

# HUSTLER

Journal of the kit car élite

no. 6



This month sees the start of the summer Shows at Kenilworth on the 27th 28th. I have booked us a Club spot so please come along for a chat and see how other club members solved the problem that nearly stumped you.

This issue's cover picture was sent to me by FRANK MCCARTHY of LIMERICK, on his journey back to the Irish Republic. I'll bet that was a long cautious ride home.

There are some super articles this issue from members with some excellent ideas and tips. Also a follow up to last issues article from ANDY ELVIN, on his experiences while getting his car passed for the road.

Also the excellent JOHN'S JOTTINGS. JOHN would very much appreciate your comments on these "jottings". Are they to technical or too simple, too short or too long? Should they have a continuous thread or story, or does the random choice appeal? What other topics would you like? Topics coming soon are :

- Stiffening Body Panels
- Strange effects of leading and trailing arms together
- Choice of Fuel Pumps
- Pitfalls of Cut - Price Parts
- Fibre - Optics in your Car.

The address for any 'feedback' is : John Hother  
40 Woodlands  
Barrowfields Drive  
HOVE, Sussex . BN3 6TJ

Another date to put in your diary is 8th- 9th June. THE GREAT KIT CAR GARDEN PARTY at Compton Verney. A great success last year and promises to be even better this year, especially with more members of the Elite Car Club attending ( Thats us by the way).

No firm date yet for this years HUSTLER AT HOME. As soon as I have details I will forward them on to you.

And now SCOOP PURCHASE. Key Rings with the club motif on. (How exclusive can you get). They are not actually gold plated, plastic in fact, White, with the club motif in Black. One upmanship, be the envy of your neighbours. The price is 30 pence each. If any one would like one or two or ten ( I've got hundreds), please write to me here at Aldershot. (PLEASE). All proceeds will go towards club funds.

Next issue early July. Please keep the articles coming in. Modifications you have made may seem straight forward to you, they could be the answer to someone elses prayers.

Looking forward to seeing you all sometime during the summer.



TIMBERRRRRR !!!!!!!

Keith Sharp has written with some details of his almost completed wooden six:-

6 wheeler wooden Hustler based on a Austin 1300. Hydrolastic is connected up using an idea suggested by Eric Weston and using compression joints to join the metal pipes together. ( BL main agents stock these compression joints for use in repairing damaged pipes. Apparently garages tend not to replace the whole pipe anymore, but replace the faulty section using these compression joints. They cost £3.00.)

Handbraked on all 4 rear wheels using an idea similar to a 'Johns Jotting' suggestion using mini 1 piece cables.

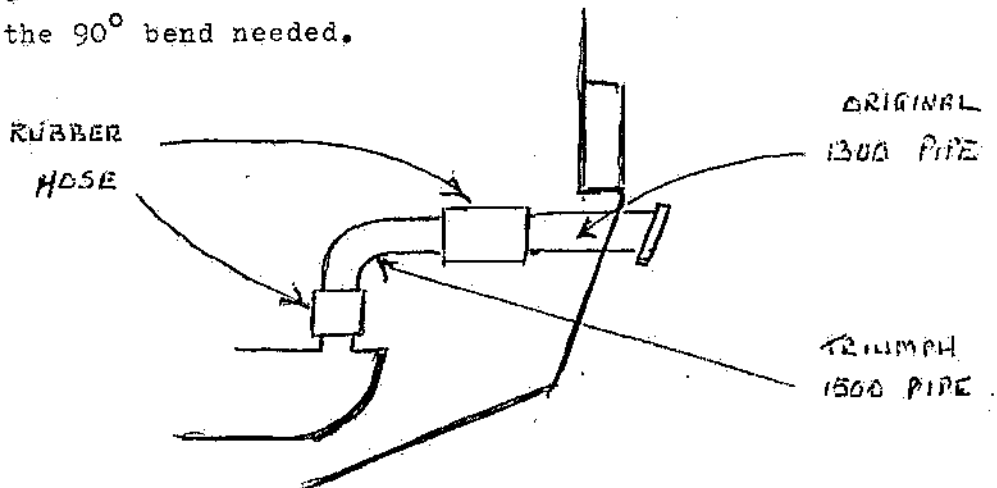
Brake Servo from 1300 GT

The steering column I used is from a Triumph 1500. The suggestion this time came from Angie Shepard when I met her at the Hustler-at-home weekend in 1984. One point to note is in considering obtaining a 1500 steering column from a scrap yard make sure there is a key to fit the ignition/steering lock, as a new unit is quite expensive - £35+ expensive!!!! (Spare keys are not available for locks without a key.)

Because of one of the modifications already done to the front end I have been able to front mount a 1750 Allegro radiator complete with thermo fan. The 'bottom hose' proved to be a bit of a struggle fitting it under the radiator as in the original Allegro design, but with a bit of thought and plenty of swearing I think it is now satisfactory.

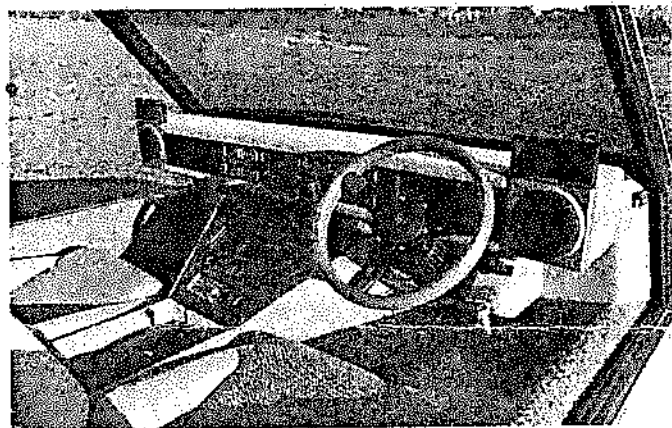
Windscreen wiper assembly is the original motor and rack cut down. The wiper blade is a 20" one (fitted to Princesses I think.) The wiper arm is off a Princess but with the base replaced with the base of the original 1300 wiper arm. All I did was knock the rivets out of both of the wiper arms and swapped them over replacing the original Princess rivet. I intend to spray the whole lot matt black so it matches original Princess wiper arm.

The petrol tank is the existing one off the 1300 mounted under the rear most rear subframe. Because the tank is now back to front from it's original position, the filler pipe can be bought out at the back under the rear offside light cluster. I used the original filler pipe off a Triumph 1500 to obtain the 90° bend needed.



## Highlander

The big Hustlers are here! Six inches wider and two feet longer, Highlander's cabin provides truly outstanding accommodation, with up to 35 sq. ft. of rear load bay. 15" wheels raise the car to give a commanding view over other traffic and your choice of engines, up to Jaguar V12, offers electrifying performance. All this in a car that occupies less road space than a Rover SD1! Construction remains unchanged, with the unique Hustler twin frame and bolt-on body panels. Shown here with sliding doors and six wheels on Jaguar running gear, this bigger range of cars is also available for VW and Cortina in four wheel form, with sliding or conventional doors.



XYW 77N is powered by Jaguar XJ12, with Jaguar suspension, steering, heater and electrics. Overall length is 4600 mm, overall width 1650 mm, overall height (on Jaguar mechanicals and 15" wheels) 1800 mm. In addition to the standard body kit supplied, it has optional wheelarch flares, spare wheel mount and front bumper, which increase these dimensions slightly. Seats are Wolfrace 582 in the front, 282 in the rear. Wheels are by Components Automotive. The car has Zemco trip computer and cruise control and Clarion compo hi-fi from Holborn Audio-Visual. We are especially grateful to B. F. Goodrich, who supplied the 255/60 x 15 tyres, S.E.V. (U.K.), whose Cibie headlamps and driving lamps match the performance of the car, Solaglas Tudor for the twin laminated glass sunroofs, Mountney for the delightful wood rim steering wheel and Serck Services, whose italic number plates add the finishing touch.

Kit price for Cortina/VW components is £2,600.00 plus V.A.T. (£2,990.00), for Jaguar mechanicals £2,995.00 plus V.A.T. (£3,444.00).

JOHN'S JOTTINGS

ELECTRONICS IN THE CAR

Anyone interested in building a home-designed trip computer or the like may find these sensors useful, for fuel flow and speed/distance (they are inserted in the fuel line and speedometer cable respectively). Both cope with a wide range of input voltage and give pulsing open-collector outputs. Back in 1981 they were £14 and £11 respectively, from Enviro Systems Ltd, Hamsfell Road, Grange-over-Sands, Cumbria LA11 6BE. For current details and prices for their range, I suggest you ring them - 044-84-4233.

ENGINE COOLING

A good way to improve engine cooling as well as improving lubrication is to fit an oil cooler, especially as the gearbox shares the same oil in the Mini family and gearboxes hate thin (ie. hot) oil. I found that the best value when I looked around was the Mocal make, from Accessory and Motor Supplies, 18 The Broadway, Newbury, Berks: they have a small advert in "C&CC". In 1983 a large one with ready-made pipes cost £33. Unfortunately the pipes for a Cooper-S will be too long, so to avoid having to hack them around, it is preferable to order the pipes to the exact lengths you want only after fitting the cooler. That way you end up with a neat and efficient installation: you simply can't lose a few unwanted inches with extra bends.

WINDSCREEN WIPERS

Lucas at their shop on the A27 at Hove in Sussex have a very nice line in wiper arms for kit cars because the angle between the arm and the blade can be adjusted to give the best sweep, then locked.

The sweep angle of the arm is dictated by the combined effect of your choice of pinion in the wiper motor and your choice of pinion in the pinion box (the other end of the rack cable). If you need more sweep (as I did) go for a "larger angle" pinion in the wiper motor. What you are actually changing in this case is the push-pull stroke of the rack cable, since the pinions differ in the distance of the drive peg from the pinion centre. Alternatively, change the pinion box for one having a pinion of fewer teeth.

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JOHN'S JOTTINGS

MY CHOICE OF CARBURETTOR - THE S.U. HIF-6

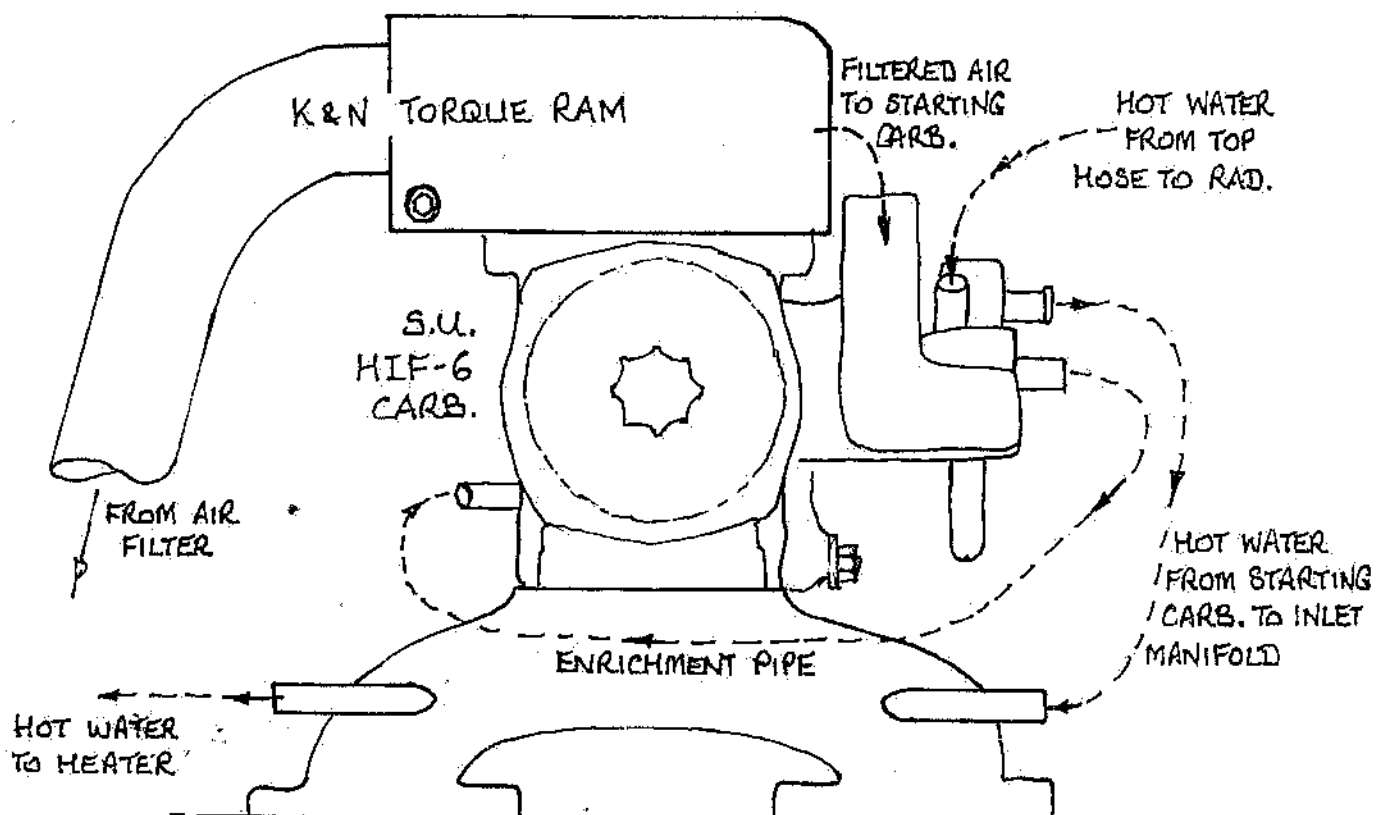
My main aim has been to build a car that is pleasant and fun to drive, and I have translated that into building my engine for maximum torque and flexibility, rather than maximum power. Throughout the car I have leaned heavily on advice in the excellent book "How to Modify Your Mini" by David Vizard. In the carburettor department, I opted for an S.U. HIF-6 carburettor (which has a 1½ in bore) rather than twin 1½ in S.U.s or a sidedraught or downdraught Weber or Dellorto. This gives me the advantages of a simple, neat installation with easy access and no modification of bulkhead or bonnet. In David Vizard's comparative tests, this carburettor turns out to be just as good as the others, in a road-going car. All I lose is the Weber glamour.

Another deciding factor for a single carburettor installation was my inclination to try the K&N Torque Ram, after reading of the substantial improvement in torque which it gave in "Cars and Car Conversions" tests. In line with experiences years ago with tuned ram pipes on racing engines, I chose the longer of the two versions available from K&N, to minimise the risk of suffering the traditional side-effects of ram pipes; in particular, dead spots in the power delivery.

THE AUTOMATIC CHOKE VERSION OF THE HIF-6

The HIF-6 incorporates many improvements over its rather crude predecessor the HS-6, and should give better running all round. I came across a bargain example in Speedy Spares (Portslade, Sussex) but it had a strange "growth" on one side. Research showed this to be a second simpler carburettor for starting purposes only, manufactured by Zenith, providing the equivalent of an automatic choke function, but far removed from the unreliable and crude bimetallic-strip devices of years past.

## JOHN'S JOTTINGS



I have sketched the installation above, to help anyone who may come across one of these carburettors and wish to use it. There are four important connections to make:

- (a) the enrichment pipe passes the fuel-air mixture for starting to a point downstream of the carburettor: I used the stub pipe on the carburettor which is intended for a crankcase breather.
- (b) the two  $\frac{1}{2}$ " stub pipes must be included in the hot water circuit preceding the manifold and heater.
- (c) the rear-facing plastic stub pipe on the top must be connected to the filtered air supply.
- (d) the two electrical tabs must be connected one to the ignition circuit and the other to earth (either way round).

Basically, the device provides enrichment according to the engine temperature (hence the hot water sensor) and the manifold vacuum (via a transfer port in the side of the carburettor, not evident). Enrichment only lasts for a timed period from starting the engine (hence the ignition circuit connection).



FORCE FOUR

I have made some comments on the building of my Force 4 which might be of help to other members and possibly save them time and money too.

1. I used a new electric wiring harness for my Force 4 - anyone else choosing to do so should be aware that some earlier harnesses are no longer available. My 'donor' car was a 1275 GT of 1973/4 vintage. I was supplied by the local BMC firm with a late-version harness and this has caused a lot of problems, especially as I tried to use a Haynes workshop manual - the latest harness are not depicted and you need therfor to be on friendly terms with your nearest agency in order to borrow and photocopy the latest wiring diagrams!
2. 12 inch wheels can be used but you MUST use low profile tyres if, like me, you use standard Weller steel wheels. It is also a good idea to gently grind-off a little from the raduis arm bracket to give just a little more clearance - but only take off a small amount! On the subject of wheels I found that ordering direct from Weller was the cheapest - the price works out at £18.36 per wheel including hub centre and postage.
3. I replaced the original 1275 GT engine/gearbox with new ones - you need a lower final drive ( I think the Denovo era gearbox is the one used) but be ready for the fact that you cannot use the original drive shafts since they are of the rubber universal joint type where as the later ones are splined. (more expensive)
4. Braking - do not, like me, leave your front calipers lying around for long otherwise they will seize-up in moist conditions! Also, be careful when attempting to loosen the bleed screw, most likely it will not have been loosened for years by the previous doner-car owners - they can snap off very easily, as I have found out.
5. Petrol lines - the pipe from the petrol pump to the carburettor passes very close by the exhaust manifold which is worrying. I have used a longer piece of pipe to give greater clearance - the top of the pump which has the outlet intergral with it, can be rotated after loosening the three retaining screws, thus allowing a new route for the pipe to carb.
6. When removing bits and pieces from the donor car do not gaily snip away at hosepipes unless they really are u/s. You may be in for a shock if you have to purchase a new engine-heater section - it costs £7.00...
7. Although Hustler bodywork flooring is quite thick it is not in my opinion, strong enough for fitting seats, harnesses and handbrakes - especially in the sad event of a 'prang'. I have fitted steel sheeting underneath the seating area (beneath the car) and bolted seats, etc. through this to spread the load - I have done likewise with the remote gearchange linkage. If you shop around the metal need not cost much more than £2.00 and is a small amount to pay for peace of mind!
8. Headlights, Halfords have been recommended since their spotlights are very cheap - again shop around since our local Halfords seem to keep altering their price per pair from £6.00 upto £9.00 - I do not know why since the units are always



exactly the same. I propose using Fiesta headlights as I think they will fit - more on this later.

9. Brake pipework - this is vitally important I feel and therfor I discarded the original pipes and bought new copper ones from Automec Equipment and Parts Limited, Arden House, West Street, LEIGHTON BUZZARD, Beds LU7 7DD. The complete system comes ready to fit for £27.22 - I will admit that since I run a specialist car club I do get a discount but even without that, the cost is still a low price to pay for safety and long-lasting brakework!

10. Petrol tank - I did not like Hustlers method of fitting the filler into the door well - I had visions of petrol fumes inside the car. I am proposing to have a tank made to measure and fitted into the same place but with the filler emerging at the side of the engine compartment near where the battery could go on the drivers side - a suitable small section of the bonnet will need to be removed. Also the pipework will be steel with suitable joints and also I intend to block it off from the engine area for fire safety reasons - more on this later though.

11. Dashboard switches - if you decide to use the later-type harness, note that different switch wiring sockets are used to those of the earlier cars - remedy is replacement switches I'm afraid.

12. Heater - I am considering using two heaters - one in the normal position by the dashboard and the other underneath the rear of the car with one outlet leading to the rear screen as I suspect that misting-up may be a big problem - has anyone any ideas about this please?

BARRY GIBBS. LONG CRENDON.

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KIT CAR SHOWS.

April 27th and 28th. NATIONAL KITCARS & SPECIALS SHOW.

ROYAL SHOWGROUND. KENILWORTH, WARWICKS.

I have booked the Club spot so will be pleased to see you there on either day.

May 19th. CHESHIRE KIT CAR SHOW AT CAPESTHORNE HALL. MACCLESFIELD, CHES.

Full details can be obtained from Roger Coupe. 20 INGHAM RD.

WIDNES. Cheshire. This one is a bit too far for me to travel in one day. But it may be ideal for those of you who live in that area.

June 8th and 9th THE GREAT KITCAR GARDEN PARTY. Park Farm, Compton Verney.

This was a great success last year and this year should see many more cars in attendance. It would be nice to see more Hustlers there this year as it is really home ground for us. More details as soon as I recieve them.

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WOODEN SIX COMPLETED

Further to our telephone conversation of some time ago, you - and the members - may like more details of the problems I encountered. Some of the reason may be that the LVLO for Lowestoft is based in Ipswich, Suffolk whereas the M.O.T. people are based in Norwich, Norfolk. Firstly I decided to contact the LVLO rather than wait for Swansea. The inspector came about a month after I telephoned him which suited me as I still had plenty to do. The car does not have to be complete, merely recognisable as a car. He merely looked at the car, filled in a form, gave me a lot of wrong information and then went away again.

The next stage was an MOT which proved a little more troublesome. The Norwich Ministry of Transport have apparently started issuing instructions to garages that all non standard vehicles must be seen by one of their examiners. I believe the Ministry of Transport generally is starting to tighten up, incidentally, I had to travel over 30 miles to Norwich to see the Chief Examiner who said the brakes did not conform to the regulations and as a petrol joint was found weeping not much else was done. The next visit brought to light a problem with the brakes but everything else was ok and the third visit earned a certificate. I must say Chief Examiner was most helpful and suggested one or two good modifications nothing to do with the MOT which I have incorporated. He did his utmost to fit me in at a time convenient to me. Great interest was shown by all other examiners who were again most helpful - one even arranged for me to use a local garage's rolling road to set up the brakes, which I did on a Sunday morning.

Having read the various comments in the Newsletter on the subject of brakes for 6 wheelers may I now give my version as approved by the Ministry of Transport.

Firstly unless the car was built before 1968 it must have brakes on all the wheels. I did try Colin's argument but to no avail as it only relates to axles and the matter of wheels is entirely different.

Secondly every car must have a primary and secondary braking system. The efficiency must be at least 50% on single application. In practical terms this means that where a single master is used the handbrake is also the secondary, whereas in a split system one of the circuits is the secondary.

Thirdly the secondary system must on it's own be 25% efficient and operate on at least half the wheels.

Fourthly where the parking brake is not also the secondary system, it need only have an efficiency of 16% - i.e. need only hold the car on a 1 in 6 hill.

WOODEN SIX CONF.

All the above is no problem on a 4 wheeler but on a 6 wheeler there are two basic options with all wheels braked;-

1. Single master cylinder operating on 4 or 6 wheels - the handbrake to operate on 4 wheels with efficiency of 25%.
2. Dual master cylinder acting on all wheels with either a diagonal or front/rear split. In the latter case the front wheels are the primary system and the rear the secondary. The handbrake need only operate on 2 wheels.

I decided to put hydraulics on all 6 wheels with 9/16" bore cylinders (Lockhead part no. 4241-051 I think) on the rear wheels and a standard mini dual master cylinder utilising a front/rear split. This did initially cause a problem in that the braking force was low on the rear wheels but after talking to various people I came to the conclusion that this problem was caused by the limiting valve restricting pressure to the rear wheels. I therefore removed the valve and inserted a T-piece but before anyone with a single master cylinder or diagonal split tries this do bear in mind that the internal construction of a dual master is helpful in my arrangement. Once the front (primary) brakes are hard on, very little more pedal movement can take place which therefore limits the braking the rear wheel cylinders can exert. As yet I have not experienced premature locking of the rear wheels. The pedal movement is normal, gives a reasonably firm feel and the braking efficiency as just tested is around 85% which is more than satisfactory. If I do get problems with this arrangement I will let you know.

Further points which may be of interest;-

1. Stratford Specialist Vehicles were very helpful when I telephoned them - I must pay a visit.
2. The steering column I spoke of is off a Triumph 1500. Rake and reach is easily and instantly hand adjustable by what I can only describe as a large plastic butterfly nut on the column. If anyone wants a wiring diagram for this column I will gladly supply it.
3. Two speed wiper motor. As an alternative to new brushes I now discovered that most Leyland vehicles use the same motor with just a different gear box on top.
4. Wiper arm. Adjustable length arms to fit mini splines are available from Halfords etc. I extended mine further by sliding the adjustable part almost all the way out and then drilling and bolting. With a 20" blade this seems entirely satisfactory.
5. I have fitted a toothed rubbing timing belt conversion, available from U.V.A, Argents Mere Technology Park, Humbridge Lane, Newbury, Berks (0635 33888). Easy to fit and completely quiet.
6. Insurance from Adrian Flux & Co, cost me £60 a year on a Fully comprehensive parts Only basis which suits me fine. No engineers report required.

7. Speedo cable. The Clubman push fit type cable is not long enough but the problem was solved with one from a 1970-6 Toledo.
8. Has anyone come across a decent heater and where or how do they bring in fresh air?
9. Has anyone got any ideas for a longer gear stick?
10. With only a 998cc engine my car weighing 900kg is seriously underpowered at 45bhp. Car mechanics magazine recently tested a water heated inlet LCB manifold with large bore exhaust, 1½" curb. and modified head and achieved another 13.4bhp at the wheels. I am also told that a different camshaft should add another 5bhp or so. I shall try fitting all these except I will use a Cooper exhaust as I believe a LCB system would involve modifications to the footwells of a wooden Hustler which I don't want to do. I will let you know how I get on.

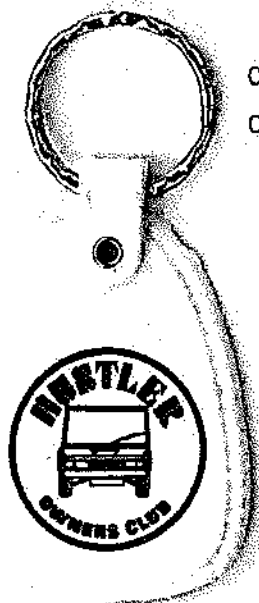
ANDY ELVIN. LOWESTOFT.

IT'S FOR YOU HOOOO.

I have installed a new cellular phone in my Hustler. It works incredibly well and is surprisingly useful. Am I the first?! By the way I bought the system from Aircall who are very effecient. If it helps anyone I can get a 5% discount on purchase and lease deals.

My Hustler enters its 2nd year of service and has proved a great company advertising prop. It is surprising how many customers' memories are jogged when the car flies by!

GAVIN HOOPER. London. 01 351 4276.



Club Badges as on the right  
Cloth Black & White.  
£1.20 each.

Club Key rings as on the  
left. 30 pence each.  
Cheques payable to Hustler  
Owners Club.

Trevor Faithfull  
4 Lodge Close.  
Church Lane East.  
ALDRSHOT  
HANTS GU11 3TA.



# Stratford Specialist Vehicles Ltd

CONSTRUCTORS OF HANDBUILT VEHICLES BY BRITISH CRAFTSMEN

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Good news for all Hustler owners. Stratford Specialist Vehicles are announcing a range of accessories making motoring safer and more comfortable for you. Although they cannot alter the price of a £2.00 gallon of petrol, the cost of many refined extras will be reduced by their own ability to manufacture and buy in bulk. An unconditional guarantee will assure all buyers that these genuine high quality parts are made to last.

The range includes; Servo assisted brake Kits (£84.51 including all pipework.)

An out off the way spare wheel carrier( under the floor pan on drivers side, no priced yet fixed.)

Side step rails for all Hustler models.

Hydro-lastic Suspension Pipes (£42.80 for 6 wheelers £39.60 for 4 wheels all pipes with correct bends and lengths required.)

All round tinted laminated glass.

Rear window wash/wipe Kit (£41.97 for wiper and £5.00 for washer. For cars with toughened glass rear window which cannot be drilled a wiper Kit that fits in the roof lining.)

And get this, a ladder - deck chairs and roof strengthening Kit for those outdoor social events on your cultural calendar.

Although Stratfords have only been trading since August '84 it may be of interest that orders have been amassed for a staggering £450,000 plus. One order alone for 80 vehicles came from a frozen food distribution company based at Windsor. Stratfords service of handbuilding a vehicle to a customers exact specifications has undoubtedly earned them this early success.

Monday April 8th sees the company's Open day, the official launch of their full range of vehicles. 150mph grand tourers included! Also scheduled will be the presentation of a suitably adapted car for Multiple Sclerosis victim Jack Forward, the first vehicle to offer this ex-policeman complete independence. Watch for more exciting news of this dynamic young company. Its not just their cars that are going places.

JOHN THWAITES.

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