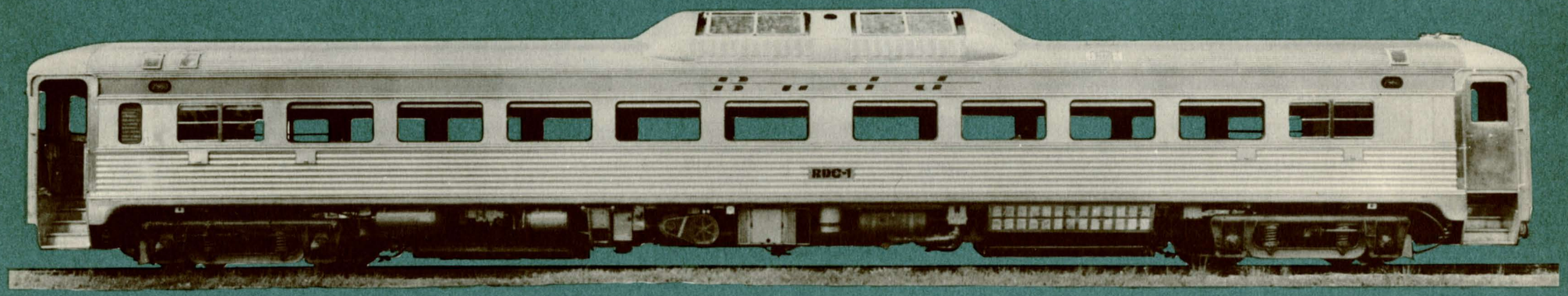
INTRODUCING RDC-1

Budd

RDC-1

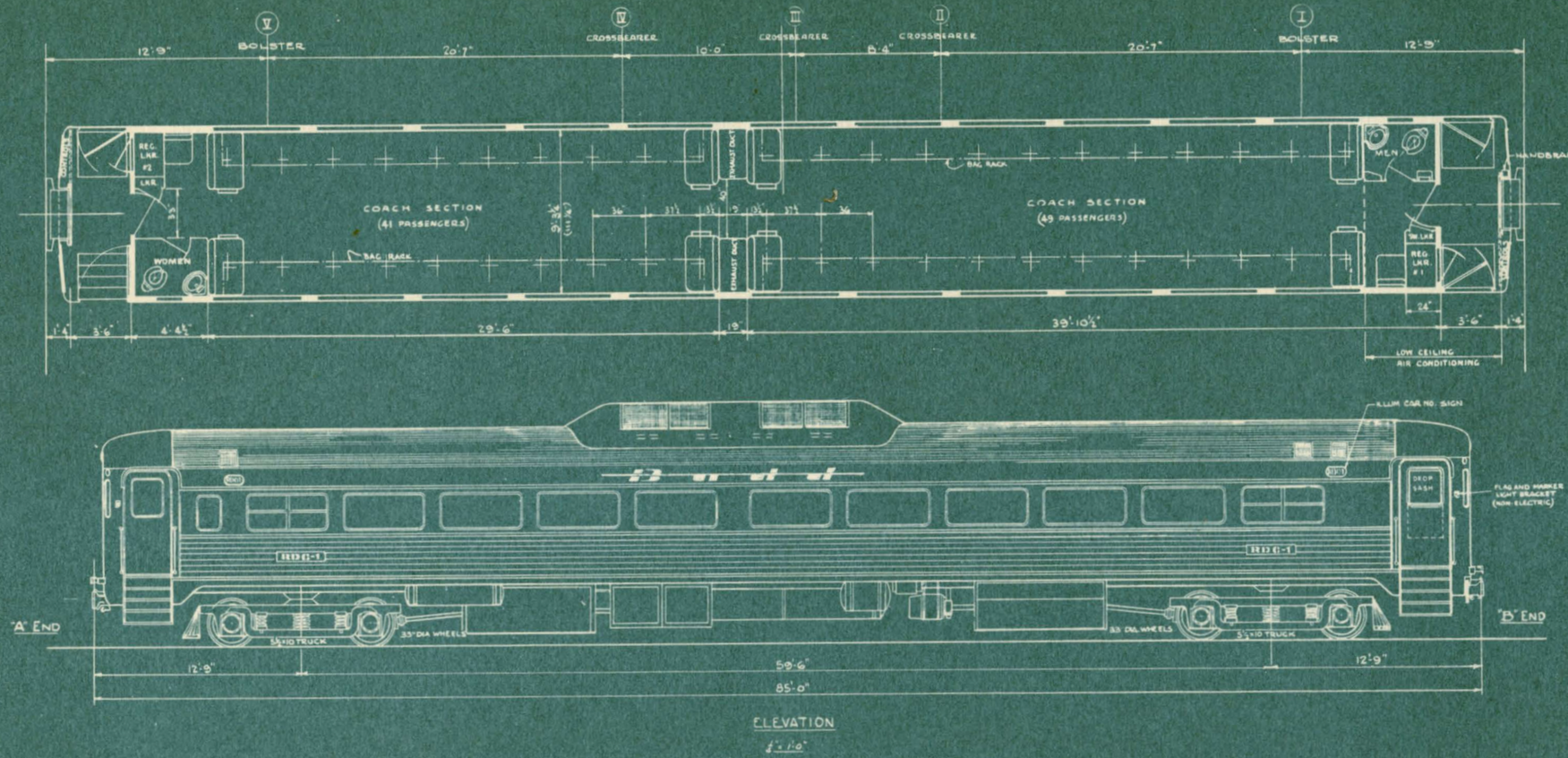
New, lightweight, stainless steel Budd self-propelled railway passenger car



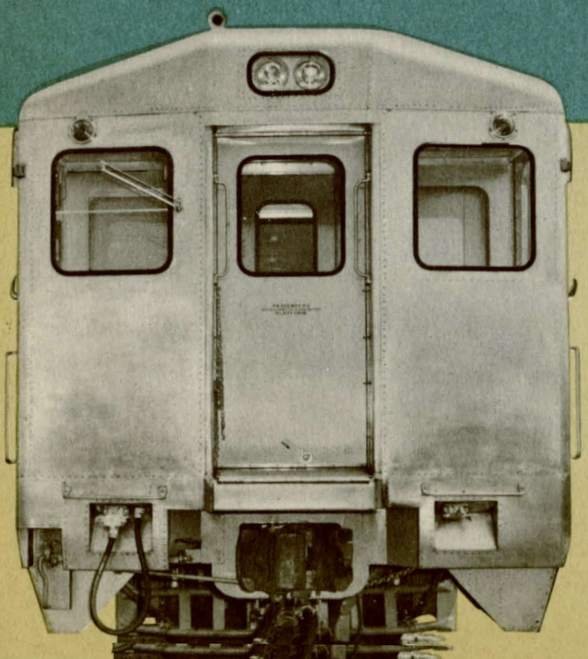
RDC-1. 85 feet long. Weight (dry) 107,900 lbs. The blister in the roof houses the engine radiators and exhaust ports.

The wartime experience and knowledge gained in powering, driving and controlling heavy vehicles, such as tanks, have made it possible to design and construct a lightweight, self-propelled railway passenger car completely different from and, we are convinced, superior to any predecessor.

RDC-1 is a full-sized, 85 foot car. It seats 90 passengers (36″ spacing). It is lightweight —107,900 pounds (dry). It meets all AAR strength specifications for main line equipment for unrestricted service.

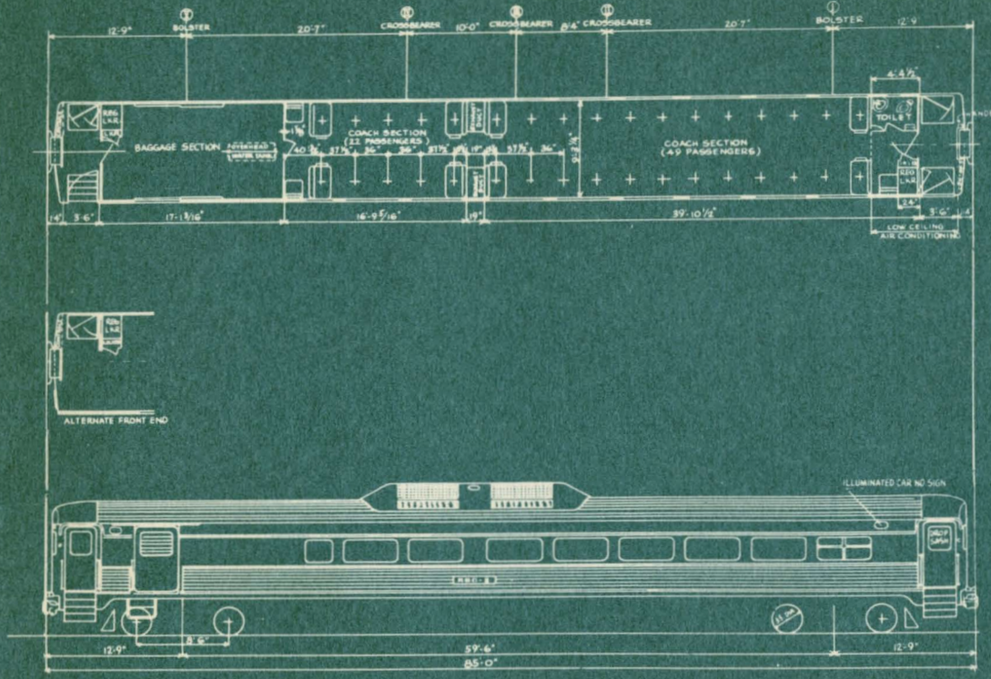


Plan and elevation, **RDC-1**

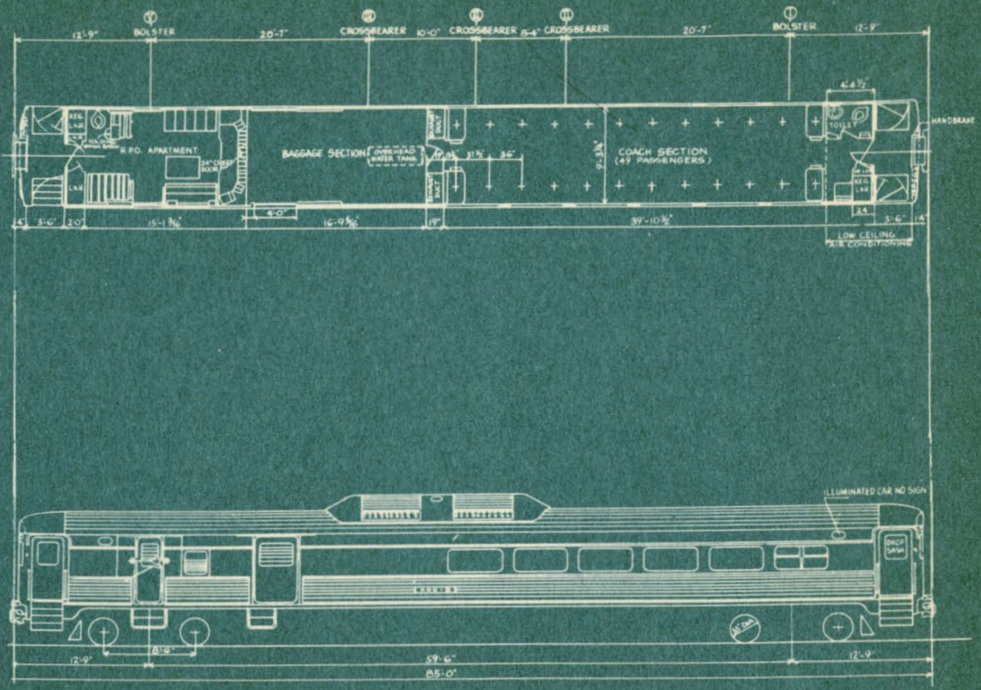


It can operate independently, or as many units as desired can be combined into a train.

The car is fully reversible, with controls at each end.



RDC-2 *contains a 17' 1" baggage section and seats 71 passengers.*

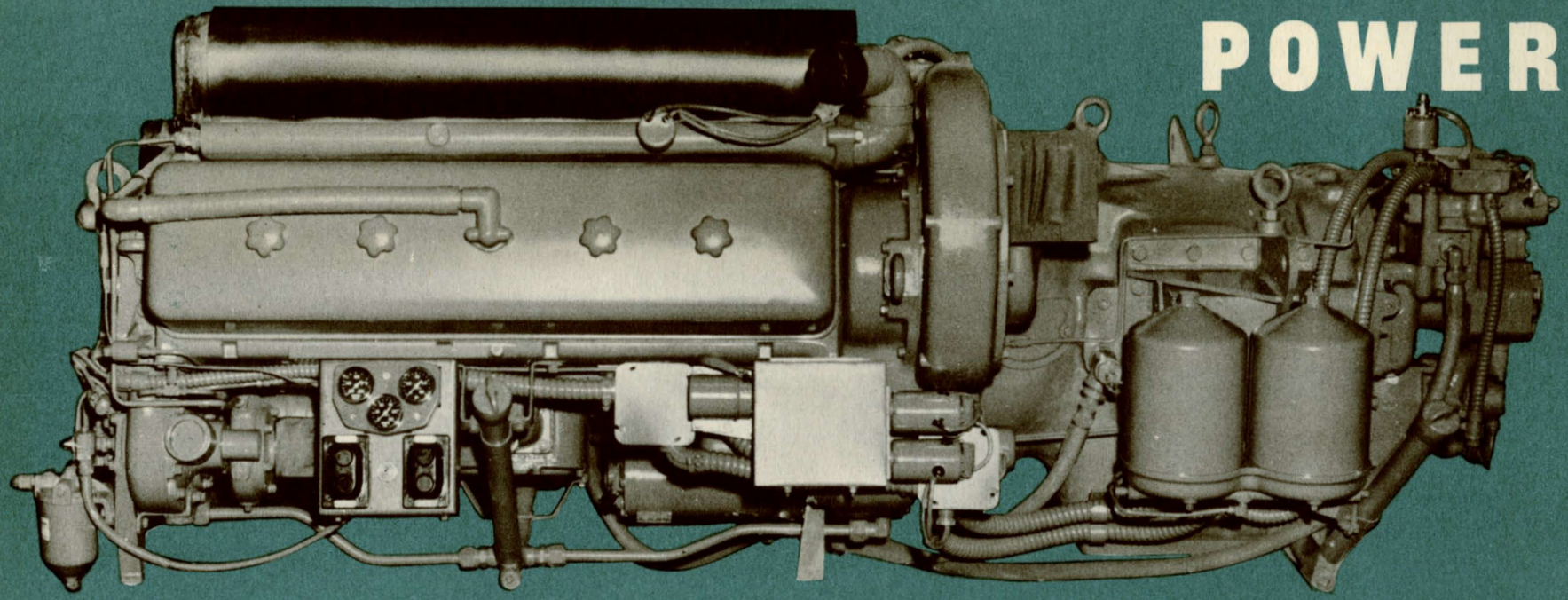


RDC-3 *contains a 15' 1" R.P.O. apartment, 16' 9" baggage section, and seats 49 passengers.*

It has a high power-weight ratio which provides excellent acceleration and high-speed performance, and this ratio remains constant regardless of how many cars are coupled together.

RDC-1 *seats 90 passengers (36" spacing) in two compartments divided by a partition which houses ducts leading between the roof and the underfloor.*

POWER

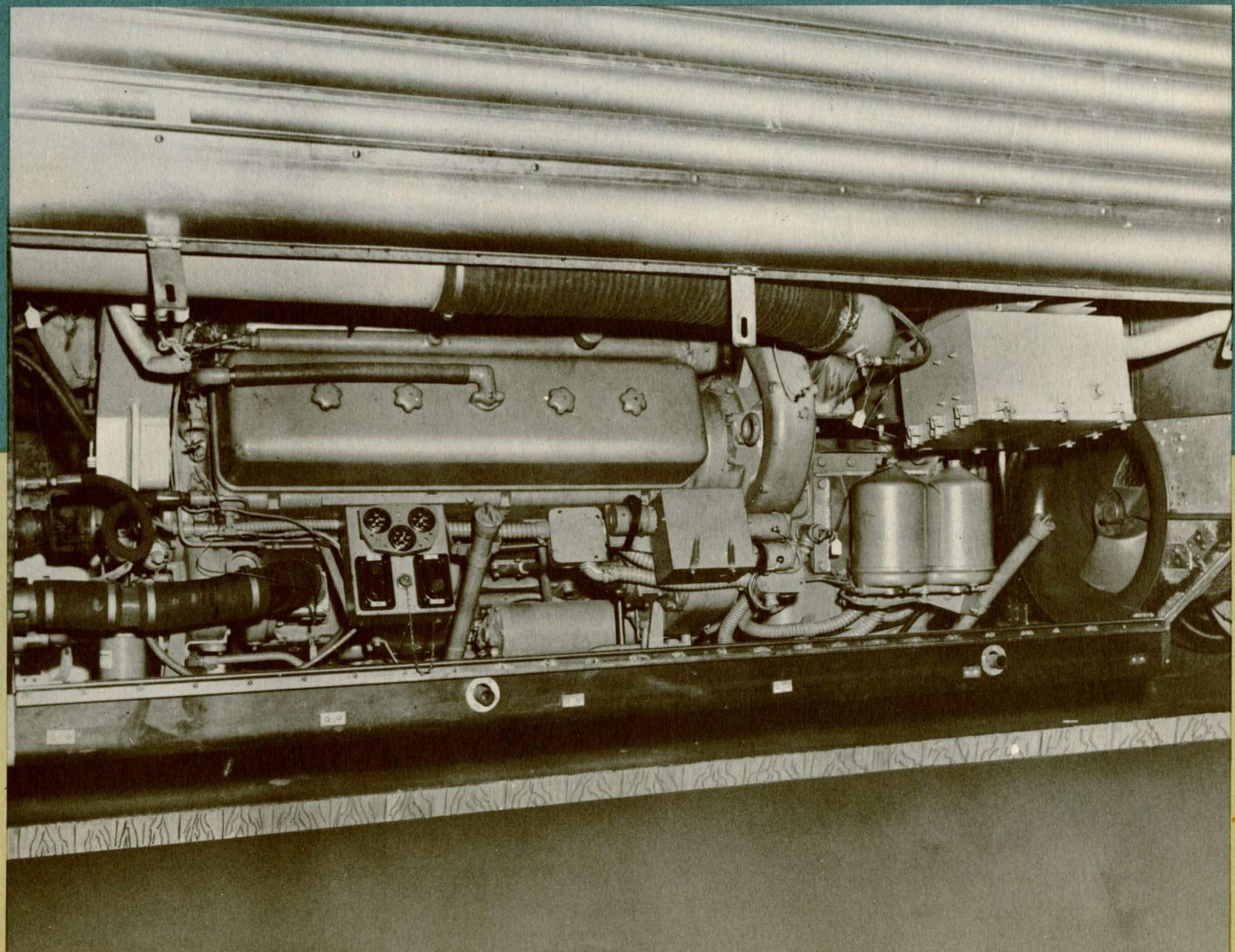


Two of these 275 HP General Motors 6-110 diesel engines provide all tractive and auxiliary power.

Power is provided by two 275-horsepower (213 continuous rating) General Motors diesel engines, each driving one axle of each truck. They are six-cylinder, in-line engines and are mounted under the car floor. All clearance requirements are met, and at the same time there is no intrusion on revenue space. Moreover, this placement contributes to a low center of gravity in RDC-1—only 52.6 inches.

The installation has been designed with special consideration for simplifying normal maintenance, preventive maintenance, and ready replacement when overhaul schedules require.

Engines installed under the floor occupy no revenue space, are readily accessible for inspection and maintenance.



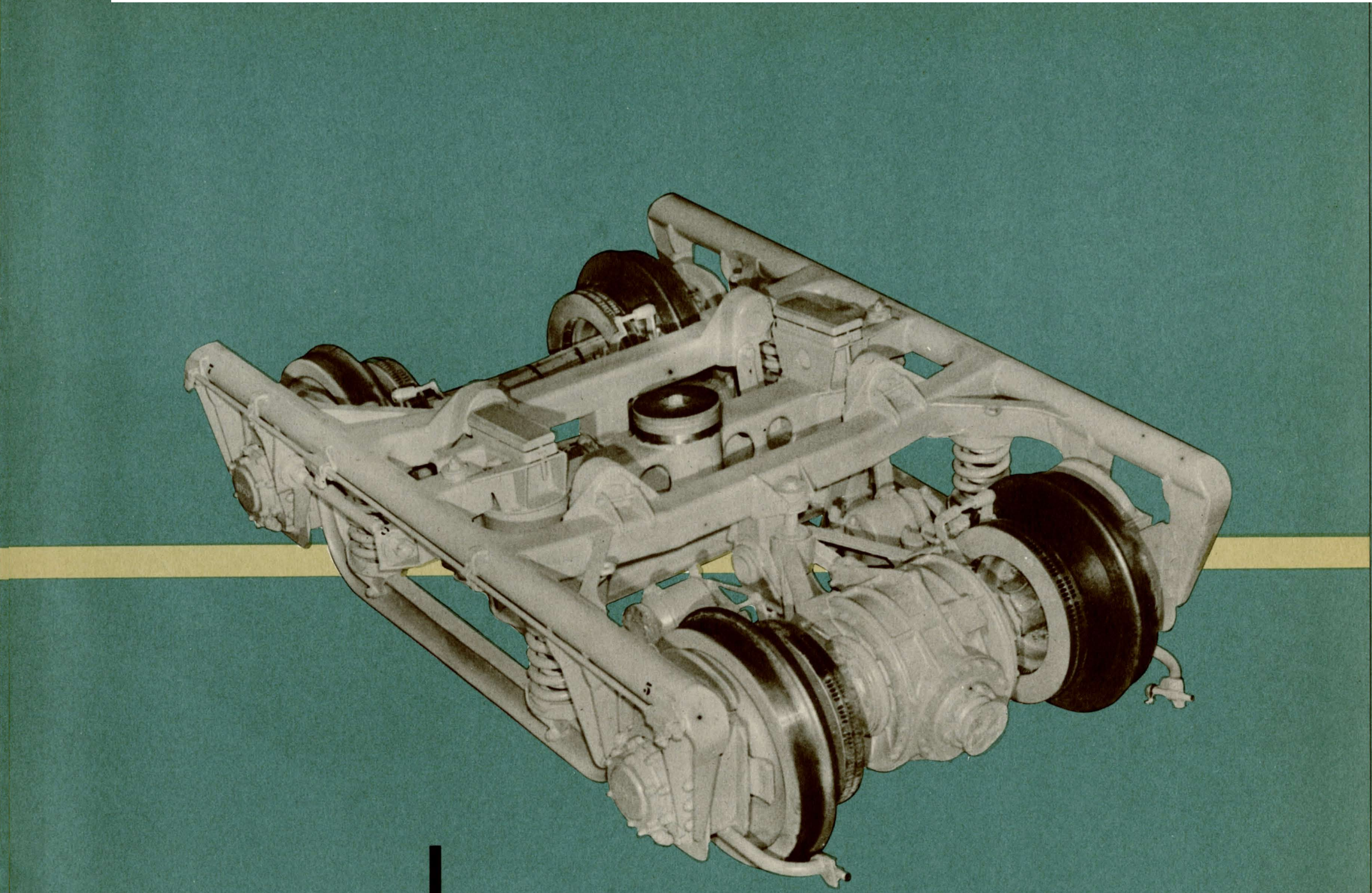
TRANSMISSION

The principle of the torque converter, so widely employed in automotive transportation, has been applied to power transmission in RDC-1. It operates during acceleration up to a designated speed, at which point the transmission automatically locks into direct drive.

In addition to providing high efficiency and reliability, the torque converter saves tons of weight, is appreciably lower in price than other drives, and gives unsurpassed flexibility and smoothness in operation. It was designed to be combined with the engine as an integral unit and is likewise built by General Motors.

BRAKES

Brakes are the Budd Railway Disc Brake, Model CF. Operating in conjunction with the Budd Rolokron anti-wheel-slide device, they have stopped a fully loaded car, under service application, from 85 miles-per-hour in 2330 feet, giving a deceleration of 2.8 miles-per-hour-per-second. Under emergency application, employing sand, they have stopped RDC-1 with a retardation of 3.5 miles-per-hour-per-second. To increase rail adhesion the car is equipped with both automatic and manual sanding devices.



Wheels are 33" in diameter. The disc of the Budd Disc Brake is bolted to the inner face of each wheel. Trucks of special lightweight construction.

Principal Characteristics

The following characteristics and performance data were obtained during test runs:

Weight, light	107,900 pounds
Weight ready to run	112,800 pounds
Normal maximum weight (including 90 passengers)	126,600 pounds
Maximum engine horse power	550
Horse power per ton (normal max. loaded wt.)	8.68
Maximum continuous horse power available for traction	360
Maximum speed	83 miles per hour

Performance

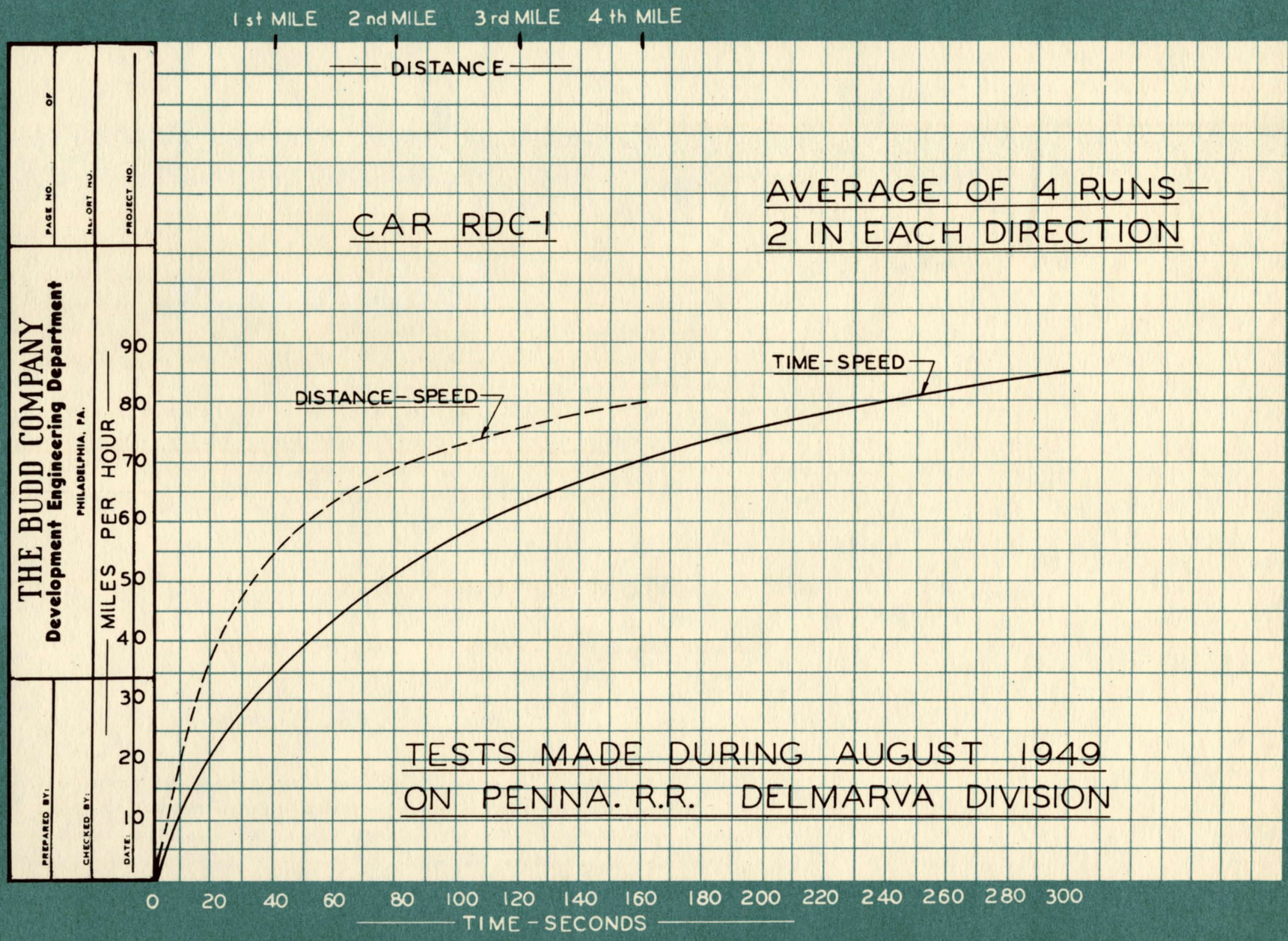
Normal operating speed utilizing 70% available horse power		70 miles per hour
Maximum speed on Grades—Based on maximum weight of cars with passengers	1%	62 miles per hour
	2%	42 miles per hour
	3%	28 miles per hour

Average of 4 runs—2 in each direction

To—44 miles per hour	60 seconds
To—54 miles per hour	90 seconds
To—62 miles per hour	120 seconds
To—73 miles per hour	180 seconds
To—80 miles per hour	240 seconds

Average of 4 runs—2 in each direction gave:

End of	Speed
1st mile	57 m/hr.
2nd mile	69 m/hr.
3rd mile	76 m/hr.
4th mile	80 m/hr.


1 st MILE
2 nd MILE
3 rd MILE
4 th MILE
DISTANCE
THE BUDD COMPANY
Development Engineering Department
PHILADELPHIA, PA.
PAGE NO.
OF
REPORT NO.
PROJECT NO.
PREPARED BY:
CHECKED BY:
DATE:
MILES PER HOUR
10
20
30
40
50
60
70
80
90
CAR RDC-1
AVERAGE OF 4 RUNS—
2 IN EACH DIRECTION
TIME-SPEED
DISTANCE-SPEED
TESTS MADE DURING AUGUST 1949
ON PENNA. R.R. DELMARVA DIVISION
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
TIME-SECONDS

SERVICES

Air conditioning. RDC-1 is air-conditioned by 7-ton, electro-mechanical equipment especially designed for railway car use by the Frigidaire Division of General Motors.

Heating. During operation RDC-1 is heated by utilizing waste heat from the power plant. For standby periods the car is equipped for coupling with yard steam-line connections, or, when these are not available, small oil-fired heaters can be provided for connection with the engine water system.

Electrical equipment. 64 DC voltage is used for all equipment. There are two generators, each having a rated output of 10 KW at 1800 RPM connected to the two diesel engines. Batteries are carried in a stainless steel battery box located under the car floor to provide necessary current for starting the engines and for lighting.

An Important Forward Step In American Railway Transportation

RDC-1 opens up new vistas in the economics of railroading and in the character of railroad service.

It provides a standardized unit. Costly custom building is eliminated. Its new power and transmission units give it flexibility, and a reliability in operation which makes for high availability. Its ability to build traffic by enabling railroads to provide a greater frequency of service, together with its comfort, good looks and speed, make it a source of increased earnings. And its great strength, combined with its light weight, makes it suited to every type of railroad passenger runs (with the single exception of overnight express service) suburban, commuter, branch line, interurban and supplementary service on main line.

Budd

PARTIAL LIST OF MAJOR MATERIAL AND EQUIPMENT TO BE FURNISHED ON THE BUDD RAIL DIESEL CAR

VESTIBULE FLOORING	Alan Wood Steel Co.
STEEL CASTINGS	Pennsylvania Electric Steel Castings Co.
END UNDERFRAME	Youngstown Steel Car Corp.
HAND BRAKES—Peacock #800-L & Chain	National Brake Co.
INSULATION AND SOUND DEADENING	Gustin-Bacon Mfg. Co.
DROP SASH	The Adams & Westlake Co.
WINDOW GLASS	Pittsburgh Plate Glass Co.
PLYMETAL PANELS & DOORS	The Haskelite Mfg. Co.
COACH SEATS	Heywood Wakefield Co.
FLOOR COVERING—Plastic Tile	Johns-Manville Corp.
PARCEL RACKS	The Adams & Westlake Co.
HOPPERS—Toilet	Duner Mfg. Co.
LAVATORIES	Crane Company
AIR FILTERS	Air Maze Co.
AIR DISTRIBUTORS—Aspirating Type	Anemostat Corp. of America
AIR GRILLES	Barber-Coleman Co.
HEATING SYSTEM AND ACCESSORIES	Vapor Heating Corp.
ELECTRIC WIRE & CABLE	General Electric Co.
CEILING LIGHT FIXTURES	Safety Car Heating & Lighting Co.
AIR CONDITIONING	Frigidaire Division of General Motors Corp.
ELECTRIC GENERATOR & CONTROLS	Safety Car Heating & Lighting Co.
GENERATOR DRIVE	Spicer Mfg. Division of Dana Corp.
ROLOKRON—Anti-Wheel Slide Device	The Budd Co.
DISC BRAKES	The Budd Co.
BATTERY	Electric Storage Battery Co.
COUPLER AND YOKE	National Malleable & Steel Castings Co.
DRAFT GEAR	Waugh Equipment Co.
TRUCK FRAME	Youngstown Steel Car Corp.
TRUCK FORGINGS	
I Beam Equalizers, Swing Hanger & Swing Hanger Cross Bars, etc.	Canton Drop Forging & Mfg. Co.
JOURNAL BEARINGS	SKF Industries
TRUCK SPRINGS	Union Spring & Mfg. Co.
SHOCK ABSORBERS—BOLSTER	Monroe Auto Equipment
DIESEL ENGINES	Detroit Diesel Engine Division of General Motors Corp.
TORQUE CONVERTER	Allison Divison of General Motors Corp.
AXLE DRIVE UNIT	Spicer Mfg. Division of Dana Corp.
MUFFLER	Burgess-Manning Co.
RADIATORS	Harrison Radiator Division of General Motors
COOLING & VENTILATING FANS	Westinghouse Electric Corp.
ENGINE CONTROLLERS	Westinghouse Electric Corp.
AIR BRAKE SYSTEM	The New York Air Brake Co.
AIR BRAKE COMPRESSOR	Westinghouse Air Brake Co.

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