



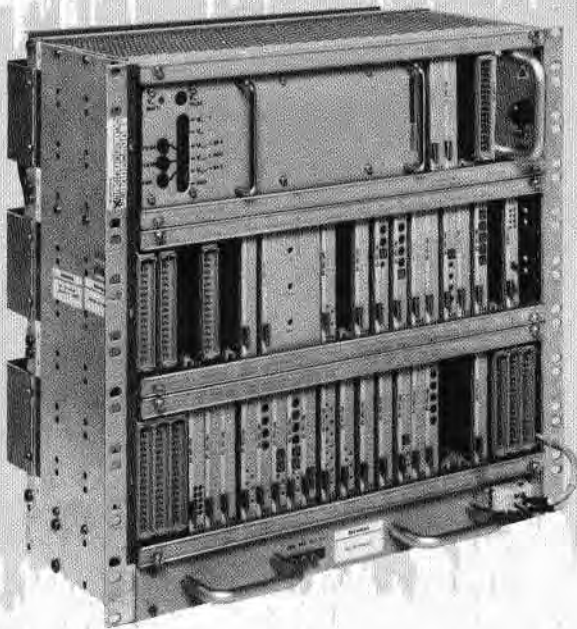
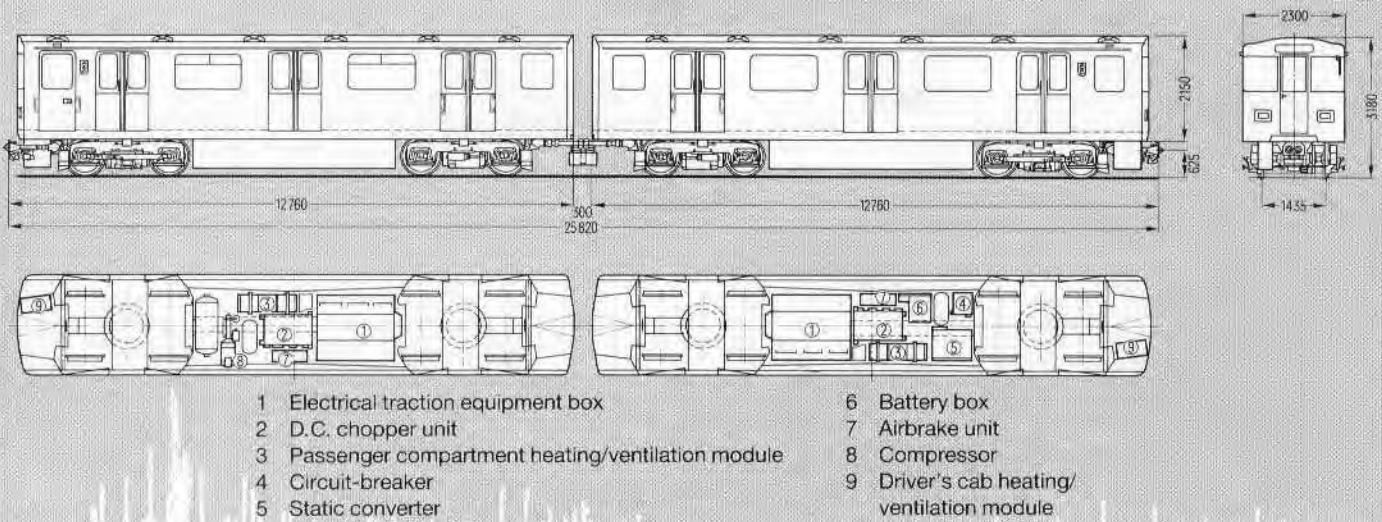
(Photo by Risch, BVG)

Type of car	Bi-directional double unit
Train formation	Up to 4 units
Wheel arrangement	Bw Bx + By Bz ¹
Gauge	1435 mm
Tare weight	35.3 tonnes
Laden weight	51.44 tonnes (at 4 passengers/m ²) per married pair
Maximum speed	70 km/h Max. speed limitable to 52/62/70 km/h
Line voltage	750 V D.C., -30% +20% via third rail
Traction motors	4 x 93 kW cont., two-axle longitudinal drive (all axles driven)
Gear ratio	5.88 : 1
Wheel diameter (new)	850 mm
Electrical equipment	D.C. chopper unit with continuous field weakening
Auxiliary voltage	110 V D.C.
Service brake	Self-excited, 4-stage combined regenerative/rheostatic brake

These cars have been derived from the existing fleet with camshaft control already in service at the Berlin Underground. In accordance with the latest technical developments, D.C. chopper control has been selected for the traction system with the advantages of reduced energy consumption and lower maintenance costs.

Electrical part Siemens AG in cooperation with Berliner Verkehrs-Betriebe (BVG) and AEG-Telefunken
 Mechanical part Waggon-Union Berlin

Overall view and layout

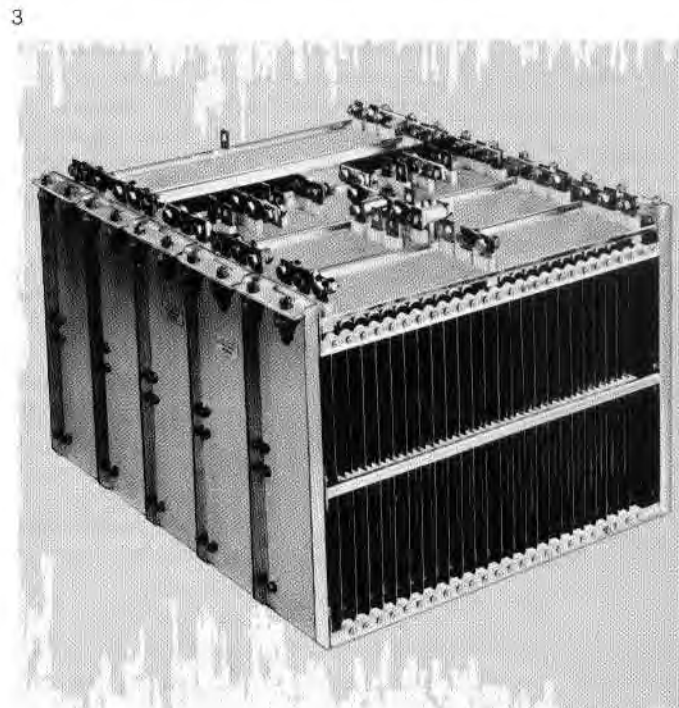
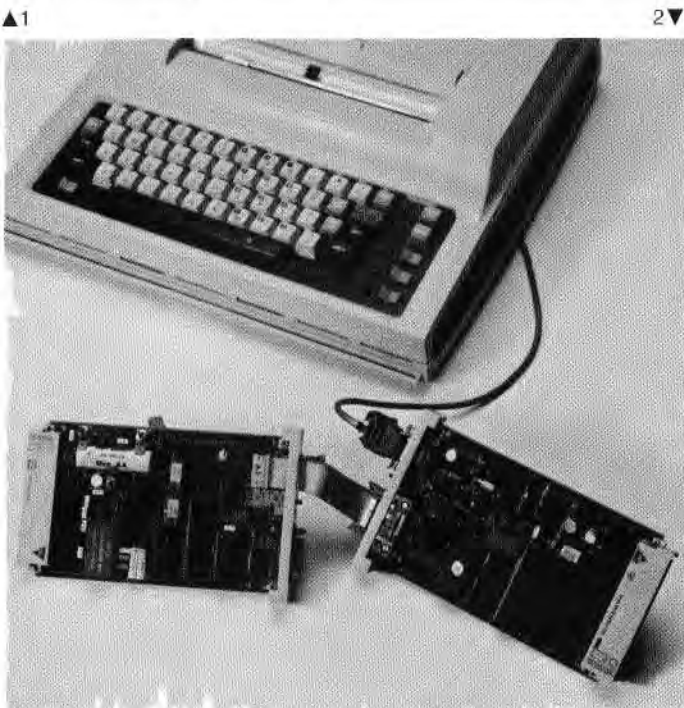


① Car control unit installed in the rear board of the driver's cab of each car with the following functions:

- Processing the train control signals for controlling the propulsion equipment
- Regulating and monitoring of the propulsion equipment
- Anti-skid protection
- Storing of status reports

② Microprocessor memory unit comprises two PCBs in the car control unit for acquiring and storing status reports from the electronic car control unit. The reports are evaluated and put out via a printer

③ Brake resistor unit comprises braking, series, compound and field weakening resistors



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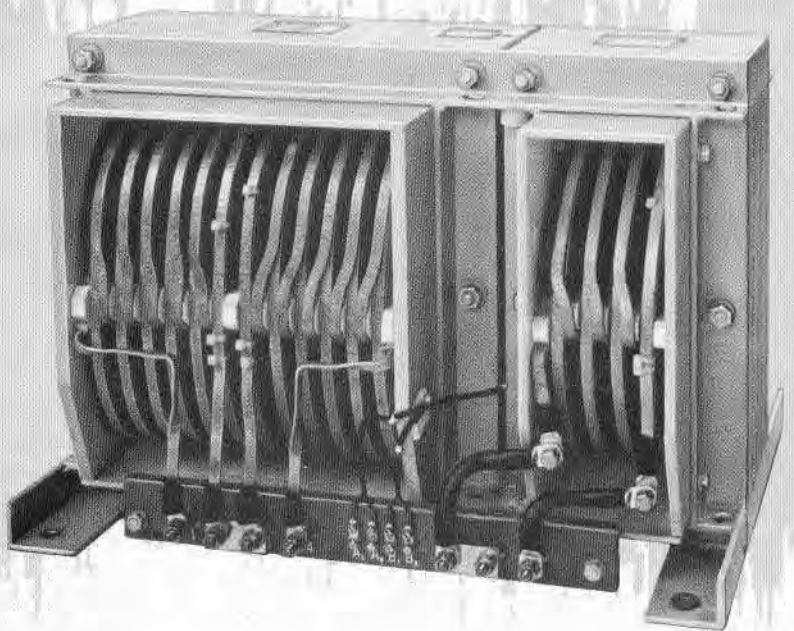
④ Reactor unit
comprising line and 2 motor reactors for
each car (Messrs Nieke)

Line reactor (right)

Type LFD180, 2 mH, 200 A_{rms}

Motor reactors (left)

Typ LFD880, 11.5 mH, 250 A_{rms}

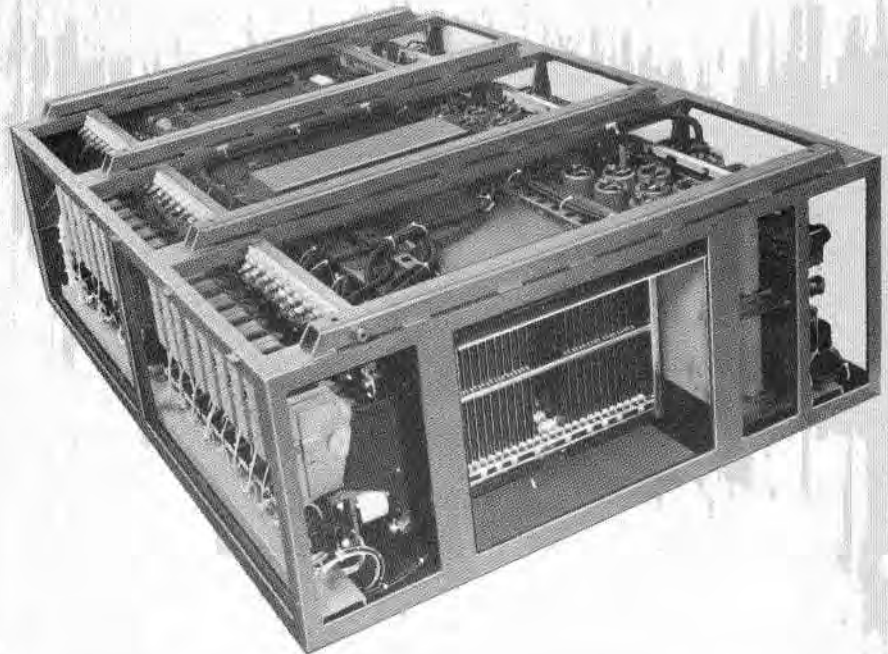


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⑤ Compact equipment box (for each car)
The box contains the components for the
electrical traction equipment and
auxiliaries, such as:

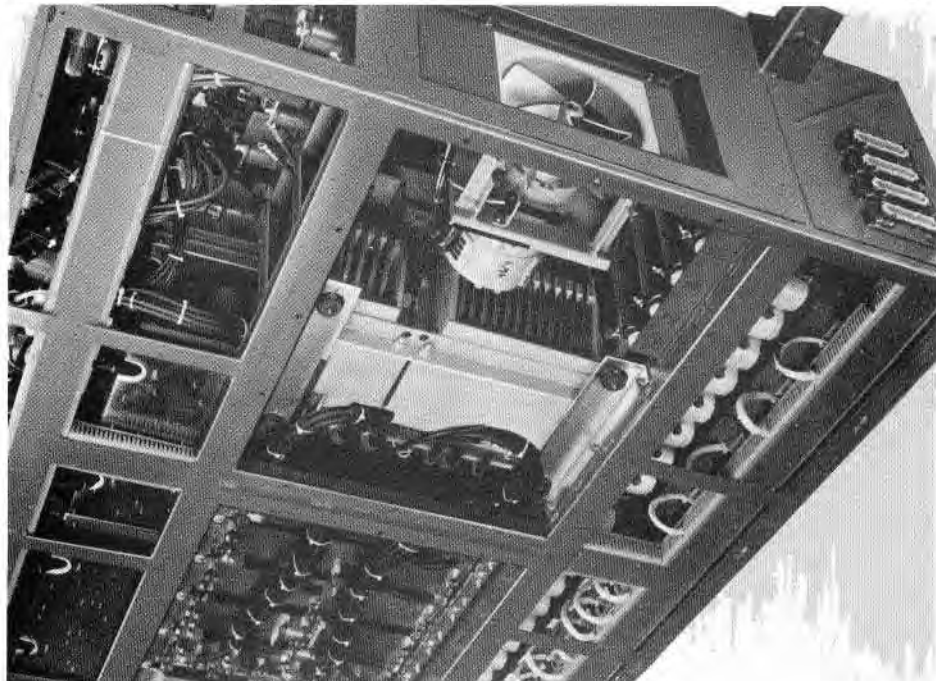
- Line capacitor
- Reactor unit comprising line and
motor reactors
- Brake resistor unit
- Fan for the reactors, D. C. chopper unit
and brake resistors
- Switchgear for the power circuits
- Current and voltage transformers for
motoring and braking control
- Switching and safety elements for the
auxiliaries.

Little space is required for the heavy power
components due to the compact design,
thus facilitating installation



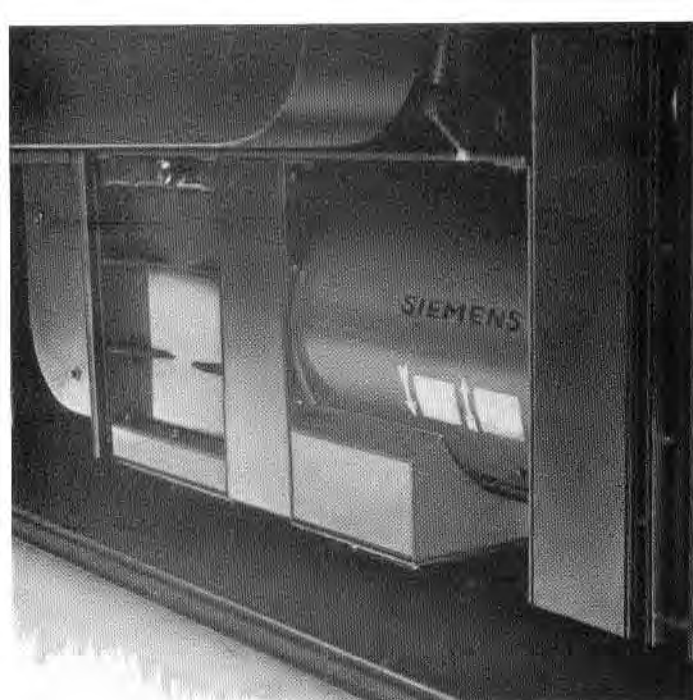
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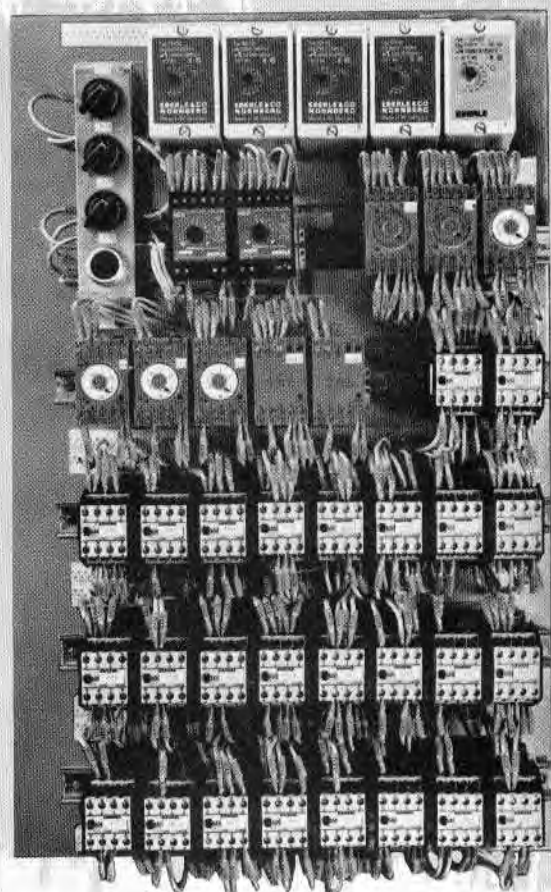
Aus dem Archiv der
Bayerischen Verkehrsbetriebe

⑥ Equipment box seen from below



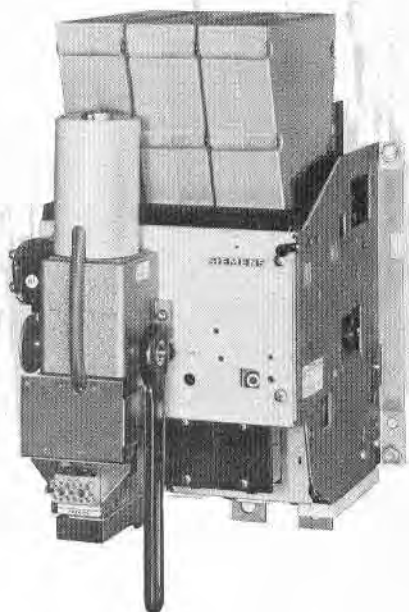
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⑦ Passenger compartment heating/ventilation module (48 kW heating unit with fan)

- The heating unit normally operates during braking, switched on by the electronic heating control, in order to increase the regenerative braking efficiency, depending on the receptivity of the power supply system. Aluminium heat storage units ensure a fairly constant level of heat until the next braking.
- Passenger compartment ventilation, designed for approx. 30 changes of air per hour.

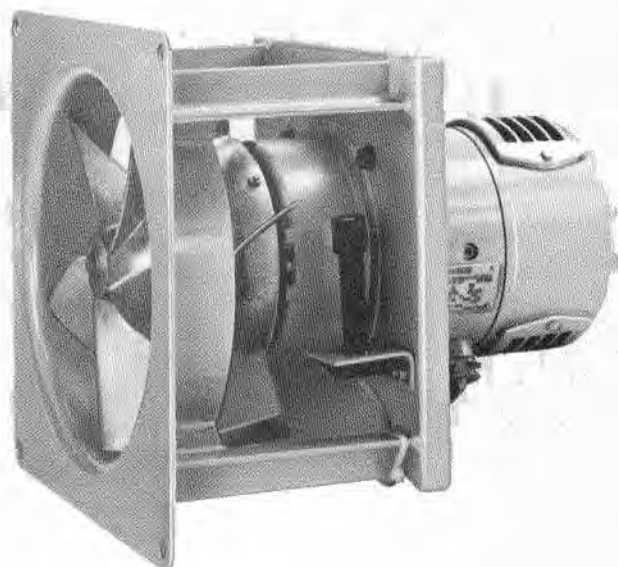


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⑧ Current-limiting circuit-breaker type 3WF32 motor-operated, for short-circuit protection of the traction motor circuits (cut-out during current rise).

- Rated operating current 630 A
- Rated breaking capacity 50 kA at 750 V + 25 %, T = 10 ms
- Rapid trip due to magnetic short-circuit protection which responds at 3 kA
- Overcurrent protection by adjustable non-delay electromagnetic overcurrent trips



⑨ Equipment fan 2CS1259-0CS2-Z-1868

⑩ Equipment frame installed in the rear board of the driver's cab, with switchgear for the 110 V control equipment and for the auxiliaries control.