

# CRANKING

*The Wessex Stationary Engine Club's Monthly Newsletter*

March

2012

Thirty fifth year  
of publication

[www.wessex-sec.co.uk](http://www.wessex-sec.co.uk)

## From the Sump

You may recall that I sent off a piston from my K1 Watermota to have new rings fitted. It took about a fortnight and Cox and Turner of Tintinhull, Somerset did a good, workmanlike job. It was rather more expensive than I'd anticipated, but what isn't these days? It cost £74.40 including P&P and VAT.

They found some new rings that were slightly too narrow, machined the bottom of the ring lands to accept a steel insert (probably the top and bottom of a standard oil control ring set), filed the ring ends to suit the rather odd shape of the pinned ring groove and fitted the rings. During a phone call, I was told this included an hour's work on the lathe and I can see that being the case after faffing around setting up an' all. It is now ready to assemble to the engine.

Nothing to do with engines per se, but I thought this might be of interest to those amongst us who might well find themselves in a similar difficulty. I have been insured for my motorcycles (BMW K1100LT and Honda XBR500) for some years with eSure. Their premiums were very reasonable and last year both bikes fully comp were £163. This year it was £593. My flabber was quite gashed so it was. I had asked Peter James Insurance (0121 506 6040) for a quote on the Norton Inter, so tried them. Both bikes being just old enough to be considered "classic", it was £98 for fully comp for both of them. Wow ....

Now right miffed, I went back to eSure and badgered them for a reason. After all, I have not been so sunk in wickedness as to get caught speeding or ought else for that matter. In fact, I am the proud owner of a clean license (for the first time in many years!)

But I have turned seventy.

After an e-mail exchange in which they were terribly bland and talked about market forces, they rang me and eventually I was able to drag out of them that it was indeed my age. They have now been so injudicious as to put it in writing as well. So I am girding myself for battle. These days, ladies and gentlemen, you cannot discriminate against someone on the grounds of age and £530 odd seems to me like a very big pile of discrimination. I look forward to the fight with considerable enthusiasm!

## Moving the Metal For sale

**Fairbanks Morse** centrifugal water pump. £90. Phone John Emery 01761 451665

**Dennis**, 640cc Type 75, 1947, restored and on a trolley. As seen at many local events. £200.

phone Tony Davis on 01373 464982

**Petter**, 1926 1.5hp patent safety petrol engine. Restored and on hardwood trolley. Full history – ready to rally. £600 ONO.

AND I have various mags – give me a ring.

**Lister 'A'**, 1934, 2.5hp, tank cooled. Restored & on hardwood trolley. Full history – ready to rally. £450 no offers. All the above - Eric Gay 01225 754374

**Flat bed braked trailer** with headboard. Low load bed 4ft 6ins wide by 8ft long. With ramps, winch & rear steadies. Nearly new 165x13 8 ply tyres & spare. Sufficient for Lister L type on a proper trolley! £200. More details, phone Graham. 07843 583855.

**Slate switching board** by Nevill, 38" by 28". 6" brass cased instruments. In totally unmolested and unrestored condition. Photos available by e-mail. £325 ONO. (Note final price reduction!)

above. phone Kim Siddorn 0117 964 6818

## WANTED

**No. 52 Steel Detachable Chain** as used on conveyors. Looking for 10 yards, but any quantity will do.

Phone Gerald Atherton - 01934 852670

**Stuart Turner R2Y** cylinder side plate with "STUART" cast into it.

Phone R. Champion 01275 892944

**Tilley lamps** – WHY?

Phone John Ivens 07812 385536

**Vincent** industrial engine powered compressor.

**Pultra lathe or parts.** 1510 Or 1710 considered.

**ABC engine.** Particularly 1915 250cc Firefly but anything considered.

**B T-H Competition magneto.** For my cammy Norton. Anticlockwise from the points end. Thick base preferred although not essential. Good price paid for the right magneto!

**Information** on Walter flat twin engines circa WW2.

Above, phone Kim Siddorn 0117 964 6818

Articles, cartoons, photos etc are always very welcome – this is not a one-man band, but an expression of all our thoughts and experience. Submissions should be preferably typed or word-processed or even handwritten, (if brief), - it is the content we're after, not the grammar or spelling, so please don't feel your efforts will be ignored. The editor reserves the right to change, edit, augment or lessen your Deathless Prose and asks all to note that opinions expressed in this newsletter may or may not represent club policy

Phone - 0117 964 6818

J. Kim Siddorn, 9, Durleigh Close, Bristol. BS13 7NQ or by e-mail to [kim.siddorn@blueyonder.co.uk](mailto:kim.siddorn@blueyonder.co.uk).



## Featured Engine No. 63

By Wikipedia **Early Gas Turbines**

*Part Two - Axial compressor engines*

*I wrote the first part of this article more or less out of my head, but whilst researching this part, it seemed to me that the Wikipedia article said it all as well as it could be said. I have added to it and abbreviated it in places. – Ed.*

Steam axial flow turbines had been in use for many years, but it proved very difficult to build a gas turbine. Between the Wars, several independent ventures were going on in different countries, most of them completely unaware of the others! The earliest reasonably successful machines were developed in Germany. As their aircraft industry was constrained by the terms of the Versailles treaty, they had no extant piston engines with highly developed centrifugal compressors as the British did.

The **Jumo 004** was the world's first turbojet engine in production and operational use, and the first successful axial compressor jet engine ever built. Some 8,000 units were manufactured by Junkers in Germany during late WWII and powered the operational Messerschmitt Me 262 jet fighter, Arado Ar 234 jet reconnaissance / bomber, and prototypes of the Horten Ho 229 aircraft. Variants of the engine were produced in Eastern Europe in the years following the war.

The feasibility of jet propulsion had been demonstrated in Germany in early 1937 by Hans von Ohain working with the Heinkel company. Helmut Schelp and Hans Mauch saw the potential of the concept and encouraged Germany's aero engine manufacturers to begin their own programmes of jet engine development. The companies remained skeptical and little new development was carried out. Eventually in 1939 Otto Mader, head of Junkers Motoren (Jumo), stated that even if the concept was useful, he had no one to work on it. Schelp responded by stating that Dr Anselm Franz, then in charge of Junkers' turbo- and supercharger development, would be perfect for the job.

Franz opted for a design that was at once conservative and revolutionary. His design differed from von Ohain's in that he utilised an axial compressor and turbine. The engine not only had excellent performance, about 78% efficient in "real world" conditions, but it also had a smaller cross-section, important for a high-speed aircraft design.

He aimed to produce an engine that was far below its theoretical potential, in the interests of expediting development and simplifying production. One major decision was to opt for a simple combustion area using six "flame cans", instead of the more efficient single annular can. For the same reasons, he collaborated heavily on the development of the engine's turbine with AEG - General Electric Company in Berlin, and instead of building development engines, opted to begin work immediately on the prototype of an engine that could be put straight into production.

Franz's conservative approach came under question from the RLM, but was vindicated when even given the

developmental problems that it was to face, the 004 entered production and service well ahead of its more technologically advanced competitor, the BMW 003.

The first prototype **004A**, which was constructed to run on Diesel fuel, was first tested in October 1940, though without an exhaust nozzle. It was benchtested at the end of January 1941 to a top thrust of 430 kgf (4,200 N; 950 lbf), and work continued to increase the output, the RLM contract having set a minimum of 600 kgf (5,900 N; 1,300 lbf) thrust.

Vibration problems with the compressor blades delayed the program at this point, until a new stator design by Max Bentele solved the problem. The original alloy compressor blades were replaced with steel ones and with the new stators in place the engine developed 5.9 kN (1,300 lbf) in August, and passed a 10-hour endurance run at 9.8 kN (2,200 lbf) in December. The first flight test took place on March 15 1942, when a 004A was carried aloft by a Messerschmitt Bf 110 to run up the engine in flight.

On July 18, a prototype Me 262s flew for the first time and eighty 004 engines were ordered.

The initial 004A engines built to power the Me 262 prototypes had been built without restrictions on materials, and they used scarce raw materials such as nickel, cobalt, and molybdenum in quantities which were unsustainable in production. Franz realized that the Jumo 004 would have to be redesigned to incorporate a minimum of these strategic materials. All the hot metal parts, including the combustion chamber, were changed to mild steel protected by a metal sprayed aluminum coating. The hollow turbine blades were produced from folded and welded Cromadur alloy (12% chromium, 18% manganese, and 70% iron) developed by Krupp, and cooled by compressed air bled from the compressor. The engine's operational lifespan was shortened, but on the plus side it became easier to construct.

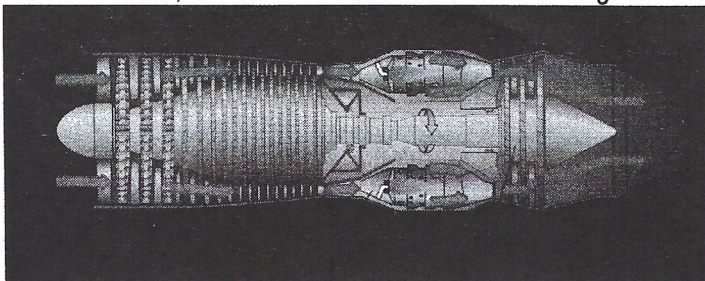
The first production model of the **004B** weighed 220 lb (100 kg) less than the 004A, and in 1943 had passed several 100 hour tests, with a service life of 50 hours.

Later in 1943 a series of engines suffered vibration problems which dragged on. Eventually, in December, blade vibration specialist Max Bentele was brought in and the problem was solved by raising the blades' natural frequency by increasing their taper, shortening them by 1 millimeter, and reducing the operating speed of the engine from 9,000 to 8,700 rpm.

It was not until early 1944 that full production could finally begin. These setbacks were the principal factor delaying the Luftwaffe's introduction of the Me 262 into squadron service.

Given the lower-quality steels used in the 004B, these engines typically only had a service life of some 10-25 hours, perhaps twice this in the hands of a skilled pilot. It was fairly easy to inject too much fuel into the engine by throttling up too quickly, allowing heat to build up before the cooling air could remove it. This led to softening of the turbine blades, and was a major cause of engine failures. Another shortcoming of the engine, common to all early turbojets, was its sluggish throttle response. Nevertheless, it made jet power for combat aircraft a reality for the first time.

The very great majority of gas turbines in use today can trace their development back to the Junkers Jumo 004. If the vibration problems had been solved faster or Germany had held stockpiles of nickel, cobalt, and molybdenum, the outcome of the War in the Air may have been different or at the least prolonged.





## Calendar of Events

Key. CN = Club Night. CU = Crankup E = Event

**March 31<sup>st</sup>.** (Sat) **E. Tractor & Engine Jumble.** Langley Farm, Bampton, Oxfordshire, OX18 2RZ.

Sellers £20 Buyers £4 Per Person

**April 3<sup>rd</sup>.** (Sun) **Sammy Miller's Motorcycle Museum.** Spring Trip. Drive yourself, Bashley Cross Roads New Milton BH25 5SZ.

**April 9<sup>th</sup>.** E. Easter Monday at Mells.

Contact Robin Lambert 01373 463526 if you want to attend as space is always limited

**April 21<sup>st</sup>.** (Sat). **Spring Enstone Sale.**

info: Anne Harris 01367 810415

**April 22<sup>nd</sup>.** (Sun) **Crank up** at Nunney Catch transport café

**April 28/29<sup>th</sup>.** E. **Westbury Transport Gathering,** Bratton.

Details from Keith Miller, Avalon, 87, Warminster Road, Westbury, Wiltshire. BA13 3PJ

**April 30<sup>th</sup>.** CN. **"My life on the River Severn"** by Chris Witts

**May 26/27<sup>th</sup>.** **Selwood Rally.** Southwick, Nr Trowbridge BA14 9RH. Forms from Mrs Pearl Francis, 45, Stonebridge Drive, Frome, BA11 2TW.

<http://www.selwoodvintage.co.uk/page6.html>

**May 28<sup>th</sup>.** CN. **"The Longleat Rallies"** by Stuart Ashman

**June 9/10<sup>th</sup>.** **West Bay Rally.**

**June 16/17<sup>th</sup>.** E. **Wessex Midsummer Vintage Gathering.**

Our club rally at Semington.

**June 23/24<sup>th</sup>.** Event. **28<sup>th</sup> 1000 Engine Rally,** Astle Park.

**June 25<sup>th</sup>.** CN. **"Mary Rose"**. Talk on the Tudor warship by Bill Moore

**July 21/22<sup>nd</sup>.** E. **West Oxen Steam & Vintage Show.**

Ducklington, Whitney, OX29 7TY (junction A40/A415)

Info: Anne Harris 01367 810415

**July 29<sup>th</sup>.** (Sun) **E. Haynes Motor Museum.** Mini rally at

Sparkbrook. BA22 7LH. (Subject to building work being completed. Details later)

**July 30<sup>th</sup>.** CN. **Crank Up** at the Court Hotel.

**August 20<sup>th</sup>.** CN. *Early because of holiday.* In house quiz.

**Sept 24<sup>th</sup>** CN **"Engines at the 1000 Engine Rally"** by Kim Siddom

**Oct 6<sup>th</sup>.** (Sat) **Skittle Match** at South Parade club, Frome.

**Oct 13<sup>th</sup>.** E. **Wessex Autumn sortout** at Cranmore Station Yard.

**Oct 29<sup>th</sup>.** CN. **Other Hobbies evening.**

Bring stuff along to illustrate a table display or talk about it!

**Nov 12<sup>th</sup>.** (Sat) **Autumn Enstone Sale.**

info: Anne Harris 01367 810415

**Nov 26<sup>th</sup>.** CN. **Photo presentation** by the members. Bring along ten photo's or slides. Prize for best effort.

**Dec 2<sup>th</sup>** (Sun). CU. **Antifreeze** Crank Up at Nunney Catch.

**December** – No meeting this Month.

**Dec 27<sup>th</sup>.** CU. **Mince Pie** Crankup at The Court Hotel

All events are listed in good faith. You should always ascertain if an event is taking place before you go. If in doubt, ring Brian Baker on 01749 342671

## Chairman's Annual Report

by Brian Baker (*printed as received*)

This is my eighteenth annual report to the club since I became Chairman and it's also the third year coming up that I have been acting as secretary as no one has come forward to do the job. This cannot continue, and if the situation does not change then I will be standing down at next years AGM. Last years AGM was an improvement on the previous year with a lot

## Obituary

By Robin Lambert

It is with sadness we announce that club member and friend to many Brian Read passed away on Sunday 19<sup>th</sup> February. Many of you will know Brian had been poorly for some months bravely fighting his illness which eventually became too much to bear. Brian was always great company to be with and he would enjoy a bit of banter and leg pulling. We will remember him as a big man with a big engine and always reflect on how he managed to load and off load his huge Victoria all on his own with his self designed winching system. In his younger days, Brian was involved with heavy haulage, driving articulated lorry's all over the UK. His hobby then was to help his friend haul and display a large steam ploughing engine to shows. Brian and a partner started their own business doing diamond core drilling and building work and he was always kept busy reflecting how good he was at his job. One of his favourite rallies was at Astle Park where along with several other club members he would enjoy three days with his hobby on the field and his Saturday evening visit to the Anson Museum. All who knew Brian will have a void left in their lives but will have very happy memories of a true friend. Our condolences go out to Cynthia and her family

more members attending, whether this was due to the committee putting on a free buffet we shall never know, but were putting on the same spread tonight. Club finances, you will see from the balance sheet in front of you the club has more cash in the bank at the present time than any time since the club was formed thirty five years ago. This is mainly due to the profit that the rally has made since it was restarted by Eric and his faithful band of helpers, and the revenue from the raffles that is well supported by you the members by buying the tickets and providing lots of the prizes. The accounts are handled by our treasurer Keith who is doing a brilliant job of looking after our money. This is the third year that we have been here at the Court Hotel and I'm sure you will agree we could not have found a better venue, so please support Sue by patronising the bar to ensure our future here. The meetings here have been fairly well supported throughout the year, with good guest speakers and in-house entertainment. Each year it gets harder to compile the years programme as the list of speakers get less and less so if any member can do a talk on any subject going, or they know anyone who can, please let me know. Crank ups, the crank ups here at the Court, at Nunney and at Haynes were well supported, the Haines event attracted more entries than ever, and combined with a different site within the complex was the best yet. I don't know at this point in time whether we will be at Haines this year as they are in the middle of a major reconstruction of the site, and until I contact them later in the year I don't know if they can accommodate us. The last event of the year The Mince Pie Crank Up was a huge success, with a good entry of engines and lots of visitors, and plenty of food being handed around. I was disappointed at having to cancel the mid week crank up at Cranmore Railway due to lack of support,



but it's no good trying to run events with little or no support. The Sortouts, these continue to flourish, with not very much effort to run them they are a good source of extra revenue for the club funds. With a small committee now we could do with a bit of help manning the gate from members who can spare half an hour during the morning, see me if you can help. Mells attracted a very large entry and is a credit to Robin who has organised this event since it started all those years ago. The rally at Semington, this gets better every year and praise has to go to Eric and his sub committee who put in an awful lot of work to get this off the ground, once again the rally was blessed with fine weather which resulted in a profit for club funds. Well done Eric and crew. The social evening and skittle match at the South Parade Club Frome was well supported, this is a very popular event on the calendar, and thanks to Diana and Tony who organises the suppers and collects them from the local chippie, Thanks also to Robin and Jackie who captains the skittle teams. I would like to thank members who are not on the committee but who do sterling work for the club. Jackie Lambert who is currently the membership secretary but is looking for a successor, Mary Butler, who without her hard work you would not get your newsletter, Diana Davis who runs the club shop, organises the skittle night and helps out with the raffles, Carol Phillips who extracts all that money out of you for the raffles, well done to you all, the club could not do without you. I would also like to thank the committee of 2011, small as you are it was a pleasure working with you and I look forward to continuing our committee meetings in 2012.

### **Bad Deal, Good Deal**

By Eric Gay

This old boy is working on the biggest restoration he has ever undertaken and I have done one or two that left me with sleepless nights.

I had need to have a new piston cast and this was done by a local foundry a very good job at a sensible price. I can do some machining, but never having tackled the machining of a piston and not being able to afford to make a muck up, a very kind club member undertook the work for me, excellent job.

Now I was in need of a set of rings, I set off to visit a firm that advertises in Stationary Engine Magazine. They measured the ring grooves who said "I will have to find some rings to fit, I will post them to you" "How much will they be?" "Don't Know. Leave your card number". Like a right prat I did. A few days later the rings arrived followed by the paid invoice arrived. Well what do you think three 3 3/8" piston rings cost? They cost me more than having the piston cast and machined. No one minds paying a fair price, but just under £60 for three piston rings seemed a lot to me and they were old stock and corroded. But the best was yet to come the rings would not fit. I spent a complete day with a face plate and a sheet of emery paper getting them to the right size.

I could have got rings from America for around £20 - talk about rip off! I'll not name the company here, but if you ask me I'll tell you!

Now, just to prove that not all firms are rip off merchants, I needed a small end bush reamed and not having a reamer of the size required I visited a local

machine shop. This was a Saturday and I asked if they could "do this little job for me" . "I'll have to go and see our machinist later, so I will take it with me" was the reply. I left my address and phone number.

Saturday four o'clock, there's a knock at the front door. There stood a very nice man with con rod machined to size and delivered. This very kind gentleman would not accept any payment for doing the job and all he required was that I let him have a look at the engine I am restoring. This I readily did along with a tour of the Rutland Crescent engine store. Again, I'll not name the company here, but if you ask me I'll tell you!

### **Wessex Midsummer Vintage Gathering**

By Eric Gay

Well, here I go again. It's that time of year when we start to organise the Midsummer Vintage Gathering for the coming year. The team running the event has grown since 2011 with the addition of Isobel Compton. The team needed young blood and Isobel is a breath of spring to old grey beards like myself with many new ideas. The event in 2012 may be a bit different from previous years.

We already have new attractions booked for your enjoyment in 2012, Avon Valley Ferrets, Ferret Racing, Working Ferret Displays, and more. There will also be a Birds of Prey exhibition on site.

The Westerns Group, not cowboys and Indians but a group dedicated to portraying the West of the pioneer, the hunters, trappers, The backwoods men and the early settlers there will be 16 members re-enacting how life was lived at the very beginning of the opening up of the old West. You may need ear plugs as they will be firing black powder long guns and making some explosions.

Regia Anglorum (that's Kim's Saxons and Vikings!) Will be there too as in previous years.

The Mary Rose society will be coming along as will be a dance troupe plus a display of martial arts (yet to be finalised) Our friend Eddy will be returning this year with the pole lathe and wheel lathe, so you can have a go at wood turning as t'wer done in granfer's day.

Now can I make an appeal - I am looking for a blacksmith. please help me if you can. Give me a ring if you know of one that demonstrates at events like ours.

The Shepton Mallet Drifters have asked to return again this year, so we hope to give them a much better lake this year, our new Tractor steward Gary Chambers is already on the case, as he is with much more.

Pauline & Gary Sainsbury will again look after the Craft section we already have quite a few craft stalls booked in, Pauline once again will be printing our programme for the event this is no mean feat by itself, let alone all the other jobs she undertakes to help give you a good show over the weekend.

It may be that this year we will be using another field for the camping as we are going to need more room in the main rally field if all goes to plan.

Well that's a rough outline as to what's going on with the event, so please come along and give us your support and if you feel you can give us a little help over the weekend even if its only a couple of hours it will help us no end. If you know any company or firm that would like to advertise in the programme please let me know and I will do the rest.