

CONCOURS AWARDS

Premier Award (31-40 Post Vintage)	M. K. Keen
Midland Challenge Trophy (1925)	R. Wills
Late Vintage (25-30)	B. Bliss
Dallon Trophy (31-40)	H. Cutler
Mountain Trophy (41-50)	W. Fisher
Phil Smith Award (Best B'ham)	B. L. Rawlings
Taviner Trophy (Best Combo)	R. W. Whittle
S. Thomas Award (Best 'Special')	D. Wray
President's Award (Best Comp. Machine)	D. Shire
G. Silk Shield (Clubman of Years)	Tom Ward
E.A.M. Bowl (Contribution to Yowl)	Reg. Summers
High Speed Trophy	Hugh Harrison

THE SCOTT THAT IVAN RIDES!

G. R. Silk and D. R. Midgelow

After a reasonably successful 1967 (and first) season with a Vintage machine built for sprinting, (Scott of course) George decided to "have a go" at road racing. Handling trials showed that the sprint machine was not suitable for going round corners at high speeds. These handling difficulties meant that a new machine was necessary for road racing. Since the sprint machine was running well it seemed a pity to simply transfer the engine etc., into a stiffer and heavier frame so the search was on, and various parts began "appearing" in the garage workshop.

A "Sprint Special" frame with racing tank from George Silk senior, a crank case and block from John Hartshorne, a pair of con rods and numerous small parts from Tom Ward, a pair of forks, bars and carburettor from Ivan Rhodes; but there it stopped! With faith that the remaining parts would "appear" and much moral, technical and financial support from Mr. Tom Ward, the project started.

One look at the parts and it was obvious that salvage problems existed, and David, being a draughtsman, got involved in the work.

It is convenient to describe the work split up into, (1) Engine, and (2) cycle parts, although this is not necessarily in chronological sequence. We will tackle the engine first.

The cylinder bores were beyond reclaim (groans) but it was the only block available so something, but something had to be done. The cylinders were bored out leaving only the water jackets. Wet liners were then pressed into the block. The use of liners meant that the inlet ports could be arranged to allow a piston ported for transfer to be used, but the 3/16in. thickness of the flange required on the liner reduced the size of the inlet ports by the same amount. Cast aluminium cylinder heads retained by large ring nuts completed the salvage of the block.

The crank case was sound (signs of relief!) but (groan) the main bearing cups were badly worn and pitted. Replacement cups are unobtainable at any price and since we only had one broken long stroke crank disc (and a short stroke block) there was only one solution. After much thought, blood, sweat and tears, a drawing of cranks to suit British Standard caged roller bearings in mild steel cups, was removed from the dining table. The crank discs were made considerably stiffer than the standard short stroke article in order to extend the permissible rev. range. Since we had caged roller bearings for the main bearings the logical step was to use caged roller bearings for the big ends also. (Back to the dining table!)



MALLORY PARK, August '68. Ivan Rhodes at Devil's Elbow.

To ease the introduction of a cage in the big end rollers, smaller rollers, $5/16$ in. x $5/16$ in. were used, which meant that the con rod big end bushing had to be smaller than standard. The con rods needed re-bushing, both ends anyway, so no difficulty was presented by this requirement.

Pistons were not available at that time, and anyway we (fools that we were) thought we knew better than Alfred Scott. Patterns were produced and castings obtained with a modified deflector shape. The small end bosses were bushed for better wear characteristics and ports included for transfer flow.

The beginning of the racing season was quite close before we looked at the collection of cycle parts that had been gathered. There were no wheels, no gear box and no radiator. As development work on the racing machine was to take place during the season, the sprint machine was unlikely to be used, so it is now what may be termed unroadworthy. Both wheels, radiator and gear box were removed to "facilitate the development programme".

Mountings for the rear of the gear box tray and magneto platform were missing from the frame and had to be added. Foot rests were incorporated into this arrangement. The only alterations necessary to allow the gear box, an early close ratio unit, to fit, were to the foot change linkage. A magneto platform was made (with material from a chain link garden fence which had just been replaced). New steering head bearings and spindles for the Webb forks, from a vintage 350c.c. Velocette completed the frame.

The rear wheel and brake fitted with no alteration. The front wheel we decided, needed twin brakes. There is now a trials machine in an unroadworthy condition, and the racer has twin 6in. G.T.P. brakes. Tie rods (more garden fence) replace the torque arms normally fitted. The radiator (a cut down 2 speed radiator) required small brackets for fitting. The finishing touches were all then that were required, the ten minute fitting jobs that all take thirty minutes.

Since Ivan Rhodes had supplied some of the parts and carried out the brazing on the frame, he naturally wanted a ride. His chance came on the 19th May (one week before the Vintage Meeting at Cadwell). There was a "twisty sprint" at Packington Park which was ideal for handling trials. It was impossible for us to go but Ivan took the bike with the print machine engine (the racing engine was not complete) installed.

We had instant success with one important aspect of a road racing machine, the handling and braking superb, and came second in the 1,000 c.c. class. The racing engine first ran on 22nd May and we were ready for the Vintage Meeting at Cadwell Park on 25th; but that is another story.

(Part II to follow)

NEW DEVELOPMENTS

(See centre pages)

George Silk (Jnr.) and D. Midgelow send the following information regarding the engine development, the exploded drawings of which appear on our centre pages.

"The crankshaft has been tested to the limit (6,000 r.p.m.) throughout this racing season, even to the extent of "hydraulicizing" a blind head block in two. This requires $9\frac{3}{4}$ tons. We feel under these conditions a Scott crank might have dropped in half. However, the assembly has passed the test with flying colours and as a result the cranks are now available to order (delivery 10 to 12 weeks). These take the form of long or short stroke, the main bearings and housings fitted, seals and springs, valves, big end bearing (inner) also fitted. Cost as yet is tentatively fixed between £32 and £38 complete and built up to the big ends. New standard (reconditioned) rods and rollers etc. can be supplied. However, the cages still require further development in the realms as to which material to plate them with—as yet copper is not entirely satisfactory. The cages themselves however, have stood up remarkably well to consistent pasting and the fit of the bearings is excellent.

The diaphragm springs which take care of crank shaft end float are very simple in operation. The whole assembly could float .030in. - .040in. In fact the springs are so designed to let it float no more than .005in. either way. In practice the flywheel remains static (floatwise) thus proving the original idea of knife edges and minimum resistance.

What's next? Well already we have race proved our own design of piston, with transfer ports and inlet timing and strength with lighter weight. They do have one big bonus—they don't seize!!! Cylinder heads also have gone for a face lift. The effect is phenomenal—10 - 1 c.r. on petrol, a better flame path needless to say they are not Scott type, but very "squish".

As yet they are still in the experimental engine, but work is now under way to incorporate the pistons and heads in a top half conversion which will give a final magic size of 648c.c. If our results with the racing engine are anything to go by, apart from top speed the overall spread of power is quite something. To help out with the non availability of Burgess Silencers we have designed and are making a new type silencer that expands the power between 2,500 r.p.m. - 5,500 r.p.m. and is still quiet, not siamese, two per machine, but cleanable.