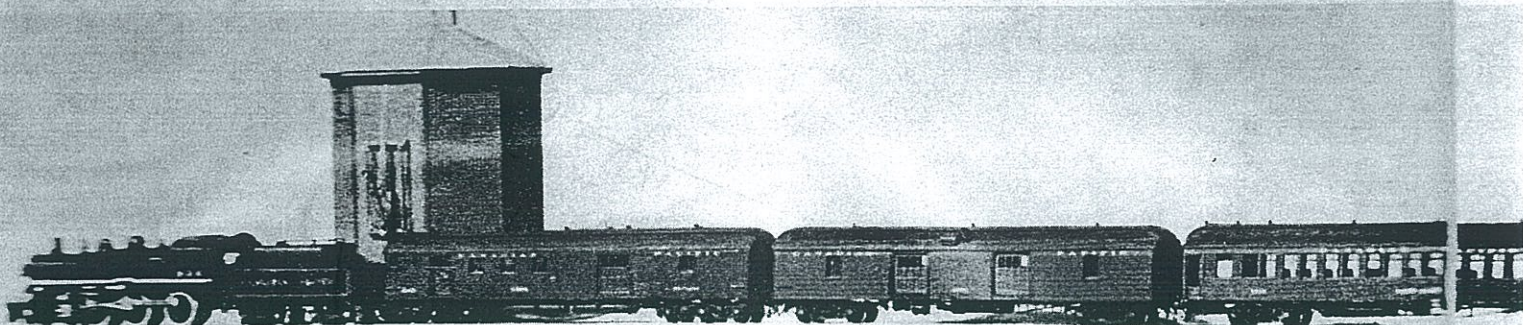


CANADIAN
PACIFIC
KETTLE VALLEY
PASSENGER CARS



A CPR builder . . .

Gib Kennedy sent MR the following dispatch about himself:

"Have been fascinated by trains since I was first able to differentiate between a horse and a locomotive, and the first photographic impression left on my mind dates from the age of five, when I watched the tail end of the observation car of the Kettle Valley train pull away from the station at Carmi, B.C.

"At 14 I had begun a collection of locomotive photos, and at 16, on Saturdays and after school, I was allowed to run engines out of the local CPR roundhouse to the ashpit under a guiding hand.

"It was natural that model railroading should follow, and in 1950 I bought my first copy of *MODEL RAILROADER*. A year later I scratch-built my first model, a CPR caboose.

"An 11x14 ft. room houses a mountain railroad with about 175 ft. of track, with a small addition under construction and scenery to follow shortly. CPR, Great Northern and Washington Northern share the trackage, the latter a freelance road.

"Married to a very understanding and encouraging wife, who will nearly always stop the car on our Sunday drives so that I can photograph a switch stand or cattle guard or some other unlikely object. My two sons, ages 11 and 13, have contributed odd structures when marbles and amateur radio have permitted.

"Employed as an agent by Canadian Pacific Telegraphs, at Trail, B.C."

HOW TO BUILD A COMPLETE Kettle Valley

Standardized methods, materials and commercial parts speed up construction of these five beautifully proportioned, wood-sheathed cars

By W. Gibson Kennedy

ON completion of the Kettle Valley Ry. in 1916, the Canadian Pacific commenced through passenger train operation from Nelson, B. C. to the Pacific coast city of Vancouver. The KV bridged the gap between the CPR's southern British Columbia lines and the main line across the Fraser River near Hope.

For 15 years, until 1931, when steel equipment and heavier engines were assigned, a train of five wood passenger cars traversed the 500 miles between the Kootenay and the coast, over some of the most rugged and picturesque mountain territory in the west.

A number of CPR engine types hauled these trains, both on CPR lines and on the Kettle Valley, since the KV owned no motive power. The CPR D-10 class 4-6-0's in the 900 series had a turn in taking these trains over the 2.2 per cent grades of the Farron hill west of Nelson.

About the time I was giving my cars their final finishing touches, Pacific Fast Mail made the surprising announcement that United had a model of the 900's ready for production. This would complete my train, and the model of the 900 far exceeded my most hopeful expectations.

My cars are built up mainly of North-eastern materials, including roof stock, floors, blank coach siding complete with milled-on belt rail, and various sizes of stripwood and wood shapes. Scribed sheetwood with $\frac{1}{32}$ " spacing is used for the outer sheathing. The roof stock top deck is a little wider than the prototype, but by trimming off the heavy overhang and replacing it with $\frac{1}{32}$ " sq. stripwood, it is improved.

Central Valley six and four-wheel trucks are recommended, both for their rolling qualities and scale appearance. I also fitted the trucks on my cars with Central Valley brake shoes. I used Walters steps No. C542, with side walls filed thinner.

Odds and ends of scrap brass, wire, HO chain, safety chains (obtainable from the dime store on cheap lockets), ball-point pen tubes, and so forth, will provide the numerous details.

All measurements are taken from the plans and sketches, and careful reference to these and the photos should be made from time to time. Some of the construction steps may appear awkward, but are necessary, and are, in fact, the only way to build the cars successfully.

Briefly, here is the procedure:

1. Build up the sides and ends, except fascias.
2. Make up floors and apply underbody detail, except steps, couplers and hoses.
3. Assemble sides and ends to floors.
4. Make up and detail roofs and end fascias.
5. Add diaphragms, handrails, steps, couplers, hoses and interior details.
6. Paint cars and add decals, window material and trucks.

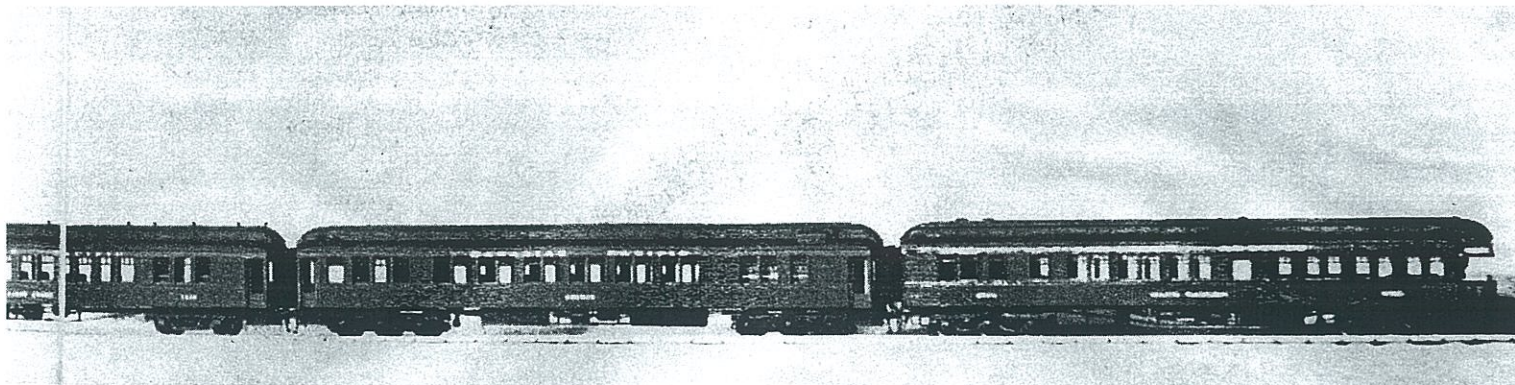
You will find as you proceed that there is good reason for following these steps.

Let's begin with the sides, breaking them down into two types, one for the passenger-carrying cars and another for the two head-end cars.

Car sides

Cut appropriate lengths of blank coach siding, then refer to Fig. 1. Lay out windows with a sharp pencil, noting different

Prototype plans for all five Kettle Valley cars are on pp. 38-41



Model photos by the author

Valley passenger train

locations on the floor plans. No pair of sides has all windows in the same position. After window positions are marked, cut off 11" along the top.

Make vertical cuts out to the top edge, leaving in the blanks to prevent breaking the posts as adjacent cuts are made.

Use a straight piece of $\frac{1}{16}$ " brass strip pressed against the belt rail, as a guide to make the horizontal sash cuts.

Remove blanks and trim corners, then replace the 11" wide top strips, pressing firmly in place while the glue dries. Apply letter boards, leaving about 1" overhang at the ends for the vestibules.

See Figs. 2, 3 and 6, and make up and install window frames, then glue scribed sheathing between frame pieces and below belt rails. Attach 2 x 8 scale lumber at the ends for trim, as in Fig. 2. Shape and apply quarter rounds for vestibule ends, making them from stripwood. Use Northeastern quarter round at the observation end of the cafe car. Add fillers behind letter boards where they project beyond car sides.

Make up half rounds as in Fig. 2 for end door posts, glue in place as shown and attach narrow quarter-round pieces above doors.

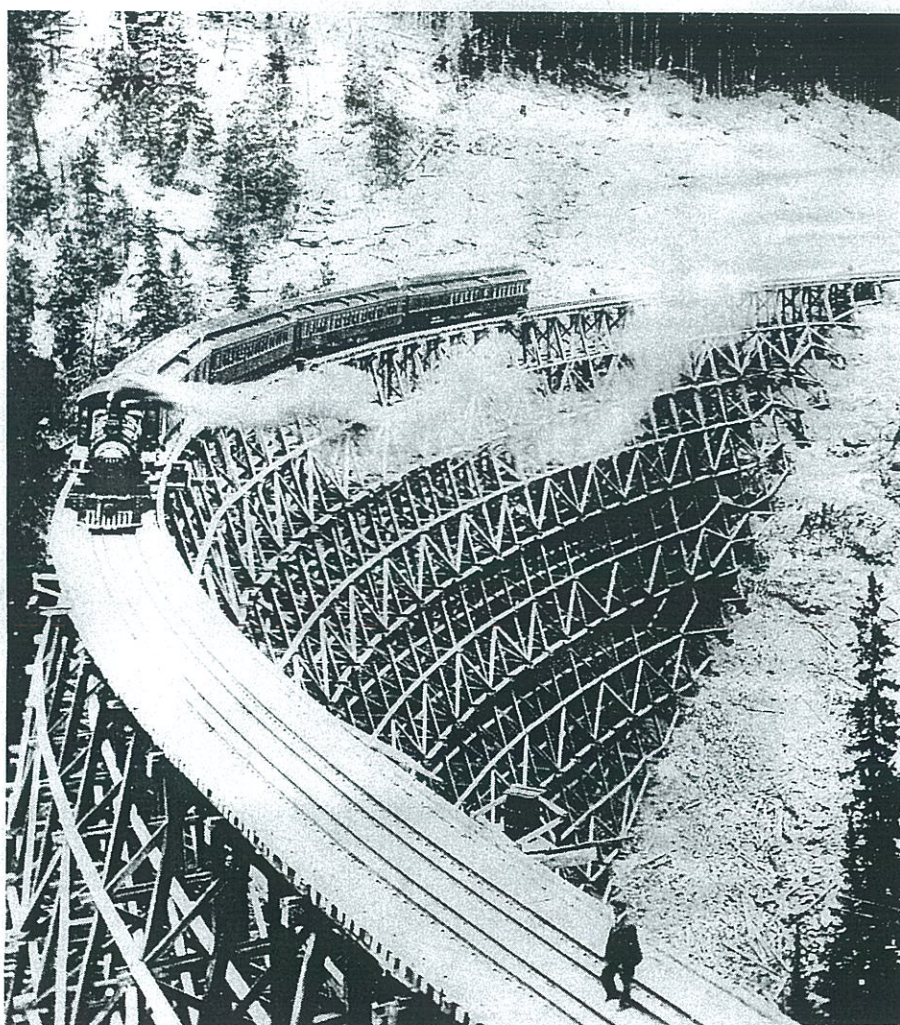
Now form the round top corners with plastic wood, as in Fig. 2, trimming off any excess behind doors after it is dry. Make up and fasten in doors, first removing temporary braces.

Handle these assemblies very carefully, as they are quite fragile, and any movement of the end posts will break the plastic wood corners. Do not trim off excess letter boards.

Now build up the upper sashes in all windows, following Fig. 3. Temporarily glue a straight piece of narrow stripwood behind the windows to serve as a guide in placing the horizontal mullions, or bars.

Use $\frac{1}{2}$ " lengths of card for the vertical mullions, gluing only the top ends behind the walls. Place them so the lower ends lie just behind the horizontal mullions. Trim off excess at the tops so that the roof soffits will fit in place.

Now make a pair of end walls for each end of the cars, as shown in Fig. 4. Do



Courtesy Canadian Pacific

Scene from yesteryear: The eastbound "Coast-Kootenay Limited" on the Kettle Valley route of CPR pauses on a spectacular wood trestle. Consist on this day was headed by No. 3269, a 2-8-0.

not apply the fascias or vertical strips yet.

Roughly shape the tops of the end walls to the approximate curve shown for the roof ends.

See Fig. 6, and complete the observation end wall, except for the fascia. Note

that the wall extends to the underside of the floor.

No further work can be done on the end walls now, so let's go on to the baggage and mail car sides and ends.

Fig. 7 shows construction of these. No

CUT OFF TOP STRIP BEFORE CUTTING OPENINGS
 DIMENSION SHOWN ON PLAN
 PLUS 2" EACH SIDE

11" TOP STRIP

11"

4" FOR LOW-ER GASH

24"

NORTHEASTERN® BLANK COACH SIDE
 WITH MILLED BELT RAIL

FIG. 2 →
VESTIBULE ENDS

TEMPORARY STRIP TO HOLD HALF ROUND WHILE FORMING TOP CORNERS. REMOVE BEFORE ATTACHING DOOR

CARD THRESHOLD PLATE - GLUED TO BACK OF DIAPHRAGM FACE PLATE SLIDES OVER PLATFORM

BLOCKS TO REINFORCE END WALLS

1/8" SQ. BLOCK TO FILL SPACE BETWEEN WALLS

WINDOW MATERIAL NOTCHED FOR WINDOW MATERIAL

SCALE 2"x8"

SCALE 2"x4"

3 1/2" QUARTER ROUND

4 1/2" HALF ROUND

FASCIA (CARD)

1/32" SHEET

BELT RAIL

FIG. 3 ↑
VESTIBULE INTERIOR

1/8" x 3/32"

1/32" SQ. PREFERABLY SMALLER WITH THIN CARD STRIPS FOR VERTICAL BARS

CARD STRIPS OVER VERTICAL POSTS

CUT OBSERVATION END SQUARE AT END WALL

ROUND OFF LETTER BOARDS

FIG. 6 ↓
SERVATION END
CAFE-PARLOR

Make the pair of end walls for each car. As the forward or blind end of the mail car has no door, that end is made in one piece. Follow *Fig. 7* for end wall details. Do not apply quarter rounds or fascias.

Referring to *Fig. 12*, make up water tanks for cars requiring them, and air tank assemblies for all cars. Install Pintsch gas tanks on those cars not electrically lighted, and battery boxes and generators, complete with card stock pulley belts to extend in behind the first set of wheels of a truck, to the other cars.

Before proceeding with assembly, cut a rough length of roof stock for each car

marking the ends of the roofs and floors "A" and "B." This will ensure that the same end of each roof is always applied to the same end of each car.

First, assemble the coach, sleeper and cafe cars.

Glue one side to its appropriate floor, being sure that the side extends $\frac{1}{32}$ " below the floor bottom, and is well centered. After the glue has set, attach the opposite side, then quickly and carefully place the roof stock in position to be sure the sides are perfectly parallel to provide a tight fit for the roof. Keep the sides as square to the floor as possible.

Now glue the end walls in place, including the observation end wall (Fig. 6). Vestibule ends are beveled very slightly to butt neatly in place against the end posts.

Cut and insert a spreader or tie piece across the top between the end walls to tie them together. This spreader should be fitted carefully to provide a square end for each car. See Fig. 3.

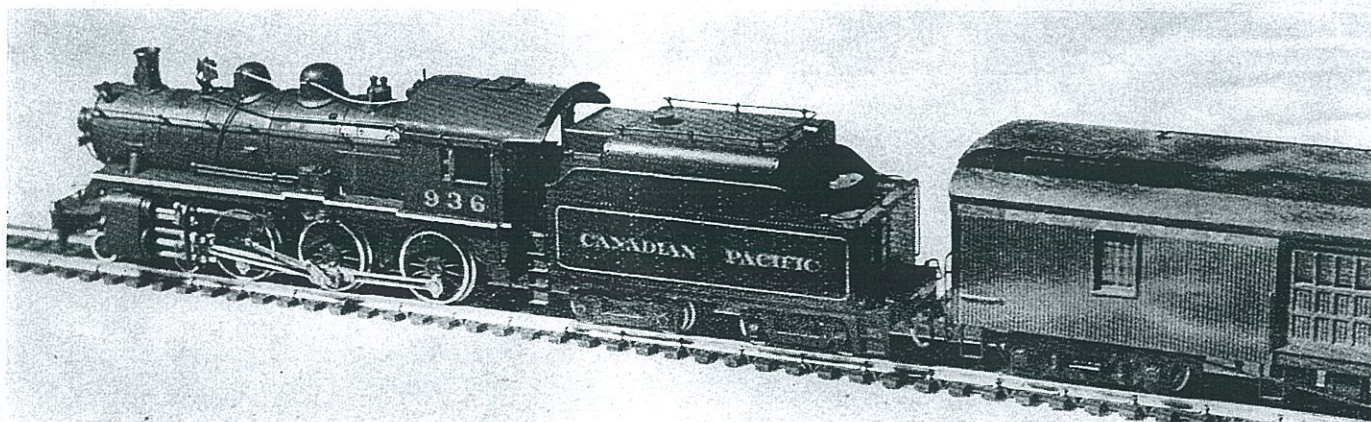
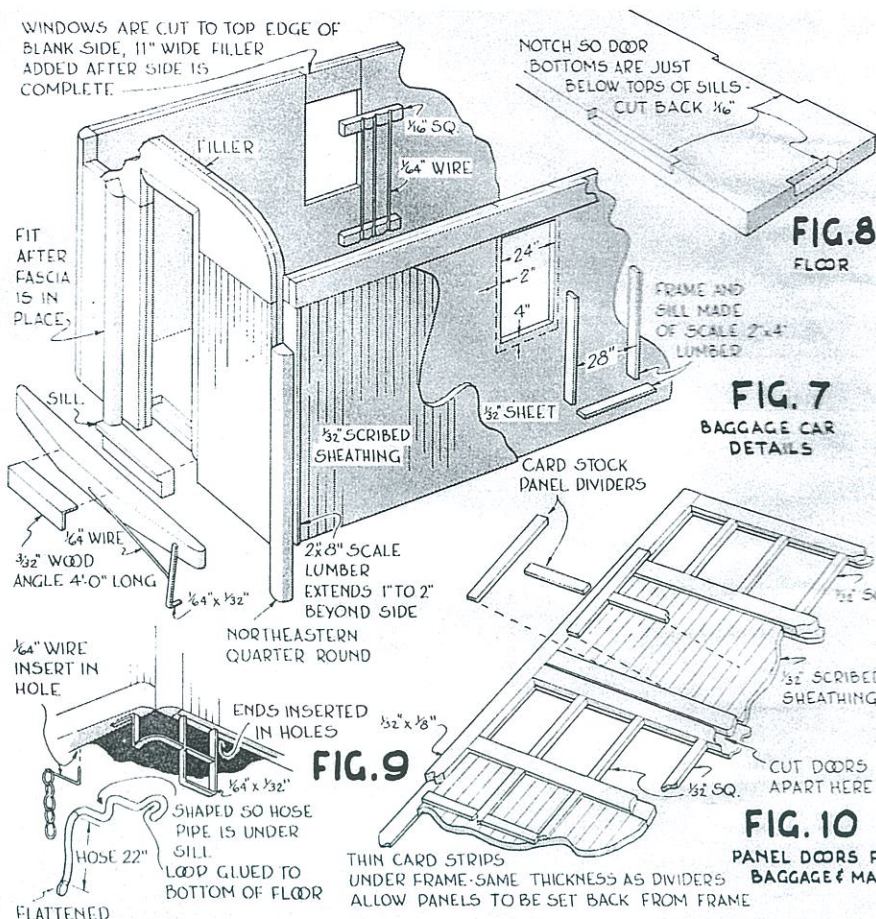
Do not do any bracing or reinforcing or attach fascias.

Make bulkhead walls, referring to the floor plans for locations, and to Fig. 3. Keep the heights of these bulkheads just low enough to clear the underside of the roof.

Install brass bars in the corridor windows as shown in Fig. 3, leaving clearance between the bars and windows to insert window strip.

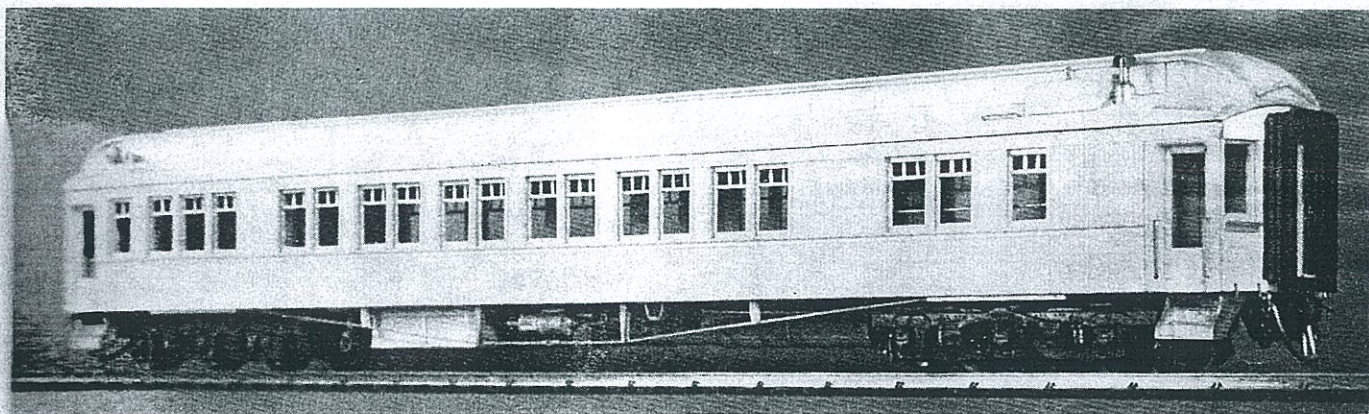
Fig. 6 shows how the observation plat-

WINDOWS ARE CUT TO TOP EDGE OF BLANK SIDE, 11" WIDE FILLER ADDED AFTER SIDE IS COMPLETE



Author's HO train is headed by No. 936, a custom-built replica of a Canadian Pacific D-10 Ten-Wheeler. Loco was built by Pacific Fast Mail.

Here's how the sleeper looked before painting. Northeastern blank sides, roof and floor were the basis for the body. Trucks are Central Valley.



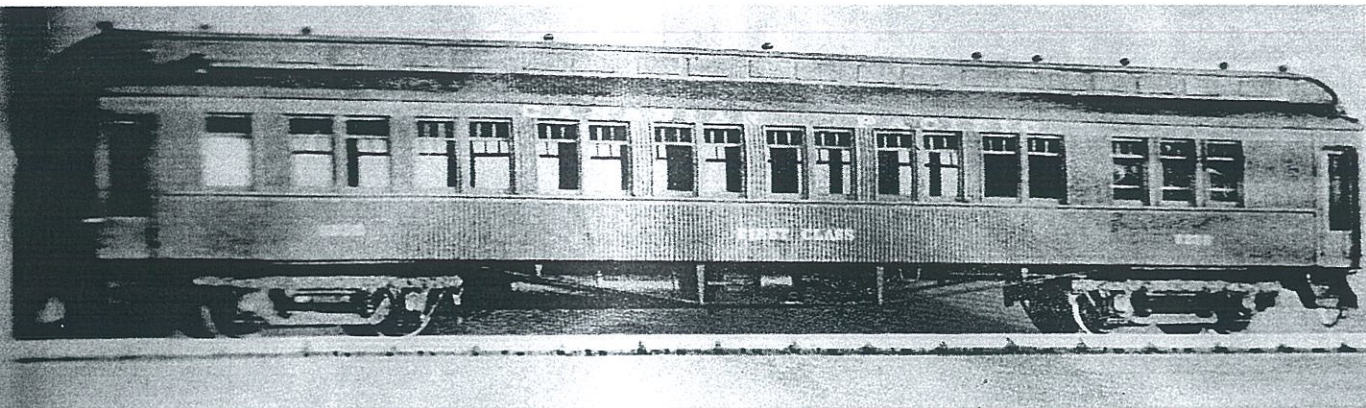


Figure 10. "First Class" or coach is no longer used on CPR cars, but is correct for period in which this wood-sheathed equipment was operated.

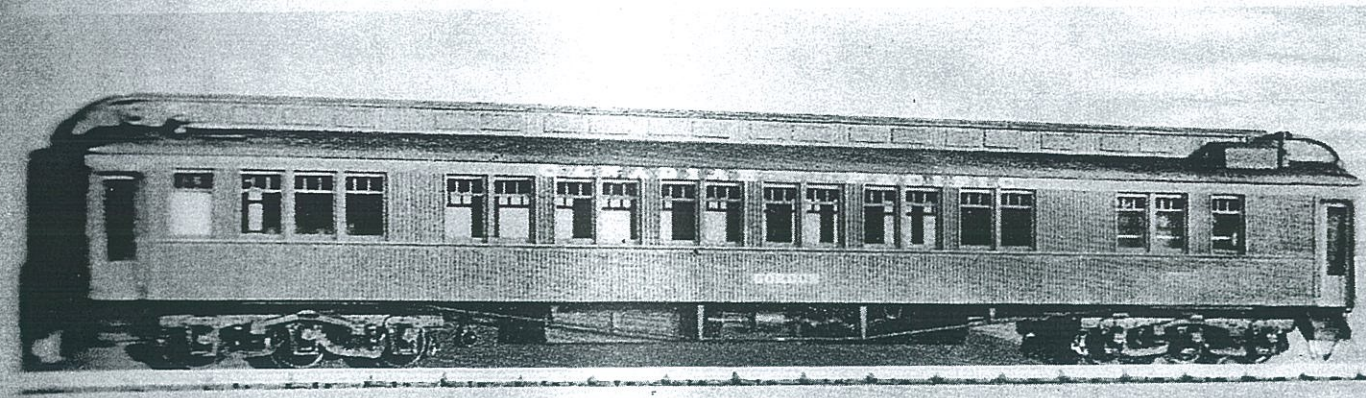


Figure 11. 81 ft. long. Author operates his train on 24"-30" radius curves. For flexibility, diaphragms on cars were made from thin paper.

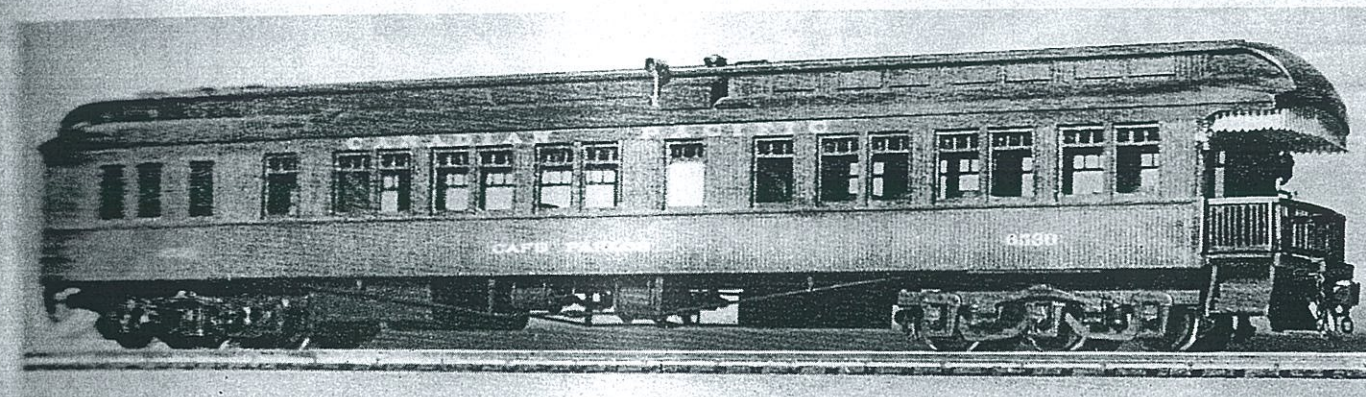


Figure 12. Versatile is about 81 ft. long, and is a "versatile" car. Its prototype has a small kitchen, dining area for 22 persons, parlor for 14.

mark windows or vents by placing the scribed upper deck wall strips against the main walls, marking the locations of the vents and projecting the marks down to the edge of the lower deck. Place the roof on the car, and the scribed strip along the lower board, the ends at the marks, and mark locations of the vents to coincide with the locations of the car windows. Proceed with roof details, as shown in Fig. 13.

Other details for the roofs are shown in the drawings and photographs. Gas lines appear in the plans on page 40. Make some of wire, bending the ends of the

main line and branches and insert in holes in the roof.

On the electrically lighted cars, only an oblong channel runs the length of the flat surface of the roof.

Use suitable shoe nails or other better quality nails for the small roof vents on the gas-lighted cars. Cafe car kitchen vents and hatches are stripwood.

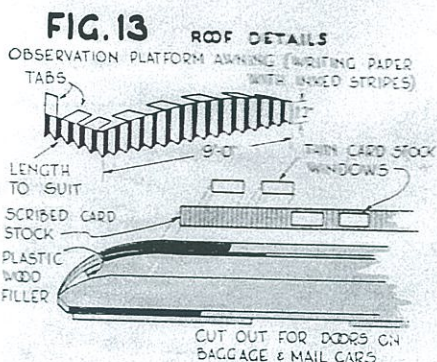
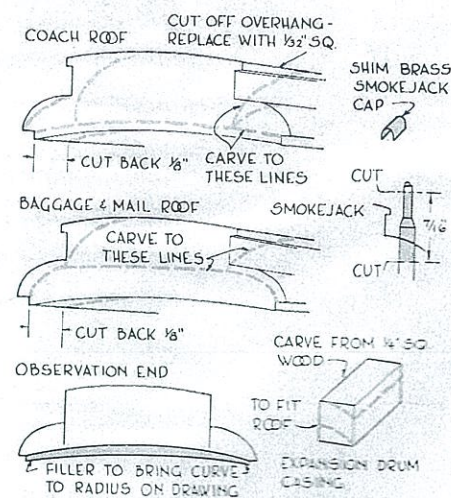
Roofs should not be permanently fastened in place.

Final details

Add doors to baggage and mail cars. Make up mail bag catcher arms for the

mail car from thin wire. Solder together the straight bar, large hook, the small curved piece joining them and the handle. Cut the handles short enough to allow the arms to be swung up or down without striking the doors. Glue on metal (card stock) plates at the mail doors to protect the sheathing from mail bags picked up on the fly. Shape and fasten thin brass brackets in holes in the walls, and insert the mail bag catcher arms. They will swing realistically when the train is in motion.

Refer to Fig. 9 and make up strap steps, using the jig in Fig. 12. Mail door steps



may be made up without a jig, as there are only two.

Attach brake wheels, handrails and grab irons in pre-drilled holes. Use $\frac{1}{64}$ " round brass rod for handrails on the coach, sleeper and cafe car, leaving them unpainted.

Attach couplers under the mail and

baggage cars, first gluing a piece of $\frac{1}{16}$ " strip under the floor at each end to bring couplers to the proper height, if solid scale couplers are used.

Use pins to attach the couplers, making hangers of brass strip, inserted in holes under the floor. Locate couplers for adequate swing, but keep the pulling faces as close as possible to the buffers.

Now attach hoses and safety chains to the baggage and mail cars as in Fig. 9.

Refer to Fig. 3 and reinforce vestibule ends of the coaches. Trim letter boards and round the corners, making the letter boards and end fascias appear to be one continuous piece.

See Fig. 14 and make up diaphragms, attaching to car ends. Fig. 2 shows the diaphragm threshold plates.

The shim brass snap-on plates, in Fig. 14, easily snapped off with the fingernail, will provide smooth operation around curves, and when removed, allow for realistic diaphragms on tail end cars.

For the occasions when the sleeper may be run last in a train, make a tail gate, 3'-6" high, by cutting a piece of ordinary window screen on the bias and gluing pieces of $\frac{1}{16}$ " sq. stripwood to two sides. Fasten in place between door posts behind the diaphragm.

Attach step flights to the coaches, noting from the drawings that they are not exactly centered in the doorways.

Fasten couplers in place, following the method used on the baggage cars. Locate the couplers so that pulling faces are in line with the rubbing faces of the diaphragm plates, both adjusted to suit your sharpest curves.

Hoses, chains, uncoupling levers and any other details may be added.

Window strips, as shown in Fig. 3, are cut and fitted, but not permanently fastened until after the cars are painted.

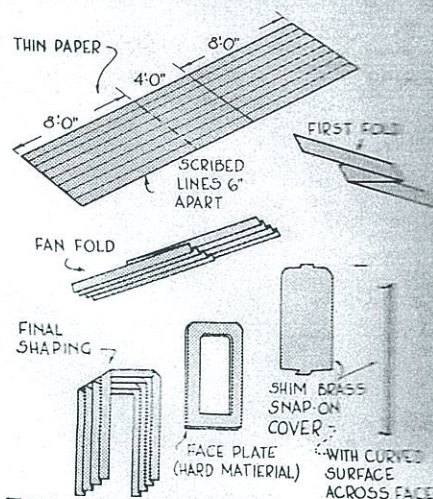


FIG. 14 DIAPHRAGMS

Frost all washroom windows by painting the back of the window material white.

Make up interior fittings, or purchase Walthers sets for the coach, sleeper and cafe car.

The five cars are now ready for the paint shop. CPR red, or maroon, is produced by mixing a few drops of Floquil caboose red with Floquil tuscan red.

Roofs, diaphragms and underbody detail, including steps, trucks, and all other fittings below the sides, are flat black. The observation railing (except handrails, brake lever and top rail, left in bright brass) is also black. Paint the hoses light gray, and the gladhands red or brown, with the rest of the hose pipes black.

Baggage and mail car ends, including the quarter round at the body corners and the quarter rounds at the side doors up to the lines shown on the drawings, and the door sills are flat black.

The sides of the baggage and mail cars, including handrails, and the sides and ends of the coaches are CPR coach red.

The red is brightened and the appearance of the cars improved if the red is varnished. Do not varnish the black.

The words "CANADIAN PACIFIC" are available in correct style, size and spacing in Walthers decal set No. 31-60, CPR Standard Coach, gold. Make up the 5" lettering and numbers for the rest of the cars from Walthers decal set No. 4-G-8, Alphabet Set, Railroad Roman No. 4, gold.

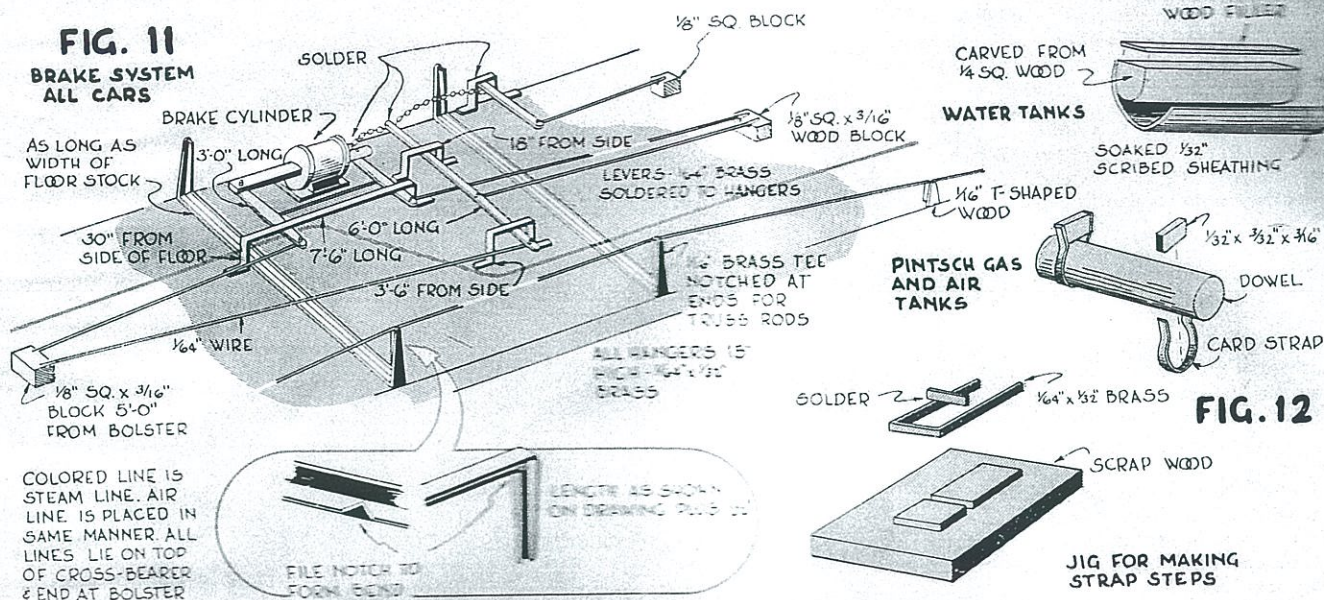
The prototype photos of the mail and baggage cars, and the photos of the models, show the lettering style used for almost 30 years. The prototype photo of the old sleeper shows a style used when these cars were built. The words "FIRST CLASS," shown on the model of the coach, are no longer used but were correct when this train was in operation.

The baggage cars were numbered in the 3900, 4000 and 4100 series. Coaches were numbered 1229 to 1276. Cafe cars were in the 6500 series. Typical names for the sleeper described were Fairville, Farnham, Fergus, Field, Finch, Fredericton, Farron, Forest, and so forth. Mine was named after my son.



"You want to show me a model of an M-1?
Gee, Sarge, I didn't know you modeled Pennsy equipment!"

FIG. 11
BRAKE SYSTEM
ALL CARS



form is constructed. Use the Binkley stamped brass observation railing as a base to build up a railing, or purchase a Red Ball cast rail. This is a nicely detailed, delicately made casting, and the only one I have found among the many available that is the correct height of 30".

Make the brake lever of brass, soldering it to a shaft, which is in turn fastened behind the railing, through a hole in the platform.

Attach the platform assembly, but as with the other cars, do not attach steps.

Now make up the baggage and mail cars, applying the sides to the floors in much the same manner. Lay the top edges of a set of walls against a straight-edge, and press the floor in place. Do the end sections of the opposite side walls next, using the roof to check for perfectly parallel top edges, then add the center wall section, with the roof stock in position. Be sure the walls are $\frac{1}{32}$ " below the floor.

Apply ends, and fit quarter rounds in the corners as shown in Fig. 7. Cross-

brace the walls with stripwood near the doors, low enough to allow the roof to fit. A bulkhead at the center of the mail car separates the mail section from the express compartment, and will add strength to the car.

The end walls may be reinforced with pieces of floor stock, but recess the centers to allow fitting in end doors behind the end walls.

After walls and ends are in place, add door sills, followed by quarter rounds at the side doors. You will find the quarter rounds at the end doors must be attached after work on the fascias is done along with the roofs.

Make and attach all other details in Fig. 7.

See Fig. 10 for construction of paneled doors, and make up the wide baggage doors in one strip, cutting them apart after they are finished. Do the same with the narrow mail and end doors. Strengthen the doors by gluing thin stripwood on the backs of the panels.

Fasten in the doors after all other work is finished to prevent damaging or pushing them in while handling the cars.

Roofs

This is the final major work. Unfinished detailing can be done after the roofs are completed.

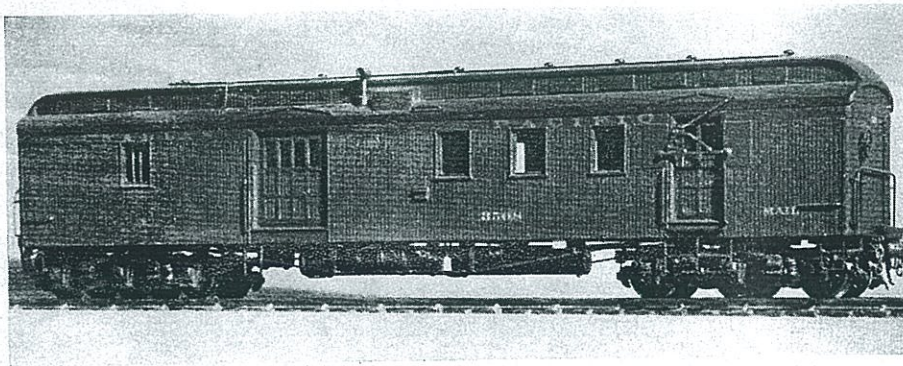
Refer to Fig. 13, and proceed one roof at a time. Beginning with the end, shape the top curves, end curves where required, and the underside. Cut a fascia, fitting the curve to that of the roof, and attach to the car end.

Use the finished roof end as a template to mark the curve on the fascia strip for the opposite end, then carve the other end of the roof to fit that fascia. Carry out this procedure with each car, and you will have nicely fitting ends.

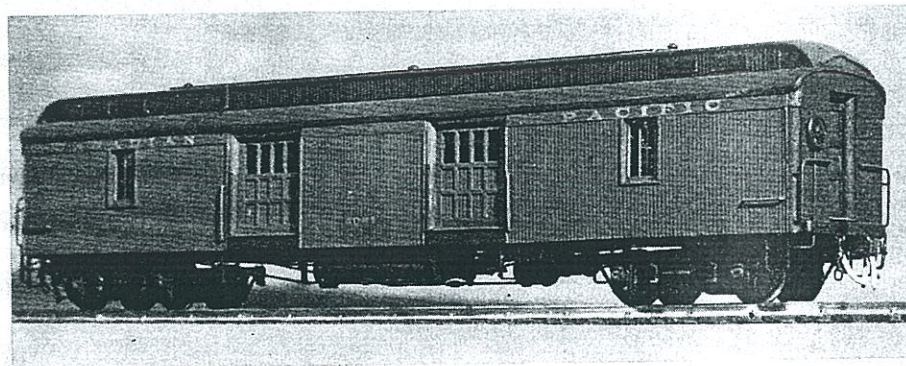
Allow about 2" overhang at each end of the roof.

Detail the roofs as shown in Fig. 13. A ball-point pen tube will provide a realistic smokejack. Make rain gutters of thin stripwood or card stock.

Obtain correct positions for the upper



Combination mail and express car is 60 ft. long, is not fitted with diaphragms. Both head-end cars have full-height sheathing without belt rails used on sides of coach, sleeper and observation.



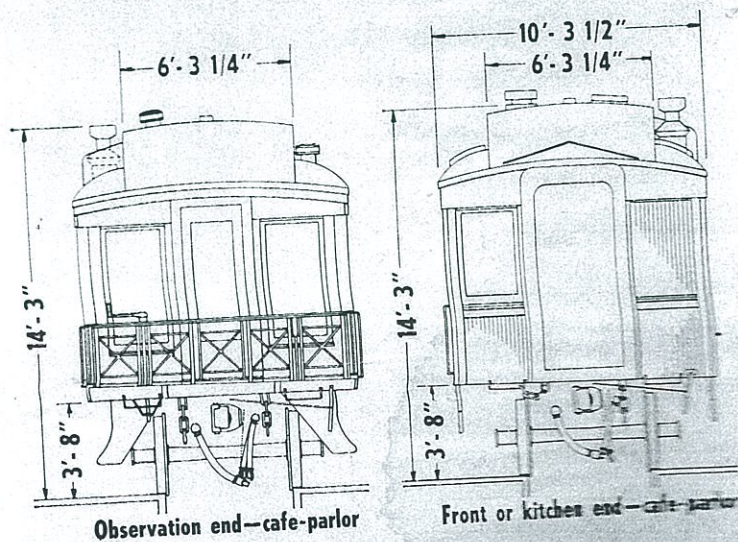
Baggage and express car is also 60 ft. long, but is fitted with four-wheel trucks instead of six-wheel trucks. It is fitted with a buffer plate instead of diaphragms.

Canadian Pacific Kettle Valley passenger train

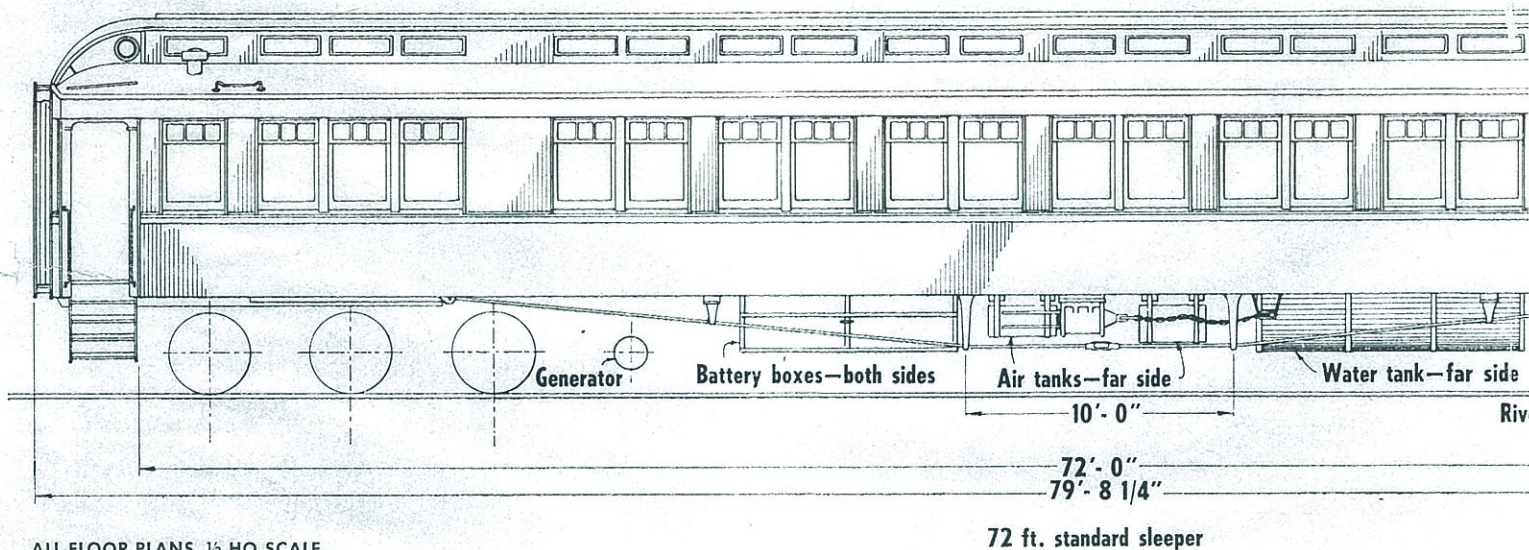
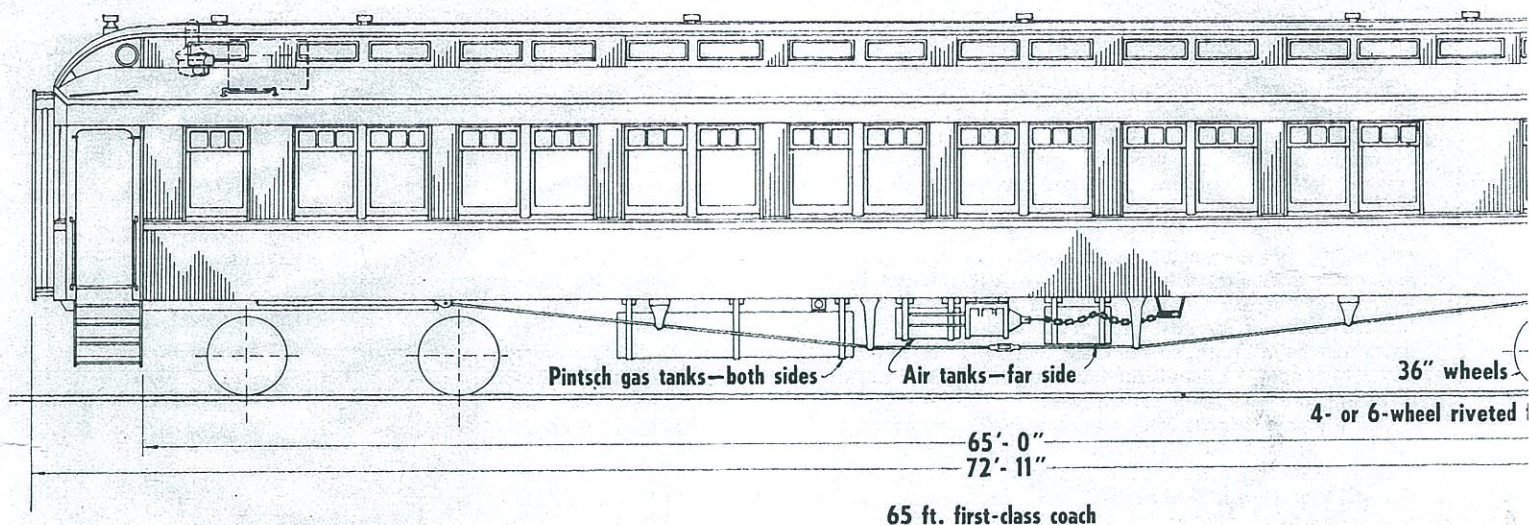
THE standard passenger cars shown in drawings and photos on these and the following two pages are classic examples of the type of equipment built in the transition from all-wood to all-steel rolling stock after 1900. All were built by the Canadian Pacific in its own shops. Basically, the cars were steel-framed, but outside sheathing was wood—a leftover from the days when carbuilding was an art. The five cars in the drawing, plus those in the photos on the following pages, are representative of the equipment the CPR used on the Kettle Valley route in southern British Columbia from 1916 until 1931.

The *Trent*, a cafe-parlor type, was a genuine luxury item when it rolled out of the shops about 1907. It was fitted with new all-steel trucks and electric lights! By contrast, the sleepers *Rosslund*, built in 1902, and *Agassiz*, built in 1905, were both gas-lighted. The first class coach, No. 2208, differs from the car in the drawing in that it is "all smoker," instead of having a short smoking compartment. Observations, sleepers and coaches of this era on the CPR had distinctive deep-windowed doors, plus windows in the vestibule ends.

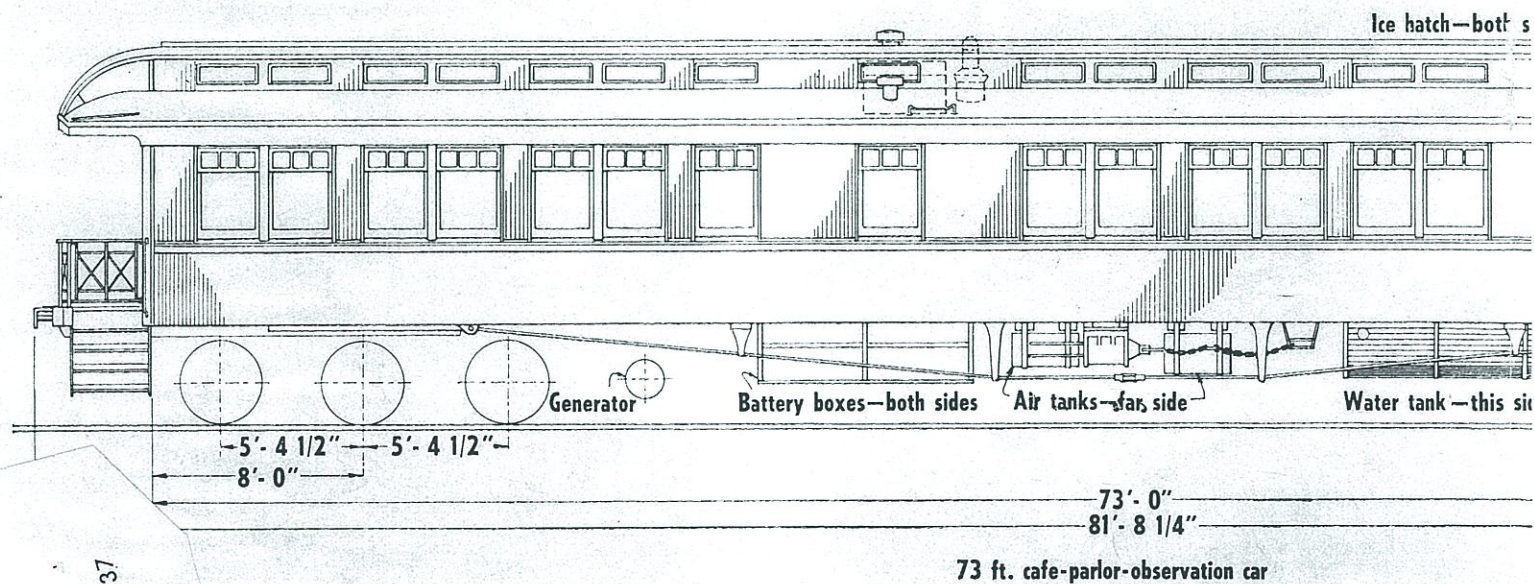
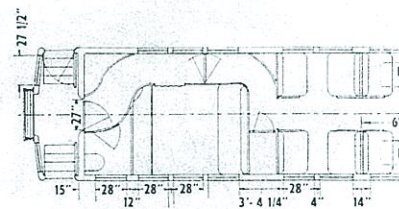
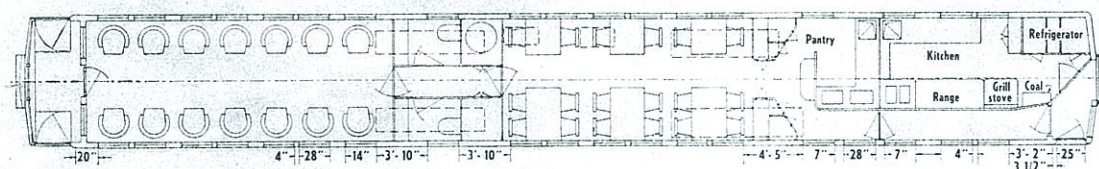
A construction article describing these five cars begins on page 26 of this issue.

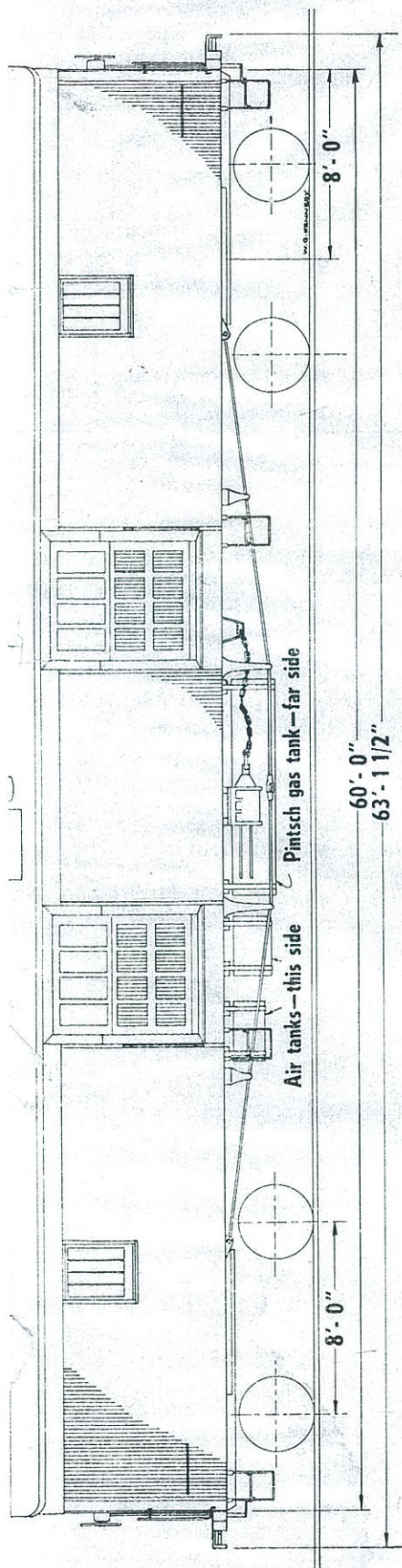


End view, first class coach and sleeper. Next page.

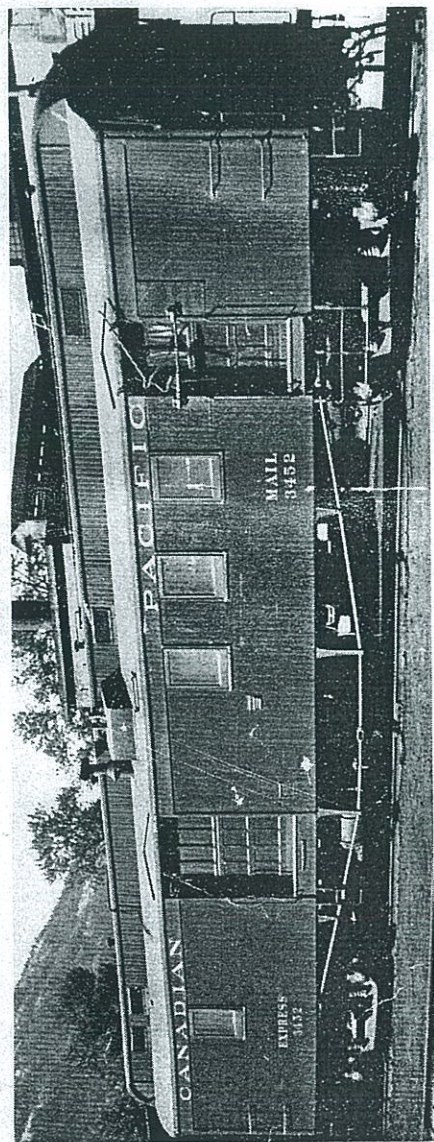


ALL FLOOR PLANS, 1/2 HO SCALE.

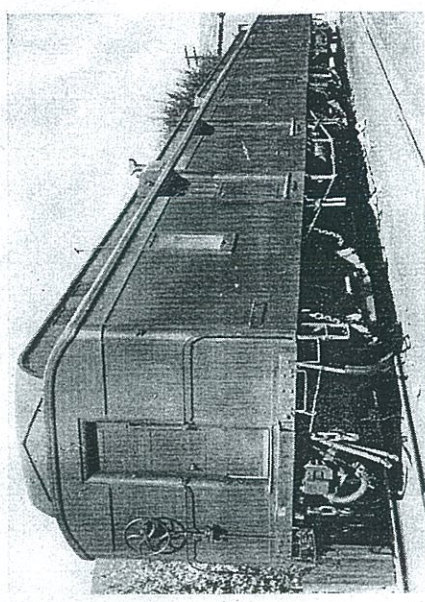




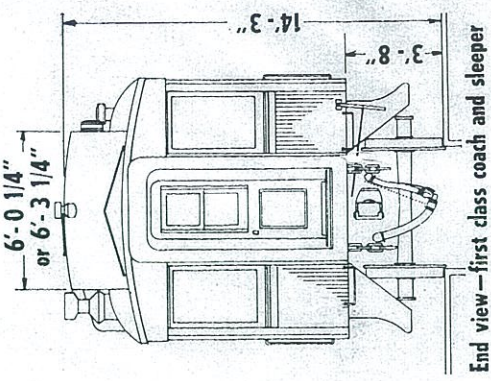
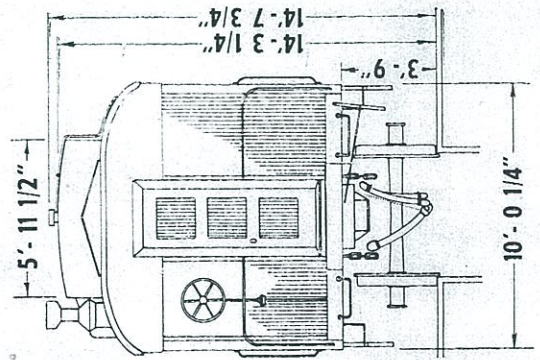
60 ft. baggage and express car



W. Gibson Kennedy

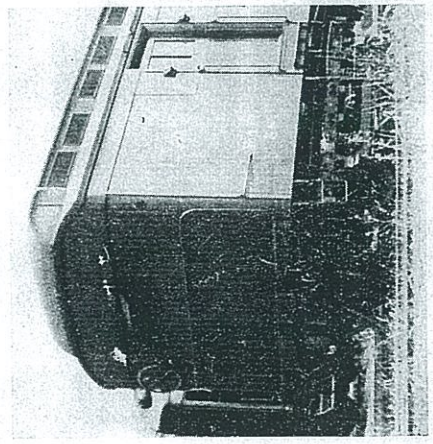
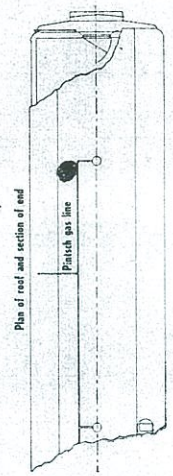


W. Gibson Kennedy

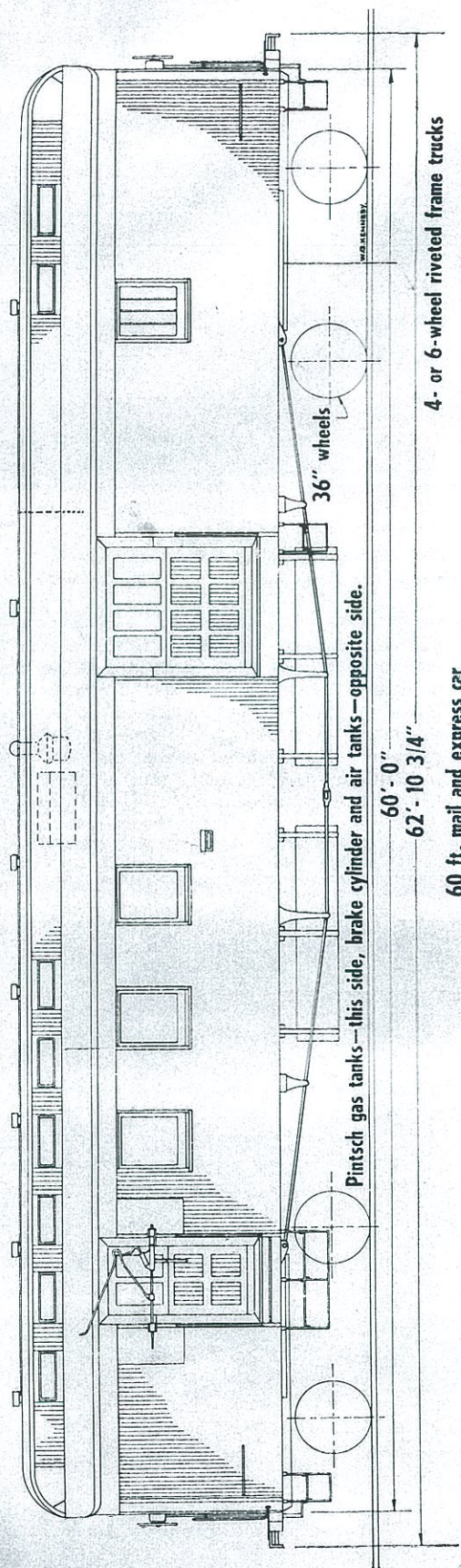


End view—first class coach and sleeper

DRAWN ESPECIALLY FOR
MODEL RAILROADER MAGAZINE BY
W. GIBSON KENNEDY
FROM OFFICIAL RAILROAD BLUEPRINTS
For noncommercial use all Model Railroader
plans may be photostated to different scales
for any gauge.



W. Gibson Kennedy



60 ft. mail and express car

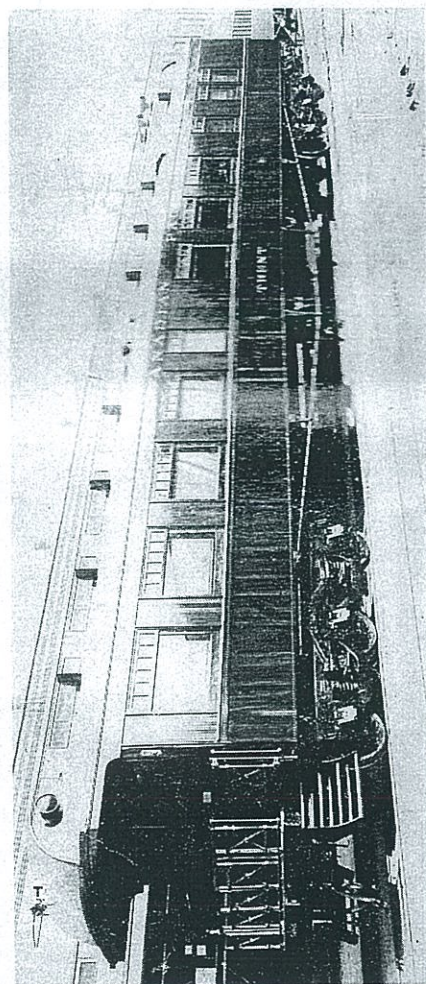


Photo courtesy Canadian Pacific

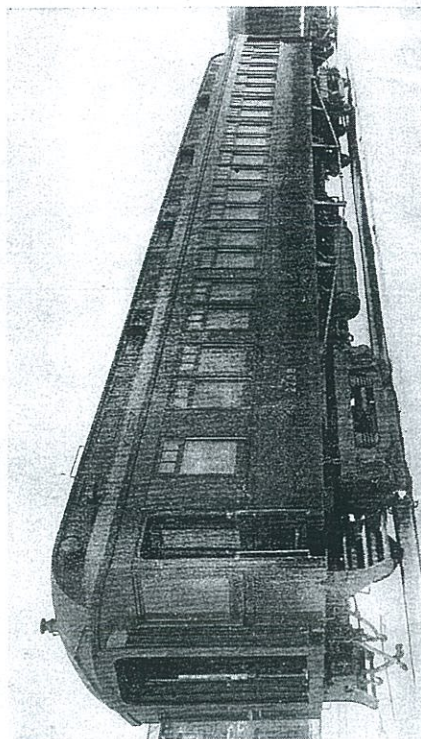


Photo courtesy Canadian Pacific

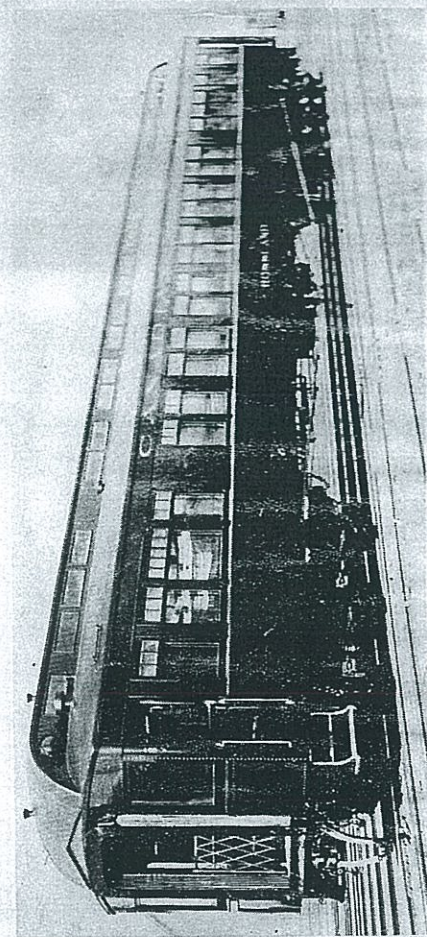


Photo courtesy Canadian Pacific

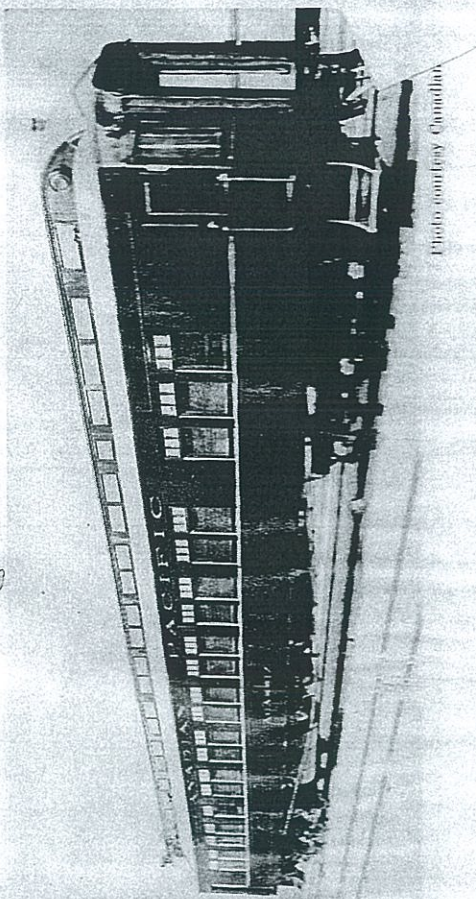


Photo courtesy Canadian Pacific