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SCOTT NEWSLETTER

A Note from the South West

I'm not quite sure how it happened, but somehow I agreed to put together this edition of the newsletter. Ted is tied up with building projects at the moment and Roger is busy with his Scott work. I'm hardly a man of leisure myself, but I'll give it a go.

Roger is my father, so I've been steeped in this strange world of Scotts since I can remember. As a child, I lived for the racing adventures and as an adult I was privileged to build Scott engines (among other things) with him for some years.

I've been in Devon for about ten years, living with my wife and two children on the southern edge of Dartmoor. Like Roger, I work on Scotts, but I'm not yet set up with all the equipment necessary to do full engine overhauls. I'm working towards it though; I've got a 1014 Jones and Shipman grinder (forerunner to the 1314 version Roger uses) and a Thiel 158S milling machine (again, similar to Roger's vertical mill as I know it so well) waiting for workshop space, as well as a Smart and Brown Model M mk2 lathe that I re-scraped over the last few years.

I have raced my Scott for about ten years, but having small children and a lot of customer work has reduced my available time (and space) to work on my own bikes. Much of my efforts over the last few years can be seen on my site www.racingoutoftime.co.uk.

Anyway, I hope you all enjoy.

Best wishes,

Richard Moss

Reminiscences: South Africa

by Roger Moss

It is difficult to regularly find new slants of interest concerning Scott motorcycles, but then I pondered, most Scott owners spent their careers in a whole range of activities, so perhaps a story from my business life might be of interest. So here goes, if you like it, tell me, as there are lots of others and it might add a bit of variety to our newsletter.

Most of you will already know that I spent the majority of my working life engaged in the design and manufacture of special machine tools used for mass manufacture of automotive and white-goods components. I became involved in visiting companies in South Africa, although selling was not my main duty. This story relates to a visit to the ex-Ford plant in Struandale Port Elizabeth in the Eastern Cape region.

This would have been about 1983, by which time the plant was known as SAMCOR.

The chief engineer was an expat Son of Scotland named Charlie Shearer. Charlie was a man of unusual perception, a great engineer and an excellent human being. I had started my trip visiting a plant near Capetown called Atlantis Diesel where we had installed a suite of machines to carry out machining operations on the Perkins diesel engine cylinder heads they were making. (But that is another fascinating story; remember not to ramble, Roger!)

Samcor mill: front view

After Cape Town, I flew to Port Elizabeth and booked with Hertz a hire car that must be a Ford. I arrived at the airport and picked up a South-African-built Ford Escort, and was driving to the plant when the car ceased to function. Damn, it is not good to be late for appointments. Phone Hertz, please send another Ford, but Hertz did not have one, only a SAbuilt Volkswagen Golf. I had no option but to accept this.

I tried to park at the plant as quietly as possible. Unfortunately (a terrible word) the visitor's car park was immediately in front of the management offices. I went in and asked to see Charlie, and he escorted me to his office where others of the management team were congregated.

They had seen me arrive in a Volkswagen, and they gave me the full treatment. "How can you seriously expect us to consider ordering machines from you when you do not even have the courtesy to hire one of our cars while you are here and, to compound your failure, you are late for your appointment?"

I told them that such discourtesy was not my intention and was the result of circumstances beyond my control, and I begged them to let this event be passed over as closer investigation could be uncomfortable for us all. But no, like a dog with a bone they were enjoying my discomfiture and wringing out the last bit of fun. They insisted on knowing why I had not arrived in a car of their manufacture, so, after reminding them that I had advised them to drop the subject, I told them why.

A few seconds of silence while they took it in, then a frenzy of activity to send mechanics to see to their shame.

We then got down to machine tool subjects in a rather more sober manner. We had already made machines for machining in valve guide bores in the CVH (Compound Valve Head) cylinder head and several other machines. Charlie then asked me to follow him into the plant and took me to a large milling machine with two cutters of about 22" diameter. The machine was to mill the two end faces of four cylinder and the Essex 3 litre Vee six engine blocks in one pass.

Milling machines were considered a bit of a specialist subject and were generally accepted as the exclusive line of a very few American multinational companies. Charlie waved his hand towards the machine and said, "Can you make one of these?"

Thoughts rushed round my head. We had never made such a machine, but it was only logical engineering, not magic, and it would be great to have a chance to prove what we could do. I considered that Charlie had specifically asked could we make such a machine. He had NOT asked "Have you ever made such a machine?" He knew very well that we had never made such a machine, and the question was a tribute to his confidence in our ability to do so.

"Yes!" I replied. "And I can give you an 13" Nitrided spindle and a couple of 60 hp motors, no problem."

As we walked back to his office he said, "Company X used to employ a salesman named Ivan Savage, a good man who I liked. They have sacked him, and any company that can sack my friend will not get my order if I can help it." As I was not used to sales, I was amazed that a significant contract could hinge on such things.

Samcor mill: rear view

Later that evening, I was in my hotel making some notes before packing to fly up to Durban and Toyota the next morning when the phone rang.

"Roger, this is Charlie. I have a meeting with the directors tomorrow morning. Is there is anything you can give me that is an improvement over what the American companies can offer?"

Now, I am not a qualified engineer, but all through my life, solutions to problems have arrived fully formed with models in my head and they always work. This is not cleverness: it is luck, and I once heard someone say that it is better to be born lucky than clever. (Another story I may have told is the same luck giving me a solution to materially assisting to increase the power of the Harrier engine.) But to continue: PING! It came immediately.

"Yes, Charlie. The frames of your present machines are made from welding together large pieces of 30mm mild steel plate, rather in the fashion of shipbuilding.

Go to one of your machines with a big spanner and hit the frame and hear the ringing note. The tendency for welded structures to ring has a detrimental effect on the quality of the finished machined face. I would make your base from grade-14 cast iron, and if you hit this with your spanner, it will give a dull thud and the machined finish would be much better. In addition to this, the designers of modern milling machines have often not had the benefit of actually working a milling machine and understand completely the forces involved. I would build into the main cutting heads a substantial flywheel which will significantly reduce any tendency to chatter."

"But Roger, you will not be able to afford the cost of the foundry patterns."

"Oh yes we can, Charlie, we will make a big sacrificial pattern from polystyrene."

When I returned to UK, I had a nice new contract for a big duplex milling machine. When it was built, I used to walk round it in the evening when everybody had left and enjoy the exquisite pleasure of knowing that the team had made something we could all be proud of. And it turned a profit.

Travelling with a Vincent: Arctic Circle by Ted Parkin

The sun is still up as I wake. I don't think it ever went to bed. There are long shadows slowly receding down the walls of the tent as it rises higher. Another chance of a rainless day.

1am in the morning!
(Not a lot of people can say that!)

We are 6 miles from Mo-i-Rana, which is in turn 30 miles from the Arctic Circle and well within an easy ride. We talked last night about what we would do after we reached it and have decided to turn right down route 95 towards the North of Sweden.

I had earlier written to a Swedish Vincent owner who had invited us to stay with him and his wife if we had the time. Bernt and Gunnel lived in Sala, about 60 miles from Stockholm. We were hoping to drop in – if we survived, both mechanically and emotionally, that long.

The bike was ready for another gruelling day and we were well rested, ready for a long ride.

As ever, tea! Might as well do the breakfast at the same time. Good old bacon and eggs. Liz smells the bacon, blinks awake and exits the tent yawning the whole time. She looks at the sky, picks up her towel and goes off to wash.

Breakfast is ready, we eat in good spirits.

We achieve one of our goals today.

Bleak!

Camp is broken in record time and we make tracks for the town of Mo-i-Rana.Hereafter called Mo. Petrol and oil are needed. The spare can needs to be filled up to ensure a plentiful supply of fuel for the cross-country trip ahead. School children crowd around us in the town and we have to sign autographs before we are allowed to escape. Vincents are a rare breed in these here parts. As are their riders.

The Northern Highway beckons, the road climbs directly we leave Mo and snow appears on the side of the road, getting thicker and thicker the higher we go. Mountains rear to our right where no roads are shown on the map. What a place for climbers!

What rescue services there are around here I do not know: sparse, I would think!

Even more bleak! (But it did get better.)

We pull in for more photographs, pass a memorial to the Yugoslavs in the Second World War and see at close quarters an Arctic Fox: frightening. However the bike rattles on. It's sounding quite good actually and, as travellers do, are well attuned to the rhythm of travel. The trick is to live for the day, as they say!

Its not as if we do this all the time and the scenery is certainly interesting in a cold, masochistic way I suppose.

Kudos certainly should go to Liz, being plucked out of the safe, ordered and regular environment to be faced with all this sensory overload. Not to mention having to put up with me.

However, we plod/rattle forwards, the snow banks receding as the climb reduces. When . . . a dip in the road and a wooden cabin comes into view. An oblong blue sign proclaims Polarsirkel, Arctic Circle. We are here!

Parked next to the Daily Planet!

The bike stops beside a stone obelisk, a steel globe perched on the top. This is the actual Polar circle and we take our congratulatory photographs.

The Arctic circle cabin was built of long split trees with a pitch roof. One end housed a Café and the other contained the ubiquitous tourist souvenirs. Postcards, knick-knacks and, for a fee, you could be the proud possessor of an Arctic Circle Certificate signed by the propriertrix, Gunn Solhage. I bought one. Liz bought the postcards to send to our disbelieving colleagues at work.

I did hear that there was a well-supported sweepstake going on to see how far we travelled before we broke down. A lot of people lost a lot of money. I made lots because I got a friend of mine to bet on my behalf. Such is the lure of easy money.

We left a message on the walls. This was not an act of extreme vandalism but the thing one did when you arrived. Not that we tarried over long; the call of Northern Sweden beckoned. We made tracks away to the North, raging cataracts of ice green water tumbling over some spectacular waterfalls to our right.

The road to Sweden appeared just before the village of Storjord, we turn right, the only other word on the signpost was a finger pointing straight on and said "Nordkapp". Perhaps some other time?

With a stretch of the imagination I suppose one could say we were on the way home after the turn, 1500 miles away but in the direction we were now travelling. Lakes shrank in size, more bogs and streams made their appearance as we settled down to the long slog to Sorsele. Just a name on the map but the right distance from our morning departure.

An hour passes, coffee halt, carry on to a fork in the road. Now what to do? Well, it says Sorsele so I suppose it should be worth a try. Five miles later this road peters out to a dirt track. We carry on.

The wrong thing to do!

People ride motorcycles, this is such a basic statement that riders sometimes forget where it came from, if indeed they consider it at all! The early days of motorcycling were a natural progression of horse riding with all the bucking and physical effort which that entailed. We now regressed to the earliest days and found ourselves actually riding the outfit!

The road starts to deteriorate soon after. We quickly progress from shale and rock to loose sand, the remains of mud from the previous day's rain, which soon covered us from head to toe. The bike drops into ruts climbing out and bumping its way from hillock to crater, crater to hillock. Each lurch lifted us up to bump us back to earth with a jolt. When you realise that this happens 20 times every minute, you can see that after a while we are not best pleased nor in the best of moods.

I try slowing to reduce the bashing. Forget it! We only succeeded in slipping into the puddles, getting stuck and having to get off the bike to pull it free! Full throttle work damages the bike and, more importantly, us. We hit upon the idea of reading the road and suiting our riding style to each individual section. This was like a full day's trials riding but with the added bonus of a fully loaded sidecar that dragged and pulled at my arms without ceasing.

We hung on. Liz sat grim faced with gritted teeth. She had to grit them of course, otherwise they would have been filled with the choking, blinding sand. I looked through narrowed slits hiding behind the visor of the helmet. Even here the sand and dust flew with wild abandon, filling my helmet with a fine, white covering.

In the distance I see an approaching dust cloud. It's a BIG lorry towing a trailer. I don't hesitate, sweep to the right off the 'road' and let it blast past covering us with wet sand and pelting our bodies with small rocks. The bike starts easily, for which I am grateful! Words are superfluous! There is not much to say other than basic English.

For Sale:

Ten-metre ocean-going yacht *Samba*. £7500 OVNO.

For more details email: editorejp@live.co.uk

The road winds up hill and down dale, skirts a swollen river that spills over onto the road to add to our sorrows. More mud, by now we are past horror and into humour. A tap on the back, I look around, Liz sits there covered with mud.

“Thanks Ted, that was really great” said Liz, grinning.

We suffer for another 18 miles before reaching the safety and freedom of the asphalt-surfaced road to Sorsele. We slow, get ourselves sorted out as we approach the town. Neat, well signposted and a campsite clearly seen. We pull in and chat to the lady owner who is keen to talk to us. Liz natters to her for a while as I thankfully put up the tent. We eat, have a couple of beers and review the ride. Wow! What fun!

There is a lake on the site and we hire a canoe for an hour or two. Unfortunately we encounter mosquitoes so retire from the lake in search of a tube of insect repellent.

Do you know, we couldn't find any anywhere in the whole town! The only supply was owned by the campsite lady. We ask if we can buy a tube. No chance! But would we like her to spread some on for us? OK, go ahead! She gives me a quick wipe over and turns to Liz

I had never seen anything like it. She goes to town on her! Rubbing the gel well in, sliding her hands over her body. Wiping the excess off and moving to a different bit of flesh. She certainly liked Liz. For her part Liz was crimson with embarrassment, a bright-red face, twisting and turning to get out of the reach of her hands without seeming to be ungrateful for the repellent. But this was going too far! With a final wrench Liz steps back to stop the wandering hands going any further.

She stammers breathlessly, "Thank you, er, very much!"

"My pleasure!" smiles the girl. I am sure it was! We escape, fast. Swedes!

Liz recovers, we walk around the town and, as the mozzies are mega-active, decide to seek the sanctity of the tent which is fitted with netting. These mosquitoes are really big and are only stopped from getting to us by the close weave of the net. We watch, aghast, as they crawl all over the walls of the tent, their probosci sticking through the weave trying to get to blood.

We open the last beers and treat ourselves, being extremely careful to keep away from the sides.
It occurs to us that this is going to be a problem now all the time we remain in Sweden, land of lakes, forests and mosquitoes. First priority in the morning is to get our own supply of repellent.

But for now, sleep!

Next instalment: Sweden and civilisation

Technical Data

SS Flyer 500 FZ 68.25 x 68.25 (2.687" x 2.687")

SS Flyer 600 FY 74.6 x 68.25 (2.937" x 2.687")

SS Flyer Rod length 142.87 (5.625")

LS 500 RZ PZ 66.67 x 71.4 (2.625" x 2.812")

LS 600 73.02 x 71.4 (2.875" x 2.812")

LS Rod length 147.64 (5.8125")

Piston overall height LS = 3.750"

Piston overall height SS = 3.810" 3.875" 1930 Super

Piston overall height 9066C Veteran 3.793 from examples

Moss piston blanks should make 73.85 to 76.40 in both long and short stroke configurations

2.907 to 3.008

+32 to +133 on 600cc long stroke (2.875")

Original size to +71 on 600cc short stroke (2.937")

Ring grooves to be plus 0.001" to 0.003" wider than ring

Depth 0.130" / 0.135" (3.3mm / 4.1mm) deep from touch on

1933 to 1938 drawings Scott head LD
ReplicaVolume 500cc 66cc
Volume 600cc 80cc

Head gasket 0.093" design thickness

Head gasket SOC SS 2013 after compression measured 0.071"

CR options from 6.9 : 1 to 7.15 : 1 by varying head machining depth

See drg30130 / L94M

Standard CC Cl to fireface 5.375 / 136.52

CC CL to piston crown at TDC SS 8.968"
CC CL to piston crown at TDS LS 9.155"

SS head is 0.187" more shallow than LS head

Tests with 70mm ball in blind bore measured to skirt edge

7 measurements SS recorded 2.957" to 3.086" average 3.023" but with range of 0.129"

2 measurements of LS DPY barrels with heads in situ averaged closely at3.258"

Difference between averages gives 0.196" which is near enough 0.187" on Scott drawings

Shipley rod beam with big end width of 0.375" had nominal width of little end 1.125" ratio 3:1

1911 rod beam with big end width of 0.250" has nominal width of little end 1.343" ratio 5.372 :1

9066C Veteran basic dims

Overall height = 3.793" could be 2.797 = 2 51/64

Height base to top of top ring = 2.675"

Height base to C/l G pin = 1.642"

1/8" radius on top face to side flanks

Compression Heights

by Roger Moss

Recently we came across another owner who had bought a bike with a 600cc long stroke detachable head engine, but found that it ran hot and boiled. The compression was unusually good and it took some considerable effort to start it. When running on an open throttle it was fast, but did not like part throttle use.

My suggestion was as follows. Scott engines are quite accurate and consistent on sizes, so remove rings from one piston and drop the piston down the bore crown first, till it hits the cylinder head.

Now use a depth Vernier and measure the distance from the skirt of the barrel to the edge. At normal top dead centre this measurement would be 1.906" but your measurement should be 1.956" or more. The rod and piston can stretch up to 0.027" at 4750 rpm, so this leaves you 0.023" safety clearance.

Scott heads are quite consistent, but changes in compression for different models were achieved by altering the rod length. The nominal centre distance for long stroke rods is 5.8125", but most measure 5.8175". I have had rods up to 5.831".

The owner measured a few thou more than 1.906", so no clearance! Someone in the past had purchased a nice new old stock head from Bob Trickett that he had from the Holder stock, but had not thought to check what he had. These rare heads were made in 1934 for a detachable head version of the Short Stroke engine and so are much more shallow than a normal long stroke detachable head.

If you measure the clearance of my cylinder heads, they have about 0.060" clearance but the head profile similar to a mirror image of the piston and with a pocket for initial combustion, like a Silk engine, gives a more efficient burn.

Putting an engine together this evening that had been delivered in dismantled state, I wanted to attach the head while I assembled the block to the pistons. (I should explain that I have a bracket that is secured into the plug holes.) Then a length of bungee cord and I hang the block and head over the crankcase. The bungee cord acts as a load balancer so I can move the barrel up and down enough without supporting the load myself. This makes loading the rings and pistons much easier.

The reason for all this is that I just put two head bolts in to retain the head and dropped the head into the barrel. I did not bother with a head gasket at this stage, but was astonished when the head would not seat on the barrel. The brass tube was too long to allow the head to sit down on this particular barrel. I shortened it, of course, but worth a check if you are rebuilding an engine.

Roger racing at Branna, 2012

Notes from the Workshop

by Roger Moss

January 2018, and within a few days I will be 77 years old. Where did it all go? And, perhaps more pertinently, how many active years are left to us?

I have not yet got to the stage that, when it is suggested that I go out more and see friends, I suggest the cemetery, but you get the drift.

I am very committed to racing again in 2018 and have been making new gearbox shafts for my four speed boxes. I originally built two of these,in those now far off days *when* the family had a fully equipped precision engineering factory. Working alone with the help of fellow "mature"contractors, (refugees from the once proud army of British engineers) progress is much slower, especially if one is trying to balance the demands of rebuilding customers engines and earning a living.

Christmas Day saw me on my Thiel 158 milling replacement splined mainshafts and layshafts. These were from traditional 3.5% nickel case hardening steel still known widely by the WW2 Emergency Number (EN) EN36. These were then carburised, core refined and hardened. I checked them for straightness and was impressed to find them to be within 0.002" TIR (Total Indicator Reading). I mentally doffed my hat in respect to the hardening company operatives. I suppose that years ago, I would have tugged my forelock, but then having a forelock to tug is also a dim memory.

I ground the shafts on a Leicester built Jones and Shipman model 1314 universal grinder. The1300 range is basically a 36" external grinder in various guises. In this manifestation, J&S obviously had a licence to use the rear wheelhead design from an American Brown and Sharpe model 14 grinder. In wartime conditions, several American designs were licensed to be built in the UK.

My next step is to grind up the dogs on the gears and so to get at least one working box up and running. This has a needle-bearing high-gear design with the revised clutch release mechanism that I passed over to Eddie Shermer to make many years ago. I have used this system on my racer for years with total satisfaction. To this will be mated a very nice new lightweight clutch using moto cross clutch components made for me by old friend George Silk.

Grinding the dogs

I then need to investigate if a different fork spring might help the handling.

The real fault is that there is not enough weight on the front and this was made worse by having an aluminium barrel and a lightweight frame made by Spondon Engineering when they were in their pomp.

Spondon frame

This makes the bike a bit of a handful at times, which I suppose goes some way to explain why ex TT winner Steve Plater was unable to keep it sunnyside up for more than a handful of laps.

The frame dimensions were copied from a single down tube Flying Squirrel I used to campaign, now owned by Richard, after a particular incident provided the inspiration for a new design.With the improvement in the adhesive qualities of modern tyres, and especially in intermediate racing compounds, the bikes can be cranked over to angles never envisaged by Scott designers. This meant that the centre forging at the connection between the rear of the engine and the gearbox undertray will hit the track surface well before the limit of adhesion is reached. It is then necessary to remove this section, but in the case of the single downtube Flying Squirrel, this significantly weakened the frame and when gloriously leading a race at Mallory park in triangular racing tyres, the stress imposed going through Lake Esses broke the forging lug holding the seat tube. I also failed to keep the crippled bike sunny side up in these circumstances.

The answer was to have a new frame that was externally similar in appearance to a Scott duplex frame, but has a twin tube top section from steering head to the rear of the tank with the saddle tank covering it. At the rear of the tank, thee twin tubes descended directly to the rear-wheel locations. The lower tube routes than become the lower section of what is a top diamond, with the engine and gearbox slung below.

This then fulfils the objective of making a frame acceptable for VMCC Vintage racing, which enables a bike of total weight 100kg with approximately 44 bhp on tap to be a serious contender. No wonder Paul Dobbs did so well on it and with only 35 bhp available when he rode it. In an idle moment I consider a frame to this design but with a swing arm tail into which I could drop the components into so I could use it on the road if ever I am unable to race.

1911 Engine – Industrial Archeology

by Roger Moss

It does not matter in principle if we consider a private home workshop or an industrial plant of any age period, when presented with a need to produce a solution to a problem, the first consideration is to review the resources available of plant, materials and ability of workforce.

If we look at a photo of the Scott plant in1916, it will show that the majority of the engine was designed to be made by the workpiece being rotated on turning machines of the type known as Turret Lathes.

Of these, some had unusual features that would suggest that they had been made specially. On post 1914 engines, it had become obvious that the components needed to be made to established standard sizes.

We can compare this change in philosophy to the early production of guns, where the skilled fitter filed and stoned up each set of parts individually to produce the close fits needed.

Of course, you could not order standard spares. If a component failed, the gun had to be returned to a skilled gunsmith for a replacement part to be hand crafted to suit.

The American government, realising the servicing problems this caused, commissioned rifles made with standardised components, so that from barrels each with one hundred individual components, one part could be selected from each barrel and a rifle assembled without the need for individual adjustment. And so bulk manufacturing engineering took a great leap forwards. The principle remains the cornerstone of our society to this day but with modern machine tools, the degree of accuracy that is attainable becomes greater.

Within the memory of most mature people, it will be remembered that a new car had to be “Run in”

This meant that the sizes and alignment of assembled components were not to a degree of accuracy that allowed each piece to seat evenly with it's neighbour. It was necessary to run the engine at reduced power in order to rub off the high spots before a large enough bearing area had been created to allow the oil film to sustain higher loads. We certainly do not expect to have to "Run in" a new car or motorcycle nowadays.

Into this must fit the cranks, each with a hardened steel bearing ring fitted. The sizes of this item would later be standardised to leave space for the 3/8" x ¼" main bearing rollers to be interspaced with a half thou running clearance.

In 1911, it became clear that Scott's had yet to modify their production methods to achieve standardised interchangeability. This goal would certainly need the greater utilisation of grinding machines.

Scott factory 1916 with turret lathes

What is the reason for this elaborate preamble?

To examine and repair an engine from 1911 is to indulge in Industrial Archaeology and it gives an insight into the knowledge and confines of action caused by the plant available at the time.

The engine I have for attention had had it's main bearing cups replaced at some time in the recent history. The internal size of these was to a size that became standardised after 1914.

The cranks that came with this engine had main bearing rings that were undersize to later standards and the two were not the same size, The size was clearly compatible with the original main bearing cups, which indicated that the original cups were not to a standard size. The components had been made and matched to suit like an old fashioned gun.

I needed to remove the main bearing inner rings from the cranks and this proved to be an epic battle.

On later standardised engines, this ring is fully ground and fitted to a precision ground seating face on the hardened crank.

This is not what I discovered!

When I finally removed the main bearing inner ring, the inside clearly had not been ground and the surface had the series of fine grooves like an old fashioned 78 rpm shellac disc used on a gramophone.

Inside surface of 1911 main bearing inner ring showing turned surface before hardening

What was more, the mounting diameter on the crank had also been turned on a lathe and hardened and so exhibited the same surface features as the inside seating face of the main bearing inner ring.

Mounting surface of 1911 crank main bearing inner ring mounting diameter showing turned finished then hardened

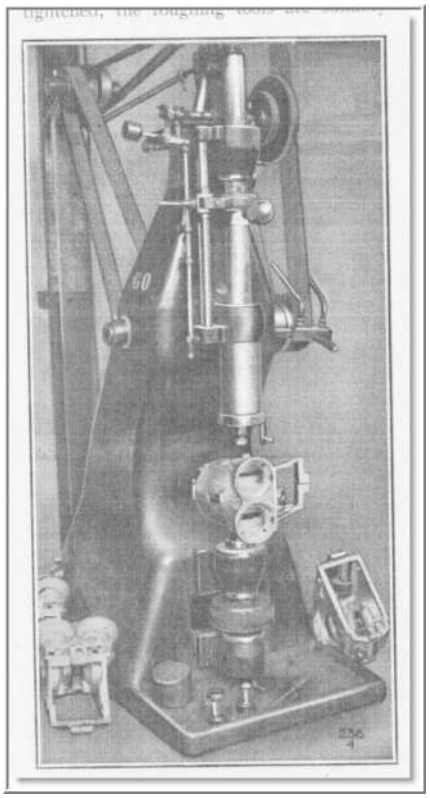
Close examination revealed that this turned and hardened ring had been pressed on to the crank and then finally, the outside diameter of the ring had been ground in situ to a size that was the non standard size of the bore of the installed cup less the rollers plus a small increment of clearance.

Once the ring had been removed from the crank, you could see that the inner wall of the crank against which the rollers must be guided, had only been cleaned up above the level of the top of the main bearing inner ring.

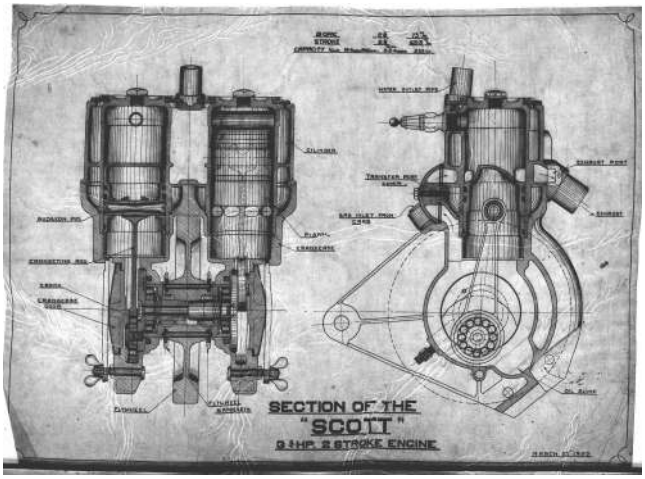
Inner wall for rollers with main bearing ring removed, showing slight clean up of wall above diameter of main bearing inner ring that had been ground in situ.

The turned diameters on the cranks are each several thous larger than the crest of the thread for the screwed disc which provides the outer wall for the rollers. This thread was based on an imperial standard size. In this case, I could set up the cranks on my Jones and Shipman 1314 grinder and grind these previously turned diameters down to a standard size with a good finish. I made some new main bearing rings from Swedish bearing steel and these will be ground to suit the cranks and the presently installed cups.

In the received condition, the original main bearing rings were considerably smaller than the newly installed cups, so that instead of half a thou running clearance, the flywheel would move eight thou. Obviously an unfinished job.



Scott factory 1916 with a specially designed and built grinding machine to grind inside diameters and gland faces of installed cups



Early engine layout

1911 Scott taken at Crown Meadows, Evesham about 1959

On the Bench

by Richard Moss

As I sit here in my heavily insulated, ply lined, over-sized coffin of a wooden workshop, snow banked up at the door, listening to the wind howling outside, heater on with half a bottle of St Austell Brewery's Strong Cornish Ale beside me; I consider my lot.

My Scott racer, a 1932 single downtube, Flying Squirrel that served as the original catalyst for Roger's lifetime of glorious obsession, lurks at the side of the shop somewhat disconsolately under its cover, more slouching then leaning against the wall. I can almost sense the indignance with which it views the customer's smart green-and-gold Scott on the hydraulic bench with its newly built engine, twin carbs etc. How it craves the attention!

I rebuilt my Scott in around 2005/2006 largely from the bits jettisoned by Roger during the 1970's; the first whole decade of his vintage racing 'career' and certainly the decade that involved the highest mortality rate among engine components. It was initially a cooking engine. Not anything fancy but carefully put together.

I remember my first test ride on the road, up to my Mum's house about ten miles away. I lost the battered Burgess silencer, blackened with anti-rust fluid and hastily fastened on for the journey, somewhere outside Melton Mowbray. I think it might have thrown it off deliberately.

It sounded much better without it.

It was a milestone. I had been given the frame, the stunning tank and the little dirt track radiator back in 1984 when I was only 12, 21 years before.

My Flying Squirrel : Cadwell 2015

At the time of the resurrection, I was working with Roger building Scott engines in his workshop in Leicestershire. I was learning from him and of course, with him. How I enjoyed that time. Though our situation now is far different from what it was, I very much enjoy the knowledge that I am working on Scotts here and he is working on them there. These are the good old days of times to come.

I built a few engines for my Scott back then in the quest for more power. I was getting back into racing with the BHR (British Historic Racing club) and I had the time and the interest to work long hours on the bike. I was determined in my quest to get my Scott as competitive as I could, albeit within slightly narrower constraints than Roger adhered to (3 speed box, original frame, etc. etc. etc.)

Paul Dobbs had been riding Roger's bike with incomparable élan and though I knew I couldn't hold a candle to him in terms of riding ability and showmanship (and sheer charisma!), he'd showcased the Scott in a way that hadn't been done for decades.

I had my share of failures... a crankcase split horizontally across the main bearings comes to mind; cracks that we didn't spot that had escaped a welding repair. Pistons contacting heads... too little clearance. Seizures... of course. All part of the process, that was and is part of trying, pushing sometimes too hard to get that bit of extra performance out of your machine.

After a period of working away, I settled in Devon, got married and rebuilt the workshop of our new house ready for the Scott to come down. Roger had an expansion chamber made for the bike as my (our!) wedding present in 2011 and he had fitted it and brought it down for me to use. We met at the Prescott Hill climb, where we had been invited to ride.

It started well but it sounded crisp, too crisp. I could see it was getting hot, and I changed the jetting, the plugs and the ignition just to try and get to an intial setting that we could start from. It sounded a little better. It pulled hard from the line and I caught it quickly on the clutch as it seized before the first corner.

From there on I recorded the journey in my web-journal www.racingoutoftime.co.uk

Then came children and for the last couple of years, the time and money have become scarcer commodities. I've been working on other people's Scotts too, mostly engines but also mechanical commissioning work.

Fast forward to now and I've actually entered my first event for a couple of years. It's only a trackday but with the Morini club, which normally attracts a good cross section of classic and vintage riders.

My dad's entered and I'm in the same class which will allow us to have a bit of riding time together, not something that happens much any more. Not competition this time but fun. Making memories. The green-and-gold Scott will soon go off to its owner, who I hope will delight in it, and when it does my old racer will once again climb onto the stand and we will start again where we left left off.

I've had it on the dyno a few times, I have had it running methanol and avgas, and look forward to continuing the adventure.

Another new exhaust was part of the plan, definitely work to the head and maybe even a new barrel. I've got tungsten slugs that I may put in the cranks... we'll see what time allows.

It will however get the attention it deserves.

And Finally

Event dates:

If you fancy seeing some girder fork bikes in action, including our Scotts, we are going to be out at Morini Day at Cadwell Park Thursday July 12th

Coventry Motofest June 2nd/3rd are looking for riders with historic bikes to take part in demonstration runs round Coventry. Google Coventry Motofest

Scott Owners Club gathering will be at the Shuttleworth Collection July 14th /15th. Should be a good selection of Scotts plus a feast of vintage aircraft in action

British Historic Racing Ty Croes Anglesey circuit

July 21st / 22nd

also

Please contact Roger on

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for more information about contributing.

I hope you enjoyed this issue.

Regards,

Richard Moss