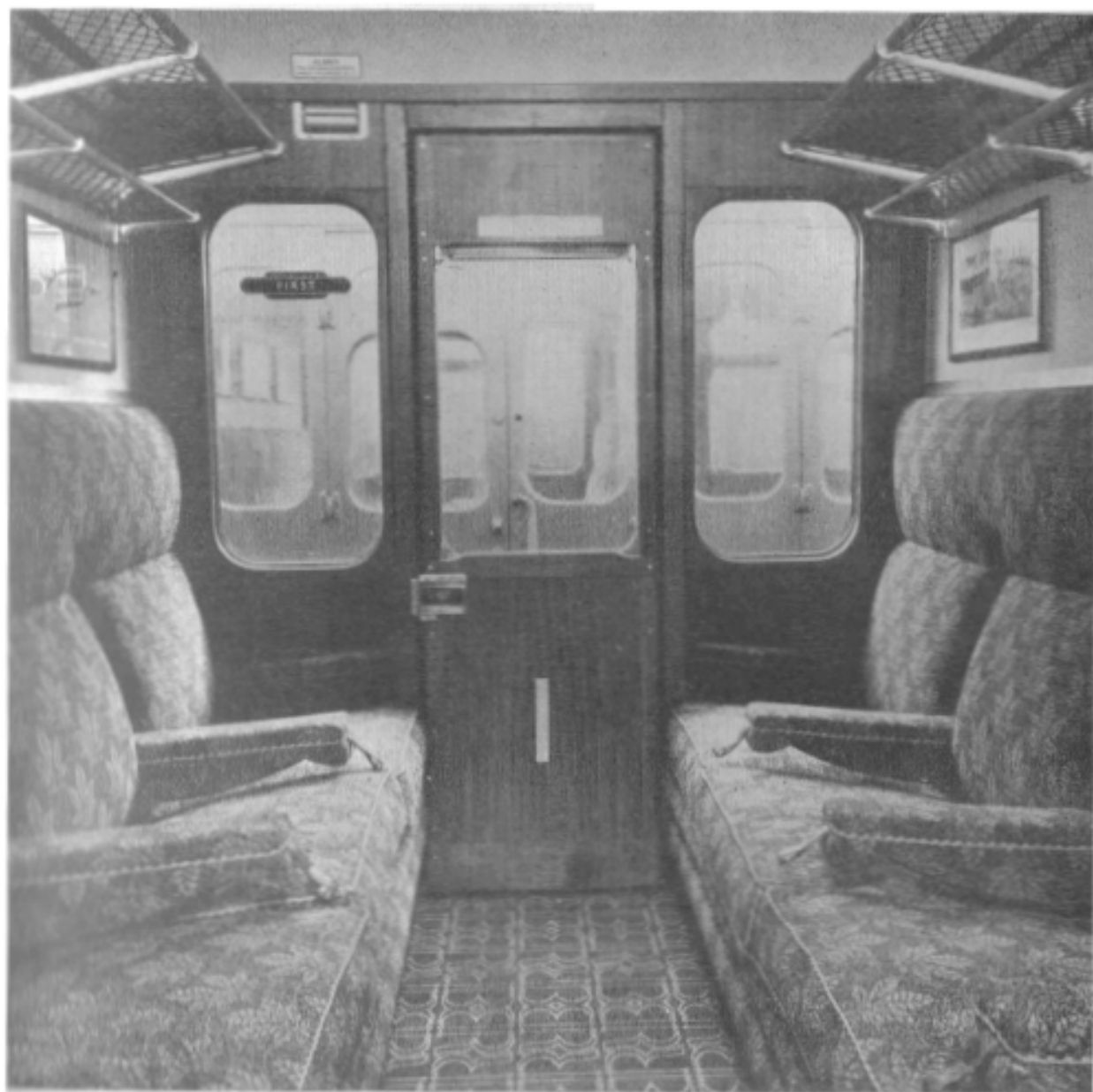
cast-iron refill brake blocks. To enable units to be quickly and easily coupled and uncoupled from platform level, the brake train pipe end hose connections and the electric power jumper connections are duplicated on the outer ends of each unit.

Both motor and trailer bogies incorporate the principal design features of that adopted as standard for B.R. main-line steam stock, but with a single centre bolster suspended from inside the bogie frame. The motor bogie is mounted on 3 ft.-4 in. dia. wheels, one lightweight motor being fitted on each motor axle, with the motor nose resting on a rubber block carried on a bracket welded to the bogie transom.

The trailer and driving trailer bogies are fitted with standard 3 ft.-6 in. dia.

wheels and axles with 9 in. \times 4 $\frac{1}{2}$ in. journals; the journal size for the motor bogie is 10 in. \times 5 $\frac{1}{2}$ in. The motor bogie axleboxes are of cast steel and those for driving trailer and trailer bogies are of fabricated mild-steel construction. All bogie axleboxes, horn cheeks, and bolsters are fitted with manganese-steel wearing plates. The motor bogie is fitted with nine plate, laminated side bearing springs, and the trailer and driving trailer bogies with seven plate springs.

A particular feature of the new two-car units is the accommodation provided in the driver's compartment, entrance to which is made through a sliding door from the adjacent guard's compartment in the motor coach and from a transverse vestibule in the driving trailer coach; no outside doors are fitted to the com-



Interior of the first class compartment in the South Tyneside stock

partment itself. The master controller and brake controller are contained in the control desk, which incorporates a dashboard containing window wiper control, light switches, pressure gauges, speedometer, ammeter, overload and dimming switches.

Two large windows are provided in the front of the cab with a roller type of route indicator between them; both windows and indicator are fitted with $\frac{1}{4}$ in.-thick toughened plate glass. One sliding window is fitted at each side of the cab.

The driver is provided with a tip-up adjustable seat and there is an additional tip-up seat for the use of drivers under instruction. Each driver's compartment is equipped with two electric heaters and three manual-controlled air ventilators.

The guard's accommodation in these units is in accordance with the standards agreed for all British Railways coaching stock, and includes many standard components. The guard's seating is of a

swivelling bucket type which enables him to sit facing either of the two periscope mirrors provided for his use in obtaining a clear view of the track in either direction.

Emergency equipment provided in the guard's compartment consists of tool cupboard, extending ladder, fire buckets, fire extinguishers, switch hook, short-circuiting bar, shoe fuse spanners, and shoe paddles. The guard is provided with a small table, a letter rack and electric heaters, and the compartment is also fitted with brake air pressure gauges, emergency brake valve, and train lighting switch.

The floor of this compartment is built up of $1\frac{5}{16}$ in. thick boards (hardwood in the doorways) bolted to dove-tailed galvanised steel sheeting carried on pressed-steel floor members welded to the underframe. Four removable inspection covers of chequered aluminium are fitted in the floor giving access to the motors on the bogie.