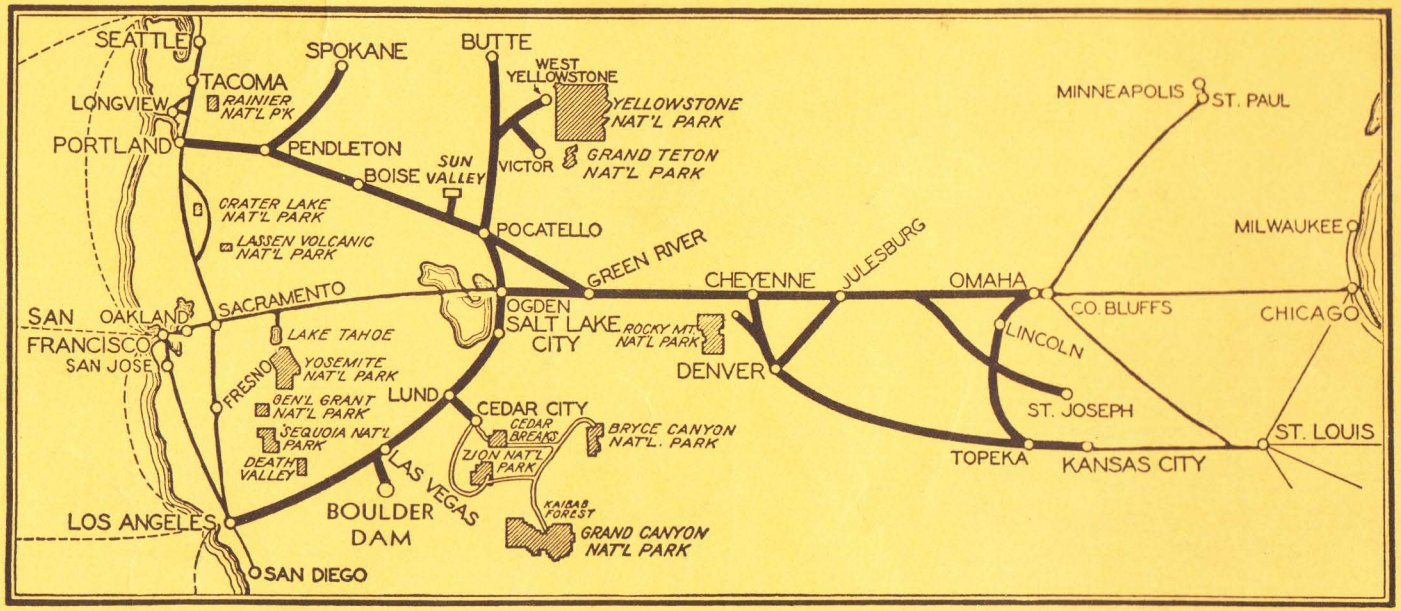
Canton No!
1940

MAP SHOWING MAIN LINE UNION PACIFIC RAILROAD AND PRINCIPAL CONNECTIONS

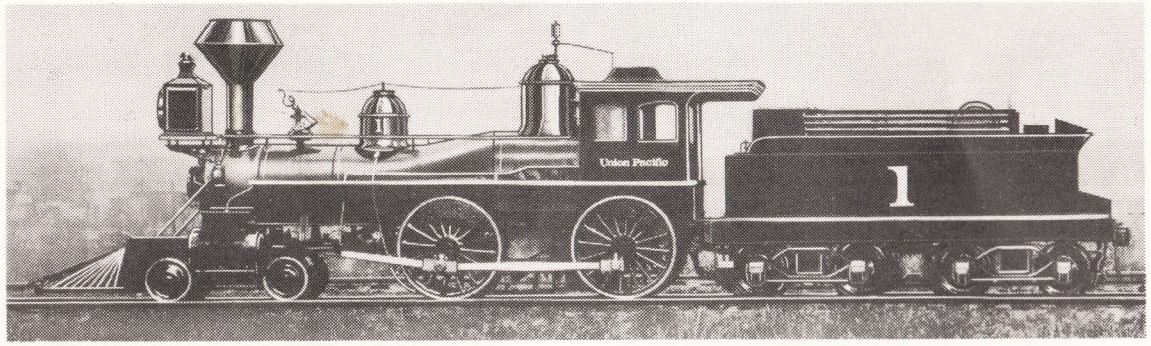


This book has been prepared and published by the Union Pacific Railroad as an aid to those who are interested in the important study and teaching of rail transportation. All illustrations show Union Pacific property. Equipment is the most modern of its class. All passenger cars are air conditioned.

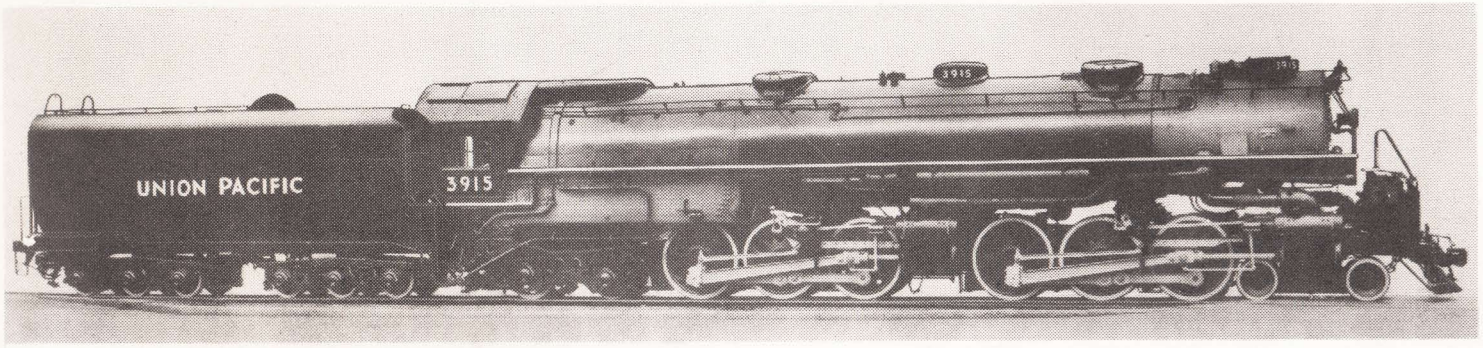
The Union Pacific was the first transcontinental railroad. In 1862 Congress passed the Enabling Act creating the Union Pacific Railroad Company. President Lincoln signed the Act July 1, 1862. He personally located the eastern terminal at Council Bluffs, Iowa. A beautiful marble shaft now marks the spot where he stood on the high bluffs overlooking the Missouri River when the momentous decision was made. The name Union Pacific signified the great purpose of the railroad—to bind the Pacific Coast to the rest of the Union.

Ground was broken in December, 1863; grading began in 1864. The first rails were laid July 10, 1865, and by January, 1866, 40 miles of railroad had been built. For much of its distance the road follows the old "Overland Route" and the "Oregon Trail", blazed by early explorers and immigrant trains. The first transcontinental railroad was completed at Promontory Point, Utah, May 10, 1869. The ceremony of driving the last spike, made of gold from California, took place just before noon. Telegraph lines were linked in the first national "hook-up" and relayed to a waiting nation the completion of this epoch-making event.

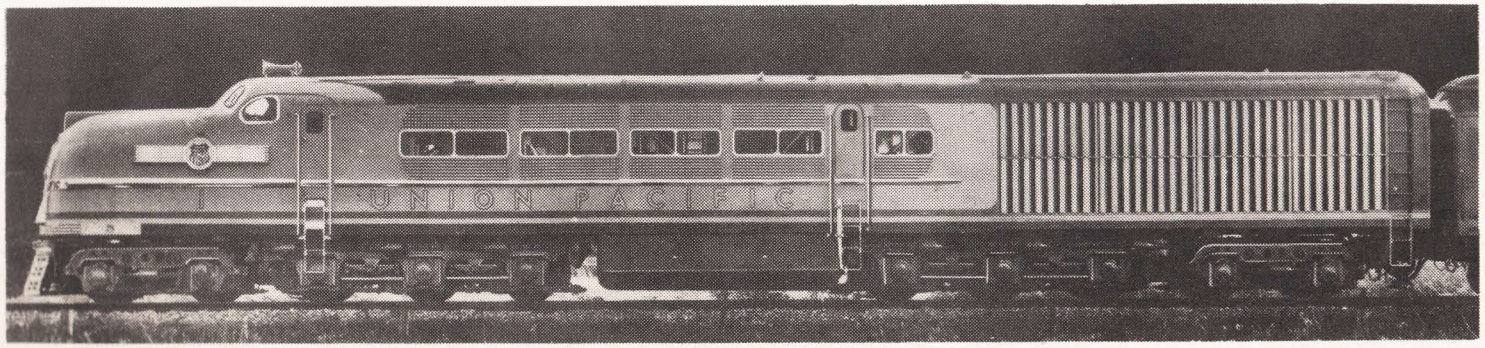
Courtesy
WOMEN'S UNION PACIFIC OVERLAND TRAVEL
DEPARTMENT



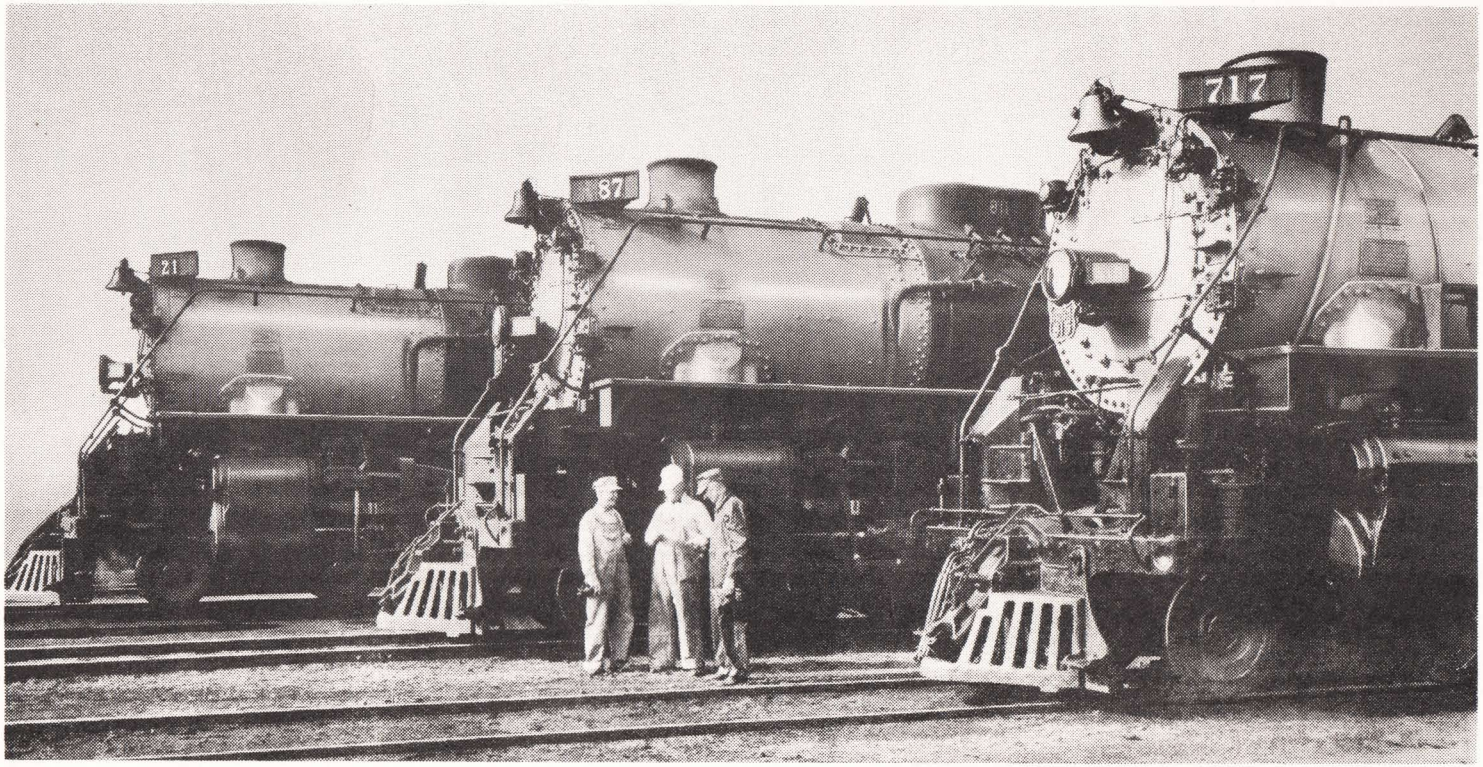
The "General Sherman", Union Pacific Locomotive No. 1—1865



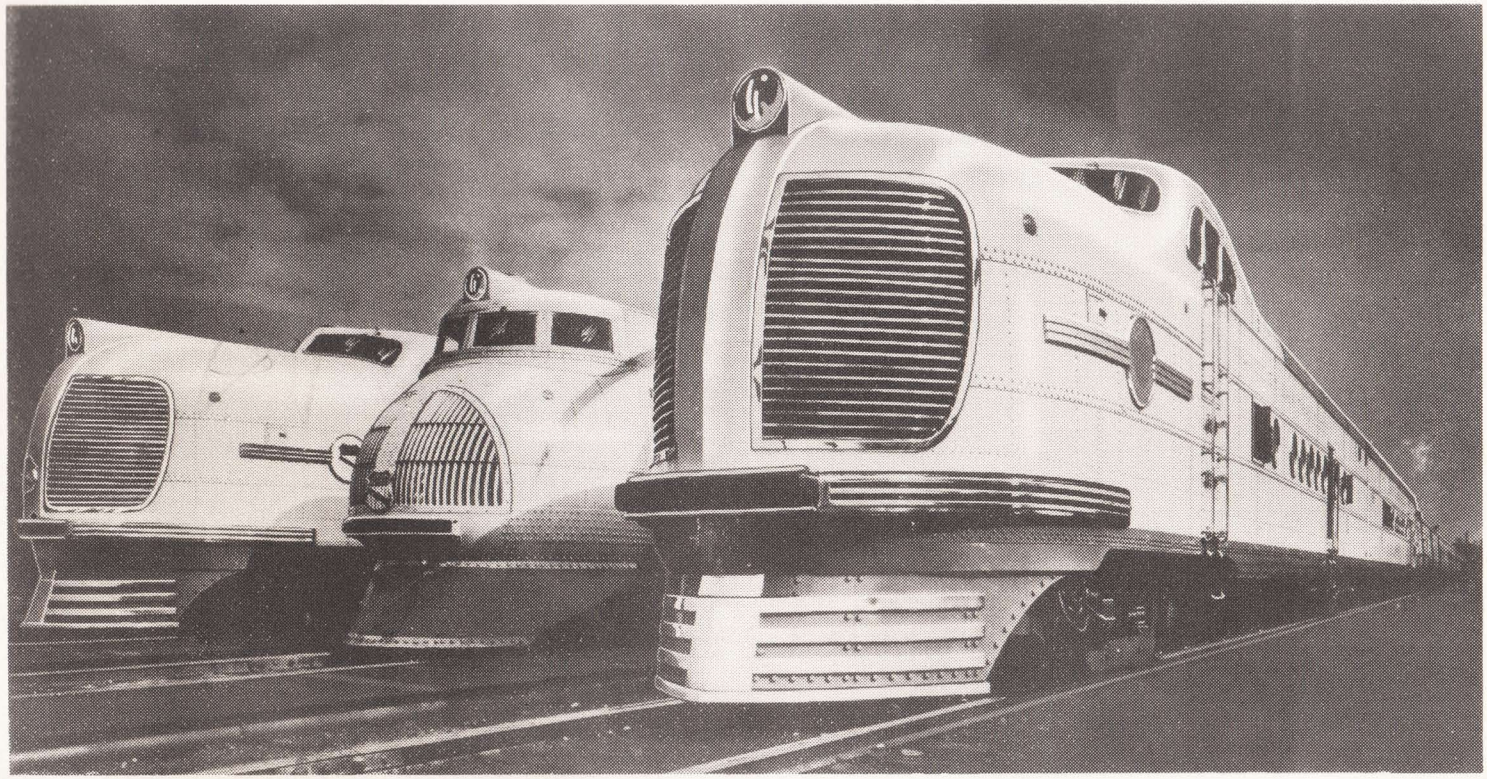
"Challenger" Type Union Pacific High-Speed Passenger and Freight Locomotive—1938



The New "Steam-Electric" Locomotive, Union Pacific's Latest Passenger Design—1939



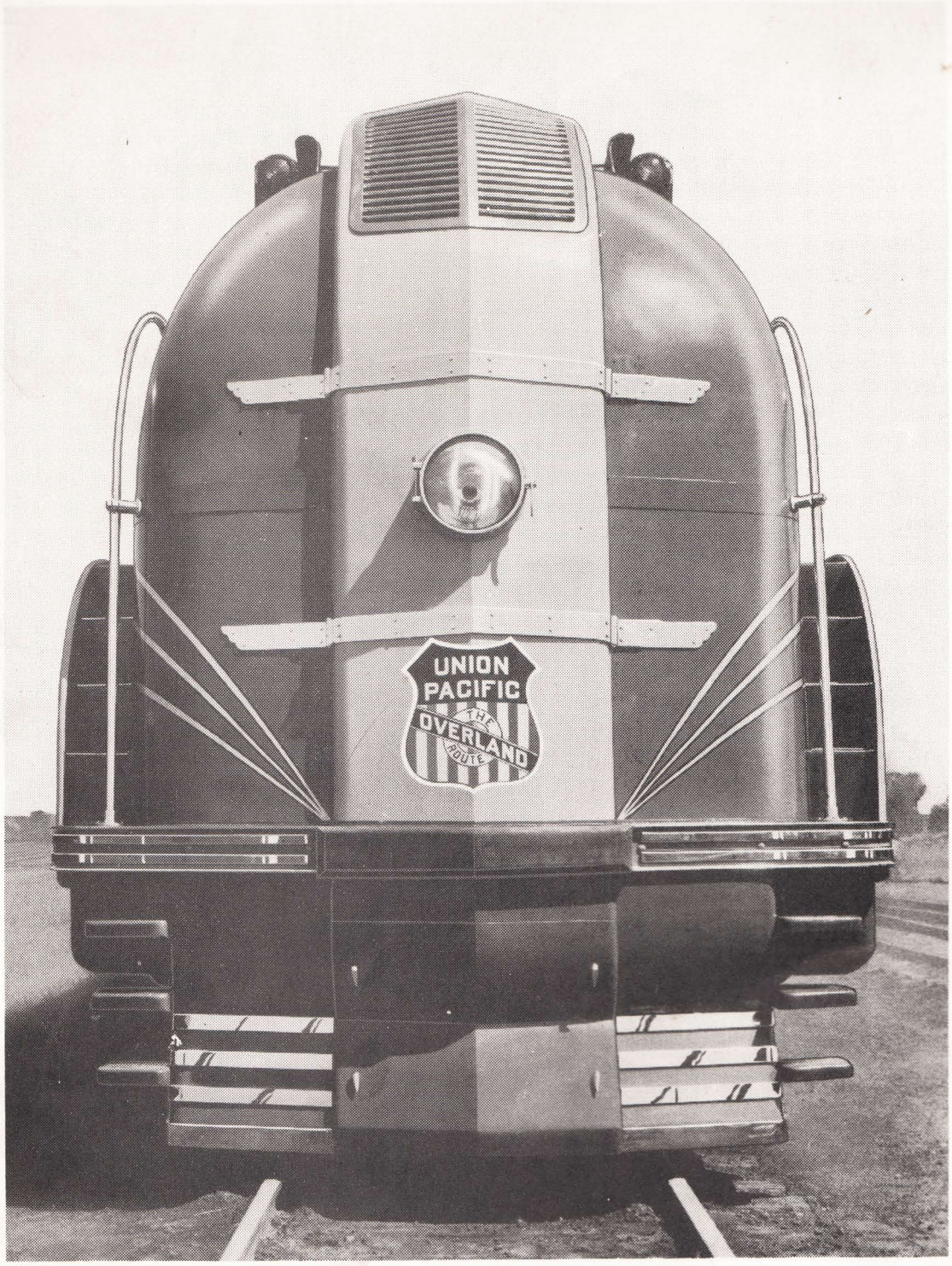
Giant steam locomotives designed to pull heavy passenger trains of 20 cars or more at speeds exceeding 70 miles per hour. Each of these engines, with tender, is 111 feet 1/4 inch long and weighs 831,000 pounds and are 16 feet in height. The tender holds 20,000 gallons of water and 50,000 pounds of coal. Drive wheels are 77 inches in diameter and all wheels have roller bearings.



Giant streamliners powered with diesel engines, Union Pacific introduced the first light-weight streamlined train in America, February, 1934. It was built of aluminum alloy, with the strength of steel and one-third its weight. These passenger trains are capable of speeds in excess of 100 miles per hour. All are bright yellow.

This is a "safety-first" measure as the tone of yellow used can be seen farther than any other color.

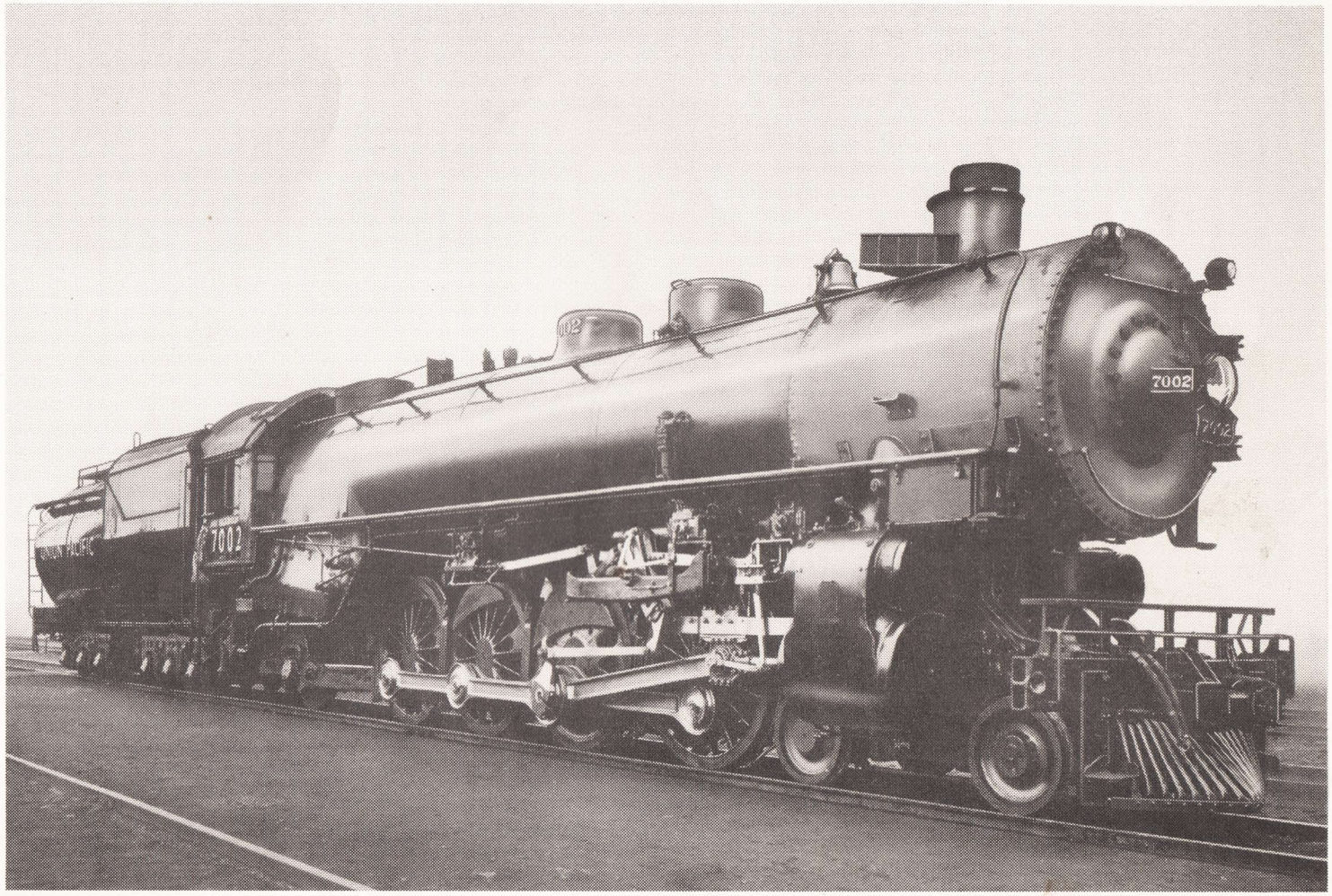
Front view of steam locomotive 7002. This is a powerful "Mountain Type" engine built to pull heavy passenger trains over mountain grades.



Front view of same steam locomotive 7002 after it was streamlined and wheels equipped with roller bearings, to increase speed and power.

Courtesy

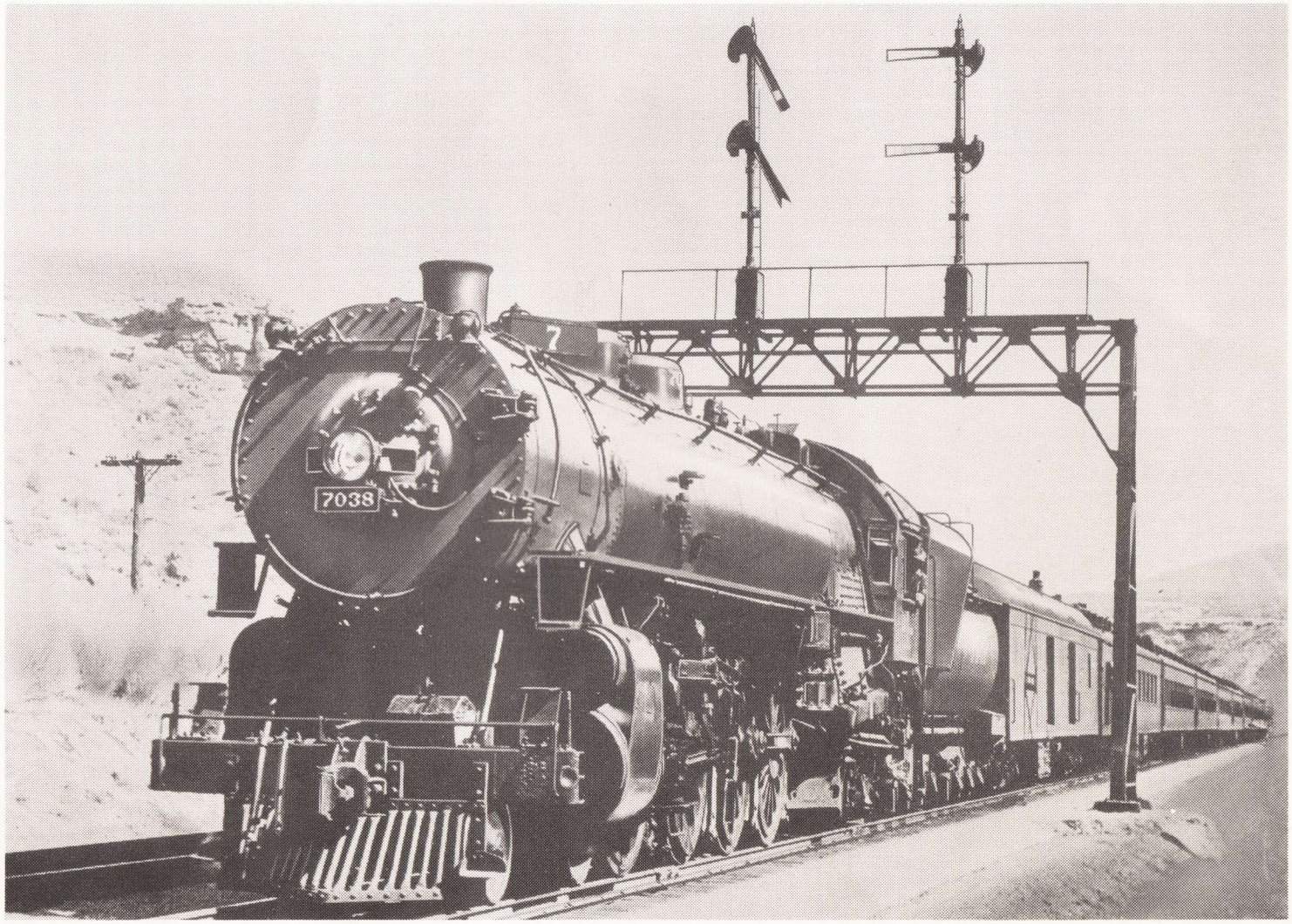
WOMEN'S TRAVEL DEPARTMENT



View of steam locomotive 7002 just before it was streamlined. This engine and tender are 90 feet 6⅜ inches long and weigh 582,800 pounds. At the highest point the engine measures 15 feet 10 inches in height. Diameter of drive wheels is 73 inches.

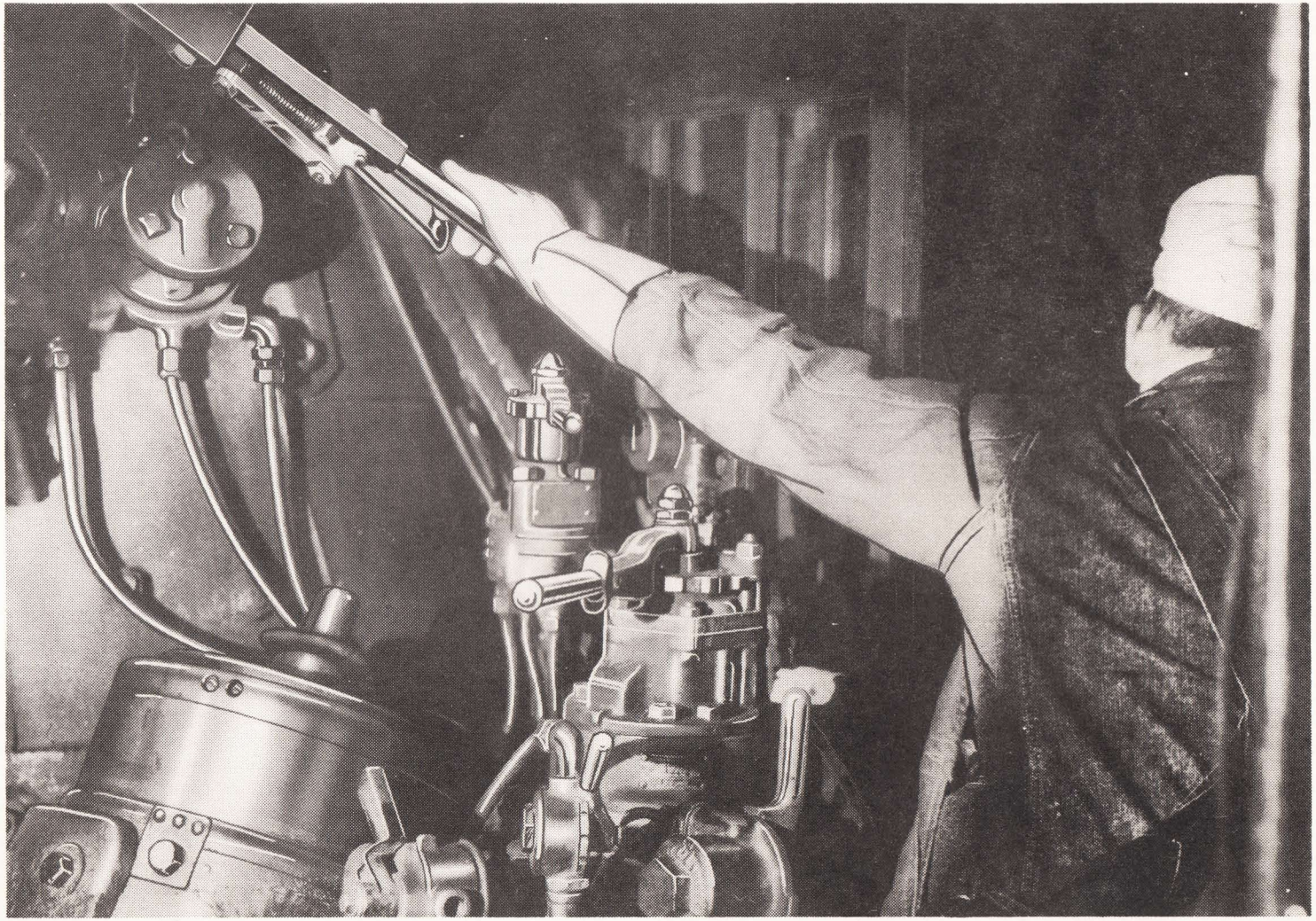
View of steam locomotive 7002 and tender after they were streamlined. Engine 7002 pulls "The Forty-Niner" streamlined steam train between Cheyenne, Wyoming, and Ogden, Utah, at near streamliner speeds.

Courtesy
WOMEN'S UNION PACIFIC OVERLAND TRAVEL
DEPARTMENT



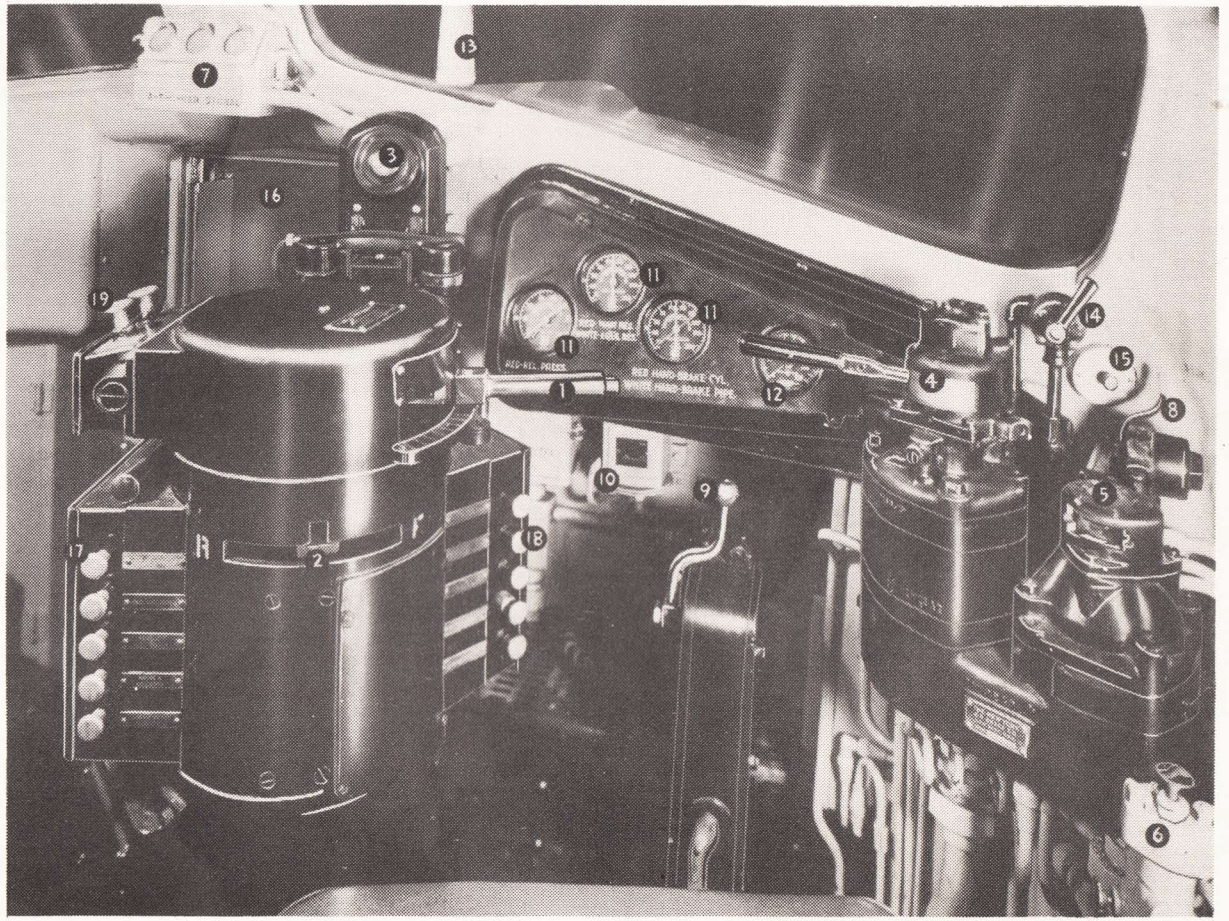
The "Los Angeles Limited", air conditioned, all-Pullman passenger train with conventional type steel cars. Running time from Los Angeles to Chicago is 58 hours. Note bridge automatic block signal. Horizontal position of semaphore blades shows blocks are set to prevent another train's entrance into safety zone on occupied track. The semaphore with blades down shows parallel track is clear in opposite direction.

The "City of Los Angeles", 17-car Streamliner, makes the 2,298-mile run from Los Angeles to Chicago in 39¾ hours. The 5,400-horsepower diesel locomotive, 210 feet long, consists of three power-car units. Each unit has two 900-horsepower, 12-cylinder engines; 1,100 gallons of water and 1,200 gallons of fuel oil. The train is almost a quarter-mile long and is equipped with inter-car telephone system.



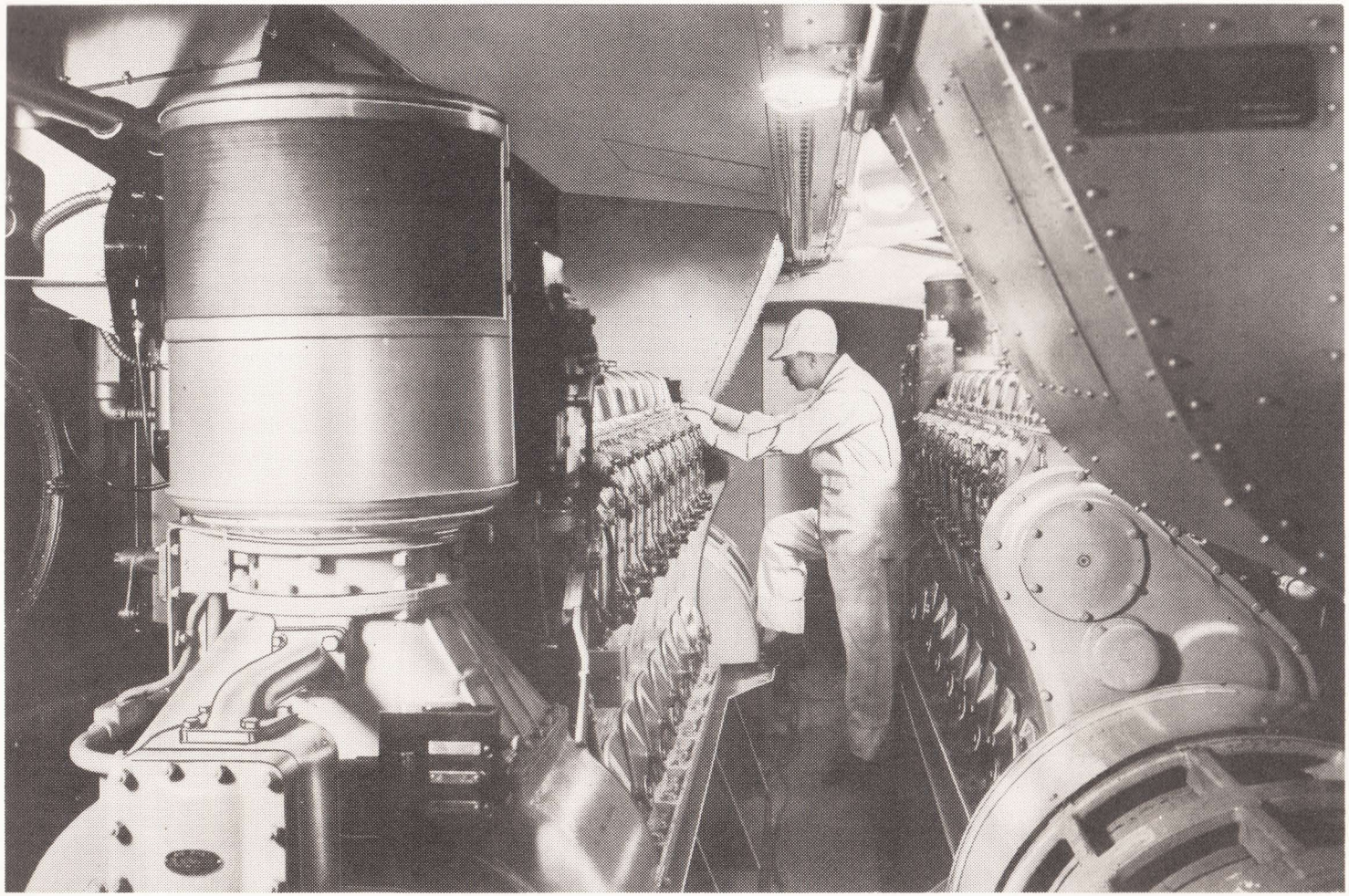
Engineer with hand on throttle in cab of 7000-class steam locomotive. The throttle regulates a valve that admits steam to cylinders and moves the engine. Coal is the fuel used. A fireman operates the automatic stoker, regulates water for the boiler and watches signals from left side of cab. A steam engineer sits with his head out the cab window. He is protected by a windshield. Cabs are steam heated in winter.

Engineer sitting comfortably in cab of 17-car Streamliner, "City of Los Angeles". All operating levers are in easy reach and all gauges easy to see. A foot pedal, called "dead man's control", automatically stops the train should pressure of the engineer's foot be removed. Wide windshields with defrosters, sun visors and air driven wipers insure perfect visibility. A telephone connects with other parts of the train.



INTERIOR OF STREAMLINER CAB

1. Combined throttle lever and controller handle.
2. Opening for reverse lever—lever not shown.
3. Telephone, to talk with crew back in train.
4. Valve controlling the brakes on entire train.
5. Air brake change over valve, handle not shown.
6. Sander valve, to release sand on the track.
7. Lights by which engineer receives signals.
8. Train control acknowledging lever.
9. Same as No. "8" but not now on train.
10. Train control pressure switch.
11. Air brake and train control pressure gauges.
12. Speed indicator dial.
13. One of two handles for blowing the horns.
14. Bell ringer air valve.
15. Air driven windshield wiper valve.
16. Door leading to compartment under nose.
17. Five switches controlling various lights.
18. Five switches controlling accessories.
19. Two push button switches controlling other accessories.



The Auxiliary Car, "City of Los Angeles" streamliner, has two 600-horse power diesel engines to generate current for lights, blower fans, air-conditioning equipment and all electrical accessories. One engine is used at a time. Each develops 300 kilowatts and both could generate enough current to supply an average town. The big drum, left, is an air filter; lower right, generator and timing chain case; above, air duct for cooling engine. The air-conditioning system delivers 1,800 to 2,500 cubic feet of purified air per minute.

"Challenger" streamline-type coaches have revolutionized travel by providing utmost comfort at low cost. Interiors are modern and beautiful with upholstering, window shades, floor coverings and color schemes in perfect harmony. There are 56 reclining seats heavily cushioned with soft sponge rubber. Restful blue night-lights and electrically cooled drinking water are other unusual features. Also there are "Challenger" coaches exclusively for women.

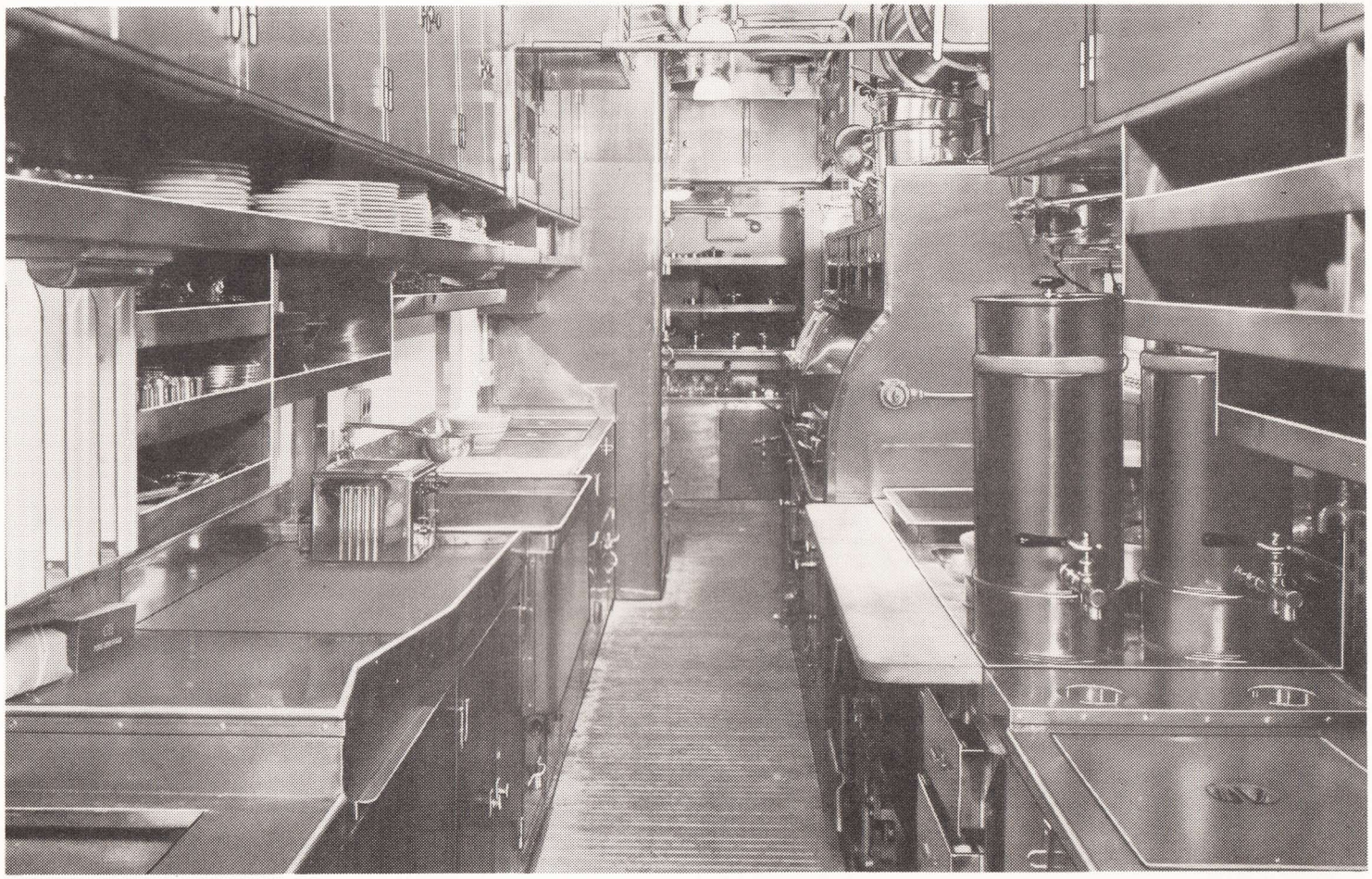
"The Challenger" diner, an ultra-modern coffee-shop car, seats 68, almost twice the usual number. This size was made necessary by popularity of the Union Pacific innovation, "Three Meals a Day for 90¢." Large kitchen, pantry and rooms for the crew are in a separate car which is joined to the diner by means of "articulation." Inside, the two cars appear to be one. Coach passengers use the diner as a lounge car.

"Challenger" de luxe Tourist sleeping car, the standard Pullman of yesterday. The only difference is floors are now covered with heavy cork linoleum, aisle strips only are of carpet and linen head rests are not provided. Comfort and service measure up to standard Pullmans but berths cost only approximately half. Cars have 14 sections composed of a lower and an upper berth. Two people may occupy each berth.

"Challenger" Lounge car, a Union Pacific innovation for tourist sleeping car passengers. Cars are beautiful with heavy carpets, smart metal furniture and rich upholstering in striking color combinations. There are tables for games and writing. "Challenger" stationery is provided. Current magazines, newspapers and radio furnish entertainment. Every lounge car carries a porter who attends to needs of the passengers.

Courtesy

WOMEN'S TRAVEL DEPARTMENT



"City of Los Angeles" streamliner kitchen, all of stainless steel. Range cooking is done with logs of compressed sawdust. The broiler uses a compressed charcoal. Electric refrigeration protects perishable foods. Other supplies are stored in the 40-foot kitchen and pantry. The crew includes a chef-caterer, six cooks and a pantryman. In the dining car crew are a steward, his assistant and necessary waiters.

"City of Los Angeles" Streamliner Dining Car, striking in color design of blue and copper. Carpeting is dark blue. Venetian blinds, mouldings and grilles are all copper color. Window drapes are yellow, copper and blue. For contrast the arched ceiling is light yellow. Oval backed chairs are blue or copper and Irish table linens are yellow. White china carries a gold streamline design. The diner seats 68 people.

Open-section standard Pullman, "City of Los Angeles" Streamliner. This type of car has 12 sections with stationary head boards giving additional privacy for daytime. Berth lights have two-way switches providing white light or soft blue. Windows are built in upper berths, easy of access by means of folding stairway attached to berth. Grilles in head boards control fresh air in berths.

Registered Nurse-Stewardess service on trains is another innovation pioneered by the Union Pacific. All principal trains carry these smartly uniformed young women, graduates of leading hospitals. A stewardess assists elderly people, children traveling alone, mothers with babies and all others needing help. There is no charge for the service.

Courtesy

WOMEN'S TRAVEL DEPARTMENT

Courtesy

WOMEN'S UNION PACIFIC OVERLAND ROUTE TRAVEL DEPARTMENT

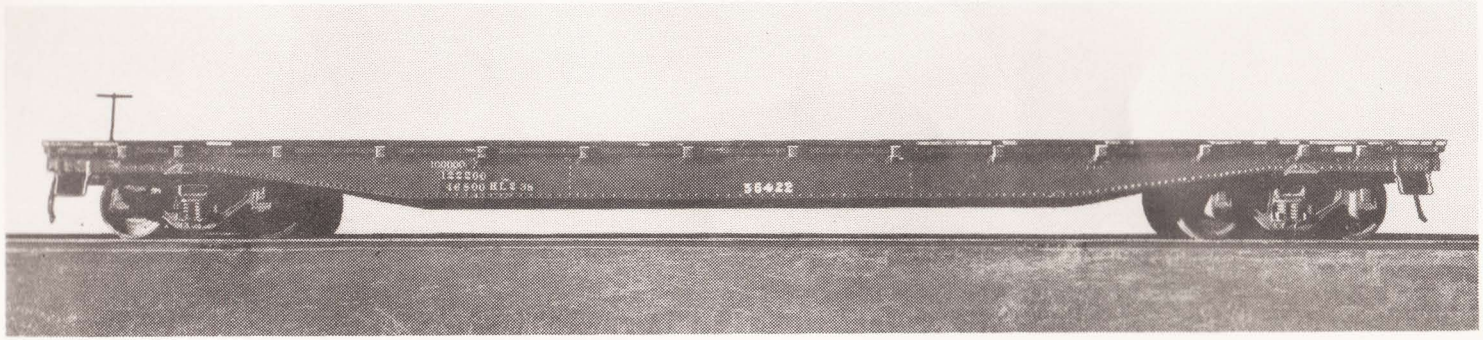
A "Roomette" on "City of Los Angeles" Streamliner. The car has 13 of these new type single bedrooms. Each roomette has complete toilet facilities, clothes closet, large luggage rack and outlet for electric razor or curling irons. The bed is easily lowered or raised. Color schemes vary in different roomettes.

"City of Los Angeles" Streamliner Observation-Lounge. This car resembles a finely appointed living room. Walls are light blue. Draperies are effective in tan, blue and rust. Venetian blinds match tan seat coverings and carpets. Ceiling lighting is indirect. A unique feature is telephone connections with diner and Pullmans. A smart barber and valet shop is located in the forward end of the lounge car.

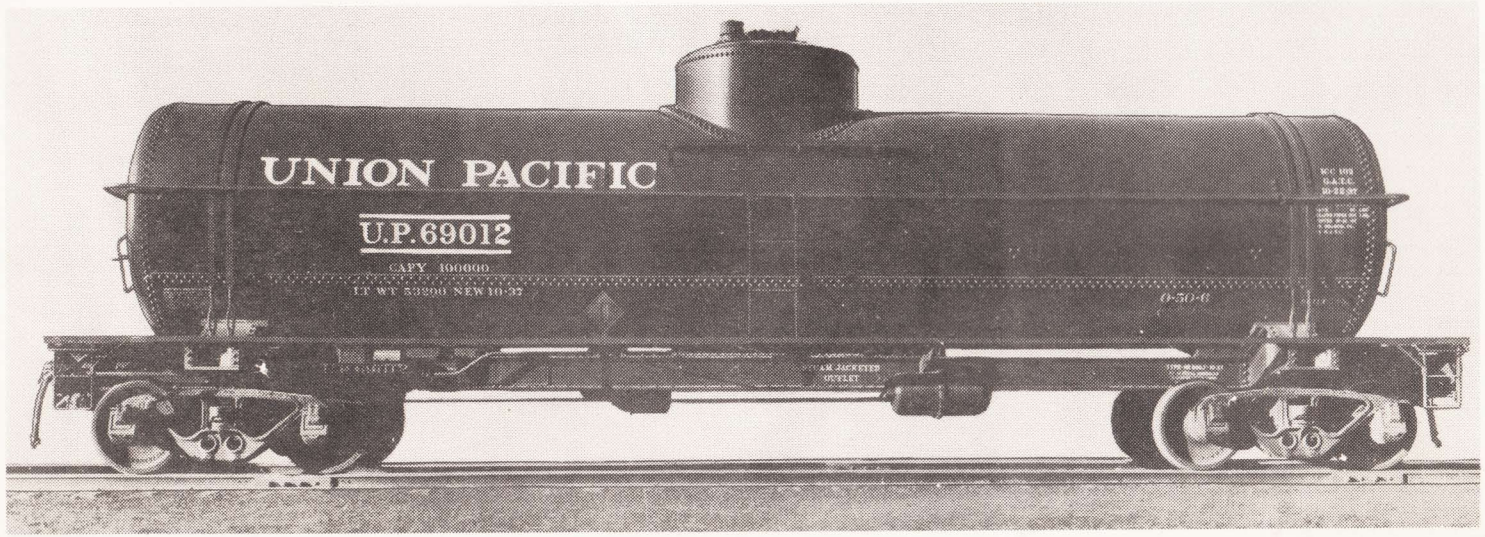
Courtesy

WOMEN'S UNION PACIFIC OVERLAND ROUTE TRAVEL DEPARTMENT

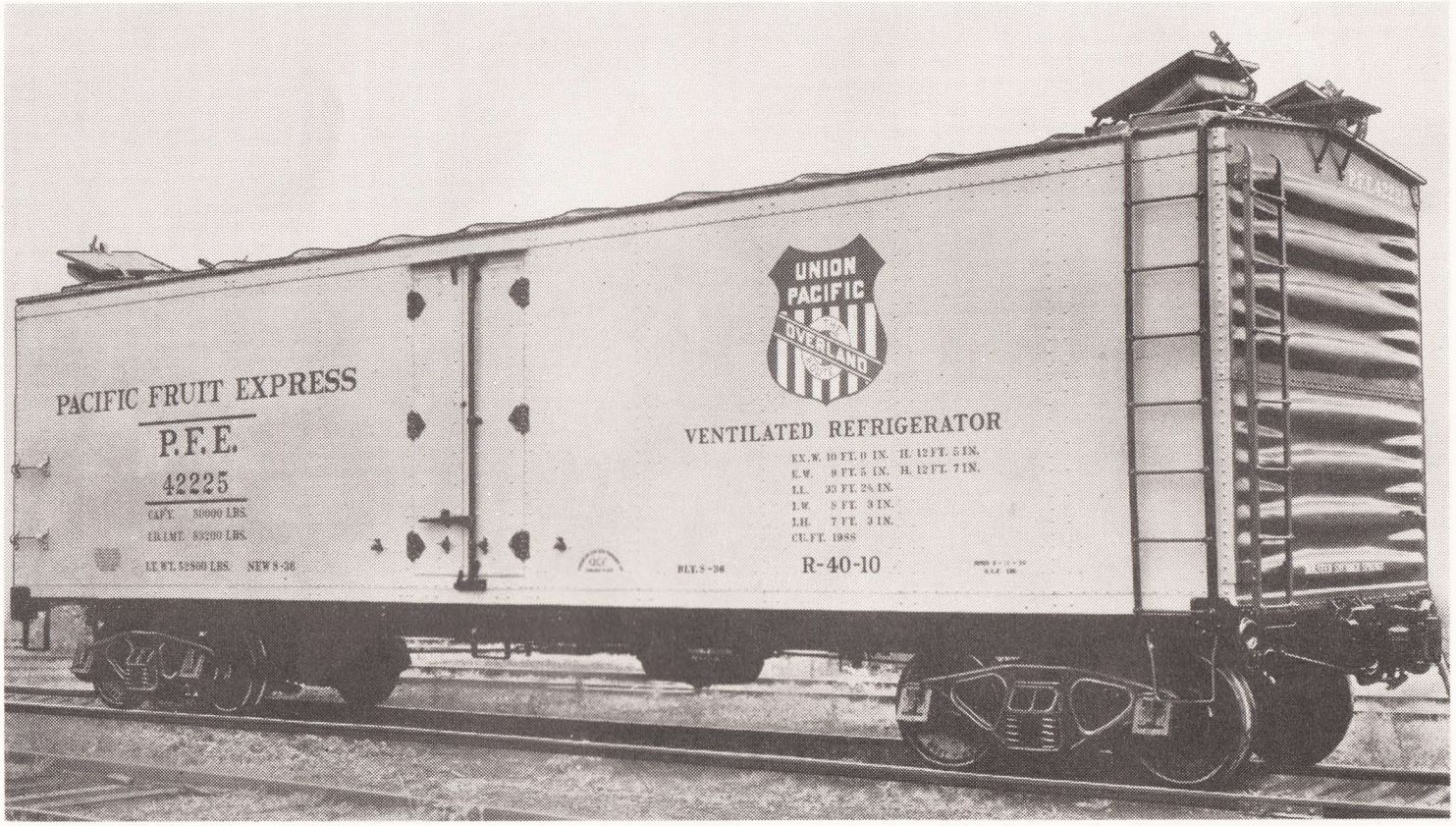
Fast freight train in action. The locomotive is a 5000-class freight engine and can pull 75 freight cars, over a half mile long, 50 miles per hour. Average top speed of freight trains is 40 miles. The tender holds 25 tons of coal and 18,000 gallons of water. Coal capacity is sufficient for about 5 hours operation and water for 1 hour and 45 minutes. Freight trains usually do not start full length but add cars enroute.



Flat Car with steel frame. Length, 52 feet, 8½ inches. Capacity, 100,000 pounds. Flat cars carry heavy materials such as tractors, machinery, pipe, stone, lumber or logs. Two or three cars are used together for long objects like bridge girders. Loads are secured by blocks or uprights placed in pockets on side of car.



Tank Car with capacity of 100,000 pounds or about 12,500 gallons. Load never extends above bottom of dome. This allows expansion space for liquids in warm weather. Gasoline and fuel oil are the usual loads carried.

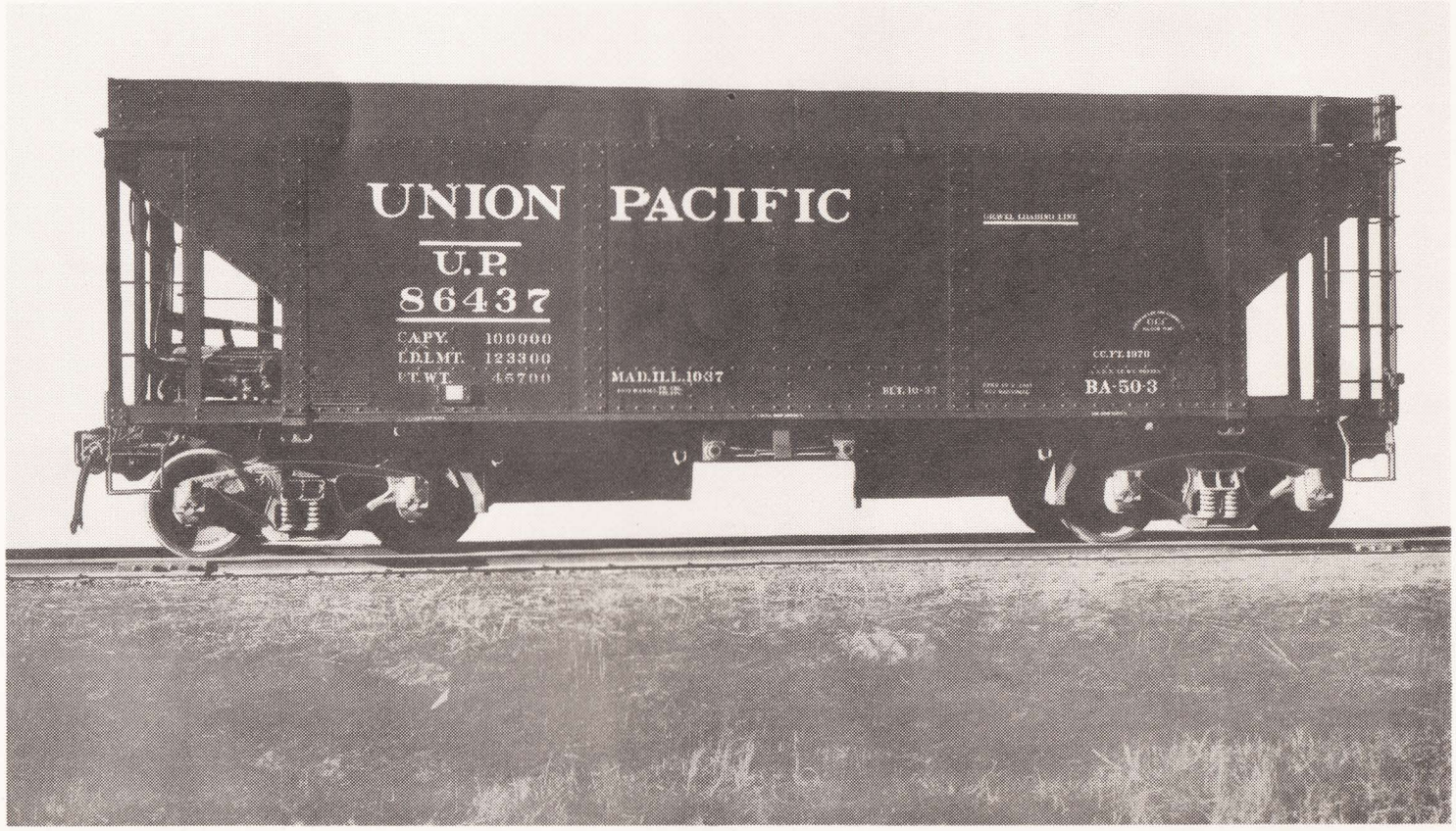


Advent of Refrigerator Cars in the late "eighties" transformed food habits as well as fruit and vegetable production of this continent. Each car costs about $3,900. Both ends have tanks for ice in summer. Charcoal heaters are used in winter. Hatches shown above open into tanks. Capacity of car is 80,000 pounds. Fast trains, pulled by new high-speed, giant-powered freight engines, are made up entirely of these ventilated refrigerator cars loaded with fruit, vegetables, meat or other perishables.

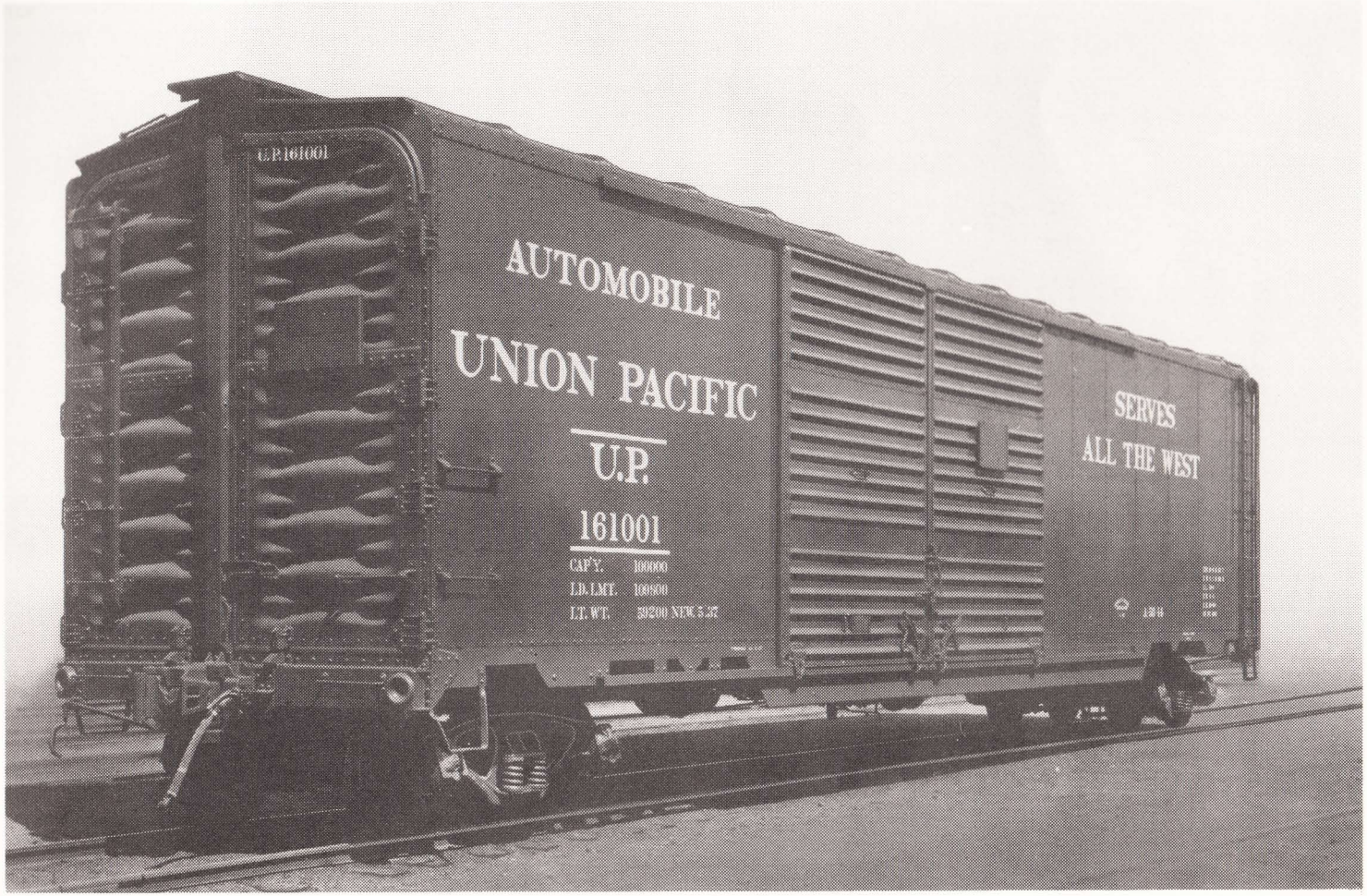
Courtesy

WOMEN'S UNION PACIFIC OVERLAND TRAVEL DEPARTMENT

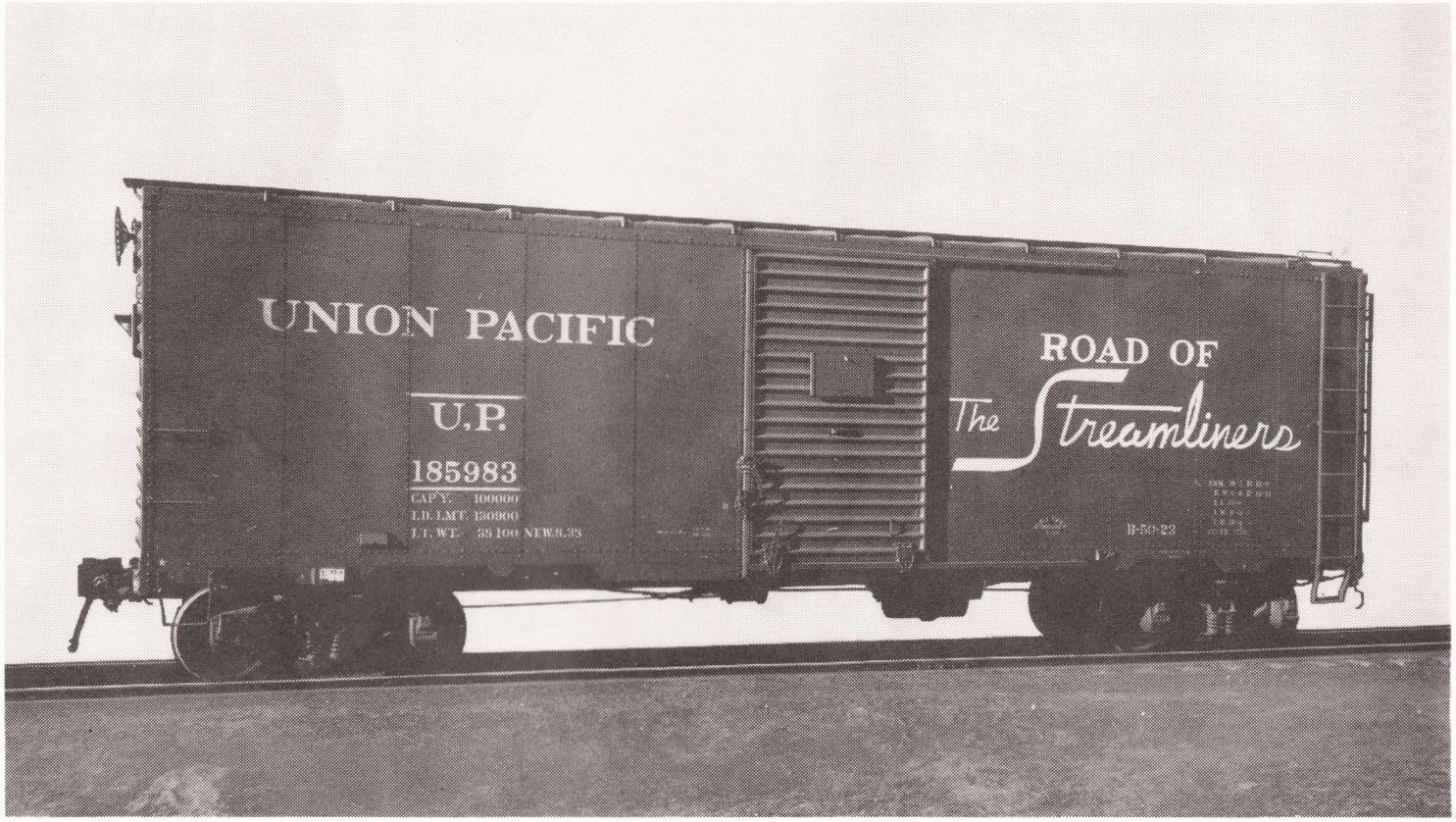
Stock Car, used to ship cattle, horses and mules. Similar cars, double-decked, carry hogs and sheep. Every 36 hours stock must be unloaded for water, feed and rest. Stock cars are placed at head end of train.



Hopper-type Gondola Car with drop doors. The car is 34 feet, 5 inches long and 10 feet, 8 inches high. The light or empty weight is 45,700 pounds. Capacity is 100,000 pounds. Loads for these cars are coal, ores, gravel, rock and sugar beets. When beets are loaded, additional sideboards are provided around the top. Cars are unloaded on trestles. Trap doors are opened by levers on each side and at center floor level of car.

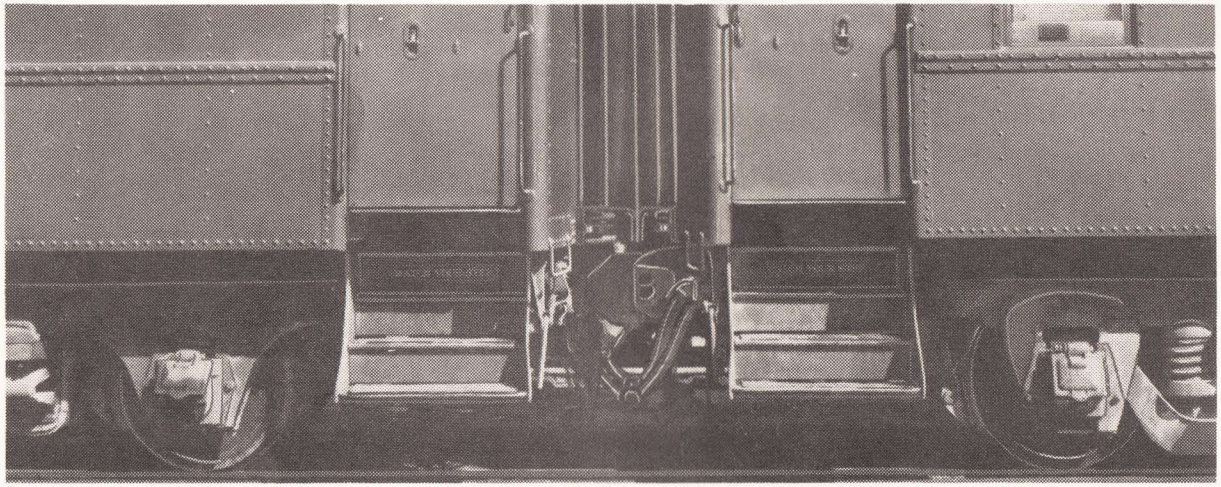


Automobile Car. Length, 52 feet, 1 3/8 inches; height, 15 feet, 1 inch; width 9 feet, 4 1/4 inches. Weight, empty, 50,200 pounds. Capacity, 100,000 pounds. Car has wide side doors and two end doors. This car can carry four passenger automobiles, or one large truck or as many as four small trucks. Many cars are built particularly for shipping some special motor or body parts.

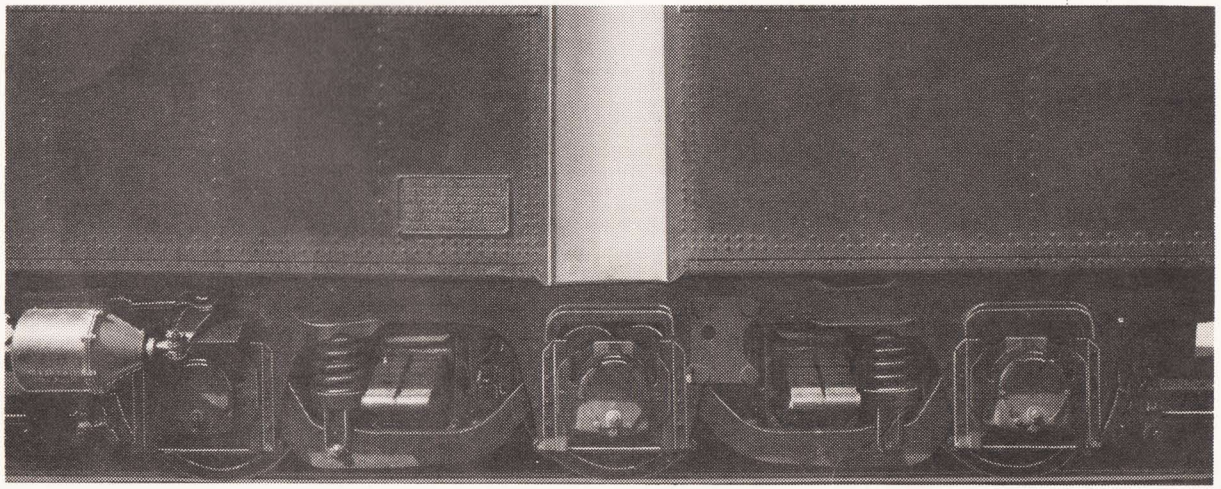


Box cars formerly were built of wood. The one above is the latest type steel car. Inside dimensions—length, 40 feet, 6 3/16 inches; width, 9 feet, 2 1/16 inches; height, 14 feet, 7 3/8 inches. Empty, they weigh 38,100 pounds. Capacity is 100,000 pounds. Shipped in these cars are such things as general merchandise, paper, lumber that must be protected, canned goods, furniture, flour, sugar, grain and carbon black for tires.

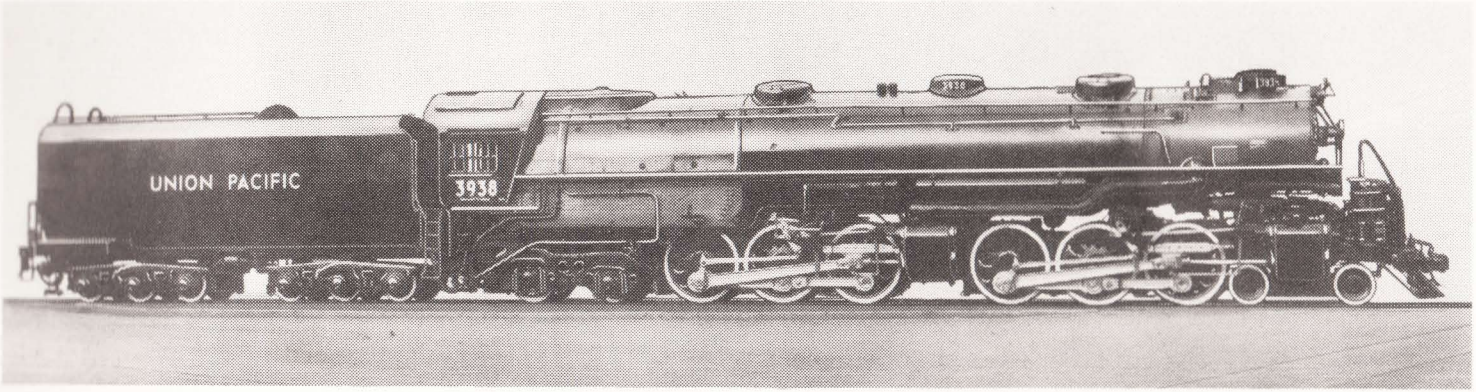
The Caboose is always the rear car on freight trains. Each caboose is equipped with desk and chairs for office work. A stove is provided for cooking meals. Supplies and material are carried for emergency repairs to cars. The caboose is headquarters for the crew and is built with a cupola so the train can be watched by the crew to see that all cars and loads are riding properly.



Two cars, with 6-wheel trucks under each end, coupled in standard way with draw bars allowing some slack.



"Articulation"— showing how ends of two cars rest on one 6-wheel truck, thus using only three sets of trucks for every two cars. There is no slack between cars but the swivel feature in articulated joint permits cars to take curves as if they were separate. The strip shown between cars is a rubber diaphragm.



The "Challenger", powerful 3900-class mallet-type locomotive of late design. This engine is used both in freight and passenger service to pull heavy trains at high speeds.

AMERICAN LOCOMOTIVE COMPANY

NEW YORK

Class, "Four-Cylinder Simple," 4664 S 582 — Road Number, 3938

BUILT FOR THE UNION PACIFIC

GAUGE OF TRACK	CYLINDERS		DRIVING WHEEL DIAM.	BOILER		FIRE BOX		TUBES		
	Diam.	Stroke		Inside Dia.	Pressure	GAINES ARCH		Number	Diameter	Length
						Length	Width			
4′-8½″	22″	32″	69″	96 11/16″	255 lbs.	213 1/16″	108¼″	222 60	2¼″ 5½″	22′ 0″

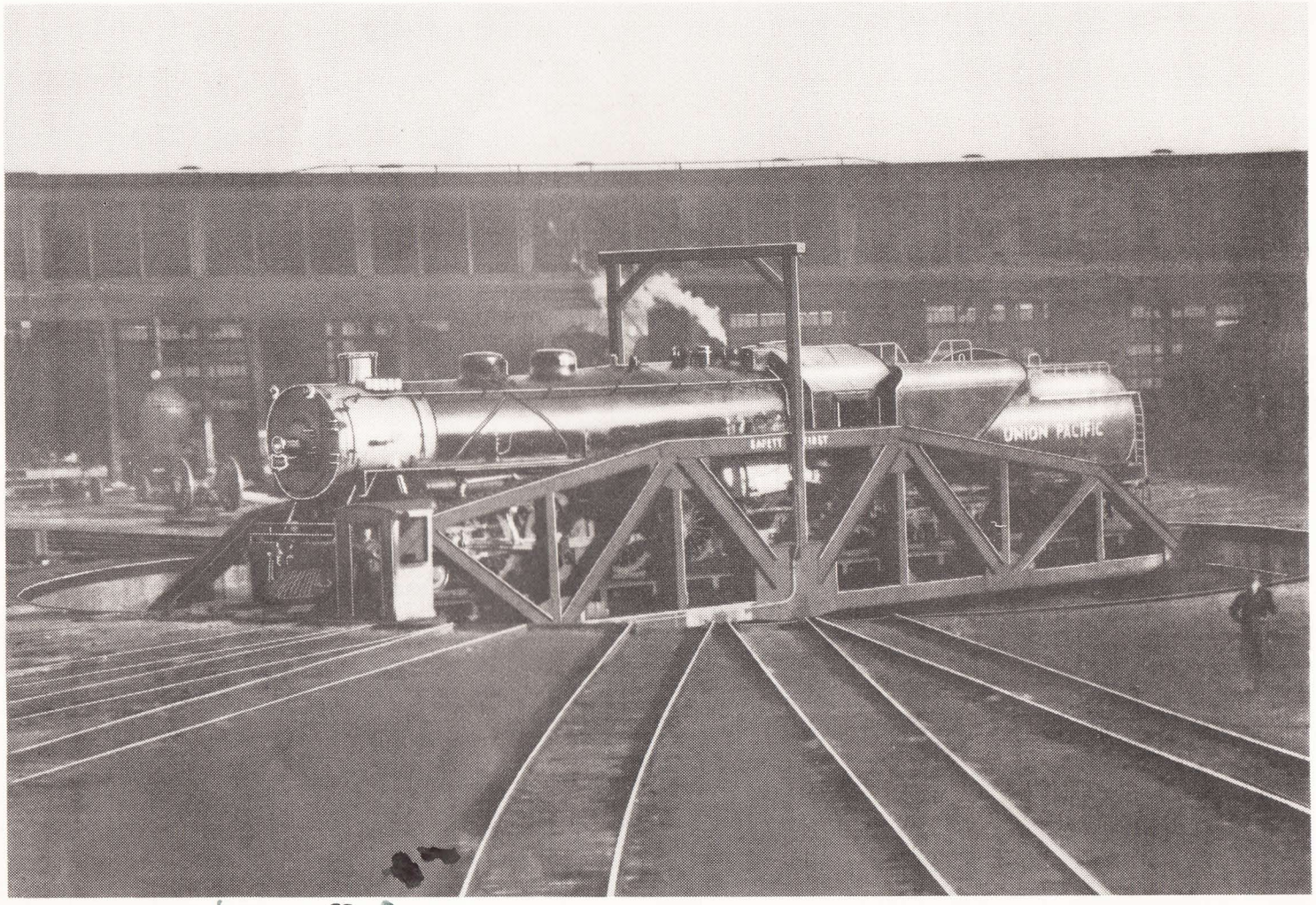
WHEEL BASE			WEIGHT IN WORKING ORDER—POUNDS				
Driving	Engine	Engine & Tender	Leading	Driving	Trailing	Engine	Tender
12′-2″ & 12′-2″	59′-11″	97′-10½″	78000	403000	101000	582000	312000

FUEL	EVAPORATING SURFACES, SQUARE FEET					SUPERHEATING SURFACE SQUARE FEET	GRATE		MAXIMUM TRACTIVE POWER	FACTOR OF ADHESION
Kind	Tubes	Flues	Fire Box	Arch Tubes	Total		Length	Width		
							144″	108¼″		
Soft Coal	2864	1892	548	77	5381	1650	108.2 Sq. Ft.		97400 lbs.	4.14

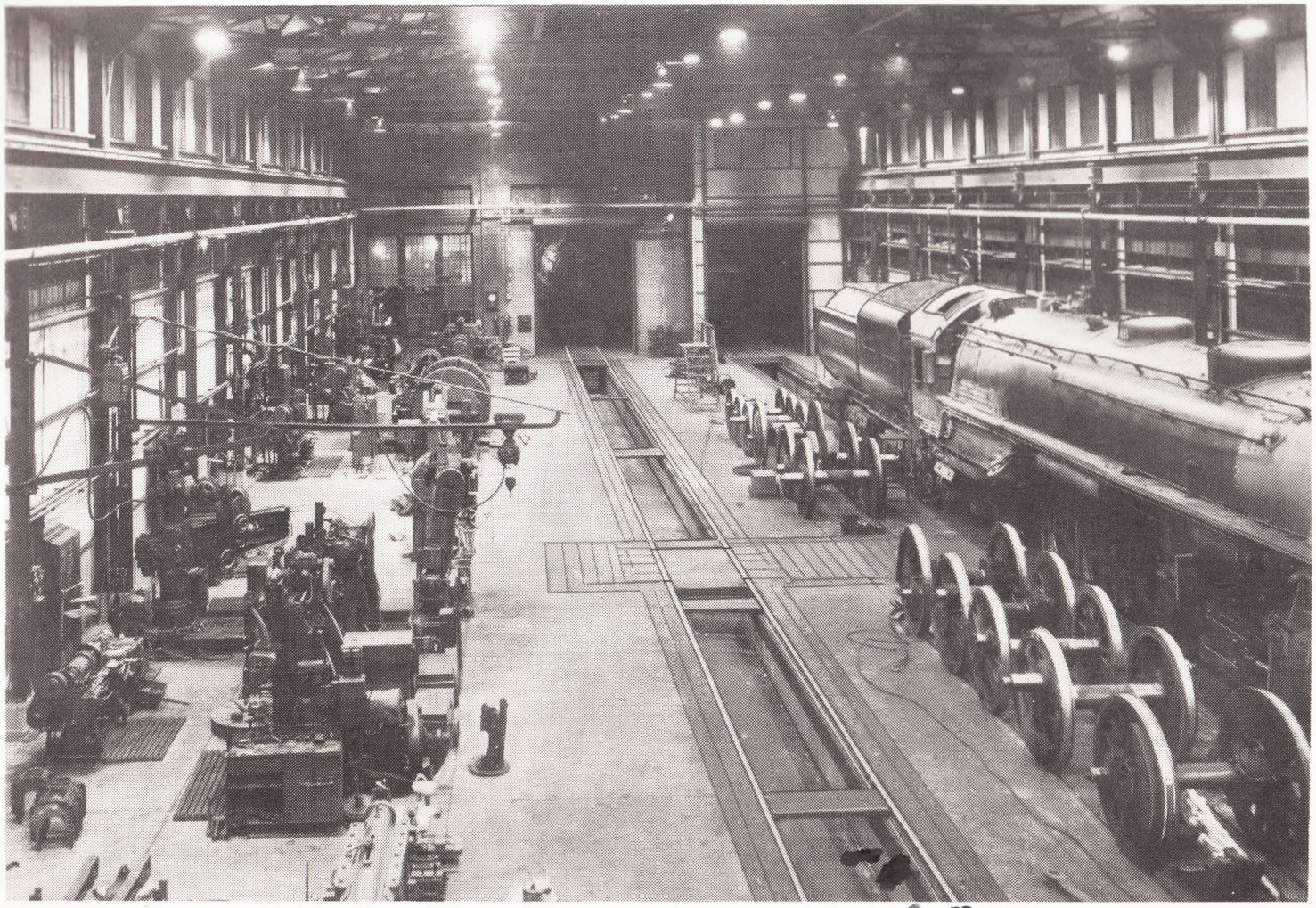
Tender Type, 12 Wheeled — Capacity, Water, 18350 Gals. — Fuel, 22 Tons

ORDER NO. S-1779
August, 1937

The chart above gives specifications for "Challenger" engine No. 3938 shown in the picture.



Steel Turntable, one of the most important pieces of equipment in a railroad yard. A turntable is always located in front of the roundhouse. Operated electrically from the control cabin at left end, the table can be revolved so that engines are run from it to the track in or out of any stall. This effects great saving in yard tracks and switches. Early turntables were built of wood and were moved around by hand.



A shop completely equipped to repair and service two large or four small engines at one time. Across center of "drop pits" is a platform that lowers. To replace wheels shown above each pair would be put on the platform, lowered, carried to engine and raised into position. In the larger shops a great traveling crane easily lifts the largest locomotive, and replaces it on the wheels with precision.

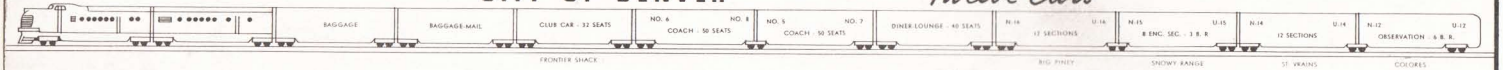
FAMOUS FLEET OF POWERFUL *Streamliners* and *THE FORTY-NINER*

UNION PACIFIC THE OVERLAND ROUTE

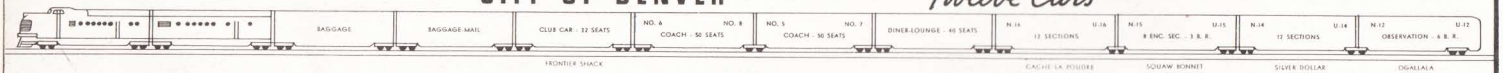
TO ALL THE WEST

CITY OF SALINA · · · · *Three Cars*

CITY OF PORTLAND · · · · *Seven Cars*



CITY OF DENVER · · · · *Twelve Cars*

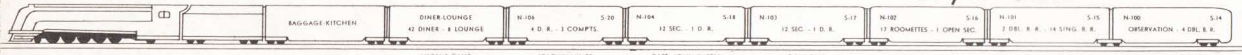


CITY OF DENVER · · · · *Twelve Cars*

CITY OF LOS ANGELES · · *Thirteen Cars*

CITY OF LOS ANGELES · · *Seventeen Cars*

CITY OF SAN FRANCISCO · *Seventeen Cars*



FORTY NINER · · · · *Eight Cars*

Courtesy

WOMEN'S UNION PACIFIC THE OVERLAND ROUTE TRAVEL

DEPARTMENT

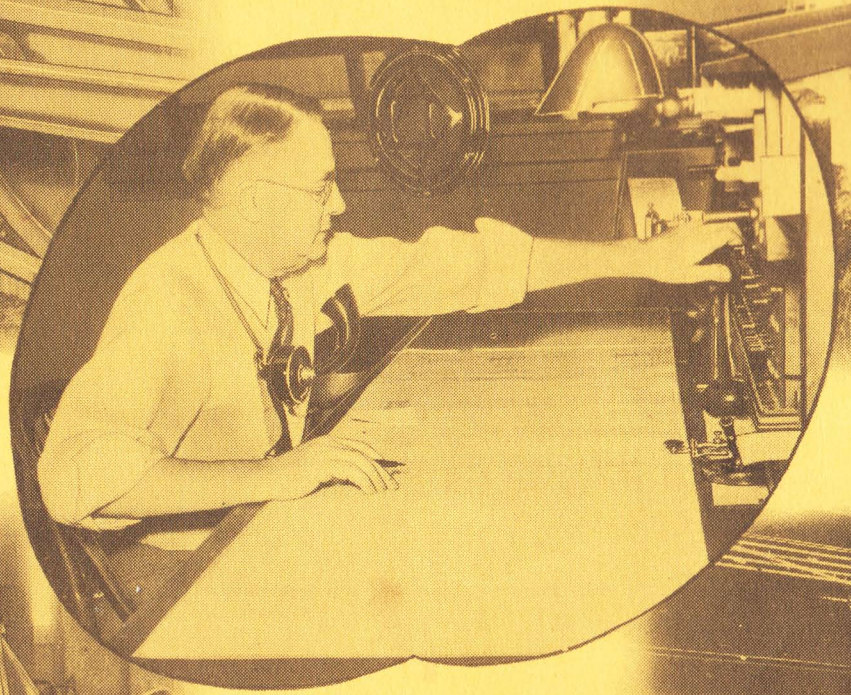
Courtesy

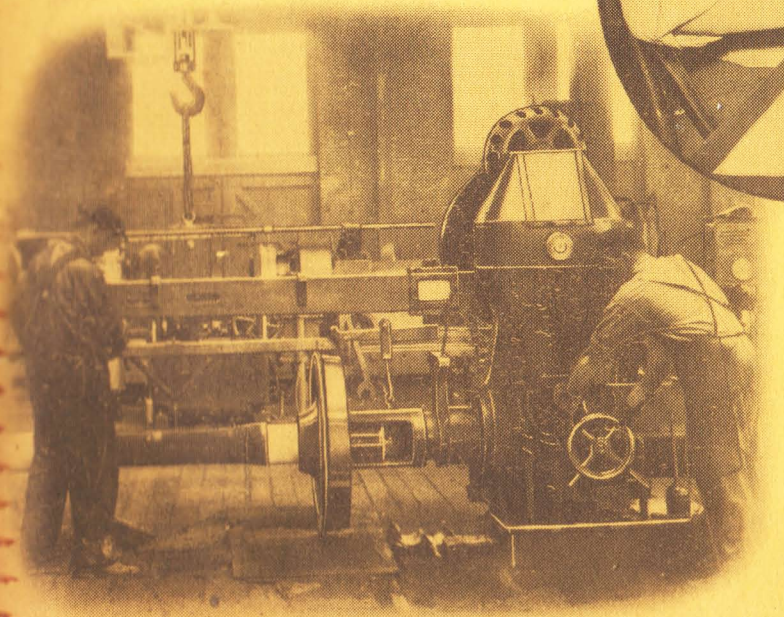
WOMEN'S TRAVEL DEPARTMENT

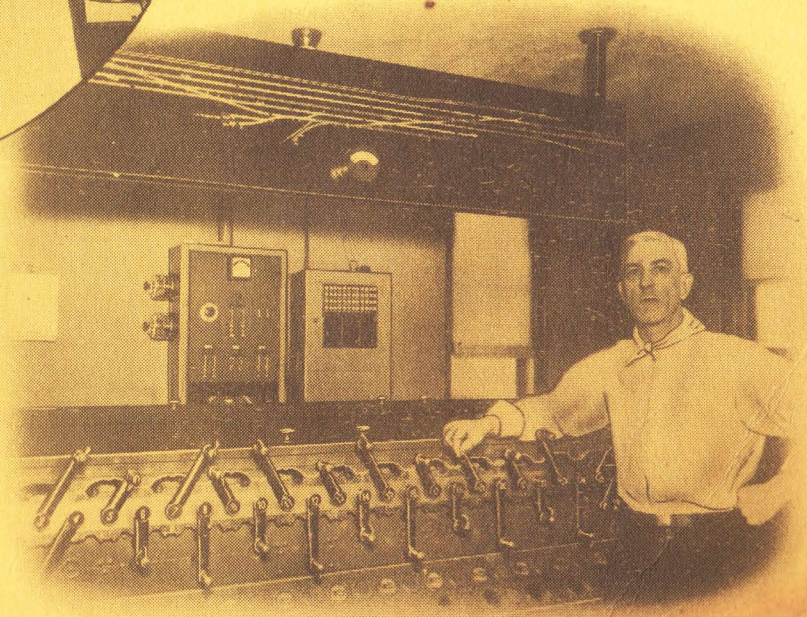
UNION PACIFIC OVERLAND ROUTE

Left :
Engineer Oiling Locomotive.

Right : Cutting Hole
With Acetylene Torch







Center :
Train Dispatcher at Work.

Left :
Pressing Wheels Onto Axle.

Right :
Towerman beside Interlocking
Switch and Signal Control Case.

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