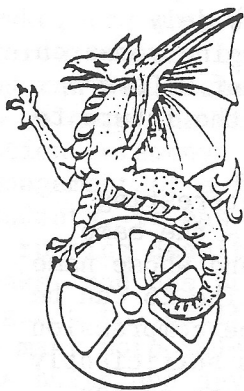


WESSEX STATIONARY ENGINE CLUB



NEWSLETTER

APRIL 1991.

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Letter to the Editor.

Dear Robin, I read with interest as I always do, the newsletter of March, 1991. I was very disappointed to read about the vote for 'no plaques'. I wonder if the members that voted gave a thought to the younger and new stationary engine enthusiast who have not collected any plaques as yet. Could you not give individuals the chance when booking as to whether or not they would like a plaque, and if the reason for not giving one was down to cost I'm sure that if a plaque charge was made they would not mind. I as the wife and mother of two such 'animals' see the pride with which older enthusiasts show their plaques along with their engines. Please lets not see the end of this tradition. Jaine Tucker.

(Thank you Jaine for your comments: I'm sure your letter will rouse some thoughts amongst our committee and veteran rallists who will cast their minds back to the first plaques they ever received and no doubt there are other new members and youngsters who share your views ED.)

THE MARCH CLUB MEETING WAS OPENED BY Mr. David Milton, a member of the Somerset Traction Engine Club who gave a very informative talk and slide show on places, events and rallies which he had visited during the 1990 season. There was a selection of slides from the Yeovilton Fleet Air Arm Museum and also rallies at Parham and Wadebridge.

After seeing lots of interesting slides of the Country Life Museum at Sandy Bay, Exmouth we decided on Easter Sunday to go and look for ourselves. We had a thoroughly enjoyable day with exhibits of the past both in farming and of rural life on display. This is an ideal place for families. They have a deer park and also a pets corner and playground for small children. There was also slides of steam railway engines, some of which were taken at the Romney Hythe line which is the home of many of the historic Bassett Locke engines. This firm were the leaders of small narrow gauge railways (i.e. 15 inch line which is used by the loco's) and anybody interested in railways should make this a 'top of the list' place to visit. Slides also included a Howard steam engine brought from Australia with the cylinders in the drivers compartment, which must have been precarious for the driver! Fairground 'old timers' such as the Razzle Dazzle, Gallopers, steam boats and the oldest Burrell engine were shown, all from Commander Bulldock's collection. One of the most unusual slides was of a model traction engine built entirely of barbed wire. This was obviously a very difficult model to construct remembering how sharp the barbs are on new wire.

The raffle man 'did the business' and Roger Pike won first prize (Easter Egg), Marlon Benney, second prize (A book of tools) and Andy Gale, third prize (Easter Egg).
ALAN CARNEY.

CLUB VISIT TO LISTER/PETTER DURSLEY WORKS - Monday 24th June. Unfortunately we are limited to a maximum of 30 persons on this visit and it has been decided to do this on a first come first served basis, so if you would like to go on this tour please contact Shirley Gale on Trowbridge (0225) 767095 and book your place. Members must make their own way to the works and meet outside the security office (a map will be provided) at 19.30 sharp, refreshments will be available after the tour at Lister's Social Club. For members who do not intend to go to Listers, our usual club meeting will take place at the Old Down Inn where a slide show will take place, presented by Bob Hallam.

ENGINE RESEARCH AT BATH UNIVERSITY. (or how the working week is just one long rally)
PART ONE

Although it falls within the area of the Wessex SEC, it is probably not widely realised that Bath University holds world wide acclaim for many aspects of engine research. At least four other WSEC members are employed by the University but only two of us are directly involved with the engines so it has fallen to me to try and explain the future to those of you who so much appreciate the past.

We have a small group of 'teaching' engines including a Wankel and an interesting Ricardo E6 made by Ricardo Consulting Engineers of Shoreham on Sea; yes, it is the same company who developed the much maligned Tetraethyl lead additive for petrol and whose name appears cast into the cylinder heads of pre 1932 Lister D types and others. The E6 can be run as petrol (leaded!) or as diesel and among other interesting features, the compression ratio can be varied from about 5:1 to up around 22:1. If this article proves sufficiently popular, then I will elaborate on the E6 in a later newsletter. I have seen one on the rally field, at Tatton Park of course, but they are not very common.

Naturally, in the 1990's most of the engines have an automotive rather than a stationary purpose but one of the two engines under discussion in this article was developed to make use of the waste gas in the world's gas-fields. Messrs Dorman of Stafford manufacture large multi-cylinder diesel engines and our Dorman engine is basically one 4 litre cylinder sliced off and grafted to a special crankcase designed as a post graduate project and being fuelled by natural gas. Briefly, the engine is used to research lean gas mixtures by firing a charge of gas in the pre-chamber and using the flame front thus formed to ignite the gas in the main cylinder. In other words a spark ignition diesel engine run on North Sea gas! Lean Mixtures give rise to back fires and we got through a succession of aluminim inlet manifolds until we adapted one which was larger than the engines swept volume complete with safety pressure bursting discs! This engine now is being used for testing emissions and the effect of emissions when certain strange gases are added to the mixture. Incidentally, the incoming air to the engine is pressure charged from a huge Bellis & Morcom compressor, another well known name from the past.

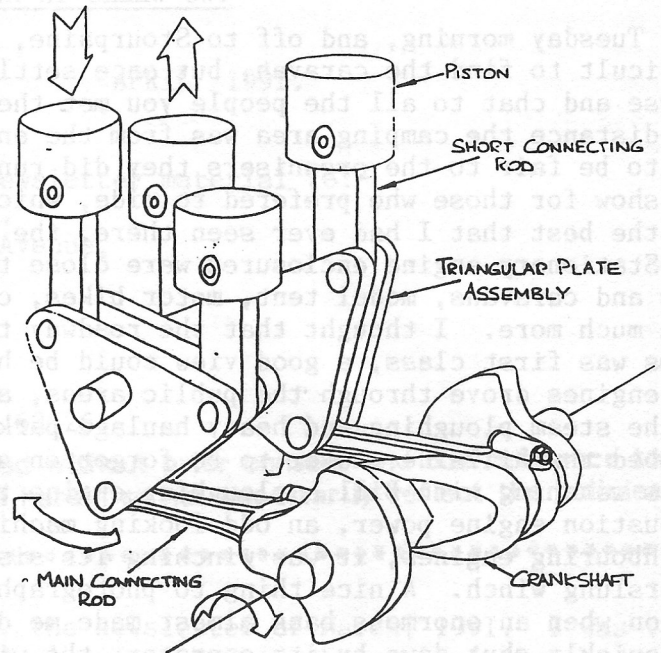
The latest project and indeed the one which really inspired this article, is a multi-cylinder direct injection 2.5 litre diesel engine. It was conceived by a large multi-national automobile company and designed as a final year project by a very talented pair of under graduates. Termed the 'Low Friction Engine' the square four configuration has only two main bearings and only two big ends, thus the rotational friction losses of five bearings are totally eliminated. The con-rods attached to the four pistons also describe very much smaller angles approaching a straight line thus reducing thrust of the walls of the cylinders. Naturally all of these losses totalled up, return to the engine in increased power output or in greater efficiency and economy.

The more mathematically minded readers will by now be asking 'With four cylinders, why are there only two big-ends?' Simple. The crankcase contains a fixed cross or pivot shaft bearing two triangular shaped links through the approximate centres. A con-rod is connected vertically to two points of the triangle, another runs horizontally to the big end on the crankshaft journal. Thus there are two small con-rods and one large one per pair of cylinders and two pairs of cylinders makes a square four engine. The cylinders and heads are cut direct from two brand new diesel engines. (If you ever feel like a bit of vandalism, try cutting brand new engines up - it beats writing on toilet walls any day.....!) The twin camshafts, water pump and fuel injection pump are driven from the crankshaft by a toothed belt used, really it needs to be longer.

In order to simplify the design work, it was decided to use an external oil feed system with a mains electric pump through a filter and pressure regulating system. Later on, an oil heater of our own design was fitted as well as a Kenlowe water heater so that the engine could be started at normal running temperature to eliminate a warm up period.

The first drafts of the engine design were first shown to a group of interested technicians during the day of the great storm early last year and such was the enthusiasm that the engine was ready as a 'working diagram' for the design exhibition in June.

In the following two weeks up to graduation we had a bang or two out of it and alot of smoke, the main 'Achilles heel' being the starter motor, but eventually it fired up and ran well, clean and steady just in time to welcome the devoted parents to the graduation ceremony. This year, under the new management of a further pair of final year students, it has clocked up many more hours or running despite a succession of oil leaks, and has produced some interesting figures to justify its worth. There could be many more tales and anecdotes relating to the build and development of 'square four' but time and space does not permit. Finally it is interesting to note that the principle of the mechanism was being used as early as 1911 in the Banner engine and again in 1945 in the well known Wooler motorcycle; these examples being of course petrol engines, whereas the Bath engine is a heavy direct injection diesel. This series on research and educational engines will be continued in due course. (Thanks to Professor J.M. Owen & Dr. S.J. Charlton at Bath University for permission to write this article.)



The Square Four Engine.

Eric G. Brain.

FOR SALE

1930 approx. 5hp Petter 'S' type on two wheel road trailer c/w 2.5 KVA 110 volt Generator £500 ono or swap for single phase Planer Thicknesser or w.h.y. Contact Brian Palmer:- 0984 40017 evenings.

1957 Lister 'D' Ready to rally £40. Lister Pump £25. Lister 'D' to be restored or used as spares £20. 'Bella' Concrete Mixer as new on stand, Petrol - £100. Will accept nearest offers. Nigel Jenkin. Trowbridge 0225 765772.

1945 Wolseley WD2 1½hp 700 rpm engine No. 7298. Restored. Contact: Bob Hallam, 11 Chalfont Close, Trowbridge. Wilts. or 0225 766208.

Ford Cortina Mk 1 1500. Blue/White roof, 4 door, Genuine 58959. 9 months M.O.T. New Exhaust, Tyres and n/s front wing. Re-Con Engine, Clutch, Ring Gear. Many parts fitted to keep in VGC. £600 ono. Tel: 0225 755654.

5hp Victoria No. 1420, approx. 1913, on trolley with slight frost damage. Reasonable offers please to Brian Lovell. Tel: 0460 53846.

WANTED

Engine Steward for Wellow Flower Show, Saturday 31st August. Small rally. Anyone interested please contact Jeremy Adams on Bath (0225) 834127.

RALLY DATES: Frome College Fete Classic Rally, Saturday 13th July, Entry Forms from Mendip Mowers Tel: 0373 65293 or Frome 67905.

3rd Great Wessex Vintage Working 7/8/9th June at Farmer Giles, Teffont, Nr. Salisbury. Entry forms from Mr. G. Shutler, 6 Winson Way, Ringwood, Hants. BH24 1QG.

Vintage Motorama, Sunday 9th June at Fitzroy Farm, Bratton, Wilts. (NEW EVENT), no entry forms required, just turn up. Farm on main road through Bratton just past Duke Public House. For more information ring Mr. J. Drewitt 0380 830843.

COMING NEXT MONTH: Report on the formation of a new club in the Bath area, by Tom Randall

An article by Jeremy Adams - In the Workshop - Making Piston Rings.

Details of the Wessex Coach Trip to The Dorset Steam Fair.

MAY MEETING 20th May - Crank-up at The Old Down Inn NOT Norwood Farm.

TWO WEEKS IN AUGUST continued.

Tuesday morning, and off to Stourpaine, how the camping area had filled up, it was difficult to find the caravan, but once settled in, the engines off loaded it was time to browse and chat to all the people you met there last year. A lot of criticism was made about the distance the camping area was from the engine line and main show, and it was a long walk, but to be fair to the organisers they did run a mini bus service, free, for the duration of the show for those who preferred to ride, which I did on a few occasions. The actual show was the best that I had ever seen there, the new layout was I would say just about right. The Stationary engine enclosures were close to and part of the area that included vintage cars and caravans, model tent, motor bikes, commercial vehicles, tractors, a show ring and much much more. I thought that the roadway that ran through the show for the heavy haulage teams was first class, a good view could be had by everyone and it was much safer than when the engines drove through the public areas, as on previous years. It was a very long walk to the steam ploughing and heavy haulage parking areas, but what a view you get having climbed the hillside, never to be forgotten and hard to believe the magnitude of this event. I was watching with Bill a ploughing engine that had been converted from steam to internal combustion engine power, an odd looking machine totally out of context with all its neighbouring engines, it was winching its sister engine across the field with its giant underslung winch. A nice thing to photograph I thought and had just pressed the camera button when an enormous bang almost made me drop my camera, the diesel engine screamed and was quickly shut down by its operator, the winch rope had gone slack and a quick look under the belly revealed lots of nuts and bolts that had once held the winch drum onto its turntable, they had all sheared off, what bad luck, but no doubt was soon put right again.

Back down the hillside to look around the huge craft tents that almost stretched out of site, music seemed to be everywhere and it wasn't long before we saw our ex-chairman Brian Munt with wife Class turning the handles of their small organs to a large captive audience. What I thought was nice was when Brian and his pal played two organs at the same time and both playing the same tune, and Brian had to turn his handle twice as fast as his pal, very clever to synchronize the two, a lot of concentration required. After being fed and watered at this very hospitable resting place (Thank-you Class) it was off to watch a few country craftsmen demonstrating thatching, and the art of building the little house at the bottom of the garden, complete with wooden seat, hole dug and newspaper hung on a nail. Plenty of fast food vans were on the site, no one should go hungry, but you had to seek out the ones that gave value for money. One that I visited charge £1 for a ¼lb Cheeseburger which took sometime to eat and I enjoyed it, so returned the next day for another and found that they had gone up to £1.30 having complained the lady said 'OK give me a pound and don't tell anyone else'!!!!!!

The Stall area again tremendous in size had quite a lot to offer and although some of the prices were fair others were ridiculous, I think most of the bargains were sold on Wednesday, Thursday & Friday and I have never seen so much dust on the auo jumble, it looked more like a quarry in some areas. Still if it's a choice between this and mud well.....

You would have to be fit as an athlete to take in everything in one or even two days, I was there six and still never saw everything and I did spend quite a lot of time away from my engine this year thanks to Bill and John who very kindly looked after the Victoria while I was away. Credit must go to Eric Hodges who organized the Stationary engine section, a very difficult job, well done with a good cross section of engines that drew a lot of attention from the visiting public, and finally after fourteen years of exhibiting at this show I have at last found a way to leave without joining that horrendous queue. Stay put until 7 o'clock on Monday morning and drive straight out !!!!!

ROB.

AND FINALLY....

Overheard in the ladies loo!

".....he said he's using unleaded but the can seems just as heavy when I load it into the car.....!"