EXPANSION LINK

BASINGSTOKE and DISTRICT MODEL ENGINEERING SOCIETY

Volume 11 - Issue 2 – June 2017

Editor Austin Lewis

Picture Austin Lewis

Steam Gala 2017

EDITOR

Dear Members, the April Steam Gala was another great success with over £3000 being raised for club funds. Many thanks to all visitors for bringing their models along, to members who helped over the weekend, to Ken below for his second hand book stall and to my wife, Ann Croker and the other ladies who helped on the tombola.

We had a successful public running day in May. A talk, arranged by Mick, took place on 23rd May and was given by by an ex BR Railwayman, James Lester. It was very interesting with many photos and great anecdotes. His claim to fame being that he was the fireman on the loco Winston Churchill, which pulled Sir Winston Churchill's funeral train.

In this edition we have several interesting articles from members (many thanks) together with a few photos from the Gala.

Austin Lewis

Railway Memories
by Mick Lowe

A few of you may be aware that I go to the Woking Railway Club on the first Wednesday of the month, to meet up with old friends and retired colleagues for a chat and perhaps a drink or two!! This is under the banner of The Old Southeronian's Association. The object of club is to keep in touch with previous staff and also as a Welfare Unit and informing members of planned trips/ outings and any travel information etc. These meet ups always stir up 'the old grey matter' and various tales and incidents are remembered I recalled one such incident!

Every week we had to sign for a book which was divided into four sections

a) Temporary Speed Restrictions
b) Engineering Work
c) Signaling and Permanent Way Alterations
d) Miscellaneous Instructions/General Instructions and Notices and contained amongst all this were details of altered train workings, specials etc.

Here hangs the tale

I was working the 13.26 service to Waterloo and was aware that Sandown Park had racing on that day, which meant a possible Special Stop at Esher on the way back from Waterloo. I looked in the notice book and ok I was booked to stop at Esher on my return journey with the 15.12 from Waterloo. I put the book on the desk at Waterloo to remind me when leaving Surbiton that I had to stop at Esher for 'The Horsey Crowd'. Getting right of way at Surbiton and green signals down the local line – I was away! Well Esher is the first station after Surbiton and as I PASSED through it **--!!--** whoops I should have stopped there! Nothing for it just keep going. On arrival at Woking (next stop) keeping the window closed, there was a Bang Bang Bang on the window with his walking/shooting stick was a very red faced, disgruntled punter trying to gain my attention. Opening the window to be told how cross and upset he was at my not stopping at Esher. Between Esher and Woking I had had time to think of an excuse. I assured him that we were not booked to stop at Esher because as the first race was at 14.30pm he would have missed half of the racing and should have caught the 14.12 from Waterloo to see the racing in full.

Well he insisted that Waterloo had told him we would stop at Esher, I apologised and said that the staff at Waterloo had got it wrong. So off he stomped muttering away. I looked back along the platform and could see there was a commotion as dozens of race goers were besieging the platform staff as they had wanted to get off at Esher Station as well! Luckily I had the right of way so off we went, phew!

Continuing the story - My return trip from Basingstoke to Waterloo was the 17.26, so I checked the book and yes I was booked a Special Stop at Esher to pick up race goers at the end of racing. On arrival at Woking the Station Inspector came up to the cab and asked me if I was aware of the Special Stop at Esher –

"Yes" I replied, showing him the book. He then gave me a Special Stop order form and made the remark

"That's to inform you to STOP, as half of you *b----y drivers* today have not read your notice books".

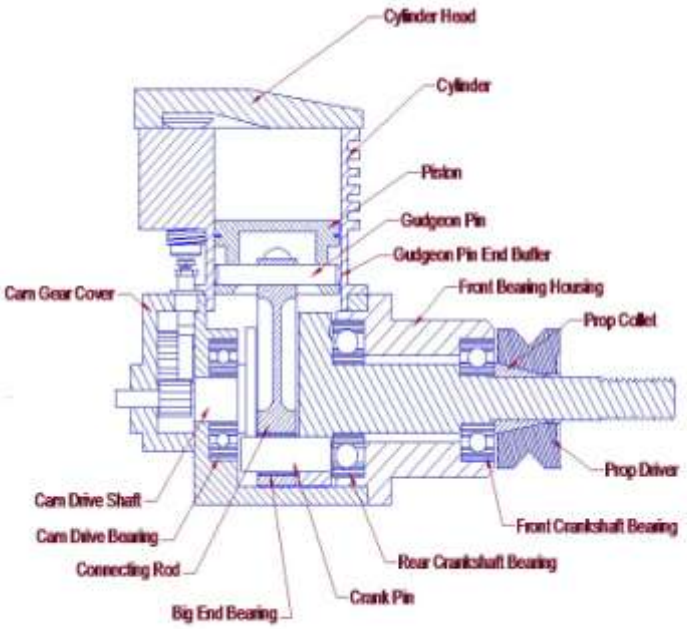
"Yes I have" I replied "it's all in hand!"

I didn't tell him about my previous misdemeanor and I never received a Please Explain letter either

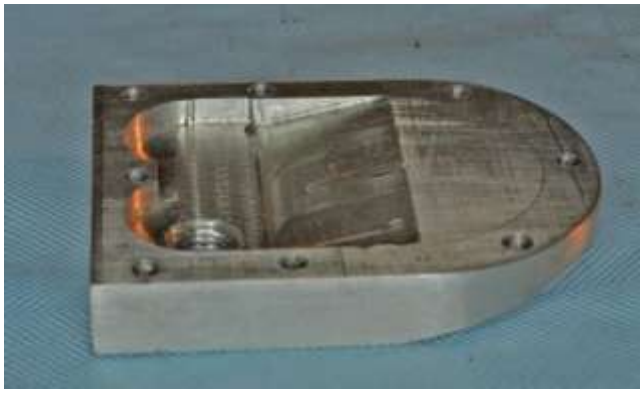
Happy Days! Mick Lowe

Rod Jenkins' 4-stroke side valve engine

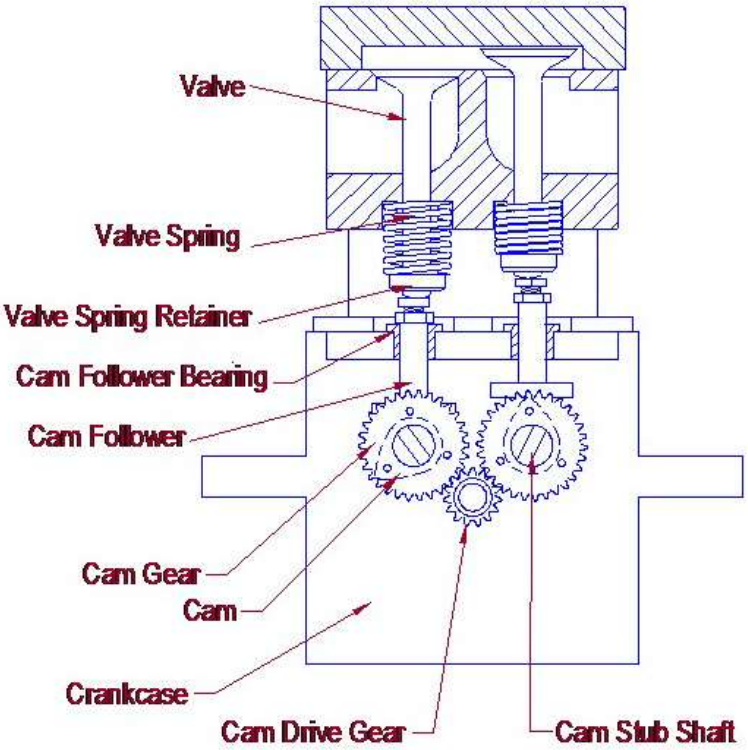
Many years ago I was doing a bit of RC model aeroplane flying, I had a "Barnstormer" powered by an Irvine 40 2-stroke glow engine. I conceived the idea that I would like to build a 4-stroke engine, with similar dimensions to the 2-stroke, to fit in the Barnstormer. With a lot of help from Len Mason's "Model Four-Stroke petrol Engines" I conceived this design. Since overhead valve 4-stroke engines tend to be somewhat tall I chose a side valve configuration to keep the vertical dimension in check.



A typical 4-stroke compression ratio for glow plug engines is 8:1 so to achieve this I went for a Ricardo type head. I positioned the glow plug directly over the inlet valve so that the glow element would be shielded from the quenching effect as the charge is introduced.



The capacity of the engine is 0.60cu in (10 cc) and is an over-square design to allow reasonably fast revving – my design speed is 10,000rpm. The crankshaft runs in a pair of ball bearings and the crankpin is overhung; also engaging a cam driver in its own ball bearing which, in turn, drives a pair of cams for inlet and exhaust.

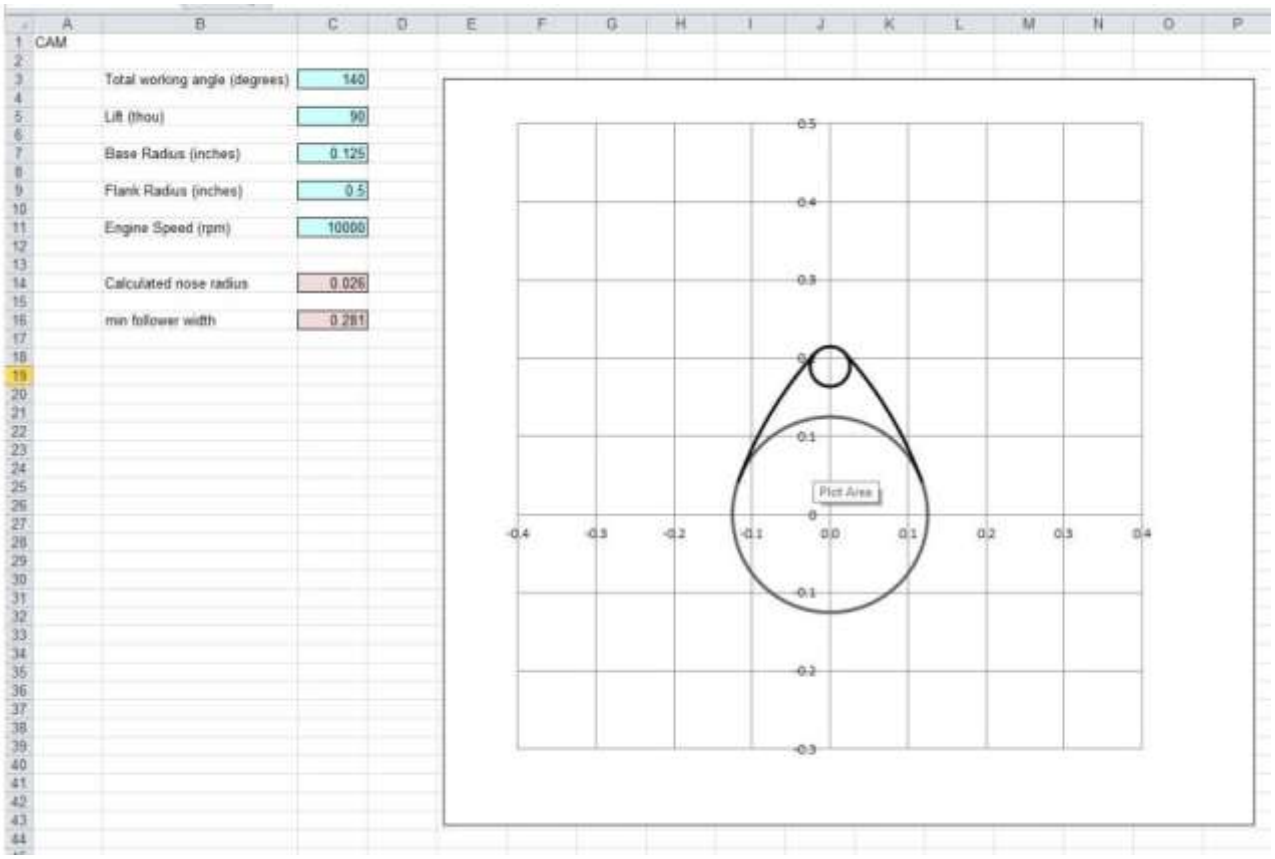


The 16 tooth cam drive pinion is relatively small so I took the opportunity to make a pair of 64 DP 30° PA cutters using the button method and my Eureka device for backing off.

The drive gear is cut directly onto the cam drive shaft. I wrote a computer program to calculate the milling co-ordinates for harmonic cams given the dimensions of the base circle, flank and rise.

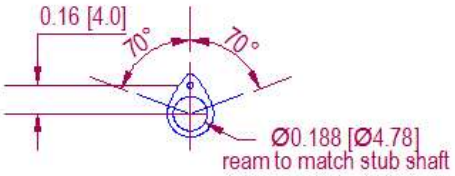
I published this in the journal Strictly I.C. and it was picked up by the late Ron Chernich for his ModelEngineNews website. I have since re-written the program as an Excel spreadsheet.

The rotation interval of 3 degrees gives a smooth cam in this small size but the interval can be decreased for larger cams - this form of Manual Numerical Control can get it bit tedious.



Angle	Deviation from base circle	
	thou	mm
0	0	0.00
3	1	0.01
6	2	0.05
9	5	0.12
12	8	0.21
15	13	0.32
18	18	0.46
21	25	0.63
24	32	0.81
27	39	0.99
30	46	1.16
33	52	1.31
36	58	1.46
39	63	1.60
42	68	1.72
45	72	1.83
48	76	1.93
51	80	2.02
54	83	2.10
57	85	2.16
60	87	2.21
63	89	2.25
66	90	2.27
69	90	2.29
70	90	2.29

Cam polar co-ordinates

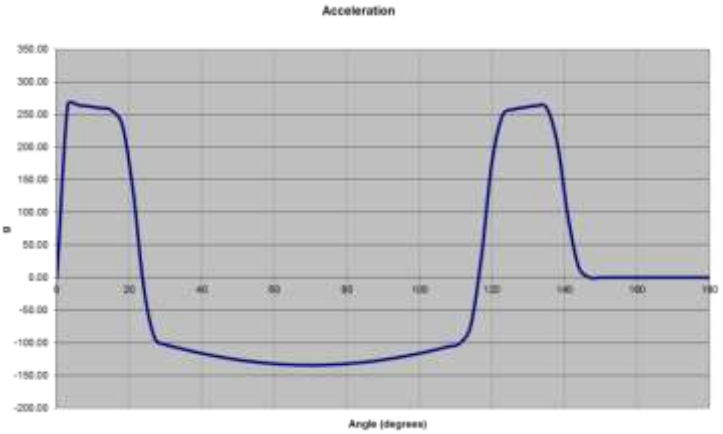


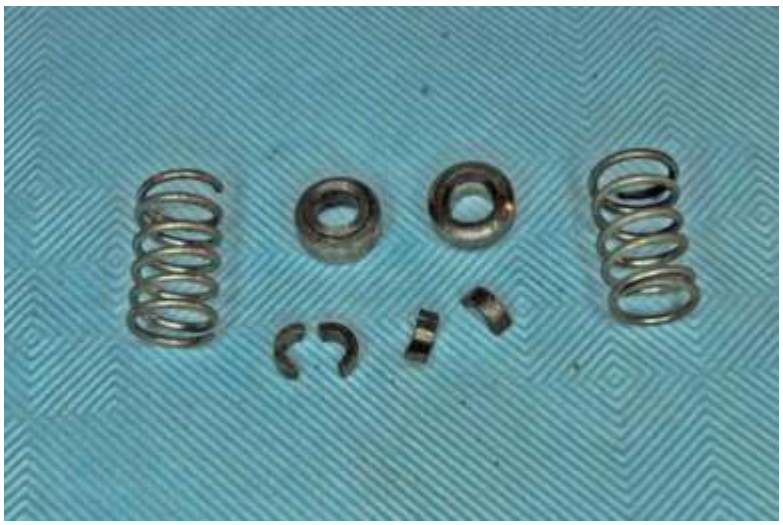
Cam (mild steel - case harden) 2off

Lift .090 [2.29]
Flank radius 0.500 [12.70]
Nose radius 0.028 [0.71]
Base radius 0.125 [3.18]

Rise and fall identical

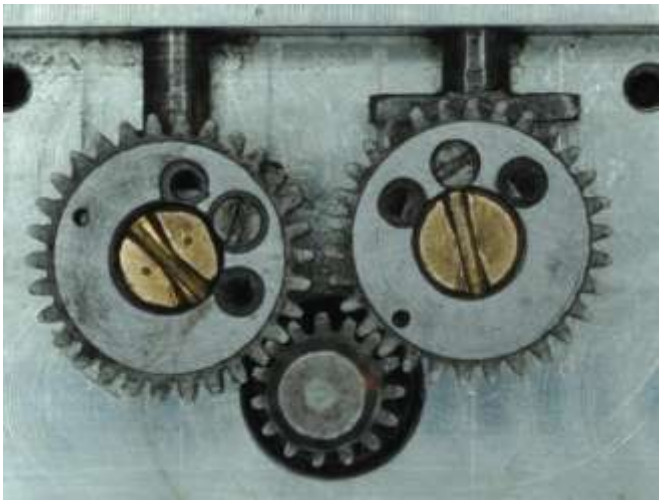
A side effect of producing the co-ordinates for milling the cam in a stepwise R Θ format is that the displacement of the milling cutter from the base circle of the cam is the same as the displacement of the cam follower in the engine. Thus, for a given engine speed in RPM, I can calculate the velocity and acceleration of the valves, which in turn leads to the ability to calculate the strength required for the valve springs to keep the follower in contact with the cam.





I had to fit the cams into a tight space to keep the head dimensions down. The result is that the cams look very fierce. However, using the computer program to calculate the acceleration of the valve assembly at 10,000 rpm shows that the strength of spring required to counteract a maximum acceleration of 270g is well within acceptable limits. Home wound springs consisting of 4 turns of 22SWG spring steel wire give adequate contact over the speed range.

The computer program also calculates the maximum width necessary to ensure that the face of the cam follower is always in contact with the cam. The result is a beam since a conventional disc cam follower would interfere with the cam gears. Both cam and follower are case hardened.



The cams are pegged to the gears with a 12 BA screw. The timing adjustment of the cam is relatively coarse with the 32 tooth gear at 11 ¼ degrees so I have provided alternative screw holes spaced at n +1/3 and n+2/3 of a tooth. The cam assembly is lubricated by a pinhole above the bronze cam shaft stubs that allows oil to blow through from the crankcase.

The engine was balanced (as well as is possible on a single) using the rule of balancing all the rotating weights plus half the reciprocating weight against the crankshaft web. The compact design meant there was insufficient room for a large enough counterweight so I used 2 tungsten “heavy-metal” inserts to increase the mass sufficiently for balance.

The front bearing housing, crankcase and cylinder head are all made from wrought aluminium of unknown specification but probably HE30. The con-rod is H15 aluminium alloy and the cylinder is free-cutting mild steel. The wrought aluminium piston has a single cast-iron ring which was split and heat treated to maintain a gap. The crankshaft was made from a large bolt and the crankpin is un-hardened silver steel, pressed in. All plain bearings and the cam stub shafts are phosphor bronze. Valves are stainless steel.

The spring pockets in the cylinder were cut with homemade silver steel hollow counter-bores guided by a pin in the reamed valve guides. The port configuration means that the inlet and exhaust could have been in the rear of the engine, rather than the sides, to give a slimmer frontal area.
The original testing was undertaken with a “Matador” carburettor and I was able to achieve a maximum speed of 8,000 rpm, running on a straight methanol/oil mix.

The aeroplanes are long gone and the engine never made it to the Barnstomer. I recently exhumed the engine and cleaned it up. A new carburettor was made from steel and brass, to enable silver soldered construction, with a larger intake and barrel but has not yet been tested. 10,000 rpm? –

well, maybe**...**

Rod Jenkins

MOTOR CYCLING - FOR FUN
by Eddie Turner

As I said in my member profile, Dad wanted me to have a motorcycle when I was 16 - and Mum honored that wish. So I had my own transport and the independence that went with it - that is until an idiot in an Austin Atlantic came out of a side road and sent me flying. The insurance repaired the bike, but it was never quite the same. I wanted something a little bigger, so eventually bought a cheap 350 Douglas which provided the necessary daily transport and enabled me to spectate at local scrambles (now called motocross). I gradually worked my way through a series of road bikes - one of which gave me considerable grief as it had a persistent misfire. One of our local scrambles riders assisted with finding the solution, and I, in turn, ended up becoming involved in scrambling. This rider, Ivor, had had a coming together with another rider at a recent scramble, and had written off his frame. By this time I had just completed my apprenticeship at Fords, and suggested that we could make a replacement frame - not just one, but two and I would build my own bike. We ended up building a pair of specials that looked like a Rickman Mettise, but with BSA Gold Star engines.

Though I say it myself, they turned out to be good enough to fool Don Rickman into thinking they were the genuine article. We had the bikes, but Ivor's old van - a 1954 Bedford Dormobile - was getting a bit long in the tooth and struggled to get us and our gear to the meetings - especially when we headed down to Devon! The time had arrived to build a trailer, and find a tow car. We ended up with a 3 bike trailer, and I acquired a Wolseley 6/80 to tow it. Engine problems soon dictated that we needed something more reliable, so I opted for an engine transplant - a Jaguar 2.4 litre unit would fit perfectly! Again, with Ford's assistance (sshh) the necessary conversion parts were made, and we had a wolf in sheep's clothing. Outwardly, it looked bog standard, giving no indication as to what was under the bonnet, but there weren't many tow cars that could live with it! This outfit of bikes , car and trailer gave us about 10 years of very economical motorcycle sport. During this time I was still working my way through a succession of road bikes, but I still had a liking for the old Douglas, and in 1972 found a low mileage Dragonfly that just needed reassembling. This resulted in me becoming a member of the London Douglas Motorcycle Club - and owning a succession of various models.

By 1976, I thought I had had my fill of speed, so decided to have a go at Vintage trials (on a Douglas of course!).

The trials Douglas was not made in great numbers (about 140 in total during 1950/51), so by '76 was pretty rare, and nobody seemed to be prepared to part with one. I ended up making a replica frame and petrol tank to house other components from the road going machines.

The finished machine won the award at the Club's annual rally for the best special. Not only did it look good, but after considerable tweaking, proved to be quite competitive - winning several Vintage trials. I carried on riding this bike until 2001, by which time we were being forced to wear crash helmets, and most riders were riding 'trick' machines that weren't truly vintage, so the fun had started to go out of it!.

Going back to 1996, I was beginning to think of something special to do to mark the end of the millennium - thoughts kept coming back about the ISDT (The International Six Days Trial) - Douglas had entered a team in the 1950 event that was held in Wales, and our Club President owned one of those machines! I contacted him and asked how he felt about me borrowing it to ride around the original course in 2000. He agreed, but sadly passed away shortly after - I figured my chance had gone, so reverted to the idea of riding my trials bike. A few months later, I got a phone call from our president's son saying I could buy the bike if I wished - 'If I wished?' - I jumped at the chance, and, after rebuilding the bike, rode the majority of the route - fifty years to the day after the original event - despite the petrol shortages at that time. Prior to the ride, I showed the bike at the Bristol Classic Bike Show and came away with the award for the best competition machine.

Also, back in the 90's, another of our Club members produced a 4 cylinder machine by marrying 2 twin cylinder engines into a single unit. I questioned some of things he had done - only to be told 'if I thought I could do better, I should get on with it' - this I did, and the resulting bike has - on three occasions - won the award for the best non-standard machine at the Bristol Show.

In 2002, Marg and myself were on holiday in Devon when we noticed there was sprint being held at Smeatharpe, so decided to go and have a look. A fellow Douglas Club member (Henry) was competing on his 1929 ex speedway machine - and winning. I was impressed by the almost casual and friendly atmosphere at this meeting (just like the days when I started scrambling). I soon became hooked and regularly attended as spanner man - eventually being offered a ride on Henry's second string machine.

That was it, my taste for speed was still there and I had to have my own machine - which I built and tuned myself - with advice from Henry. Henry eventually came a cropper at the end of 2010, and was sidelined for part of 2011, leaving me in a position to temporarily take the unlimited vintage championship title that he had held for 13 years (and re-claimed in 2012!!). I took a sabbatical in 2013 - during which time, the ACU tightened up on the medical requirements of riders over 69 years of age - I wasn't prepared to pay out for medical and eyesight tests just to get a licence to ride in a few events each year, so turned my attention to model engineering.

Eddie Turner

SOME VIEWS FROM THE APRIL SPRING STEAM GALA

Pictures Austin Lewis

9Fs

9Fs owned by Eddie Turner & David Giles

Darren and Neil Davis

Colin & Keiran Alexander with their 4”scale Burrell Agricultural TE and Showmans TE

Axminster Tools - our generous sponsors

Jon Poulter's replica Drummond saw and 4 ½" scale Burrell TE

Hollycombe Steam Preservation stand

Stationary engines displayed by Alan Fuller

1" scale Burrell Agricultural maxitrak traction engine

Basingstoke Model Boat Club's great display

A few of our models on display

Dave's father-in-law – thanks for loaning and erecting the marquees

THE END OF A GREAT WEEKEND

Basingstoke & District Model Engineering Society Ltd 2017 Calendar (Draft 1)

January	
1	Members Day (Sunday)
3	Meeting Night
14/15	Maintenance Weekend
17	Bits & Pieces Evening
31	Meeting Night
February	
11/12	Maintenance Weekend
14	Meeting Night
26	Driver/Public Running Training (Sun)
28	Meeting Night
March	
11/12	Maintenance Weekend
14	Bits & Pieces Evening
19	Driver/Public Running Training (Sun)
28	Meeting Night
April	
1/2	Maintenance Weekend
8/9	**Miniature Steam Gala**
11	Meeting Night
25	Bring & Buy Evening
May	
7	**Public Running**
9	Stationary Engines
14	**Visitors' Open Day (Sun)**
23	Meeting Night
June	
4	**Public Running**
6	Bits and Pieces Evening
17	Members Running
20	Meeting Night
July	
2	**Public Running**
4	Meeting Night
15	Members Running & Barbecue(Sat)
18	Meeting Night
August	
1	Bring & Buy Evening
6	**Public Running**
15	Meeting Night
29	Meeting Night
September	
3	**Public Running**
10	**Visitors' Open Day (Sun)**
12	Meeting Night
24	Members Running Day (Sun),
26	Meeting Night
October	
1	**Public Running**
7	Members Running Day (Sat) incl. Fish & Chip Supper
10	Bits & Pieces Evening
24	Meeting Night
28	**Halloween Public Running (Sat Evening)**
November	
7	Bring & Buy Evening
12	Members Running Day (Sun)
15	AGM (Date to be confirmed)
21	Meeting Night
December	
3	**Public Running**
5	Meeting Night
19	Meeting Night

Public Running 11am to 4pm (setup from 9:30am) Sunday, unless stated otherwise
Member's Running days 10am to 5pm
Tuesday Evening Meeting 7pm to 9pm, with optional members running afternoon
Maintenance Weekends - Working parties to keep track & site shipshape. Check notice board for details

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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 over £1.50 to print and post, where as Email is effectively free. If you do have an Email address, which we can use, could you please Email me with your details.

Jon Evans
Treasurer

Board Members

Chairman	**Colin Stubbs**
Vice Chairman	*Vacant*
Secretary	**Brian Hogg**
Treasurer	**Jon Evans**
Director	**Dave Andrews**
Director	**Darren Davis**
Director	**Steve Newell**

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Electrical Work	**Jon Evans**
Library	**Ken Jones**
Station Buildings & contents	**Dave Andrews**
Publicity	**Dave Mitchell**
Track maintenance	**Eddie Turner**
Site maintenance	**Eric Widdowson & James Barrett**
Traction Engine Track	**Austin Lewis**
Webmaster	**Mike Bowman**
Newsletter	**Austin Lewis**