

TILLOTSON'S NEW RACE READY CARB

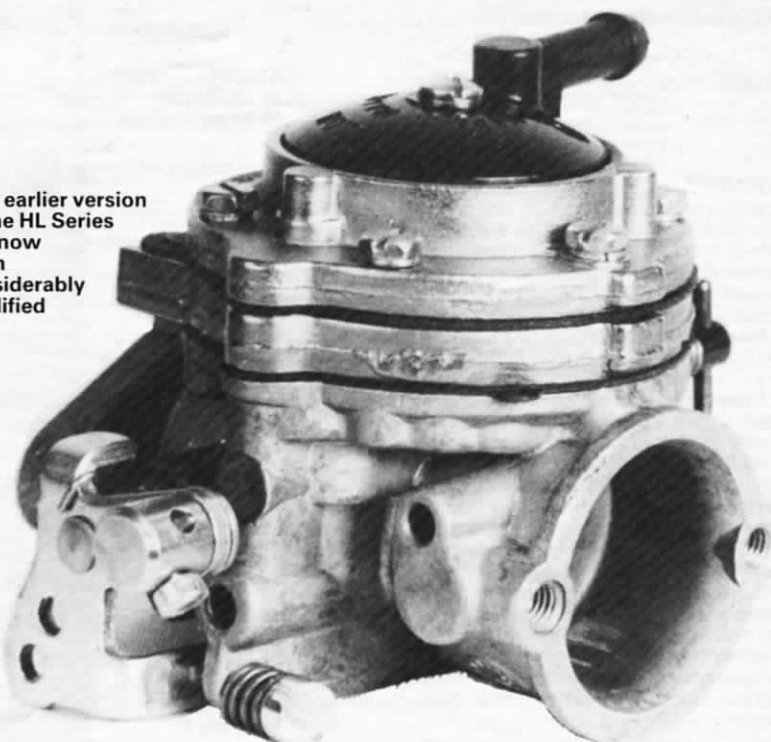
The C.I.K. Regulations for the 1988 Intercontinental Class "A" and Juniors now specify a butterfly type carburettor with the dimensions — throttle bore 25mm diameter, venturi 19.8mm and upstream (entry) diameter 30mm plus tolerance. Here at Tillotson, we keep a close eye on karting developments and last year's announcement by the C.I.K. of new carburettor specifications resulted in a decision to design, research and produce a carburettor in ready-to-race form. We are, of course, aware that our previous karting carburettors were being modified in all sorts of ways, and indeed that specialised slide type carburettors were being produced using many of our components.

Frankly, we felt we could produce a better carburettor, given our sophisticated R & D equipment, and our years of experience and leadership in diaphragm carburettor design and manufacture. However, before commencing even the design stage, many factors need taking into account. Certain changes to the carburettor had been recognised as desirable for some time. These were: (see diagram)

- (1) Provision of a pad of metal near the throttle flange at a point where wandering drive chains chew holes in your best carburettor.
- (2) Removal of the throttle stop pin in the throttle bore, which many people remove anyway as an airflow improvement, and the provision of an external stop.
- (3) Provision of fuel feed channels in the metering chamber to the idle and high speed systems to ensure an adequate fuel supply when the diaphragm is close to bottoming out, and during cornering when high centrifugal loads may cause fuel starvation.
- (4) Provision of extra metal all around the choke (air entry) area to allow extra boring out where applicable. We have seen too much epoxy etc., being pressed into service.
- (5) Shallowing of the spring well where the inlet tension spring sits in the carburettor body. Specialist rebuilders frequently break into this pocket during modifications.
- (6) Numerous small detail changes were necessary to ensure adequate wall thicknesses in critical areas.

In the past we heard stories of variation in performance between carburettors. This was hardly surprising, given the number and variety of modifications being conducted on our carburettors. Every original Tillotson car-

This earlier version of the HL Series has now been considerably modified



burettor is exhaustively tested on sophisticated electronic equipment to ensure identical performance on each unit produced. Subsequent modifications, even when well engineered, are compromised by the inability of the specialist to test to our standards. Variations in performance therefore, comes as no surprise. Many modified carburettors are poorly engineered, and could not function properly. Naturally everyone blamed us for the mistakes of others.

Our objective, therefore, was to produce a race-ready carburettor of excellent performance and reliability, fully tested to production standards, and incorporating all the improvements listed.

We knew the key word was performance. Many weeks of testing on our flow bench finally resulted in an internal bore configuration exactly to C.I.K. regulations with profiles yielding 10% more airflow than the best specialist productions. But airflow itself was not enough. Venturi design within the restricted length available is far from simple.

Among the design parameters considered were a number of dependent variables notably:—

- (1) Minimum airflow restriction.
- (2) Maximum developed lift on main fuel nozzle.
- (3) Nozzle lift to be maintained even at low airflows.
- (4) Non turbulent airflow to be maintained despite variations in airflow during engine operation.

Unfortunately such parameters are self contradictory. Maximisation of one parameter can lead to unacceptable losses elsewhere. A precise balanced compromise must be achieved, Edison said "Genius is 99% perspiration and 1% inspiration". Our R & D people would agree. An exhaustive controlled programme of work over a two month period finally produced a remarkable performance in lab conditions. All very well you may say, but will it work on my kart?

A testing programme using real machinery confirmed our best hopes. Spectacular improvement in low speed acceleration and good high speed performance was produced. Next we sent samples to leading manufacturers of original equipment. The orders flooded in! Now we expect that in early June your friendly dealer will have his first supplies. Ask for HL-334A. We are proud to be associated with karting, and it is this Company's policy to assist karting in every way possible. Racing improves the Breed.

KARTING HL 19.8mm

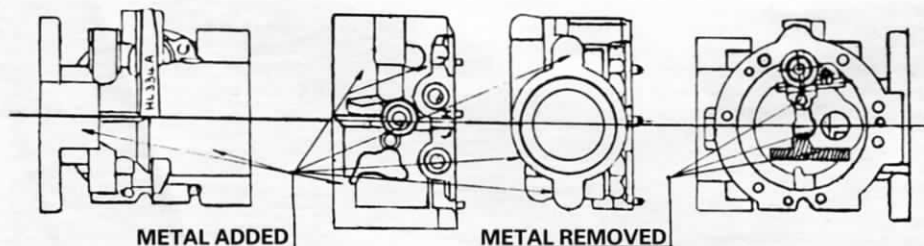


DIAGRAM 1



COMPULSORY HEAD RESTS GEARBOX CLASSES!

The final pronouncement, both from Belgrave Square and Katrina Williamson, was a surprise decision from the Kart Committee that headrests become compulsory on 1st June 1988 on the grounds of safety. No dimensions or other data was supplied by Press day.