THE CARIBOO

BRITISH COLUMBIA RAILWAY

PUBLISHED BY THE BC RAIL HISTORICAL & TECHNICAL SOCIETY

ISSUE SIX OCTOBER 1991

What's the heaviest single piece of equipment loaded on to a single railcar in BC Rail history? Answer: A slugcatcher! (A large tank used in the dehydration of natural gas.) In July, BC Rail carried two slugcatchers, the larger of which weighed 280.000 pounds,from North Vancouver to Fort Nelson. There they were transported by road to Mobil Oil's natural gas plant at Sierra, B.C.

***

BC Rail's Intermodal Services department has pioneered the design of a unique line of railcars aimed at boosting customer service through improved trailer handling efficiency.

The new articulated units, each of which consists of three permanently connected 56 foot platforms, rides on four trucks instead of the traditional six. The articulated flats were custom built by National Steel Car Ltd.'s Hamilton, Ontario shops. Fifteen such units are currently in serice on BCR routes.

Each "artic" can carry three refrigerated 53 foot road trailers. Alternatively, the cars can carry either three 40 foot or six 20 foot ISO containers.

***

On May 30, 120 foot sinkhole at mile 708.7 caused the derailment of two locomotives and one freight car. The mess was quickly cleaned up, and the repaired line reopened early the next morning.

One of the diesels involved was unit 767. Other details?

***

Heavy rains triggered a slide four miles south of Lillooet early on August 10. A freight stopped clear of the blockage, only to have another rock fall occur derailing two cars of lumber. Passengers were bused to destinations as a result. The slides continued through the twelfth, as rain soaked hillsides continued to give way. (WCRA "News")

***

Canadian Forest Products Ltd. has asked BC Rail to build a prototype design for an innovative new 100 ton pulp car.

One of Canfor's mills in Prince George does not have a pulp drier. When the "hot" pulp produced in that mill is transported in a standard box car, condensation occurs and the pulp gets damaged. To avoid this problem, BC Rail will assist in the design of a new car to transport hot pulp.

BC Rail's engineering group came up with the idea for a bulkhead flat car with an aluminum frame and a canvas cover that can be retracted for loading and unloading. The canvas cover will "breathe", so condensation from the hot pulp will be minimized.

The prototype car is being built in the railway's Squamish shops, at a cost of about $27.000. The unit should be ready by the end of 1991.

***

In May, BC Rail began the challenging task of constructing new microwave sites at Devine, Mission Mountain, and Pavillion. This work is part of a three year program aimed at improving the quality and capacity of the railway's telecommunications network.

***

A questionnaire has been enclosed with this issue of "The Cariboo". The purpose of this survey is to help determine the future editorial direction of the newsletter.

Please take a moment to complete the form and return it promptly. Your input counts.

***

WCRA NEWS

PGE RSC #561 has had a systems check completed. The prime mover has been cranked over. Unit was scheduled to receive A-1-A trucks in September.

***

On August 9, the old PGE Car Shop in Squamish began it's move to a new location. After being jacked up off it's foundation, the historic 1914 structure was rolled, thanks to three winch-equipped tractor cabs.

The move was accomplished over a three day period. The structure now sits on museum property located north of the BCR shop complex.

Now foundations must be contructed for the car shop to sit on. Estimates for this next phase amount to approximately $48.000 dollars. With the winter season quickly approaching, the WCRA is soliciting donations.

***

Trivia Quiz: What was the first BCR loco to be rebuilt as a yard slug?

***

The Association has set it's tour dates for 1992. Among the offerings are:

May 30 to June 7 BC Rail spring system tour

Sept 12-20 BC Rail fall colours system tour

October Caribou overnight tour to Williams Lake.

Historically, these outings have filled fast. So it may not be too early to reserve your spot for what promises to be another great series of railfan events.

Contact the WCRA at POB 2790, Vancouver, BC V6B 3X2.

***

Trivia answer: RS-3 #564 became S-401 on April 14, 1981.

***

LAYOUT CLINIC

115 Athenia Dr. Stoney Creek L8J 1P4 573 3560

TUES. 7:30

Some time ago, "Cariboo" readers were invited to submit planned layouts for "brainstorming" purposes. We received our first proposal from Ron Tuff of Stoney Creek, Ontario.

Ron is planning an HO scale layout, with the British Columbia railway as it's theme. (Kinda works out nicely that way!) The layout will be set in the 1970s. Operations will feature a continuous loop of approximately 150' of track. Curves of about 30" radius will be used.

Ron's plans include one main yard (ie. Squamish) featuring two or three passing sidings. Additional aspects include: Howe Sound at Britannia Beach, an abandoned stamp mill, the shops at Squamish (plus an abbreviated yard and station facility), D'Arcy, Anderson Lake, and the Shalath hydroelectric dam. Ron would also like to include scenery representative of the Cheakamus Canyon area.

Industrial sidings appropriate for the areas modeled would be included.

Ron has a room measuring 21' x 14' available. Below is a sketch of the room and it's particulars.

Let's hear from all of you who have built a layout. And from all of you who have a file cabinet filled with ideas for that dream layout you've been yearning to build. We'll publish all ideas/comments in the next issue.

CAR SHOP

Carter Cram spotted BCR bulkhead flat #16130 in Red Bluff, California. Car body was dark green, with light green bulkhead ends.

"The Cariboo" is published quarterly for enthusiasts and modelers of the Pacific Great Eastern Railway and it's successor lines. Sample issues may be obtained for $3.00US (posted to North American addresses). All editorial contributions are welcome. Send all correspondence to: Jim Moore, 25729 Floral Court, Valencia, California 91355-2139 USA.

BC RAIL'S 100 TON GONDOLA CARS

Andy Barber

Introduction

"Sometimes in this hobby you have to compromise". Those were the words spoken to me by a fellow model railroader when I asked how to go about obtaining a kit for BCR's 100 ton gondola. The advice was to settle for a Roundhouse Thrall Hi-Side Gondola.

I am a new model railroader, and here was a wonderful opportunity to learn what is involved if you elect not to compromise. I decided that I would learn how to scratch-build for a series of cars, not just one.

So here is the story of how this was done--not by me alone, but aided by experienced modelers who were willing to teach me the skills necessary for this project. Here's who got involved:

Doug Garbuit, of Procor, dug out some surplus blueprints and provided me with the specs for the corporate logo.

Bernie Fink turned my sketches and scale drawings into a styrene gondola end, side, and bottom; and who would accept nothing less than perfection.

Cyril Meadows agreed to give a clinic on producing molds and castings. This was the key to multiple unit production.

Bryan Pate let me share his vacuum equipment, along with his companionship as we muddled through together.

Andy Wegmuller helped with the decal artwork. Also completed casting the parts when I had to leave the project for three months.

Bill Brillinger & Peter Hansmann constructed and detailed the first two gondolas from my kits. Shared their comments on construction technique with me.

Andy MacDougall made my Procor decals, and stayed with it until they were exactly right.

Hal Kinsey purchased decal sets for his store. This helped defray the cost of producing the unique Procor logo.

BC Rail let me measure, photograph, touch, smell, and adopt their 100 ton gondolas while parked in North Vancouver yard.

This is truly their story.

Car Types

BC Rail uses 100 ton gondolas for two purposes. First, to haul sulphur from British Columbia's interior to the railway's North Vancouver terminus. Here it is stockpiled while awaiting transport by ship to foreign markets. Second, to haul coal over the Tumbler Ridge subdivision to Prince George. From this point CN transports it to Prince Rupert for trans-shipment to the steel mills of Japan.

The design of the coal car differs from the sulphur car mainly in end-type construction. Coal cars have two horizontal end ribs, whereas the sulphur units have three. Figure one is a typical sulphur car, the prototype for this project.

Master Die Construction

The basic body is made of .030" styrene. Score a line six scale inches from the bottom, and parallel to the bottom, the full length of the body (figure two). File this six inch section to meet the bottom part at a point. This should look like the view in figure three.

Do not obliterate the score line--it will simulate the weld on the finished model.

In a similar fashion, draw and score lines three inches in from each end. Taper to a point, again being careful to leave the score line visible.

The top sill is 53'3" long, to allow for a six inch overhang at each end. I used Evergreen HO scale 4x8s for this sill. The

prototype dimensions are five foot square, but I felt I needed more longitudinal stiffness for casting strength.

Rib type "A" (9 pieces total) is seen in figure four. The ribs are sixty-six inches center-to-center. The two end pieces are forty-two inches in from the car's bottom end (figure 2).

Rib type "B" (10 pieces total) is ninety inches long. I used Evergreen HO scale 4x4s for these. Some sulphur cars have these type "B" stiffeners measuring three inches wide at the top, gradually increasing to five inches at the bottom. I have elected to model the constant-width style.

These smaller ribs are spaced equidistant between two of the "A" type ribs, except at each end. Here they are placed two feet beyond each type "A" rib.

It is now time to glue these type "A" and "B" stiffeners onto the side. If you want to make only one side for your master pattern--measure, measure, measure! I was being tutored by Bernie Fink, and he drove me mercilessly over producing an exactly symmetrical side. He insisted on absolute perpendicular positioning, and precise uniform spacing. The reason being to produce a side that will line up exactly with the car bottom I-beams on both sides. Only attention to detail will yield this quality.

We used twenty second ACC to ensure that no pieces would come loose during mold removal.

The type "A" stiffeners will extend over the bottom score line. This is correct. The type "B" stiffeners should end at the bottom score line.

The final step is to make and glue on triangular shaped gussets on either side of, and at the bottom of, each type "A" stiffener. These are roughly six inches high, five inches along the base, and with an eight inch slope (see figure five). The best way to simulate these is to use a long thin strip of .005" styrene. This material has (scale) dimensions of 5"x8" (figure six). Slide it into place, glue, then cut off to correct length.

Lastly, an extremely fine, yet prototypical detail needs to be addressed. This will also show up on the finished casting, and is necessary to prevent the casting resin from "creeping". File in the small hollow at the bottom of each type "A" stiffener (once all gussets have been glued on with ACC). File smooth when the ACC has set. Last of all, the bottom and end corners should be filed to produce a smooth, continuous bevel where the two filed portions of the side and bottom meet.

That's it. The sides are done.

The bottom is made from .070" styrene. Bernie Fink and I used .030" styrene initially, but for casting purposes this had to be "beefed up" by a second .040" section to provide rigidity. The combined .070" looks fine on a finished model, and I would recommend .070" even if you are not going beyond a master prototype.

The center beam is a solid piece of Evergreen 1/4 scale 6"x6", which is actually 1/8" square (part #186B). On the prototype, is center beam is an open, flanged channel. For casting purposes, however, it is necessary to use the solid beam. It is 49')' long, and is inset nine inches from each end. Don't worry if it is not exact. We are going to cut some material away to allow for the installation of Kadee couplers.

The I beams (only two of which are fully shown in figure seven) are constructed as follows:

a) Use .010" styrene sheet. Cut six inch wide strip (HO scale). Glue the strip 105" in from the end (end to six inches strip center line measurement). See figure seven, detail "a'. Length is 14" beyond edge of bottom, and 58" overall length.

b) Onto this strip mount the beam body in a perpendicular fashion. This is going to be the main body

of the I beam. Two sketches of this beam: in detail (figure eight) and as a final assembly (figure nine).

Use .020" styrene for the I beam body. Cut the end taper prior to cementing in place on part "a". Note that the height of this beam, once glued onto part "a", is to be exactly the same as the center beam's height. The center beam and the I beam vertical member (ie., the main body) should be a flush fit.

Now add the second web, similar to part "a" to complete the I beam. Again use .010" styrene, six inches wide. Note that this web member extends two inches over the center beam, and that this two inch extension is rounded.

At the far end both web members should extend out about two inches past the end of the main I beam body. Cap this end section with a piece of .010" styrene recessed into the I beam's main body. This us a rectangular cover plate, five inches wide and ten inches long. When properly cut and fitted, you should have 1/2" clearance on each side of the top and bottom webs, and about one inch clearance on each side of the main body of the I beam. This end cap is also on a slant.

I was fortunate to find two of these 100 ton gondolas upside down in BC Rail's Squamish Yard, awaiting repairs. Consequently, I was able to sketch, photograph, and measure their unique bolsters. Some changes were made to the model to add strength because we have to be concerned with removal of undercut sections from the mold. The final design is, however, a pretty good replica of the actual bolsters, and what's more, worked in the mold.

A sketch of the bolster is shown in figures ten and eleven. Photos of the bolster are shown in figures twelve and thirteen. Sketches are not to scale, but accompanying dimensions are accurate. All parts for the bolster are made from .010" styrene.

Construct the bolster as follows:

1. For the bottom (ie., the part that attaches to the car floor), cut a piece of 0.10" styrene 58" by 26". Glue this piece to the floor, 35" in--floor edge to bolster center-line.

2. Using solid styrene, fabricate the bolster main beam as shown by the shaded area in figure eleven. This piece is 14" wide, 56" long, and flat on one side.

3. Cap the bolster main beam from step two with .010" styrene as shown. Glue in angle braces on each side (as shown), using .010" styrene.

4. Cap the ends of the fabricated bolster with .010" styrene. Mount a very thin piece of styrene over the 3"x5" hole. This will keep mold silicon from entering this piece (which in turn would prevent mold release). After the piece has been cast, this hole can be drilled out. (It's a great place to add weight if you so choose.)

These completed end pieces are mounted on a slant, and recessed about two inches from the end. See figures twelve and thirteen for the style of this slant mounting.

The basic end is made from .020" styrene. As was the case for the side, score a line six inches from the bottom. File to meet the bottom at a point. For final fitting the corners will have to be filed to a rounded configuration to give a smooth "flow" to this six inch section (where ends meet sides).

The horizontal ribs are made from HO scale 4"x6" styrene (Evergreen #8406B). Each rib is six inches wide and four inches deep.

The top rib is also 4"x6" styrene. It is a flush fit with the end edges.

The end gussets are probably the most distinctive feature of this car. They are made from .010" styrene. Dimensions are contained

in figures fourteen through sixteen. The end gussets are mounted vertically at the end of each rib. From a top view, the completed piece should appear as in figure seventeen.

We found that it was best to go a bit over-sized when making the gussets. Glue them in place, and then file to size.

Casting

A full description on how to make moulds and cast the parts for this car would run into many pages. Fortunately, the December 1990 through February 1991 issues of Model Railroading contain a superb series of articles by Bob Beaty on this subject.

(Ed Note: Only parts one and two of the series are actually applicable to this project.)

If I were to cast again, I would definitely try the Alumilite recommended by Bob Beaty. I would take advantage of Alumilite's fast-curing properties by casting only small amounts at one time. Doing so would ensure that the casting agent had reached all recessed parts in the mould.

Decals

These car carry the UNPX reporting code and also the Procor logo (or spelled-out name). The logo, which is a black letter "P", in a red and white ellipse never appears with the name Procor. It's one or the other (or neither in a few instances). Photos nineteen and twenty illustrate cars with typical markings.

Fortunately, I was able to obtain good logo information direct from Procor Ltd. Being unfamiliar with artwork, I enlisted the aid of Andy Wegmuller, who handled the artwork paste-up. Andy Hamilton printed the decals, and Hal Kinsey (Central Hobbies) purchased a quantity (thereby reducing my production costs).

The finished decals look good. Each set contains: two logos, two "Procor" titles, one "Leased from Procor Ltd.", two "UNPX" markings (including end lettering), and the car builder's logo. Each sheet also contains "bonus" non-gondola lettering that I was able to fit or (for future projects!)

Decals may be obtained from Central Hobbies, 2835 Grandview Hwy, Vancouver BC, V5M 2E1, Canada. Cost per set is $4.25US/$5.00CA. BC residents must included .65CA for GST.

Some gondolas carry a yellow stripe at one end indicating that rotary couplers are installed.

Reflections

The Plans: It's always better to build the master pattern from prototype plans. Such plans are often found in hobby magazines. Mainline Modeler published a great set of drawings for the 100 ton gondola in July 1990. sadly this was about three months after I had developed my own sketches and plans. If you choose to refer to these published plans please note the difference in end types. The MM prototype photo shows a car end reinforced with three lateral braces. This is correct for the accompanying drawing shows a car with only two such end braces (correct for the BCNE 100 ton cars hauling coal out from Tumbler Ridge.)

The brace vertical stiffeners are also shown in the MM article as being angled inward to match the slope of the car's side. Procor's cars, built by Marine Industries, have vertical stiffeners. For BCR sulfur cars, the vertical stiffeners are prototypically correct.

Casting Molds: I suspect that making molds and pouring castings from one's own molds is about as appealing to most modelers as learning to use an air brush. All I can say is to try it. Having produced my fair share of poor molds and castings, I view it now as an initiation rite to a whole new dimension of modeling. making several prototypically correct BCR cars no longer scares me. If I can

produce one, the others will follow.

For really good molds, you need vacuum chamber. Model Railroader (September 1975) contains an article by D. Derek Vernier entitled "Vacuum De-Airing for Better Casting". In it, Vernier shows how to make the vacuum chamber easily, and how to use a cheap, readily available water aspirator to get good vacuums. If I were starting out again, I certainly would explore this option.

Again, I recommend the superb series of articles by Bob Beaty from Model Railroading.

Next time I would also experiment with release agents. A solution such as glycerine and acetone. The acetone evaporates leaving a very thin film of glycerine.

The castings: I have tried all kinds of resins, and have had a lot of failures due to inadequate stiffeners in the finished casting of the car side. The end was all right because it was small. The bottom was also, once the thickness of the floor was increased. The sides remain marginal. For this reason I would recommend Alumilite as the casting medium. Bob Beaty discusses Alumilite in his articles.

The decals: The cost of producing custom made decals is high. In the future I would purchase Microscale's plain decal paper and airbrush my own decal using small stencils.

Painting and details: Accupaint is sensitive to peeling when used on these castings. I do not know why. Peter Hansmann, who built one of the trial kits, washed the epoxy castings three times and still had problems with peeling.

Bob Brillinger primed first, then used Floquil paint. No problem. Andy Wegmuller reports similar concerns with Accupaint. He suggests using Scalecoat paints.

There are three distinct sets of markings for these sulphur cars. Style "A" has "UNPX" and a car number (figure 19). Style "B" has "UNPX", number, and "Procor" titles (figure 1). Style "C" has "UNPX, number, and Procor logo (figure 20).

Further, a car may have 1) vertical yellow stripes at both ends, 2) a single vertical yellow strip at one end, 3) vertical and horizontal yellow stripes (wrap around) at one end, and 4) no stripes at all.

These yellow strips signify rotary couplers. Style two is the most common, followed by style four.

This project has taken two years and untold hours to complete. It has provided me with several new friends, scratch building and casting skills, confidence that prototypically correct rolling stock is attainable, and my first published article!

If any "Cariboo" subscriber wishes to write me about this project, I would be glad to hear from him. Please contact me via the editor.

CLASSIFIEDS

Paul D. Roy (3874 Winlake Crescent, Burnaby, BC V5A 2G5 has several PGE/BCR related items for sale or trade. Included are switch keys, ball caps, badges, cloth patches, belt buckles, and decals/stickers. Satisfaction is guaranteed. Write for full item listing.

Gary Herron (3304 August Avenue, Omaha, NE 68144) wants photos/slides of PGE/BCR equipment.

Richard Popp (7325 Rose Ann Pkwy., Ft. Wayne, IN 46804) is looking for photos and/or diagrams depicting motive power in the red/white/blue color scheme. Richard is also interested in obtaining Canadian style cabs formerly produced by Prototype Replicas.

Jim Moore (c/o "The Cariboo") seeks assistance from readers with drafting talent. Needed is help in developing sketches of railway related structures for publication.

UPDATE: PAINT SCHEMES

Issue five contained a motive power repaint ledger compiled by Michael Blusson. Thanks to new subscriber Eric Johnson, we have some additional data to share.

1. The start of the revised r/w/b schemes (no side chevrons) should be located between items 82 and 83. (items 81 & 82 should appear in previous paint scheme grouping).
2. Unit 738 did not appear on the ledger. It is now in the revised r/w/b scheme. It must have been painted between items 93 & 115 (when all the other Kennecott & Oneida Western SD-40s were painted).
3. All slugs (S-401/410) appear in a solid blue with white lettering scheme.
4. Unit 721 appears twice (items 62 & 77). Is this correct?

Eric has also sent an update for Andy Barber's caboose paint roster (which also appeared in issue 5):

Early r/w/b scheme

1853 has the "Expo 86" logo painted in white on the cupola side.

1880 has the logo painted in black.

1879 hasn't any logo.

Anyone have any info on units 1875 & 1878?

"Other" paint scheme

1800-1805, which are used on some work trains, are in a solid dark green with white lettering. At one time they had red BC RAIL decals, which have since peeled off. Is the solid dk green color the original ICG paint?

1816 & 1828 (wooden with cupola off-center). #1816 is painted yellow, peeling badly. (Ed note: 1836 in WCRA collection, also in solid yellow).

Our next issue will feature a series of diagrams prepared by Eric which illustrate variations within the RS-18 and C-425 two tone green paint schemes.

PRODUCT NEWS

C&S Scale Industries has announced new part numbers for the single, double and triple lumber loads in N scale:

Boise Cascade	Single	8021
	Double	8031
	Triple	8041
Canfor	Single	8022
	Double	8032
	Triple	8042
Evans	Single	8023
	Double	8033
	Triple	8043
Mac/Bloedel	Single	8024
	Double	8034
	Triple	8044
Weldwood	Single	8025
	Double	8035
	Triple	8045
Weyerhauser	Single	8026
	Double	8036
	Triple	8046

Prices for single, double and triple remain at 6.95, 9.95 and 12.95; respectively.

Richard Yaremko wrote to tell us that Intermountain Tooling Specialists has announced plans to release an HO scale Canadian Govt grain hopper. Test shots are expected to be unveiled in November at the MIRA show in Chicago. Production is planned for early 1992. We'll keep you posted.

Carter Cram notes that Overland Models will offer an HO scale brass version of the BCR extended vision caboose in 1992. Details as they become available.

McKean Models has been purchased by Sky Lim. New address is POB 4815, Evansville IN 47724. SkyLim has announced that it has acquired the centerbeam car model from Front Range, and plans to reissue it. No specific time frame has been announced.

Deadline for editorial contributions for Issue 7/January 1992 is December 15. Please include your name on all material submitted.

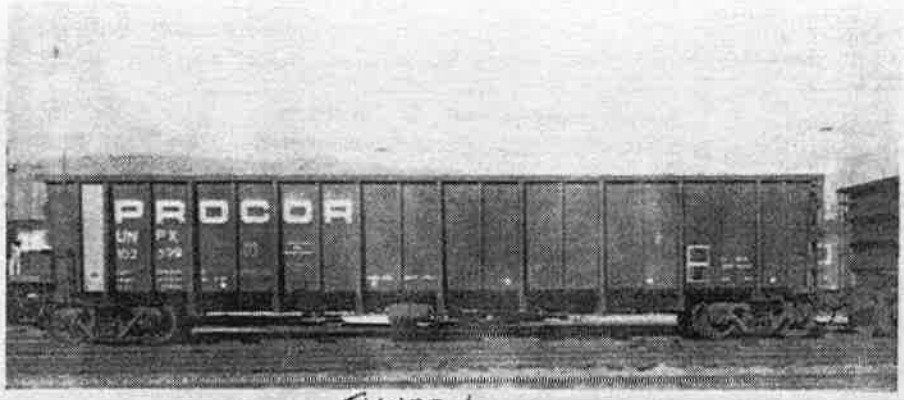


FIGURE 1

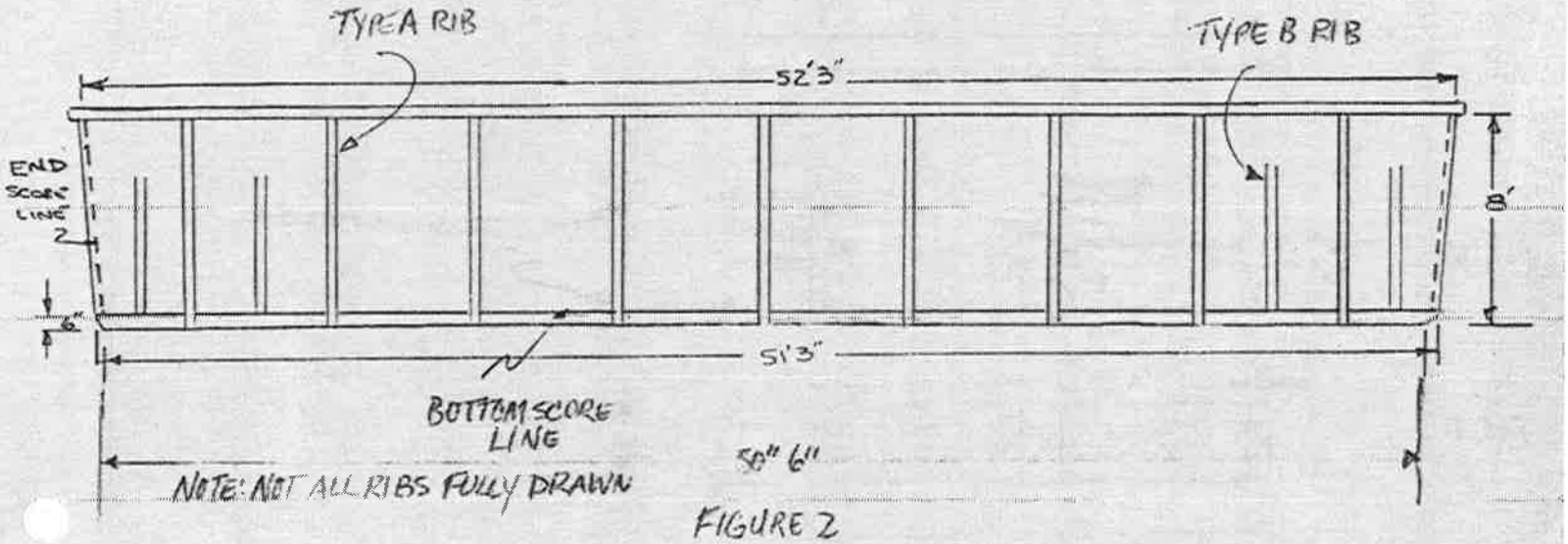


FIGURE 2

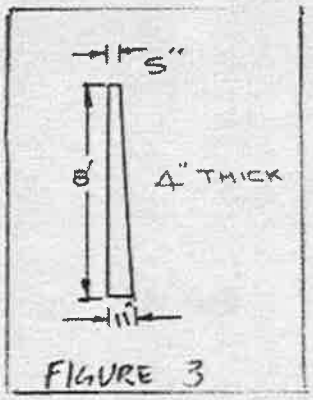


FIGURE 3

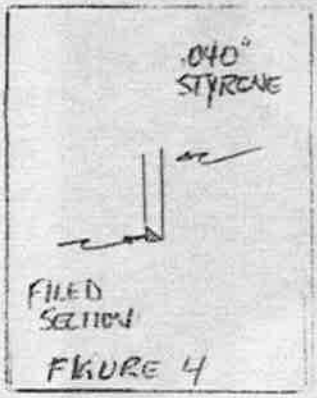


FIGURE 4

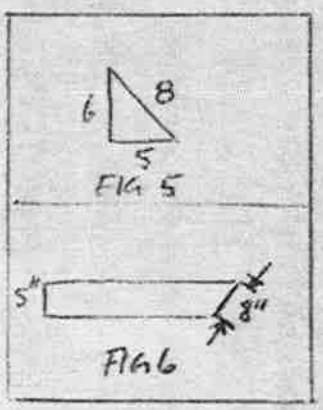


FIG 6

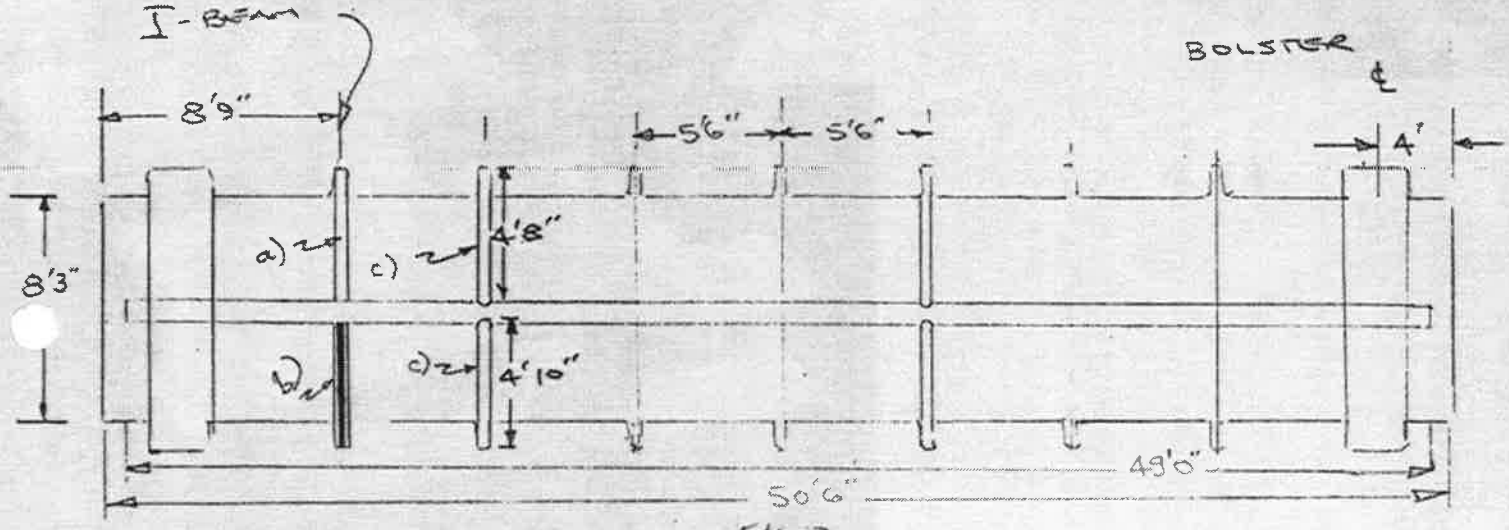


FIG 7

FIG 8

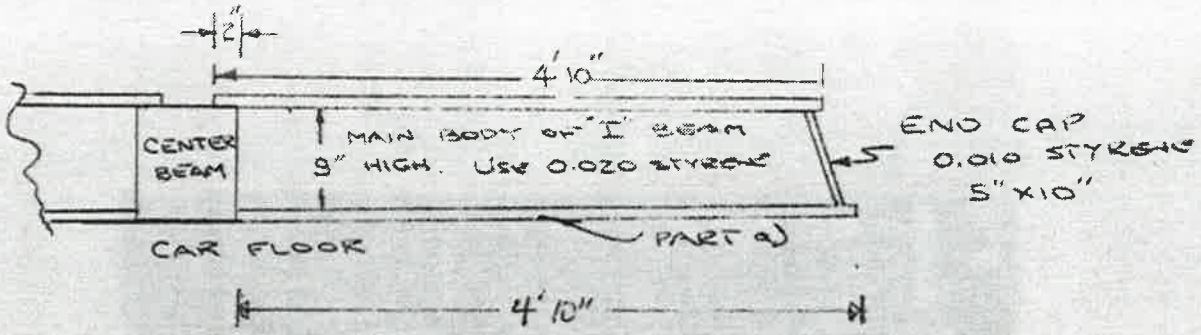


FIG 9

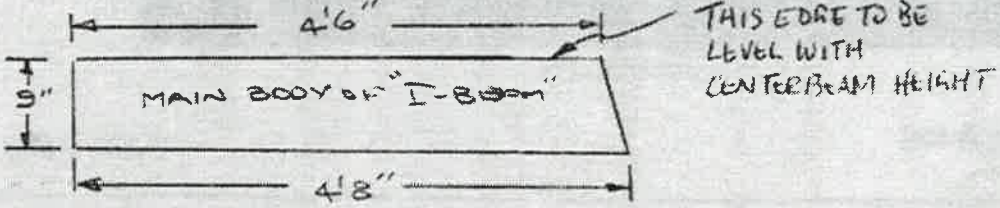


FIG 10

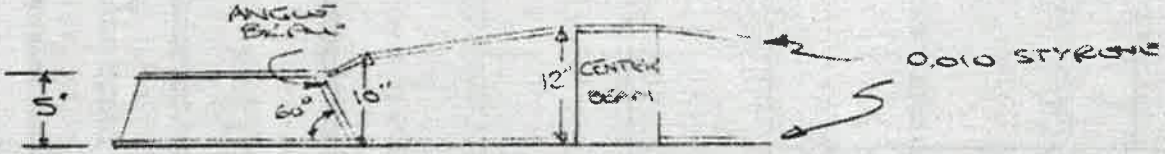
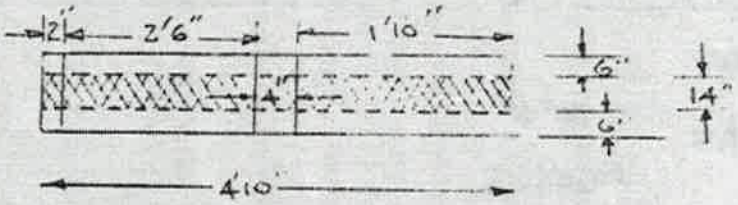


FIG 11



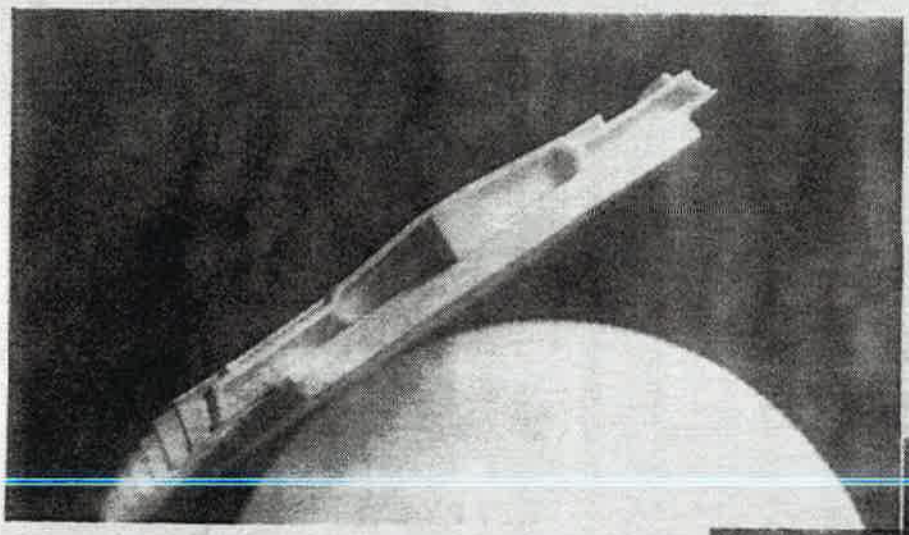
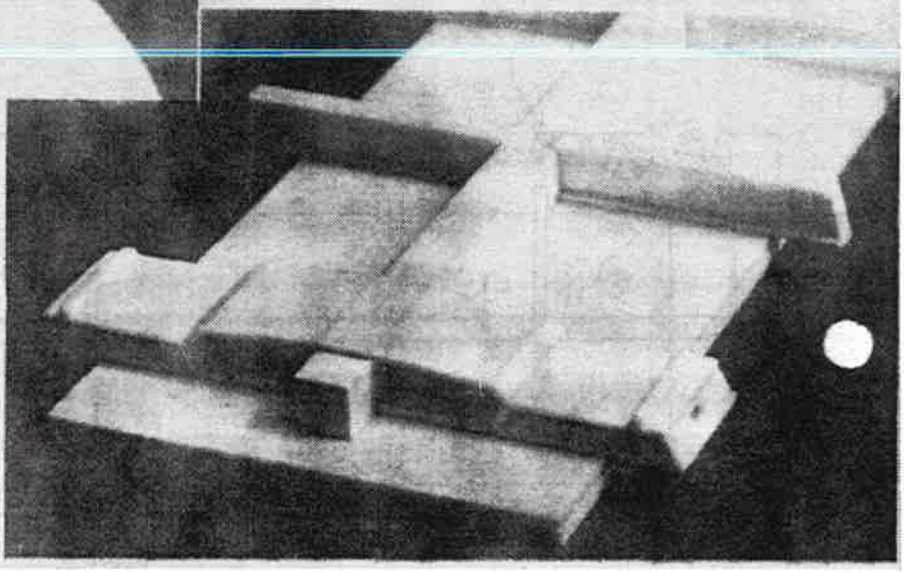


FIG 13

FIG 12



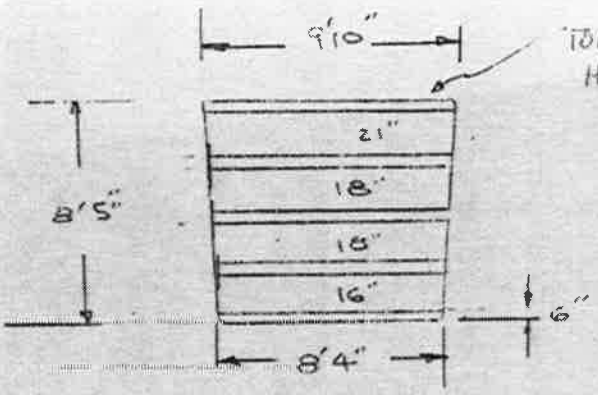


FIG 14

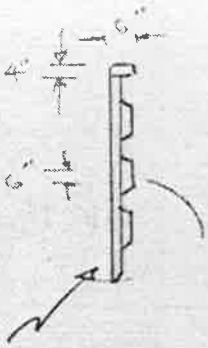


FIG 15

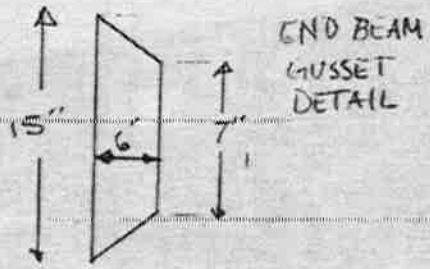


FIG 16

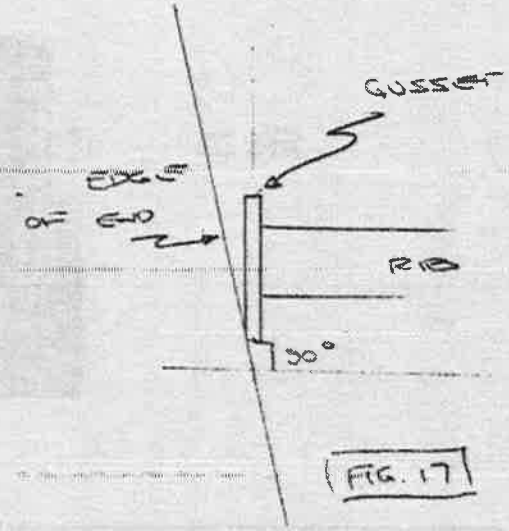


FIG. 17

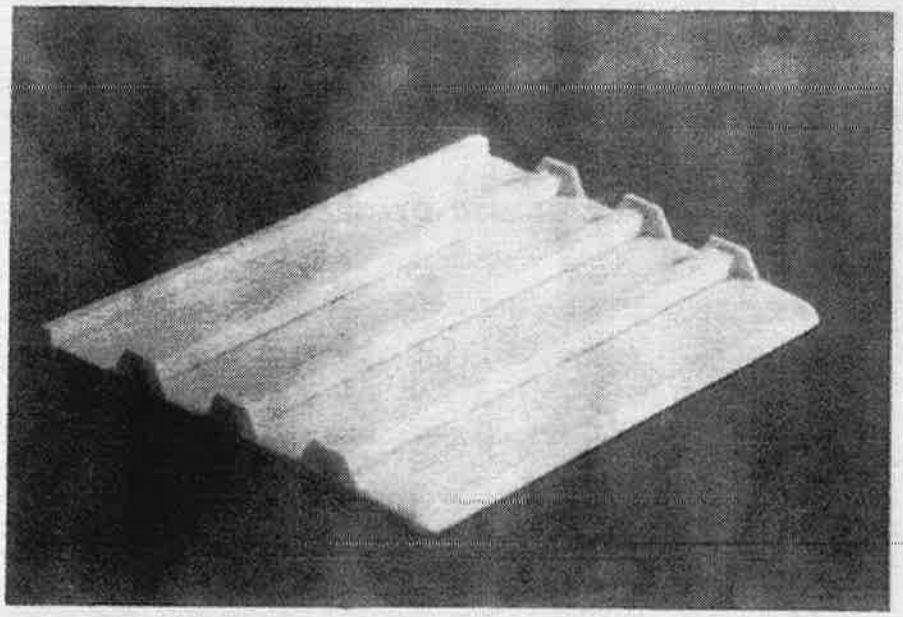


FIG 18: CAR END

FIG 19

FIG 20

LAYOUT CLINIC DIAGRAM