a preview of Pullman-Standard's

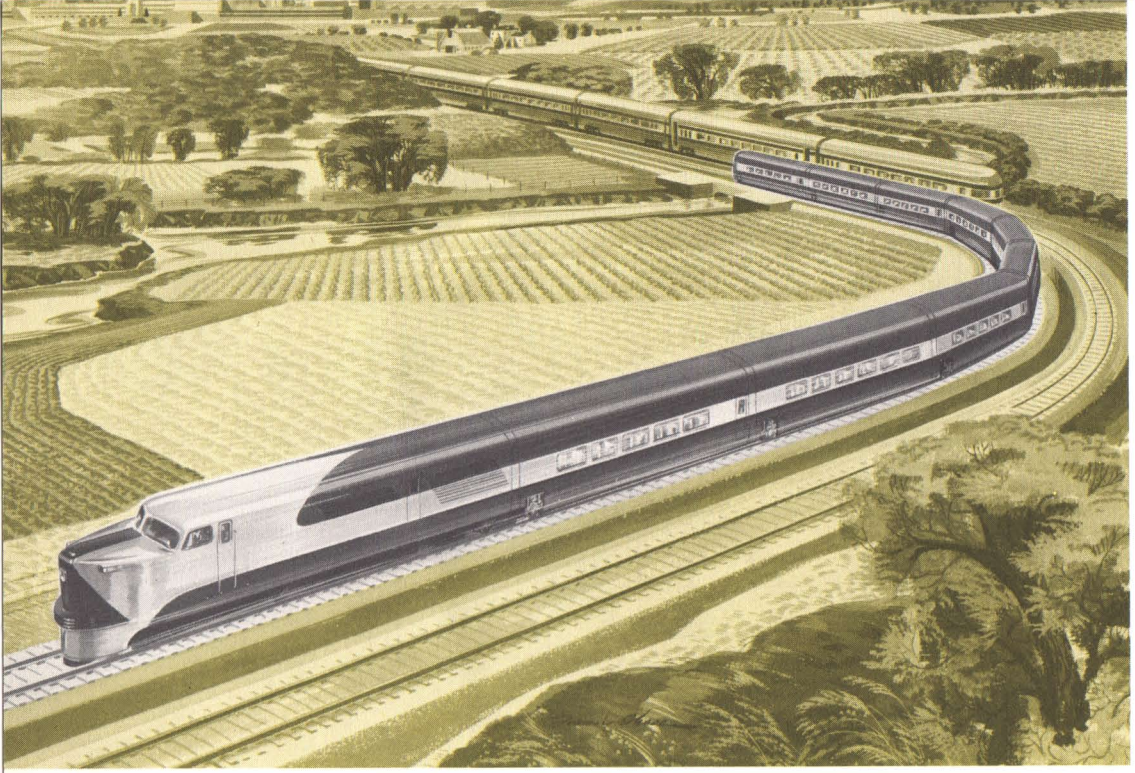
train X

the new train the nation's leading carbuilder is building

for increased speed—safety —pleasure for passengers, lower initial operating and maintenance costs for railroads.

featuring

- low center of gravity
- roll compensating design
- bidirectional air-glide ride



a preview of train X

Here is a preview of Pullman-Standard's revolutionary new lightweight, low-cost, low-slung Train X. Now a-building at Pullman Car Works, Chicago, Train X, in two versions, one for the New York Central and the other for the New York, New Haven and Hartford, will be delivered in the spring of 1956.

Train X represents one advanced step toward solution of the passenger deficit problem that has plagued the railroads ever since the end of World War II. Through correlation of modern concepts of rolling stock and latest technological developments with public appeal and lower operating and maintenance costs, Train X provides impetus to the railroads' efforts to maintain mass handling of passengers on an economical basis through the low-cost lightweight train theory.

Bidirectional Train X is designed for either single or double end operation. 392 passengers are carried in four two-unit single axle cars and one double axle center car. Cars ahead of center have their wheels forward, behind center, wheels are trailing. Thus the consist can stand unsupported by an engine, and additional cars can be inserted regardless of the direction they are facing.

Locomotives for the trains now under construction will be built by Baldwin-Lima-Hamilton and will weigh approximately 68 tons as compared to a conventional locomotive weight of 125 tons. The 1200 hp diesels also will have a 400 hp engine for supplying consist electric power.

Structure of Train X includes an alloy aluminum superstructure mounted on an underframe having steel end sections and an alloy aluminum center section. All A.A.R. and R.M.S. strength specifications are met. The entire five car train will weigh less than 135 tons empty and about 165 tons loaded, exclusive of locomotive.

Clearances: Train X meets all A.A.R. clearance requirements, modified for low center of gravity equipment.

Steering of Train X single-axle cars uses a radius rod connection from body to axle to transmit braking forces and hold the axle normal to the track. The Train X coupler mechanically and automatically adjusts the car axle to its proper position by lever type linkage. Such a mechanism makes possible bidirectional train travel with single axles.

Braking of Train X is single, cobra type shoe-on-tread brake rigging with cylinder and shoe for each wheel. Brake mechanism is actuated pneumatically and is controlled by electro-pneumatic equipment. This establishes the same brake pressures automatically and simultaneously throughout the entire train. Braking has been specially designed to meet the high speeds at which Train X will operate.

Electrical System originates in a diesel driven alternator in the locomotive, and provides 480 volt, 3-phase, 60 cycle A.C. power. An overhead automatic connector is used between cars.

Lighting for each car is ample and provided for both general use and reading by overhead direct and indirect fluorescent fixtures.

Heating is electrical, with full automatic control for heating each car. Radiant wainscoting panels combined with warmed air distribution, automatically thermostat-controlled, will maintain a uniform comfortable temperature throughout the train regardless of outside weather conditions.

Air Conditioning ducts distribute cooled air evenly and automatically throughout each car from self-contained, lightweight units packaged into each car unit.

Water System is provided from 100 gal. stainless steel storage tanks above the washroom ceilings in vestibule cars. Tanks are fillable from either side of the cars. Hot water is provided by instantaneous electric water jackets. Vestibule cars contain mechanical water coolers with cup dispensers and waste receptacles. Shut-off valves permit service without draining the entire system.

Acoustic Design minimizes noise and vibration. Car interiors are acoustically divorced from car structures through use of isomode pads, vibration mounts, rubber mouldings, and soft headlining material. Acoustic baffles, duct lining, insulation, sprayed materials and other sound barriers keep noise levels pleasantly low.

Entrance is through vestibule side doors, one on each side of each vestibule. One folding step will allow entrance from low platforms, two folding steps for high platform loading.

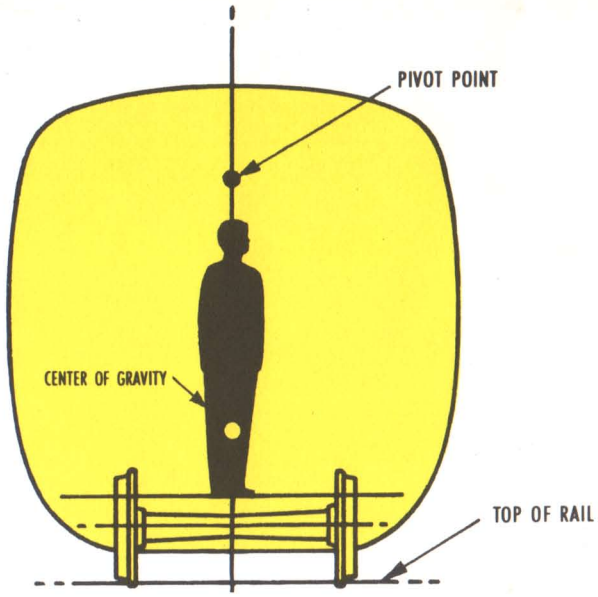
Windows are 2′-2″ x 5′-6″ graduated, heat resistant, shaded safety glass, darker at top and bottom.

Seats for Train X are lightweight, revolving and reclining. They include ash trays in the arm rests.

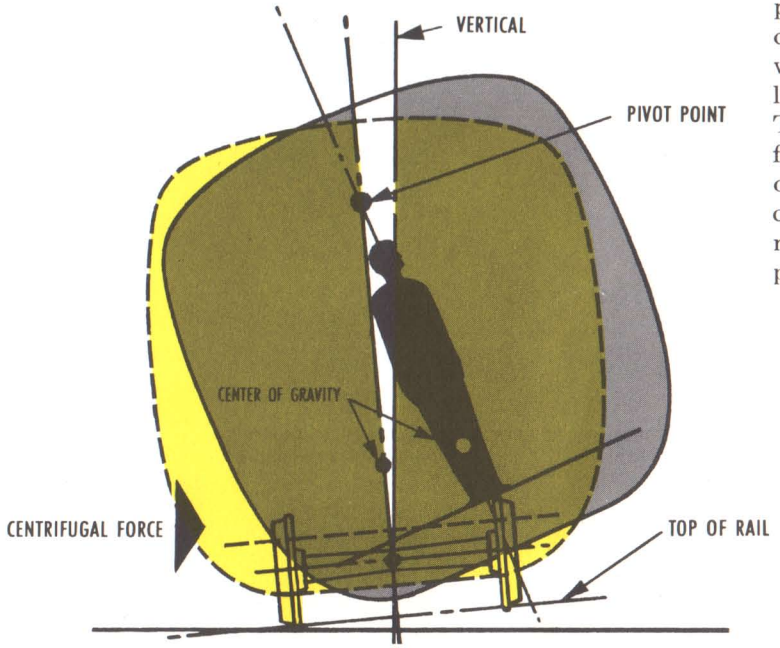
Basket Racks are open type aluminum.

Exterior Styling, low and sleek in appearance, uses anodized aluminum or polychromatic paints for eye-catching appeal and flexibility of individual railroad specifications.

Interior Styling provides a new and luxurious decor through well accepted colors, textures and patterns skillfully blended. Floors are covered with vinyl tile, seats are partially covered with vinyl upholstery. Entire car interior is either metal or plastic faced for minimum maintenance and long-lasting newness.



Train X on level track



Train X banking on a curve

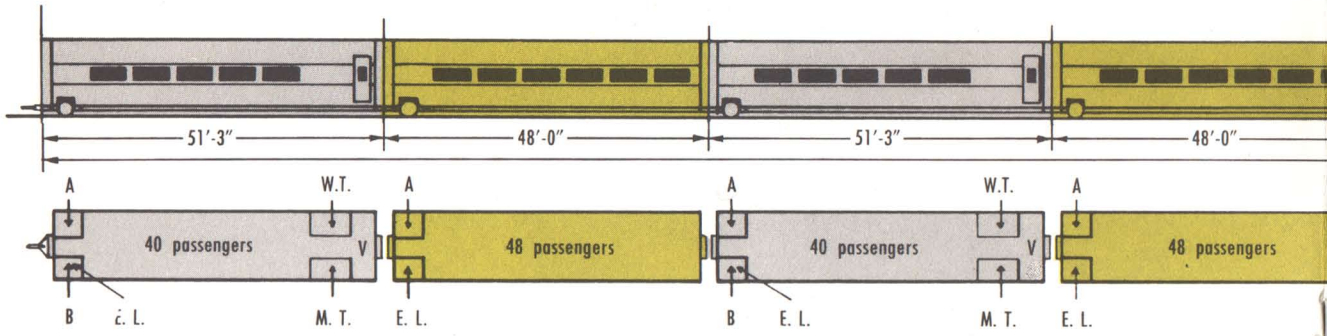
The geometry of Train X suspension places the rolling center of the car well above its low center of gravity. This produces a favorable banking type of roll which contributes to the maintenance of passenger equilibrium.

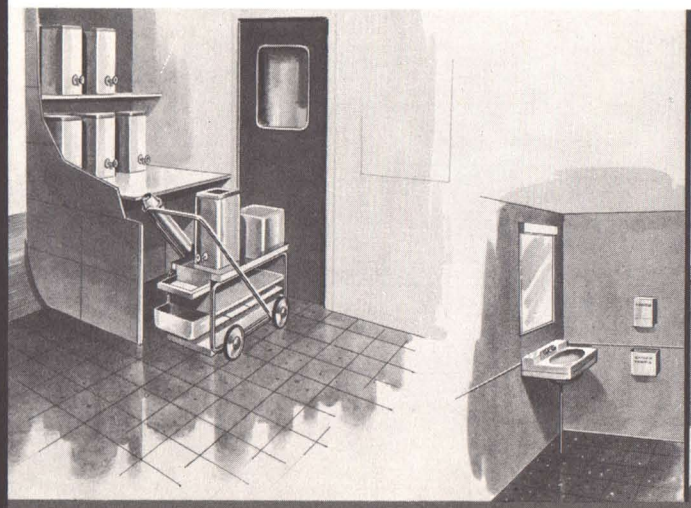
Train X Consist. Capacity: 392 passengers

A—Air Conditioning
B—Brakes
L—Locker
W.T.—Women's Toilet
M.T.—Men's Toilet
R—Refrigerator
E.L.—Electric Locker
V—Vestibule

train X

arrangements for increased passenger pleasure





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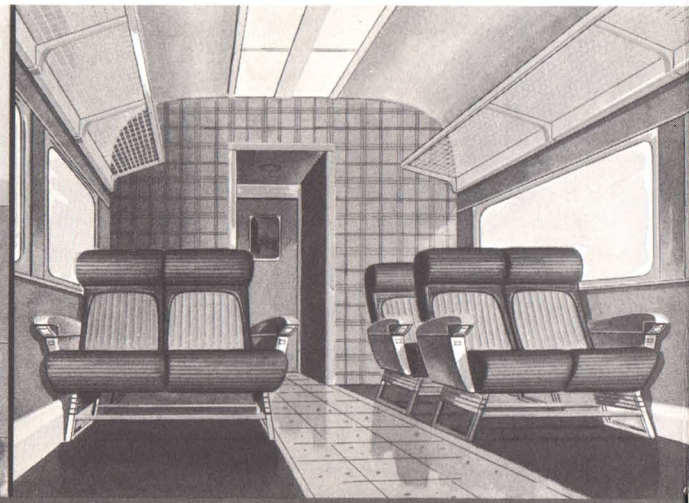
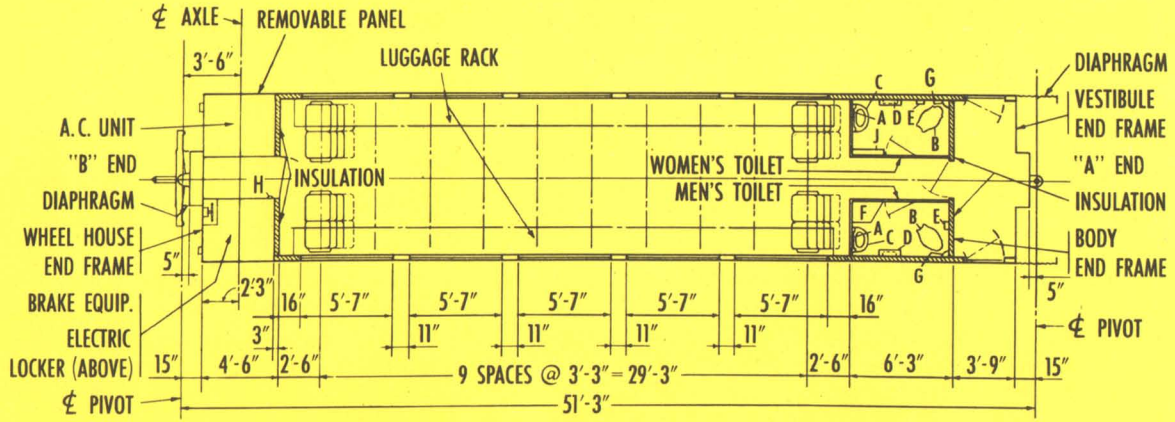


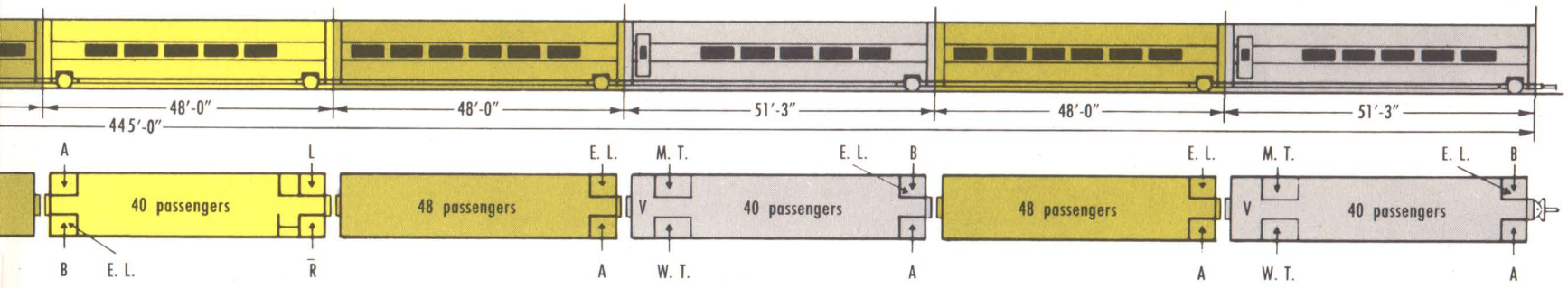
2.

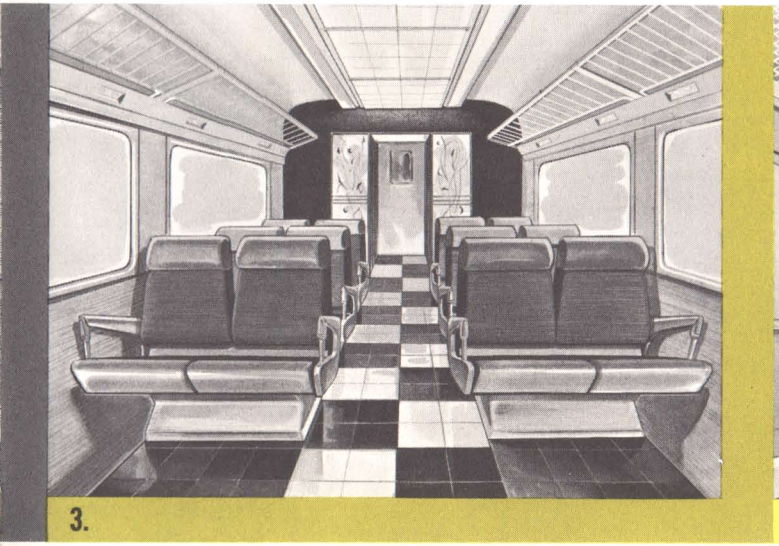
typical arrangement of 51'-3" **Train X** unit

A—Mirror
B—Hopper
C—Washstand
D—Paper towel container, soiled towels below
E—Toilet paper holder
F—Water cooler
G—Hand hold
H—Cond. valve
I—Tools, fire ext. & first aid

There are four 51'-3", 40-passenger, vestibule units in the Train X consist. This arrangement is typical of the efficient utilization of space, without sacrifice of passenger comfort and facilities, that has been skillfully designed into Train X. 392 revenue passengers are accommodated in five 40-passenger units, and four 48-passenger units. There are no nonrevenue seats.







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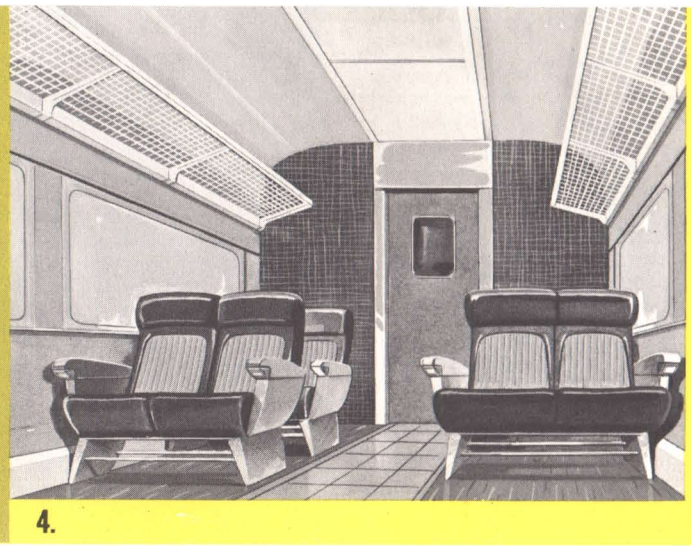


4.

Train X is a five car train. It consists of a single center car (with axles at both ends) and four semipermanently coupled single-axle cars of two units each. The center car is 48′-0″ long. One unit in each of the four cars is 51′-3″ long to house entrance vestibules and toilet facilities, while the others are 48′-0″ long. Capacity of the train is 392 passengers. The overall height of the train is 11′-0″, two and one-half feet lower than a conventional car. Its center of gravity is 11″ lower.

Although entrance doors on Train X cars are located much lower than those on conventional equipment, the train can operate with existing loading and unloading facilities. Passengers step up to platform height, step down to ground level. Doors curve into the roof of the car. Seating in the car is reclining-type revolving seats.

Passenger pleasure and comfort are primary Train X design considerations. While cars are short and lightweight, passenger areas have not been denied roomy seating and luxury accommodations. With higher speeds, maximum safety, Train X enhances its bid for acceptance. All-aluminum construction assures maximum strength while design provides minimum maintenance with greater operational economy. Train X is built with the skill that has kept Pullman-Standard the nation's leading car builder for 88 years.

1. Train X has been designed with sufficient flexibility to allow inclusion of any degree of food service from a dining car to pantry-type service.

Four units throughout the length of Train X are equipped with separate Men's and Women's toilet facilities.

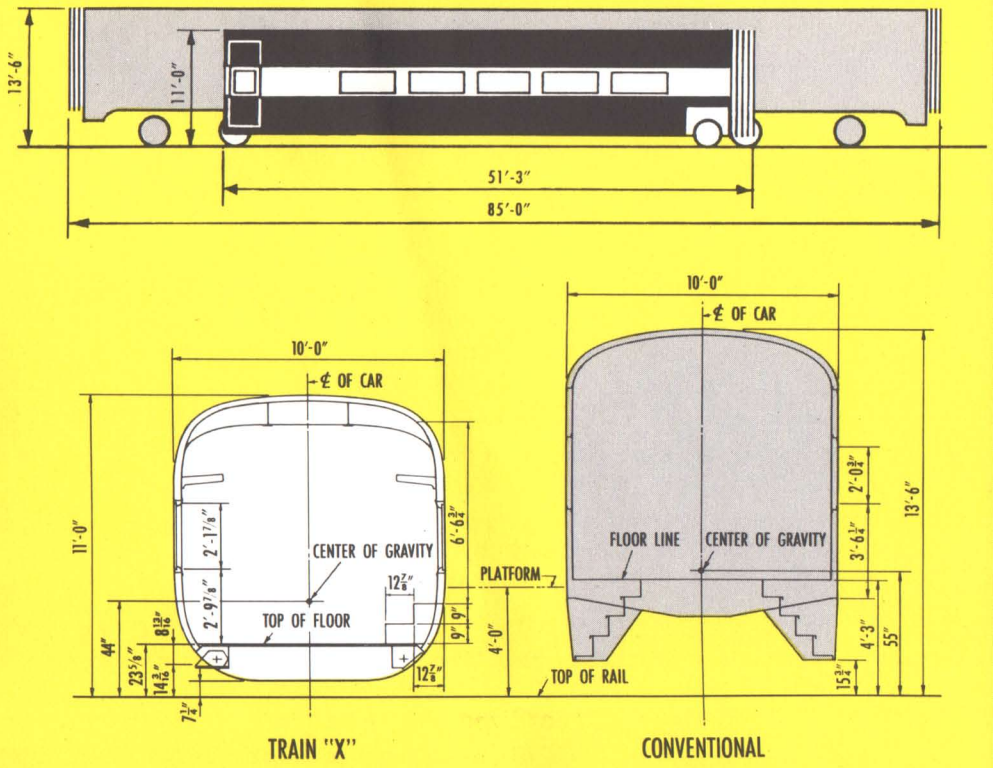
2. From left to right, along the length of the consist, the first, third, seventh and ninth units are vestibule units. 51′-3″ long, they contain toilets and lockers for brakes and air conditioning blowers. These 40-passenger units provide entry to the train.

3. The second, fourth, sixth and eighth units, are 48′-0″ long. These load and unload through vestibule units. They contain air conditioning and electrical lockers. Six windows on each side give 48 passengers maximum scenery viewing pleasure.

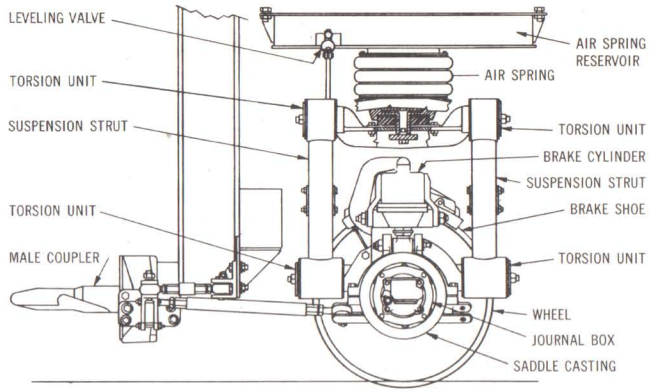
4. The fifth unit, the center car of the train, carries 40 passengers and is the only four-wheeled unit. Its presence in the consist permits the train to stand unsupported while the engine is absent. This car is also a key to bidirectional use when engines at either or both ends are used. The center car is 48′-0″ in length.

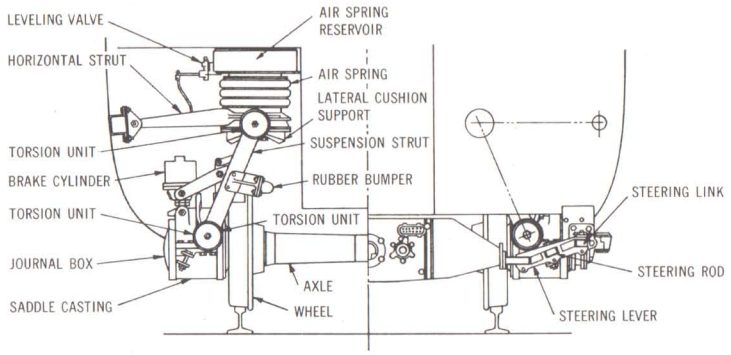
train X

size comparison with conventional cars



Train X's low slung design and low center of gravity is illustrated by comparison of a 51′-3″ vestibule car with a conventional 85′-0″ car. Train X's height of 11′-0″ above the rail compares with 13′-6″ for conventional coaches. Car width of 10′-0″ is the same for both. This means that while the cars are shorter there is no reduction in the width or height of the car interior. Thus, roomy seating and comfortable accommodations for passengers are comparable with the most luxurious conventional cars.



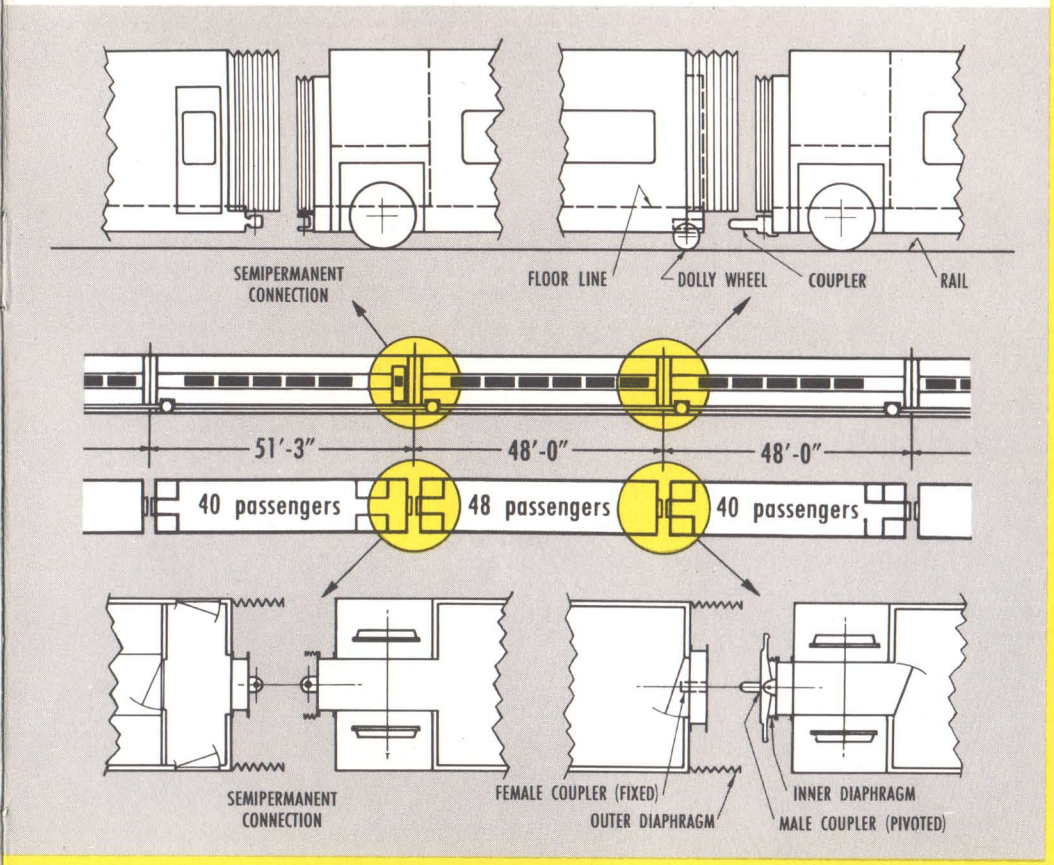


train X *suspension*

One of the outstanding accomplishments of Train X design is its exclusive and patented suspension arrangement . . . the heart of the roll compensating air-glide ride and bidirectional travel. This suspension arrangement, based on unique self-leveling air springs, places the center of gravity location below the pivotal point for a comfortable car body roll. The car body weight is supported on the self-leveling air springs, and is transferred to the single guided axle by means of inclined struts which move angularly with body lateral movement, causing the body to lean *into* the direction of the lateral force. The air springs contain special valves which automatically maintain a constant floor level and compensate for all unbalance through a bellows and air reservoir. This actually provides a ride on air.

Torsilastic units are included in the suspension design to resist angular motion and dampen and absorb shock. Roller bearings are encased in a housing on which is mounted the foundation brake rigging, steering rods and strut trunnions. The entire truck weight is only about one-fourth that of conventional trucks.

train X *coupling arrangement*



Each two-unit Train X car is coupled semipermanently where the two sections meet. This junction can be separated only at the shop. Where each two-unit car joins the succeeding unit, a special coupling arrangement has been designed to meet the operating characteristics of Train X. All necessary air and low voltage electric connections are automatically made through this coupler when cars are joined, and disconnected by uncoupling. A male coupler is mounted on the car axle end, and mates with a female portion on the adjacent car. A manually operated, air driven dolly wheel supports the female end until the cars are coupled. Suspension air springs are automatically deflated during coupling, and inflated automatically when coupling is completed. This coupling design carries car load, is easy to operate and affords a safe, absolutely secure car junction.

the PULLMAN-STANDARD line of freight and passenger equipment

Train X is another addition to the extensive Pullman-Standard line of railroad freight and passenger rolling stock.

Pullman-Standard offers Train X type equipment for service where its use is desirable while continuing to build the finest conventional equipment. And while Train X represents the criterion for lightweight, low-cost equipment, equally exciting advances are being made in other designs for construction of lightweight passenger cars.

Pullman-Standard freight cars are famous for their standardization. Over 75,000 PS-1 Box Cars, first introduced in 1946, have been bought by more than 70 railroads. The PS-2 Covered Hopper Car, the PS-3 Hopper Car and the new PS-4 Flat Car are all standardized to give low cost, rugged, dependable service wherever they are sent throughout the Great American Railway System. For the railroad buyer, standardization means proved designs, continuous examination for improvement by advanced scientific methods, in-service inspections by field service engineers, and the building quality and economies of mass production.

No matter what your rolling stock needs may be, you would find a discussion with Pullman-Standard carbuilders of practical value.

why Pullman-Standard's train X answers the needs of both railroads and passengers

train X *features*

- Built with the skill that has kept Pullman-Standard the nation's leading carbuilder for 88 years.
- Low first cost through simplified strong design that uses lighter materials and centralized utilities.
- Train design permits the kind of speed and safety that passengers demand from modern transportation.
- Lightweight throughout, which means faster starting and stopping, lower fuel consumption. Weight only 1/3 that of a conventional train.
- Suspension with self-leveling and air-glide ride smooths out road beds, eliminates high speed curve discomfort through self banking.
- Head end power and utility source makes maintenance easier, eliminates need for utility accessory installation and service on each car.
- Train interiors and exteriors are styled to be pleasant, relaxing and attractive.
- Cars are commodious, seats roomy, comfortable and adjustable to partial recline.
- Use of new fabrics, metals and plastics insures clean, durable, attractive interiors.
- Ample lavatory and toilet facilities are provided.
- Utilities such as heat, air conditioning and lights are designed for maximum passenger comfort.
- Windows are spacious, properly located for enjoyment of scenery, and glazed with heat absorbent safety glass.
- Acoustic design suspends passenger compartment on rubber, eliminating noise and adding to comfort.
- Readily accessible lockers for electricity, brakes and air conditioning simplify maintenance.
- Bidirectional design means more economical operation.
- Over-all aspects of the train, with pay load of 392 passengers provides high density, low weight per passenger, minimum per-passenger operating costs.

WORLD'S LARGEST MANUFACTURER OF PASSENGER AND FREIGHT CARS

PULLMAN-STANDARD

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