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CHAMPIONS CHOICE

MICKEY ALLEN'S SPRINT SIRIO

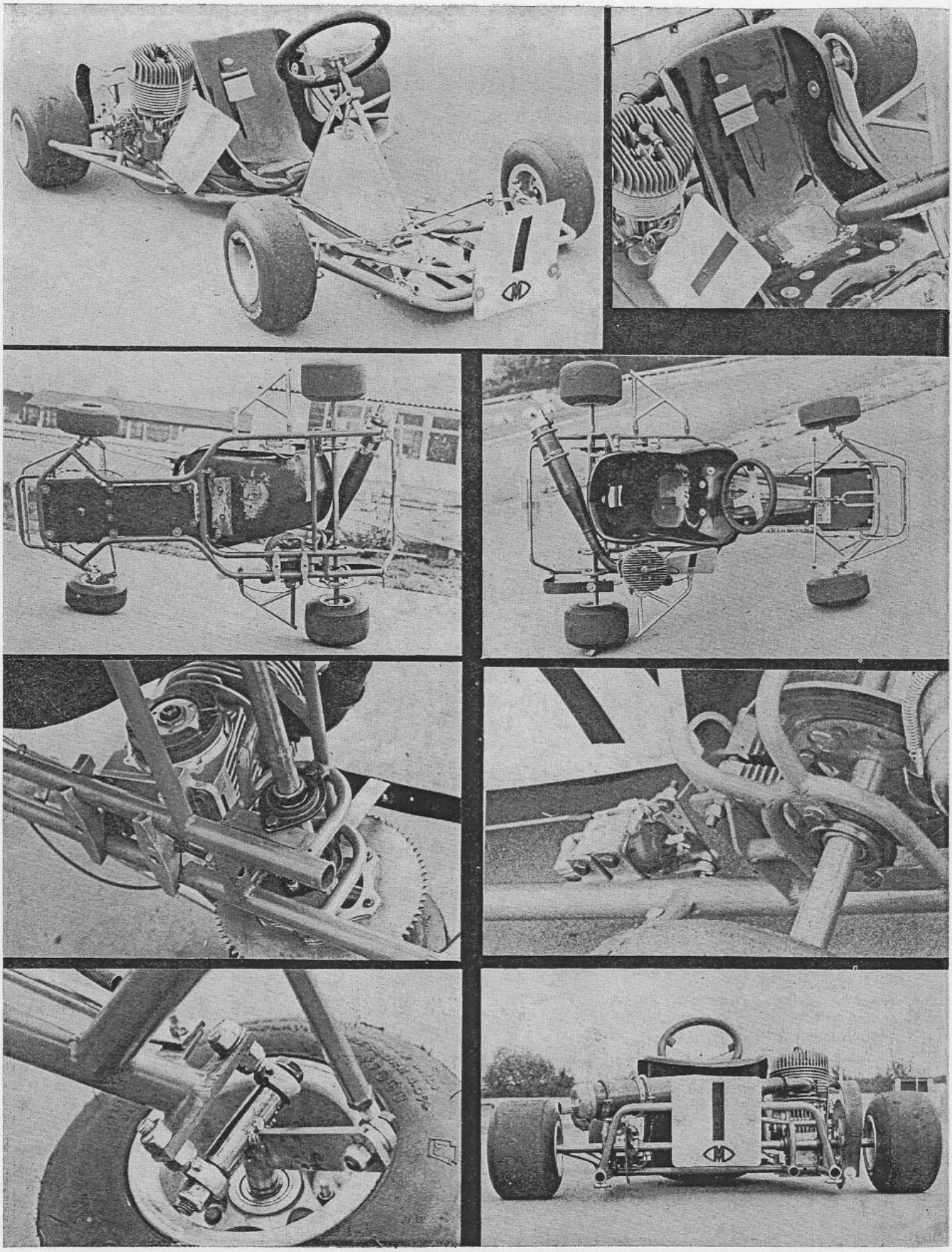
The key word for this article is quite clearly Preparation, for whilst one can argue for ever as to driver merit or the ability of engine tuners, it is hard to conceive of a superior combination to Mickey Allen and Paul Deavin when it comes to putting everything together properly for THE big event. From the Deavin view of his split with Fullerton, it was the latter's somewhat casual attitude to attending test sessions and helping with the inevitable chores of keeping the equipment clean, that caused an argument shortly before Fullerton abruptly changed to Zip. Right from his first-ever kart meeting, Mickey Allen has treated his equipment as reverently as the most fanatical of housewives when spring cleaning. He polishes the paintwork and chrome until it dazzles, every trace of grime and oil is wiped away as soon as it appears and he indulges in finishing details such as the protruding ends of bolts having small sleeves of polythene tube to protect the threads. This elevates Paul's job to that which he excels i.e. setting up and preparing the equipment without having to clean off everything first before he dares open the engine for example, and of course crack detection is made much easier.

By winning the class 100 International RAC British Championship two years running using Deavin prepared equipment, we tended to concentrate as to how the chassis and engine varied from the previous year in the hope that this would cast some light as to why there has been such an enormous improvement in British competitiveness in the last 12 months. The engine department has seen the apparently fundamental change from the Parilla TT22, with its 53.8mm stroke, to the Sirio ST50 at 50mm. For Paul the change between the two models is of improved reliability from the Sirio, which he rates as reliable as Komets, and improved accuracy in the dimensions of certain parts including the ports. As peak revs are kept similar, the shorter stroke of the Sirio means a lower piston speed but it is certainly not possible to directly translate Parilla tuning data to the Sirio.

On the basis that a motor is to be considered for use at a critical event by an important driver e.g. Mickey Allen at the British Championships, Deavin starts with an official factory Selected motor that retails in Britain about £60 more than the standard ST50. The Standard engine is only just starting to become available and has as normal timing of transfers 124°, exhaust 168°, TT port same as transfers whilst the rotary valve opens at 64° abdc and closes at 68° atdc. It is possible to convert a Standard motor to a Selected version for an expenditure roughly similar to the difference in retail price and this involves increasing port timing by 4° on to the total opening and a change to the valves but whilst performance and reliability may well finish up the same, there was a definite superior finish in certain components that would definitely make the writer opt for a Selected model in the first place.

The crankcase is grooved by Deavin on the ignition side to aid lubrication of the main bearings and German GMN model C3 main bearings are fitted on both sides at the initial build-up with the original seals. The crankshaft is left alone and the silver cage big end bearing is allowed a 4 hour life although sometimes inspection will require it to be replaced after only 1 hour. The connecting rods are changed after 3 hours and there is no problem with little end bearings nor with the strengthened pattern of Asso pistons. The ring gap is set at .004" and they are discarded when they reach .015 to .020". When racing in the dry, rings could last for 6 meetings, say 3 hours racing, but rain will wear them out extremely rapidly. Gudgeon pin clips are changed if the ears look worn. The motor is left at its 50mm bore even though increases are clearly beneficial. The Tillotson carburettor comes bored to 25mm by the factory and is the model 309 fitted with the high speed pump diaphragm. After tests it is usually found that about two out of every five carburettors provide extra performance and so are kept back for special events.

The Motoplat electronic ignition may come with the motors from Italy or be bought in Britain and it is set at 2.5mm btdc.



The compression ratio has always been found as satisfactory on the Selected motors as is the rotary valve. The original exhaust system is used and a typical length of the Sirio might be 82mm compared with a Parilla at 81.5mm. The driver might not be able to detect such minute variations by the seat of his pants but Paul reckons that it will be reflected in lap times. Five porting has not been found beneficial and changes to the height of the ports on Selected motors are moderate but naturally Paul is not prepared to reveal specific figures. He does remove a bump that occurs in the TT passage. None of these changes seems to affect the exhaust length appropriate compared with a "normal" Selected motor.

Strip lead is used to establish the squish clearance and .030" is the minimum at the piston edge. If he does carry out a pressure test then he will normally pump to 8lbs per square inch and watch the gauge for about a minute but in fact a good motor should hold its figure for around 10 minutes. The motor is run-in using an old top piston ring for an hour on the dyno using Castrol R at 16:1 with Shell 5 star petrol. It is set so that it runs at a steady 8500 to 9000 rpm at about half throttle. The motor is then given a power test and for the three engines used by Mickey in the British Championships they pulled around 0.2 to 0.3 lbs difference on the dyno and this showed at about 0.1 seconds between them in lap time at Rye House. The main characteristics of fully prepared motors come from their feel and sound on the dyno rather than from the gauges. The power test is in steps of 1000 rpm from 8000 to 15000 and this 1½ hours on the dyno is not considered part of the engine component "life" time limit. Provided the performance is up to scratch on the dyno then the engine is not completely stripped—for example the crankcase is not split, the piston is checked for shiny spots, but generally everything is left well alone. Sometimes the piston crown will show a poor gas pattern by the carbon deposit yet the engine may still provide excellent performance in which case Paul leaves well alone. The engine temperature is usually around 150°F after its running in period and once the power tests are made this usually rises to 250°F. The carburettor is adjusted to provide the maximum power and this usually results in a setting that is about ¼ of a turn too rich compared with that that might be used on a track. All motors in the top category that we are considering give their maximum bhp at between 9500 and 10500 rpm. An engine that is particularly strong at the bottom end seems to be good at any track whilst those with a high top power only suit fast circuits. With tracks such as Estoril, the TT port is raised above the transfers. The plugs used in dry weather are NGK 10EV whilst in wet weather the 9 or 8 EV range are used. Even in Championship racing with such moderately priced plugs there is no attempt to discard them after use and they are cleaned and kept for re-use.

The actual set-up for Rye House started on the Friday before the meeting when Allen tried three motors and it soon became obvious that they were going well right from the start and changes in exhaust length made no improvement. Two carburettors could be identified as superior with the best of these possibly improving lap times by 0.1 secs. Further fiddling with the engines resulted in a further improvement of between 0.1 and 0.2 secs. and they then continued with developing the handling of the kart using just the slowest of the three motors as a hack.

The best two motors from Friday were used during practice for the Championship and Mickey stayed with them throughout the meeting. Because of the wet weather on Saturday both motors needed new piston rings and there was an excessive build up of carbon that had to be cleaned off. Mickey's first heat was in the wet and by mistake Deavin fitted a 10EV plug which partially oiled up whilst he was leading and so dropped to seventh place. In his other two heats he had two seconds. Once Allen had the lead in the final he was able to relax and give his engine an easy time.

Both of the Championship engines are being re-built for the World Championships with a change of connecting rods and big end whilst the ones used in the rain will need a rebore and the valve replaced if it was scored. Making a comparison with the Parilla used by Mickey last year, Deavin felt that the carburettor was more important with the Sirio whilst the Parilla required lower transfers yet a larger valve opening. Since Deavinson's have become Sirio importers naturally Parilla tuning has become less important but Paul has reduced the Parilla compression ratio from that he used in last years World Championship where he considers that he was too extreme.

Strangely enough Mickey's kart for this years Championship was a move away from what had been their top line model to something akin to their Formula Europe version. This has a longer wheel base (1040mm) and the effect of this is that the driver sits relatively further forward than before so that the back end does not grip quite so much. This changing approach results from the increased adhesion of Bridgestone tyres which, if used on the short chassis would result in both rear tyres staying on the ground whilst cornering so that the engine would bog down. The front end adjustable geometary now permits castor angle to be altered by a slot for the top Rose joint. The front end settings have a standard position with the top Rose joint out three turns and none at the bottom. Great care is taken when jigging the brackets when the frame is made to ensure that these settings are repeatable between karts. Allen runs his front wheels close to vertical. If there is no graining on the inside portion of the tyre tread then the camber set in is probably about right. Allen likes his kart set up with no understeer and he takes a very smooth line through corners that is easy on the engine and doesn't cook the rear tyres.

The front track and materials are the same as the Formula Europe model and items such as king pin bolts etc. are metric. There is a single baffle in the fuel tank and there is just one standard weight of seat in which Allen cuts holes to accommodate his particular rib shape. At the Championship Allen was 4lb. over the minimum weight so an extra 3lbs. of ballast was attached to make quite sure. The side bars have been made longer and the master cylinder is no longer attached by bolts welded on a chassis but is now on a bracket so that it is in a raised position. The extreme position of the brake arm is used in conjunction with Bridgestone tyres. The rear axle is of EN8 and is 40" long and uses the standard two bolt bearings. The various carriers are in magnesium and the rims by Kart Components. The front rims are normally 3½" wide but were 4" for Allen and the rears the usual 6¾". Bridgeport valves were used for the Bridgestone tubeless tyres. The brake disc is 7¾" diameter mild steel on a magnesium carrier.

The 1010mm wheel base model proved excellent for rapidly flicking the kart through corners when using Sirios but to prevent tipping with Bridgestones the rear track has been increased 2" plus the mentioned wheel base increase. The kart, with the wide rear track and longer wheelbase is now lifting one rear wheel on corners about the right amount. A set of Bridgestones seem to last four hours with the rears wearing first. The difference in diameter means that Bridgestones need a 79 tooth rear sprocket compared with 75/76 tooth for Sirios. The rear track is 89 cms for Bridgestone against 81 cms for Sirios. The effect of the Bridgestones is to exit from corners much faster so a smaller rear axle sprocket can be used than one might expect from purely tyre diameter considerations. The overall width of the tyre treads was 30¼ at the front and 45" at the rear whilst measured as total widths of the kart at the rims it was 35" at the front and 47" at the rear.

In the past Mickey Allen has tackled more than his share of International events and eventually we think he became disillusioned by the difficulty in achieving anything worthwhile. Now that Fullerton has left Sprint and Mickey has taken the Championship title again so his attitude to the World Championship seems to have changed. No doubt he realises that with Paul Deavin giving him his undivided attention, this year represents the finest chance he will ever have had at winning the World Title.

Illustrations opposite. Mickey Allen's British Championship winning Sprint

Left column top to bottom: 1. Allen always keeps his equipment immaculately clean. 2. It is basically a Formula Europe chassis with different side bumpers. 3. Complicated rear axle bearing hanger structure controls frame flex yet prevents rear axle from binding. 4. Adjustable front end geometry.
Right hand colum top to bottom: 1. Holes in seat side are to accommodate Mickey's particular skeletal structure, i.e. his ribs. 2. Wider circuits will be needed soon to accommodate ultra wide rear tracks used with Bridgestone tyres. 3. Brake is well raised for protection. 4. Try getting past this lot if the driver doesn't want you to!