

ADJUSTING THE HANDLING

Continued from the August issue

Tyre Pressures must be monitored throughout a test session. If this is not done, a good deal of time may be lost setting up the chassis to compensate for a mismatch in tyre pressures. Note that the tyres get hot and pressures rise during use. There is no need to bring the pressures back to your original settings, provided that the increase is the same all round.

Changing tyre pressures may have a different effect depending upon the type of chassis and the weight of the driver. The general rule is softer tyres flex and dig in, preventing the chassis from sliding.

All of the tyres should be working efficiently with their surface grained by an equal amount. During a test session vary the tyre pressures to determine the best combination. You may find that to equalise the graining a change in pressure offside to nearside may be required. It is fair to say that only by recording times will the final tyre pressures be settled upon, and even then they may require adjustment as the weather changes.

In the wet oversteer is probably the biggest problem, with the constant fear of spinning at every bend.

Adjust the toe in to about 2mm with the front wheels fully out. Move the rear wheels fully in, and release the rear bumper slightly.

If there is time, add two teeth to your gearing to help pull out of slow bends.

Driving technique should be very precise, the only way to stop is to use cadence braking:-

brake hard — release — brake hard —
release

This technique is more able to slow a kart than simply applying the brake once! On bends, in order to decrease understeer, slightly rock or saw the steering as this helps the tyres to bite. The throttle should be used to drive the kart in the correct direction round bends; this means powering the tail out, pushing the front round the bend. This technique of countering understeer with oversteer is very successful.

In severe conditions a softer plug may be required and even more lubricant should be applied to the chain, or it just washes away! Spray the electrics with moisture repellent of the type used on car ignition systems.

The driver also suffers in the wet! Wear a pair of washing up gloves to keep your hands dry, and try to obtain a "whirly" visor which will throw off the rain and will not steam up.

After a wet meeting it is **MOST IMPORTANT** to wash the motor out with petrol, to remove the moisture that will

have come in through the carburettor. Wet meetings also wear the motor oil seals and the rear axle sprocket more rapidly.

DRIVING TECHNIQUES

If you watch any form of motor racing you will notice how the drivers approach a bend in a particular way, only deviating from this **racing line** to overtake or if making an error. To a novice the driving line may look very clear, but in a race there are variations which are used under specific circumstances.

The racing line is the fastest way to take a bend even if it is not always the shortest route. To determine the racing line, study the approach that would be required in order to make the bend as straight as possible. This line will almost certainly mean going as close as possible to the apex; the point of the bend.

Another reason for a racing line is to enter the next straight as early as possible, so as to reach maximum speed as soon as possible. Figure 7.1 demonstrates the lines taken on a bend, (i) followed by another bend, (ii) followed by a straight.

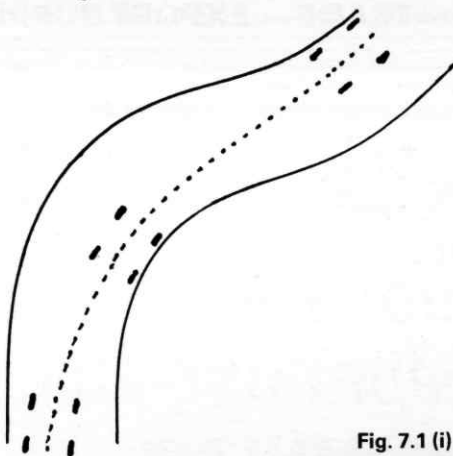


Fig. 7.1 (i)

At times the racing line moves well away from the shortest distance between two bends, this is demonstrated in figure 7.2.

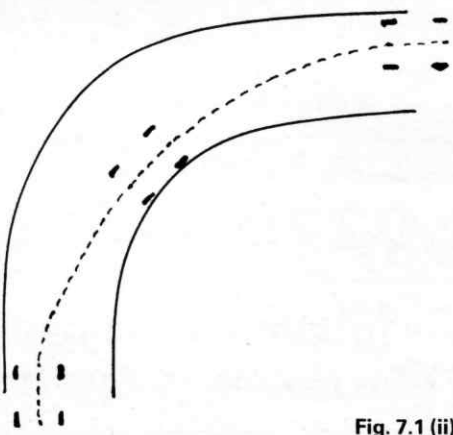


Fig. 7.1 (ii)

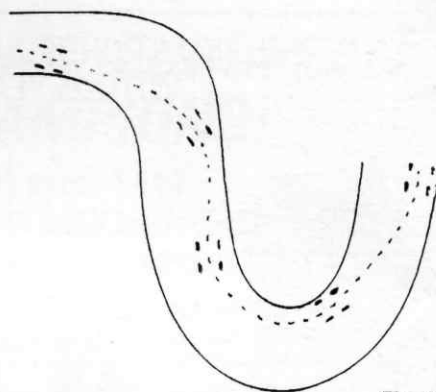


Fig. 7.2

The mistake made by most novice drivers is to approach a bend too fast for their skill, and because they are running wide they jerk the kart back onto the line. This is not good technique as it may cause the kart to slide. If you find you are running wide **EASE** the kart back onto the correct line; jerks cause problems, smoothness is most important.

It is essential to exit a bend on the best line, the one which allows you to put the power down smoothly and quickly. Coming into a bend too fast prevents this happening, and exiting too sharply will almost certainly result in the back sliding as the power is applied.

In theory one always uses the racing line round a circuit, practically there are two ways to drive round a circuit, and if you count the many lines for the first bend after a start, three ways!

A 3D illustration of a tall stack of money, with a single banknote visible at the top. The stack is slightly tapered at the top.

RACING ON A SHOESTRING

By Steve Chapman
PART SEVEN OF A SERIES TO
HELP THE BEGINNER

Attacking and defending require different approaches to the racing line.

If you are trying to overtake another driver there may be two places to do so; outbraking into a bend or accelerating out of a bend. To outbrake another driv-

er you need to be LEVEL with him on the inside when approaching a bend. There is no need to be in front, level is sufficient! Pulling past as you come out of a bend is less likely unless the driver makes a mistake, or unless you have much more bottom end (low revs) power.

Defensive driving almost requires more skill than attacking. Driving defensively means reducing the opportunities for a driver to overtake; without resorting to the bad driving technique of weaving. A defensive line is often a slower passage through a bend, but the object is to leave insufficient room for the attacking driver to pass on the inside. Always force the challenger to take a wide line by taking a close one yourself. Figure 7.3 demonstrates the racing and defensive driving lines through a series of bends. The rule is to take as close a line as possible when approaching a bend. Never leave more than half a kart's width on your inside at any bend. To help pull out of a slow bend when under pressure, bounce up and down in your kart, lifting your weight for a split second and thereby increasing your acceleration.

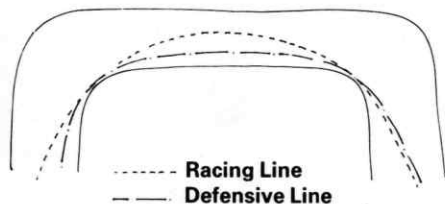


Fig. 7.3

Learn to read a race. Know when to attack and when to defend. Never chop up another driver. If you are having difficulty passing the person in front take care, because a dramatic overtaking manoeuvre that fails, may allow the driver behind you to slip past. When running in convoy drive as close as possible to the kart in front. Keep your door shut without losing the chance to capitalise on the driver in front's mistake.

As a fast runner at the back of a grid you cannot afford to wait for slower drivers to offer you an easy way past. You must pass them immediately or the leaders will be much too far ahead to catch.

Starting is most important because this is the time when overtaking is less of a problem. Once you have passed the starting line you are allowed to break formation and you should do so. Do not follow the kart in front. Take another line, any other line! The karts will not be travelling quickly at the first bend on most circuits, and this allows almost any line to be employed. The only warning needed is to watch the 'marbles'; the grit and rubbish pushed to the outside of a bend. Given a bit of luck it is

quite possible to pass a number of karts at the start much easier than in any other part of a race.

Adjusting performance is compatible with driving technique because the kart's performance should be adjusted to compliment your skill.

At a meeting, during practice and racing, you should judge your performance against the opposition. If you are an accomplished driver you will be able to run with others and assess the handling and speed of your outfit.

Small changes to the chassis settings may assist you to keep the power on; a little longer, or a little earlier, at critical points.

Changes in gear ratio may help to give you more acceleration; bottom end power — more teeth; or a higher top speed; top end power — less teeth. Changing in one direction will diminish the performance in another. Try only small changes, perhaps 1 or 2 teeth, if you are close to the performance of the others. Another alternative, which is more minor than changing gear ratios, is to vary the length of the exhaust flexible link. Lengthening the link improves bottom end while shortening it improves top end. Work in lengths varying by about a centimetre.

Changes in carburettor settings will allow bottom end performance — slow running jet; or top end performance — high speed jet. Weakening the mixture with the high speed jet and losing the 'stroke' will cause the engine to rev more — it may seize! If you do lose the stroke it is most important to check the top of the piston after each race. With some carburettors, or with engines fitted with restrictors, the ideal mixture may be considerably weaker than when the engine stops stroking.

YOUR FIRST RACE

Your first race meeting will be a time of great excitement and tremendous tension, but preparation will still be most important.

A week before send off an entry form to the organising club's competition secretary. If you do not have an official entry form send a letter with the following details clearly printed:-

Christian & Surname
Address
Age if a Junior
Telephone Number
Your Kart Club
Racing Class
Engine Make
Chassis Make
Preferred Numbers
STATE THAT YOU ARE A NOVICE
DRIVER

The secretary's address will be found

in the RAC Motor Sports Yearbook.

Check your outfit extremely thoroughly. Consult the section in the Motor Sports Yearbook relating to flags and flag signals.

The day before make sure you have all of your kit ready. Check List:-

Helmet, gloves, suit, boots, RAC licence, Medical certificate, Club Membership Card, trolley wheels, foot pump and pressure gauge, (stand), spanners, allen keys, wheelbrace, (spare sprockets), spare plugs, tape measure and straight edges, plug spanner, screw driver, chain lubricant, funnel and filter, fine emery paper, (spare nuts and bolts), (spare lead), hammer, fuel and spare 2 stroke oil.

Mix the fuel and check the tyre pressures.

Plan your route to the circuit, and estimate the time you must leave to be at the circuit by 9.00am at the latest. Read the Motor Sports Yearbook section on flags one more time.

At the circuit find a pit space that is on a hard surface as grass will hide any components you may drop.

If you have a stand set it up with the most used tools laid out underneath: trolley wheels; wheelbrace; 10mm and 13mm spanners; plug spanner; screwdriver; 5mm and motor mount allen keys.

Do not put too many tools under the stand or it will become difficult to find the one that you want in a hurry. Also have the fuel, fuel funnel, foot pump and gauge, and the chain lubricant within easy reach.

Signing on will take place in the Club house. Take your licence, medical certificate and a club membership card with you, and your fee if you have not paid in advance. If you did not send in an official entry form, fill one in while you wait your turn. Junior drivers require their parent or guardian's signature on the entry form.

Your Licence will be held by the RAC Steward who will watch you during practice and racing. If you drive safely and at a reasonable speed, considering you are a novice, your licence will be signed by him. After four signatures, a minimum of four meetings, you will have qualified for a full licence.

You will be given a programme which will indicate your racing number and the races designated for your class. It may also indicate your grid positions, or alternatively they will be posted on or in the Club house. You will start from the back with the other novices. If there are a large number of karts in your class there may be a number of races; you will only take part in two or three (ask an official if you are in doubt), plus the finals.

To Be Continued