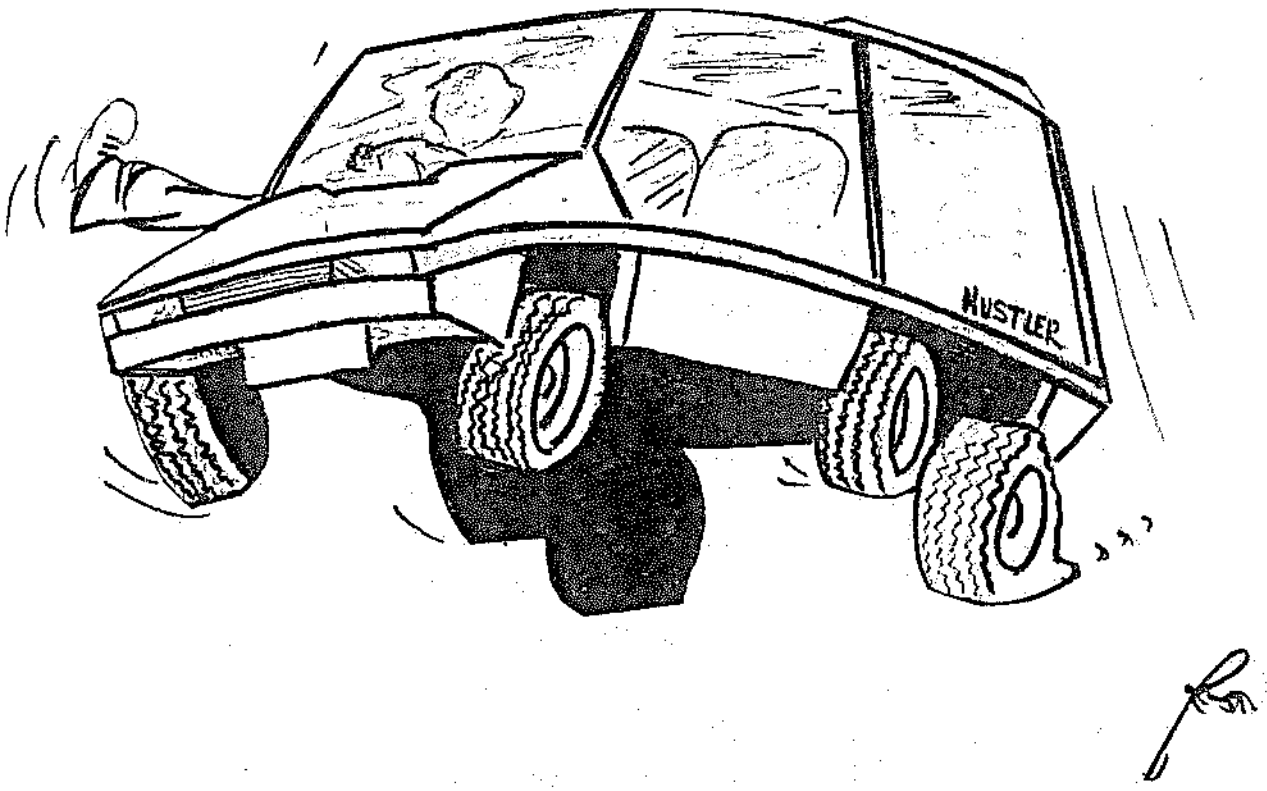
HUSTLER

Journal of the kit car élite

no.5



Newsletter no.5 and the begining of the 2nd year of the Hustler Owners club. If I might reflect a little over the past year I think it has been a very successful year as far as the club is concerned. We have gone from ten members to the present seventy, the majority who have joined in the last 3 months or so. I don't know if this is because Mr Towns has sold more Kits recently or because more builders were feeling frustrated or lonely and needed someone to talk to. I feel the Newsletter is now fully established mainly thanks to you who have responded so well with articles etc,. The response was far better than I had expected. Please keep up the good work anything or everything is always welcome. I have also made many new friends through the club during the past year, I hope that those of you who have contacted me with a problem have ended up with satisfactory answers.

I have really enjoyed the car shows also. I will continue to arrange a club spot at the shows. Ideally we could do with a few more Hustlers on our stand especialy more wooden ones. I don't think I have seen a badly built wooden Hustler yet. They all seem to turn out superbly.

And so on to '85 I can only hope the club goes from strength to strength and with your continued support I feel certain it will.

One thing I would like to ask is that if you intend going to a car show would you please drop me a line or a phone call just to confirm. I would hate to organise a club spot and find we didn't have enough space. I think I was lucky this year . I made a few lucky guesses. If anyone has any suggestions on how to improve the club or any ideas at all please get in touch. I am still strictly an amateur in this world and all suggestions gratefully recieved.

And now to put a damper on the whole thing please read on.

Annual Subscription

Due to the increase in membership, we now have 70 members. I felt a bit guilty playing on a long standing friendship and having the Newsletter printed for a nominal fee of a few pints of best ale. It was Ok for the small amount we had in the beginning but for this issue I needed 75 copies which works out at 900 sides of printing. I have found a business aquaintence who printed this issue at a very reasonable rate. Therefore I have come to the conclusion that I need to make a subscription fee of £4.00 per year. This should cover the cost of printing and postage etc., and hopefully leave some in the kitty for emergencies.

In return you will receive a nice shiny plastic membership card, 4 copies of the Newsletter throughout the year, and access to some of the best brains in the Kit car building world.(namely the other club members).Also plenty of convivial company at the car shows next summer.For those who decide to continue their membership cheques should be made payable to Hustler Owners Club and sent to me here at Aldershot, in time for Newsletter no.6.

HUNTSMAN SUSPENSION

After some trial and error I now have a suspension that is proving very comfortable on my Huntsman. I used the standard metal pipes from front to rearmost subframe, these are a good fit and need no altering. The forward rear subframe was built up using front displacers as they have the valve for pressurising the system. I then connected this subframe across independently using a made up rubber hose from a hydralic pipe supplier (about £15). The displacer pipe fittings are standard.

After persuading my friendly neigbourhood garage to loan me their Dalek-like hydrolastic pump, I bought a large tin of fluid and set to work. The fluid incidentaly turns out to be a water/antifreeze mixture(does anyone know the proportions)?. The forward rear subframe was pressurised first to 200 lb/in^2 then the two sides to give a height of 13½ inches from wheel centre to wheelarch. The whole thing settled down considerably over a few weeks and had to be trimmed up again.

One point to watch out for is the front displacer rubber hose which comes up through a hole in the lower frame. This needs protecting with some sort of liner as the hose moves up and down and can rub against the edges of the metal. This can be disastrous as I found out when one burst!

Which leads me to another point - has anyone worked out how to fit bump stops to this system? Without them the car is completely immobile in the event of pressure failure.

David Wood
Morpeth.

JOHN'S JOTTINGS

BRAKING SYSTEM ASPECTS

Wheel Sizes

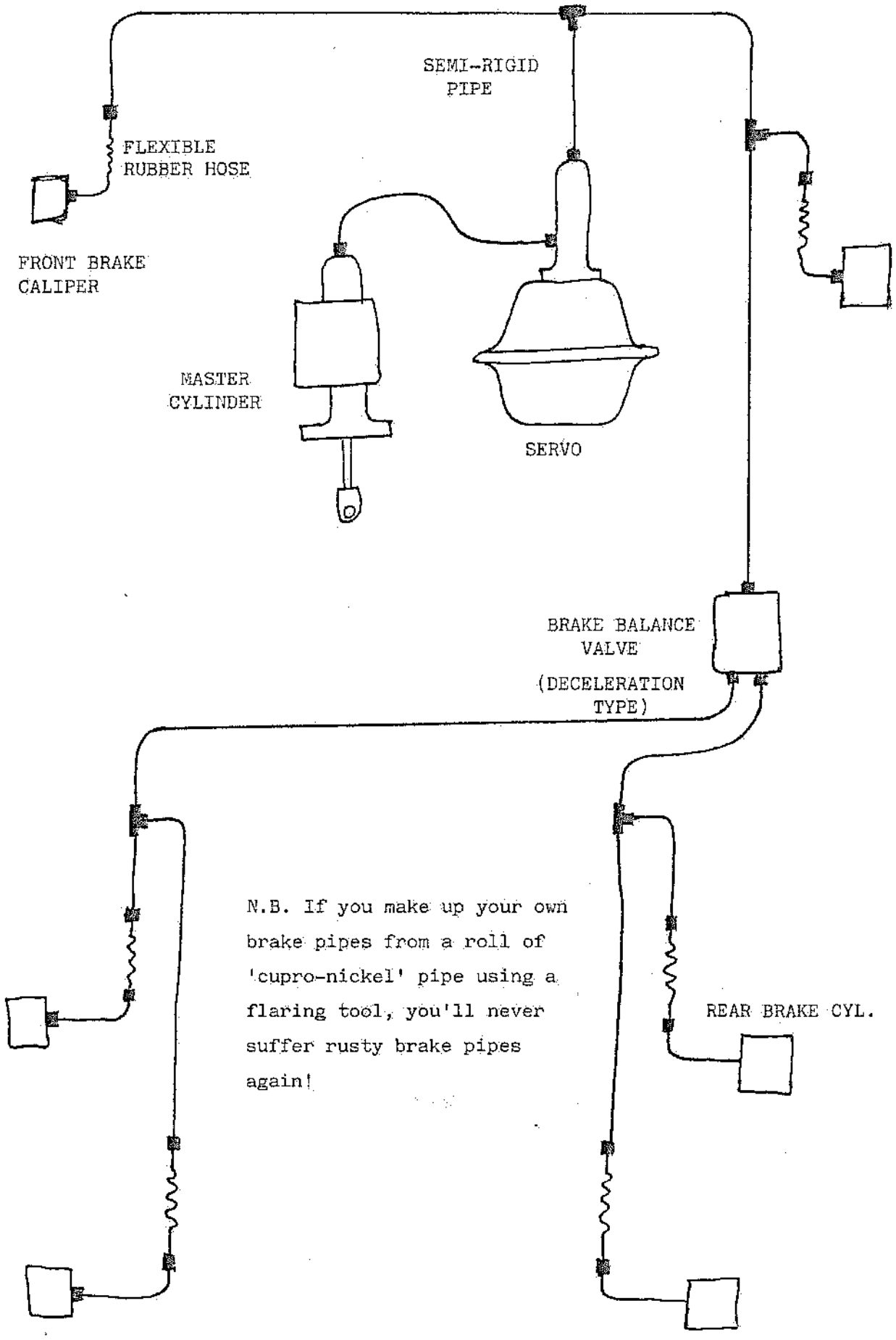
I decided to aim for maximum braking power because the car carries six people and has a powerful 1275 engine. This makes disc brakes essential on the front wheels, rather than drum brakes. Unfortunately, I had also decided to use 10" rather than 12" wheels in order to maintain good clearance between the tyres and the body and between the tyres and the trailing arms, so that either snow chains or studs can be used. In retrospect, this is so unlikely to be needed that it would probably have been better to use 12" wheels which allow larger diameter brake discs, which in turn give more stopping power. The front hubs and discs are also cheaper and more easily obtainable for 12" wheels (1275 GT) than for 10" wheels (1275 Cooper 'S').

Hydraulic System

If one expands the standard Mini hydraulic footbrake system to operate all six wheels by plumbing-in the two extra rear wheel cylinders, the total effective area of the slave pistons will have been increased without an equivalent increase in the master cylinder bore. The result will tend to be an increased pedal travel for a given braking effect; in other words, spongey brakes*. The best solution to this is to use a master cylinder with a larger-than-standard bore, to minimise pedal travel, and a brake servo to minimise the pedal pressure required. Unfortunately, there seems to be no master cylinder in the Mini range with a significantly larger than standard bore. Therefore I opted for the halfway house of a standard-bore master cylinder of the Cooper 'S' type (which has a large reservoir to make it suitable for disc brakes), plus a servo.

* The more technically-inclined readers might care to consider also the secondary effects on braking performance of the longer semi-rigid brake pipes, two extra rubber hoses, larger brake shoe area, and the sharing of traction between close-coupled wheels.

Figure 1 Hydraulic System



N.B. If you make up your own brake pipes from a roll of 'cupro-nickel' pipe using a flaring tool, you'll never suffer rusty brake pipes again!

JOHN'S JOTTINGS

Hydraulic System (cont'd)

The servo reduces pedal travel, giving a better feel to the pedal, and permits the use of harder than normal disc pads without excessive pedal pressure. Such pads may be found necessary to maintain eff icient braking from high speeds with a fully laden car.

There seems to be no way of mating a combined master cylinder / servo unit to the standard Mini pedal box, so I stayed with the Cooper 'S' arrangement of a servo in the hydraulic line from the master cylinder. Both the Cooper 'S' and the MGB use such a servo. The decision to use a servo also rules out dual-circuit braking, since servo units for dual-circuit operation are always integral with the master cylinder. The use of single-circuit hydraulics, to permit a servo, in turn affects the choice of handbrake.

Brake Balance Valves : Pressure or Deceleration?

I have observed other people having great difficulty with Mini-Mokes in getting a satisfactory setting for the pressure-limiting valve which is in the hydraulic line to the rear brakes, and is intended to maintain the front / rear brake balance. The Moke suffers more than the Mini saloon because its rear end is so light. If the valve is set to give sufficient stopping power to pass the MOT test (which measures the rear wheels on their own), then the rear wheels continually lock up under normal braking when there are no rear seat passengers.

I had anticipated the same problem with the Hustler Six : not only does it have a very light rear end, it also spreads that low weight over twice as many wheels! The Mini range provides us with the choice of two types of brake balance valve : the pressure-limiting type which causes the Moke problems, and the deceleration-detecting type which is fitted to current Minis. The latter type overcomes the Moke problem, albeit in a rather crude manner. With the car stationary, full hydraulic pressure is made available to the rear brakes, and there is no problem achieving the stopping power requirement of the MOT for the rear wheels.

Brake Balance Valves (cont'd)

With the car in motion, heavy braking causes the valve to reduce the hydraulic supply to the rear brakes. This is achieved, within the valve, by a large steel ball running up an inclined groove under the influence of the deceleration of the car. I have fitted this type of valve, and it is fairly successful. The inclination of the valve body is adjusted by trial and error to just prevent lock-up of the rear wheels under heavy braking with no load in the car. Unfortunately, when the car is loaded and therefore needs more stopping power, and indeed there is more traction available, the valve is unable to compensate. As a result, the stopping power available is no more than in the unladen condition. I believe the solution is probably to replace this valve with a different type : the load-sensing valve.

The Load - Sensing Valve

When I built my Hustler Six I was unaware that brake-balance valves of the load-sensing type were already fitted in many cars ; eg. Simca 1100, Alfasud and Sprint, Talbot Horizon / Alpine / Solara. In retrospect, I would have tried to use one of these rather than one of the Mini type.

Such a valve is usually mounted on the chassis and has a moving link rod to some part of the suspension which, in a Mini, would probably be one of the trailing arms. A suitable attachment point might well be the lower mounting stud for the damper. When the car is unladen, the attitude of the suspension arm causes the valve to restrict the hydraulic supply to all the rear brakes, thereby avoiding the rear wheels locking up due to the restricted traction available. When the car is fully laden, the valve passes full hydraulic pressure so that the greater traction available can be exploited to give greater stopping power. This seems the most appropriate arrangement for the Hustler Six, and I intend to try it out.

Comment from last issue

Handbrake (John's Jottings)

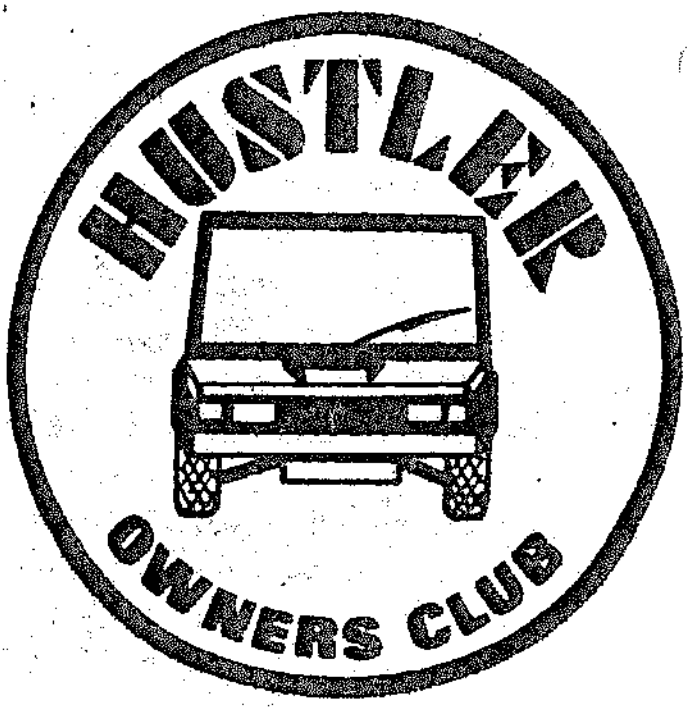
John states that the handbrake must operate on all four rear wheels unless a dual-circuit system is used. Surely this only applies to a twin rearaxle? I quote from construction and use regulations " In counting the number of axles of and in determining the sum of the weights transmitted to the road surface by any one axle of a vehicle, where the centres of the areas of contact between all the wheels and the road surface can be included between any two vertical planes at right angles to the longitudinal axis of the vehicle less than 1.02 metres apart, those wheels shall be treated as constituting one axle."

Correct me if I'm wrong but isn't the distance approx 2' on the six-wheeler, if so then it counts as a single rear axle. Does this mean that we only need brake two wheels?

COLIN TUCKER. BICESTER.

HUSTLER CLOTH BADGES

The Club Badges are now available. Design and size as on the right. Colour Black & White 3½" Dia. Ideal for sewing to T Shirts, Windcheaters, Blazers or Best Suits. Price. £1.20 each. If anyone would like one please write to me here at Aldershot.



Steering Column

Apart from the 1100 steering column the mini steering rack as mentioned in Newsletter no.2 another column which will fit is the Triumph 1500 this steering column also incorporates light switch and wiper motor switch and switch for intermittent wipe. Also I believe the column is adjustable for height and reach.

Two speed wipers

The standard mini wiper motor can be converted to two speed operation merely by inserting new brushes in the motor. You need to ask for mini two speed wiper motor brushes from your auto electrical agent. If you use in conjunction with the Triumph 1500 steering column set-up you have also got intermittent wipe.

ANDY ELVAN. LOWESTOFT.

Andy also reports that he is experiencing some degree of inconvienience from the ministry in getting his newly completed wooden six registered. He states that evan though the ministry inspector has seen his car he also insists he is present when the car is M.O.T.'d. Wether this is just a quirk of the Norfolk Licencing Authority he is not sure. I must admit I have not heard of this before. Would anyone like to comment?

New Sliding Glass Frames

I recieved a letter from Mrs Towns to say that the new window channel is now available. For those that can't stand their rattling windows anymore the price is below.

Hustler 4 and wooden Hustler 4	.....£130.00
Hustler 6, wooden Hustler 6, Huntsman and Harrier	.....£140.00

These prices include V.A.T.

STRATFORD SPECIALIST VEHICLES LTD

You may have seen the above company advertised alongside the Interstyl adverts in the Kit car magazines as the new distributor for London and the South East.

I had a lengthy chat with Simon Musgrave-Wethey the managing director on the telephone who explained to me all about the company. He also offered club members an open invitation to visit the workshops whenever they are in the area. Obviously a phone call to confirm it's convenient before you go wouldn't go amiss.

The following day I received a phone call from Keith Clyesdale the workshops foreman explaining some of the modifications they have made to the Hustlers they have built.

One interesting item that came out of the conversation was that Stratford's normally have a monthly delivery from William Towns so it could make good sense for members who live in the southern part of the country to get any spares direct from them. It could also save a trip to Warwickshire.

Stratford Specialist Vehicles Ltd

KEITH CLYESDALE
Workshop Foreman

UNIT A, ALTBARN INDUSTRIAL ESTATE, REVENGE ROAD,
LORDSWOOD, CHATHAM, KENT CT12 5ES
TEL: MEDWAY (0634) 684465/6

Any articles or letters for publication, controversial or otherwise should be addressed to me at the following:

Trevor Faithfull
4 Lodge Close
Church Lane East
ALDERSHOT
Hants. GU11 3TA
Tel. Aldershot (0252) 310191

Please try to remain within the bounds of the obscene publications act if possible.

DO IT NOW!!!!!!!!!

Callsigns G6 JPA Neil and G6 TH B Maureen

Any other licensed radio amateurs (hams not CB'ers) in the Club might like to contact the above callsigns for a friendly chat.

TOWING ASPECTS

It may be of interest to Club members who tow trailers and caravans to consider the suitability for towing of the various Hustler models. Over the past few years caravan experts have been recommending that you should apply a strict limit to the amount of weight you tow behind your car. This has been , that the ideal safe towing limit of a car is 85% of the kerbside weight of the car.

If the caravan or trailer is too heavy for the car that is towing it, the whole outfit will become unstable. STABILITY is the main factor which must be considered , not factors such as engine power, gear ratios or torque of the car. Although having said that, an underpowered car will never make a good towcar.

The first question to answer then is , what is the kerbside weight of your particular car. This is the weight of the car with fuel, oil, water etc. but without passengers or luggage. This can be done quite simply by taking the car to the local Public Weighbridge and for a fee of about £2 they will weigh it for you. Now we have a basis from which to work. My particular Hustler Six tipped the scales at a fraction over 16 cwts. I would be interested to hear of the weights of the other models in particular the wooden sixes.

So with the information of 16 cwts. as the kerbside weight of my car, I can then work out that 85% of this weight gives me a maximum, for stability and safety reasons that I can tow of 13.6cwts.

The next thing I really ought to know is , what is the actual laden weight that I do in fact tow .

This again can be done quite simply by loading up the caravan and putting it on the Weighbridge.

But it might be of help to those who are thinking of buying a caravan or trailer to assess which size trailer or van would be most suitable for their needs. A simple general formula which can be used in estimating the actual laden weight being towed is:- Take the unladen weight of the caravan as the starting point. This is the makers ex works weight and is usually stamped on the trailer drawbar.

Add to this the following weights, for two people you should allow 2cwts. to cover bedding, food and gas bottles - the bare essentials of life.

For things such as awning, battery, spare wheel, television, toilet

towing aspects cont.

or any other extras you may carry it is recommended that you allow another 1cwt. In addition to this it is recommended that you allow another ½cwt for every extra berth to allow for the extra bedding and luggage that people using these would add to ypur load.

So what we are in fact talking about is a 4cwts. minimum amount of weight you are towing on top of the unladen weight of the caravan for four people.

There is nothing in law to stop you towing more than 85% of your cars weight. But whether your miserable mini engine in its standard form or your nerves can stand the strain on a long journey is another matter.

Trevor.

THE NATIONAL KIT CAR WEEKEND

Royal Showground

Kenilworth, Warwickshire

The dates for this years show is sat 27th & sun 28th April.

As soon as I recieve more details from the organisers I will let you know. It is more important this year, due to the vast increase in Club membership that you give me an idea of whether you will be attending or not.

So that I can arrange a large enough Club Area.

Remember this is the biggest and best organised Kit Car show in the country with plenty to occupy all members of the family, and the camping facilities are first class.

NEWSLETTER NO 6 . Hopefully first week in April