

As this issue is going to the printer we have learned of the passing of Chuck Aldrich. There will be a special edition of the Clearboard to commemorate his many contributions to the Santa Clara Valley Railroad Association and to the CTRC.

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May/June 2002

The Newsletter of the California Trolley & Railroad Corporation

THE CLEARBOARD



Rod Diridon, President

<http://www.ctrc.org>

Larry Murchison, Editor

NEWS FROM THE PRESIDENT

From Rod Diridon

Rod Diridon, Executive Director of the Mineta Transportation Institute and President of the CTRC, regrets he will not be able to find the time to submit a report on the progress of the CTRC for this edition of the newsletter. For the next edition Rod hopes to "wedge some time in." So you get pictures instead.

Special points of interest:

- What headlight parts are needed?
- What is a floating bushing?
- How much does a driver tire cost?
- How to tell the difference between the wheel pairs?
- Need volunteer editor?
- Who wired our machine shop area?

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Notice there are no wires coming out the back of the headlight housing. Perhaps you are wondering how the light can be on. Answer in the next edition of the newsletter.

CTRC BOARD MEETING MINUTES

The board meeting is delayed until June 13th due to the absence of Rod Diridon. Also delayed is the financial report.

LOCOMOTIVE AND SITE PROGRESS

By Jack Young

Crew sizes have been from 10 - 15 folks on the week ends for the month of April.

We completed the boring of the frame thanks to John Ezovski and John Blain and a cast of others this project has been going on since before the move to the Railroad Museum area.



Work continues on the boiler we are boring out the connection for the water column on the engineer's side of the back head. When complete we will have a forged collar welded into the boiler to make this repair.



Work continues on the exhaust nozzle repair. We will start repairing the nozzle flange in the up and coming weeks. A new base plate has been installed in the smokebox.



Super heater repair - A whole set of folks directed by John Zielinski have been participating in the super heater rebuild 8 more units have had new bands and spacers installed.



Work on the steam dome stud replacement is complete with 24 new studs installed Tom Simpson along with Tom Anderson and Fred

Parkins have complete that task.



More piping is showing up on the side of the locomotive as we try to piece the air brake system back together.



Anybody know where all this go?

All the new bushings and pins have been collected and are being sent out for Hardening this includes all the pins for the lead truck and the spring hangers holes on the locomotive that have been rebored. Thanks to Fred Parkins and Gene Martin for making the pins.

Work on the sander valves continues there has been significant wear on these parts that have to be built up. We are using a epoxy based material to make this repair. Once built up we will machine to the correct dimensions.

The fields have been mowed by our volunteers pushing lawn mowers and by Brian Duffy bringing out a small tractor mower.



Brian on the speedway.

Last weekend the county brought out workers from the department of corrections to cut weeks on the hill.

The two new laths that we received are now operational and in fact have become very handy. Thanks to Bob Paddleford for wiring them up.



The lead truck is taking shape with the repair of the equalizer beams (4 of them). The beams are receiving new wear plates where the springs have worn them as well as new wear plates on the ends where they ride on the journal boxes.



Bob Paddleford's lighting wiring

Bob has also installed wiring for overhead lighting and has provided the area with compressed air fittings.

The turntable has been lifted out of the dirt and ties have been placed under it. This will keep the ceiling from rusting out.



This is the turntable when it was still above ground.

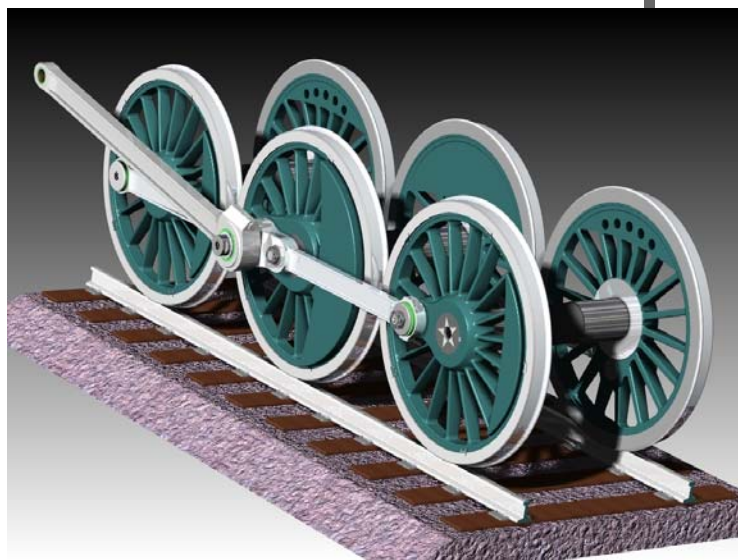
Jack



Lee Westfall analyzing the reluctant mower.



A REVIEW OF THE LOCOMOTIVE WHEELS



Referring to the internal thrust surfaces of the wheels and the welding that appears to be marring the otherwise smooth surface. It was mentioned that:

The internal surface of the wheel around the axle was cut back and a ring was welded in place. But as with so many of these things the fit wasn't real good and where they plug welded, it cracked. The people that did this didn't pay much attention to what they were doing.

You talk about the various as sundry ways of doing things and you can see that they destroyed one of the tires by welding it to the wheel center. Not only that but since they did that you have to assume that they didn't weld the wheel properly. So you begin to wonder about the rest of their work. But there is not much you can do about it now.

The tires have to be turned down and new tires put on. Your choices are to turn all the drivers to the same diameter. That means that you're cutting half of the new tire's life away to make it match the other tires. A tire is about \$2400 - uninstalled.

What about needing a new axle for one of the wheel sets? Well, we think we can get by with the axles we have. It would be a legal "get by." The axles were originally eleven and twelve inches in diameter; twelve would be for the main driver. We have an axle that is just a few thousands over 10.5 inches diameter and is slightly tapered. There is a rule that says that you can cut the journal face a quarter of an inch less than 10.5 inches. Now you would have an eleven-inch journal down to ten and a quarter. But in the days that these things were running you wouldn't do that. The good news is that that axle is otherwise in good shape. Some of these axles show heat checking so they will have to be cut under the checking. You can't leave the checking there because of the insipient cracking in the checking and the cracking would propagate. You can't fill the cracks with weld because you may not weld on an axle. Anywhere. For any reason.

To tell the difference between the front wheel set and the rear wheel set is to look at the crank pin. The front crank pin has internal threads and the rear has external threads. This is because the front crank pin must turn behind the crosshead and the pin must clear it. So why didn't they make them both the same so the wheel sets could be interchangeable? Well it's because the front crank pin is a more expensive piece of machining because of the internal threads.

Why do the drawings we have show small bosses for straight tire clips to be welded to and these wheels have no tire clip bosses and use a bent tire clip? It's because of the age of the wheels. The drawings we have are for a replacement wheel – an SP drawing. The original wheels were made by Baldwin and didn't have that little clip bosses.

After about 1947 or 1948 these types of wheels became obsolete and the industry went to disk wheels. Although the Boxpok type of wheel was used before and then after this time even the replacement wheels were of this type. Some loco-

motives even have a mixture of spoke and disk wheels but not too many of the Pacific's. You see, the mountain's had a three inch larger cylinder but had the same wheel so the forces were greater and you will see a lot of mountain's with a mixture of wheels. Just the main drivers mostly. Actually it wasn't an uncommon practice.

One of the things you learn when you take one of these apart is that fundamentally all steam locomotives ride on bicycle wheels. The main driver is doing most of the work and the others are helper wheels. To the extent that main driver delivers power to the rail that is where it goes. What the helper drivers do is to keep the main driver from slipping if it tries to up to the limit of their adhesion of course. What you see when you take these apart is that the mechanism around the main driver is beat all to hell and the helper drivers look almost pristine. That would be the bearings, the journals, the journal boxes, and the pedestals on the frame.

The cracking on the wheels (spoke/hub and spoke/rim) are not so bad on the third driver because it doesn't have much to do. Because the stresses the main driver, of course, has a lot of cracks. The front wheel will exhibit more cracking than the back wheel because it catches the side thrust as the locomotive negotiates curves. The pilot truck is supposed to take about half of the thrust but the other half lands on the front wheel and tries to push it in and by and by the spokes begin to crack. There are cracks on about seventy or eighty percent of the front wheels.

The problem with the main driver is that it is a great deal stiffer where the counter weight is located than where the spokes are so there is a flexure that goes on in the wheel itself. Over time the wheel tends to want to flatten between the spokes. This is where the disk wheel helps out because of the uniform stress throughout the wheel and they help absorb stress better. Also in the spoked wheel there is no flexing where the counter weight is so you tend to get cracks where

the counter weight and the rim meet.

It's surprising how much we've learned in the last fifty years, after we quite building these things, about the way stresses run through a structure and the way we calculate them and how the metal in the structure is loaded. Back in the days when this was built if there was a problem they would just pour more iron at the problem.

There is nothing on our wheel sets that need to be scrapped but the crank pins have yet to be inspected. They may be a bit out-of-round and may also need to be quartered again.

The 2479 has a floating bushing at the crank pins, they are not the original. Actually the original had a button head lubricator at the top of the rod. People worked for a long time and struggled with floating bushings where the bushing could move both in the rod and on the crank pin. Lubrication was from the pin. What they finally came up with is a bushing with a lot of holes drilled in it and circumferential channels so no matter where it was positioned grease could get to the proper locations. The floating bushings were applied about 1941. The lubrication was temporary and had to be lubricated every time the locomotive came home from a run. Until roller bearings the railroads never developed a sealed friction bearing. In fact one of the things almost spectacular about these things is that if you look around the locomotive it is almost completely devoid of seals. Seals would not only keep the grease in but would keep the grime out. Your dragging all these bearings through the dust and sand and the grease just makes grinding compound so you had to keep flushing the damn thing just to poke the grime out. It's almost amazing that they got away with and never went to anything better. Even to the end of steam production they were still creating bearings the same way. Even the Daylight, that was supposed to be a state of the art locomotive, didn't have roller bearings until the last two GS5s and then the only thing with roller bearings were the axles. And the two members of the class had roller bearings from different manufactures, SKF and Timken. Basically they were experiments.



LETTERS TO THE EDITOR

Since no one writes to the editor I'll have to fill this space with something else.

THE HEADLIGHTS

Parts needed to complete the headlight assemblies are shown in the picture below. If anyone has these parts or knows where to find them please give us a call. The parts and their quantity are listed below.

QTY	DESCRIPTION
2	Lenses
2	2479 number glass
2	T-Bolts for side doors
2	Wing nuts for side door
1	Latch handle
1	Latch post eccentric sleeve
8	Number glass hold-down springs
2	Number glass hold-down clips
2	Proper lamps



Information

Membership Meetings: First Monday of each month at 7:00pm at the Santa Clara Train Depot.

Work Schedule: Saturday and Wednesday after work of each week.

CTRC Office: 1600 Senter Road, San Jose, CA 95112.

Mailing Address: California Trolley & Railroad Corp, P. O. Box 403, Campbell, CA 95009.

Membership: \$25.00 regular, \$10.00 Seniors. All memberships expire December 31 yearly. To join please send dues, name, address, phone number, and e-mail address if available to CTRC, P. O. Box 403, Campbell, CA 95009.

The CTRC is a California 501(c)(3) not for profit educational corporation established in 1982. The organization is the official support group for the Trolley Barn at History San Jose and the Santa Clara County Railroad Museum currently in the early stages of development.

MISSION STATEMENT

The mission of the California Trolley and Railroad Corporation (CTRC) is to restore, preserve and interpret railroad, trolley, and related equipment as it was used to serve the people in Santa Clara Valley, California.

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FROM THE EDITOR'S PETTYCOAT

A Special Web Site

Check out the web site

<http://steamcad.railfan.net/index.htm>.

You will find a rendering of the 2479 as the main headline graphic. Also available is an image of the valve gear and drive rod assembly.

At the following URL you will find an interesting article about the three Pacifics in this area. It includes a quote from CTRC's own Chuck Aldrich regarding the Japanese auto industry.

<http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2002/03/22/EB16210.DTL>

Volunteer Needed

Because a member vehemently objected to my inclusion of seemingly innocuous article in a previous edition of the newsletter the CTRC is looking for a replacement editor. Obviously, because of a thin skin, being an editor is not my cup of steam and I have no desire to continue making enemies. So who will step forward?

The torn pants from the last edition of the newsletter were from Tom Anderson. Only Tom got the answer correct.

California Trolley & Railroad Corporation

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COMING EVENTS

- ▶ Remember the Saturday workdays and the Wednesday work evenings. All very important events. See you there.
- ▶ The first Monday of the month 7:00pm CTRC meeting at the Santa Clara train depot.
- ▶ The next CTRC board meeting will be 13 JUN 02.



Gene Martin's shaper setup

SPECIAL THANKS TO:

A special thanks to Mike Porcari of GPM. Although they are basically a machine shop they have taken on the task of creating these not-so-simple headlight lens clamp sheet metal parts.

Also thanks goes to Jack Young for contributing information on the locomotive progress.

Special thanks also goes to Ila Duffy for the donation of the 5hp riding mower (When we get that thing working it will be a great help for our weed control.); and to Bruno Da Valle for the donation of the following machine tools:

- South Bend Lathe 16" swing 8ft bed
- Le Blond Lathe 13" swing 6ft bed
- 1.5" / 10" pedestal grinder
- 50 ton hydraulic arbor press
- Siege end grinder