# NEW MEXXIOO STEAM I OOOMOTEVE <br>  <br> Mailing Address: P.O. Box 27270 <br> Albuquerque, NM 87125-7270 <br> Restoration Site: $18338^{\text {Th }}$ St. NW, Albuquerque <br> Web Site: www.nmslrhs.org Email: nmslrhs@nmslrhs.org <br> Vol XI, No. 4 <br> Tel 505 246-2926 <br> Oct--Nov--Dec 2012 <br>  <br> <br> 2012: The Year That Was <br> <br> 2012: The Year That Was <br> By Rick Kirby 

Our newsletter editor, Doyle Caton, requested I offer a brief recap of last year's restoration progress. Space doesn't allow reiterating each and every one of the hundreds of projects completed, so I'll review a few of the more notable events of the last year. For many more specific activities, including video clips and hundreds of archived photos, check our web site at www.amsirhs.org.

As evidence that our 2926 project is gaining notice, the year began with an invitation to participate in New Mexico's Centennial Celebration on Friday, January $6^{\text {th }}$. Preparations were made and our steam whistle was taken to the Alvarado Transportation Center. The whistle was blown at $11: 35 \mathrm{AM}$ to commemorate the exact time statehood paperwork was signed. I will touch on other external activities and events later, but now for some of the more significant technical highlights.

## A Few Restoration Highlights

The large firebox side sheet repair was completed as the last stay rod weld was finished. Attention was then tumed to repairing the hundreds of flexible staybolt sleeves. Their threaded plugs were removed, cleaned and inspected. The underlying cavities are being cleaned. Preparations are being made to replace those that are wasted.

The side rod roller bearings were sent to Timken to be rebuilt. Con-Way Freight provided the shipping. The bearings were reconditioned at no cost to us. They have been lubricated and reinstalled on the drivers.

The various appliance lubricators were disassembled, cleaned and reassembled. Most of the distribution blocks have also been reconditioned.

Some of the driver counterweights have bad welds. Their cracks have been ground out and some have been repaired. As of this writing that work continues.

The cold water boiler feed pump was reconditioned and installed on the locomotive. Its $3 / 4$ " steam line was replaced due to metal wasting.

The dynamo was rebuilt with new windings and brushes. It is undergoing testing at this time.

A large wooden frame was constructed with casters to support the cab. The cab was removed using Johnny Plath's boom truck. It has been painted and the wood interior is being installed. (Picture Page 2)

The reverse gear activator cylinder was honed smooth, reassembled and hung on the locomotive.


Many tools used in the restoration are not available at local tool stores-or anywhere else for that matter. Cur innovative restoration workers and machinists design and manufacture such unavailable tools as needed.
Above: Danny Rivera is shown inserting a stay rod and lining it up for welding. He is using an onsite designed and mamufactured insertion tool/guide.

Below: The stay rod insertion tool, mamufactured by NMSLRHS machinists. It is one of the least complex, but very necessary, tools that were built onsite.


The compressor govemors were disassembled reconditioned and is being reassembled and painted. Associated compressor piping has been cleaned and installed.

The interior of the feed water heater was thoroughly cleaned. Some parts had to be remanufactured. The components were reassembled and the housing painted.

The root valve assembly was removed. Some of the internal pipe threads were wasted so much that we machined those threads out enough to insert a new threaded boss. Its valve seat was lapped and the metal gasket sealing taper was reconditioned. It is waiting to be installed on the locomotive.

All four trailing truck air brake cylinders have been cleaned, honed, reassembled and painted. The number one driver brake cy linder has also been completed. Work on the remaining brake assemblies continues.

Besides all the work listed above countless machine shop projects were completed. Various tools and replacement parts were manufactured and custom built for a specific purpose.

## (Continued from Page 1)

Several piping components had severe wasting. The steam dome piping to the steam fountain and large diameter hot water boiler feed water pump supply had to be refabricated. These pipes were sent to a Utah fabrication shop. Local Union 412 Plumbers and Pipefitters picked up the tab.

Several weeks were spent copying and cataloging locomotive blue prints procured from the Temple Railroad and Heritage Museum in Temple, TX. This activity didn't involve getting dirty and straining muscles. But acquiring and maintaining a library of the blue prints is very important to current and future mechanical work on 2926. It did involve trips to Temple, TX and required a lot of time scanning, copy ing, and organizing the important documents.

The assistance we received, both directly and indirectly, in 2012 from Timken, Con-Way, Local 412, The Temple Railroad and Heritage Museum, and many other individuals and organizations is evidence that 2926 has friends everywhere. Though our regular volunteer workers are motivated, skilled and competent, we would be nowhere without such external support.


Woodwork in the cab: Pete Ormson uses a power sander to finish the edge of woodwork that is being installed in the 2926 cab.


Those imporkant blueprints: Retired nuclear engineer John Taylor takes on clerical duties to copy and archive the borrowed blueprints. Tough job, but at least, he is not getting dirty.

## Significant Ancillary And Outreach Activity

Last March some of the production personnel from "The Lone Ranger" movie requested our assistance altering extended couplers to suit their needs. More room was required for filming between cars so we relocated the retainer pin holes for them.

On May 12 last year, we were invited to participate in Albuquerque's celebration of National Train Day. Organizers requested the presence of our tender down at the Transportation Center. Preparations were made, and temporary air brake piping was installed. AMTRAK officials provided a diesel engine to pull the tender to the celebration site and return. Many New Mexico residents as well as a few visitors, got their first glimpse of the shiny black restored tender on the main line.

One of those visitors, Bill Willits, is an Albuquerque native who resides in the Houston TX area. Bill is editor of Gulf Coast Railroading, a monthly publication of the Houston Railroad Museum and Gulf Coast Chapter of the National Rail Historical Society. He keeps their membership informed of our progress.

Our yearly open house was held September 29. It was the


National Train Day visitors get close look at the shiny 2926 tender on its first appearance outside the restoration site on May 12, 2012. most successful one ever. Nearly 1000 people visited our site.

As for our total volunteer effort, we had a good year in 2012. Our volunteers worked another 14,000 hours on the restoration during the year, bringing the total hours to date to over 84,000 .

## A Few Losses And Disappointments

Not all things were happy-go-lucky on site this year. Topping the list of disappointing events was the loss of one of our dedicated machinists. Super machinist Ralph Johnson is now riding the rails in the sky. He is greatly missed.

Also we had petitioned the Federal Railroad Administration for a twelve month extension allowing us more flexibility to install the tubes and flues. Our request was denied.

Rounding out the thumbs down list was a break -in and robbery at our restoration site. Metal thieves removed cab support brackets, air brake slack adjusting rods, radial buffer parts, large diameter hot water and exhaust steam pipes. Precious restoration funds had to be spent for another storage container and installation of a security system. It will be difficult to reproduce some of the locomotive parts but we will soldier on in 2013 and bey ond.


# BANGING ON A 2900 

## FEATURING-

# THE TESTOSTERONE GANG 

By Mike Hartshorne

## Introducing The Testosterone Gang

The NMSLRHS members tackling an especially difficult flexible staybolt problem have become known as the Testosterone Gang. Anthony Padilla, Henry Roberts, Ian Bell, and Ron Taylor are the stalwarts of the Gang. They are assisted on occasion by other members of the 2926 restoration crew. The gangs two youngest members are still in High School. Their youth, energy, and exuberance coupled with the experience of the other two gang members are proving to be very beneficial to the restoration effort.

Anthony is a high school senior who recently joined the 2926 effort. His grandfather had worked at the ATSF Albuquerque Backshops. When Anthony told him the boiler work was being done without a big overhead crane to lift the boiler off the frame, his grandfather just laughed. Recently we have learned why.

Henry is a year behind Anthony in the same school and has been at it with us for the last couple of years. He has been involved in a number of complex and challenging tasks, including the removal and replacement of the side rod bearings.

Ian also signed up a few months ago. He claims he is forty five but he hustles like a high school football player. He is not available for locomotive work on Wednesdays. Seems his employment at Sandia National Labs takes precedence.

Ron is a recent member with an undisclosed semiretirement age. An expert in aerial photography, he is also an experienced blacksmith. He walked in last summer insisting that he wanted to help. And he sure has. His extensive photographic, camera technology, and computer knowledge have been very helpful in setting up our site cameras and security equipment. However, he still wants to get some hands-on time with the restoration. His innovative skills have made him a key member of the Testosterone Gang.

## About Those Challenging Staybolt Caps

The huge boiler on 2926 has a lot of flexible staybolts! Hundreds of them are installed between the inner and outer walls of the boiler to contain the high steam pressure ( 300 PSI during operation, and 375 PSI during hydrostatic testing). Externally, each flexible staybolt is sealed with a threaded cap and a copper gasket. Every cap on the boiler has to be unscrewed, and the sealing ring must be cleaned, polished, and in some cases replaced. The old copper gasket must be replaced with a new one to hold the high pressure. Most are quite corroded, and many require tremendous torque to unscrew and remove. After more than half a century setting outside exposed to the weather, they were far more difficult to remove than they would have been under normal maintenance when the locomotive was operating. The pictures below depict in place, removed and cleaned caps.


The flexible staybolt caps had started coming off the relatively accessible sides of the firebox months ago with Clem Harris jockeying around with a big impact wrench and 120 lbs of compressed air. Ward McCartney also joined the work recently. He and I and others have used that heavy tool with some success, occasionally resorting to the accessory use of the blue tip wrench to speed things up. As much trouble as that has been, those were the easy ones. They were accessible, and we even had space to gain additional leverage on the stubborn ones with a 'cheater' pipe on the wrench.

That all changed last month when we addressed the staybolt caps in the most inconvenient place---the underbelly of the boiler. At that point, the reason Anthony's grandfather had laughed became apparent. When he worked in the backshops, a crane was used to lift the boiler from the locomotive's frame. That allowed easy access to those staybolt caps on the boiler's underside. Obviously, with no crane, we had a challenge-a challenge compounded by years of corrosion. And it was the Testosterone Gang's combination of ingenuity and youth that come to the rescue.

With access to the caps on the underbelly atop the frame extremely limited, we faced two questions: Can we reach all the caps with the boiler in place? If we can reach them, how can we apply enough torque to unscrew them?

The first question was answered by the youth, attitude, and agility of the two younger members of the Testosterone Gang. By twisting, wiggling, and stretching, Anthony and Henry could reach all the staybolt caps. Unscrewing them was the real challenge. There was absolutely no space for use of the large impact wrench. And once they wiggle in and reach the caps, there is often insufficient space to gain leverage with conventional wrenches. Furthermore, holding a socket solidly against the staybolt cap head is really hard when you are working upside down in a tight space. Not even the mighty Testosterone Gang could budge those caps with a $11 / 6$ wrench, even where we could use a cheater. That is where the ingenuity of the entire Testosterone Gang came into play.

Several different theories and techniques were tried with limited success until Ron started inventing the "wrenchito" currently in production version 1.03 a that is now pretty successful. Successful doesn't mean easy.


Imagine if you will a 5 inch round socket made of spring steel with a $11 / 16$ square female drive that fits on a staybolt cap. It is rimmed with saw teeth (in case you want to persuade it with a 4 foot pipe wrench). Mounted on the backside of that is a $21 / 4$ hex male drive that is just right for the $\$ 250$ forged wrench we bought after the donated cheap cast wrench broke in use. That is the wrenchito. It will get you a grip on the staybolt cap to tum it, but how do we keep it in place. That is where the other innovation, the "sled" comes into play..

The sled is a metal plate suspended with chains and cables, hooked to the sides of the boiler and tightened with a comealong or a chain hoist hooked to big bird. Somebody who is flexible and hardy enough is needed on top of the frame under the boiler to manage the setup. Holding the wrenchito in place by hand the sled is tightened up against it to keep it engaged on the cap. Then insert the $21 / 4$ wrench and chain it off to another comealong or chain hoist. Tighten up on that and the wrenchito marches around slowly to break the cap loose.

Right: On the fireman 's side, Henry works control chains to keep tension on the chain attached to the sled. The sled is holding the wrenchito and box wrench on the staybolt cap. A similar arrangement is on the engineer's side.


There is a good deal of yelling back and forth from wrench side to comealong side while this happens. When the cap is off it goes to the refurbishing table for cleaning and polishing. That took 5-10 minutes or more to set up and execute. Doing another means repositioning everything and starting over. There are dozens and dozens of those caps under there. Multiple work sessions have been required to clear the underbelly. Did I mention that this is done while fingers and butts are freezing on cold steel?

Next will be a whole new set of problems as the Testosterone Gang will tackle the larger and more corroded flexible staybolt caps on top of the boiler. Though more corroded, they are more accessible. Ron's ingenuity and the Testosterone Gang's muscles will be tested again. Thank goodness we have them. I usually maintain that "old and sneaky" beats "young and strong" but this time I may be wrong.


The Belly Of The Beast And The Engineer's Side: These two photos reveal more of the complexity of servicing flexible staybolts without lifting the boiler from the frame. That crane Anthony's grandfather mentioned sure would make the job easier.

Left: After squeezing underneath between the frame and the bottom of the boiler, Anthony checks tool placement.
Right: On the engineers side Ron works the control chains. To hold the sled in place, tension must be applied from both sides. Anthony's arm is visible resting against the drive wheel and the speed recorder (speedometer) pickup wheel.


The new year brings us to the time for our Annual Safety Review. All members are required attend the annual review in order to be able to work on site during 2013. The sole exception is for new members that took their new member orientation during the last quarter of 2012. They are not required to attend.

This year we have already had the first of two Annual Safety Reviews. It was held on January 12 and 44 members participated. This is roughly $2 / 3$ of the members who work on site. The next Annual Safety Review will be held on Saturday, February 16 begin|ning promptly at $9 \mathrm{a} . \mathrm{m}$. in the reefer conference area on site.

If you cannot make this date you will need to contact me to make other arrangements. Members are reminded that if they do not complete their Annual Safety Review requirement by March $1^{\text {st }}$, they will be required to attend the next full new member orientation before they will be allowed to work on site. Members living out of state will be contacted and given an email version of the presentation.

## SAFETY NEWS FOR YOUNG ENGINEERS



Our Toolmeister, Ed Strebe, has just solved a hard hat problem. The hard hats we have for visitors are too large for some of our future engineers-the very young locomotive fans. Ed found a solution when he located the small hard hat pictured here. He bought several, and they are now available our small visitors-and they are even the same color as our members hard hats. Now those small future engineers who tour the site with mom, dad, and their siblings, can wear a hard that fits just right.


Jon Spargo, Chief Safety Officer, NMSLRHS


## THREE MIKES

By Mike Hartshome
Old Mike had enough seniority to get the assignment he liked. His locomotive was one he liked as well. The ATSF 4090 was a reliable steamer. "Mikes" were great pullers with good sized fireboxes and nice balance on their drivers. It was one of more than a hundred of these $2-8-2 s$ the Santa Fe had. Funny, Old Mike thought, once they had been called Mikados when built by Baldwin for the Nippon Railway before the turn of the century. Old Mike did like Gilbert and Sullivan's opera by that name. He had it on a 33 $1 / 3$ record that he carefully kept from getting scratched up. Once in a while he caught himself whistling bit of it. He thought that the Lord High Executioner's list of people who would not be missed was pretty funny. But Old Mike had buddies now back from the recently victorious US Army. A lot of them still hated Japanese ANYTHING. It was better to call these locomotives "mikes". He understood. He knew that forgive and forget would take a while. The same sort of thing had happened to him in the Great War after German shells scared the hell out of him.

Old Mike was pretty happy with the way the day was going. The summer morning was pleasant. The crew smoothly completed the air brake test. The rear brakeman climbed on the caboose, gave a high ball, and Old Mike eased the reverser towards him. Once he had the train bunched he dropped the reverser in the corner. He gently opened and closed the throttle to take the slack out of the train. He watched the ground closely for signs of movement. His train moved forward as smooth as a passenger train. Old Mike kept the slack stretched advancing the throttle in small increments to provide a smooth ride for the guys in the caboose. The guys would fuss if their coffee spilled. Steam blowing down from the cylinder cocks circled the cab as his fireman grinned at the gauges. The long string of potash filled gondolas was on its way from Carlsbad to boost the agriculture of the nation. By the time they got to
 Clovis it would be getting pretty hot.

Little Mike was pretty happy with the way the day was going. Visiting Grandma's house was good fun. His mom Lorraine had let him out of Grandma's house to go watch the rail yards work nearby. All during breakfast the bells and whistles had distracted him from his milk and oatmeal and he had to be reminded to use the bathroom before exploding off the front porch as a whistle blast in the distance meant a train was coming. He remembered to grab his wood train whistle, ran up East Church Street to the grade crossing, and then walked south along the roadbed for a good view. A not too distant headlamp and column of black smoke meant a big one was coming!

Old Mike watched for traffic as he blew the whistle for grade crossings. There were several more of these ahead before his train would cross the Pecos and then follow it up the valley. He spotted a trackside kid in overalls who was studying his train intently. Old Mike made this run often but had not seen this kid before. Somehow there was something familiar about that kid. He started the next whistle a bit early as the kid stared and waved.

Little Mike saw the engineer leaning out of the open cab window waving back. He had a big mustache and glasses. On the front of the locomotive the numbers 4-0-9-0 were easy to read. Little Mike could not count that high. Little Mike's dad, Pierre, said every locomotive had its own number. The whistle got even louder and the ground began to tremble as the locomotive got closer. The engineer smiled at him and Little Mike thought he looked like someone he would like to know. The steam, the smoke, and smell of hot grease were wonderful. Heat from the fire passed quickly as the long line of cars began to squeal and ca-click over the tracks. He had learned they were called gondolas. There were a lot of them. His dad had taught him about the caboose. It went on the end of the train and had men riding it. Too soon it was over. The noise faded. The caboose got smaller and smaller as the train continued. Little Mike kicked a rock and wandered back to Grandma's house listening in hopes of another train coming by. If there was another he would run back to his watching spot. Maybe it would have box cars or tank cars or flat cars. Little Mike did not worry about his future beyond that next train.

Old Mike looked back to check on the kid who never flinched as his "mike" pounded past. He wondered if he would see that kid again. He wondered if the kid would wind up in future war with America again sending troops off across an ocean. Well, not much longer now and he would collect that gold watch and see what retirement was like. That was OK. Younger guys were taking over and the steam locomotives were being scrapped as fast as new diesels arrived. Soon there would not be any Santa Fe "mikes". Old Mike figured at least that one kid would grow up remembering what a real locomotive was.

PLANES


TRAINS


AUTOMOBILES


## A COMMON BOND

For most of our members, and probably members of other groups restoring steam locomotives, there is a common bond with groups restoring aircraft and automobiles. This seems to be especially true in relation to relics of similar vintage-in this case the mid 20th century. Our membership includes private, commercial and military pilots. Some are active U.S. Air Force, others retired. Many have an interest in automobiles that goes far beyond just driving the family sedan.

Since the beginning of our work on 2926, we have developed close relations with other restoration groups throughout the country. Those friendships are not just locomotive related. They include such aviation groups as the Sierra Hotel Chapter of the Commemorative Air Force, and a number of classic automobile organizations. Located in Oklahoma, Sierra Hotel group is restoring an A-26 bomber the same age as 2926. Their restoration and a WWII link between 2926 and the A-26's has already been depicted in a piece of artwork, and there is more to come in future newsletters.

Local classic car clubs visit 2926 frequently, and the common bond remains strong. We are especially interested in cars of the same vintage 2926 such as the Kaiser sedan pictured above. It dates to the time when 2926 was nearing retirement. It goes without saying that many of us look forward to the time when these wonderful relics of an earlier time can perhaps be seen in operation at the same time and in the same picture.

## FLUE TUBE SPONSORSHIP UPDATE

The 2926 flue tube sponsorship program has been quite successful. All of the small tubes now have a sponsor, and just over two dozen of the large tubes lack sponsorship. Many sponsors have found the sponsorship of a flue tube to be a good way to remember relatives, and friends who were involved in some way with railroading. That memory will travel with 2926 when it travels the high rails as a living memorial to our rail heritage.

Large, 3.5"
flue tube sponsorship. $\$ 300$
ONLY 28 LEFT!


Small $2.5^{\prime \prime}$
flue tube sponsorship.
$\$ 200$
SOLD OUT!

In case there are 2926 fans, (especially the youngsters we would like to get involved) who are unfamiliar with boiler design, here is a very brief flue tube description. The flue tubes are more than twenty feet long. They fit in the center of the locomotive, between the rear flue sheet and the front flue sheet. There are 218 large tubes ( $3.5^{\prime \prime}$ diameter), and 54 small tubes, ( 2.5 " diameter). They carry the hot exhaust from the locomotive's firebox forward to the smokebox where the hot gases and smoke are expelled through the smokestack. The tubes are immersed in water, and in the process of moving to the smokebox, the hot gases that flow through the tubes produce the steam that powers the locomotive. In AT\&SF 2926, superheater pipes are inserted in the large tubes to increase steam temperatures for even more power.

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President _ Michael F. Hartshorne
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Chief Safety Officer_Jon Spargo
Web Master_Rich Bugge
Newsletter Editor -Doyle Caton

## MAIL ADDRESS <br> NMSLRHS

P.O. BOX 27270

Albuquerque, NM 87125-7270
Tel. (505) 246-2926
Web: www.nmslrhs.org

## THE AGE FACTOR

It is common knowledge that many of our members are not youngsters. In fact, some of us are just plain old. Obviously, the experience and skills that come with age are quite useful. But endeavors such as the restoration of 2926 also requires the energy, exuberance and strength of youth.

It is the younger generation that will carry on to maintain and operate our piece of living history. To do so, they must become involved in the process of bringing 2926 back to life. In this issue, we address the youth issue.

Those of us who are on in years watched the grand machines operate when we were growing up. The youth of today are not so fortunate. Unlike 'Little Mike' in the story on page 6, they cannot see steam locomotives in daily operation. Few youngsters today dream of becoming a steam locomotive engineer.

Today, about the only way to gain familiarity with steam locomotives is to become part of a restoration. We hope the 'Testosterone Gang' story will encourage other youngsters to join our crew.

With the distractions young folks encounter in today's high-tech world, recruiting younger members isn't easy. We ask all 2926 fans and supporters to give us a hand in attracting "a few good youngsters".

Do you know of any high school or college level individuals who might be interested in becoming a part of the restoration, maintenance and operation of 2926 ?

If so, have them come down to the restoration site for a closer look. Some of the 'old guys' will give them a tour of the site.-Editor

## ERRATA

OOPS! Each of the last two newsletters had a glitch that should be addressed. One was an omission, and one was an outright error.
-Vol XI, No 2, Pg 4: Carlos Osuna's work at the dairy plant: Carlos reminds us that we failed to give Photo credit to Rod Adams who shot the picture we used.
-Vol XI, No 3, Pg 4: Picture positioning hydraulic ram, Pictured is Henry Roberts, not his father John. Though still in high school, Henry has become a valuable member of the restoration crew.

## COLLECTIBLES FOR SALE <br> Support The Restoration Of 2926 Buy A Collectible Railroad Lantern

A few years ago, one of our members donated his sizeable collection of railroad lanterns to NMSLRHS to be used to raise funds for the restoration of 2926. We are now placing them up for sale. More than 90 lanterns from a variety of manufacturers, railroads, and corporations are on the list. The globe color, design, and use of the lanterns is equally varied.

Only decades ago almost everything relating to our personal, professional and community life was connected in some way to the nation's network of railroads. In those days before portable radios, cell phones and other personal communication technologies, railroad workers had to make do with hand signals, or in the case of the engineer, a bell and whistle. That worked fine in daylight, but not so well in the darkness of night. At night, lanterns were used for communication.

In use, the motion or color of a lantern carried critical messages between train crew members and other railroad employees. With the advent of electronic communication, railroad lanterns disappeared from the scene. They have become one of the items from an earlier day that most likely will


The Lanterns Pictured Below Are Shown Here Setting Next To One Of The 2926 Air Compressors. bring back memories of our heritage.

Those wishing to purchase one or more of these collectible lanterns should contact the NMSLRHS directly for more specific details regarding individual items in the collection. Contact us via email at: nmsirhs@nmslrhs.org or by telephone at: 505 246-2926.


Left: Hand Lantern, Cobalt Blue Globe, (Fresnel) Manufactured By Adams \& Westlake (AdLake), In 1957, And Used On Southern Railroad.
Right: Hand Lantern, Clear Globe, Manufactured By Amspear Mfg. Co. In 1925. Used by Erie Railroad. The word ERIE Is Etched On The Globe.

