



# Tucson Garden Railway Society

August 18, 2000

Submissions are requested for the TGRS Newsletter in the categories of RailRoad News and Tech-Notes. Articles should be submitted by **Sept. 1, 2000**, send submissions to:  
Email to: nbuchholz@noao.edu  
Snail mail to: TGRS, 3401 W. Blacksill Dr., Tucson, AZ 85741

## TGRS August 26<sup>th</sup> Meeting.

Where: Peggy and Gary Martin's House  
4625 E Cerro de Aguilla

Telephone (520) 299 - 7428

Event list:

1000 TGRS Meeting at Martin's House

1100 Clinic on Rust Weathering

Info: The meeting will start at 10:00 AM. Immediately after the meeting Gary will hold a clinic on "Rust Weathering using Spray paint and Chalks". The clinic should last less than one hour. See you all there.



## Editor's Notes by Nick Buchholz

Ah, August, Time of baking, broiling and steaming,... US!, not food or trains. This being the next to last month of

Summer our fall activities will be starting soon. A number of clinics are planned, the first set for Aug. 26 after the meeting. Our visit to Phoenix area garden railroads is in the works for October and more excitement is planned. Stay tuned.

Another reminder to reinforce the ones in other parts of the newsletter. **DUES ARE DUE**. If you haven't sent a check to Dick Izen take a few minutes to send one now or bring one to the Meeting on the 26th.

We have a tech article by Rick Taylor this month. Its interesting since it reduces the amount of power our headlights need to give bright light. This idea can also be used for building lights and passenger car lights with little modification. Take a look.

I'd like to know what you want to see in the newsletter. If there is an article or subject you'd like to see please send me a note or an email (email's best I hardly ever lose those).

## New LGB Tour Announced

Marty and Loyal Hart have received some information on an LGB tour in Canada. I've reproduced some of the information they received below. Anyone Interested should contact Loyal or Marty Hart or the LGB Telegram direct

Here is a rough draft of the itinerary. It is not finalized but the dates are probably correct.

Tuesday, June 12 - Arrive Calgary, meet tour guide John Rogers, Transfer by motor coach to Banff, Welcoming dinner.

Wednesday, June 13 - Sightseeing tour of the Canadian Rockies, including Lake Louise, Vermilion Lakes, Mt. Rundle, Johnston Canyon, Castle Mountain and the Chateau.

Thursday, June 14 - Depart on the Rocky Mountaineer from Banff, Goldleaf Service in the Dome Cars! A sumptuous lunch will be served. At Kamloops, British Columbia, a buffet dinner at Two River Junction, which includes a lively musical revue!

Friday, June 15 - Day two on the Rocky Mountaineer. From Kamloops to Vancouver, breakfast and lunch aboard the train.

Saturday, June 16 - All Aboard for the BC Rail Royal Hudson Steam Train from Vancouver to Squamish. Return to Vancouver, on the MV Britannia!

Sunday, June 17 - Sunday, June 24 - After a sightseeing tour of Vancouver, board a luxurious Holland America Line cruise ship for seven Days

Sunday, June 24 - After breakfast aboard ship, we'll debark in Seward and transfer to our hotel. and a city tour of Anchorage. Enjoy the fabled Midnight Sun.

Monday, June 25 - A ride on the McKinley Explorer Rail Dome Car from Anchorage to Denali National Park through some of the most spectacular vistas in the world

Tuesday, June 26 - Denali National Park tour. Continue on the McKinley Explorer Rail Dome Car to Fairbanks, Alaska.

Wednesday, June 27 - Fly from Fairbanks to Skagway!

Thursday, June 28 - After breakfast, climb aboard the White Pass & Yukon Railroad for a special summit excursion! LGB farewell dinner in the heart of historic Skagway.

Friday, June 29 - Early Breakfast, Transfer to Airport, Morning flight to Juneau, Alaska

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## Dues Report

from the Treasurer

A recount of Dues paid picking up the latest receipts of membership dues comes up with the following:

Life members	2
Dues paid	33
Resigned	3
Total accounted for	38
'missing' families	26
Total names on roster	64

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## Dues are Due

Are you one of the 26 unpaid Members? TGRS Dues are due at the end of July, we hope everyone will try to get their Dues in before the end of August.

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## RailRoad Rants

News from the TP&SD RR

It's been a while since we had news from the TP & SD RR. The disastrous series of floods and washouts from last year are now a thing of the past, The rebuilt right of way has stood up to all the weather could throw or rather splash at it and has remained intact. In spite of two massive downpours the first day of the monsoon season the Railroad was able to run less than two hours after the end of the storms. Admit-

tedly the motive power had to be borrowed from the Sleepy Hollow Railroad but we were running trains.

While washouts have been minimized on the right of way another problem has faced the railroad the last two months. The monsoon rains have activated a huge crop of the nastiest weeds I've ever seen. Spines, thorns, gooey sap and allergens have been the order of the day. The MOW crew breaks out in hives whenever they spend time pulling the weeds leaving them unable to work on other parts of the railroad like buildings and rolling stock. The possibility of purchasing a weed sprayer car has been discussed but has so far not gone beyond that stage.

The completion of a drip irrigation system has made care of the plants on the ROW easier, the next step is to complete the installation of the automatic timer to control the drip system.

Buildings are being worked on as are a MOW train and a battery-R/C trail car system for small engines. We hope the next time the TP&SD runs it will be with Its own motive power.

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## TechNotes

by Rick Taylor

### LED Lighting or LEDs versus Light Bulbs

LEDs (Light Emitting Diodes) are being used in a lot of applications now-a-days. There are several articles and web sites that go into different LED applications. I recently got inspired by George Schreyers article on LEDs for G gauge trains. The Article can be found at:

[http://www.trainweb.org/girr/tips/tips7/white\\_led\\_tips.html](http://www.trainweb.org/girr/tips/tips7/white_led_tips.html)

As a result of George's article I have been replacing the headlight bulbs on my engines with LEDs. They work great.

Why should we switch? well for one thing, the typical GOW (Grain Of Wheat) light bulb for an engine head light draws 60 ma (milliamps). The LEDs draw only 20 ma. This means that your transformers will run cooler and the track pickups and/or batteries for your engines will last longer.

Light bulbs are DC voltage devices. They are basically resistors which get really hot and give off light. LEDs are DC current devices not voltage devices. This means no matter what voltage you run to your LED you must control the current through the device. At a minimum, you must have a resistor (R) in series with your LED (see Figure 1). The resistor is used to limit the current. You use ohms law to determine the resistor value.

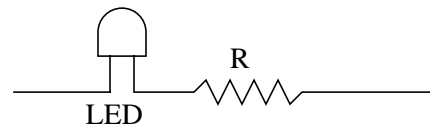


Figure 1 Series Resistor

Depending on how the head light is currently hooked up you may have to make a few modifications to the system to

replace the GOW bulb with an LED. If the engine or sound system has a constant voltage light output, you only need to measure the output voltage and calculate the series resistor.

Example: Ohms law is:

$$R = V / I \text{ (resistance = voltage / current)}$$

R = resistance

I = current

V = voltage

Since we know that we want 20ma... to light the LED. then if the DC voltage is 6 volts then

$$R = 6 / .020 = 300 \text{ ohms.}$$

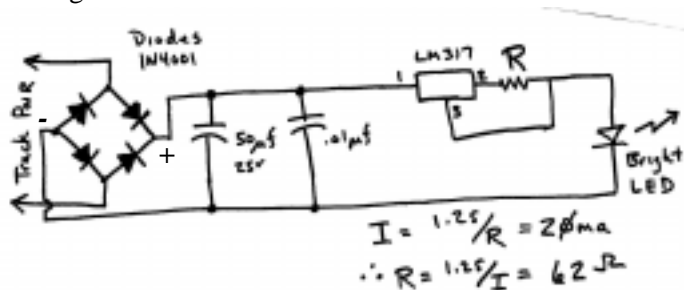
The standard, off-the-shelf resistor value nearest this is 330 ohms which means we will get a current of:

$$I = 6 / 300 = .020 \text{ or } 20 \text{ ma}$$

which is plenty to drive the LED.

If your current headlight uses track power directly or if the lamp is not constant brightness even if the power comes from a circuit board of some type, you will need to rectify and regulate the power coming into the light source.

Figure 2 shows the circuit that I used:



*Ed Note: I've added the bridge rectifier component to the components list on the next page. It is a single chip which does the same job as the four diodes but is easier to use. If using the rectifier bridge the terminals marked with ~ are connected to the track and the plus and minus terminals are connect as on the schematic. - Nick*

Components list:

- (4) 1N4001 diodes
- or (1) Rectifier Bridge (Microsemi RB151)
- (1) .01 µf Capacitor
- (1) 47 µf Capacitor rated for at least 25 volts
- (1) LM317 regulator
- (1) TO3 package heat sink (use heat sink lubricant)
- (1) 62 or 68 ohm 1/4 watt Current Limiting Resistor
- Perforated circuit board for mounting components

1) For my USA Train, GP9 engine with dual (2) headlights, I needed the same regulator circuit with 2 LEDs or 40 ma output instead of 20 ma. Therefore, I needed half the resistance value. To get half the resistance, I just connected two 68 ohm resistors in parallel and connected the two diodes in parallel as well.

2) My LGB engine (with no sound system) has a constant voltage for the headlight of 6 volts, and I used a 330 ohm resistor.

3) The last engine I modified with LEDs was my USA Train, GP38. I measured the voltage feeding the light bulbs and it was DC and varied between 0 and about 17 volts. The

voltage for a normal running speed appeared to be about 12 volts. Therefore, I tried using a series resistor for 20ma at 15 volts. ( $15 / .02 = 750$  ohms. I put a 270 ohm resistor in series with a 470 ohm resistor to make 740 ohms) It seems to work great and its much easier and cheaper than building the regulated power source. Ill see how well it holds up.<grin>

The Bright LEDs I ordered from The LED Light:

The LED Light  
3709 Conoga Avenue North  
Las Vegas, NV 89030  
1-702-657-6903

[www.theledlight.com/customer-service.html](http://www.theledlight.com/customer-service.html)

I used their web site, but I'm sure you could call in an order.

## Computer Corner by Nick Buchholz

Several developments have occurred in the last few months on the computer/internet/web front.

First, the TGRS Web Page has migrated to a local site. My thanks go out to Jerry Tulino for getting the site going and taking the responsibility off my hands. The web address is:

<http://tgrs.homestead.com>

Second the TGRS egroups Mailing List is working. Everyone whose address was on the old mailing list should have gotten an invitation to join the new list. The list provides announcements of events, a calendar and data base for members and a place to put files to share between members. I've been putting the Newsletter on it so you can see old copies online

If you haven't gotten an invitation or if you haven't been able to sign up yet, point your browser at the web address below and subscribe:

<http://www.egroups.com/group/tucsonGRS>

You may have to sign on to egroups first but they are a pretty nice outfit. I have yet to receive any SPAM I can trace to egroups directly.

Third, several other developments over the last couple of months, Large Scale OnLine an excellent resource for manufacturers and Chat with other large scalers went under in June. New Chat sites have opened courtesy of "Uncle" Russ at Finescale Railroader Magazine. check it out at:

<http://www.finescalerr.com/fsol>

"Uncle" Russ has also started a Narrow Gauge chat group at:

<http://www.finescalerr.com/forum10>

This chat seems to have a larger proportion of fine scale modelers than the other. Check them both out and send

Thanks to "Uncle" Russ for providing an excellent resource free to the Large Scale community.

Last, the "evil empire", (MicroSoft) has announced the release of a railroad simulator like their flight simulator. I'm a little concerned they'll try to break into the LS train market with a new control system. It will of course put the trains on the track for you, in an arbitrary order. Run the trains in all directions for a few minutes and then crash.

A version two upgrade will only crash once an hour, but will take 20 minutes to boot up again after the crash and will lose cars at random times during a run.

The new sound system for the trains will be completely flexible allowing your engines to make the sounds associated with boats, planes, trucks and cows but not railroad engines, except for the Steam Engine module which will sound like an SD90MAC at full throttle.

The Tucson Garden Railway Society is a non-profit corporation incorporated in the State of Arizona, Pima County. We are interested in all areas of garden and modular Large Scale model railroading. We welcome new members and hope you will consider joining. Members help each other build layouts and learn about Railroading and modelling.

The TGRS dues are \$30.00 per year and are due on June 30<sup>th</sup> of each year. For new members dues are pro-rated at \$2.50 per month remaining in the year plus a 15\$ initiation and processing fee the first year. Additional name badges cost \$5.00 for each badge after the first.

If you are interested in the TGRS please contact one of the officers at the phone number listed in the Calendar section. If you just *have* to join immediately send a check and your name, address and telephone number and the names for any additional badges to: Phyllis Dirksen, 8648 N. Auriga Way, Tucson, AZ 85742 or Jon Anderson, 4080 E. Bujia Segunda, Tucson, AZ 85718

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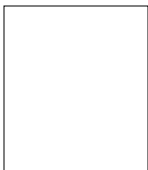
### Calendar of Events

**AUG 26 - 10:00 AM - TGRS Meeting at Gary and Peggy Martin's**

**AUG 26 - 11:00 AM - Clinic by Gary Martin on**

**"Rusting using commercial spray cans and chalks"**

<b>President:</b>	Jon Anderson -	(520) 529-6554
<b>V-President:</b>	Gary Martin -	(520) 299-7428
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