

Reading Society of Model  
Engineers  
www.prospectpark  
railway.co.uk  
Charity Number 1163244

# The Prospectus

March 2017



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Free to members



Last month's cover picture was of an HST at Paddington. Here's the Australian version, an XPT, seen in Sydney in February 2017  
Photo WP

**DAWSON'S DIARY  
MAKING TRACKS  
A HOLBROOK AT HOME  
AGM NOTIFICATION  
WITH THE YOUNG ENGINEERS**

## DAWSON'S DIARY

## kept by the President

Although it's been very cold and frosty the Wednesday working parties have been well supported working away in the cold. The workshop has had some rewiring done not the best of time for this type of work, the airline for the compressor has been re-routed through ducting. The ML7 has been re-wired to bring it up to standard. The track gang have built up track panels ready to replace the steel rail on the ground level. David Scott and Lily have built six panels so far making use of the large container. It must be a bit warmer in there out of the cold!

Parks and Gardens team have once again been busy over the past few weeks keeping the site all shipshape for the Spring. The RSME membership owe these members who without fail turn up and do their bit to keep the club going. A very big thank you to you all!

John and Karl have fitted a temporary tubular heater in the carriage shed under the club's Baldwin during this cold spell which will be replaced with a new long heater when time permits. Another job done.

The RSME had a fantastic public running Sunday this time. The members did well to cope with so many visitors. It was a cold day once again the tea bar was so very busy; the ladies did a grand job as usual. They must have made over a hundred teas for the RSME members not counting the public! The car park was well managed by Dave Cole and Ralph Appleford, how they got so many cars put away is quite something. The A4 did not help with road works near our entrance it was busy at times. With only one 3½" loco running this time can show how well a small engine can be kept in steam all day. Mike Sinclair should be well pleased with his Royal Scot! All the engines ran well electric and steam on one of the busiest February running days ever.

Club running day was damp this time. Some members braved the wet and cold. This did not put off Karl Trussler to run his latest engine, a 3½" LBSC Bantam Cock 2-6-2. It soon passed its steam test okay and Karl was out on the track running at a steady rate getting used to how it performed. I can say it makes plenty of steam and runs well. Karl is well pleased to have his own locomotive, his smile said it all.

## MAKING TRACKS!

by David

Scott

### **Or how to hide from the winter weather while helping with the ground level track refurbishment**

There is a superbly compiled list of jobs to do around the track stretching into the distance and has now sneaked onto page 2. Thankfully we have contributed to its SHORTENING on Wednesdays – or not - as anyone who has a



house, garden, car, or locomotive knows these all drag lists of to do, 'one day' with them? Wednesdays we abandon our home lists with the other dedicated members and go and participate. We also get many teas, share exciting banter, relax over lunch and learn lots more about Aircraft from Les!

We saw the rail arrive and someone spent many happy hours drilling six holes into each of the square black 2 x 2 made from recycled polyethene sleepers. I drifted into the job as assistant for the first panel, but soon to be promoted as The Chief by our next visit. A boring job but you dream of them being down and everyone having fun behind the many trains running on them. A job you can do while trying to sort out a solution that is bother-

ing you from the workshop etc.

Quite early on I perfected 1 to 10 in Mandarin so Lily got the job of turning over every sur\* sleeper to reveille the holes from the spread disappearing into the green container. (\*Fourth). Next came the rail, and from my past life on many track gangs down in Devon we had to make sure that the 2 degree cant went inwards. Wow, this is subtle and needed a steel bar resting on them to make sure. "No!" means we both go out with the length, one at each end and a swing round on the grass (As per The Plank, a wonderful film starring Tommy Cooper and Eric Sykes) and back in. Another check and out with the Turbo Screws!

Ah lunch! So, a catch up on how everyone else's projects are going. A compare of lunches. A spread of cakes as it is someone's birthday. A look through some Holiday snaps. Or an admirer of a newly finished locomotive. Les's model surely, indeed?

We now have matching His and Hers power drill drivers, one becoming famous after appearing in the Model Engineer powering a dubious contraption on page 260 I did a check in the Shop H & M



or Hers and Mine but strangely they don't do matching drills, or clothes suitable for workshops?

We did a line each. Screws! And carefully got the sleepers to line up. The second panel had us down on our knees but with 200 odd screws to insert and do up we were thankful of modern technology, Keeping torque to a minimum we were quickly done. Ah, in for our third mug of tea and a check on the lists progress plus talk of the rain.

The following week life becomes easier as we head for chair level working. I suppose somewhere they use chairs as a form of measurement and I have just realised tracks have chairs! Just before we leave, we get 3 rails cleaned and dry and ready for the next exciting episode. The first job on returning is to take the 3 spacing sleepers out using one to lift to assist. These get plonked on top and a new panel begins again. Four hands making lighter work.

Lily, some may have noticed always wears red! So, I make a joke of its "Suitability for Track Maintenance gangs!"

Our latest visit, we did the rail first and now at nine panels high, the job becomes a pleasure. We break for teas and the inside the carriage container ceiling gang collecting more plywood stacked in ours. Gives us other breaks. And we press on. The rain holds off until lunch time when it comes in sideways. Such a shame as we have enough battery power left for two circuits behind Humble Bee.

Mike and Nigel are going to try a staggered joint. Yes, by the time we have staggered out into the wilds with the fruits of our labours where we may need six bodies to assist us. No! the middle rail overlaps by about six sleepers so the passengers still get the clicky-clack but hopefully without the standard dipping at each rail joint.

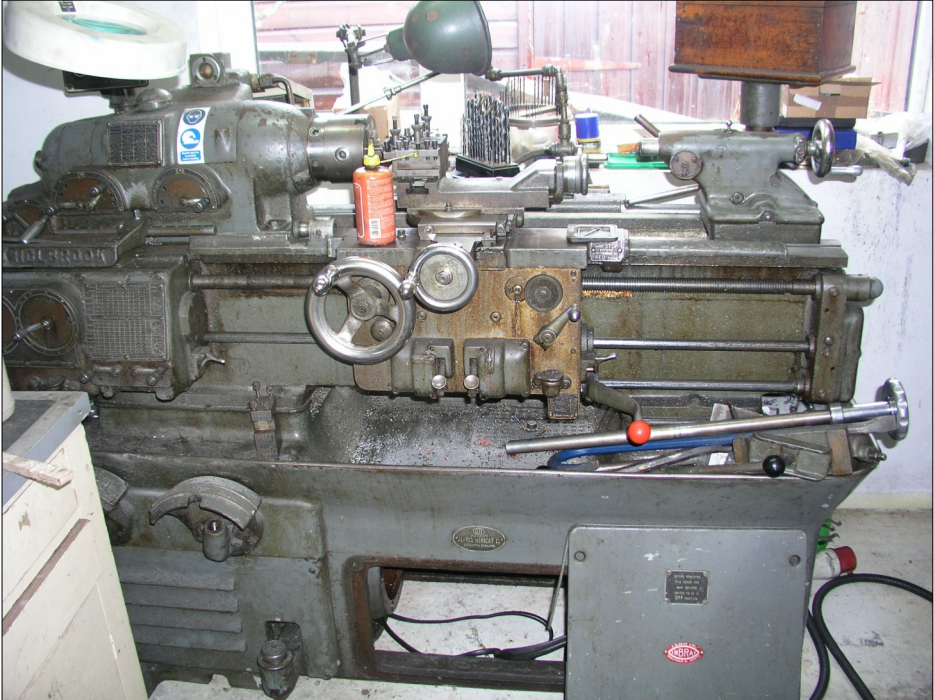


Photos David Scott

## A HOLBROOK AT HOME

by John Chapman

I was in the same situation as some owners of the Holbrook C10. I do not have a 3-phase supply or 415V available to power the motor as it is for my home workshop. This is how I did it.



Prior to my retirement, I was a maintenance technician at a nuclear power station and asked a good friend who was the chief electrical engineer what to do - his reply was “do you want an honest answer? I don’t know!”

After a long discussion, we decided against having the motor rewound as motor rewind companies tend to copy the original windings and do not usually have the expertise to reengineer the motors, without cost, so this was a non-starter. Another option was to obtain a rotary phase converter. However, there are two reasons not to go down this route. Firstly the cost (again) of the converter and secondly they are not very efficient as the motor has three different windings when changing speed and so there will be imbalance in the system. This problem also applied to a static converter as they are also poorly balanced, which affects the full power of the motor. We therefore decided the way forward was to replace the motor and use an electronic inverter drive.

I had full confidence in this solution as the power station used electronic

inverter drives in many places, being fully programmable with excellent reliability. However, this then required me to buy an inverter drive, a new motor and an adaptor to make it fit the latter.

### **Motor**

First on the list was to look for a replacement - the original motor was 2hp but by choosing a 3hp motor and dropping down to the lower speed there is still plenty of torque available. After a long time spent on the internet sourcing a 3 phase 220v 3hp 4 pole motor, eBay came up with a brand new Marelli motor and paid £40 which was a good start.

### **Inverter Drive**

The next stage was to look for a AC Inverter Drive –and again after many hours spent searching on the internet and eBay, I took a trip to The Inverter Drive Supermarket Limited, which is in Chipping Campden, Gloucestershire. Once I explained my requirement, they recommended an ‘Altivar 12’ which is made by Schneider for the reasonable sum of £138.

It took an entire evening to configure the drive as the manual was a translation and is not laid out in logical technical English. There were three main changes to the configuration:

- The motor was programmed for a soft start, to change the acceleration characteristics to 3 seconds so to reduce the stress on lathe and motor when starting.
- The drive was programmed for three different frequencies to equate to the three speeds on the lathe speed change.

The speed change contacts were wired straight to the digital input on the drive, so that the speed change works the same as the original lathe intended. I also wired the stop start reverse lever switch to the drive stop start forward reverse position.

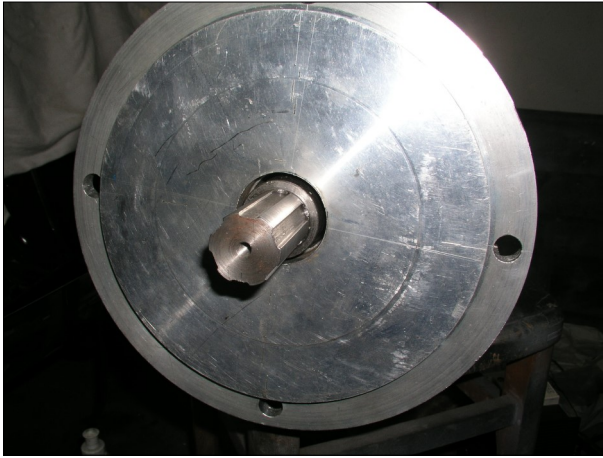
By using an inverter drive, the speed of the lathe goes from the lowest to max 3000 rpm. This meant that with the motor running at max torque, the

current would not exceed 10 amps (and therefore not tripping the house electrics!). Another advantage is there is a big gap between 3000rpm and 1492 rpm, but as the drive has a control on the front, any speed can be set manually.

### **Adaptor**

In order mount the new motor, a spacer was required as the dimensions were different





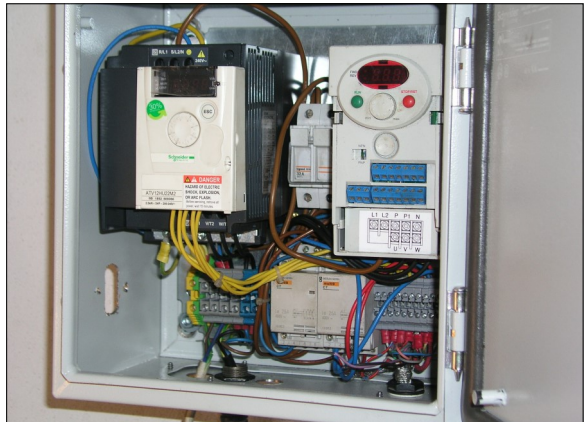
to the original motor. I started by purchasing a piece of aluminium 11 inches in diameter, 1" thick from Aluminium Warehouse. We then machined it and drilled the holes to fit the lathe and motor. Upon assembly with the spline adaptor on the motor, I then found a larger spacer was required between the motor and lathe and so I had to go back and purchase

piece of aluminium 10 inches in diameter by 2 inches, which was machined in the same way.

This was complemented by a piece of bar to make a spline adaptor to fit on the motor and into the lathe. The lathe end is a six splined and but I don't have a dividing head, the gentleman who gave me the lathe (he has an industrial workshop) machined it with an indexer on his Hass machine centre. I asked him to do it oversize so it will take up the wear in the spline socket. After the spline was cut, I then spent time bluing and filing to make it a good tight fit. The spline has an OD of 1.375 and six splines.

Next the adaptor need boring out to 28mm to fit the motor shaft, my other lathe is a Myford, which is not the ideal machine for larger lumps of metal, so I again gave it to my friend with the machine shop to bore out, which he had done a little undersize. I then set up the adaptor in my Myford and spent time with an emery cloth polishing the bore. It is now a good tight fit on the motor shaft. To enable any future disassembly, whilst it was in the lathe, I drilled a hole in the splined end and then tapped it so if the spline needs to come off the motor shaft, it can be jacked off.

A keyway slot was then cut into it to finish the job. As it is internal and a blind hole asked around if anyone had access to a slotter, albeit with no joy. In the end, I used an old-fashioned meth-



od by machining a piece of bar the same diameter as the hole in the adaptor and then pressing it in and facing the end off. Where the bar joined the adaptor drilled an 8mm hole which is the width of the key. The bar was removed from the adaptor by screwing a setscrew in the hole that was tapped in the end; this revealed a semi-circular slot for the keyway.

A hole was drilled in the end of the keyway slot, so when cutting the keyway the swarf would not jam up the cutter. I ground up a piece of 8mm tool steel to use as a cutter, which then placed in the tool holder on the lathe. This then went in and out using the carriage taking a one thou cut till the keyway was complete. By having a semi-circular hole it made cutting a slot lot easier.

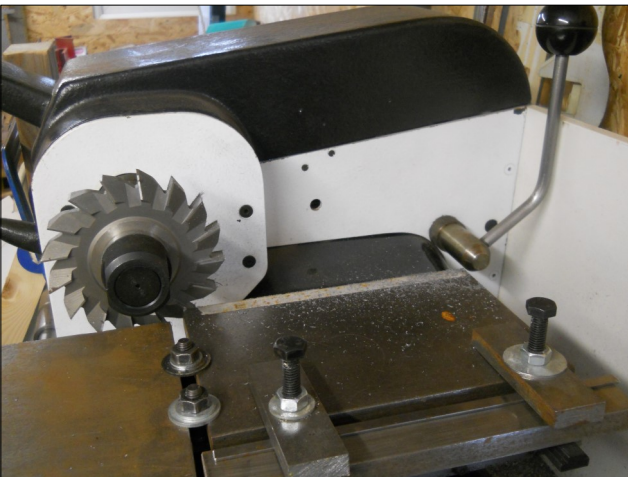
### **Assembly**

The parts were all bolted together, ready for fitting. The removal of the old motor proved very difficult as the opening at the front or the back it is not large enough to pass the motor through. I had to take the motor apart to get it out. Fitting the new motor was not an easy job but there was just enough room. After a struggle and final connection however, it is in and running. The project has taken a long time, but it has been well worth the effort.

I have uploaded pictures of motor and inverter drive in the hope this helps members in the same quandary that I was in. The next thing on the list is to sort out the backlash on the cross slide, as the thread is 9/16 LH Acme and is a bit of an odd size. It would be good to hear from anyone how this is done. *(Please contact John Chapman via the Editor).*

## **TIP OF THE MONTH**

**by David Scott**



This week's task is to face off lengths of steel including here a future buffer beam. Remove everything and use the full travel of the cross slide!

Photo David Scott



## NOTIFICATION OF 2017 ANNUAL GENERAL MEETING

Notice is hereby given that the 2017 Annual General Meeting of the Reading Society of Model Engineers ('RSME') will be held in the Clubhouse, 82 Bath Road RG30 2BE, on Thursday 25th May 2017 at 7.30pm.

Any ordinary member over 16 may apply for election to a vacant Trustee post. **Any nomination for a Trustee must reach Stuart Kidd on or before 23rd April 2017.** Each nomination should be signed by the nominee indicating their willingness to serve, and by a proposer, both of whom should be paid up RSME members over 16.

The following details of the nominee should be provided:

- Full name
- Address
- Date of birth (if under 16)
- Any existing charity appointments.
- Vocation/profession

Three Trustees retire by rotation this year, Mike Chalmers, Mike Manners, and Alf Cusworth. There is a fourth Trustee vacancy following Paul Rylands resignation.

**Any motions for consideration at the AGM need to be submitted to Stuart Kidd also by 23rd April 2017,** and must be proposed and seconded by paid up RSME members.

The May 2017 issue of Prospectus, which will be circulated on or about the week beginning 1 May will contain the Trustees Annual Report, the accounts, details of all nominations to Trustee and any motions to be put to the AGM.

Stuart Kidd

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## NOTE FOR CONTRIBUTORS

Producing some 200 pages of Prospectus each year is quite an interesting job but I would like some help. Contributors providing soft copy I hope will observe the following.

I use Publisher 2016 which is fine but this can only cope with certain formats. Therefore text should be provided in Word format and photos in .JPG format. I can sometimes get round other text formats but it is often a real problem and takes away my workshop time!

Text should be in Times New Roman 11 pt with no spacing between paragraphs. Photos should be provided as separate files and not embedded in the text. I appreciate that Microsoft Office may be required but this can be obtained cheaply if you know how. If you are a Mac user please contact me.  
The Editor

## A day out with The Young Engineers

by David Scott

We arrived early on 25 February freshly charged to have another run round with our transport. Well, three batteries for the drill driver and we managed eight circuits before my thumb gave out on 2 1/2 of them! Today an orange ballast Bucket matching our bright coats!

On returning to the steaming bays several locomotives were now being prepared enthusiastically by our younger members. Some of us started in our early teens and made all the mistakes, but we quickly learned and soon mastered keeping a locomotive in steam all day with a maximum amount of pleasure and a minimum of burnt fingers! Was mid-1970s coal far better?

Practice makes perfect and going through preparing, lighting, and bringing her to life with regular shovels of charcoal and coal soon bring wonderful results. I feel I am cheating with our transport as she is instant, but I did make most of the parts including the Poly Vee pulleys.

In the clubhouse, the Polly locomotive is slowly coming together in spite of a growing list of shortcomings. My background is machining, design and education so something like this frustrates! But gives a great deal of challenge to the builders, and is a relatively quick way for them to get onto the track.

Highlights of the day were the great number of locomotives on the track. Karl had a wonderful run but a quick coal change revived a flagging machine back to her former self. For me was a chance with the next most expensive loco to ours in the shape of a diesel in white plastic with rapid prototyped springs! We had another ride behind an LNER locomotive who was prone to losing her feet. But as I have found even having unlimited ballast, steel wheels on steel rails, we still have wheel slip especially in the wet. Sweet Pea



performed faultlessly even with the wetting rails giving younger Engineers a wonderful time driving her ender. *Photos David Scott*

Sweet Pea driven by Ash and Eddie whilst David and Thomas watching.



Sweet Pea being prepared by James and his dad, David whilst being tutored by Peter.

Peter Farley with his new as yet unpainted loco with his young daughter Ruby and Lily enjoying a ride.



## DIARY

### March 2017

Saturday	4th	Birthday party	11.00-13.30 14.30-17.00
Sunday	5th	Public running	13.30-17.00
Tuesday	7th	00 gauge	
Saturday	11th	Club running	11.00 onwards
Sunday	12th	Birthday party	11.00-13.30 14.30-17.00
Monday	13th	Trustees meeting	19.30
Saturday	18th	Birthday party	11.00-13.30 14.30-17.00
Tuesday	21st	00 gauge DCC	
Friday	24th	Young Engineers	18.00 to 20.00
Saturday	25th	Young Engineers	11.00 to 13.30
		Club running	13.30 onwards

### April 2017

Saturday	1st	Birthday party	11.00-13.30
Sunday	2nd	Public running	13.30-17.00
Tuesday	4th	00 gauge	
Saturday	8th	Club running	11.00 onwards
Sunday	9th	Birthday party	14.30-17.00
Monday	10th	Special needs	13.13-16.00
		Trustees meeting	19.30
Monday	17th	Public running	13.30-16.30
Tuesday	18th	00 gauge DCC	
Friday	21st	Young Engineers	18.00 to 20.00
Saturday	22nd	Young Engineers	11.00 to 13.30
		Club running	13.30 onwards
Saturday	29th	Birthday party	11.00-13.30 14.30-17.00
Sunday	30th	Birthday party	11.00-13.30 14.30-17.00

Opinions expressed in PROSPECTUS are the personal views of the contributor and cannot be taken as reflecting the views of the club committee or editor.

**The deadline for the April PROSPECTUS is  
18 March. This is the final date.**

Contributions from all members are greatly welcomed.

They may be submitted in hard or soft copy to the editor.

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