

LALS ENGINE BOOSTER



★ ★ ★ ★ ★ Our 50th Year ~ 1956-2006 ★ ★ ★ ★ ★
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Steam Engine Pistons

By Jerry Brown



Over the years I've tried just about everything for miniature steam engine pistons, including the time-honored graphite string packing which others have used successfully but which I never could get to work. Nothing has been as satisfactory as the design I developed some years ago for my Cole's duplex steam feed pump. Since these run slowly under maximum pressure, a good piston seal is essential.

The piston is made in a 2-piece configuration resembling a vari-drive V-belt pulley. The inner half goes against a shoulder on the piston rod, and the outer piece is threaded onto the rod. Each piece has a 45-degree angle on its inner face. Between these is a diagonally split Teflon ring with 3 or 4 turns of Teflon pipe joint tape twisted into a rope and wound on each side of the ring. A ring width of about 3/32 to 3/16 for up to 1-1/4" bore seems about right. As the outer half is screwed onto the piston rod, the angle forces the packing against the cylinder wall, making a steam-tight seal.

Teflon seems to expand slightly with heat, so some adjustment may be required after an initial steam test, but once sealed they hold up very well. And you'll never again have to worry about iron rings seizing up in their grooves. (Be sure to use a jam nut on the threaded half. Also, unlike in the case of iron rings where a machine finish in the cylinder bore can help to seat the rings, here the bore needs to be as smooth as practical.)

For informational purposes, here's what led to the overhaul decision. (Once completed it was obvious it should have been done a long time ago.)

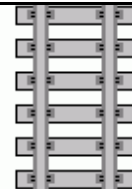
After the most recent steam shovel runs (Gunther's Yard and my yard) it was obvious that a major overhaul was needed. The engine had lost so much power it hardly had enough to climb the ramp into my truck. Sounded more like a turbine than a piston engine, so I knew there was severe internal leakage. Sort of the steam equivalent of an electric short-circuit.

(Continued on page 4)

Member Calendar

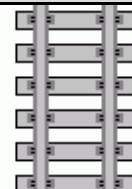
| | |
|---------|-----------------------------|
| Feb. 6 | Board Meeting |
| Feb. 18 | Work Day General Meeting |
| _____ | |
| Mar. 6 | Board Meeting |

Board/General Meetings begin at 7 pm.



Public Service Schedule

| | |
|---------|--------------------------------------|
| Feb. 19 | Disney Barn Open Steam Plant Open |
| _____ | |
| Mar. 19 | Disney Barn Open Steam Plant Open |



In This Issue

| | |
|-------------------------------|---|
| All Those Funny Colored Cards | 4 |
| General Superintendent | 3 |
| Phil West Barn Track Lottery | 3 |
| President's Message | 3 |
| Remember When... | 3 |
| Splinters from the Board | 2 |
| Ward's Award-Winning Photo | 4 |

Membership Renewals Due by Feb. 1st

Splinters from the Board

January 9, 2006

By Peter Fuad

Todd Moore reported on recent developments concerning the accident investigation, safety program and retention of a safety engineer, as a result of the incident at the Museum last December. He and others interviewed potential safety engineers to handle these tasks. The Board decided to retain Mark Hanlon, a qualified safety inspector and a mechanical engineer, for the purpose of overseeing our new safety program and operations.

Moore indicated that there will be new safety standards applicable to equipment, tracks, right of way and train operation. These standards, which have yet to be fully developed, will be part of a comprehensive safety program to be developed by Hanlon, in coordination with LALSRLM and the City. The City could also have its own, additional safety requirements.

The safety program will consist of three levels, with each level having increased safety requirements: *Level Three* - Testing of equipment and repair work, carrying an engineer only. *Level Two* - Operations where members' families and guests are carried. *Level One* - Public hauling.

Hanlon has told the Museum that he will allow up to four work trains at a time to operate for now on the railroad at Level Three. Track work may again take place, and the Board agreed to immediately begin re-ballasting the tracks, in phases, in accordance with standards set by Hanlon.

Steve Harris, Shed Manager, gave an update on shed rentals. In response to a question from the audience, the Board will send a letter to all track lessees confirming that shed rentals paid for lease extensions will be held in reserve until the Museum at least partially reopens. If the Museum does not at least partially reopen by December 31, 2006, those monies will be returned upon request of the lessees. This policy, which is more fully detailed in the letters, applies to all Richardson Shed and Alkire Shed rental payments for the 2006 and all Phil West Barn advance rental payments for the 2007 and 2008.

Splinters from the Board

January 21, 2006

By Peter Fuad

A special LALSRLM Board of Directors meeting was held in order to approve several items required to expedite implementing the Museum's new safety program. By way of introduction, Todd Moore gave additional updates on the program, which consists of several categories:

Site work. Tracks must be re-ballasted. (Todd reported that our safety engineer was impressed with the re-ballasting already accomplished by members' diligent efforts over the past weekends.) Several signals which are especially close to the track will need to be relocated. Guard rails and hand-rails on and approaching bridges will need to be installed. Certain switches will need to be physically locked out to prevent running on closed areas. Additional work on the right of way may be required. The Museum is working to reopen portions of the inner area to limited running shortly.

Equipment. All equipment will need to be at least visually inspected before operating. Equipment hauling the public will require additional changes, such as automatic "fail-safe" brakes (see below).

Safety Rules and Enforcement. Additional safety rules must be established. Members will be required to be tested on these rules before operating and annually thereafter. Adult guests and family members riding trains will be required to sign an acknowledgement of riding risks and safety rules. An enforcement program with penalties for members must be established as part of these rules.

The board voted to authorize the following items at this special meeting: 1) Cut down the large tree in the Sutchville Yard. 2) Purchase six pairs of trucks with automatic "fail-safe" brakes. 3) Purchase 50 railroad ties to use as retaining barriers to hold ballast. Roger Bacon will investigate building a concrete retaining wall behind the Richardson Shed to replace the existing railroad tie retaining wall. 4) Authorize sending letters to lessees of tracks in the Phil West Barn, Richardson Shed and Alkire Shed with the Museum's policy on refunding track rentals.

Los Angeles Live Steamers Railroad Museum Engine Booster

The *Engine Booster* is the monthly publication of the Los Angeles Live Steamers Railroad Museum, a non-profit 501(c)(3) organization. Museum/tracks are located in Griffith Park, 5202 Zoo Dr., Los Angeles, CA. Mailing address: PO Box 2156 Toluca Lake, CA 91610.

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Donald Frozina 2132 Bend Ave. Lancaster, CA 93535
E-mail: booster@lals.org Fax: 310/302-4111

Los Angeles Live Steamers Railroad Museum Board of Directors 2006

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FROM THE **General Superintendent***By Tom Downing*

HELP! If we are going to begin running our trains, you need to come out and help work on our track. There are many jobs that will need to be addressed that do not require as much physical labor. For instance, we could always use a lunch cook or just come out and bring a lunch dish or desert for the crews. We need more volunteers to assist. We will need the following items to help us complete our project and they are as follows: full size railroad ties; smaller landscaping type 4 by 4s; materials for drainage such as various sizes of drainage tubing; weekend use of a small bobcat-type loader; and help in installing/building steel railings. If you could help with any of these jobs or by helping get any of these materials, it will be greatly appreciated.

I would like to thank Leonard Evans and Mike Romanucci for repairing two large deeply-buried water pipes that had broken over the Christmas Holiday weekend. At this time every Saturday and Sunday are considered workdays.

To All Members: remember to fill out time cards for your shed credit while working at the facility. They are light pink in color. New Members: this is a great opportunity for you to greatly reduce your probationary time.

Hopefully we will see you on a Saturday or Sunday soon. When it comes to throwing dirt, I've noticed that many of our members are very good at it. Remember one shovel full of dirt doesn't seem like much, but a hundred members each throwing a shovel full of dirt is a lot.

President's Message*By Donald Frozina*

Our re-ballasting project is going well and East of the tunnels we're in good shape. Thanks go to our General Superintendent, Tom Downing, and all of the members that have come out each weekend for the past few weeks. Many tons of DG (decomposed granite) have been moved and placed where needed. A few signals have been moved, handrail extensions and guardrails have been installed on the approach to the East end trestle.

Our next opportunity will be to get the remaining set of six center-bench cars equipped with automatic air brakes. At the January 21st BOD meeting, the Board approved the purchase of six sets of the new Dan O'Brien trucks. These trucks are rugged yet simple, and utilize disc brakes. The Board also approved three pair of the improved Carlyle trucks, which Wolf Fengler will handle.

Changes to our equipment standards will be forthcoming. Equipment used for public hauling will have to meet the stringent "Level 1" standards. Equipment used for yourself and your family will need to meet the less stringent "Level 2" standards. Equipment used for MOW and testing will need to meet the least stringent "Level 3" standards. The Board realizes that these increased standards will not please everyone, but is a fact of life—if you want to operate at the Museum.

Just a reminder: membership renewals are due by February 1st. If we receive your renewal after that date, we cannot guarantee that your name will appear in the 2006 *Roster*.

Remember When...*By Doug Alkire*

Looking East from "Webb Yard" at the LALS 1970 BLS Meet.



From the I.D. Alkire Collection

Phil West Barn Track Lottery*By Steve Harris*

Hear Ye, Hear Ye! LALS SRM has two 80 foot mid-level tracks in the Phil West Shed that are available for long term lease starting 1 Jan 07 through 31 December 08. The total cost for the two year lease will be \$1,600 for each track and must be paid in full by 1 Mar 06. If you are interested in leasing one of these tracks, please contact Steve Harris or Don Frozina before the General Members Meeting on 18 February 06 as we will draw names for the tracks at that meeting. All names submitted will be drawn that evening and the first two will be offered the tracks. If they decline to execute and pay for the lease or any other current leaseholder fails to pay for their leases, the next person on the list will be offered the lease and so forth until the list is exhausted. Once the list is exhausted, if any tracks are left over, they will revert to the regular shed pool at the expiration of the current lease.

All Those Funny Colored Cards, Part 1

By Steve Harris



LALSRM uses various colored cards to record a variety of hours for various purposes.

Shed Credit Cards (Maximum credit that can be earned in one day is 7.5 hrs from all sources):

Green Cards are used by locomotive owners who want to earn shed credit to indicate when either they or someone else uses their own locomotive to haul the public. If they operate their own engine to haul the public or allow someone else operate their engine while they work elsewhere at the museum (souvenir stand, kitchen, station), then they circle Engine & Operator. If they only allow someone else to operate their engine to haul the public, then they circle Engine Only. Please remember that the times listed should not include any steam up time, lunch, breaks, or time putting a train together. It only includes the time you actually are in the station pulling the public.

Yellow Cards are used by everyone who wants to earn shed credit to record hours worked as a conductor, an engineer on a Museum engine, or someone else's engine when the public is hauled. It can also be used to record hours worked at the station, in the kitchen, or in the souvenir stand. Complete your name, the date, and circle the type of work you performed. Please remember that it does not include preparation time, lunch, or breaks.

Next month, I'll discuss the Pink, Red and Gold time cards. If you have any questions about how to fill out a card or about the time keeping systems, please contact Steve Harris.

C&S 641: Ward's Award-Winning Photo

By Donald Frozina



Our very own Bruce Ward, a 43-year member, took second in the special, full-scale railroading category in the recent Discover Live Steam photo contest, www.discoverlivesteam.com. Congratulations Bruce!

Pistons (Continued from page 1)

Examination revealed the main leakage path was past the pistons. The rings were rusted so tightly in their grooves they were completely non-functional. So, I made the same type of Teflon-packed brass pistons that have worked flawlessly for years on the feed water pump. Except that I overdid it on the thickness (in the best "more is better" tradition). When adjusted to where they would seal there was so much drag, even with super-slippery Teflon, that it took all the engine's power just to move them. Several tests and disassemblies later I got them down to the same proportional thickness as in the smaller-bore pump cylinders, and then they worked fine.

Next, I made replacement slide valves from Teflon (originals were cast iron.) Due to the softness of Teflon, this required a design change and some new parts. After putting everything back together I was ready for a test run on air. Four clear exhaust beats per revolution indicated that all the work had paid off.

But the real test is with steam. So I fired up and with some trepidation gingerly opened the throttle valve. Much to my relief the sound was still square and sharp.

Out into the garden for a test run under load. It pulled the dragline bucket just fine, more vigorously than in years. The moral of the story would seem to be, don't use cast iron rings in cast iron pistons. (I can't believe I did that! Guess it was because I didn't think brass on brass was a good bearing combination.) Even with steam cylinder oil, they'll freeze solid.

Now all cylinders on the machine (8) have Teflon-packed pistons, and non-ferrous valves, so between-run storage should be no problem. I've been told that Teflon can't be used for slide valves because it's too soft and will be damaged going across the ports. The sure way to find out is an actual test, so we'll see how these hold up. In any event, this stuff is the greatest for live-

Condolences

To John DeRosa, our 1" co-track foreman, his brother and sister, who's mother passed away on Jan. 20th.