

THE SIRIO ST51

by Alan Burgess

When I first wrote about the Sirio range of motors in mid 1975, I commented on the similarity of engine between it and the Komet K12 which had the considerable financial backing of Count Dona della Rosa. The former was founded by Mr. Rovelli and the parallel between the two situations is so close that it might have been stage managed. Both companies produced kart frames to go with their engines, both the Count and Felice Rovelli went on to contest the World Championships of their day (with the latter scoring success in 1976 and 1977), the motors were and remain classics for quality construction, some of the key personnel have been involved in both products and, to cap it all, Mr. Grana finally took both into IAME.

Originally four models were homologated but tests ultimately showed that it was the ST50 in TT form that was the one to be concentrated on. The reed valve ST/L and the square-barrelled SC504 gave inferior results whilst the ST52 didn't seem quite as quick as the short stroked ST50. Unfortunately both the last two motors were homologated with a booster port and it was only by means of a homologation extension to the barrel on the grounds that increased strength and reliability would result, that the ST50 was able to be sold as a booster port engine "modified-by-the-factory-before-delivery-to-TT".

NOW TT

Naturally when the ST51 came along for homologation effective the beginning of 1978, the motor was presented in full TT form but upon examination the changes have otherwise been limited to fairly subtle modifications that are not easily discernible, particularly from the outside. The cylinder head and exterior of the barrel appear identical with the ST50 but the engine sprocket is closer to the rotary valve cover so reducing the amount of overhang from the main bearing and possibly reducing the chances of carburettor damage when losing a chain.

The porting in the homologated ST51 liner, compared with the ST50, has changed very little except of course with the conversion to TT. Notationally the exhaust port has been raised from 31.5mm to 31.2mm btdc but in practice the factory deliver motors with higher exhaust ports than that homologated and Deavin has always raised these further as part of his preparation work. All other port dimensions remain virtually as before.

NEW CRANK

The major component change concerns the crankshaft assembly and it is not completely clear whether the modifications are primarily for improved performance or greater facility of manufacture. The overall width of the crank wheels has gone up from 45 to 46mm and the diameter from 85 to 87mm. Officially the weight has only gone up by 50g, but as the thickness of each wheel is greater — the gap between them is diminished, the weight has probably increased by much more than this and will have changed the balance factor.

Whereas formerly only the inlet side wheel had a chamfer on the outer periphery and squared-off for the other, the ST51 is chamfered on both sides. Compensatory machining has been applied to the crankcase interior with an end result that as a greater volume is more fully occupied by the crankshaft in the bottom end, there is an increase in primary compression ratio, i.e. that occurring beneath the piston and responsible for induction and subsequently the transfer of mixture up the transfer passages.

The latest oval section IAME rod will give greater re-assurance to those that like to rev their motors and probably preventative maintenance by replacement can be less frequent. Although not immediately obvious there is a considerable change to the inlet tract which is partially inevitable with the larger diameter crankshaft for it must be more steeply inclined to avoid obstruction by the edge of the crank wheels. To retain gas speed, the passage has been narrowed and there is a different rotary valve cover to correspond.

It should be pointed out that the illustrations depict Sirios that have been partially worked upon by Paul Deavin and therefore they are not necessarily representative of stock models. He has shaped the valve opening and closing edges to provide a crisp pulse in the inlet system for good resonance whilst the cover plate is covered with counter sinkings by him both to reduce valve drag and to trap any dirt in the hope that the valve itself will not be scored. Virtually all of the tuning data given in our October 1977 issue is applicable to this new model, including the notching of the top of the exhaust port width etc. but Paul now tends to use 9EV plugs for dry use. The construction of the rotary valve is different in that it no longer uses a riveted centre section but the timings remain the same.

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SIRIO ST51 continued

around very long compared with the long term hot Parillas and BMs yet is proving to be at least their equal given sound preparation. If everything else were the same then probably all one is debating is the advantage of a 50mm stroke compared with the alternatives ranging from 48.5 to 54mm of its rivals. By being plump in the middle one could say it has the best of both worlds or the benefits of neither. For the driver who cannot afford to have a range of engines to suit every shape of track then the Sirio, particularly in its latest refined guise, must be a particularly good bet.

For other articles on Sirio engines see Karting magazine for July 1975, May 1976 and October 1977.

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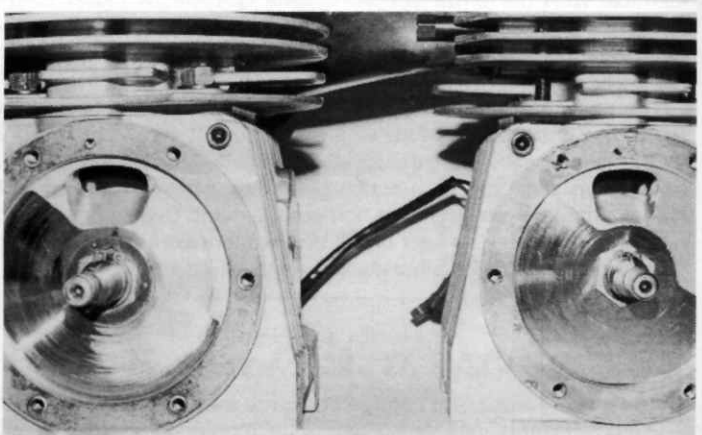
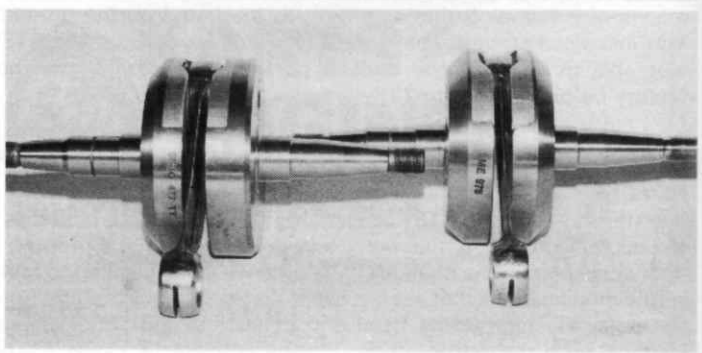
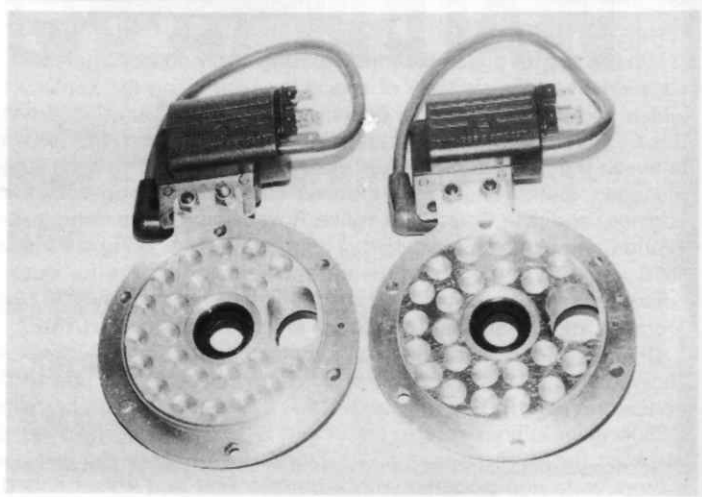
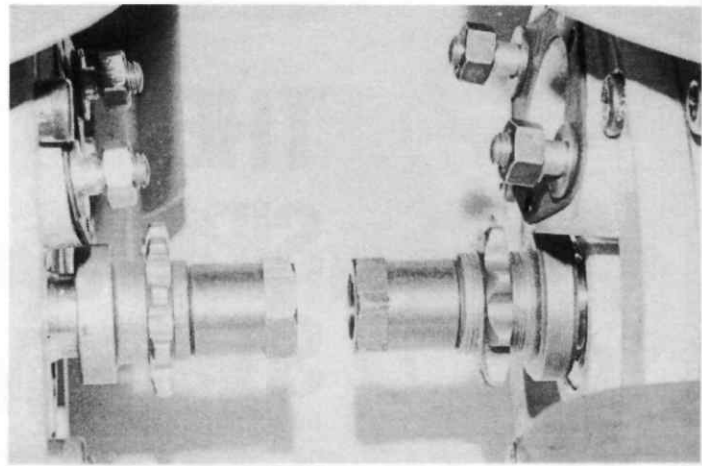
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Comparison between the Sirio ST50 on the left and ST51 on the right. From top to bottom, note these differences with the ST51. The sprocket is close to the valve cover. The inlet on the cover is narrower. Crankshaft has two chamfers and is thicker. Inlet port is narrower and more steeply inclined.