EXPANSION LINK

BASINGSTOKE and DISTRICT MODEL ENGINEERING SOCIETY

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Editor Austin Lewis

Editorial

For me, the big event which occurred during the last quarter was the Miniature Steam Rally and Exhibition held on the 13th and 14th April. Apart from the rain on Saturday afternoon which almost turned the meadow into a WWII battle field, it was a great weekend – Sunday being a glorious day. The turnout of models of all types, shapes and sizes together with good public support, was a great testament to the impressive organisation by Jon Poulter and Jon Evans. Many, many thanks to them both and to all the other members and drivers who helped out over the two days. I think a special mention should go to John Croker, who drove for hours on Saturday in the cold and rain (see photo page 3, not that photo!). This issue contains a couple of Rally photos but others can be found on the web site and in the ***Expansion Link Special*** issued a month ago. The whole event was very enjoyable and made a *modest* profit.

The article on the Axminster to Lyme Regis branch line has been held until the next edition.

SWT Simulator

Above are the members who visited the SWT simulator for new drivers in Basingstoke (we went in two groups). Looking through the cab window of the simulator in the first photo, there is a full panorama of the track, countryside, stations, signals, changing weather conditions, time of day and the occasional instructor appearing wiping the windscreen at 60 mph!! The outing was very enjoyable and many thanks to Mick Lowe for organising the visit and for SWT for putting up with us, especially those who ploughed through the buffers or backed out of the station.

STEAM RALLY 2013

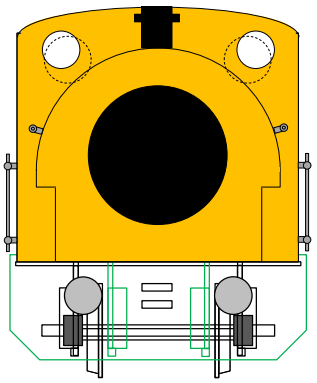
The photos from the Rally were published in a Special Edition of Expansion Link which came out in April with great photos by Richard Holt. This Special ran to twenty one pages and so it was too large to print hard copies for all so if you would like a copy on DVD these will be available for a charge of £5.00 (to Club funds) to cover costs and postage.

Here are a couple of my favourite shots:

I'll show that b** in front***

Sweet Pea to Sir Galtbe : Part 2

by Graham Blissett



Before starting to modify what I have left of the Sweet Pea frames, I decided to make the front and rear Pony Trucks, as their design and movement determine the amount of metal cut out from the frames. The basis of any Pony Trunk is the wheel size and the distance to the pivot point. After much searching I found that off the shelf solid pre machined wheels only came in two sizes for 5" gauge, 3½" and 4". Even when looking at castings I was still unable to get anything smaller than 3½".

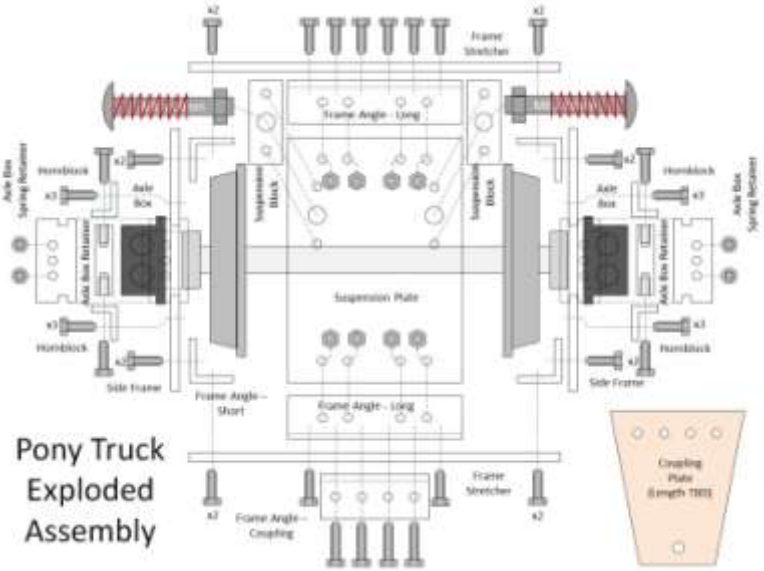
Two of the model engineering books I read (see references 2 & 3 below) both said that the wheels on pony trucks and locomotive bogies should be as small as possible. This is to minimise the amount of strength lost when metal cut is away from the bottom of the frames where the wheels swing under them. So unless I ventured into machining wheels from solid (perhaps next project), my only option was to purchase readymade 3½" wheels rather than the 2½" or 3" wheels I actually wanted. Consequently, wheels this size will ultimately result in the frames above the Pony Truck wheels being narrower than I would have preferred, which may require additional strengthening in these areas.

The ready machined wheels came pre-fitted to their axles with ball races pressed on to the ends. This arrangement determined that the Pony Truck framework would need to be wide enough to fit the wheels inside the frames. Although the ball races were supplied with pre machined Delrin axle boxes, I found them to be of insufficient thickness and height for the hornblocks, so replacements would need to be machined from solid Delrin block.

Preparing the Machinery

As nearly all of the machining required use of the mill, I set up the mill table with two vices and an angle plate, so that I could undertake all the machining and drilling without having to change the configuration of the mill table. Although it took some time to setup with gauges, I managed to align the vices and angle plate perpendicular to the length of the mill bed. With this configuration I was able to machine each part to the correct size and perform all the necessary shaping and drilling.

To simplify the pony truck design I decided to use the same design for the front and rear trucks and only change the length of the pivot point coupling plate. In doing so this meant that I could machine and hopefully drill all the same frame type at the same time. The only risk being if I made a mistake in one the same mistake would appear in the others. Machining similar items at the same time worked well. However, when I came to drill the holes in the side frames, after I had drilled my 8th hole I discovered a mistake on the drawings. Unfortunately, I had drilled 8 holes in the wrong place, so replacement material had to be ordered, as the frames could not be rescued. With the saying "Measure twice cut once", perhaps I could add "Buy more material than you need, as you are likely to use it". The exploded view of the pony truck is shown in the following assembly drawing.



After completing two kits of pony truck frames and angle brackets, the next stage was to produce the hornblocks. As the hornblocks on the Sweat Pea frames protruded by ½", I decide the hornblocks on the Pony Trucks should do the same. Having previously experienced the "Blood, sweat and tears" of machining hornblocks from solid bar on my Q1 tender, I decided to simplify things and use steel angle.

Due to the necessary flange on the rear of the Delrin axle box to stop it falling out, I could not use ½" angles as the fixing nut and bolt would fowl the flange, as well as this the ½" angle looked out of place on the frames. So I took 20mm x 20mm steel angle and trimmed it down to be 16mm x 12mm. To retain the Axle Box at the bottom I machined and tapped an 8mm diameter rod to be exactly the distance between the two faces of the hornblocks, which were held in by bolts.

As the pony truck axle needs to be sprung, I now had to devise a means of holding the suspension springs above each Axle Box so the springs did not fall out. I produced an axle box spring retainer plate which slides up into the frame cut out for the Axle Box prior to fitting the hornblocks. When the hornblocks are fitted they clamp the Spring Retainer plate in place. This plate was finished off with two cap head screws in the underside, which when inserted allowed the top of the springs to fit snugly round the screw head, with the other end of the springs inserted into corresponding holes in top of the Delrin axle boxes.

The solution to applying downward force on to the Pony Truck to help it stay on the track came in the form of two M8 coach bolts, head upper most, which where mounted through the suspension block and plate (clearance fit), with a nyloc nut fitted on the underside of the plate. Between the bolt head and the plate I fitted a captive spring which was partly under compression.

When the pony truck is fitted to the loco chassis, I intend to mount a Delrin block under the chassis base plate directly above the coach bolt heads. Any downward force due to the weight of the chassis and batteries etc. Would push down on the heads of the freely moving coach bolts, via the Delrin block. As the head of the bolt moves downwards the captive spring compresses, which in turn

applies a downward force onto the pony truck hopefully keeping it on the track. Well that's the theory, but until the rest of the loco is finished and running I will not know it actually works.

Due to unforeseen work and family commitments, I have so far only been able to produce one complete Pony Truck, less the Delrin axle boxes, and a complete kit of parts, less the drilled and tapped holes for the fastenings, for the second pony truck. Despite my best efforts producing the machining and assembly drawings I have found from making the first pony truck a number of measurement mistakes on the drawings and a number of design improvements. Hopefully when I make the second truck, which with any luck is not too far away, things should run a lot smoother.

The final frame assembly of the complete pony truck is shown below, with the retaining fasteners in place for the angle bracket supporting the coupling plate.

References

(1) The Model Steam Locomotive, M. Evans, (2) Model Steam Locomotives, H. Greenly

Summary of Lessons Learnt so Far

- No matter how much effort you put into drawings there will always be mistakes.
- It's not until you actually cut metal do you know whether the design is right.
- Buy more material than you need as, in my case, you will require it.
- Steel angle is not actually 90 degrees and only becomes 90 degrees by machining it.

In the next instalment I intend to complete the assembly of both pony trucks including the machining of the Delrin Axle boxes. Unfortunately, due to even more work commitments, the next instalment may be a bit short, as I am away over most of the summer months.

Graham Blissett

BOILERS

The following Information Sheet was issued by the Southern Federation in January this year and sets out the key changes and new requirements. One requirement is that each member must have a copy of "The Examination & Testing of Miniature Steam Boilers – Revised Edition 2012) costing 50p and the appropriate certification for each boiler, irrespective of size, to be used on the Club's or any other club's premises.

SOUTHERN FEDERATION of MODEL ENGINEERING SOCIETIES

INFORMATION SHEET No. 15 **DATE: JANUARY 2013**

SUBJECT: THE NEW BOILER TEST CODE AND ASSOCIATED DOCUMENTATION

The booklet Examination and Testing of Miniature Steam Boilers 2008 edition, originally known as the Blue Book, has been updated by the Model Engineering Liaison Group (MELG) and is now the 2012 edition Boiler Test Code BTC 2012, the Green Book. The MELG consists of appointed members of the Southern Federation, the Northern Association, the Midland Federation and the 7¼ inch Gauge Society together with representatives of the insurance brokers Footman James and Walker Midgley and the Royal & Sun Alliance. Over the past year the original documentation has been reviewed taking in to account comments and observations received from Clubs, Societies and individual members. The documentation has been upgraded to bring the procedures in line with the requirements of the Pressure Systems Safety Regulations 2000 with the introduction of a Written Scheme of Examination which is applicable to each boiler, or to be more precise, the Pressure System.

The scheme will come in to operation from the 1st January 2013. From that date old style boiler certificates may no longer be issued. However a boiler with remaining time on existing certificates may run the course under the old scheme and is only required to be tested under the new scheme once the current certificate expires. The new scheme is to be introduced at the time of the next test, whether it is a hydraulic or steam test, to minimise the time before a Written Scheme of Examination and new style certification is applied.

The Examination and Testing of Miniature Steam Boilers, Boiler Test Code BTC 2012.

This is the new Boiler Test Code and will be issued by all of the Organisations that administer the affairs of our hobby. The content has been agreed and approved by the Royal & Sun Alliance, the principal insurer for the hobby. The Boiler Test Code may also be used by Clubs and Societies who do not use the Royal & Sun Alliance to provide insurance but it is recommended that the alternative insurance provider is consulted to check that the Boiler Test Code is acceptable.

The Boiler Test Code forms part of the Written Scheme of Examination and as such is applicable to every single boiler. Under these circumstances it is therefore a requirement that every owner/user of a boiler should hold a copy of the Boiler Test Code.

The Written Scheme of Examination.

The Written Scheme of Examination has been provided in order to comply with the requirements of the Pressure Systems Safety Regulations 2000 and is applicable to every single boiler. The document is to be used in conjunction with the Boiler Test Code BTC 2012 indicated above. The document is provided as a sequentially numbered pad which is to be filled in by the Club or Society boiler inspector. Full Guidance on the Completion of Documentation is printed on the inside cover of the document pad.

The Written Scheme of Examination form is to be filled in only once unless the boiler changes hands or if the boiler has undergone major repairs or the working pressure has been altered.
The Written Scheme of Examination certificate has three copies and is printed on NCR paper (no carbon required). The top copy is to be handed to the owner/user, the second copy is held on file by the boiler inspector and the third copy is to be sent to the Southern Federation Boiler Registrar in order to update the Federation data base as shown below:

Mr. D. Mayall
9, Parsons Close,
Church Crookham,
Fleet,
Hampshire, GU52 6HL

The Examination Certificate of a Pressure System.

The Examination Certificate is a combined Hydraulic and Steam Test certificate. The document is provided as a sequentially numbered pad which is to be filled in by the Club or Society boiler inspector. Full Guidance on the Completion of Documentation is printed on the inside cover of the document pad.

The Examination Certificate has two copies and is printed on NCR paper (no carbon required). The top copy is to be handed to the owner/user, the second copy is held on file by the boiler inspector.

The boiler may only be used if the owner/user is in possession of a valid Hydraulic and Steam Test certificate.

The Small Boiler Test Certificate.

The Small Boiler Test Certificate combines a Written Scheme of Examination and a Test Certificate applicable to boiler with a pressure –volume product value of less than 3 bar litres. It may be used by Clubs and Societies whose members operate small boilers such as locomotives, stationary engines and marine models on the Club or Society site.

The document is provided as a sequentially numbered pad which is to be filled in by the Club or Society boiler inspector. Guidance on the Completion of Documentation is printed on the inside cover of the document pad.

The Examination Certificate has two copies and is printed on NCR paper (no carbon required). The top copy is to be handed to the owner/user, the second copy is held on file by the boiler inspector. The boiler may only be used if the owner/user is in possession of a valid Hydraulic and Steam Test certificate.

Boiler Test Record.

This is the small Blue Record card issued previously with the original test certification. It is used to record the various tests and over the ensuing years will form an historic record of the boiler. It is recommended that the card is continued to be used for the new documentation.

As before the Boiler Test Record is **NOT** proof that valid certificates exist and therefore **MUST NOT BE ACCEPTED IN LIEU OF CERTIFICATES** when their presentation is required.

The Boiler Test Record card, current and expired certificates along with any certificates issued under previous schemes, should be retained and handed over to the new owner/user should the model/boiler change hands.

Tests conducted without the presence of a Witness.

Paragraph 3.9 (f) of the Boiler Test Code BTC 2012 indicates that a Club or Society can agree that a boiler inspector be authorised to undertake examinations, hydraulic tests and steam tests without the presence of a witness. The committee of the Southern Federation does not recommend that this concession be introduced but accepts that in certain circumstances it may be appropriate, particularly where Club or Society membership may be spread over a large area. Should an individual Club or Society decide to implement the agreement the boiler inspector(s) shall be formally authorised by the management of the Club or Society and the name(s) shall be registered with the Southern Federation Boiler Inspector Registrar. The appropriate form for registration will be sent with the Affiliation pack. It should be noted that some Clubs and Societies may not accept certificates with only one signature. Therefore it is recommended that, if a member is visiting another Club or Society, the member should contact the club before visiting and clarify the situation.

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For further information please contact one of the Club's Boiler Inspectors or Brian Hogg / Jon Evans to order your copy of the full Boiler Testing Regulations as soon as you can.

A Fruit Cake for the not so Tea Total

1 cup butter
4 eggs
1 teasp baking powder
1 cup brown sugar
1 cup white sugar
1 cup dried fruit
Lemon Juice
Nuts
1-2 Bottles of Scotch Whisky

Before you start sample the Scotch to check quality
Good isn't it?

Select a large mixing bowl
Check the Scotch again – as it must be right
To be sure that it is of the highest quality pour one level cup and drink it as fast as you can
Repeat

With an electric mixer beat one cup of butter in a large fluffy bowl
Add one teaspoon of thugar and beat again
Meanwhile make sure the Scotch is still OK
Cry another cup
Open second bottle if necessary

Ant tow large 11egs, 2 cups dried druit and beat till high
If druit gets stuck in beaters just pry loose with a drewscriver
Next sift 3 cups salt or anything it really doesn't matter
Sample Scotch again
Sift half a cup of lemon juice, fold in chopped butter and strained nuts
Add on babble of brown thugar or whatever you can see and mix well

Grease oven and turn cake pan to 180°C
Now pour the whole mess into the coven and ake

Check Scotch again and go to bed

Mrs Mick zzzzzzzzzzzzzzzzzzzzz

FOR SALE, EXCHANGE & WANTED

If any member has an item they which to sell or exchange or is looking for that particular widget, please send the details to me and I will include it on this 'message board'. Thanks Austin

For sale a 2" scale portable engine, pictured above at Kew Pumping Station, built to the John Haining design. There is a full boiler certificate and included in the sale is a 2" scale saw bench also seen above. Price on application.

Please contact John Hutson mob 07548271111

Forthcoming events June – September 2013

June		**July**	
		7	Public running
2	Public running	**9**	Meeting night
11	Bits & Pieces evening	**14**	Members' running day (Sunday)
16	Public running	**21**	Public running
22	Members' running & Barbecue (Sat)	**23**	Meeting night
23	Visit to Colchester		
25	Meeting night		
August		**September**	
4	Public running	**1**	Public running
6	Bring & Buy evening	**3**	Meeting night
18	Public running	**15**	Visitors' Open Day (Sunday)
20	Meeting night	**17**	Meeting night
		28	Members' running day (Saturday)
			including Fish & Chip Supper

In the next edition:

- Cannington Viaduct on the Axminster to Lyme Regis branch line, Austin Lewis
- The Corrosion of Metal by Richard Holt
- Part 3 of Graham Blissett's series on converting a Sweet Pea chassis to electric power

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If you have received a copy of the newsletter by post, it is because we don't have your Email address. Each newsletter costs about £1 to print and post, where as Email is effectively free. Currently, we do not have an Email address for nearly half the membership. If you do have an Email address, which we can use, could you please Email me with your details.

Jon Evans
Treasurer

Who's Who.

Chairman	Vacant
Vice Chairman	Tom Burgess
Secretary	Brian Hogg
Treasurer	Jon Evans

Committee Members.

Graham Blissett	Member
Barry Spender	Member
Dave Andrews	Member
Darren Davis	Member
Steve Newell	Member

Project Leaders.

Catering manager	Eric Widdowson
Electrical Work	Vacant
Library	Ken Jones
Painting/Decorating	David Andrews
Publicity	Eric Widdowson
Publicity assistant	Vacant
Signalling	Graham Blissett
Station Building and contents	Vacant
Track, site and ground maintenance	Dave Blaza & John Neal
Traction Engine Track	Vacant
Webmaster	Stephen Newell
Newsletter	Austin Lewis