Main Line

National Model Railroad Association Inc — Australasian Region
Volume 10 Number 3 — July, August, September 1993
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Main Line

July, August, September
Volume 10 Number 3

SEND CHANGES OF ADDRESS OR CORRECTIONS TO:

Jack MacMicking
247 Eastern Valley Way
MIDDLE COVE 2068

Main Line is the official journal of the Australasian Region of the National Model Railroad Association Incorporated. It is published four times per year in approximately February, May, August, and November. Articles, letters, members classified advertisements and club notices are solicited from the membership and are considered to be donated free for the benefit of the hobby. They should be mailed to:- THE EDITOR, Main Line, 7 Booralie Road, TERREY HILLS. N.S.W. 2084.

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All other matters should bve addressed to the Secretary at :- N.M.R.A. Inc., P.O. Box 714, Willoughby NSW.

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Deadline For Next Main Line

The closing date for the next issue of the **Main Line** is 31st October 1993.

On The Cover

The cover on this issue was drawn by Laurie McLean. It depicts the Strater Hotel in Durango, Colorado. You can read all about Laurie's research in the series called Destination - Durango.

Waybill

Regional Meeting Schedule

18th Sept
Mike Halinan
11.00 am

NSW Newcastle
15 Cheshire Close
(049)523850

Radio Control Garden Railroad. Come to Mike's at 11.00 am on Sat. for our usual members meeting, then spend the rest of the day at the Broadmeadow Exhibition (a small map is enclosed with this news letter).

Paul Richie
11.30 start
HO and HOn3 layouts operating.

VIC Ballarat
28 Ascot St South
BBQ
(053) 321138

Paul has made many improvements to his layout, bridges added, HOn3 track and turnouts added and scenery done, and possibly a small clinic.

Rob Nesbitt
2.00pm

ACT Kingston
Canberra Railway Museum
(06) 297 5401

25th Sept
Sydney O Scale Group
School Hall, Coleburn Aven·
Opposite Carrington Av·
(02) 498 4659

NSW Mortdale
Bruce Lovett

Mortdale
No Children Please

CANCELLED

There will be ·e 'O' Scale, 2 rail layout and a portable 'On· 2 rail layout operating plus 'O' and 'On2$^1/_2$ locos and rolling stock on display.

2/3/4th Oct — 9.00am — **NSW Liverpool**
A.M.R.A Exhibition — E.G. Whitlam Centre
Please help man our stand, contact Glen Coventry on (02) 452 2131 about the roster. Phil Knife and Gerry Hopkins will have their layouts on either side of the stand.

30th Oct
Brian Nickless
On3 D&RGW Layout

2.00pm

NSW Cambridge Gardens
121 Newham Drive
(047) 301 688

23rd Oct
Ross Ferguson
ACT Meeting 2.00pm

NSW Queanbeyan
41 Campbell Street
(06) 2974388

13th Nov
Bob Kollwyn
2.00pm
HO NSW Prototype Layout

NSW Toongabbie
7 Second Avenue
(02) 636 6907

20th Nov
Laurie Green
11.30 am
HOn3 D&RGW Layout.

VIC Sunbury
20 Nambour Drive
(03) 7445188
End of Year BBQ

ACT Pearce
11 Charlton Street
(06) 286 2273

4th Dec
Toni & John Saxon
12.00 noon
HO Cedar Valley Lines

NSW Clontarf
37 Beatrice Street
(02) 949 4767
Our Christmas Party

A donation of $5.00 towards the cost of this special event will be payable.

Mid '94 — **Mini Convention** — **Melbourne**
More Details next issue of Main Line

President's Report

Congratulations are in order. The region has a new MMR. John Saxon has become MMR number 203. Well done John. The last couple of months have been busy ones in the Saxon household with full steam ahead to finish the last couple of categories and just in time for Johns visit to the US for the Convention and Trustees Board Meeting. John received his plaque at the convention prize giving. His picture with plaque will appear next issue.

Speaking of MMR's we are very close to having our 5th Master Model Railroader and I would encourage you all to have a go at the achievement program. Just as building a layout is lots of small steps each one building on the other until one day the goal is achieved. The achievement is just lots of small steps and one day who knows you may be having your picture taken for the cover as our new MMR. For more information contact Richard Roth (Achievement Chairman) or Fred Gill (Vice Chairman) their numbers appear on the inside cover.

The aspect of being president of this organization that I get the most pleasure from is from the sense of involvement and the really good friends and interesting people I have met during the time I've been on the committee. The more your are involved with a group like ours the more you get out of it. The next issue of the Mainline will include a nomination form for all the elected positions. Give some thought to what you can put back into this great hobby and you may be surprised at the extra pleasure you derive from being more involved.

Sowerby Smith

Meeting Reports

George Paxon's Meeting on 12th June

It was nice to go to George's again to see his beaut On3 models. Especially at eye level they make an impression the smaller scales can't match. And watching from just 1/2 metre away, his Shay ran so quietly and smoothly.

Those of us who have been to George's previously may recall he created his train room and workshop from the crawl space under his house. So if you lack room for a layout, take heart. If you have a crawl space you may well have room for a layout. To someone like me who models in HO standard gauge seeing George's On3 models provokes an odd reaction - They're big, and tiny at the same time. Big because the scale is nearly double. Small because once we've made the mental transition to the large scale the smallness of the narrow gauge prototype becomes apparent.

Mid afternoon we adjourned upstairs for afternoon tea and a short formal meeting. Collin Upton showed a video on his visit to the Puffing Billy Railway in Victoria.

If You haven't been to a member's meeting for a while, remember that it's the place to go for:

Information
Conversation
Inspiration

Thanks to Celeste and George for your hospitality.

Glen Coventry

Bruce Ballment's Layout Visit 10th July

Some of us had seen Bruce Ballment's layout before, either at a previous members meeting or on the layout tour of the 93 Convention. Bruce has managed to fit quite a large Colorado narrow gauge layout into his garage and still leave room for a workshop. It has all the things you would expect of such a railroad, mountains spindly trestles, frontier towns, steep grades and a mine branch.

It was announced at the meeting that our long serving Trustee, John Saxon has qualified as the Region's 4th Master Model Railroader. John - Congratulations!

Laurie McLean offered to make up sets of super accurate metal track curve gauges, these being manufactured to the finest of tolerances. I don't know whether the offer still holds, talk to Laurie.

It was great to have a mini-clinic again. Ken Scales showed us how to make a cheap and idiot proof throttle, that even an electrical illiterate like me could follow. In fact our President has since built one and says it's as good and simple as claimed and it worked first go.

Thank you to Bruce and Barbara for entertaining us all so well.

Glen Coventry

[The details of the throttle are covered later in this issue - Editor]

Valley Forge Report

After a few days in California where we visited the Sacramento Railroad Museum, we arrived in Philadelphia on the Thursday evening preparatory to the start of the NMRA Board meetings starting the Friday night and concluding late Sunday afternoon. In due course, the minutes of the meetings will be published in the Bulletin so I will not try to cover everything in this brief report. However, there were some items worth mentioning.

1. **A new Bulletin editor** will take up duties as of 1 January, 1994. Mike Carlson will continue as Advertising Manager until 31 August, 1994.

2. Draft standards and recommended practices for **Digital Command Control** were approved for later submission in 1994 to the membership for approval. Manufacturers / retailers of conforming equipment were already demonstrating and selling at the Train Show. I suggest that anyone currently considering purchase of command control equipment should contact me before making a final commitment as this development will be the way to go for the future.

3. Eric Lundberg steps down as President next year. We will be voting either for Bob Charles, the Mid Eastern Region Trustee or Will Seaver, former Western Vice President.

4. A **"Consumer Watch"** column is to be introduced in the Bulletin to alert members to potential problems with individual suppliers (and also to thank those who give outstanding service).

5. The **NMRA Insurance** program is popular with the members. Unlike the credit card program, this benefit is available to overseas members and a direct mailing to us should occur soon.

6. 4998 Gorre & Daphetid cars were sold for a net return of $US 23,992. The Lin Westcott cars also sold well and orders are now closed.

7. The Columbus convention returned a net $US23,136 to the NMRA. This is apart from the money made by the local Region.

Some other items:

a] We returned with the 13 video tapes titled **"All About Trains"** in the **PAL** format for lending to the membership through our librarian, George Paxon.

b] I spent all day Monday representing the Board of Trustees in a closed arbitration hearing into an allegation that a member had utilised locomotives and cars built by others in securing his MMR award. Witnesses were flown in from Florida at NMRA expense, the NMRA Legal Counsel prosecuted, all those giving evidence were sworn in under oath and a professional court reporter was hired for the day to verbatim record the proceedings. It was very serious business and I would not have personally liked to have gone through the cross-examination that some witnesses did. The three arbitrators finally decreed that the modellers claim "should prevail" but that a report be published in the Bulletin to draw attention to the serious way any such matters would continue to be investigated.

c] There were 3,000 registrations for the Convention and 30,000 went through the Train Show on the week-end. You literally could not move in the three halls on the Saturday and I missed getting to some of the 700+ stands so that my Visa card escaped reasonably clean.

We left the area on the Sunday and drove to Tony & Judy Koester's in Northern New Jersey via a nearby 85' X 35' Erie layout which will be featured in the January, 1994 MR. I took lots of video of both layouts and also bought the new Allen Keller video (in NTSC) of the Allegheny Midland. A great experience and we were made most welcome by Tony and Judy who continue to compliment Sydney and our Region to all who will listen! The final gem was a visit to John Armstrong's famed Canandaigua Southern O scale layout near Washington, DC. Again, plenty of videoing although the lighting was low and the video therefore not as good as I would have liked.

All in all a great experience and one we will both remember for a long time.

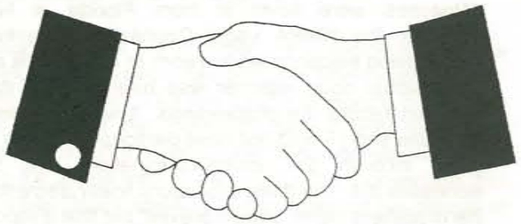
John Saxon

Vale - David Goddard

It is with sadness that we have learned of the death, after illness, of our member, David. David had been a member of the N.M.R.A. for many years; his presence at our gathering was always interesting, his friendly discussions about all subjects will be missed. We extend sympathy to Jenny, Samantha, Joanne, Angela and Simon.

Paul Richie

Paul Richie is itemising and organising the sale of David's Model Railroad equipment. These consist of B&O locos and rolling stock and many B&O books. If you are interested please send a SAE to Paul Richie and state you particular interest.



Welcome Aboard

Please welcome the following members to NMRA Inc, Australasian Region.

Craig Scott
37 Duneba Drive
Westleigh NSW 2120

David Sellar
41 Cooney Street
North Ryde NSW 2113

John Bullen
P.O. Box 3284
Weston Creek ACT 2611

Stephen O'Brien
138 Nemerang Cr.
Warmanga ACT 2611

Des Bodley
111 Clovelly Road
Bucklands Beach
Auckland NZ

David Gallaway
1 Kanya Street
Frenchs Forest NSW 2086

NATIONAL MODEL RAILROAD ASSOCIATION INC. AUSTRALASIAN REGION

The information in this box is that currently recorded on our records. If it is incorrect would you please enter the changes in the form below.

MEMBERSHIP APPLICATION / RENEWAL			
Surname Initials		Preferred 1st Name	
No & Street			Home Tel ( )
City/Town			Work Tel ( )
State	Post Code	Main Scale/Gauge	
Prototype Interest / Railroad			
Name of Your Layout /Railroad			
Are you a member of the parent Association? YES / NO If Yes - Membership No. Expiry Date -			
SUBSCRIPTION RATES **N.B.** You must be a member of the U.S. parent body to be a member of the Region			
Combined Membership (You pay us the total, we pay your US fees.) Affiliate Membership (Do not recieve Bulletin Magazine)			$A 50.00 $NZ 67.00 $A 38.00 $NZ 51.00
Australasian Membership only (You pay your US membership direct to Chattanooga Office)			$A 14.00 $NZ 20.00
Youth Membership (Under the age of 20) Date Of Birth : Family Membership (Spouse or minor child)			$A 35.00 $NZ 46.00 $A 7.00 $NZ 9.00
PLEASE JOIN/RENEW ME AS A MEMBER. MY REMITANCE FOR $ IS ENCLOSED **OR CHARGE MY CREDIT CARD :-**			
Please Tick as required:--	VISACARD	MASTERCARD	BANKCARD
CARD NUMBER : –			EXPIRY :-
Signature of Cardholder:– Full Name on Card :-			
Cheques should be made payable to : N.M.R.A. Inc. and sent to : N.M.R.A. Inc., 247 Eastern Valley Way., MIDDLE COVE NSW 2068			

This is the the new membership renewal / application form. There are a few extra boxes you can fill in, these are only for general information within our database e.g. name of railroad, gauge etc. The other important change is the fact that you can now pay by Credit Card, this will make the increases less painful. If you change your address at any time please notify Jack MacMicking.

ACHIEVEMENT PROGRAM REPORT

By Richard Roth

Current Certificate Holders

1 Master Builder - Motive Power
Phil Knife MMR,
Don Turnbull (D)
Fred Gill MMR
Phil Badger
Roger Horde

2 Master Builder - Cars
Hal Saxon,
Gerry Hopkins MMR,
Fred Gill MMR,
John Saxon MMR.
Roger Horde
Laurie Green

3 Master Builder - Structures
Gerry Hopkins MMR,
Fred Gill MMR
Ted Hodgkinson(NZ)
John Saxon MMR.
Laurie Green
Laurie McLean

4 Master Builder - Scenery
Phil Knife MMR,
Gerry Hopkins MMR,
Fred Gill MMR.
John Saxon MMR
Laurie Green
Ken Scales
Roger Horde
Phil Badger

4A Master Builder - Prototype Models
Gerry Hopkins MMR.

5 Model Railroad Engineer - Civil
Phil Knife MMR,
Gerry Hopkins MMR
Laurie Green
Fred Gill MMR

6 Model Railroad Engineer - Electrical
Phil Knife MMR
Gerry Hopkins MMR,
John Saxon MMR
Fred Gill MMR
Laurie Green

7 Chief Dispatcher
Phil Knife MMR.

8 Association Official
John Saxon MMR
Garry Wheatly,
Bruce Lovett,
Peter Burrows.

9 Association Volunteer
Phil Knife MMR,
Bill Cooper,
Jack McMicking,
Keith Oman(NZ),
Clive Riley,
John Saxon. MMR
Gerry Hopkins MMR

10 Model Railroad Author
Phil Knife MMR,
Bill Cooper,
John Saxon MMR,
Gerry Hopkins MMR,
Fred Gill MMR.
Laurie Green

11 Master Model Railroader
Phil Knife
Gerry Hopkins
Fred Gill
John Saxon

Golden Spike Awards

Peter Webb, Gordon Farnsworth(2),
Laurie Mclean, Gerry Hopkins MMR (2),
Geoff Knott, Sowerby Smith,
Lawrence Nagy, Robert Benson,
Frans Persson, Colin Brettle,

Bill Cooper, Ted Hodgkinson(NZ),
John Saxon MMR, Paul Richie(Vic),
Bruce Sedden(NZ), Kevin Brown,
Peter Weller-Lewis(ACT), Bruce Ballment,
Fred Gill MMR, Michael Bartlett,

John Gordon(D), Phil Knife MMR,
Laurie Green, John Baker,
John Gaffey, Phillip Moore,
Graham Larmour, Roger Horde,
Michael Flack, Ray Walter,

Ken Scales, Warren Wormold,

Destination Durango

Part 8

Laurie McLean

During a visit to Colorado in 1901, Theodore Roosevelt remarked, "The scenery bankrupts the English language". Katherine Lee Bates composed "America the Beautiful" after viewing the expanse of land from Pikes Peak in Colorado. Truly, Colorado offers more then beauty, it contains a special majesty for model railroaders who have discovered its secrets. Being able to model scenery that's so dramatic with plains, peaks, plateaus and rivers, all within sight of each other, and to fit tiny steam trains on tight curves of track blends everything a modeller could possibly crave. No wonder narrow gauge has proved so popular amongst modellers.

American Indians lived in Colorado 2000 years ago and in Mesa Verde National Park their concentration of cliff dwellings can still be viewed. Ute and Comanche Indians also frequented much of Colorado but it was the Spanish, not the white

.....the Worlds largest flat top mountain.....

Americans, who explored it first.
Grand Mesa with its lakes by the hundreds is the world's largest flat top mountain. Black Canyon is the deepest abyss in the world being 55 miles long.

The "Mile High " city of Denver was the starting or stepping off point and the gateway to the famous mining towns of the central Rockies. From here the 3 foot narrow gauge tracks ran west to share in the new found wealth of gold, silver and other precious metals. Today Denver's population is 1.8 million, a large part of the 3.3 million in the state of Colorado.

Durango somehow has survived and thankfully the historic narrow gauge RR is still in place today forming a tourist attraction in summer, whilst the snowfields of Purgatory to the north offer impressive ski facilities.

As late as 1981 the RR tracks west of the town were still intact. These tracks were owned and operated by the famous Rio Grande Southern RR which lasted until the early 50's. To me, one of the most memorable experiences was reading about this funny yellow mud that was transported over the RGS tracks to Durango, and then via the D&RGW eastward. The yellow mud came from mines northwest of Durango in the San Juan mountains, and in the latter years of the second world war it was carried in piles in boxcars over the wheels because of its weight. This was material that found its way over Japan in the form of Atomic Bombs!

The Accompanying map provides the plan view of Durango showing the track plan and RR structures. Also, the Main Avenue buildings are noted. Many years of research have gone into finding out the names of the buildings between the RR tracks which made up the "North Yard" and Main Avenue. My thanks to fellow NMRA member Bob Stull in Denver who has provided material and many answers to my questions. Also Tony Earp, Ian Petherick, Gary Norwood, Mick O'Hanlon and others who kindly provided photographs and information.

The research isn't finished, for I still need photos of the town buildings that main up the blocks between 5th Street (Depot) and 15th Street. The Main Avenue was 80 feet wide and each building block 325 feet by 150 feet. From old Black and White photos in books I have been able to put the outlines of most buildings in place by looking though a magnifying glass and referring to specific time periods. There were many vacant blocks over the years and I have marked a "V" on the map for the time period "Early 1940's".

If anyone knows the names and placement of any other buildings then it would be appreciated if you would write to me - thanks.

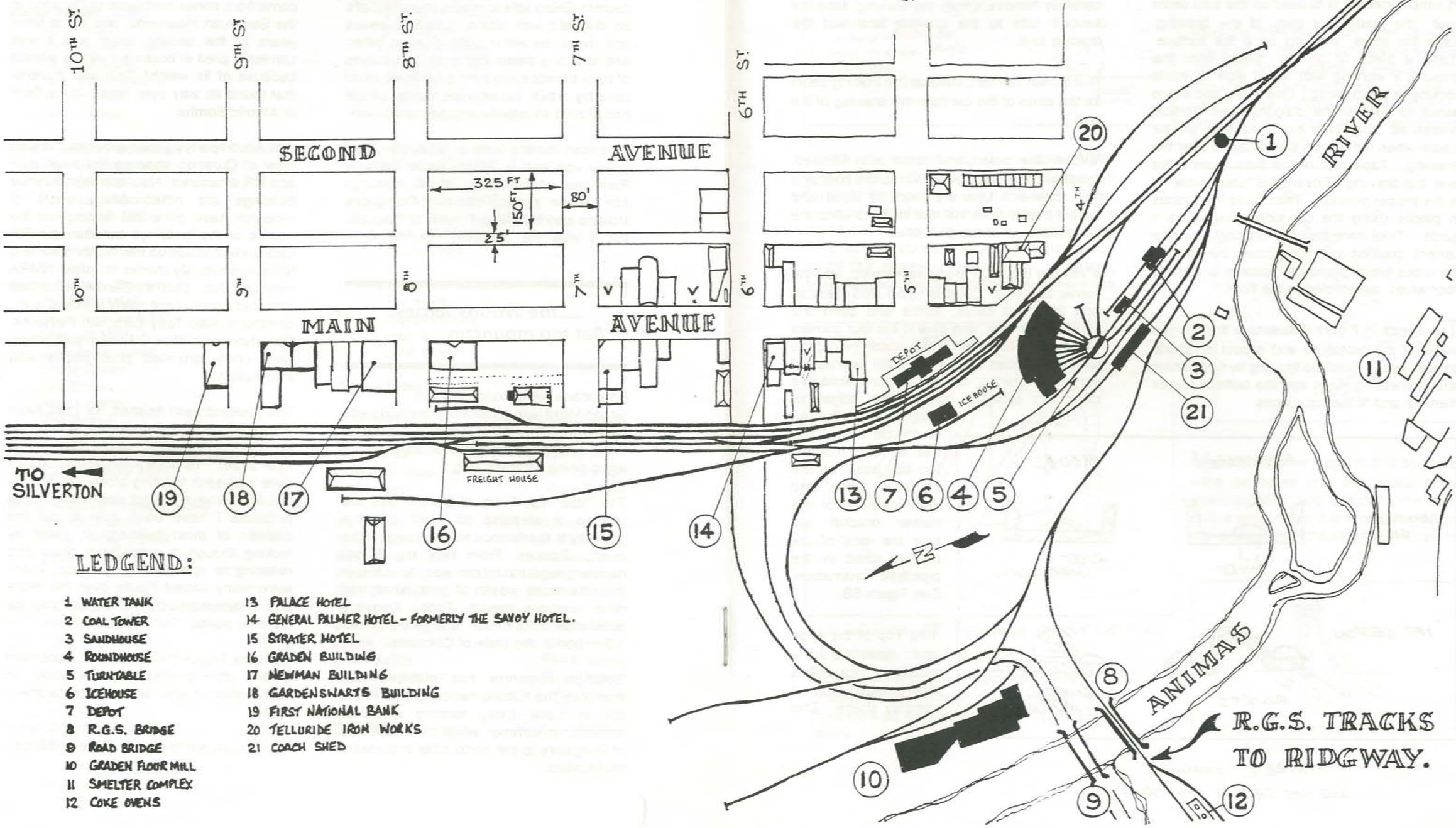
(Next issue, some history of the buildings).

DURANGO 1940's

PLAN OF TOWN AT R.R. TRACKS WITH HISTORIC BUILDINGS AS NOTED.

D.&R.G.W. ~ R.G.S.

DRAWN BY
LAURIE McLEAN
JUNE 1993



LEDGEND:

1 WATER TANK
2 COAL TOWER
3 SANDHOUSE
4 ROUNDHOUSE
5 TURNTABLE
6 ICEHOUSE
7 DEPOT
8 R.G.S. BRIDGE
9 ROAD BRIDGE
10 GRADEN FLOUR MILL
11 SMELTER COMPLEX
12 COKE OVENS
13 PALACE HOTEL
14 GENERAL PALMER HOTEL - FORMERLY THE SAVOY HOTEL.
15 STRATER HOTEL
16 GRADEN BUILDING
17 NEWMAN BUILDING
18 GARDENSWARTS BUILDING
19 FIRST NATIONAL BANK
20 TELLURIDE IRON WORKS
21 COACH SHED

BUILDING THE C & EI 55 TON COMPOSITE GONDOLA,

Part 3.

By George Paxon

The last article concluded with the side and end assemblies test fitted to the car floor assembly. Assuming the sides and ends are correct, next add the steel bracing the detail to the sides.

A simple method is to build up the side detail over the scale size copy of the drawing. Tape the scale drawing on a flat surface. (Tape a piece of grease paper over the drawing if working with wood glue to avoid sticking to the drawing.) Use a rule and sharp pencil to extend the diagonal and vertical braces so that their exact position will be visible when the model side is taped over the drawing. Tape one of the side assemblies over the drawing. Ensure the "steel plate" is in the proper position. Then build the braces in places using the car side drawing as a guide. Take care that the bracing is in the correct position as it must cover the ends of the cross bracing and car bolsters under the floor when assembled to the floor.

The sketch in Figure 7 illustrates the section views of the prototype and model structural shapes used. Build the bracing by first cutting and impressing rivets into the bottom pieces then cut and fit the top pieces.

In the case of the hat section, the top pieces must be shaped. This can easily be accomplished by scraping and then sanding to the required shape as shown in Figure 7.

When the first side is complete and dry, carefully remove it from the drawing, tape the second side to the drawing and add the bracing to it.

In a similar fashion, build up the bracing detail for the ends of the car over the drawing of the end.

When the sides and ends are finished, assemble the sides and ends to the floor and one another. Use the block of wood and rubber bands from the test fitting to keep the car square while the glue dries.

With the basic car body assembled, add the corner brackets. Cut them from .005 material, add the rivet detail, scribe and bend the corners to shape, and glue to the four corners of the car. Note that on the prototype car the diagonal braces on the car ends overlapped the corner braces. Cut the corner braces to a clear but snug fit against the edges of diagonal brace flanges on the car ends. The use of .010 material for the base of the diagonal brace and .005 material for the corner bracket will give the look of the overlap used in the prototype construction. See Figure 8B.

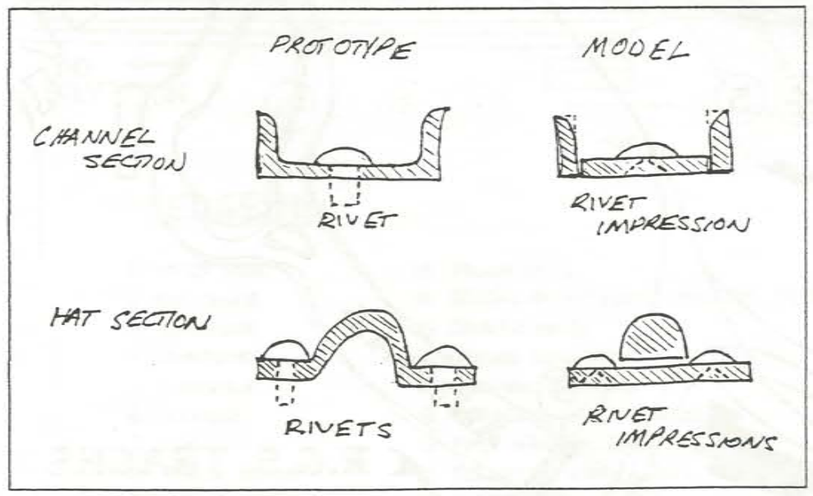
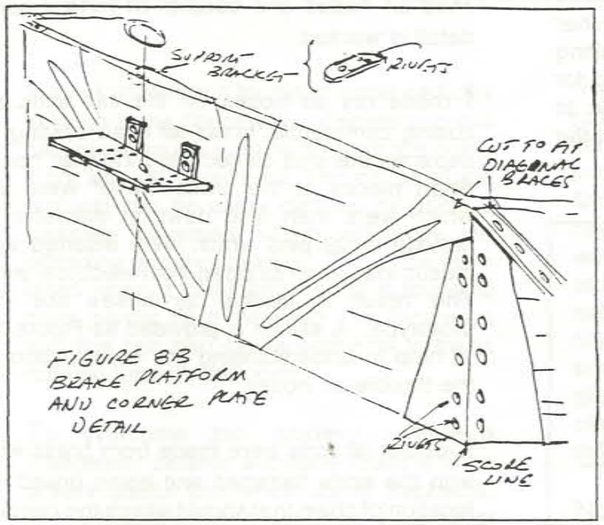


FIGURE 7. CHANNEL AND HAT SECTION CONSTRUCTION

The Top of the ends and sides of the prototype included a steel angle with a complex shape. This



can best be modelled by simply adding a 6" wide piece of .010 styrene strip as the top flange to the top of the sides and ends. Refer to Figure 6A which shows the flange on the top of the car sides and ends. Also add the "L" shaped brackets to slightly oversize. Glue to the top angles of the car and, when dry, sand to exact shape rounding the corners like

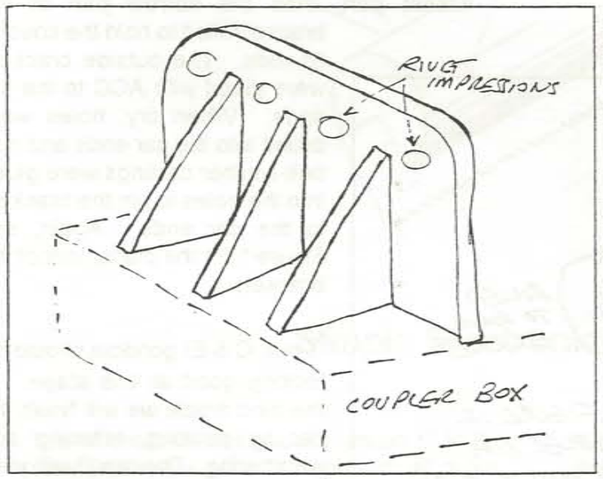


FIGURE 8A. STRIKER CASTING DETAIL

the prototype. See Figure 1.

Striker castings above couplers were each formed from four pieces of styrene with rivets impressed as necessary. See Figure 8A for details.

Now add the brake wheel and platform if the type K brakes are modelled. If the car is to be built for a more modern era, you may want to add a modern brake wheel assembly such as an Ajax. I made the two support brackets for the platform of .015 x 3" wide brass strip. Two holes were drilled in each bracket to permit the use of nut-bolt-washer castings as pins to help hold the brackets to the car ends. Figure 8B shows the brake wheel and platform detail.

Add the grab irons also. Drill very small holes carefully to avoid making them too obvious on the inside of the car. Grab irons can be simulated quite effectively by using small nut-bolt-washer castings to represent the bolted ends. See Figure 1 for location details.

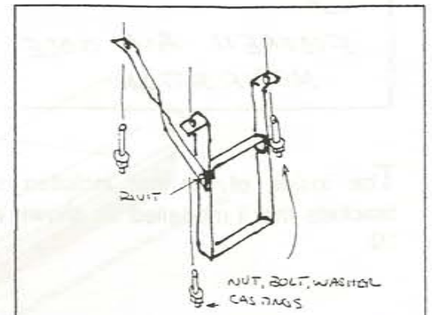


FIGURE 9. CORNER STEP DETAIL

Make the corner steps of .010 by scale 3" wide flat brass strip and solder or glue thern together and attach to the car. I drilled small holes in the mounting areas of the steps, glued the steps to the car, then

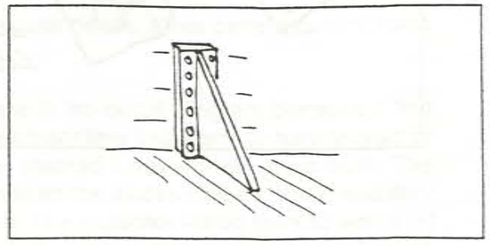


FIGURE 10. INSIDE BRACKET DETAIL

drilled a small hole into the car using the holes in the step as a guide. Nut-bolt-washer casting can be glued into these holes resulting in a pin that will provide better mounting for the corner steps as they are vulnerable to being knocked off due to their location at the corners of the car. See Figure 9.

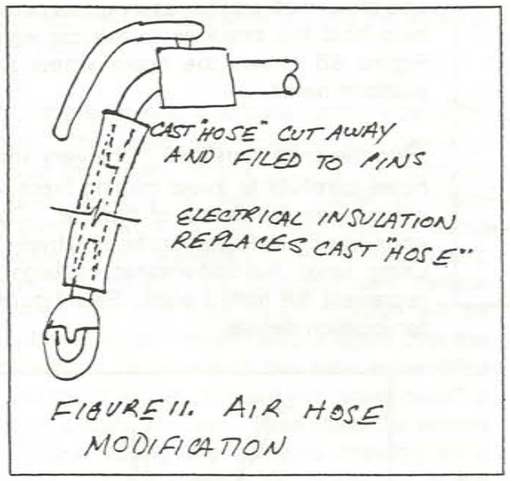


FIGURE 11. AIR HOSE MODIFICATION

The inside of the car included six steel brackets that I modelled as shown in Figure 10.

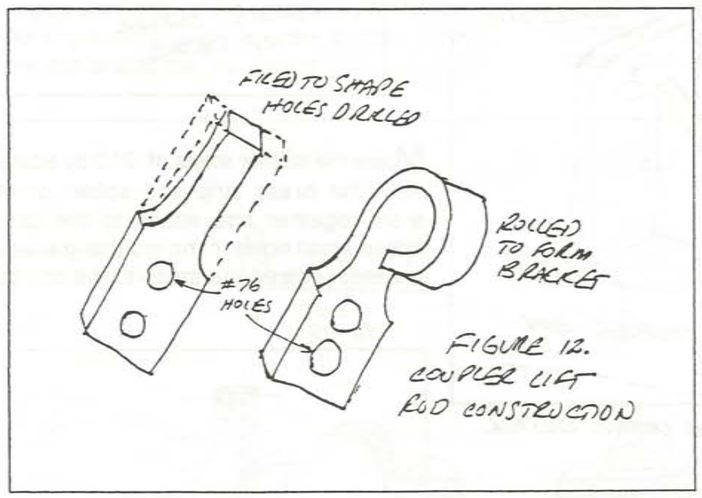


FIGURE 12. COUPLER LIFT ROD CONSTRUCTION

Add air hoses and coupler lift rods if such detail is wanted.

I made my air hoses on the car ends by cutting commercial brass air hose casting to separate the shut off cock and the glad hand. Short pieces of the brass "hose" were left which were then filed down in diameter to provide small pins which were inserted into plastic insulation stripped from electrical wire. The result is flexible air hoses like the prototype. A sketch is provided as Figure 11 to help in understanding the construction of the flexible air hoses.

Coupler lift rods were made from brass wire with the ends flattened and holes drilled for location of chain that should attach the coupler lift rod to the coupler pin. Brass brackets connect the coupler lift rods to the car ends. The inside or centre brackets are formed from small half loops of brass wire, holes then drilled in car ends, half loops glued with ACC to car ends.

The outside brackets were filed from .015 by .060 brass to the shape shown in Figure 12, two #76 holes drilled in each bracket on the widest part, then the narrow part of the bracket rolled to hold the coupler lift rods. The outside brackets were glued with ACC to the car ends. When dry, holes were drilled into the car ends and nut-bolt-washer castings were glued into the holes to pin the brackets to the car ends. Again, see Figure 1 for the placement of the brackets.

Your C & El gondola should be looking good at this stage. In the next article we will finish the car by painting, lettering and weathering. The result will yield a model with the look of the hard working prototype car.

FLANGEWAY CUTTER/CLEANER

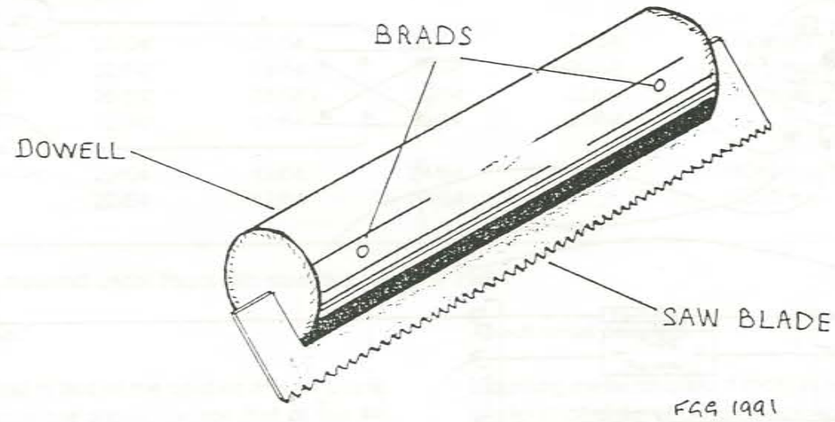
by Fred Gill

It is not uncommon for dirt or small particles to lodge in the flangeways of points and this can cause rough running through the point, if not an odd derailment. The cause of the problem can be easily cleaned by using a cleaning instrument which will move the offending particles quickly. There has been times when a commercial point is found to have plastic flash between the flangways and this can also cause problems to trains running through the point.

To overcome this problem I built a Flangeway cleaner and have found it to be a very useful tool when laying trackwork. The following method was used to construct the tool: cut a piece of hacksaw blade 3" in length - use a blade that cuts a kerf about .040" wide (NMRA minimum width for flangeways).

Next cut a 2 1/2" long piece of 3/4" dowel rod and round the ends slightly with sandpaper. A saw cut is made lengthwise into this piece of dowel to a depth of about 5/16". This can be done with a a small handsaw or a dowelling saw should work as well. Insert the blade into the saw cut and attach it to the dowel by drilling two small holes through both the dowel and the blade. Now pin it in place with two small snug fitting brads or if you like you can use an epoxy glue to hold the blade in place. A coat of clear varnish or Estapol gives a nice finish to the handle.

Now you can keep your flangeways clear of problems and also at the correct width and depth.



Simple Electronic Controller

By Michael Flack

The controller is designed to run on 17 to 24 volts DC. It is a pure DC type with all pulse from the ac supply removed. It is very cheap to build, the parts can be purchased at Dick Smith's, Jacar or any of the electronic parts shops. It has inbuilt short circuit protection and is very difficult to damage through shorts, wrong connections etc.

The box can be tailored to suit your particular needs, either panel mount or hand held.

There is no circuit diagram because I find most modellers find them too hard to read or use. Instead I have drawn it as built. The bands on the diodes indicate which end they point. The capacitor will be marked with a [+] or [-] on one end and must be hooked up as shown. If the variable resistor works

backwards to the direction you want, swap the pair of wires to the left terminal on the diagram and join the right terminal to the middle terminal . The resistor can be hooked up either way round. The regulators are hooked up with the writing facing you.

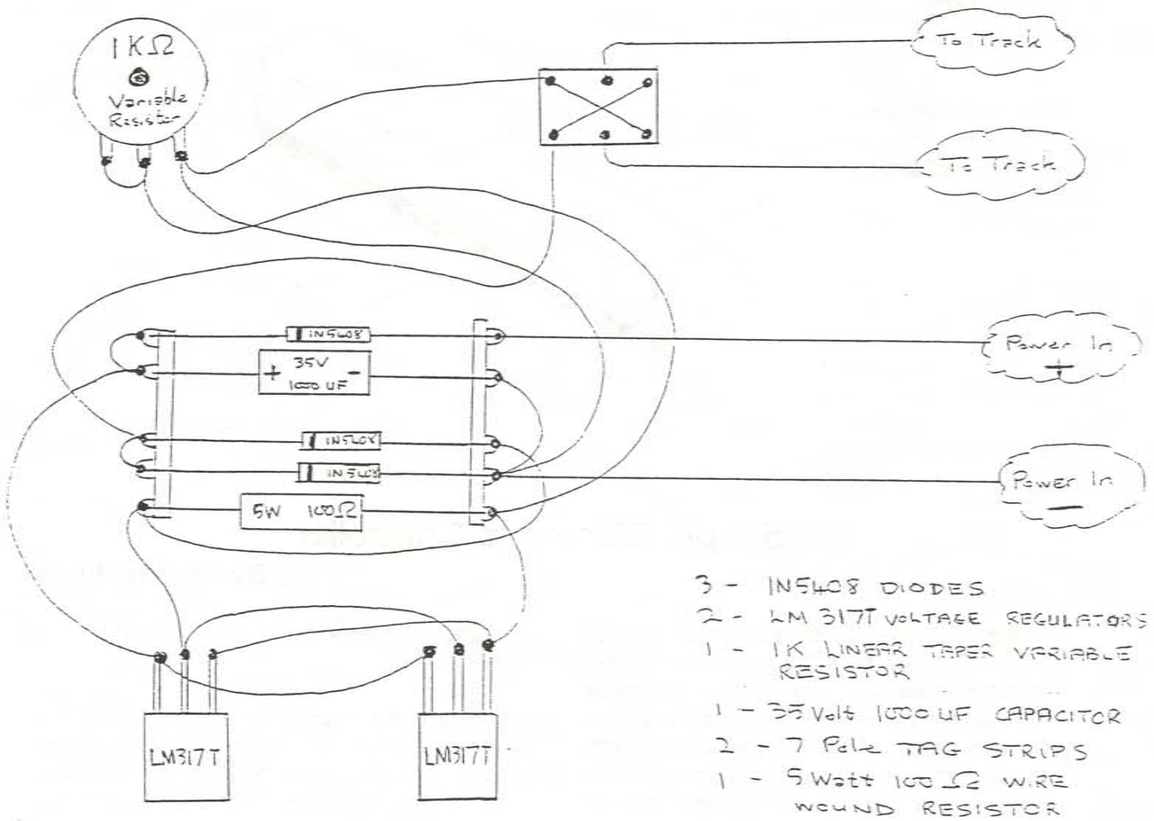
Simple Tips

Do not use less than 16 volts for any Transistor throttle or Regulator type controller. This reduces the slow speed sensitivity of most electronic controllers. The best input voltage for this type is about 21 volts. If youy want to run trains that draw highn amps (e.g. 5 powered Athern Diesels) use 24 volts and you will be suprised what they can do.

The minimum thickness of wire for a controller and layout is the 7 amp domestic cable used in household extension leads.

This is very low resistance and imroves the responce of any controller by about 20%. Thin hookup wire sold in hobby shops and phone wire has high resistance when used in power control circuits and affects the low speed control of your trains.

This is not electrical theory, it is something that has been proved in practical testing on model railroads. This is why manufacturers of high performance speakers recommend lamp cord or jumbo cable. Thin cables are suitable for signals and relays.



KADEE COUPLER AND DRAFT GEAR CHART - HO SCALE

By John M Smith

No.	Coupler Material	Mounting Height	Shank Length	Coupled Length	Gear Depth	Remarks
3	Metal	29/64	18/64	30/64	28/64	Factory assembled #5
5	Metal	29/64	18/64	30/64	28/64	Most used KD HO type
9	Metal	29/64	18/64	30/64	31/64	Longer draft gear box
4	Metal	29/64	18/64	30/64	28/64	Metal draft gear (#4)
15	Metal	29/64	18/64	30/64		Slotted Shank (#4 & #15)
6	Metal	28/64	26/64	38/64	24/64	Long shank, long box
7	Metal	25/64	16/64	28/64	14/64	Short shank, short box
8	Metal	28/64	20/64	32/64	18/64	Medium shank, short box
16	Metal	28/64	26/64	38/64	24/64	#6 shank, #7 box
21	Plastic	26/64	25/64	37/64	35/64	Underset long shank
22	Plastic	32/64	18/64	30/64	28/64	Overset shank
26	Plastic	29/64	25/64	37/64	35/64	Long shank
27	Plastic	26/64	18/64	30/64	28/64	Underset Shank
28	Plastic	29/64	18/64	30/64	28/64	Equivalent to #5
31	Plastic	26/64*	25/64	37/64	30/64	Underset long shank
36	Plastic	32/64*	25/64	37/64	30/64	Long shank
37	Plastic	26/64*	18/64	30/64	23/64	Underset shank
38	Plastic	32/64*	17/64	29/64	22/64	
711		29/64	12/64	24/64		HOn3 size for HO
714		22/64	12/64	24/64		HOn3 size

* May also be mounted under floors with standard height of 29/64

About the table:

Coupler material is that of the coupler and its shank. Draft gear boxes are plastic except that of the #4, which is metal.

Mounting height is the distance from the top of the rails to the surface on which the draft gear box mounts, usually the bottom of the car floor.

Shank length is the distance from the rear of the coupler head to the centre of the mounting hole; this may vary from prototype practice.

Coupled length is the distance from the inside face of the knuckle to the centre of the mounting hole.

Gear depth is an estimate of the space you need for the draft gear in a car or loco body; but it depends on how much you let the coupler stick out from the body.

About metal couplers:

Mounting metal couplers directly to metal locomotive, tender or car frames (when plastic draft gear won't fit) may cause short circuits in multiple locomotive lashups. It's even possible for a pusher locomotive's front coupler to be short circuited to the frame of the lead locomotive or tender through a train made up exclusively of metal-framed cars with direct-mounted couplers. You can use Kadee's plastic-shank couplers on locomotives and tenders to prevent the couplers from contributing to this problem.

#3, #5 and #9 Couplers

These are metal couplers in plastic draft gear boxes. In HO scale , #5 is the most used Kadee Coupler. Many popular rolling stock kits have built-in draft gear boxes which will accept the #5 coupler and spring without the Kadee draft gear box. A #3 is the same as #5, but the coupler and spring are factory assembled into the draft gear box, and the assembly is ready to attach to a freight car. A #9 uses the

same coupler and spring, but the draft gear box has a smaller mounting hole in the centre, and is .05" longer at the rear. The advantage of the extra length is not apparent.

The #5 style couplers simply pivot on their mounting, neither increasing nor decreasing space between cars on curves.

#4 and #15 Couplers

These are metal couplers, alike except that #4 has a metal draft gear box, and #15 has a low profile insulating plastic draft gear box. The coupler shank has a longitudinal slot which fits over a post in the draft gear box. A coil spring in the slot is compressed when the coupler is pulled, or when it is pressed to either side . The coupler extends farther from the box when pressed to the side, increasing space between cars on the curves. The centring spring may absorb some start up shock. The coupler supplied with the Kadee #205 coupler height gauge appears to be a #4 / #15.

The #4 and #5 can be adapted to un-modified brass steam loco pilots. Cut off the mounting slot and ears from the coupler shank, drill a mounting hole in the shank (there's already a dimple to centre your drill), and file the shank to fit the pocket in your loco pilot. The arrangement has no centring spring, but it will work and requires no modifications to the locomotive. See the note above about using metal couplers on metal locomotives.

#6, #7, #* and #16 Couplers

These are metal couplers in plastic draft gear boxes. All use the same type of shank, which has an elongated loop and ears. There is slot for a coil type centring spring. Because of the centring mechanism design, these couplers partially retract into the draft gear box when pressed to the side, decreasing space between cars on curves,. The centring spring can be compressed when the car is being pushed.

The #7 has a short, underset shank and small draft gear box. The #8 is a "stretched" #6 with slightly longer shank. The #16 is a #6 coupler in the #7 small draft gear box.

These couplers will fit in small spaces, and are often used on diesel locomotive bodies.

#21, #22, #26, #27 and #28 Couplers

These couplers all have plastic shanks of the same shape as the #5 coupler, and use the #5 centring spring. The #28 coupler appears to have the same dimensions as the #5 coupler. These are intended for use on talgo trucks and in difficult mounting situations. The kits include a variety of mounting adaptors for use in various applications. Even the #5 draft gear box is included.

The #26 has a long shank, normal height. It is very useful for switcher tenders. The extra shank length makes up for the shorter tender wheelbase and overhang, and gets the uncoupling pin clear of the footboards. The insulating properties make it a good choice for steam loco front couplers too, where the additional length gets the coupler out beyond the pilot.

The mounting heights in the table apply when these are used in the #5 style draft gear box. When using the universal adaptor included in the kit, the coupler can be mounted under a car floor which is 1/64" lower than shown. They can also be mounted on top of car floors at heights of :

#21: 20/64	#22: 26/64	#26: 23/64
#27: 20/64	#28: 23/64	

#31, #36, #37 and #38 Couplers

These couplers all have plastic shanks the same shape as the #5 coupler, but have draft gear which is unique to this family of couplers. The draft gear box may be mounted either way up, allowing two different mounting heights. tHe coupler is centred by a torsion spring, which is also unique to this family.

These couplers can be mounted in tight spaces, and will not conduct electricity.

#711 and #714 Couplers

The #711 and #714 are almost the same couplers; #711 has a longer trip pin to accommodate standard HO mounting platform height. The #714 is designed for the usual HOn3 mounting height. Both are considerably smaller than the rest of the Kadee HOP couplers, but will couple and uncouple just fine with themselves or with standard HO Kadee couplers. Being smaller, and a little more "to-scale", #711 makes a nice front coupler for passenger steam locos if room for its special draft gear box exists. The #711 and #714 must be used with their draft gear boxes.

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