

# LANDCRAB

CLUB OF AUSTRALASIA INC.



Welcome to newsletter number 77 for February and March 1998

78

## An AUSSIE GENTLEMAN

G'day mate  
Pleased to make  
your acquaintance.  
Blotto  
Inebriated beyond the  
capacity to stand up.  
You little ripper!  
Words of praise  
fail me.  
Rack off  
Your presence is  
no longer  
required.  
Fair dinkum  
Of course I'm  
telling the truth.  
Pull ya head in  
You may be  
correct in your  
assertion  
but shut up.  
Wanna Rage?  
Would you like to  
drink vast amounts  
of alcohol with me  
until we both drop?  
Drongo  
A rather  
dimwitted  
person.



Your shout  
If you value your  
well being you  
should buy the  
next drink.

Go on  
I'm not entirely  
convinced you know  
what you're talking  
about.

Whadayawant?  
Might I enquire  
about your needs?

Chunder  
The delicate act  
of regurgitation.

You pong  
Dear me, we do  
smell don't we.

Howya going?  
May I enquire about  
your welfare?  
Give it a go ya mug!  
Are you perhaps  
incapable of  
performing this act?

# INTRODUCING...

Garry Fry

6/ 84 Wellington Street  
Bondi N.S.W. 2026

[02] 9130 6591  
0414 992 386

18/ 85, 3 Litre  
Rally car

Garry is currently looking for a suitable Kimberley in which to install a modern 2 litre twin O.H.C Rover. **turbo charged engine.** This engine was in Joe Barling's rally car and Garry imported it from England. Garry has also imported a 3 litre from New Zealand.

Stephen Knox

2 Northam Road  
Wantirna Vic 3152

[03] 9720 2472

Mk 1  
Mk 11

"Having now completed a full restoration on my daughters AUSTIN 1800 mk 1, I now have time to renew my membership of the LANDCRAB CLUB.

I purchased the vehicle when last a member some 2 years ago through the club magazine. I had at that time just completed full restoration of a mk 11 manual model, and have now completed the mk 1 automatic model, that is now re-registered and in constant everyday use. The maroon mk 1 is in excellent condition having been in dry storage for years by the previous owner.

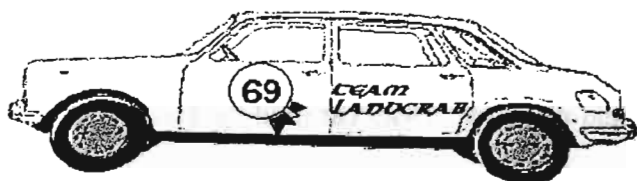
The only difficulty encountered during the rebuild of the vehicle pertained to the acquisition and subsequent adjustment of the auto gearbox. When acquired, the engine was out of the vehicle and the gearbox in a million and seventeen pieces. Landcrab owners came to the rescue with a new[ second hand] box, governor etc. Adjustment was fiddly without the proper B.M. C. tools, but is now working well.

I look forward to catching up on the club news ! "

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**THE AUSTIN 1800**  
**A VEHICLE SO FAMOUS, THAT TELSTRA**  
**NAMED ITS FREE CALL NUMBER AFTER IT !**

contribution eric wake



# QUEENSLAND NEWS

The short story below was found on the Internet during the month of November 1997 on the Austin page, and proves that our cars are true classics. If you are like me and do not have the Internet at home, your library will most likely allow you to have access to it. Another way which I used is if you are a Tech. or Uni. student most institutes have it available for pupils. The details for the story were supplied by the UK Landcrab Club.

## AUSTIN OF THE MONTH THE AUSTIN 1800

1964 - 1975

1. Built at Longbridge
2. Originally available only with the BMC 'B' Series 1800cc engine, later (Mk III) versions were also offered with the six cylinder 2200 cc E6 engine
3. Followed the Issigonis pattern of having a transverse engine, front wheel drive and hydroelastic suspension
4. Available also as the Morris 1800 / 2200 and the Wolseley 18/85 and Six.
5. In its day, the strongest car ever built by BMC!
6. Issigonis almost claimed it was his best design

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The 1800 range was originally designed as a replacement for the perennial Austin Cambridge A60. Issigonis, BMC's masterful chief engineer, exploited the extra power of the newly enlarged 1800cc BMC 'B' series engine to produce a car that was a class above itself in terms of interior space.

Issigonis considered the car a masterpiece - but the press of the day were slightly less sure. Whilst the incredible interior space, torquey engine and superb ride were highly praised, the typically spartan Issigonis interior and heavy steering were not! The first batch also suffered from quality control problems - including an incorrectly calibrated dipstick that under read the true oil level - causing owners to constantly overfill their cars!

Issigonis reacted in typically trenchant style to criticism of the car - responding to a suggestion in an Autocar long term test in 1965 that the driving position was less than ideal he wrote; "For those who wish to drive lying down, reclining seats ARE available!"

Unfortunately the market seemed unsure as to what the car was supposed to be - Mr. and Mrs. Average found it too big, and executives found it not exclusive enough. The A60 was continued in production....

The Wolseley 18/85 (and later 6) answered many of the criticisms, taking the car firmly into the executive sector.

But this is never what Issigonis wanted it to be. Had the car been promoted with the same verve as the Mini (which remember was also coolly received at its launch) there can be little doubt that it would have redefined the market, just as the Mini and 1100 had done before it. The car proved its worth in International rallying, and was BMC's lead car until the black day of the Leyland Take over.....

Affectionately known as the Landcrab because of its incredible road holding, particularly in International Rallying, the car now has an enthusiastic and VERY friendly owners club:

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## *BRAKE PAD TIPS*

These days most new disc pads are Asbestos free and require a different bedding-in procedure which I have been told is very important as it conditions the pad surface which increases their stopping power as well as increasing the life of the pads.

The procedure is as follows:

1. Accelerate the vehicle to approximately 35-40mph (about 60kph)
2. Gently apply the brakes, until the vehicle speed is about 3mph (5kph), trying not to stop completely if possible.

Repeat the above procedure about 10 times, allowing about half a mile (or between 0.3 and 0.6k) between applications.

Be very careful buying disc pads at a swap meet, as some the early Asbestos free types will glaze easy and cause premature disc wear

## *WHAT'S HAPPENING IN QUEENSLAND*

At present I do not have much information about forth coming events for 1998, but here are the ones I know of.

6 - 15 February '98, Brisbane International Motor Show.

1 March '98, Car Show and Swap Meet, 2<sup>nd</sup> Annual event organised by the Capri Car Club at Sunnybank Rugby Club, phone David & Kay Eiseman on 07 5543 1953 or 019 616 311.

29<sup>th</sup> & 30<sup>th</sup> Aug, '98, Jimboomba Swap, on the Mt. Lindsay Highway.

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# FROM THE BACK SEAT

## **PRESIDENT/ TREASURER/ LIBRARIAN KEEPER OF THE SPARES.**

Pat Farrell 03 9762 4457  
4 Wayne Avenue, Boronia Vic 3155

## **REGALIA OFFICER**

Mike Gilmour 047 81 8887  
Lot 57 Remembrance Drive  
Tahmor NSW 2340

## **DATA REGISTRAR**

Peter Jones  
4 Yarandin Court, Woorangary QLD 4213

## **PUBLIC OFFICER**

David Hopper [076] 333 383  
8 Evergreen St, Toowoomba QLD 4350

## **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

## **A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

## **SOCIAL CONVENORS**

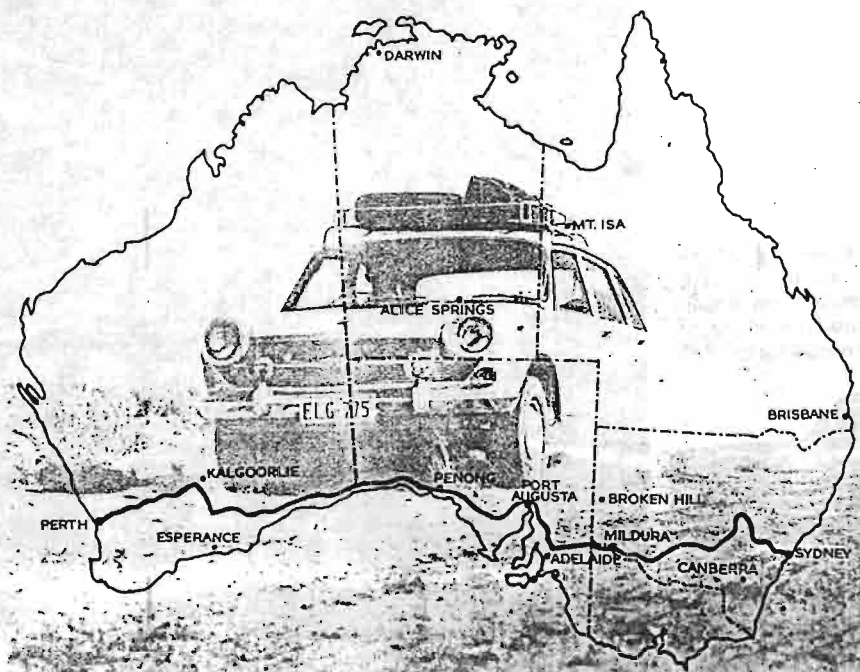
*Brisbane;* Peter Jones as above

*Melbourne;* Paul Nichols 47 Moores Road, Monbulk Vic 3793 03 9752 1489

*Sydney;* Mike Gilmour as above

Opinions expressed within are not necessarily shared by the Editor or Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month



Supplied by Frank Van Groeninger

**T**hey've been gnawing at me, these Austin 3-litres. It goes back to 1986, when I first met one-time BMC engineer Jim Lambert. The 3-litre was a jolly good car, Lambert told me - "and I should know," he said, "since I helped carry out the pre-production development."

Some mistake, surely? Everyone knew - didn't they? - that the 3-litres were ugly, slow, deadly old nails nobody was interested in buying when new and whose only virtue in old age was that they could be torn to bits to provide engines and gearboxes for MGs.

Subsequently I spoke to former BMC Director of Engineering Charles Griffin. He wasn't enthusiastic: the rear-wheel-drive 3-litre was a car his department wasn't keen to work on, and in which Technical Director Alec Issigonis displayed little interest.

Judging by the recollections of Ian Elliott, a BMC/BL apprentice of the time, such attitudes were one of the reasons for the car's long gestation, stretching from the early '60s through to a production start-up as late as January 1968.

"I joined BMC in 1965, and in my early years with the firm 3-litre bodysells seemed to be forever hanging around, almost as part of the furniture. You got the feeling it was a project the engineers picked up when they had nothing better to do."

Visiting Jim Lambert this summer, I decided to probe further about his work taking the 3-litre through to a production-ready vehicle.

"It came about after the fiasco of the Vanden Plas 4-litre R, which was disastrously unsold when it went into production. For the first time, therefore, BMC insisted that its engineering department decide when the car was of an acceptable standard to enter production. The sales people wouldn't get it until we were satisfied. That's one of the reasons why the car was so delayed: we couldn't get it right."

"What gave most heartache was the self-levelling suspension, which was necessary because of the combination of Hydrolastic suspension and a long rear overhang. Squeaks, rattles and other noises were also a problem - and so were the doors, shared with the 1800. They were tinny affairs which never shut with a satisfying clunk, and because they weren't stiff enough wind-pressure pulled them away from their seals, causing bad wind noise."

"When we'd finished, it was a very good car. I wouldn't have run one myself if I hadn't liked it. It was comfortable to drive, went very well, and it was decently refined for its era."

Working with Lambert on the 3-litre was Fred Coultas, who remembers the two engineers racing each other from Oxford to Droitwich in their development 3-litres.

"We did ridiculous speeds in them. People say they weren't fast, and maybe in terms of acceleration they weren't, but in motoring from A to B you could sure make them move."

"But the design was very much an engineer's design, created without any regard for the abil-

# It's no barge!

The Austin 3-litre was one of BMC's biggest failures. But is it as bad as it was made out to be? Jon Pressmull delves into the car's history, samples a survivor, and comes back surprised



**Last-ditch stuff: proposed Rover version of 3-litre, with revised glasshouse**







ity to manufacture it. The suspension in particular was a technological leap which didn't really take manufacturing and reliability into account. There was a certain limit to the work a Hydrolastic unit could do, and it was a struggle getting a luxury ride out of it. Looking back, I suppose you could say we were trapped in a Hydrolastic world.

"With trailing arms at the rear operating remote Hydrolastic displacers, there was a very high rate of leverage, any ripple in the road being magnified about 25 times by the time it reached the suspension unit. You can tune such a system for very good handling, but it's incredibly difficult to get the ride you'd want from a luxury car."

Responsible for overall development of the car was Ron Nicholls - who feels it was foisted on Issigonis against his will by a management who saw the need for an 1800-derived replace-

ment for the Westminster. In its initial form, it used the 2133cc Blue Flash 'six' developed from the four-cylinder B-series for Australia's short-lived Austin Freeway and Wolseley 24/80.

"The project was totally against the Issigonis philosophy of what a car should be. It was not conceived from an ideological or an engineering point-of-view - it was seen simply as a replacement for a vehicle then in the marketplace.

"The main involvement of Sir Alec was insisting on self-levelling. The first car had a leaf-sprung rear, and we replaced the rear shackles with a combined damper and levelling unit. It was pretty unrealistic, but we went ahead. It was so inefficient we never got it to work. After about 12 months we stopped, and nothing was really done for a while. Then the car suddenly came to life again as a straight three-litre with Hydrolastic suspension."

Nicholls confirms that there were many problems along the way, but says the final result was highly satisfactory.

Pitch frequencies were very low, comparing very favourably with those on the Citroën DS, and the advantage of the interconnected Hydrolastic was that it made for a vehicle which handled exceptionally well for its size. "I believed time that we had produced a very good touring car, particularly for motorways. Its ride and roadholding compared well with anything then available."

Also stressed by Nicholls is the innovative engineering which went into it.

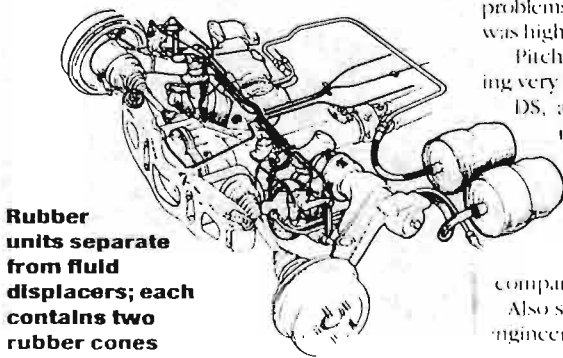
the car. The engine mountings were designed to control more efficiently any vertical movement of the power unit, while the differential was mounted in a rubber-insulated carrier, and constant-velocity joints rather than Hooke joints were used for the driveshafts. Then there was a cleverly power-assisted rack for the steering, and an extension to the differential housing to reduce propshaft length and thus cut down the chance of propshaft vibration.

It all added up to a carefully-honed package with the emphasis on refinement. But what about performance? Here's where BMC screwed up.

Available as a manual with optional triple overdrive, or an automatic using Borg-Warner's three-speed type 35 unit, the 3-litre was powered by a 2912cc overhead-valve straight-six. While sharing its bore and stroke with the preceding C-series unit, this was a completely new unit. Marginally lighter and slightly shorter, its principal feature was the use of a seven-main-bearing crankshaft.

With two hydraulic pumps to drive, one for the self-levelling and one for the steering, it developed only 118bhp - despite its twin carbs. This was 2bhp less than the C-series in Westminster tune, while max torque was down 6lb ft, to 152lb ft at 2500rpm. At 30cwt the 3-litre was no lighter than the Westminster, so performance was bound to be disappointing.

Subsequent road-tests bore this out: the best Autocar could wring out of an automatic 3-litre was a 0-60mph time of 17.8secs and a max



Rubber units separate from fluid displacers; each contains two rubber cones



maximum speed of 99mph - with an overall fuel consumption of 14.9mpg. Admittedly the rival Vauxhall Viscoun and Ford Zodiac were little better, but for an extra £155 - at 1968 prices - the Rover 3500 blew the poor 3-litre into the weeds. Worse, the twin-carb 1800S wasn't much slower, and in Wolseley 18/85 form was no less luxurious.

Here was the nub of the problem: you were being asked to pay quite a lot more for the 3-litre than for the lesser four-cylinder sister-cars it so resembled, yet you didn't seem to get more for your money. This was even more so with the car in its original form, as first seen at the 1967 Show. Hamfistedly equipped with rectangular headlamps, it had plain 18/85-style seats (albeit in leather) and 18/85 Mk1 quilted door trims with imitation wood cappings.

Despite the Westminster-style wood-veneer dashboard, it all looked very unappealing, and BMC had second thoughts. Accordingly, when the car entered production in January 1968 it had lost its TV-screen headlamps and gained front quarter-lights. Then in October 1968 it was given better seats, with fold-down armrests at the front, plus plain door trims with deep real-wood cappings. In addition, the rigid door bins gave way to ruched pockets in the front doors and on the seat backs, while the seating was now in vinyl; quarter-lights excepted, this spec was adopted for the 18/85 MkII.

The production target was 10,000 cars a year, but in the end only 9992 3-litres were made in total, the last leaving the Cowley lines in April 1971. Interestingly, some of these final cars apparently had an uprated engine giving about 151bhp more. Accountants at BL doubtless heaved a sigh of relief at the 3-litre's demise: Ian Elliott remembers a costing exercise which showed its component cost to be way above that of the rival Vauxhall and Ford models.

With such poor sales, it's no surprise that a mooted Vanden Plas 3-litre was not proceeded with, nor a Wolseley variant. Fascinatingly, though, the Wolseley was being played with as late as 1969, and was experimentally fitted with the 3.5-litre Rover V8. Old BL hands still recall this 'Boss' 3-litre with a tear in their eyes...

Today it's estimated there are 150-200 road-worthy survivors: the rest have been scrapped, used for banger racing, or cannibalised to keep MGs rolling. Those used as donor cars for the 'C' have tended to be manual models, so most of the remaining ones are automatics.

One 3-litre expert is Westminster and Wolseley 6/110 specialist Ian Downes. Despite his fondness for the later car, he's not convinced by its engineering:

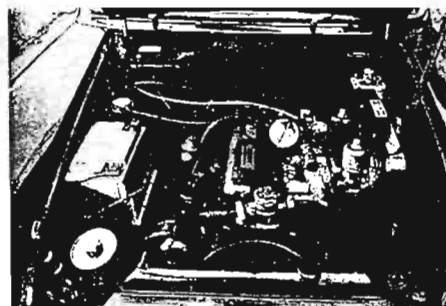
"The suspension never worked properly. People would load the boot up, put a caravan or something on the back, switch on, and they'd find the rear end would rise up so far then no further. Also the self-levelling mechanism just inboard of the wheels was ideally placed to be bombarded with road dirt, which eventually stopped it operating.

"In old age, too, the sealed-for-life radius arm bearings seize, and you can lean on the tail without much happening. You can end up with a car which either drags its back along the floor or which has a rear which won't budge at all."

Ian prefers his 'Wessies', to the point where he's no longer directly involved with 3-litres, and passes on most enquiries to Neil Kidby, spares secretary of the Austin 3-litre Owners' Club. Kidby is totally enthusiastic about the cars, and can supply everything needed to keep



**Car corners with poise. Front uses normal Hydrolastic: fluid displacer piston and single rubber cone in one unit, upper and lower link location. Brakes disc/drum**



a 3-litre fit and on the road, plus much more.

"I love driving them. They're a real driver's car, and if you get a guy in an XR3 behind you on a country lane he can't stay with you. They're not the car their looks suggest, and they're quicker than you'd think."

I thought that sounded a load of old tosh until I took Neil's 3-litre auto for a good run. I came back seriously impressed: it's not a bad old machine at all.

Unless you work it, when it becomes quite vocal, the straight-six is nicely refined, with

## 3-LITRES THAT MIGHT HAVE BEEN



**Vanden Plas (above) had wraparound rear screen; Wolseley used Rover V8**



**In 1968/69 Michelotti submitted these proposals - seemingly Rover-badged**





noise levels well subdued. Cruising at 70mph is relaxed, and the car pushes effortlessly up to 85mph – by which time wind noise from those 1800 doors is the most obtrusive sound.

Acceleration is adequate, although if you wrong-foot it in 'D2' – which cuts out first gear – it can seem gutlessly slow in responding. In 'D1' – making use of first gear – the Austin is snappier, and certainly no embarrassment. The actual gearchanging is quite smooth, although the Borg-Warner three-speeder does seem to hang onto second for some time.

At 15ft 6in, the broad-beamed 3-litre is no tiddler. With the power steering it doesn't feel its size, though. Unfortunately, the lack of feel and low gearing of the power-assisted steering does not encourage spirited driving. *Motor* wrote. Well, I'm not too sure about that. I'd go along with the low-gear bit – four turns lock-to-lock isn't wonderful. But I surprised myself by the speed at which I could hustle the 3-litre through Suffolk lanes: the steering might lack feel, but it's well enough weighted to allow the car to be swirled along with every confidence.

That's partly because the chassis is so composed. In town there's a bit of feedback from road irregularities, but at speed the 3-litre rides with a supple absorbancy and a degree of control which bear out the claims of Ron Nicholls: acting gently, the suspension allows a touch of body movement and then neatly pulls it in. Nor is this poise paid for in majestic under-steer or Armada-gallon roll. The Austin comes with gratifying accuracy, at speeds which would see a big Rover heeling towards the white line.

I never thought I'd be won over by the 3-litre. I find it fun to drive. It's easy to see, though,

why it was a failure: it was a 1964 car which only became available in 1968.

By that time, the Triumph and Rover 2000s and their derivatives had cut the ground from underneath the Westminster and Super Snipe class which the Austin sought to perpetuate. Equally, the 3-litre was not only ungainly in its styling – at least from the front – but also too close in appearance to the unloved 1800 series. Add to that a lacklustre performance and a plain interior and you had a recipe for a surefire flop.

But few failures can have been as honourable

as that of the 3-litre – just as few cars can have had their virtues unsung for so long. It's time history reassessed the poor thing. **CLASSIC**

**Austin 3-litre Owners' Club:** Barry Gilleland,  
25 Cranberry Road, Eastleigh,  
Hants SO5 5HB; tel: 0703 644369.

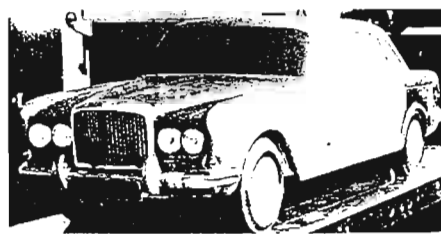
**Neil Kidby:** 78 Croft Street, Ipswich,  
Suffolk IP2 8EF; tel: 0473 684867.

**Ian Downes:** 5 Florence Grove, Stone Cross,  
W.Midlands B71 3LL; tel: 021-588 3335.

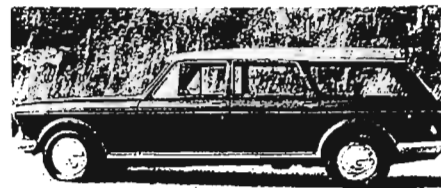
## VARIATIONS ON A THEME



**Woodall Nicholson limo (above); pre-production car (below) has oval lights**



**RR/BMC deal led to proposed RR and Bentley versions; Crayford did estate**



# PRE ENGAGEMENT !

By Keith G Douglas

Starter motors are very handy because they save us having to crank start our vehicles. Undoubtable, this would have presented special problems for cars with *East West* engines

In vehicles with the older style starter, such as the 1800, the starter fires up when the ignition key is turned. The starter motor innards promptly start revolving at 1000 RPM. It then flies into the ring gear, and starts turning the engine.

Being hit by 1000 RPM of starter motor each time we start our engines does of course pose durability problems for the ring gear. Since the engine must come out, unless one wishes to take to the driving side mudguard with a can opener, to replace the ring gear, it could be suggested that anything which preserves the life of the ring gear is worthwhile.

Pre engaged starter motors work differently. Turning the ignition key throws the starter into the ring gear. **Then it starts to spin !** This promotes ring gear life.

The X6 range were fitted with the Lucas M 40 pre engaged starter and it will fit the 1800. However, it needs in basic terms a 1/4 " spacer to be manufactured and it is fairly bulky.

As luck would have it, I was wrecking a mk 11 1800 and happened to notice the starter was a very compact pre engaged type. Also, it lines up perfectly without any mods at all. It comes of the **Holden Gemini** - the older rear wheel drive model. The Gemini was really an Isuzu [ or similar ] which is Japanese and it may mean other Japanese starters are the same.

Another big plus for 1800 owners switching to this starter is that a lot of specialist BMC workshops fit this starter to the Minis. [ The locating holes have to be elongated for it to fit the Minis ] This of cause means it is readily available where we purchase our spare parts. Link Automotive near here sell re conditioned ones for \$95. A wrecker near here sells second hand ones for \$24

Wiring is simple. On the solenoid, the starter input wire is placed on the battery output terminal- the other end still goes to the starter. Any other wires there follow it to the other side. Then a light additional wire is fed from the now freed up terminal on the solenoid to the starter solenoid. The Kimberley wiring for the starter could be used, but it is a little complicated to describe.

This system has been trailed on our Editor's car since the end of November. Enquires should be directed to him, as I have adopted a wait and see approach. So far, it has been a complete success. Also an occasional wail from his ring gear has disappeared.

**Comment by Editor,** Sometime ago, sucker me was persuaded by **Ken Patience** to trial his polyutherane engine mountings. The idea was that if they busted, it would be soon, as the 1800 was about to drag the 'van well north of Melbourne to Coffs Harbour, and the strain of towing shows up any weaknesses. It was 40 c the day we left, and I was worried they might melt. However, they were a complete success. Ditto for this starter motor.

I fitted the Gemini starter to the 1800 at the end of November. My vehicle is not a hobby car- it has to work for a living- and has covered 1,200 miles with it in. More importantly, that is nearly 200 starts. I cannot think of a change to original specifications that has been more successful.

**Comment by Adam Stephens** [ Son of Editor- Mk 11 manual ] Following the success of the old boy's latest toy, my manual Mk 11 was converted. We spent some time at the wreckers examining the starters of various Gemini's. There are minor casting differences, but in basic terms, they appear to be the same. Dad, being senile of course, forgot to examine the starter on the diesel Gemini.

**Comment by Dick Nelson** [ Late Grandfather of Editor - early Mk manual ] If I was not up here in Heaven, you would be performing this improvement to my car. On a personal note, you better start behaving yourself or buy a fire proof suit !

**Comment by Bern Stephens** [ Father of Editor Mk 1 Auto ] Its in and it works !

*Austin*

1800

MARK II

First introduced  
October, 1968



# WHEEL ALIGNMENT

*By Daryl Stephens*

For those who are scrubbing out front tyres, help is at hand. Curiously, the local front end aligner can sometimes be by passed !

1 Examine top and bottom ball joints for wear. This can be done by driving the car onto a crow bar. Lifting the bar will show up any slop. Once the ball joints are known to be serviceable, the car can be jacked up and slop in the tie rod ends can be investigated and corrected if need be. If the rubber boots are showing signs of fatigue, replace them.

2 When the tie rod end has been examined, examine the steering rack. Any signs of slop will need attention.

3 Next, the bottom fulcrum bush should be examined. If the rubber appears tired, replace it. The club sells poly utherane versions of this bush.

4 Badly worn wheel bearings will show up in test 1

5 It is rare for the Mk 11 front slipflex to 'go'. Ditto for the Mk 1 and X6 roller bearing in the upper suspension arm.

6 Now that all the moving/ wearing parts are now in order, the suspension heights can be set. From the centre of the front hub to the bottom of the front mudguard should be 15 ". This sets the castor and camber.

7 Using a long **straight** length of metal, place it hard on the front wheel. Adjust the wheel slightly so the iron bar is parrel with the car sill. Then place it on the other side. As long as a fraction of toe in present, then the front end is right. { To adjust the toe in, the tie rod ends just need removing and spinning on their threads. Just make sure that the unused thread is about even on both sides }

8 Should concerns still be felt about the alignment, well there may be no alternative but the alignment place. They will generally give a written report on all the measurements, but only be able to adjust to in.

9 Sometimes due to accident damage or wife hitting the gutter at 110 ks the suspension arms may sustain damage which will affect the alignment. Do not fear because the problems can be easily fixed.

10 The camber can be corrected by removing the cover that both suspension arms sprout out of. This can be machined or packed as appropriate depending on whether the camber needs to increase or decrease. Pat Farrell is experienced in doing this, and Paul Nicholls may be also.

11 Caster is corrected by altering the length of the tie bars. Washers can be used for packing if need be.

12 If your front end still feels wrong, I suggest matches and a torch !



SOME THOUGHTS ON

# POWER



STEERING

As most of us know, the English and New Zealand 1800's arrived with the option of power steering. As most also know, it was not an option on the Worlds Best 1800's. As more of us have newer second cars with power steering, one can sometimes become quite fond of it. I suspect its popularity is because most manufacturers gear up the steering - that is reduce the lock to lock turns at the same time. Perhaps the P.A.S. was not considered tough or durable enough for our harsh environment. The early ones had the pump attached to the rear of the generator, and it was not a great leap forward. Later models mounted it above the alternator, with a separate drive belt from the alternator. A support bracket runs from the thermostat housing to the pump. (As a matter of interest, the Poms only got around to our 3.8 steering rack from the Mk 11 onwards. Till then they were 4.5!) The pump is the same one found on some Commodores.



As a matter of comparison, our 1800's and X6's require the 16 1/2" wheel to be turned 3.8 turns lock to lock. The outer circumference of the wheel must travel through, in imperial measures, 16 feet 5 inches for the 37' 11" turning circle. Our Rover which is completely inoperative without the power steering has a 15" steering wheel and is a magnificent 2.7 turns lock to lock for a 34' 3" turning circle. The wheel must only travel through 12 feet 7 inches lock to lock.

Obviously, a power assisted rack would need to be sourced from either the Poms or the Kiwi's. Some options are Tony Wood from the Landcrab Club in the U.K. (Ph: 0011 441 253 352 730) or. Bill Lane's Gearbox and Steering centre: 2/131 park road, Miramar, Wellington N.Z. (04)

88 1861 or Club member Peter Allen (03) 9534 7726 has kindly offered his New Zealand brother in law to assist in sourcing parts. A "P.A.S." inner steering column is necessary too. The bad news is that the steering is still a poor 3.5 turns lock to lock. Also, like our auto's generally become manuals when they fail, I understand that the P.A.S. becomes



manual under the same circumstances.

Now for the interesting bits. It is possible to alter the ratio of the rack and pinion. To have new gears made will cost around \$450. Some new cars - the MGF for example - are coming out with Electric power steering pumps. Now presumably, they can be made to pump the 1800 P.A.S. rack. They of course have the advantage that they can be mounted virtually anywhere. Being ultra modern, my understanding is that they provide variable assistance. That is, maximum assist for parking, and at higher speeds, not much.

The front end geometry is changed marginally for the P.A.S. but whether it is necessary remains a mystery. Perhaps only change it if it proves desirable.

The following is the front-end alignment details for the power steering:

Castor     1 ½° pos ± ¾°

Camber    2 °pos. ± 1°

Tow-in 1/8"

Recently I collected a very late Mk 1 - often called the Mk 1½ - and the steering was unbelievably light. A quick investigation revealed that as well as Mk 11 front seats (unfortunately), and the Mk 11 dashboard, it has the negative castor of the early Mk 11's.

For those who need lighter steering, this may be the way to go. However, knowing that the factory deleted it very early in the piece leads one to suspect that under abnormal conditions, problems may arise. I have already discovered that the self centering will keep going past the centre point, and keep winding the other way!

For those who wish to convert to this geometry, simply bolt on the tie bars off the desirable model. It is not for everybody, but it may be simpler than converting to power steering !

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Recommended by club member Robert Goodall [03] 9515 7015. This panel beater has probably done more 1800's than anybody else in Melbourne

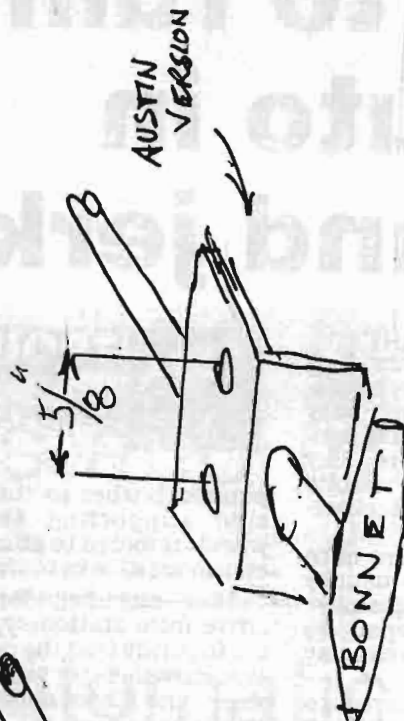
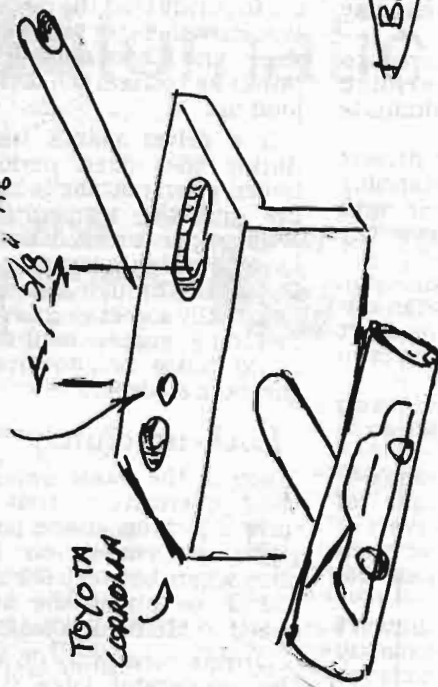
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# How to ruin an auto in fits and jerks

By JOE KENWRIGHT

**A**UTOMATIC transmissions make driving easy but, because they compensate for the worst drivers, they can encourage sloppy habits that will hasten their destruction.

The cost of the average auto transmission rebuild is usually higher than the most expensive manual transmission repair, so going easy on your auto can pay off.

Manual drivers learn to smoothly co-ordinate the clutch and accelerator to eliminate jerks.

But many automatic drivers develop the habit of stabbing the accelerator with their right foot as they travel down the road in fits and jerks.

Others slam the transmission into Drive or Reverse when the engine is revving hard, or don't bother to wait for the car to stop before selecting reverse.

Or they slam the car into Drive when the car is still moving backwards.

Driver abuse has to be a major cause of an abundance of stripped torque converter splines, broken hubs and worn out reverse clutch drums reported by repairers.

Transmissions that haven't been given a chance to warm up are particularly vulnerable to breaking, so kicking down the automatic choke to drop the revs before selecting Drive or Reverse in the morning can make a difference.

Even if the transmission survives this sort of treatment, joints and splines in the tail shaft, driveshafts or differential certainly won't and an increasing number of used cars are showing up with shredded sus-



**TROUBLE**  
*shooter*

pension bushes as the suspension supporting the drive wheels is forced to absorb these enormous shocks to the system.

After engaging Reverse or Drive from stationary, it's better to gently feed the power into the driveline to take up the slack and then apply further power as you feel the drivetrain load up.

If a driver plants the foot during that dead period between when nothing is happening and the transmission is engaging or torque converter is loading up, an enormous shock is passed through the car and eventually something will break including engine mounts and could cause fatigue cracks in the car's structure.

## Lock-up clutch

Many of the latest autos with their overdrive fourth gears have a lock-up clutch that engages, depending on model, somewhere between 65kmh and 75kmh or about the average speed of Melbourne traffic.

Drivers constantly on and off the accelerator force this expensive clutch mechanism to constantly engage and disengage and wear out.

Some automatics have an overdrive on/off button. Not all experts agree, but I treat this button like a fifth gear on a manual and switch the overdrive on only when I see a clear run in the traffic or when cruising.

# FOR SALE...

Mk 11 1800 Auto Was a good car till original owners granddaughters boyfriend got his hands on it [ The car that is] Always garaged Tan/ Cream Car is a jammed in a gear and is at Puckapunyal army camp Graeme Bodinnar [03] 59 774 746 Offers

3.7 crown wheel Adrian Leighton 02 4751 6926

Mk 1 **Kimberley** manual E.C, many period accessories low miles full history Club member Graham Halloran [02] 6553 2878 **\$2,000** Manning N.S.W.

1800 twin carbs with Lynx inlet manifold and H.P. air cleaners [ will clear brake booster in the standard position ] Mathew Drew 0412 289 989 Melbourne \$600 **Also** an S.U. Electric Fuel pump \$50

Hans Pedersen [ Melbourne ] B/H [03] 9874 1800 has the following mostly new bits for sale;

1800 auto brake pedal rubbers	\$5 each
Mk 1 new inlet valves	\$25 "
Mk1 11 new inlet valves	\$28 "
Outer valve springs	Cannot read Han's writing
<b>Ute brake master cyclinder kit</b>	<b>\$40</b>
<b>Morris 1800 grille badge</b>	<b>\$20</b>
X6 new grille badge	\$25
1800 new grille badge	\$25
Rear Leyland Mud flaps	\$25
<b>1800 Weber inlet manifold [ new]</b>	
[ Firewall does not need modifying ]	\$150
Ute hub caps	\$10
<b>Works triple S.U. Inlet manifold for Tasmans and Kimberley's</b>	<b>offers</b>

Mk 11 1800 Auto 2 owner car 60,000 miles Balwyn Vic \$2,000 [03] 9817 4748 Ashley Carr

***The trouble with political jokes  
is that they get elected !***



# Badge Engineering.....

I was talking to a local the other day, a man who has been married for some time to an Englishwoman, who, in a way not unknown to her breed, had a mother back in the Old Dart. A lady who in her letters made occasional reference to her motor-car, a Vanden Plas.

Sounded pretty posh to husband, who when he visited the UK and was confronted with the saintly vehicle was somewhat let down to see it was 'only' a Morris 1100!

Mother-in-law didn't know that, though. She hadn't noticed all those other cars which looked the same as her's. And that has often been the case with the owners of badge-engineered cars.

Many of the people who bought a new Wolseley in the late 'fifties for instance, did so because they had always had Wolseleys. It didn't occur to them their car was just like an Austin....they probably wouldn't look at an Austin!

I don't know who started badge engineering. Certainly it was difficult to tell some Humbers and Sunbeam-Talbots apart in the late 1930's, and some Sunbeams, Hillmans and Singers in the late 1950's. The Americans have had a go at it...notably in the Chrysler corporation and General Motors. I don't recall any ventures along those lines in the Continental European marques.

But the people who took to the system with the greatest enthusiasm were the people at British Motor Corporation, later British Leyland. And even before that, one of the pre-BMC constituents, Nuffield, was at it with the late-'forties Morris Six not being much different to the Wolseley Six-Eighty...the extra price for the Wolseley gained for the buyer a much nicer radiator grille, with the traditional illuminated badge.

The full-flowering of badge engineering, though, was still to come, after Riley, Wolseley, MG, Austin and Morris were settled in together. While the smallest of the conglomerate's vehicles,

the Morris Minor and Austin A30/35 were spared (they did share engines and other parts, but maintained completely distinctive looks), the mid-'fifties 1500 versions came as Rileys, Wolseleys, Morris and Austins (A Morris Major, or Austin Lancer, came closer than any other car in those days to getting seriously crossed up in my hands). The Mini had Riley Elf and Wolseley Hornet versions. The 1100 series came out with Morris, Wolseley, MG and Riley bits and pieces....and Vanden Plas....as did the bigger saloons, including Austin versions.

Interestingly, in his complete Encyclopedia of Motorcars, G. Georgano says, in the Riley section, after dealing with the 1100cc Riley Kestrel and the Mini Elf: "This meaningless badge-engineering was stopped by British Leyland in 1969". Interesting, because Wolseley, Austin and Morris versions of The Giant Landcrab....the 1800 series....were to continue until 1975. And what about Jaguar and Daimler, to mention only a few?

Interesting too, because it poses the question, was badge engineering meaningless? I don't think so. Even for those who knew their Wolseley, MG Magnette or Riley was the same, barring trim and some equipment differences, it was possible for those who had always bought such makes, or wanted something a bit different, to be happy. Perhaps they would have been happier had the vehicles behind the badge have been completely different and individual. But that wasn't possible by then...not, anyway, for the sort of money people paid for badge-engineered cars.

So, having said that, would I have one of these MGs or Rileys? No, I'd always have an older, "real" one for preference. But I wouldn't mind a Wolseley 15/60...much less unlike, to my mind, a Wolseley than the other two to the cars which used to travel behind their radiator badges!

Ends

Supplied by Ken Patience

*Picture: The Wolseley 15/60 of 1959, complete with illuminated radiator badge, was the fifth BMC car to appear with the Farina styling, following the Austin A55, Morris Oxford I, Riley Six-Eighty and MG Magnette 111. All had the BMC 1500cc engine, ex-Austin A40, shared with the MG4, among others, with the MG1B to come. The Wolseley was brand new and unregistered when it was photographed outside a Juitland BMC agent.*



# FOR SALE...

Mk 1 1800 Manual one owner 88,000 miles. The engine had a complete overhaul last year. Cream/ red. Has been always kept under cover \$3,000 Mrs Steger Caboolture Q.L.D. 0754 954 756

Mk 11 1800 auto 1969 2 tone green with a tad of rust \$200 Justin [QLD] 3345 1502

1800 workshop manual and owners Mk 11 handbook **as new** Mal Mc George b/h 03 9482 5055 or a/h 9470 5512 offers

Mk 1 1800 1966 White/ red Reg & Rwc \$1,400 Club member Neil Solomon Benbigo Vic [03] 5447 0626

Mk 11 1800 Light brown/ red 1969 manual 12 months reg RWC E.C. 44,000 miles Club member Cameron Bull [03] 9773 6854 \$4,200 Seaford Vic

Kimberley spares - twin S.U. carburettors on manifold, camshaft. G.C. \$100 negotiable Kate Marks St Mary's N.S.W. [02] 9833 3740

Harry's house full of 1800's > There is a mk 1 1800 with 50,000 miles that has been stored in a garage for 10 years and is in good condition. The motors out but there is plenty more to choose from- there are two more [ mk 1 and mk 11 ] that are not in good condition but in the garage and on the cars outside is a collection of good bits. He will sell the lot or in bits Yagoona N.S.W. Harry [ 02 ] 9644 5966

Mk 1 Ute unregistered, ex W.A. , mior rust. Driven to present location 12 months ago. Good compression \$1200 Club member Peter Tadman Nundah Q.L.D. [07] 3266 4537

Kimberley Mk 1 Auto Unreg 65,000 milrs Good motor, interior & tyres. Auto & brakes need attention Rust in doors **Friebie** Contacr club member Graham Halloran 9/ 39 Old Bar Road, Old Bar 2430

Mk 1 1800 1966 Manual, off white/ red. The vehicle was purchased in 1966 in Adelaide, and has only been driven by one person. Has been stored for some years in a garage. Is in excellent/ original order 35,000 miles. \$3,000 Stan Swaine, Gilberton S.A.. [ 08 ] 8344 1605 or 017 866 540

Mk 11 Kimberley VGC Auto unreg 84,000 miles 2 owners Mustard/ Brown Graham Burbury \$1,500 [03] 9729 8151 Coldstream Vic

**Women knit to give them something to think about  
while they are talking !**

# INTRODUCING...

David Campbell      9/ 27 Baxter Avenue      [02] 9588 1436      Mk 11 Ute  
Kogarah N.S.W. 2217

David has purchased his Ute with the sedan rear end installed. Hopefully, a technical article will follow on the trial and tribulations of returning it to original specs.

Ronald Dubber      RMB 4603 Sagars Road      [03] 5166 1328      Mk 1 1800  
Hazelwood North Vic 3840

Ronald is currently attempting to source the Hy V chain for the automatic. If you have one spare, please ring Ronald

Paul Copeland      1/ 507- 511 Kingsway      [02] 9524 7965      Mk 11 1800  
Mirasnda NSW 2228

Paul was kind enough to forward a technical article by Alex Moulton on how the hydrolastic suspension was developed into the Hydragas. All 20 pages of it will start appearing soon !



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# HYDROLASTIC REVISITED

by Daryl Stephens

With the beach weather probably gone until next summer, now may be the time to consider preparations for our vehicles to descend upon Adelaide for the Easter 1999 rally.

Some members are a little afraid that their suspension may let go at an inconvenient time, but by a bit of preparation, problems can be short circuited.

1 In about half the cases of a failed displacer, it is the hose that has failed. For those in Melbourne, **Herman Pedersen** fits new hoses at a very reasonable price. Interstate people just need to shop around abit. As a precaution, all displacers should be removed, re hosed, and re installed. Spacers - see 3 below - can be used.

2 The suspension runs at 270 lb at a hight of 15 1/2 " for early Mk 1s. This was amended in a service bulletin to 240 lb and 15" till the end of the Mk 11 s. The X6 range run 215 lb, still at 15". By simply dropping the ride height to say 14 1/2 ", the pressure will drop around 30 lb, with barely noticeable ride variation

3 As can be seen from the above figures, the X6 range used spacers in the push rods to lower pressures at the same ride height. From memory, my Mk 1 1800 is running 7/32" spacers in the front, with a corresponding adjustment at the rear.

4 The bigger, stronger front displacer units can be installed at the rear.

5 Rubber helper springs, called Aeons can be installed between the rear trailing arm, and the boot floor. For those with an X6, the Aeons are far better than the standard rubber auxiliary springs. This takes some of the weight , pressure of the hydrolastic.

6 Avoid stinking hot days. As a matter of curiosity, my ride height rose 3/4" just through sitting out in sun on a hot day recently.

7 For the run to Adelaide, the **Ken Patience suspension pump** can easily be made. Basically, it is a brake master cylinder with a handle, a high pressure hose with a one way valve in it, and a schrader standard tyre fitting the other. Penrite make the fluid, but in an emergency, water with radiator anti rust will suffice.

8 About every 5 years or so, changing the fluid keeps it clean internally.

21<sup>st</sup> January 1998

Paul L. Copeland  
1/507-511 Kingsway  
Miranda NSW 2228

Dear Daryl,

First off Daryl let me apologise to you and my fellow members that it has taken me so long to pay my membership fees. However after conducting some work on my beloved Austin I decided that it was essential that I retain my membership so I can gain the valuable information required by a long term Landcrab owner (I'm 24 and I plan to keep it as long as I draw breath).

In April of 1997 I purchased a brand new Ford Festiva for my daily trips to school (I teach 45 minutes from home). The Austin performed admirably for the first term of school but I had always wanted the Austin to become my weekend indulgence before it was driven into the ground. So after I bought the Festiva the Austin had a long sabbatical in the garage. After 12 weeks of sitting there I decided to drive the Austin and after quite a few turns it fired and off I went. I only went on a short half-hour drive but when I started the drive what a culture shock. Look I love the Austin and for its time it was a better-engineered car than the Festiva ever will be. But air conditioning, a rear demister, three speed wipers, a short throw and smooth gear change had spoilt me and I wasn't sure if the Austin was all the car I thought it was, time had caught up with it.

At the moment some members will be gasping for air but fear not, after 5 minutes the Austin was drawing me in. Sure the Festiva is a good little car that goes from point A to point B reliably, comfortably and with a minimum of fuss, but that is enough to make a person yawn. It is like so many new Korean (and Japanese) cars, it is as exciting as a household appliance. It is characterless and still doesn't do things as well as the Austin. For example the handling, the Austin with stock standard suspension and 175/14/75 tyres handles better than a Festiva would with an expensive set of gas shocks and wide tyres. Then there is torsional rigidity; the Festiva has none! The Austin would go over rough roads with aplomb, sometimes the bumps create noise but the body is solid. The opposite is the case for the Festiva, so quiet is this car that you can hear the flexing of the body away from the doors.

So my faith in the Austin was renewed when I parked it in the garage. In due course an oil change occurred and Term 3 saw it driven quite a few times. However Term 4 was quite busy and the Austin sat in the garage for 13 weeks. I decided after New Year that since it had new oil I should also flush out the cooling system to ensure against corrosion while it sits in the garage. For some time the radiator cap (original) was fused to the filler neck. The heat had caused the rubber to vulcanise to the brass neck. So step one was removal of the radiator cap, which seemed to now have become one with the radiator.

I picked up a towel and grabbed the cap and strained, nothing. I tried again, still nothing, so I decided to take a gamble. I went to the boot and pulled out a 19mm spanner and decided to use it as its designers had not intended (as you may of guessed I didn't have a hammer). I tapped down on the cap to dislodge it, but that had no effect, so I held my breath and started to tap the cap undone. It was a gamble as I wasn't sure if the filler neck would snap off. As I continued the force of my blows increased along with my frustration. I continued for about 15 minutes with no apparent gain and thus let fly with some colourful words. Then from



# FROM THE BACK SEAT

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Tahmor NSW 2340

## **DATA REGISTRAR**

Peter Jones  
4 Yarandin Court, Worongary QLD 4213

## **PUBLIC OFFICER**

David Hopper [076] 333 383  
8 Evergreen St, Toowoomba QLD 4350

## **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

## **A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

## **SOCIAL CONVENORS**

*Brisbane;* Peter Jones as above

*Melbourne;* Paul Nichols 47 Moores Road, Monbulk Vic 3793 03 9752 1489

*Sydney;* Mike Gilmour as above

Opinions expressed within are not necessarily shared by the Editor or Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month

**Michael Davey [02] 422 65 110** M/C 6123 South Cost Mail Centre, Wollongong 2521 N.S.W. is collecting information on Utes and wants as much information as possible. Free icecreams to the first 10 contributors !

**Spares update;** The Club has 3 sets left of the **BMC rear mudflaps** at \$45-00. The finishing touch to a restoration !

Our club began on a cold Autumn day in Canberra **21 - 5 - 1988**, which will make us **10 years old** soon. !

One week later I had to drive to Warilla (south of Wollongong) so I took the 1800, and it went like a dream, I took the old Princes Highway as it has some nice curves to flatter the 1800. Once down in my hometown I tested the Austin out on some of my old haunts and found it a joy to drive. When I was returning to Sydney I decided to take Bulli pass, which is quite a steep climb. No the Austin didn't climb it as well as my fathers Jaguar but it did prove capable of exceeding the 60 km/h speed limit and it passed most cars quite easily. And best of all, the temperature gauge climbed to the top of the Normal range only to return to the middle once on the freeway. If anything this trip has reaffirmed my love for this great car.

Well members thank you for indulging my little story, however before I go let me tell members that I have a paper written by Alec Moulton on the transition from Hydrolastic to Hydragas. And I also have an article from a magazine about a gentlemen in England who has done up his 1800, this article ran in the magazine *Your Classic*. I have also included a one-page piece on the 1800 I found in the State Library of NSW, it appeared in *The Garage and Motor Trader*. I have sent all of these with this letter. Another group of articles I have are from the British magazine *Motor* on the 1800 when it was released. If the members would like copies of these please inform Daryl and I can have copies sent to him. However I am not sure how well they will come out as they were copied at the State Library of NSW and their photocopiers are in a disgusting state.

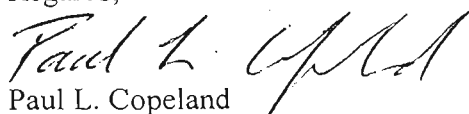
I also have some questions that I hope may be answered;

1. I would like to see some copies of 1800 brochures I ordered some from Motor books, they claim to have sent them but I never received them so I wasted \$20. Does anyone know where I can get them or at least see some?
2. Is it possible to buy new heater blowers for 1800's as mine is on the blink? I would prefer a new one to a second hand one.
3. Can you buy a rear demister for an 1800 that stretches across the whole window as I really miss this in a car?
4. Have many people fitted the modified filter assembly shown in newsletter 74? Is it better than the Mk II's inverted Z23 filter?

I feel I should inform you that at the start of 1997 I went to a wedding where the groom's father was a draftsman for BMC. One of the guests also had worked for BMC, he worked in the experimental division and carried out testing on the 1800 to ready it for Australian production. I shall sit down and draft a letter informing you of what he told me about our cars. He also offered for me to come over and sit down with him and his former colleagues and look at photos of their time at BMC. I shall look forward to telling you about that.

Finally before I go I am aware of "Austins over Australia", but I have never been able to make it, do any of my fellow Sydney Landcrab members organise meeting or outings with their cars as it would be nice to meet some of the clubs members. Also the Herald ran an article about how a committee has created a shortlist of the car of the century, the only BMC car was the Mini. It's strange according to the sticker on the back of my car, I thought that the BMC 1800 already held that title. Thank you for your time members.

Regards,

  
Paul L. Copeland

a multigrade oil, or the thinnest of the grades recommended for the engine.

Because the oil does not make a decent job of lubrication when cold, it follows that you must not drive the engine hard for the first four or five miles of a trip. Modern oils do not demand that you let the engine warm up at an idle. But it is still essential to use a light throttle until the engine has warmed up.

Drive easily. Don't flatten the throttle, rev through the gears or slog along at low speed in top gear. It is time enough to tread on it when the oil gauge has settled down to the normal pressure and the water gauge has reached its highest working temperature.

Cold conditions play havoc with engine wear for city drivers, but dust is the country motorist's worst enemy. If you do much gravel road motoring don't fit a sports air cleaner. It just is not good enough for outback motoring. Use a proper oil bath filter and clean it out every 1000 miles, replacing the oil with fresh stuff. It is equally important to replace the oil filter, preferably at half the mileage interval that the maker specifies for "normal" conditions.

Tests have shown that cylinder wear rates do not differ appreciably with the bore/stroke ratio, nor from one make of car to the next. The critical things are how many cold starts you make and how much dust gets through the carburettor. Because of the close link between wear and temperature, it is important to be sure that your thermostat is working correctly. When a car is mainly used for short hops,

the engine must reach working temperature as quickly as possible. To do this, you need a thermostat that opens only when the engine is hot. The manufacturer will specify the temperature, of course. In the case of the HD Holden, the thermostat starts to open at between 167 and 172 degrees and should be fully open by 192 degrees. It also starts to close again as soon as the water temperature falls below 192 degrees.

Now all thermostats are considered "good enough" if they come within 5 degrees of the recommended figures. To reduce engine wear on stop-start motoring, make sure your thermostat errs on the high side. If this sounds a lot of trouble, just remember that a cold engine will wear at 10 times the rate of a hot one. To check, you need a thermometer capable of reading between 150 and 200 degrees F. Drain off the radiator to take the water level below the thermostat housing, then take off the housing. Check the position of the thermostat — its valve should be properly seated when cold. If it is not, a replacement is indicated.

If everything looks to be in order, lift out the thermostat, loop some wire around its frame and suspend the unit in a pan of cold water on a stove. Insert the thermometer in the water too, making sure that — like the thermostat — it touches neither the walls nor the bottom of the pan. If it does, you'll get a false reading. Now heat the water and note the temperature at which the thermostat valve begins to open by about 1/16 in. It should be the same the manufacturer's figure. Next reading as, or slightly higher than,

note the temperature when the thermostat is fully open. Once again this should be the same or higher.

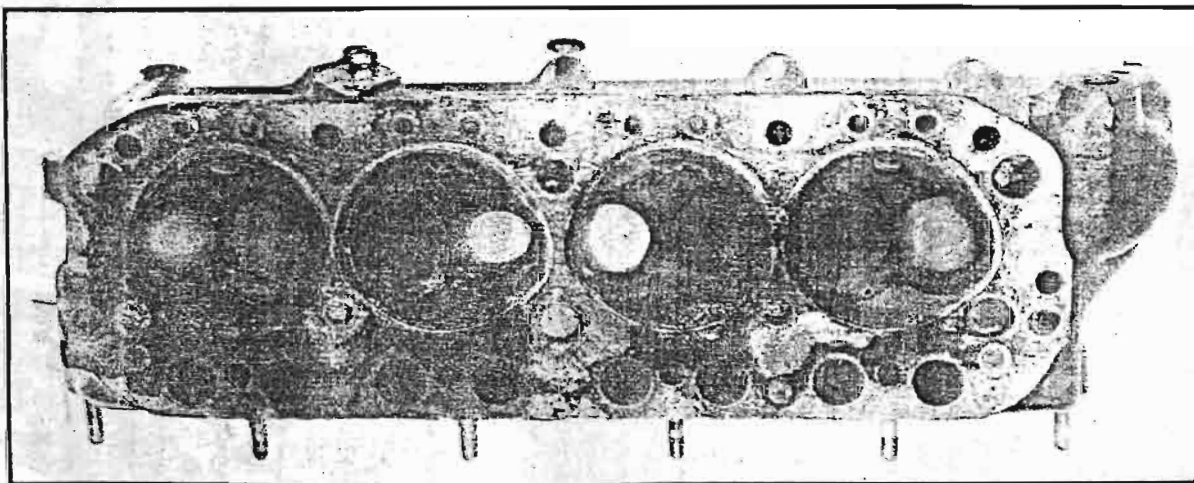
Not all drivers realise the benefits of running an engine "hot". There was a time when people considered it a virtue for an engine to keep cool. Today it is well known that the hotter an engine runs, the higher will be its *thermal* efficiency and the lower the rate of wear. Of course, the coolant must not boil, because it then ceases to be effective. This is one reason why pressurised systems are used. With a 13 lb pressure cap (as in Holden HD), the engine can function at temperatures up to 242 degrees F, 30 degrees higher than boiling point with out a pressure cap.

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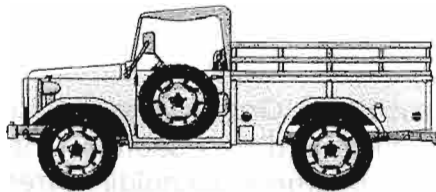
(Continued on page 90)

*Here is a good example of carbon build-up on a head and inside combustion chambers. Note how the inlet valves are darker than the exhaust valves, which actually burn the carbon into a harder, lighter compound.*



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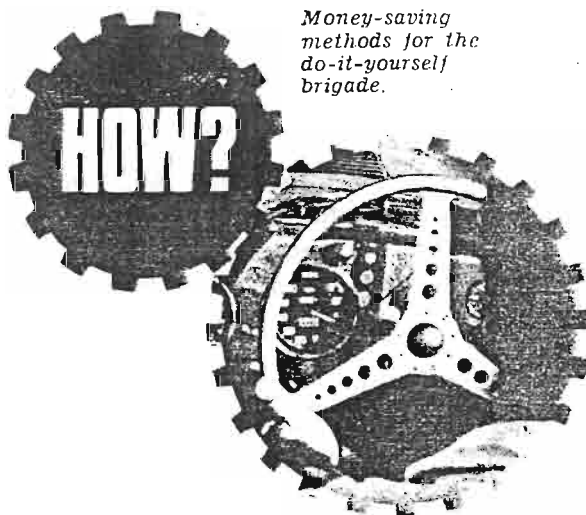
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Money-saving  
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# KEEP YOUR ENGINE YOUNG

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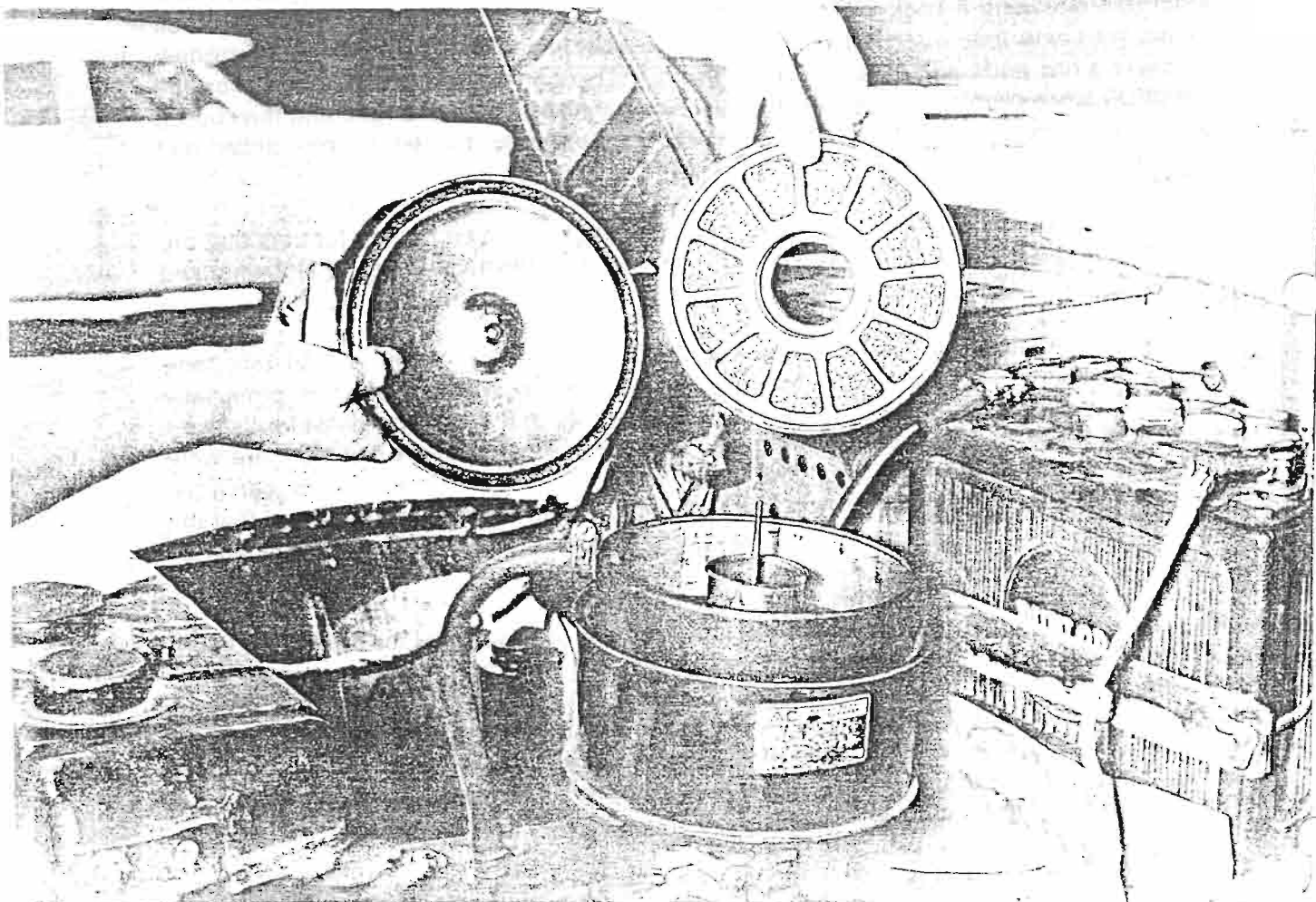
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of oil per thousand miles. The second car, a 1964 Ford Corsair GT, has done a chirpy 34,000 miles, with one decoke and no replacement parts.

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Later in this article, we'll talk about head jobs, tappity tappets and when to fit new rings. Meanwhile we must emphasise the close relation-





# BAD FIRST IMPRESSIONS

By Daryl Stephens

The phone rang when I was balanced precariously on the edge of a roof, cleaning out somebodies gutters. The plaintiff wail at the other end said, " EGY's dropped its clutch " !

EGY is the name of an 1800 that I share with the Olde Man. The arrangement began when Dad was transferred to a different bowling level to Mum. That meant they had to go in different directions every day. { After, what else have retirees got to do all day ?} Which necessitated another car.

Since Janice [ first wife ] and I both need a vehicle for work, and we do not have adequate storage space for a spare, we decided to go halves with Mum and Dad. EGY is theirs to have and to hold, and occasionally wash, except when we need it, like when **Janice wrote the Rover off** [ Mrs Editors note. Well, perhaps I may have put a small scratch in it, but I have never hit a truck at 140 ks in an 1800 like you, or written off a Mk 11 Kimberley like you, or been booked for **excessive noise** in the A 90 like you or screamed into Yulara, sometimes known as Ayers Rock towing a trailer at 95 MPH in the dark with Kangaroo's all round, complaining bitterly that the 1800 would not go any faster like you, or lost the A 90 on a bend and bounced over a plantation like you, or had the Mk 1 Kimberley sliding uncontrollably down the snow backwards at Mount Hotham for about a kilometre like you so shut your face ! ], and other lesser emergencies- then it lives here for as long as necessary. The system has worked very well for nearly 10 years.

EGY is actually the biggest disgrace I have ever seen registered and on 4 wheels! [ Imagine Jeff Kennett transformed into a car} The Maroon paint work has gone brown, all doors have rust, the interior has disintegrated, there is a transmission whine, and one cylinder is on holidays. It also leans appreciably to one side. Apart from those minor details, it's as good as new !

While I was trying desperately hard not to slip off the roof, we decided to scrap EGY and find a better example. I had heard that a Mk 1 auto, which was advertised in our March newsletter for \$2000 was still up for grabs 6 months later.

When we arrived for an inspection, we were not surprised it was unsold. We pulled into their driveway, saw the heap, and were reversing out when the owner swang down from a tree. Just to humour him, we decided to spent 5 minutes looking at it, and then shoot through.

All four tyres were flat, the suspension was sitting on the bump stops, there was cardboard boxes piled on the roof and the exterior was **filthy**. The 5 minuted became 50 as we noticed some surprising details- that the windscreen filler strips were still the original chrome- the rear seat showed no signs of cracking - or having ever been sat in - the dashboard showed no signs of sun damage - the petrol and temperature gauge needles had not faded, and it was very straight. We thought we could take a punt on the paint if the price was right.

The exhaust had rusted out during the years in retirement, the brake master cylinder needed new rubber, and the auto transmission was empty. Apart from that, it was all systems go !

The olde codger who had owned it all its 45, 000 miles opened negotiations by saying it was really worth much more than \$2000, but he wanted it to go to a good home. [ I tried not to throw up ! ] Mrs Editor's note- Do not bag the old goat too much- he has more hair , more teeth, and less girth than you !

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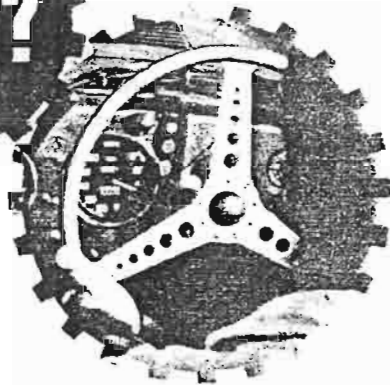
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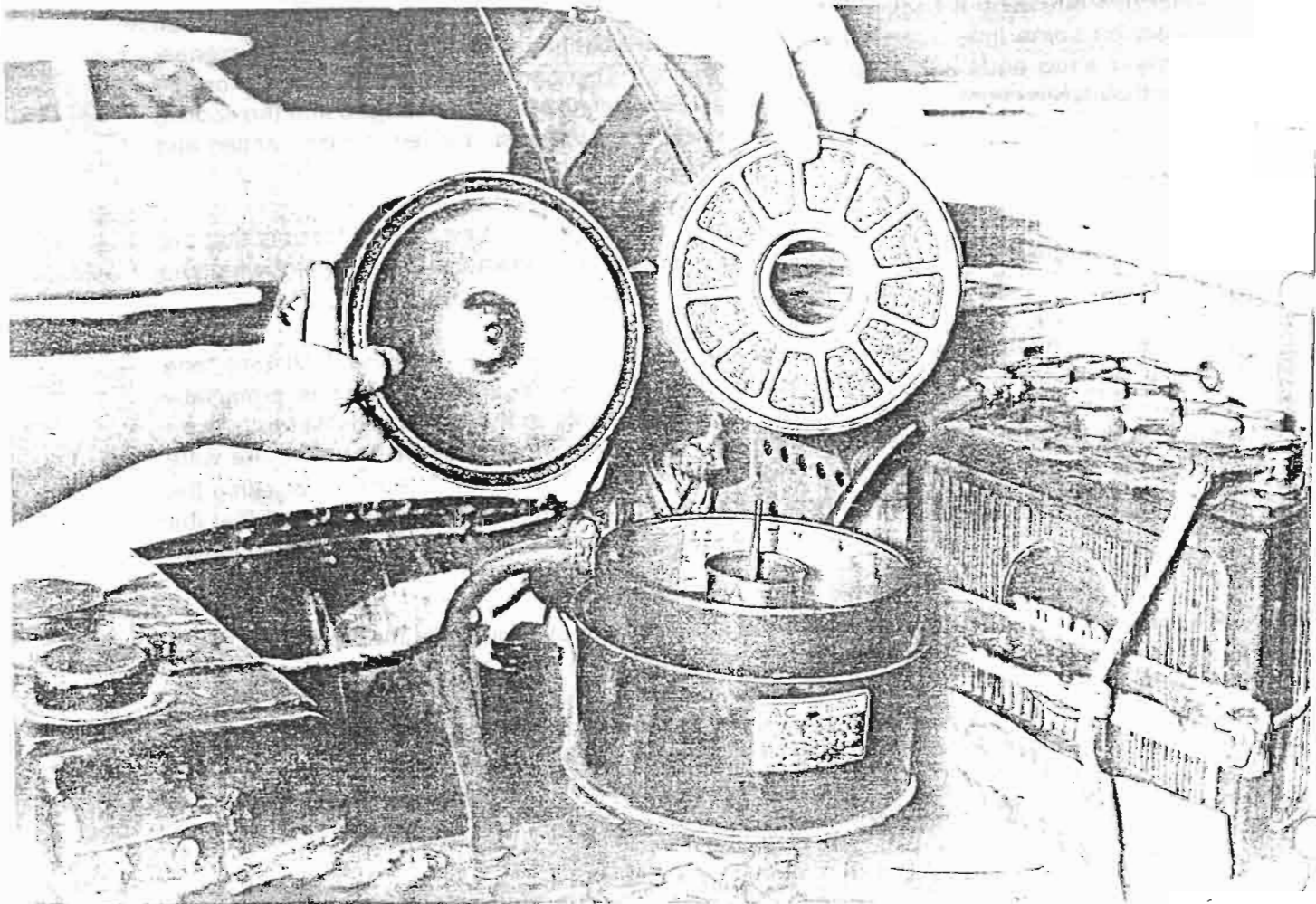
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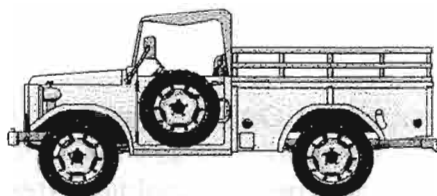
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*Peter A. Jones*

a multigrade oil, or the thinnest of the grades recommended for the engine.

Because the oil does not make a decent job of lubrication when cold, it follows that you must not drive the engine hard for the first four or five miles of a trip. Modern oils do not demand that you let the engine warm up at an idle. But it is still essential to use a light throttle until the engine has warmed up.

Drive easily. Don't flatten the throttle, rev through the gears or slog along at low speed in top gear. It is time enough to tread on it when the oil gauge has settled down to the normal pressure and the water gauge has reached its highest working temperature.

Cold conditions play havoc with engine wear for city drivers, but dust is the country motorist's worst enemy. If you do much gravel road motoring don't fit a sports air cleaner. It just is not good enough for outback motoring. Use a proper oil bath filter and clean it out every 1000 miles, replacing the oil with fresh stuff. It is equally important to replace the oil filter, preferably at half the mileage interval that the maker specifies for "normal" conditions.

Tests have shown that cylinder wear rates do not differ appreciably with the bore/stroke ratio, nor from one make of car to the next. The critical things are how many cold starts you make and how much dust gets through the carburettor. Because of the close link between wear and temperature, it is important to be sure that your thermostat is working correctly. When a car is mainly used for short hops,

the engine must reach working temperature as quickly as possible. To do this, you need a thermostat that opens only when the engine is hot. The manufacturer will specify the temperature, of course. In the case of the HD Holden, the thermostat starts to open at between 167 and 172 degrees and should be fully open by 192 degrees. It also starts to close again as soon as the water temperature falls below 192 degrees.

Now all thermostats are considered "good enough" if they come within 5 degrees of the recommended figures. To reduce engine wear on stop-start motoring, make sure your thermostat errs on the high side. If this sounds a lot of trouble, just remember that a cold engine will wear at 10 times the rate of a hot one. To check, you need a thermometer capable of reading between 150 and 200 degrees F. Drain off the radiator to take the water level below the thermostat housing, then take off the housing. Check the position of the thermostat — its valve should be properly seated when cold. If it is not, a replacement is indicated.

If everything looks to be in order, lift out the thermostat, loop some wire around its frame and suspend the unit in a pan of cold water on a stove. Insert the thermometer in the water too, making sure that — like the thermostat — it touches neither the walls nor the bottom of the pan. If it does, you'll get a false reading. Now heat the water and note the temperature at which the thermostat valve begins to open by about 1/16 in. It should be the same the manufacturer's figure. Next reading as, or slightly higher than,

note the temperature when the thermostat is fully open. Once again this should be the same or higher.

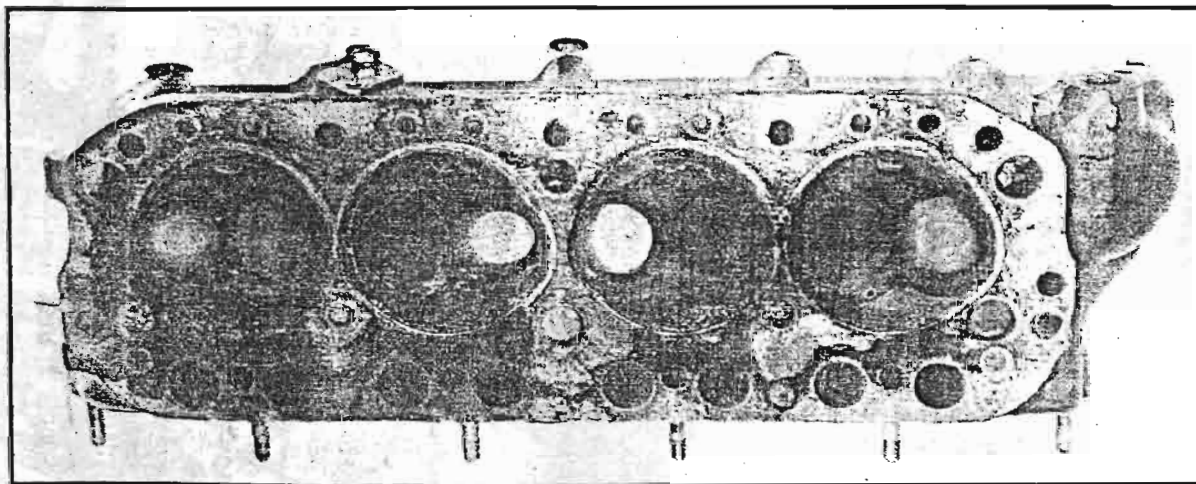
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(Continued on page 90)

*Here is a good example of carbon build-up on a head and inside combustion chambers. Note how the inlet valves are darker than the exhaust valves, which actually burn the carbon into a harder, lighter compound.*





One week later I had to drive to Warilla (south of Wollongong) so I took the 1800, and it went like a dream. I took the old Princes Highway as it has some nice curves to flatter the 1800. Once down in my hometown I tested the Austin out on some of my old haunts and found it a joy to drive. When I was returning to Sydney I decided to take Bulli pass, which is quite a steep climb. No the Austin didn't climb it as well as my fathers Jaguar but it did prove capable of exceeding the 60 km/h speed limit and it passed most cars quite easily. And best of all, the temperature gauge climbed to the top of the Normal range only to return to the middle once on the freeway. If anything this trip has reaffirmed my love for this great car.

Well members thank you for indulging my little story, however before I go let me tell members that I have a paper written by Alec Moulton on the transition from Hydrolastic to Hydragas. And I also have an article from a magazine about a gentlemen in England who has done up his 1800, this article ran in the magazine *Your Classic*. I have also included a one-page piece on the 1800 I found in the State Library of NSW, it appeared in *The Garage and Motor Trader*. I have sent all of these with this letter. Another group of articles I have are from the British magazine *Motor* on the 1800 when it was released. If the members would like copies of these please inform Daryl and I can have copies sent to him. However I am not sure how well they will come out as they were copied at the State Library of NSW and their photocopiers are in a disgusting state.

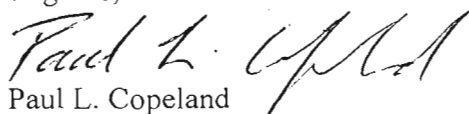
I also have some questions that I hope may be answered;

1. I would like to see some copies of 1800 brochures I ordered some from Motor books, they claim to have sent them but I never received them so I wasted \$20. Does anyone know where I can get them or at least see some?
2. Is it possible to buy new heater blowers for 1800's as mine is on the blink? I would prefer a new one to a second hand one.
3. Can you buy a rear demister for an 1800 that stretches across the whole window as I really miss this in a car?
4. Have many people fitted the modified filter assembly shown in newsletter 74? Is it better than the Mk II's inverted Z23 filter?

I feel I should inform you that at the start of 1997 I went to a wedding where the groom's father was a draftsman for BMC. One of the guests also had worked for BMC, he worked in the experimental division and carried out testing on the 1800 to ready it for Australian production. I shall sit down and draft a letter informing you of what he told me about our cars. He also offered for me to come over and sit down with him and his former colleagues and look at photos of their time at BMC. I shall look forward to telling you about that.

Finally before I go I am aware of "Austins over Australia", but I have never been able to make it, do any of my fellow Sydney Landcrab members organise meeting or outings with their cars as it would be nice to meet some of the clubs members. Also the Herald ran an article about how a committee has created a shortlist of the car of the century, the only BMC car was the Mini. It's strange according to the sticker on the back of my car, I thought that the BMC 1800 already held that title. Thank you for your time members.

Regards,

  
Paul L. Copeland



# FROM THE BACK SEAT

## **PRESIDENT/ TREASURER/ LIBRARIAN KEEPER OF THE SPARES.**

Pat Farrell 03 9762 4457  
4 Wayne Avenue, Boronia Vic 3155

## **REGALIA OFFICER**

Mike Gilmour 047 81 8887  
Lot 57 Remembrance Drive  
Tahmor NSW 2340

## **DATA REGISTRAR**

Peter Jones  
4 Yarandin Court, Worongary QLD 4213

## **PUBLIC OFFICER**

David Hopper [076] 333 383  
8 Evergreen St, Toowoomba QLD 4350

## **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

## **A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

## **SOCIAL CONVENORS**

*Brisbane*; Peter Jones as above

*Melbourne*; Paul Nichols 47 Moores Road, Monbulk Vic 3793 03 9752 1489

*Sydney*; Mike Gilmour as above

Opinions expressed within are not necessarily shared by the Editor of Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month

**Michael Davey [02] 422 65 110** M/C 6123 South Cost Mail Centre, Wollongong 2521 N.S.W. is collecting information on Utes and wants as much information as possible. Free icecreams to the first 10 contributors !

**Spares update**; The Club has 3 sets left of the **BMC rear mudflaps** at \$45-00. The finishing touch to a restoration !

Our club began on a cold Autumn day in Canberra **21 - 5 - 1988**, which will make us **10 years old** soon. !

21<sup>st</sup> January 1998

Paul L. Copeland  
1/507-511 Kingsway  
Miranda NSW 2228

Dear Daryl,

First off Daryl let me apologise to you and my fellow members that it has taken me so long to pay my membership fees. However after conducting some work on my beloved Austin I decided that it was essential that I retain my membership so I can gain the valuable information required by a long term Landcrab owner (I'm 24 and I plan to keep it as long as I draw breath).

In April of 1997 I purchased a brand new Ford Festiva for my daily trips to school (I teach 45 minutes from home). The Austin performed admirably for the first term of school but I had always wanted the Austin to become my weekend indulgence before it was driven into the ground. So after I bought the Festiva the Austin had a long sabbatical in the garage. After 12 weeks of sitting there I decided to drive the Austin and after quite a few turns it fired and off I went. I only went on a short half-hour drive but when I started the drive what a culture shock. Look I love the Austin and for its time it was a better-engineered car than the Festiva ever will be. But air conditioning, a rear demister, three speed wipers, a short throw and smooth gear change had spoilt me and I wasn't sure if the Austin was all the car I thought it was, time had caught up with it.

At the moment some members will be gasping for air but fear not, after 5 minutes the Austin was drawing me in. Sure the Festiva is a good little car that goes from point A to point B reliably, comfortably and with a minimum of fuss, but that is enough to make a person yawn. It is like so many new Korean (and Japanese) cars, it is as exciting as a household appliance. It is characterless and still doesn't do things as well as the Austin. For example the handling, the Austin with stock standard suspension and 175/14/75 tyres handles better than a Festiva would with an expensive set of gas shocks and wide tyres. Then there is torsional rigidity; the Festiva has none! The Austin would go over rough roads with aplomb, sometimes the bumps create noise but the body is solid. The opposite is the case for the Festiva, so quiet is this car that you can hear the flexing of the body away from the doors.

So my faith in the Austin was renewed when I parked it in the garage. In due course an oil change occurred and Term 3 saw it driven quite a few times. However Term 4 was quite busy and the Austin sat in the garage for 13 weeks. I decided after New Year that since it had new oil I should also flush out the cooling system to ensure against corrosion while it sits in the garage. For some time the radiator cap (original) was fused to the filler neck. The heat had caused the rubber to vulcanise to the brass neck. So step one was removal of the radiator cap, which seemed to now have become one with the radiator.

I picked up a towel and grabbed the cap and strained, nothing. I tried again, still nothing, so I decided to take a gamble. I went to the boot and pulled out a 19mm spanner and decided to use it as its designers had not intended (as you may of guessed I didn't have a hammer). I tapped down on the cap to dislodge it, but that had no effect, so I held my breath and started to tap the cap undone. It was a gamble as I wasn't sure if the filler neck would snap off. As I continued the force of my blows increased along with my frustration. I continued for about 15 minutes with no apparent gain and thus let fly with some colourful words. Then from

# HYDROLASTIC REVISITED

by Daryl Stephens

With the beach weather probably gone until next summer, now may be the time to consider preparations for our vehicles to descend upon Adelaide for the Easter 1999 rally.

Some members are a little afraid that their suspension may let go at an inconvenient time, but by a bit of preparation, problems can be short circuited.

1 In about half the cases of a failed displacer, it is the hose that has failed. For those in Melbourne, **Herman Pedersen** fits new hoses at a very reasonable price. Interstate people just need to shop around abit. As a precaution, all displacers should be removed, re hosed, and re installed. Spacers - see 3 below - can be used.

2 The suspension runs at 270 lb at a hight of 15 1/2 " for early Mk 1s. This was amended in a service bulletin to 240 1b and 15" till the end of the Mk 11 s. The X6 range run 215 1b, still at 15". By simply dropping the ride height to say 14 1/2 ", the pressure will drop around 30 1b, with barely noticeable ride variation

3 As can be seen from the above figures, the X6 range used spacers in the push rods to lower pressures at the same ride height. From memory, my Mk 1 1800 is running 7/32" spacers in the front, with a corresponding adjustment at the rear.

4 The bigger, stronger front displacer units can be installed at the rear.

5 Rubber helper springs, called Aeons can be installed between the rear trailing arm, and the boot floor. For those with an X6, the Aeons are far better than the standard rubber auxiliary springs. This takes some of the weight , pressure of the hydrolastic.

6 Avoid stinking hot days. As a matter of curiosity, my ride height rose 3/4" just through sitting out in sun on a hot day recently.

7 For the run to Adelaide, the **Ken Patience suspension pump** can easily be made. Basically, it is a brake master cylinder with a handle, a high pressure hose with a one way valve in it, and a schrader standard tyre fitting the other. Penrite make the fluid, but in an emergency, water with radiator anti rust will suffice.

8 About every 5 years or so, changing the fluid keeps it clean internally.

# INTRODUCING...

David Campbell      9/ 27 Baxter Avenue      [02] 9588 1436      Mk 11 Ute  
Kogarah N.S.W. 2217

David has purchased his Ute with the sedan rear end installed. Hopefully, a technical article will follow on the trial and tribulations of returning it to original specs.

Ronald Dubber      RMB 4603 Sagars Road      [03] 5166 1328      Mk 1 1800  
Hazelwood North Vic 3840

Ronald is currently attempting to source the Hy V chain for the automatic. If you have one spare, please ring Ronald

Paul Copeland      1/ 507- 511 Kingsway      [02] 9524 7965      Mk 11 1800  
Mirasnda NSW 2228

Paul was kind enough to forward a technical article by Alex Moulton on how the hydrolastic suspension was developed into the Hydragas. All 20 pages of it will start appearing soon !



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# FOR SALE...

Mk 1 1800 Manual one owner 88,000 miles. The engine had a complete overhaul last year. Cream/ red. Has been always kept under cover \$3,000 Mrs Steger Caboolture Q.L.D. 0754 954 756

Mk 11 1800 auto 1969 2 tone green with a tad of rust \$200 Justin [QLD] 3345 1502

1800 workshop manual and owners Mk 11 handbook **as new** Mal Mc George b/h 03 9482 5055 or a/h 9470 5512 offers

Mk 1 1800 1966 White/ red Reg & Rwc \$1,400 Club member Neil Solomon Benbigo Vic [03] 5447 0626

Mk 11 1800 Light brown/ red 1969 manual 12 months reg RWC E.C. 44,000 miles Club member Cameron Bull [03] 9773 6854 \$4,200 Seaford Vic

Kimberley spares - twin S.U. carburettors on manifold, camshaft. G.C. \$100 negotiable Kate Marks St Mary's N.S.W. [02] 9833 3740

Harry's house full of 1800's > There is a mk 1 1800 with 50,000 miles that has been stored in a garage for 10 years and is in good condition. The motors out but there is plenty more to choose from- there are two more [ mk 1 and mk 11 ] that are not in good condition but in the garage and on the cars outside is a collection of good bits. He will sell the lot or in bits Yagoona N.S.W. Harry [ 02 ] 9644 5966

Mk 1 Ute unregistered, ex W.A. , mior rust. Driven to present location 12 months ago. Good compression \$1200 Club member Peter Tadman Nundah Q.L.D. [07] 3266 4537

Kimberley Mk 1 Auto Unreg 65,000 milrs Good motor, interior & tyres. Auto & brakes need attention Rust in doors **Friebe** Contacr club member Graham Halloran 9/ 39 Old Bar Road, Old Bar 2430

Mk 1 1800 1966 Manual, off white/ red. The vehicle was purchased in 1966 in Adelaide, and has only been driven by one person. Has been stored for some years in a garage. Is in excellent/ original order 35,000 miles. \$3,000 Stan Swaine, Gilberton S.A.. [ 08 ] 8344 1605 or 017 866 540

Mk 11 Kimberley VGC Auto unreg 84,000 miles 2 owners Mustard/ Brown Graham Burbury \$1,500 [03] 9729 8151 Coldstream Vic

**Women knit to give them something to think about  
while they are talking !**



# LANDCRAB

CLUB OF AUSTRALASIA INC.



Welcome to newsletter number 80 for June and July, 1998

Waiter, waiter, there's a fly  
in my soup!

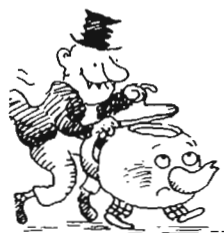
Don't worry, sir, that spider  
on your bread will get him.

Waiter, waiter, do you call  
this a three-course meal?

Yes, sir: two chips and a pea.

Waiter, waiter, you've got  
your thumb in my soup.

That's all right, sir. It's  
not hot.

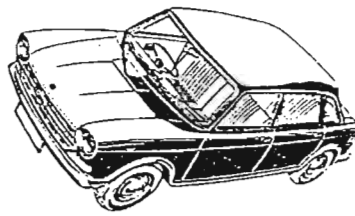


Have you  
heard this one?



Pardon?





# INTRODUCING...

Robert Mackellar      33 Third Avenue      [07] 3869 0834  
Sandgate QLD 4017

a Mk 1 & Mk 11 Auto  
Kimberley

Jonathan Winwood      158 Prince Charles Pde  
Kurnell NSW 2231

a Mk 1 & Mk 11  
1800

## BRAKING MORE BETTER !

By Daryl Stephens

When a Mk 1 power booster cries enough, there are 3 ways to solve the problem. By patient ringing around, somebody who can fix the existing will be found. The down side is that it may take a week or so. If this is not a problem, go for it. However for those who's cars are not 'hobby' cars, but vehicles in regular use, another solution must be found.

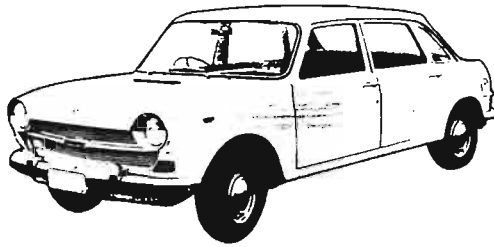
**Method 1;** The industry common PBR VH 40 EL is the way to go. Before starting, these bits need to be located. The power booster, the bracket of a Mk 11, and **2 lengths of brake pipe**. This is because the existing pipes will not be long enough. The new ones need to be made 150 mm longer than standard. [ The in pipe goes into the booster nearest the main body. The out pipe can be either of the remaining- the last outlet is blocked off ]

Fitting is a little harder than one might originally anticipate. The problem is that the brake booster bracket also doubles as a hole blocker for the left hand drive brake master cylinder. If the hole is not covered, the noise through the fire wall is horrendous!

The problem is compounded because where the booster covers the aforementioned hole, the Mk 1 and Mk 11 bolt holes do not align. However, there is just room to squeeze an electric drill in there. Bleeding can be done where the out pipe joins the rest of the system.

**Method 2;** [This is a good idea for all Mk 11 1800 owners] Firstly, the parts required are a longer radiator overflow tank hose, booster bracket of a Tasman or Kimberley, and the same power booster as method 1. Starting point on either the Mk 1 or 11 is remove the existing booster and bracket. The old bracket is cut down and used to block the left hand drive brake master cylinder hole. A bit of blue tack around it will facilitate the sealing. Next, remove the radiator overflow tank, and bolt in the new booster and bracket. The existing pipes are long enough. The comments in part 1 still apply.

It will be noted that the booster is now flush on the fire wall, giving superior access to the exhaust bracket, bottom engine mount etc. **It also gives enough clearance to fit twin carbies** The radiator overflow tank can now be mounted on the grill, Morris 1100 style.



## BRAKING MORE BETTER

By Adam Stephens

Being a P plater, there is of course a certain driving style to live up or is it down to. The general result is high fuel consumption, and a beating for the brakes. I was never happy with the brakes on my Mk 11 1800. The PBR callipers always tend to stick, and after kitting them for the second time, and still faced with occasional brake drag and hot smelling pads, another solution was called for. Also, the Old Man's Mk 1 stops noticeable better.

Mk 1 **Girling** callipers bolt straight on, and now it stops properly. This idea would be useful; for Kimberley owners also, but because the discs are larger diameter, they would need turning down first.

Also, wider rims with 195 x 65 tyres also do wonders for the brakes !

## Flywheel Bothers

By David Ealey Specialist 1800 repairs [03] 9737 9235 0414 809 480  
Melbourne's best range of pre loved 1800 parts

Recently, I had an 1800 in my workshop on which the owners had fallen for a not common trap. Their car needed new ring gear and like most of us, they had a few parts lying around including a flywheel with a good ring gear.

The flywheel was swapped and the car reassembled. The flywheel is balanced at the factory with the crank and rods. To swap them over is to invite disaster. Vibrations at idle were appalling, and the car was virtually un driveable

When performing a major engine rebuild, I always recommend spending another \$150 or so, and having the engine balanced. They feel so much more refined when this is done.

I also operate as a **mobile mechanic** and it is always interesting to see what sort of trouble home mechanics get themselves into....

On a recent occasion, a back yard mechanic [ I use the term loosely ] had lifted out an automatic, and could not get it back in ! Automatics are a tight fit at the best of times and this character did not know the secret.

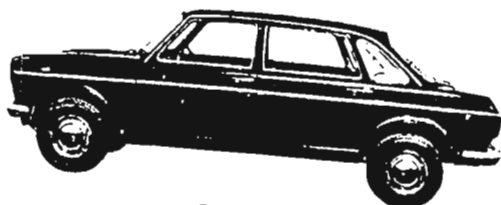
Which of course is to remove the plates which the tie rods bolt to. This opens up the front corner of the engine bay. The power unit is then dropped in, and the front suspension parts bolted back in. He is older and wiser. I am older and less poor ! Correct transmission fluid is **Castrol TQF**

# FRONT ENDS

By Keith G Douglas

Following the most interesting article in the newsletter before last about front end alignment, here is a variation on doing toe in.

An assistant holds a long piece of string at the back of the back wheel, hub high. Then I pull it tight from the front of the front wheel. This instantly reveals what the toe in is. Adjustment is just a matter of turning the tie rod.



## bad first impressions- part 11

by Daryl Stephens

Readers will no doubt remember the first half of this article last newsletter. ONO the mk 1 automatic was residing with my olds at Rosebud in country Victoria.

Come February this year and after a few relaxing weeks at the beach- I still smile at the young women, but I cannot remember why- I was refreshed enough to tackle putting a new engine in the Kelp Beige mk 1. Pat Farrel thinks it is the colour of the inside of a bird cage ! It is known as Seaweed.

A spare engine was installed in Seaweed when I bought it, pending the rebuilding of the original one. Complicating the issue is that the spare engine { in Seaweed] has a mk 11 box with the 3.7 diff. Stripping the mk 1 engine revealed things I did not want to know ! The bores were shot, the pistons were shot, and the crank needed regrounding. I was hoping the get away with just a set of rings.

I thought the spare mk 11 engine in Seaweed may have a serviceable crank. I need a car for work so ONO was collected. On the way home, a hose blew in a rear displacer. The mk 11 engine in Seaweed was removed and stripped down. To reveal a crank that still needed re grinding.

I use an 1800 for work and ONO started the following Monday. On Tuesday, the suspension collapsed again. This time the filler valve died. In the mean time, the original mk 1 block, and worked mk 11 head were in being bored etc.

On Friday, Adams[ son] mk 11 developed a serious oil leak- a pint a day was boring out a popped clutch seal. It was so serious, we lifted out his engine on Saturday to fix it. Removing it only took 2 hours, but because of the twin carbs and extractors, 12 hours back in ! We finished it the following Tuesday.

That Thursday, the Rover SE [ war committee's car ] blew a rubber brake hose. Curiously, the brake pedal went straight to the floor. So much for the split system. Another night getting dirty !

The engine parts came very promptly back from Link Automotive. With parts everywhere and an interchange of mk 1 & 11 parts ie mk 1 block, early mk 11 head & crank, late mk 11 straight cut con rods, mk 11 gearbox, mk 1 bell housing, non standard cam- not to mention a choice of main bearing caps, I decided it was all beyond me, and called on David Ealey to assemble it all.

Trouble was, he had wrecked himself and need a couple of weeks to recover. It made no difference in the end because problems continued. Adams suspension collapsed. His extractors were rubbing on the pipe which interconnects front and rear hydro units and wore through the pipe. With the engine in. the pipes are a little difficult to replace.

Then ONO blew a hose on a front displacer, followed by the power booster. The clue that the power booster was in trouble was the morning I started it, and it blew white smoke. { It was sucking brake fluid in }

Trouble was, I was in peak hour traffic at the time, when the brake pedal went straight to the floor ! I nursed it to C & S brakes in Blackburn, because I knew the proprietor there, Mark Ross, owned an 1800 and would be familiar with them.

What a bunch of Dorks ! I used their diesel ute, an experience I hope not to repeat, to go 30 ks west for power booster, and then 50 ks east for the bracket. They had the car all day for no progress at all. At 5 pm, the mechanics bolting out the rear nearly knocked me over. Adam and I went in next day, Saturday and fixed it in 2 hours.

Coming home, the brake pedal went to the floor again as a rear slave cylinder blew. Fortunately, I had a new one lying around. Time did not permit an examination of the other side, because Adam's car had developed serious maladies . Which we eventually traced to the coil.

Three days later and the other rear slave cylinder went ! Work was becoming my second job behind car mechanics ! This time I cheated. With the brake shoes off, I hit the brake pedal. That blew the piston straight out. I popped on a new rubber, and refitted it. Start to finish, 20 minutes !

David Ealey was not better, but in need of money and did all my assembling . Seven O'Clock Sunday morning and I decided to skip Church, and drop the power unit back in Seaweed. { Adam had conveniently evaporated } The plan was to drive Seaweed to the evening service. This service is not for those with a hearing problem or who are trying to avoid one !

After wrestling all morning with the universal joints, the only option left was popping the ball joints to give more room around the drive shafts. Then came the engine mounts, twin carbs and extractors. All the time. a little voice inside keep saying, " you will need this car for work tomorrow ". Ten O'Clock that night I went to bed, when the oil would not pump up.

Leaving a set of lights on Monday, and ONO accelerated, and gently stopped. Peak hour afternoon traffic of course. Reverse would still work but drive would not. I rang the RACV who helpfully confirmed that ONO was not a member. " Could I transfer over the membership of Seaweed? " "Yes" " Thankyou, now can I have roadside service ?" Suckers ! ONO came home on a flat top, with a shot automatic.



As already said, I need a car for work, which gave me all night to get Seaweed up and running. With the plugs out, the oil pressure light would not go out. Easy. I would prime the oil pump. A pint of oil went in to no avail. Was the oil light telling fibs? I pulled off the oil sender and proved that oil was not arriving there. Perhaps filling the filter would help. No. In desperation, I rang David, who cogitated for a couple of minutes, and then asked what contribution I had made to the enterprise?

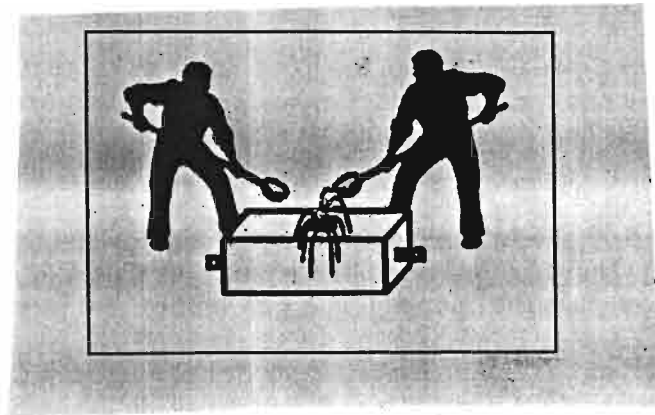
"Well, all I had done was transfer the oil pressure release valve from one block to the next".

"Well, you must have left out the thing a bit like a slug on the end of the spring." Fortunately, he did not charge for phone consultations! I put the missing bit in and up gushed the oil.

Not wishing to spend at least a thousand on an auto rebuild, the only option appeared to be an auto to manual, as I have the necessary bits lying around for the operation. Then club member wonderful **Laurie Cameron** rang. He wanted to know if I had a spare manual box, as he was sick of his automatic. We swapped his auto box for my manual box and we are both happy. Laurie's late mk 11 box feels more refined than the early mk 1 box.

Then next problem was to get Seaweed run in for Easter, before hitching on the 'van. Then, two days before Good Friday, I was informed that there would be 3 well fed teenagers across the back seat when we departed. Therefore that night, I fitted Aeons to the rear suspension, as a precaution.

I am sure the Almighty gave me all these trials and tribulations for a reason. If only I knew what it was!



Epilogue by Mrs Editor; Since writing this article, the speedo in **ONO** died, Daryl has been attacked by a swarm of wasps, the water pump went, the radiator needed cleaning and the generator packed it in. Followed by a crack being discovered in the head!

Although proved too much for my late husband- he finished up like a ball of jelly- so I took him to the vet. The advice was to put him down!

# FROM THE BACK SEAT

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## **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
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## **SOCIAL CONVENORS**

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Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month

# SUBSCRIPTIONS !

[ The news we had to have ]

Club fees are due. Remit now and beat the rush. Send \$A30 to The landcrab Club 22 Davison Street, Mitcham 3132 Vic.

Special discounts apply for those over 80 whose parents are also in the Club !



# FROM HYDROLASTIC TO HYDRAGAS SUSPENSION

A. E. MOULTON, CBE, MA, CEng, FIMechE  
A. BEST, MA, CEng, MIMechE  
Moulton Developments Limited, Bradford-on-Avon, Wiltshire

Part 1 - supplied by paul Copeland

The paper reviews the development of the fluid interconnected Hydrolastic and Hydragas suspension systems, and follows with a description and explanation of their principles. Comparisons are made of ride performance between these systems and the conventional suspension by both measurement and mathematical predictions. Comparisons of cost and weight for various installations are also shown.

## 1 INTRODUCTION

The last (17 millionth) Hydrolastic unit has rolled down the production line at Dunlop, Coventry, and the number of cars fitted with its successor, Hydragas, already exceeds 0.75 million, so it is an appropriate time to submit an authentic and critical review of these unique systems, and make some comparisons with conventional suspensions.

## 2 ORIGINS

The decade of the fifties was the one in which the design foundations of the modern car were laid. The most significant of these, insofar as its long term effects are most profound and widespread, was the creation by Sir Alec Issigonis of the transverse-engined front-wheel-drive concept, in which the maximum passenger accommodation is provided within a vehicle of minimum road occu-

pancy, with the wheels set at each corner for good road holding and handling. Concomitant with this concept was the realization that the resulting low polar moment of inertia would give, when fitted with conventional suspensions, a high pitch frequency or 'small-car ride'.

The ride benefits, in reducing pitch frequency by mechanical interconnection of the front and rear suspensions have long been known in vehicle engineering in general; in motor cars the early examples include the Packard and Citroen 2CV. In the mid-fifties BMC, Dunlop and Moulton Developments directed their endeavours to achieving a neat solution for interconnection, appropriate to the highest volume of production, at the same time gathering in the functions of springing and damping. To this end we chose the concept of fluid interconnection with rubber as the springing medium and hermetic sealing.

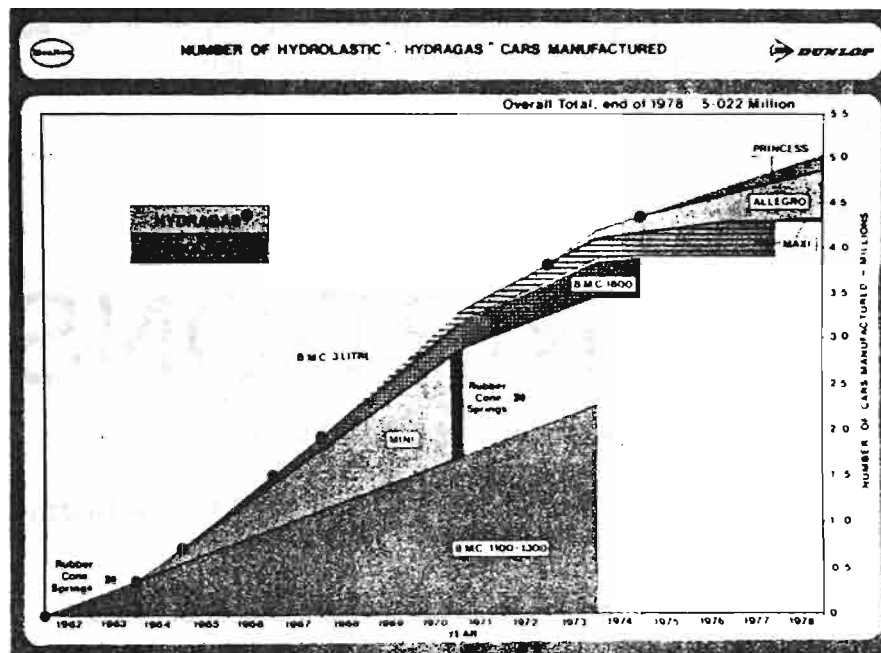


Fig. 1. Number of Hydrolastic/Hydragas cars manufactured

## PATENT SPECIFICATION

Inventor: ALEXANDER ERIC MOULTON

813,259

Date of filing Complete Specification under Section 3(3) of the Patents

Act, 1949) Sept. 1, 1955.

Application Date May 18, 1954.

Application Date July 21, 1955.

Complete Specification Published May 13, 1959.

No. 14,217/54.

No. 21137/55.



Index at acceptance: Classes 108(2), 110(2), 111(2), 112(2), 113(2), 114(2), 115(2), 116(2), 117(2), 118(2), 119(2), 120(2), 121(2), 122(2), 123(2), 124(2), 125(2), 126(2), 127(2), 128(2), 129(2), 130(2), 131(2), 132(2), 133(2), 134(2), 135(2), 136(2), 137(2), 138(2), 139(2), 140(2), 141(2), 142(2), 143(2), 144(2), 145(2), 146(2), 147(2), 148(2), 149(2), 150(2), 151(2), 152(2), 153(2), 154(2), 155(2), 156(2), 157(2), 158(2), 159(2), 160(2), 161(2), 162(2), 163(2), 164(2), 165(2), 166(2), 167(2), 168(2), 169(2), 170(2), 171(2), 172(2), 173(2), 174(2), 175(2), 176(2), 177(2), 178(2), 179(2), 180(2), 181(2), 182(2), 183(2), 184(2), 185(2), 186(2), 187(2), 188(2), 189(2), 190(2), 191(2), 192(2), 193(2), 194(2), 195(2), 196(2), 197(2), 198(2), 199(2), 200(2), 201(2), 202(2), 203(2), 204(2), 205(2), 206(2), 207(2), 208(2), 209(2), 210(2), 211(2), 212(2), 213(2), 214(2), 215(2), 216(2), 217(2), 218(2), 219(2), 220(2), 221(2), 222(2), 223(2), 224(2), 225(2), 226(2), 227(2), 228(2), 229(2), 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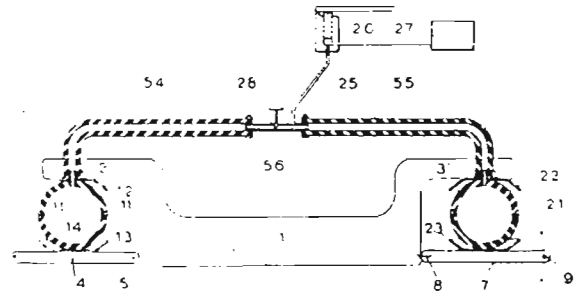


Fig. 2. Original patent

## 3 CHRONOLOGY

The creation and evolution of the systems fall chronologically into six phases spanning more than two decades.

## Phase 1 1954-1955

The concept of hydraulic interconnection to reduce pitch frequency, with the fluid hermetically contained, is stated in Patent 813259 (Fig. 2) in which various notions of achieving it are indicated. The first practical manifestation was in 1955 when Alec Issigonis had designed a prototype Alvis and Alex Moulton was collaborating with him on the design of the rubber suspension. It was then apparent that reversing the back-to-back rubber cone springs would provide a form of fluid displacer (Fig. 3). An immediate road test was made using a rubber hose as interconnecting pipe and this showed the dramatic beneficial effect of the reduction of pitch frequency. The seed was sown.

## Phase 2 1956-1959

In 1956 Moulton Developments Limited was founded to develop the concept. As in many innovations the path of development was marked by many false steps before the true solution appeared. We had no analogy to fall back upon; indeed the devices are more akin to biological organs than engineering mechanisms.

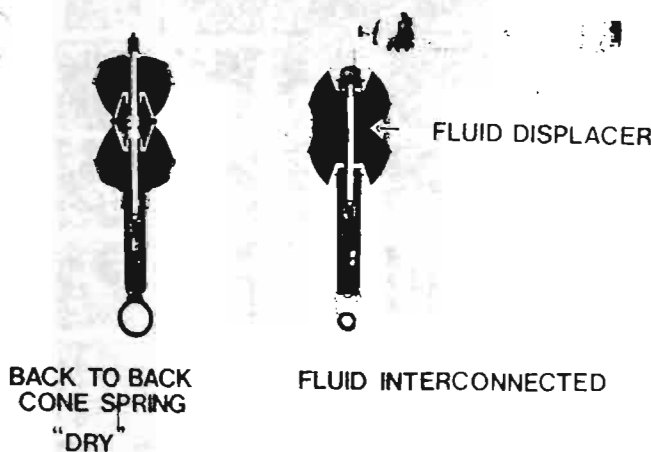


Fig. 3. Alvis strut (1955)

Two beliefs encouraged us; one was the recent satisfactory evidence of the 1000 mile test at MIRA (Motor Industry Research Association) (1), that bonded rubber flexitor was a serious car suspension medium, and the other was the integrity of rubberized textile construction as used in the pneumatic tyre, without which a road vehicle is unthinkable.

It was soon apparent that to try and make a fluid displacer by using non-reinforced rubber walls did not provide sufficient hydraulic rigidity. Thereafter, all displacer developments depended on nylon reinforced rubber membranes. An attempt was first made to use the long stroke 'rolling sock' type of diaphragm. However, the high velocity rolling action inherent in such direct-acting displacers, (Fig. 4) together with the small loop radii resulted in fatigue lives of only 0.25 million cycles. Moreover the working pressure was limited to 100 lbf/in<sup>2</sup>.

Being in such uncharted waters, we could only prudently set ourselves unprecedented standards of fatigue life — exceeding two million cycles of bump to rebound stroking. The early concentration on fatigue testing at Bradford-on-Avon required a high factor of test rig utilization; the figure for one year, including nights, weekends and holidays was 82 per cent.

We achieved the desired level of fatigue life by abandoning the direct acting displacer in favour of the levered type which incorporated a large diameter diaphragm of

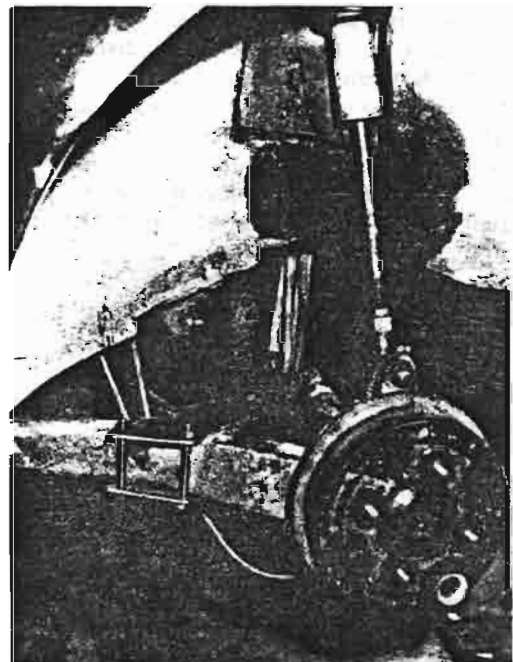


Fig. 4. Direct acting displacer (1956)

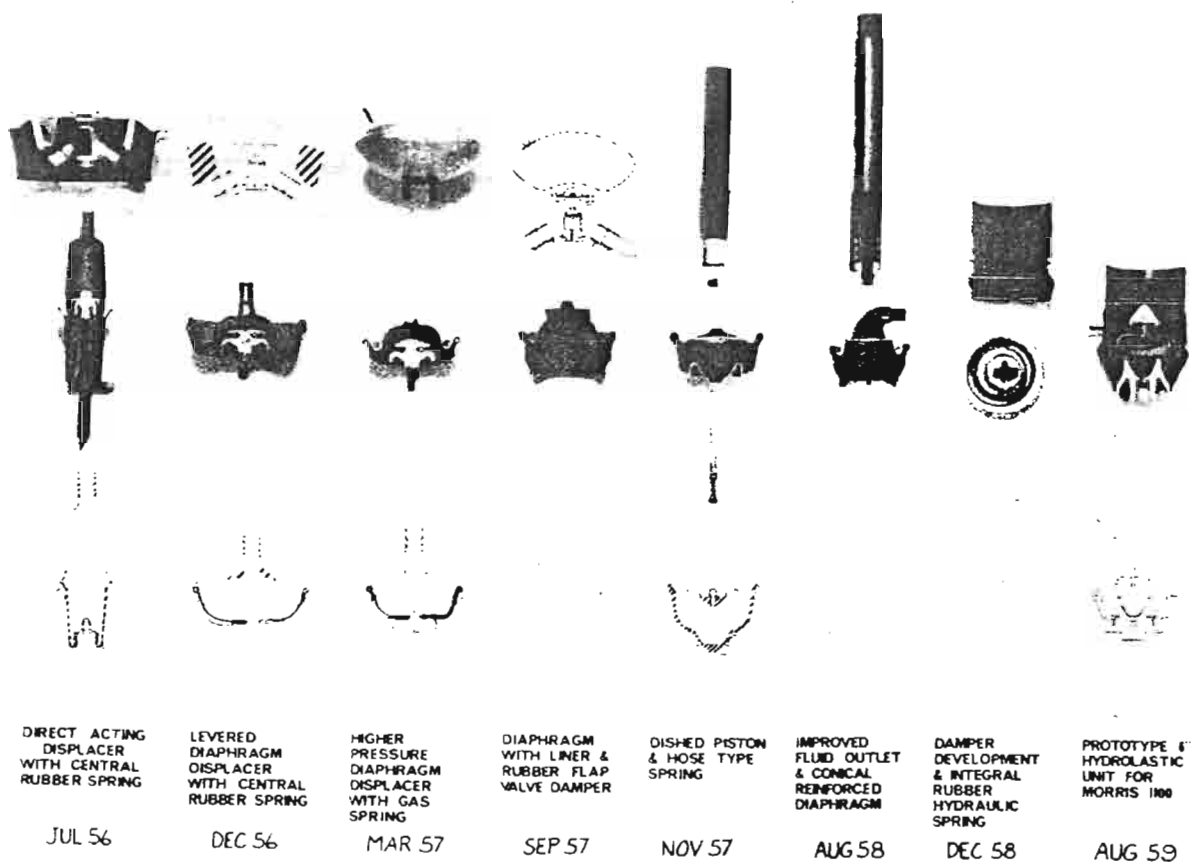


Fig. 5. Development of Hydrolastic (1956-1959)

short stroke with low rolling velocities. The strength of this construction permitted higher pressures which was a continuing objective to reduce the size of the bounce spring or accumulator, as well as the displacer diameter itself. The progress in this direction can be seen from December 1956 to August 1959 (Fig. 5).

The bounce spring development, which is shown at the top of Fig. 5, followed a seemingly variegated path. In fact, the step changes were quite rational. Firstly, the sound principles of rubber bonded-to-metal and operating in compression and shear were satisfactorily used in July to December 1956, for the centrally disposed hydraulic springs. Between March and September 1957 under the motive of saving weight and space a gas spring was substituted for the rubber spring, anticipating the Hydragas development of a decade later. However, at that period, as we were only considering welded joints for the oblate pressure vessel, we prudently did not pursue that design into production.

For another short period, November 1957 to August 1958, we reverted to the alluring concept of making the interconnecting pipe in rubber acting as a hydraulic spring by fluting or corrugating the walls: an outer braided sleeve resisting the hoop loads. The writhing of this hose under the pressure pulses gave it the name of 'python'. A steel tube of  $1\frac{1}{8}$  in diameter was substituted for the flexible braiding. However, it is awkward enough to have to stow one exhaust pipe let alone to find room for two more of such a size. So in December 1958, a step change was made and the final form of the Hydrolastic system was conceived with the rubber bounce spring acting as a sealing member on the top of each of the dis-

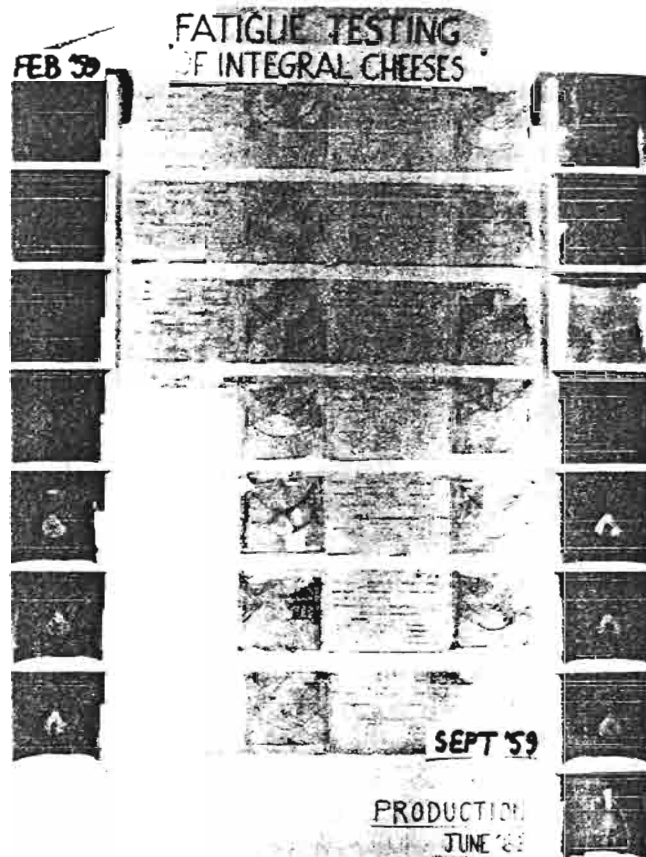


Fig. 6. Development of cheeses



Fig. 11. Hydrolastic and Hydragas units

In bounce, in which both wheels are moved up together and the fluid can only be displaced through the damper valves further to compress the nitrogen gas which increases the fluid pressure. The combination of the increase of area and the increase in fluid pressure gives the higher rate in bounce (and roll) than in pitch.

In real life on the road, there is a complex mixture of these modes.

### Rates

The rates are thus made up of:

'Hydraulic' — that due to the compression of the gas acting through the water (at the same pressure) upon the diaphragm.

'Taper' — that due to the pressure of the water acting upon the changing area of the diaphragm, as it is activated by the suspension arm.

In addition there are constituents of the rates which we term as:

'Parasitic' — that due to rubber bushings of the complete suspension systems.

'Drop angle' — that due to change of leverage with stroke.

### Distribution of wheel rates

The distribution of wheel rates in the Hydragas interconnected system is different to that found on conventional systems (Fig. 13). Essentially the pitch rate is lower than the bounce; and the bounce rate is the same as the roll rate. The low pitch rate is the key to the good ride of Hydragas cars.

The bounce (and roll) rate is the 'hydraulic rate' plus the pitch rate.

The pitch rate is the sum of the 'taper', the 'parasitic' and the 'drop angle'.

On conventional systems, due to the pioneering work in the thirties of Maurice Olley, it is known that the static deflection of the front suspension should be greater than that of the rear to obtain the desirable pitch mode ride action. The consequence of lowering the rate at the front is the need to add an anti-roll bar to restore the rate in roll.

On Hydragas there is the important choice of the front and the rear pitch rates. On the one hand excessive softness of the rear pitch rate leads to inadmissible attitude change with added load; while on the other hand,

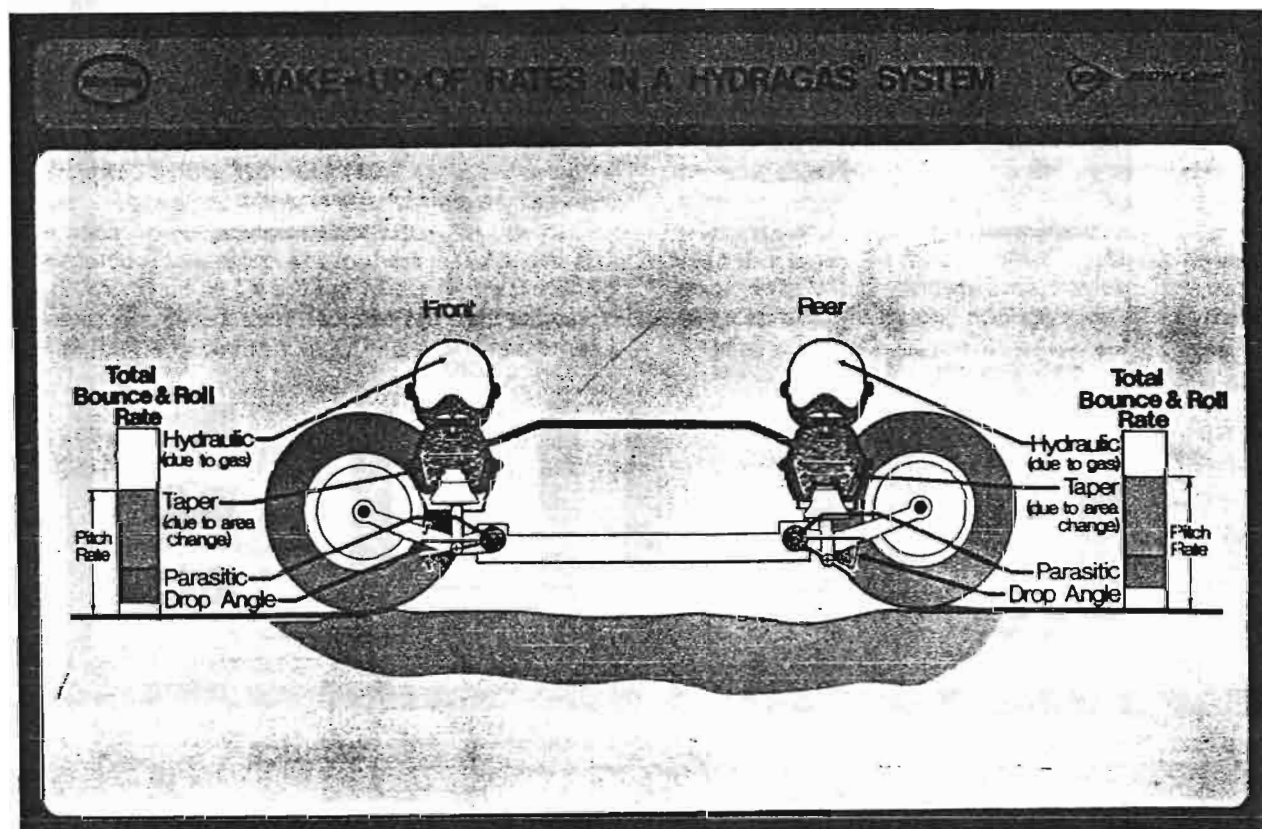
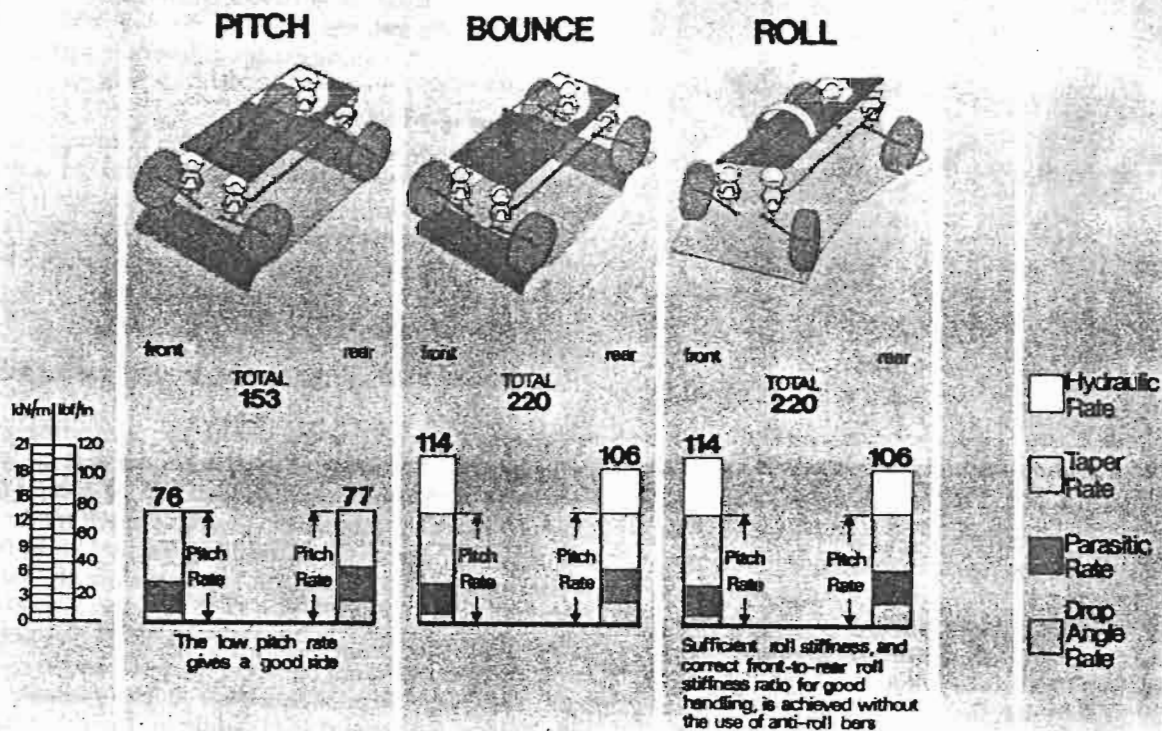


Fig. 12. Make-up of rates in the Hydragas system

## The HYDRAGAS<sup>®</sup> System...



## ... compared with CONVENTIONAL Suspensions

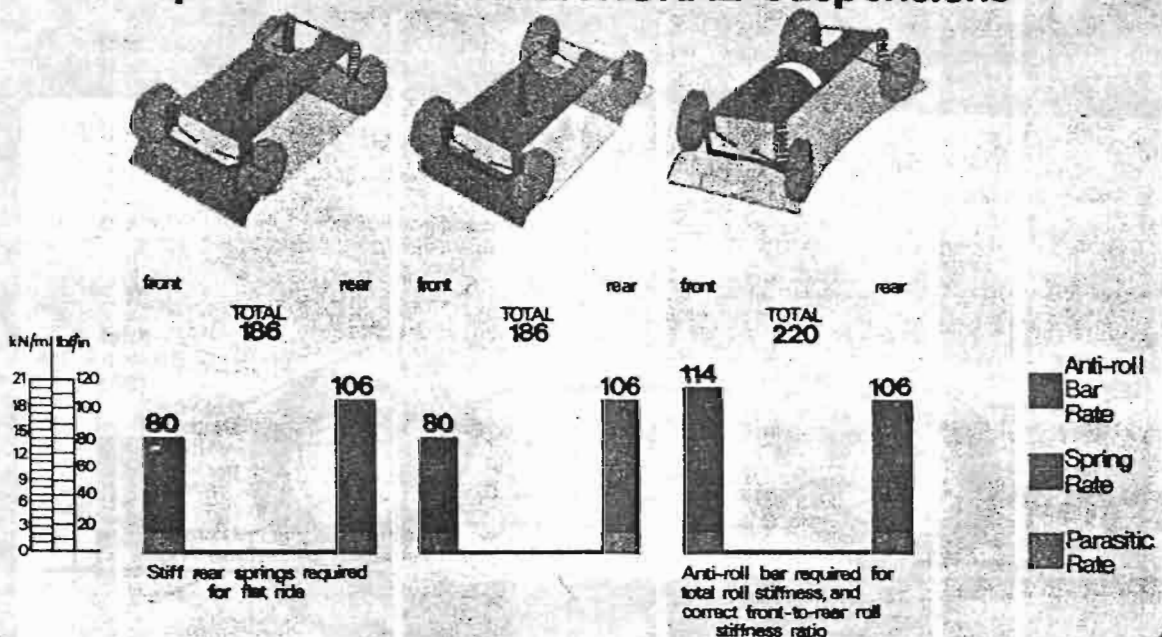


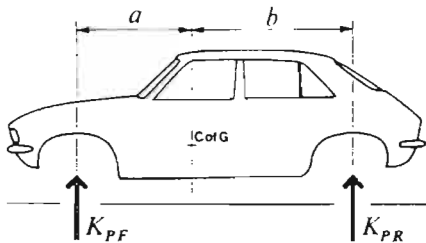
Fig. 13. Wheel rates of Hydragas compared with conventional suspensions (the rates quoted are for a typical 1900 lb kerb weight car; the roll rates are assumed identical in each case)

it is important to maintain a ratio of front to rear pitch rates in order to ensure the flatness of ride.

This flatness of ride is primarily obtained by the coupling between the pitch and bounce modes as shown by the authors in (3).

The parameter that determines the coupling is the pitch rate moment ratio (PRMR).

$$\text{Pitch rate moment ratio} = \frac{aK_{PF}}{bK_{PR}}$$



where

$$K_{PF} = \text{front pitch rate}$$

$$K_{PR} = \text{rear pitch rate}$$

With front pitch rate higher than rear giving a high PRMR of 1.3, the dynamic pitch angle is excessive as shown in Fig. 16. When PRMR is low at 0.3, there is an excessive vertical acceleration at the rear seat (Fig. 17). A suitable compromise is a PRMR of around 0.6.

Taking into account these two constraints on pitch rate, a satisfactory attitude change (Fig. 14) and flatness of ride can be achieved. A point to note when a common size of unit is used at the front and at the rear in predominantly front heavy cars, is the need to increase artificially the load at the rear by means of stressed rubber bushes or a small auxiliary spring.

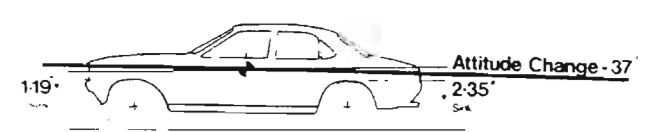
On all modern cars which are softly sprung, anti-dive and anti-lift suspension geometry is desirable. In interconnected systems, in which the pitch rates are low, this is especially so. Figure 15 shows values which we have shown experimentally to be satisfactory in interconnected front wheel drive cars.

In order to achieve the desirable constant bounce frequency with increased passenger load, a balance of the composition of bounce rates should be achieved. The adiabatic compression of gas on its own provides too much increase of rate. The effect of taper rate alone is to provide the correct amount of stiffening with load, and the parasitic rates which are independent of load are used to offset the excess due to the gas.

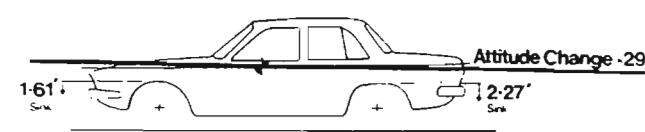
Typical natural frequencies that can be obtained are:

Allegro	Kerb	2 up + 50 lb	4 up + 100 lb
Bounce (cycles min)	94	93	93
Pitch (cycles min)	80	79	77

Ford Granada - 2760 lb kerb wt.



Audi 100 - 2400 lb kerb wt.



Leyland Princess (Hydragas) - 2720 lb kerb wt.

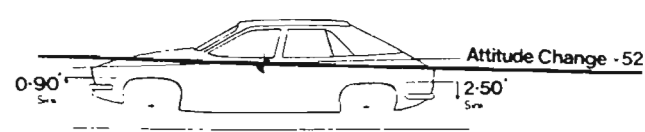
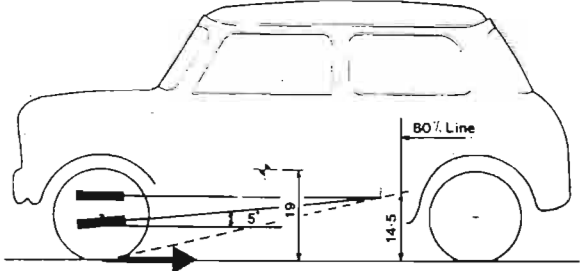
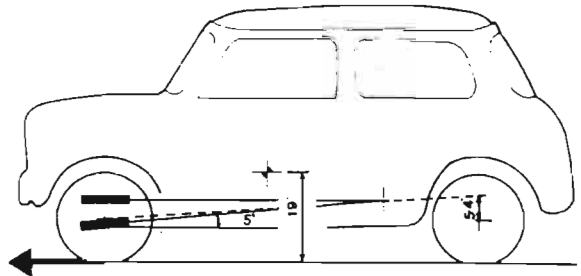


Fig. 14. Attitude change between kerb and five up + 125 lb



Braking assuming 80 per cent front/rear braking ratio  
Percentage front anti-dive: 14.5/19 = 76 per cent



Accelerating percentage front anti-lift: 5.4/19 = 28 per cent

Fig. 15. Anti-dive and anti-lift geometry



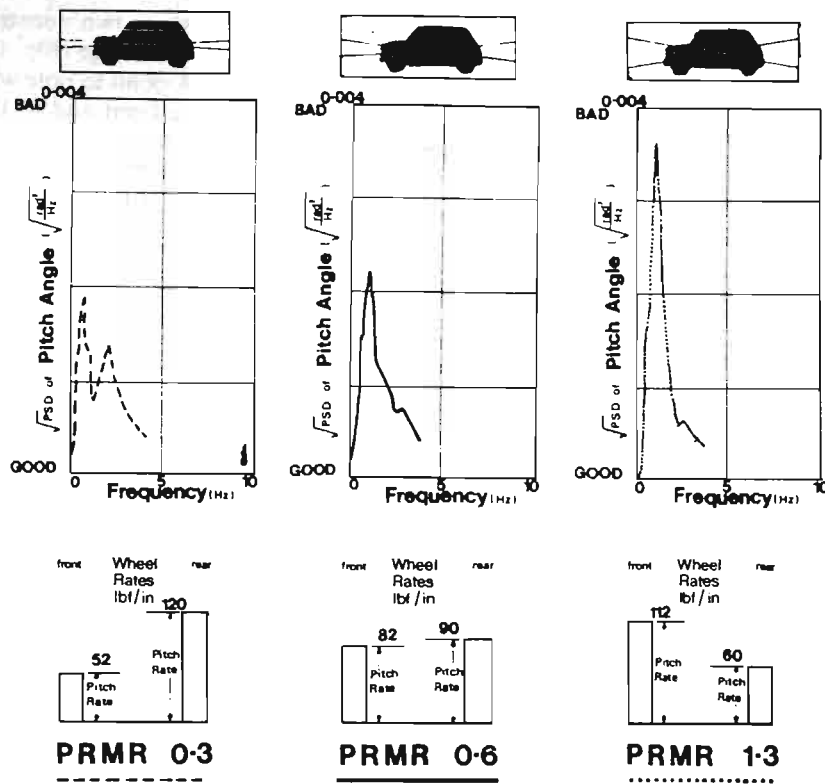


Fig. 16. Effect of pitch rate distribution on pitch angle (mathematical prediction)

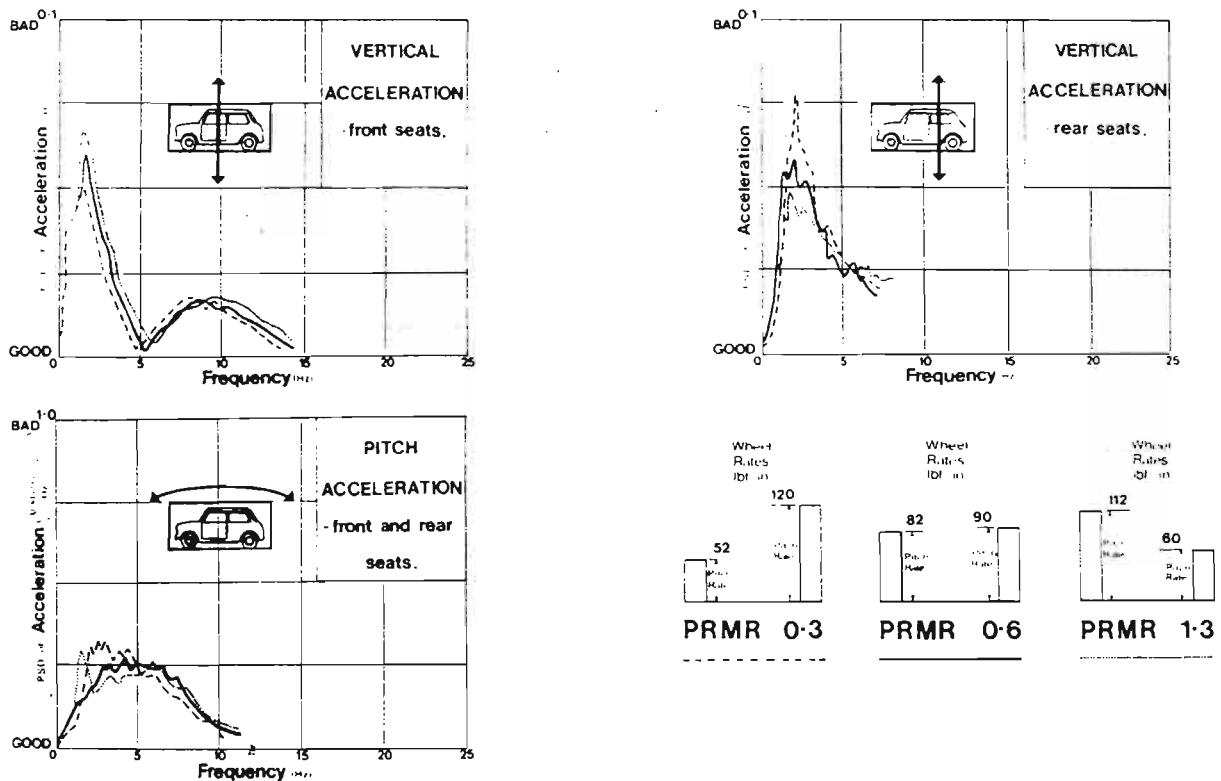


Fig. 17. Effect of pitch rate distribution on ride (mathematical prediction)

One of the earliest features of our concept of fluid suspension was the integration of the damping function within the fluid circuit. The motive was to eliminate the problems inherent in the conventional damper due to the small flows of oil at high pressures, such as sealing, friction, heat rejection and viscosity changes.

As an indication of the benefit of the large fluid flows and heat rejecting surfaces in the Hydragas interconnected system, it is possible to run continuously on the MIRA pavé circuit without having to use the water splash as is customary with conventional dampers.

Out of the variety of damper valve designs which have been tried, the basic principle has been retained for Hydrolastic and Hydragas of using two rubber flaps compressed onto the port plate and disposed at right angles: one for bump and the other for rebound control.

The current Hydragas design is shown in Fig. 18. The difference between this and the Hydrolastic is essentially the use of die-cast housings instead of pressed steel clips, in order to achieve a greater consistency of flows in production. An example is shown in Fig. 19.

An inherent feature of the system is that due to the increase of diaphragm area with increased passenger load, the critical damping coefficient remains constant. For if we let  $\hat{c}p$  be the pressure drop through the damper due to flow rate of  $\phi$

$\lambda$  = Leverage ratio

$A$  = Diaphragm area

Then:

$$\text{Force at wheel} = \frac{(\hat{c}p)A}{\lambda}$$

$$\text{Velocity at wheel} = \frac{\phi \lambda}{A}$$

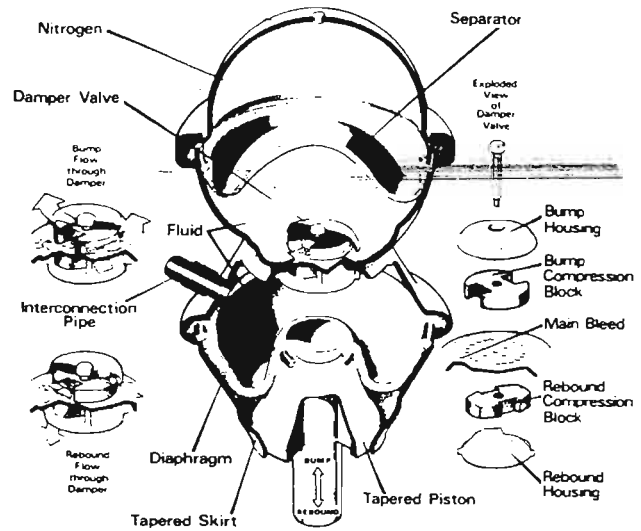


Fig. 18. Sectional Hydragas unit showing damper valve

$$\text{Damping coefficient} = \frac{\text{Force}}{\text{Velocity}} = \frac{(\hat{c}p)A^2}{\phi \lambda^2}$$

or

Damping coefficients are proportional to  $A^2$

Typical damping coefficients are:

	Kerb		2 up + 50 lb		4 up + 100 lb	
	F	R	F	R	F	R
Hydragas % critical bounce damping	25	25	25	24	23	26
Conventional % critical bounce damping	25	25	22	20	20	15

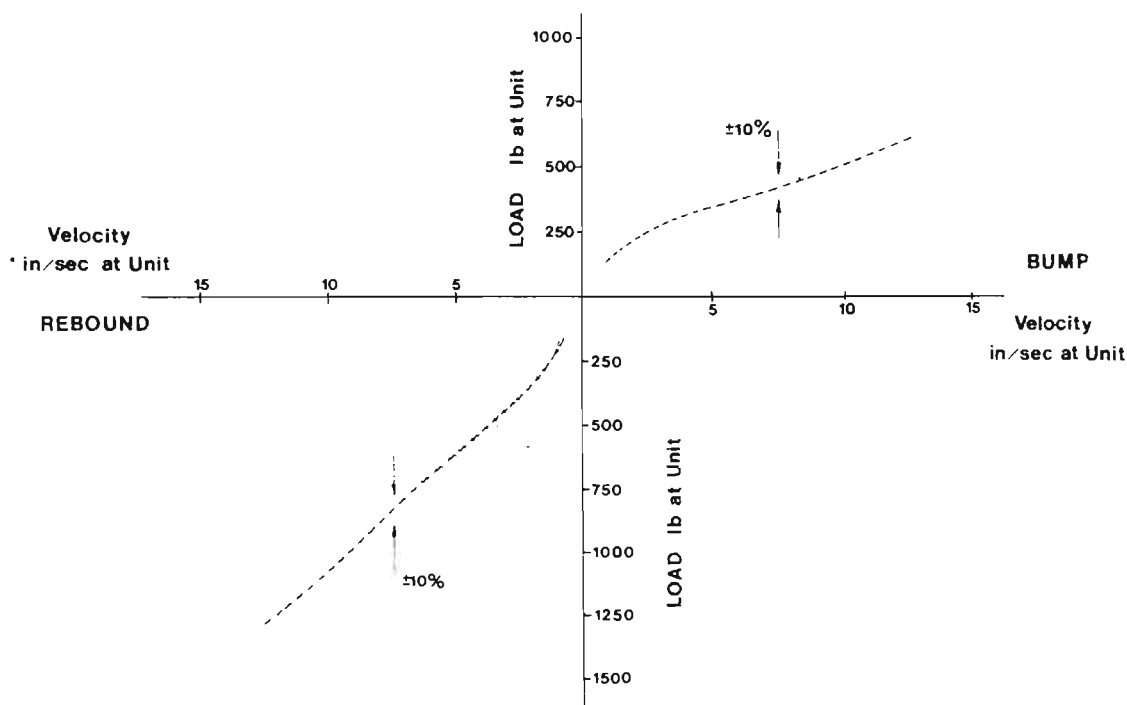


Fig. 19. Damping flow curve and tolerance

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Cooper "S"	1965 Road Test	2.00	} Lot 10 \$45
Mini 848cc	1964 Road Test	2.00	
Mini "K" 1098cc	1969 Road Test	2.00	
Mini Van	Sales Sheet	3.00	
Mini Clubman	Sales Sheet	3.00	
Mini "K"	Drivers Handbook	5.00	
Mini Current Models on Sale in the U.K.	Large Sales Brochure (24 pages)	35.00	
Mini Van Raised Roof	Sales Sheet	3.00	
Mini Monte Carlo by Rover	Sales Brochure	25.00	
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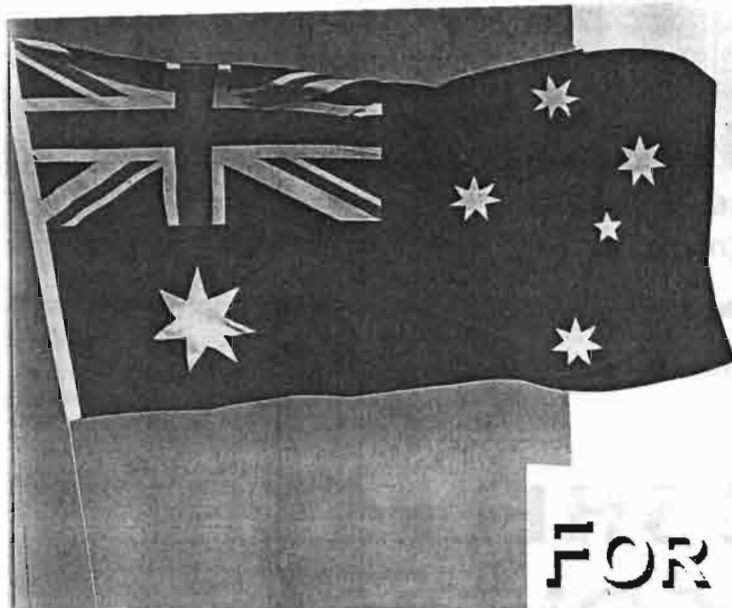
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Mk 1 1800 1967 **Freebie** Sunbury Vic David Apps [03] 9744 2352

Mk 1 1800 Auto 98,000 miles has sat in a carport unused for the last 10 or 15 years David Windmill Blackburn Vic \$200 0195 48 131

Mk 1 **Ute** baremetal respray in the original baked olive green enamel currently dissambled no reg \$2,000 ONO Robert Visser Hampton Park Vic [03] 9799 1319

Mk 1 1800 Man Reg till October White Has cracked head **Freebie** Nolene QLD 3219 7732

Mk 1 1800 Auto 75,000 original miles [ known to editor - first genuine viewer will buy ] 2 owners Jill Waddell Clayton Vic [03] 9354 9353 offers

1800 ute and sedan. Both running and in good condition - heads converted to run on new tyres etc **\$3,500 both** Garry at Campbelltown N.S.W. [046] 270 243

Tasman registered till 6/98 \$1500 Chris [045] 877 854 Windsor N.S.W.

1800 Mk 1 new clutch just fitted- gear cables need adjustment slight surface rust resprayed goes well \$3000 David Bogle {Bangor N.S.W.} 9543 4332

Kimberley 1971 Auto 2 owners 45,000 miles zircon white \$2500 Perth 9279 3627

1800 Mk 11 1800 runs, no RWC Some panel damage no dash QLD 3812 1314 \$350

1800 1968 Running, needs paint **plus 2 1/2 other 1800 s \$450** QLD 3343 7338

1800 Mk 11 man blue VGC \$4000 QLD 3805 7042

1800 Workshop manual VGC offers D.R. McClure [08] 9572 1871

1800 mk 11 man 43,000 E.C. Brown/ red RWC 12 months reg. Club member cameron Bull [03] 9774 2458

1,000 women in Washington have been asked if they would have an affair with President Clinton. 734 said "Not Again !"

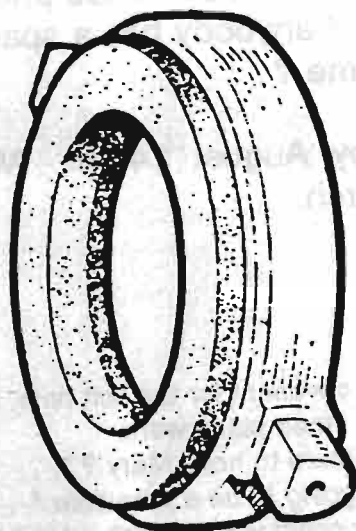


# LANDCRAB

CLUB OF AUSTRALASIA INC.



Welcome to newsletter number 81 for August and September, 1998



## CLUTCHING AT EDITORIALS

My family is riddled with 1800's. The family durability record for a clutch, or more precisely a clutch **carbon thrust** is a pathetic 66,000 miles. Many have packed it in at around 30,000 miles. Specialist 1800 mechanic David Ealey suggests that a lot of the thrusts currently available are good for 10,000 miles ! In fact, David will no longer supply and fit a clutch [ which lands a warranty claim on him] . He will only install a clutch purchased elsewhere.

A Kimberley style conventional bearing has been experimented with by many. No success stories are known to the editor.

Now the good news.

Our Club has been able to organise the re manufacture of the carbon thrusts in a much stronger, more durable carbon. The company's Product Manager- Mechanical was horrified when he tested the **Borg and Beck** sample [which was badly worn at 15,000 miles] that I gave him. Not only was it far too soft, it was porous.

He can re manufacture the thrusts in the original carbon for \$20, which of course would be an exercise in futility. Or re manufacture them in quality carbon for :

6 @	\$ 125 each
10 @	\$ 105 "
15 @	\$ 85 "
20 @	\$ 75 "
50 @	\$ 65 "

Already, 7 orders have been received. These prices are for re using the existing carriers. Therefore, if anybody has a spare carrier lying around, could they please send it to me ?

Orders must be received by August 14 th. Many thanks to Laurie Cameron for the initial research.

The year 12 girls were leaving the covenant for the last time, and were being asked what their plans were.

' Where to now, Mary ? "

' *I'm going to be a prostitute "*

" Mama mia- how could you do such a terrible thing ? "

" *What's wrong with being a prostitute ?* "

" Oh, that's all right.. I thought you said you were going to be a protestant ! "

# BEWARE !

By David Ealey- Specialist mobile B.M.C. Repairs [03] 9737 9235

I have no idea why, and the problem afflicts both 1800's and X 6's, but these days as part of the regular servicing, I check that the bottom ball joints have not come unscrewed.

Nearly all Landcrabs I have been servicing this year have had loose bottom ball joints. I therefore advise members to check theirs !



# INTRODUCING...

Hanika van de Wiel

81 Drysdale Street  
Portallington Vic 3223

[03] 525 43818

Mk " 1800

One of an increasing number who have bought a Robert Goodall restoration.

David Matthews

P.O.Box 121 Liadhurst  
East Sussex U.K.

0011441 892 784 000

Mk 11 Ute

David had his ute given a ground up restoration in New Zealand- where the labour rates are far cheaper than the U.K.- and then had it shipped to the U.K. He ran into troubles obtaining a '60's number plate- fancy the motor registration people making life difficult- and contacted this club. We were able to provide the necessary documentation.

Bill Mitchell

P.O. Box 128  
Beaufort Vic 3373

[03] 534 927 20

Mk 11 ute

Greetings Daryl,

Too cold to go over to the workshop and continue my struggle with the assembly of my latest project ie. Converting manual shift Mk.11 1800 Austin Utility to automatic !! So now have the time to let you know what progress has been made and also send off a membership cheque. The temp'in the shed today is 8 deg,Cel.

Have finally got all the bits needed to put the Borg Warner 35 together (actually it is a B.W.37 according to B.W works) and keep my fingers crossed that it has gone together correctly. Just need to overhaul the cylinder head and its ready to be refitted in the Ute. More cursing no doubt but have learnt a few lessons when dragging it out of the car which will be heeded on installation. What I like about the 1800 is the robustness of the build and general solid design which can cope with the intemperate physical abuse which one is apt to hand out to the vehicle when it gets stubborn and unco-operative. Hope to have the conversion completed by the middle of July but the car is still mobile despite the fact that the selection of top gear ( 4th ) is only accomplished occasionally.

Before closing I would like to pass on my appreciation to the Officers of the Landcrab Club on the occasion of the Clubs tenth birthday for their efforts in promoting and supporting an icon of automotive engineering.

Keep on travelling First Class.

*Bill Mitchell*  
Bill Mitchell



*Peter A Jones C. Dec. JP (NSW)*  
*4 Yarandin Court Worongary 21d 4213*  
*Phone/Fax 61 7 5574 8293*

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Monday, 15 June 1998

In the forth coming July issue of Practical Classics (UK) you will find a photo which I submitted of the MkI campervan I found in Sydney many years ago, some of our members may be interested in seeing it for themselves. Also in the latest issue there is a story on the Leyland P76 and I have an input in this regard in the form of details of some of the prototypes including the V8 version of the Austin 1800, I can send you a story for the magazine if you are interested.

Must close for now as I have lots of Tech. homework to do.

Regards

Peter

## BRAKING MORE BETTER

By Keith G Douglas

Following last newsletters 'braking more better', in which the problem of non returning disc pads was alluded to, I thought I might mention a possible solution. The problem can be caused by dags on the sides of the metal backing on the pads. Solution? Simply **rub the metal edges of the pads on concrete a couple of times!**





# The Queenslander

---

## International Festival of Elegance

The Gold Coast is the only place to be (isn't it always) between the 23rd and 27th July this year. For those with money can enter the Concourse d'Elegance and street parade for only \$100 per car, those without can go, watch and dream.

As well as the concourse, on the Saturday (25th) afternoon and Sunday (26th) there is an Automobilia and Collectable Autojumble and Trade Fair at the Carrara Entertainment Centre.

Also on the Sunday all car clubs are invited to set up a display for \$10 per vehicle and this includes admission for all occupants of the car. This year we are a bit late to enter and have a club display of our own, but I am now on the events mailing list. so maybe next year.

The concourse cars will also be on display at the centre on the Sunday, and I believe it will be well worth a visit.

Now for some more events for those with money;

Friday 24th	Fashion & Jewellery Luncheon, only \$75 each.
Friday 24th	Golf Tournament at Lakelands, only \$95 each. (note: must improve handicap for next year)
Saturday 25th	Concourse d'Elegance Gala Ball, only \$150 each.

See you at the ball (well maybe not), but I will be at the centre on the Sunday, so if you intend to come along for the day give me a buzz on 5574 8293.

## What's happening in Queensland

Apart from the above event there are a few other cheaper things to do. The Pioneer Rally on the 1st and 2nd of August is always a good day out and so is the British Car Club Day at Ferny Grove Woolshed on the 30th August. There is a British swap meet on the 1st July at the VCCQ grounds in Carindale (phone me if you want the address).

For lovers of speed you have a choice between the Leyburn Historical Race meet on the 22nd/23rd August or the Gold Coast Indy held between 15th and 18th October.

Peter J.

---

## Gold Coast Tourist Trophy

Now some bad news, this years event has been cancelled due to the resignation of the Clerk of Course and a couple of other technical problems. The good news is that the inaugural event will be held in July 1999, I will keep you informed about this via our newsletter.

Peter J.

---

## Rule Changes for Queensland Vehicles on Historic Plates

Owners can only use their vehicles as listed below.

- 1 Participating in rallies organised by properly constituted car clubs.
  - 2 Participating in processions for which permits have been issued.
  - 3 Exhibiting in displays ect. conducted by religious, charitable or educational purposes.
  - 4 Weddings of immediate family, and no fee is paid.
  - 5 Preparing for, proceeding to and return home from the above events
  - 6 Road testing the vehicle within 15 kilometre radius from place the vehicle is normally garaged.
  - 7 Travel to a place of repair, but must be kept as short as possible.
- For more information phone either 132380 in Brisbane or 1800 177 332 country.



# FROM THE BACK SEAT

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Peter Jones  
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**PUBLIC OFFICER**

David Hopper [07] 46 333 162  
8 Evergreen St, Toowoomba QLD 4350

**EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

**A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

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Opinions expressed within are not necessarily shared by the Editor of Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month

# SUBSCRIPTIONS !

[ The news we had to have ]

Club fees were due 30 / 6 / 98 Remit now and beat the rush. Send \$A30 to The landcrab Club 22 Davison Street, Mitcham 3132 Vic.

Special discounts apply for those over 80 whose parents are also in the Club !



## 7 TEMPERATURE EFFECTS

Both Hydrolastic and Hydragas systems have different characteristics in regard to temperature changes in comparison with conventional steel spring suspensions with oil filled dampers. On the one hand there is a rise and fall of car height due to the expansion coefficients of the gas (or rubber) and the alcohol anti-freeze additives in the fluid, whereas on steel springs the effect is negligible. On the other hand, the high viscosity change with temperature of the oil in the normal dampers renders the ride 'nobbly' at quite modest drops of ambient temperature such as is experienced in the UK. Figure 20 shows the constancy of damping of the Hydragas in comparison to a strut suspension with varying ambient temperature.

The rise and fall effect of Hydragas can be rendered innocuous by moderating the overall temperature coefficient of the system by the choice of rates. The parameters involved in this lead to a limitation in the lowness of rates made up as they are of gas volume and taper. Unnecessary fluid volume must also be avoided. Experience over many years of world-wide operation suggests that a suitable limit of thermal coefficient is 1.5 in/100°F. For exporting to territories of widely different temperatures to the country of manufacture, the pressure in the system can be adjusted at the pre-delivery check (Fig. 21). This can be repeated in extreme climates at the change of season. The amount of fluid change required is small at 13 in<sup>3</sup> and a simple hand operated syringe could be used if ever there was a demand from service in climates of extreme seasonal temperature change. For thermal reasons alone, low rate oleo-pneumatic systems which necessarily have high temperature coefficients, such as the Citroen, demand pump-operated levelling. In comparison with conventional steel springs, the facility of pressurizing the suspension on the production line to obtain the correct build height, is most valuable.

As we have indicated, the choice of the various rates in the Hydragas system is influenced by several factors. The evaluation of these is helped by the iterative inspection by means of our dedicated computer programs.

Hitherto in the quest for simplicity, roll bars have not been used on cars fitted with Hydragas. So the bounce rate, which also operates in roll, is fixed by considerations of sufficient roll stiffness. On other suspensions the considerable softness required for the ride quality demands a roll bar at least at the front, and nowadays it is often fitted at the rear as well. It should not be overlooked that roll bars, in addition to their weight and complication of installation, induce friction and oppose the suspension in single wheel bumps (Figs. 22 and 23).

We believe that Hydragas suspension, with its damping rates suitably optimized, offers a unique combination of ride and handling.

## 8 ROAD MEASUREMENT

To substantiate this claim we have measured the ride accelerations on the road, of a number of cars with conventional and Hydragas suspensions. We use a one mile stretch of the Fosse Way. The accelerations are measured by accelerometers placed:

vertically under the front seat;	vertically under the rear seat;
fore and aft at head height affecting front and rear seats;	laterally at head height affecting front and rear seats.

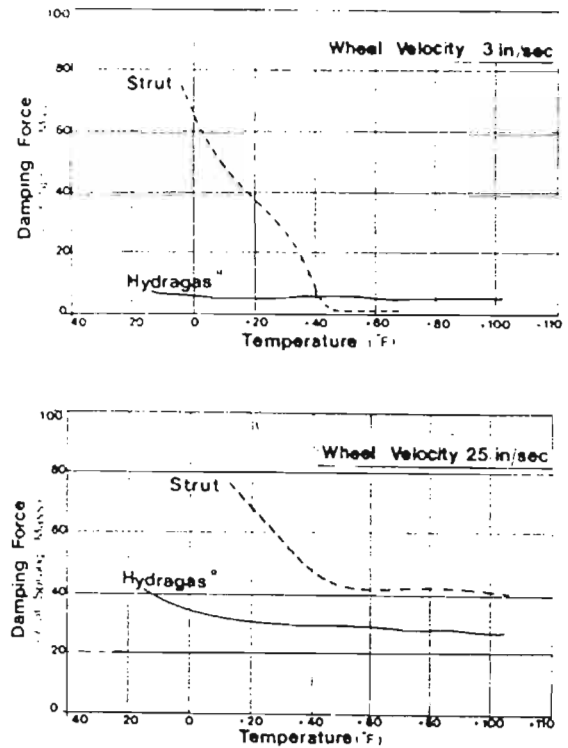


Fig. 20. Damping variation with temperature

The analysis is made on a Spectral Dynamics SD 330 with a band width of 0.15 Hz. These values are plotted on linear/linear axes. To facilitate the comparisons the spectra from the two cars being studied are superimposed, with the convention that where the Hydragas car (identified in blue) gives a lower acceleration (better ride) the difference is coloured green and vice versa in red.

Figure 24 upper shows the comparison of an experimental Mini fitted with Hydragas and a Volkswagen Polo. Figure 24 lower shows the comparison with an experimental Princess fitted as standard with Hydragas and a Rover 3500. The characteristic pattern is similar for the two sizes of car.



Fig. 21. Trimming suspension height

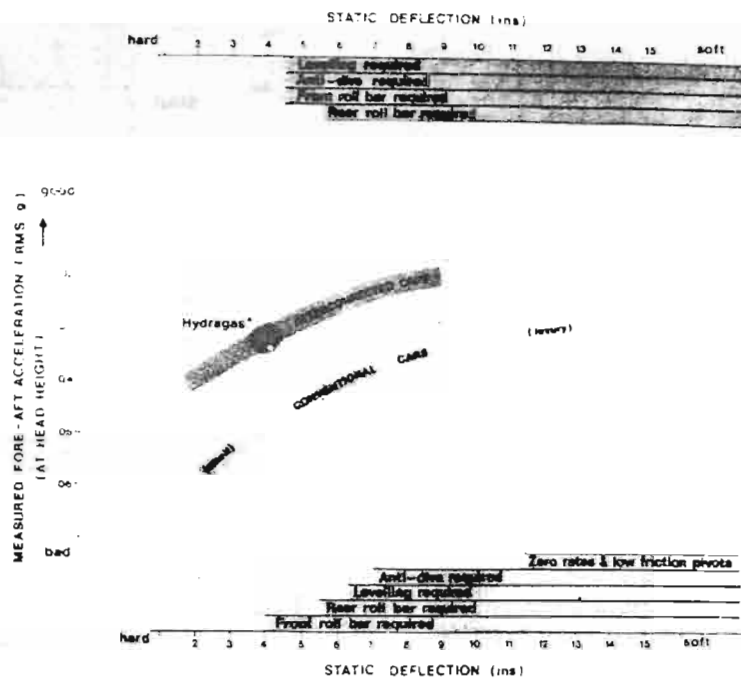


Fig. 22. Measured RMS pitch mode accelerations plotted against static deflections showing accretions of complications

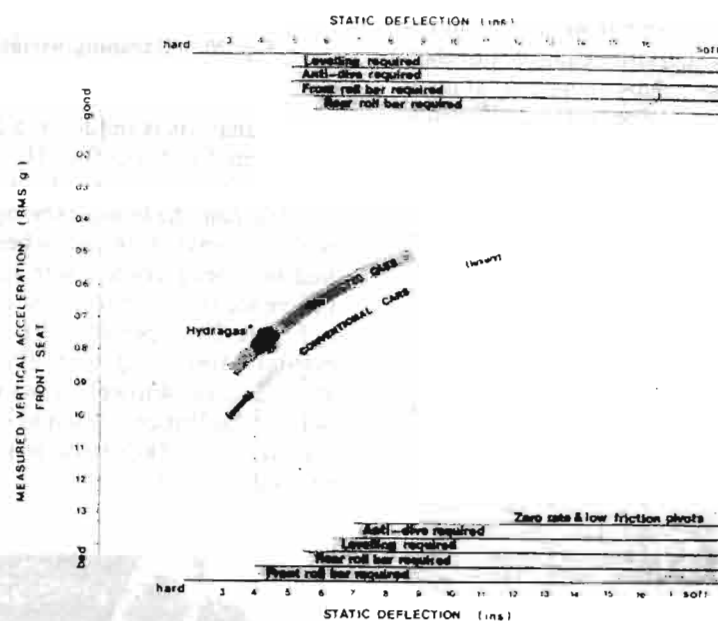


Fig. 23. Measured RMS bounce mode accelerations plotted against static deflections showing accretions of complications

Bearing in mind that the human body is most sensitive to vertical acceleration in the frequency range 4–8 Hz, as shown in ISO 2631, we consider that there is an equivalence in respect of front seat acceleration and a significant advantage in the rear seat of the Hydragas cars. For both front and rear seats the Hydragas shows the typical overall advantage in pitch. In respect of roll-rock, in the frequency of 2–4 Hz, which affects the head on the shoulders, the benefit of interconnection is apparent. It is worth noting that the ingenious positioning of the rear dampers in the Rover 3500 gives good roll-rock values.

The red area shown in the measurements under the

front seat between 12 Hz and 16 Hz, in the Princess–Rover comparison, is due to the problem of engine shake that is well known in front engine, front wheel drive cars, and is worthy of an attack in depth.

Another insight into the effect of interconnection is to examine the pressure traces of the fluid in the displacer on an identical car interconnected and not interconnected. Such a comparison is shown in Fig. 25, measured on an experimental Hydragas Mini running on the MIRA pavé. The lesser incidence of high pressure peaks and therefore loads into the vehicle can be noted in the case of the interconnected installation.

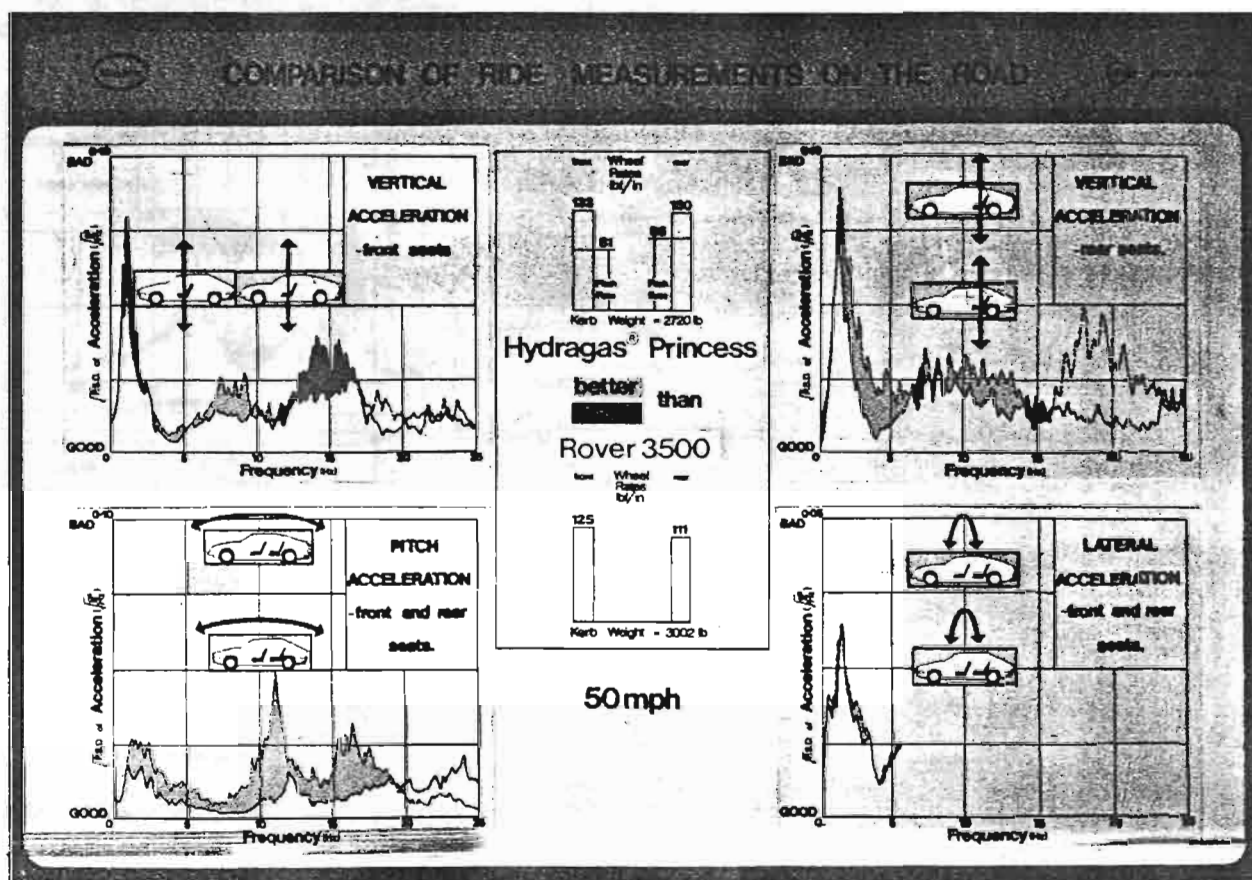
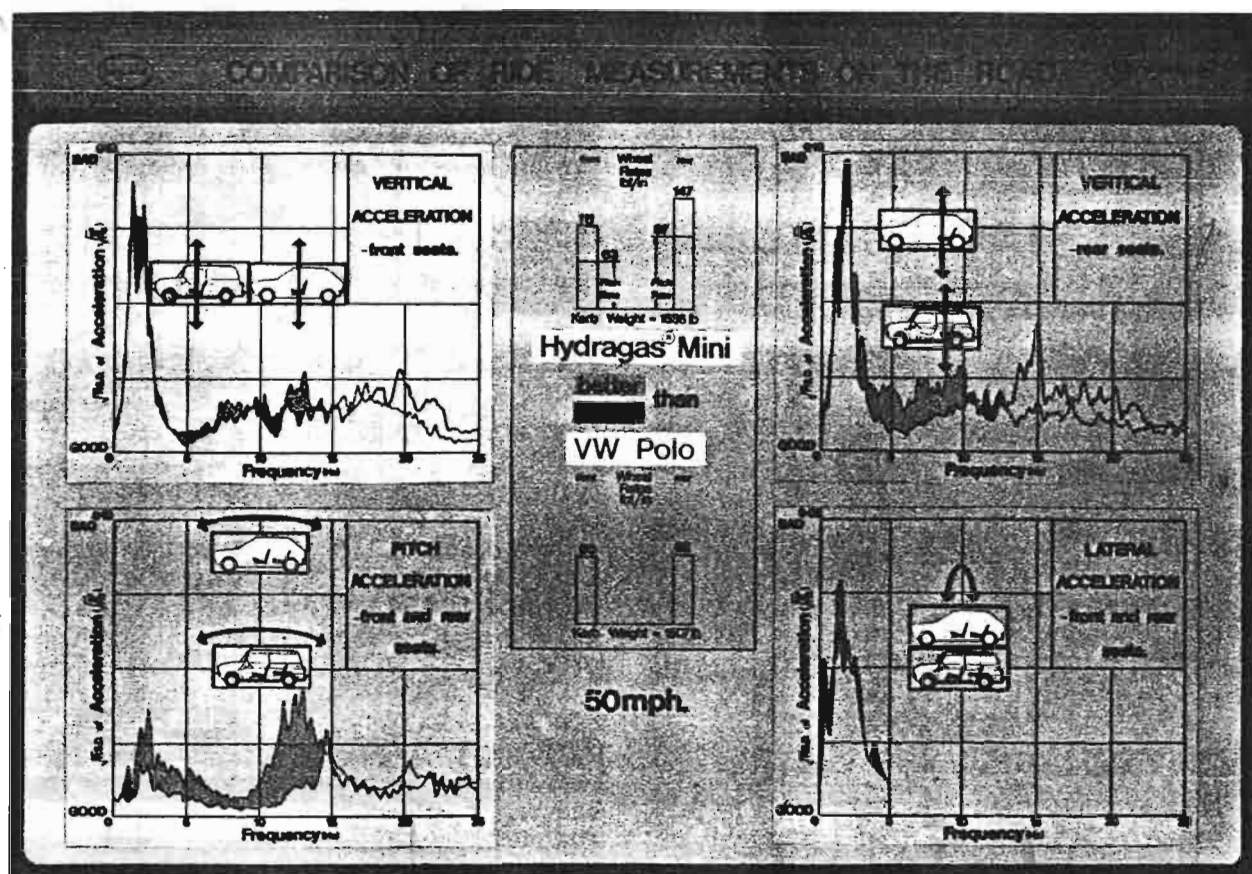
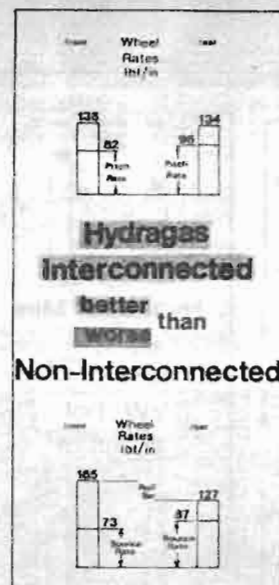
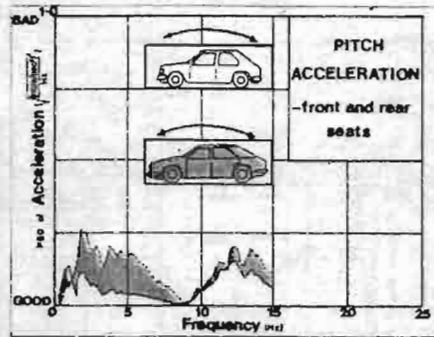
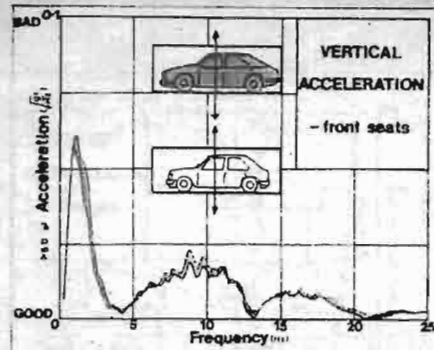
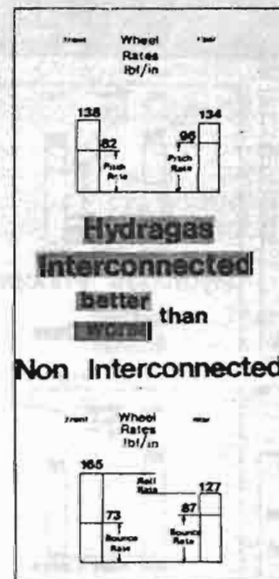
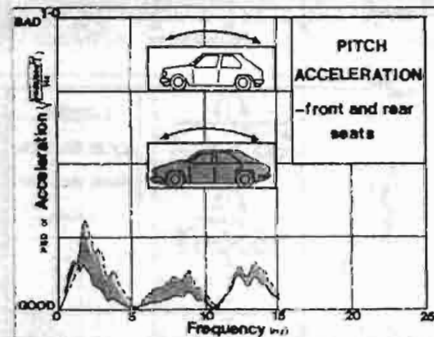
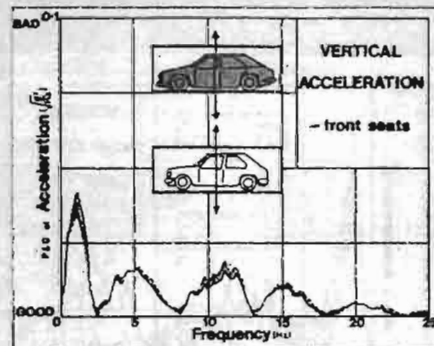
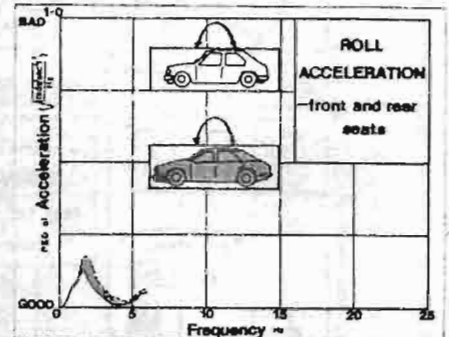
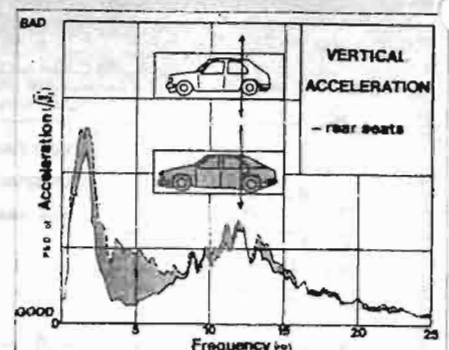


Fig. 24. Comparison of ride measurements on the road



50mph



30 mph

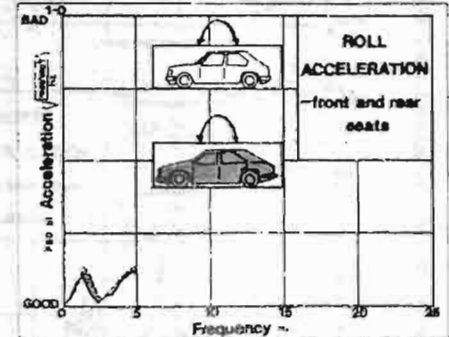
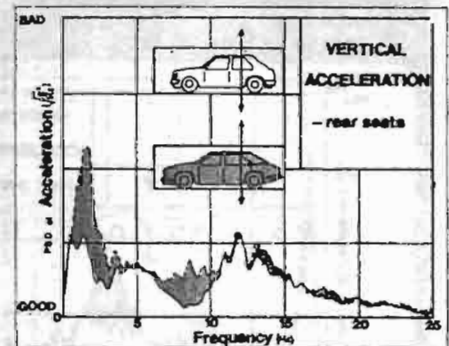


Figure 4.1 Mathematical Ride predictions (Moulton, A & Best, A. 1979, p29)

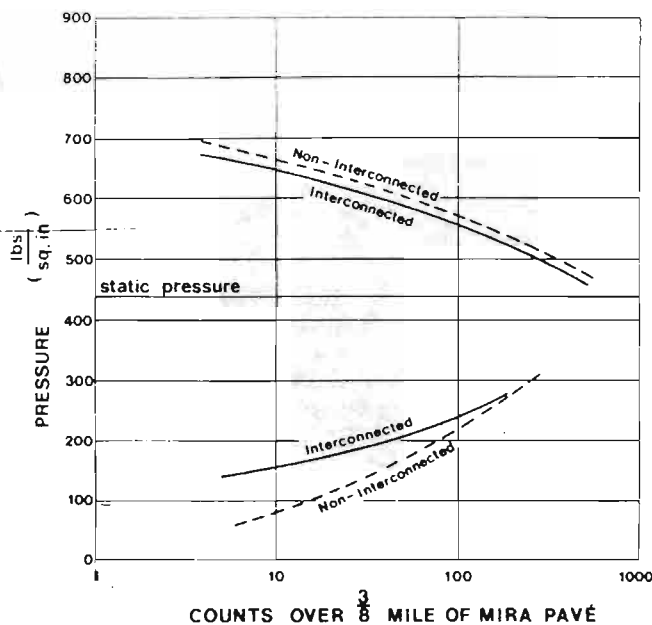


Fig. 25. Front displacer pressure crossings measured on the MIRA pavé

## 9 MATHEMATICAL MODELLING

The evolution of the techniques of mathematical modelling of the ride behaviour of vehicle suspensions of various types with random road inputs, has been an important factor in gaining insight into the effects of suspension parameters.

We used the Solatron 247 hybrid analogue computer at Bath University for the first behaviour comprehension of the system in respect to bounce and pitch modes with random road inputs on one side of the car. The size of the analogue computer prevented the analysis of the roll which requires a mathematical model and inputs for both sides of the car simultaneously. There are also limitations using pseudo random binary signal generators and analogue filters on the slope of the input road spectrum.

We have therefore recently developed a suite of programs for use on a large digital computer, which allow the addition of the roll mode. This involved digitally shaping the road spectrum, which gives complete freedom of choice for slopes, obtaining both the appropriate coherence and phase between the two sides of the car and delays in respect of the wheelbase and speed (Appendix.3). These digital inputs are read into the twenty seven equations which govern the dynamics of the car. The output from these equations are then analysed using the fast Fourier transform to give the spectrum, phase and coherence of the parameters of interest.

In Figure 26 the mathematical model is used to predict and compare the ride acceleration levels between a car fitted with the Hydragas interconnected system and a car fitted with soft springs and an anti-roll bar.

The upper illustration depicts the computed ride comparison at 50 miles/h and shows a similarity to the measured results (Fig. 24). The characteristic dips which occur at 4, 13 and 21 Hz in the vertical acceleration at the front seat are the wheelbase filter effect described by Butkanas (5).

The lower illustration depicts the computed ride comparison at 30 miles/h and again confirms the characteristic merit of the interconnected system in vertical acceleration in the rear seat, pitch acceleration and roll rock.

Turning to measured reality and considering the roll rock mode, when conventional suspensions are taken to extremes of softness to secure low frequencies in bounce and pitch, the very stiff roll bars required to maintain acceptable roll angles invoke severe penalties in ride comfort in the 'roll-rock' mode. Measured lateral accelerations on two luxury cars are shown in Fig. 27, obtained at high speed on a straight 'B' class road. In this mode the actual values of acceleration were higher than that of an experimental Hydragas Mini, and much higher than on a standard Princess.

## 10 INSTALLATION

The key to the installation of the suspension elements in a car lies in the complex question of whether sub-frames are used and if so, of what type. Current practice for high volume cars in the world wide industry includes examples of all types including the full frame.

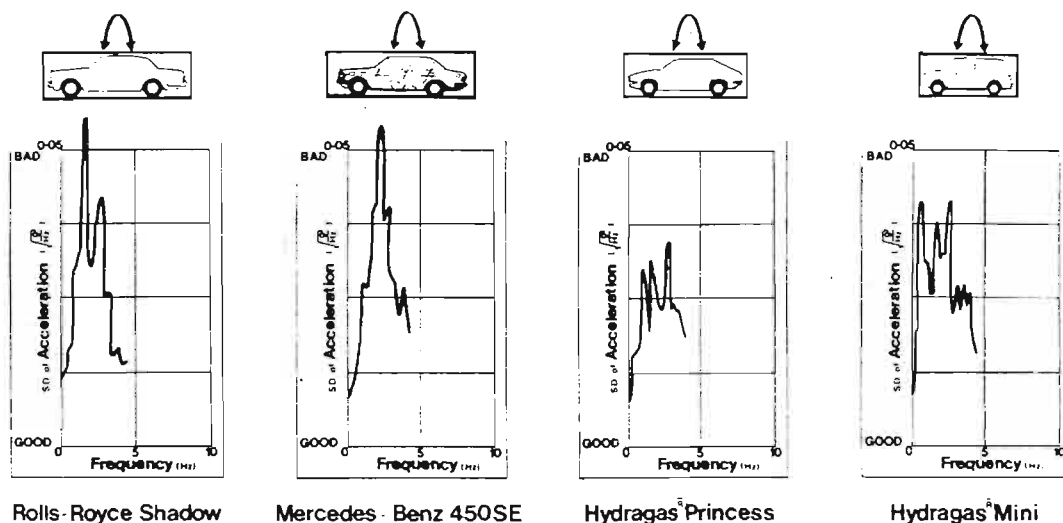


Fig. 27. Measured roll accelerations at 70 miles/h



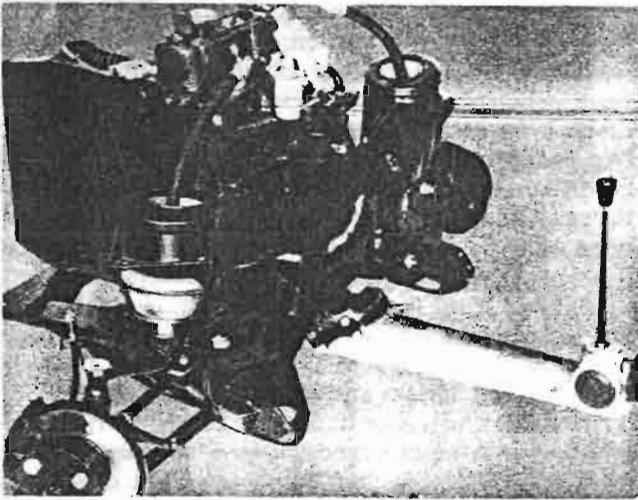


Fig. 28. BMC 1100/1300 front

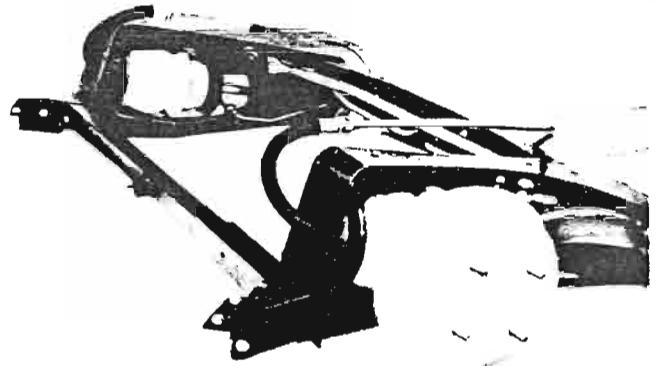


Fig. 29. BMC 1100/1300 rear

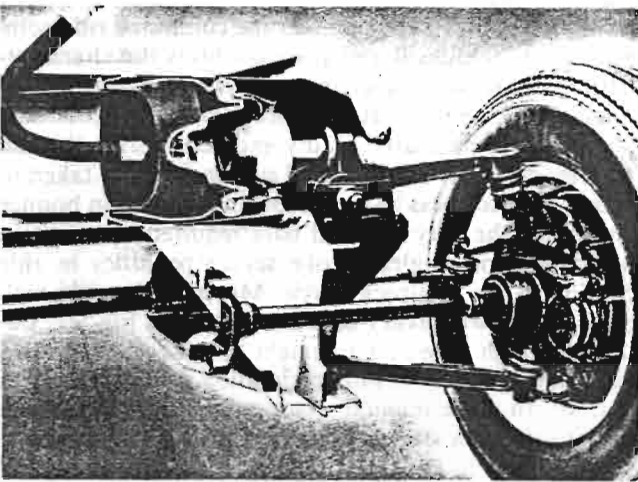


Fig. 30. BMC 1800 front

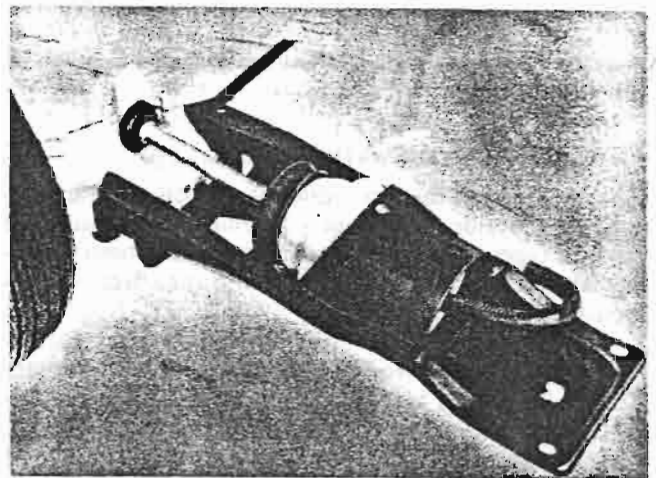


Fig. 31. BMC 1800 rear

In the evolution from Hydrolastic suspension to Hydragas over the years the progress has been marked by a reduction in the extent of sub-frames employed. Thus on the Mini and the BMC 1100/1300 full sub-frames were used front and rear (Fig. 28 and Fig. 29). The high loads associated with the 4:1 leverage were contained in the sub-frame members. The sub-frames themselves were rubber mounted although the noise isolation potential of this was not fully achieved because the means of reconciling isolation with shake control was not optimized in those days nor was it so necessary with cross ply tyres. Roller bearing pivots for the arms contributed to the good steering behaviour of these cars.

On the BMC 1800 series the sub-frames were not used but instead localized 'hard' structures were employed to contain the loads and locate the wheel arms (Fig. 30 and Fig. 31). At the front the units were mounted horizontally in a cross member which formed an effective protection to the passenger compartment in a collision. The pivot bearings were of the Slipflex type in which the thin rubber surround provided the only isolation.

On the Allegro, which was the first car fitted with Hydragas (Fig. 32) the units at the front are mounted directly into the valences with the reaction loads taken by a 14 swg yoke weighing only  $3\frac{1}{2}$  lb. The compliance is provided by the axial movement of bonded rubber dual concentric bushes which are load-worthy for the pivots.

At the rear (Fig. 33) a rubber mounted cross tube sub-frame is used in which the reaction from the levered loads are contained in shrouds integral with the units, so that only wheel loads are fed into the body.

## 11 COST AND WEIGHT

In general terms cost follows weight on the assumption that similar low cost materials and techniques are used, which applies to the Hydragas units made as they are from pressings.

In conventional front suspensions both the McPherson Strut and the wishbone (SLA) type are widely used in high volume cars. The Hydragas, being a levered device, demands a wishbone installation usually operating on the short top arm. Such an arrangement facilitates a low silhouette and anti-dive anti-lift geometry.

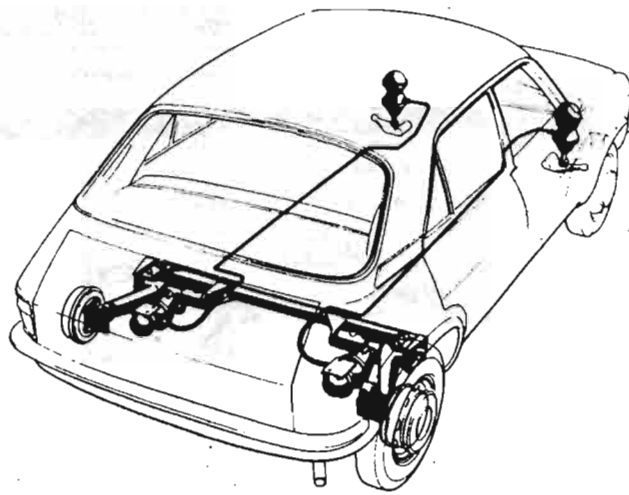


Fig. 32. Hydragas Allegro installation

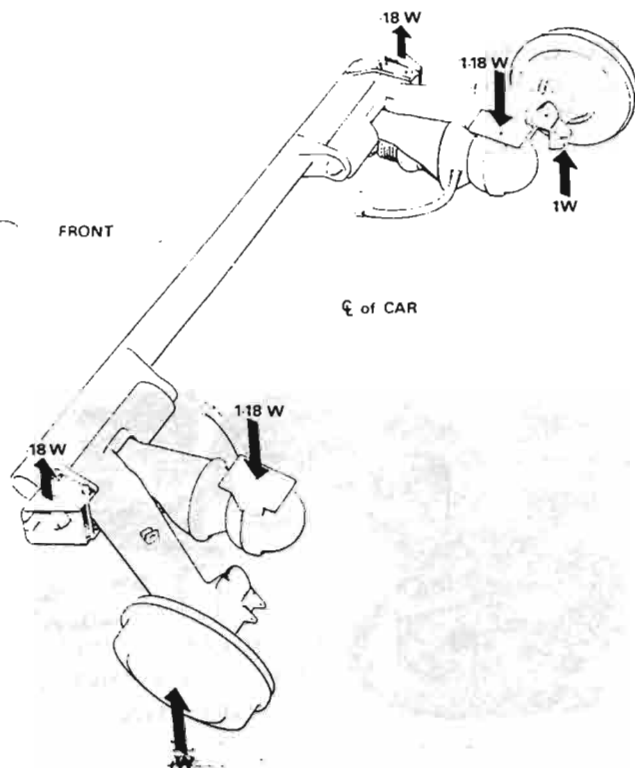
Taking the essential springing, damping and guidance functions alone it is interesting to note that if the cost of a strut is 100 per cent then the cost of a Hydragas unit, top arm, pivot pin, bushes, bump and rebound stop is 5 per cent; similarly the weight comparison is 94 per cent (Fig. 34).

Moreover, assuming that the lower control arms can be the same then the comparison between the Hydragas and McPherson shows a slight advantage in cost and weight in favour of the Hydragas. This is not surprising, bearing in mind the precision machined elements demanded in the strut, and the economy of weight in the gas spring. In this comparison it should be remembered that the Hydragas system does not normally require an anti-roll bar.

The interconnection pipes are a small percentage of the total suspension weight and complete with the rubber hoses and fittings weigh only 2.9 lb per car.

Considering the rear suspension, the current designs of Hydragas systems are significantly lighter than the current production arrangement used on the Allegro, which incidentally uses the same components as the 2700 lb Princess.

However, the semi-independent rear suspension linkage incorporating a torsionally flexible cross beam pioneered by Audi/Volkswagen proves to be a very light and cost effective solution. The application of Hydragas to this type of rear suspension using a horizontally mounted unit to incorporate the installation advantage of a low silhouette proves to be the lightest of all (Fig. 35).



Hydragas Allegro and Princess rear suspension

	GOLF	ALLEGRO
WEIGHT	100% (14.4LB)	94% (13.5LB)
COST	100%	96%

Fig. 34. Weight and cost comparison of front suspension elements

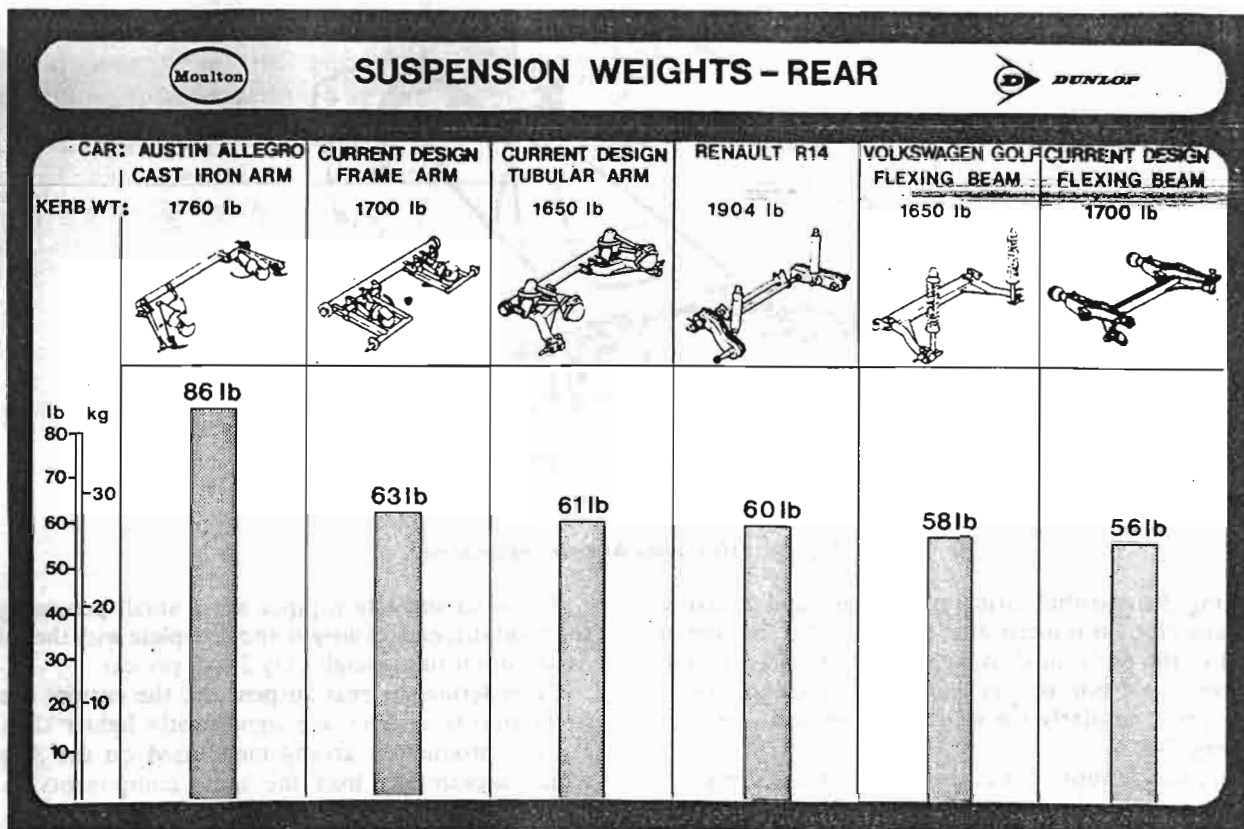


Fig. 35. Weight comparison — rear suspension

For both front and rear the 'total life cost' of the suspension must not be forgotten in so far as damper replacements in the life of conventionally suspended cars are normal, whereas with our system this is not so. Thus taking the factor of total life cost into account Hydragas, when suitably installed, must surely be the cheapest of all.

#### 12 RELIABILITY

In the recent history of the automobile probably no more hazardous an innovation, from the reliability point of view, has been attempted than the introduction of Hydrolastic for a high volume car destined for worldwide use. We were conscious of this from the outset of the development; especially bearing in mind the disaster of air suspension on American cars in the fifties, which to this day is still in the folk memory in Detroit. The in-

tensity of development testing in the early days of Hydrolastic has already been noted; and the suitability of the design of the unit for quality control in production was of paramount consideration. The advance to Hydragas can be regarded as a natural progression, substituting the quality control requirement of the rubber spring for the control of gas charging and leakage.

It is satisfactory to record that in the long service history of Hydrolastic, extending to four million cars over a period of fifteen years, the cumulative replacement units represents a mere 1.4 per cent (Fig. 36). We expect Hydragas to have a similar reliability behaviour.

By an odd chance we have come across an authentic sample of a set of Hydrolastic units after thirteen years of service and 250 000 miles. The damper loops are within production tolerance (Fig. 37).

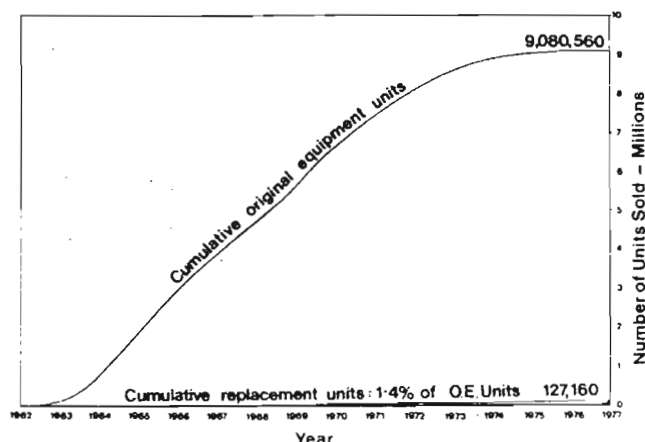


Fig. 36. BMC 1100/1300 Hydrolastic unit sales

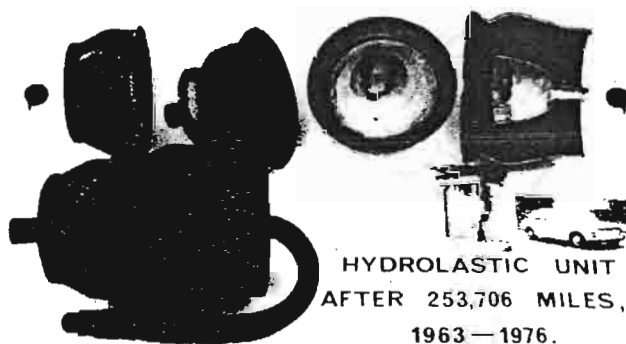


Fig. 37. Hydrolastic unit after 250 000 miles service

### 13 LEVELLING

We have shown in Fig. 14 that the distribution of rates in a Hydragas system can be chosen to give comparable changes in standing height with load additions to that achieved with conventional suspensions.

However, if there is a requirement for the maintenance of the standing height with an abnormal load, then extending rams in series with the pistons of the rear units provide the levelling function.

This can be carried out either fully automatically using the system shown in Fig. 38, or alternatively manually for the 'holiday load' occasion, using the system shown in Fig. 39.

Both these systems maintain the integrity of the Hydra-

gas system in that should there be a failure in the levelling system then the springing and damping function is preserved and the performance would be identical to a car without levelling.

An inherent advantage of interconnection is that if the height sensing is done at the rear only, the front height also remains sensibly constant (Fig. 40). This is due to the extending rams invoking a larger diaphragm area at the rear and also displacing fluid from the rear units, thereby increasing the system pressure to give an increased load carrying capacity at the front.

This increase of diaphragm area and system pressure also retains the merits of the non-levelled system, already discussed, of constancy of damping and frequency.

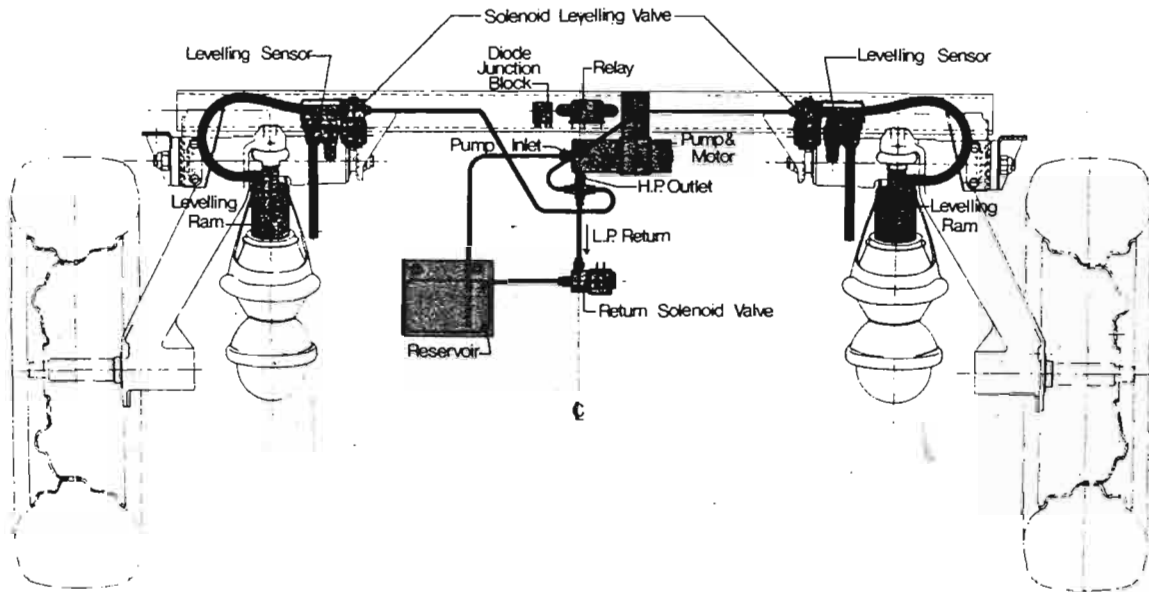


Fig. 38. Hydragas fully automatic levelling system

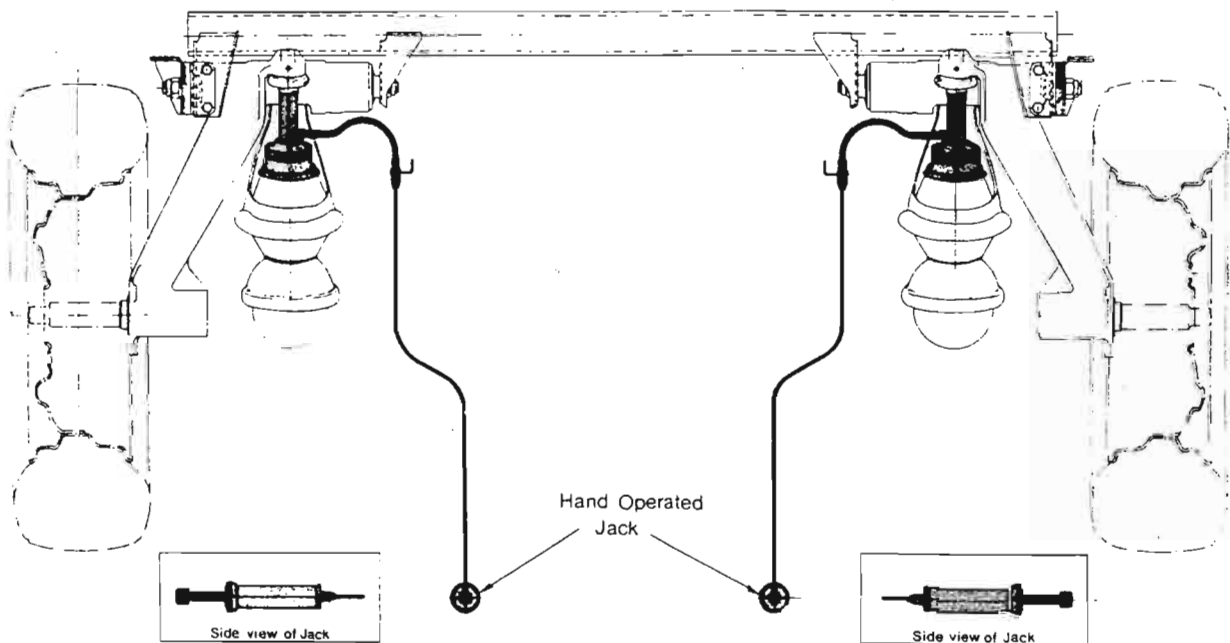


Fig. 39. Hydragas manual levelling system

#### 14 CONCLUSIONS

That the conventional steel spring suspension is more or less satisfactory for large and medium size cars is shown by the lack of activity in this area in the last decade — except for the gradual spread of independent rear suspensions. However, the fundamental change in world-wide attitude since the energy crisis will enforce the production of radically lighter and smaller cars — probably of the Issigonis configuration. It is doubtful that to attempt to transfer the conventional suspension technology to these cars will result in a satisfactory compromise of ride and handling, laden and unladen. It is here that the Hydragas technology, based, as we have shown, on a sure foundation of mathematical fundamentals and test evidence, will serve to reconcile these conflicting requirements especially in the maintenance of constancy of behaviour, laden and unladen, and to impart a 'big car ride' to these smaller vehicles. At the same time it offers minimum 'total life' cost.

#### ACKNOWLEDGMENTS

The authors wish to thank the School of Mathematics at Bath University for permission to use their analogue computer and also A. S. Charlesworth of the School of Mathematics and A. Schlesinger of the School of Engineering for their assistance on computing.

*This paper is published for presentation at an Ordinary Meeting of the Automobile Division in London on 11th January 1979. The MS was received on 5th May 1978 and was accepted for publication on 2nd November 1978, 12.*

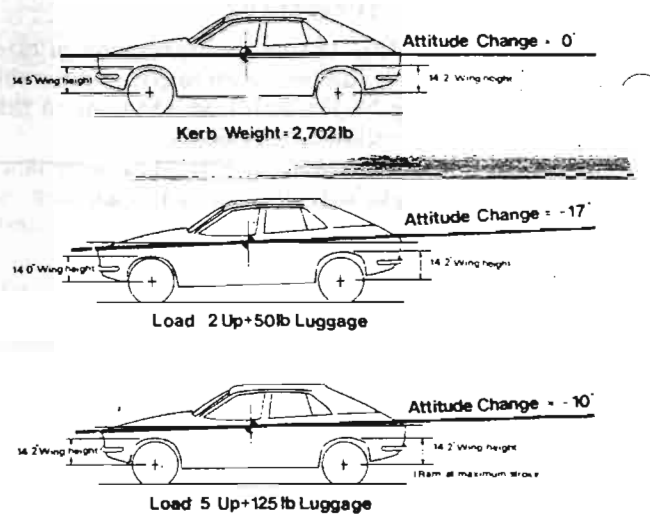


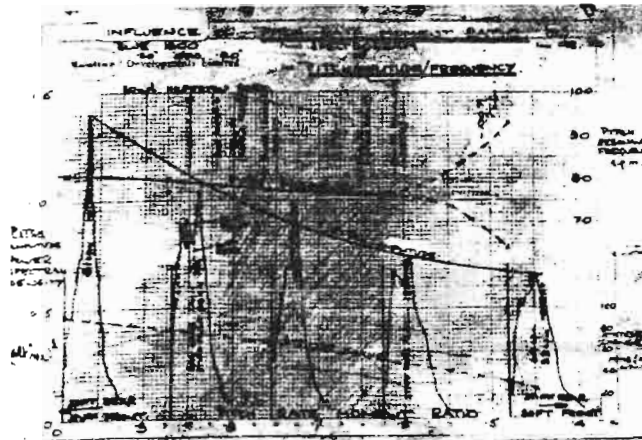
Fig. 40. Attitude change with rear levelling ram

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#### APPENDIX 1

Measured pitch angle for various PRMR shows the same trend as the mathematical prediction (Fig. 16).



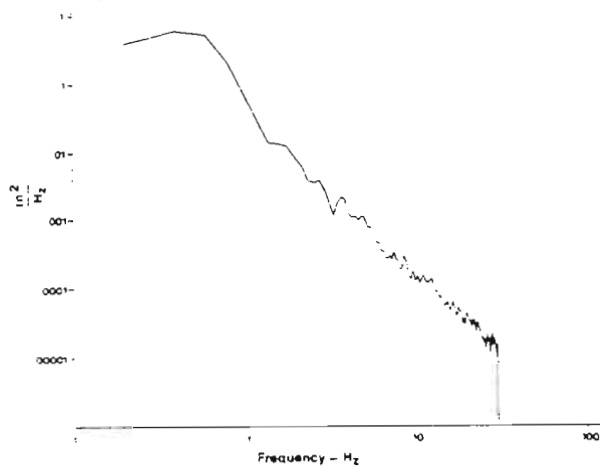
#### APPENDIX 2

The unequal wheel loading that can occur on a non interconnected Hydragas car if the units at each end are not pressurized in pairs. Note the car appears level.

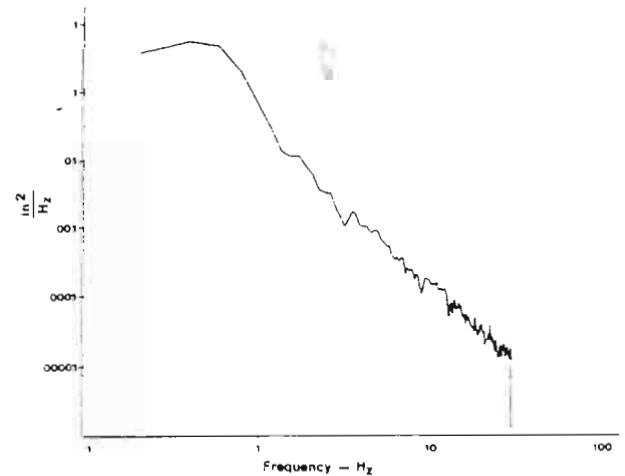


#### APPENDIX 3

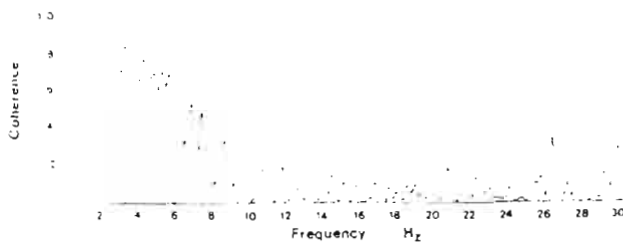
Characteristics of digitally generated 'road'.



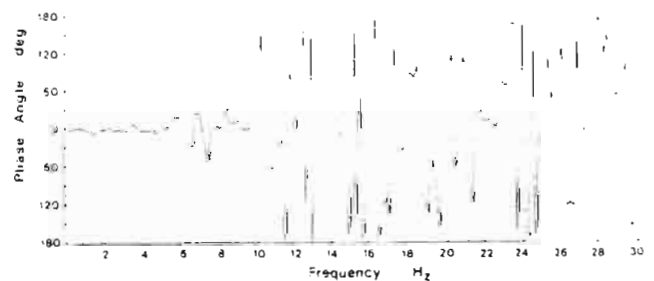
LH track



RH track

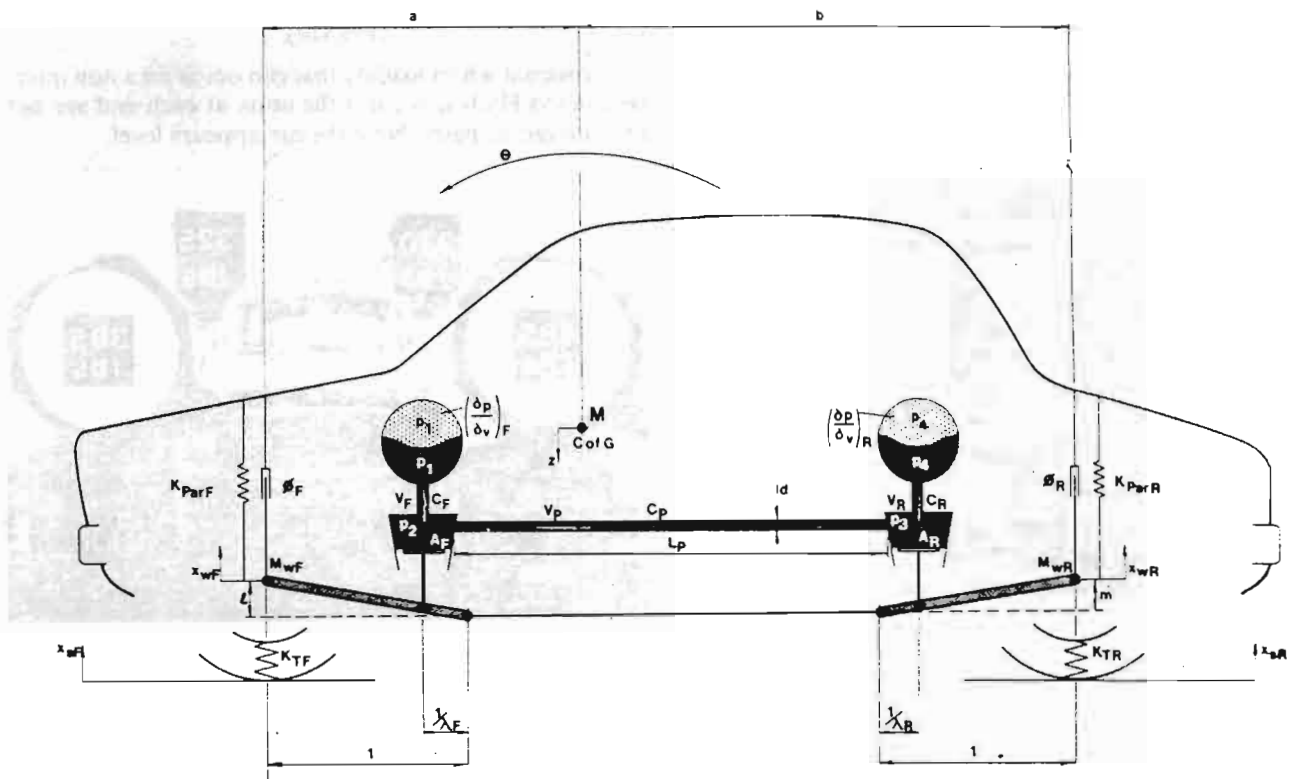


Coherence between tracks



Phase between tracks





$A_F$  effective area of front piston  
 $A_R$  effective area of rear piston  
 $C_F$  front bounce damping coefficient  
 $C_R$  rear bounce damping coefficient  
 $C_P$  pitch damping coefficient  
 $K_{PF}$  front pitch rate  
 $K_{PR}$  rear pitch rate  
 $K_{ParF}$  front parasitic rate  
 $K_{ParR}$  rear parasitic rate  
 $K_{TF}$  rate of front tyre  
 $K_{TR}$  rate of rear tyre  
 $L_P$  length of pitch pipe  
 $M$  mass of the sprung vehicle (one side)  
 $M_{wF}$  mass of the front wheel  
 $M_{wR}$  mass of the rear wheel  
 $V_F$  volume of fluid displaced into front spring  
 $V_R$  volume of fluid displaced into rear spring  
 $V_P$  volume of fluid displaced along pitch pipe  
 $a$  distance of centre of gravity to front wheels  
 $b$  distance of centre of gravity to rear wheels  
 $d$  bore of interconnection pipe  
 $k$  radius of gyration  
 $l$  displacement of front wheel relative to body  
 $m$  displacement of rear wheel relative to body  
 $p$  pressure in system steady state  
 $p_1$  pressure in the front gas spring  
 $p_2$  pressure in the front displacer

$p_3$  pressure in the rear displacer  
 $p_4$  pressure in the rear gas spring  
 $x_{wF}$  displacement of front wheel  
 $x_{wR}$  displacement of rear wheel  
 $x_{sF}$  displacement of road surface — front  
 $x_{sR}$  displacement of road surface — rear  
 $z$  displacement of centre of gravity  
 $\left(\frac{\partial p}{\partial v}\right)_F$  rate of change of pressure in front spring  
 $\left(\frac{\partial p}{\partial v}\right)_R$  rate of change of pressure in rear spring  
 $\left(\frac{\partial A}{\partial x}\right)_F$  rate of change of area of front piston  
 $\left(\frac{\partial A}{\partial x}\right)_R$  rate of change of area of rear piston  
 $\alpha$  cross section area of pitch pipe  $\alpha = \frac{\pi d^2}{4}$   
 $\theta$  angular rotation of sprung mass  
 $\lambda_F$  front leverage  
 $\lambda_R$  rear leverage  
 $\rho$  Hydragas fluid density  
 $\phi_F$  front suspension friction  
 $\phi_R$  rear suspension friction

# HOTTER HEATERS

by Daryl Stephens

Very relevant in both Hobart and Sydney- less relevant in Melbourne and Brisbane- is the subject of heaters

The principle is like John Howard- very simple. As the engine heats up, the water in the cooling jacket is heated. This hot water is transferred from an outlet on the head via a rubber hose through the fire wall into the heater unit, back through the fire wall and into the bottom radiator hose. The heater is basically a smaller version of the engine radiator. When hot water is inside it, the air passing through it is heated. { mk 1 1800 heaters have a more efficient heater radiator that mk 11's or X6's }

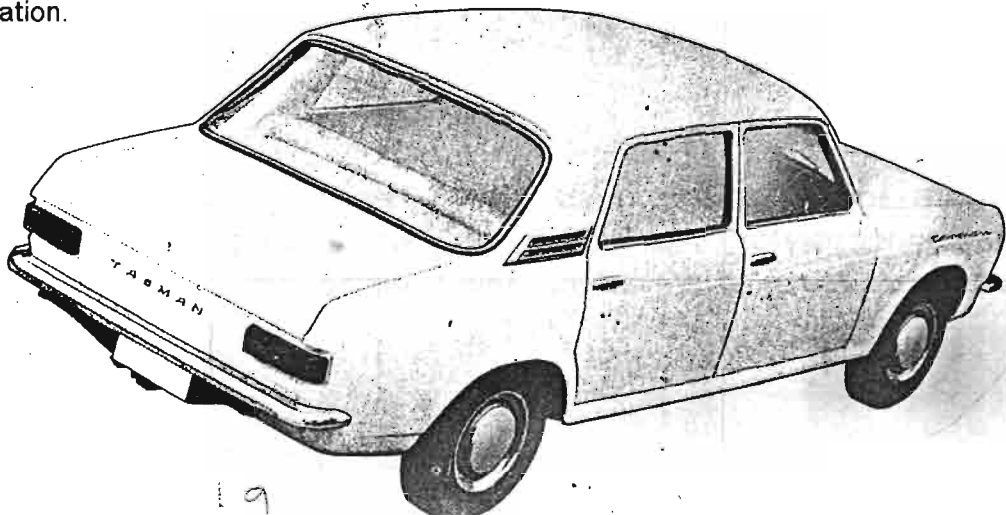
It therefore follows that the stronger and hotter the water flow, the hotter the air coming out of the heater.

**1 IMPROVING THE WATER FLOW** This is done by removing the thermostat and bottom radiator hose. The system can therefore be flushed in both directions. Where the hose enters the cooling system, a rag around the hose will prevent most water leakage. Then both the small rubber hoses running through the firewall are disconnected and the garden hose is then shoved down both ends of both small hoses. This flushes the heater unit itself, and the water being flushed out is normally putrid.

**2 RAISING THE WATER TEMPERATURE.** With the thermostat out, it is better discarded as new ones can be installed for around \$10. An 88 c thermostat is generally the warmest that is commonly available. For X 6 owners, the thermostat *must have the attachment on the bottom to block off the by pass port.* { An EA Falcon one can easily be modified to suit. }

Next, and this is easier on the X 6 models, the radiator can be partially blocked off with a bit of cardboard or three ply. Basically, the temperature gauge determines the size of the shield. If the vehicle in question has an oil cooler without an oil thermostat, this should be covered up during winter. The keen people put a glove over the oil filter as this tends to act as oil cooler. Then for the really keen ones, the oil can be run on minium, for marginally higher operating temperatures.

As a special bonus, if one's vehicle is over heating in summer, turning the heater **on full** will help the situation.



# FOR SALE...

1800 Mk 11 Man- tired body- whams left of the interior is multi coloured No reg or RWC Paul  
in Cranbourne Vic [03] 5995 3159 \$500

Mk 11 Ute Needs new cab floor. Straight body Q.L.D. \$700 Peter 018 152 317

1800 Mk 1 body shot, rebuilt engine has done 20,000 miles \$100 Frank Smith Caulfield  
Vic [03] 9523 9192

1800 Mk 1 1966 130,000 miles by 2 owners Frank Allatt Bowral N.S.W. [02] 4861 1896

1800 mk 11 Complete less engine, Black in colour, VGC \$200 Rob 3262 8933 Albion  
QLD

1800 mk 1 \$500 Miranda Hughes Perth 9528 5282

1800 mk 11 '70 man RWC New Clutch Resprayed. Blue/ blue \$650 5 new tyres Albury  
NSW Nevil Williams [02] 602 14716

**100 complete sets of gear cables** for the 1800. The lot [300 cables] for \$1,000 or will sell  
separately. John Trotter 81- 85 Barden Road, Menai N.S.W. 2234 [02] 9543 1646  
or 018 101 354

Mk 11 1800 Man '68 Sugar cane Alie Dykman \$1,000 12 months reg Narra Warren Vic  
[03] 9703 2349 or 0411 286 177

Mk 1 1800 Man. reconditioned engine- resprayed \$5,000 Eric Cameron Sutherland NSW  
[02] 9524 4309

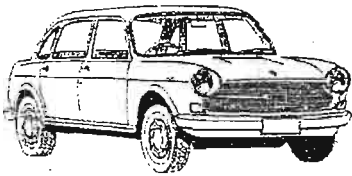
Mk 11 [2 of them ] 1800 Auto **Freebie** Castlemain Vic [03] 5472 3952 Peter Kirby

Mk 11 1800 Manual. white/blue interior. new clutch. Genuine 80 000 miles. Club member  
David Wynan \$3 400 (03) 9484 4661

# WANTED

1 set of Kimberley stainless steel sill strips in good condition [ with clips if possible ] Member  
John Bland [02] 9871 5674

Some years ago, Charlie Windsor better known as Prince Charles was  
opening a kindergarten. As he left, he said, " I hope you infants enjoy  
your infancy as much as we adults enjoy our adultery. "



# LANDCRAB

CLUB OF AUSTRALASIA INC.



Welcome to newsletter number 82 for October and November, 1998



# INTRODUCING...

Matt Hill	C/- 47 Bendigo Street Richmond Vic 3122	[03] 9428 5651	Mk 11 1800
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Cameron Wright	The Court House Learmonth Vic 3352	[03] 5343 2390	Mk 11 1800
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Cameron had been in the Club about 5 minutes before he found a NewZealand source for a 3.7 [ 18/ 67] crown wheel and pinion.

Donald Hale	41 Jamieson Street Dalesford Vic 3460		2 Mk 1 man 1 Mk 2 Auto 1 Mk 11 Kim 1 Mk 11 Kim
-------------	--	--	---

Welcome back to Donald, who has collected quite a fleet !

Donald Ramage	11 Rotherwood Street Wendouree Vic 3355	[03] 5339 9020	Mk 1 1800
---------------	--	----------------	-----------

" Purchased new 19 8 68 from Collins Motors, Ballarat. Have original invoice, registration certificate, insurance certificate. Purchased vehicle from executor of deceased estate. He died aged 96 years. The car is in excellent condition throughout. "

Ian Wiltshire	37 Old Borough Drive Onkaparinga S.A. 5163	[08] 8325 0109	Mk 11 1800
---------------	---	----------------	------------

As well as an 1800, Ian has a 1750 Austin Maxi

Ferdinando Mignanelli	34 Harold Street Bulleen Vic 3105	[03] 9850 7775	Mk 11 1800.
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Ferdinando's car has the number plate "AM 1800 "

James Roberts	20 Wynnum North Road Wynnum QLD 4178	[07] 3396 8201	Mk 11 1800
---------------	---	----------------	------------

Grahame Fordyce	same as James Roberts		2 utes
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James and Grahame were very fast off the mark and requested some remanufactured clutch thrusts as soon as they joined the club.

Derek Cameron	26 Tudawali Cres Mulgrave Vic 3170		Mk 1 1800 [from new ]
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# Spanners for **next** century



**A** USTRALIA'S most popular toolmaker is tinkering with the 21st century.

Sidchrome, the Aussie tool-making company with the slogan "you canna hand a man a grander spanner", has just joined forces with its hi-tech American counterpart Proto, and produced the new Sidchrome Proto range of tools.

The new brand will use Sidchrome's reputation with Proto's recent advancements in tool technology.

The first phase of the partnership has produced the Torque Plus fastening system, which uses the flat sides of nuts and bolts — instead of the points — to increase torque tightening and reduce stripping the edges off nuts and bolts.

# EDITORIAL

By The Editor

The clutch thrust bearings have been delivered - all 23 of them- and **paid for I hope-** as I have nearly \$2,000 invested in this project. Final price worked out at \$83-00 each. The carbon feels much stronger than the standard ones, and the finish is much better.

Should a member suddenly decide they need one, it may be wise to ring in case of last minute cancellations.

As probably most people know, the 1800 comes with an 8" clutch plate. Some of the pressure plates are stamped either 8" or 8 1/2". In other words an 8 1/2" clutch plate will fit. If anybody knows a source of these clutch plates, could they let me know?

On my vehicle, I hope to fit a re manufactured carbon thrust, and an 8 1/2" clutch plate. When I suggest that the clutch will last the length of the motor, do I hear gentle laughter?

Next issue, I hope to run 2 articles on the hydrolastic suspension- the first being a MK 1 1 far superior home made pump, and another called down future road ( with apologies to The Seekers )



# CATCHING CRABS

**PATRICK QUINN CATCHES UP WITH TWO FINE EXAMPLES OF THE LAST OF AUSTIN'S 'LAND CRABS', THE KIMBERLEY & TASMAN**



What will history say of the Austin Kimberley and Tasman, launched in 1971 by British Leyland Australia (BLA)? Many call them a disaster, some consider them to be underrated vehicles. Well, we at ACC have as much right to our say in history as anyone else...so here goes!

The Austin 1800 was coming to the end of its useful life when BLA began developing a replacement. The result was the X6; while similar in design and fwd layout, it was 8.5 inches longer overall than the 1800 and two inches longer in wheelbase. It retained the unique Hydrolastic suspension pioneered on the Mini.

The big difference with the X6 was its six-cylinder overhead-cam engine, in the days when the average Australian six used pushrods. While the 1800 was particularly roomy, based as it was on the Mini principle of a wheel at each corner, the X6 was positively cavernous. The spare had its own compartment under the boot, leaving 22 cu ft (don't ask me the metric equivalent) of luggage space [I think that's about 3 1/2 chaldrons, or 3/4 of a rood - Ed].

The engine was developed from the four fitted to the Morris 1500 - two extra cylinders were tacked on to give 2227ccs. The engine spins freely to 5500rpm and develops 115bhp.

Cooling for the new engine took a different

approach from earlier BLA transverse-engined cars. Gone was the familiar radiator at the front, on the passenger side of the engine bay; in its place was a new radiator directly behind the grille, assisted by an electric thermo-switched fan. Drive to the front wheels was by either four gears living in the sump or by the well proven Borg-Warner Type 35 auto transmission, also beneath the engine but using its own hydraulic fluid.

The X6 was released as two distinct models, the Kimberley and the Tasman - suitably Australian names. The technology was also exported to the UK for use in the Austin Maxi and its variants.

To the casual observer, both cars looked similar, but there were more than skin-deep differences. The Kimberley was more luxuriously appointed with reclining seats and carpets, while the Tasman had a bench seat and rubber mats (carpets appeared in the Mk2). Externally the Kimberley had dual rectangular headlights, fancy wheel trims and more brightwork. Under the bonnet, the Kimberley engine breathed through twin SUs against the Tasman's single (Mk2 Kimberleys got a single carb). For trivia buffs, the Kimberley/Tasman was the first BLA car to show the Leyland logo on the steering wheel boss.

## SO WHAT WENT WRONG?

Were these the wrong cars for the early seventies? Had Australian motorists moved on from boxy cars? Did BLA not push them hard enough?

Wheels magazine was full of praise for the models, with comments such as: "The Austin offers an extra inch of front seat legroom and a full three inches more back legroom than the HQ Holden. The Kimberley - on radials - can give a very good account of itself from point to point. It

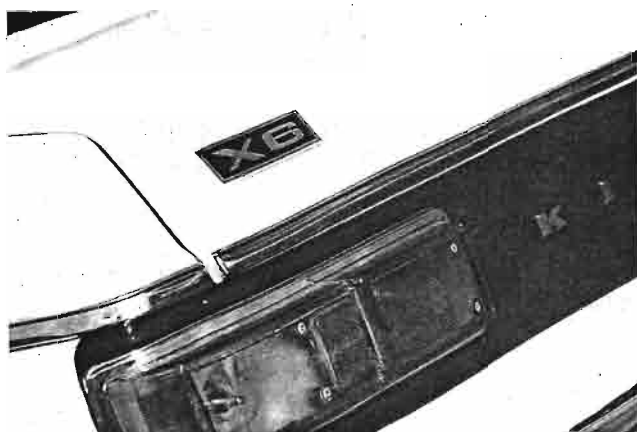
gets around corners as though on the proverbial rails. The overall high calibre of the handling is matched by the excellent standard of roadholding. By average standards it's an excellent car - even an outstanding one".

Australian Motor Manual said: "Despite the obvious liking of hard work, it produced a fuel consumption figure of 26.2mpg during our test - an excellent figure. In design and engineering, it is a far better car than one has a right to expect for under \$3000."

Strangely, what the magazines didn't like was front-wheel drive in a large car - wasn't Australia ready for this? The driving position received a bagging and was likened to driving a semi-trailer (or a Mini!). Performance was viewed as just satisfactory and the cable-operated gearchange wasn't liked at all. The copious boot space was appreciated, but the way any weight pushed the rear down and the front up was criticised.

Even as early as 1973, questions were being asked as to why the car wasn't selling. BLA was generally blamed for lacklustre marketing. There was something about the company at the time; it was quite happy to rest on its laurels - a self-destructive act as the Japanese began making enormous inroads into traditional BMC/BL markets.

Holden and Ford had sat up and taken notice, but BLA unfortunately hadn't.



## THE CAR'S STORY

### N6 TIMES TWO

We were lucky (aren't we always?) to be able to test two of the probably sizable number of these Australian-designed sixes still in use on our roads. Both our test cars have clocked up ridiculously low mileages.

Sydneysider John Bland's first classic was a Model A Ford, which was quickly followed by two Vauxhall Crestas, a Vauxhall VX4/90, an Austin A30 and next an Austin Mini (bless you John!). John is an enthusiastic member of the Austin Motor Club and had set his sights on an Austin Lancer when, in December 1996, he heard of a 1972 Austin Tasman with only 13,000

on the clock. Yes, it had been owned by the old lady... She had died and John bought the car from the estate - there was a little trouble



Here's looking at you, says John Bland (above left) as he admires the shine on his Tasman's wheels. Meanwhile, Graham Anderson takes to the road (below) in his Kimberley whose dashboard is shown above





**Kimberley, in the background, faces Tasman, while happy Graham Anderson contemplates driving his Mk2 Kimberley home after the photo shoot (below right)**

with the Roads and Traffic Authority, which had the car classified as having no owner, but John finally took possession in March 1997.

He was a little sceptical about the mileage, as the panel fit was poor - had the car been rebuilt? He was reassured by fellow owners: that was how they were built, thanks to BLA's quality control. But the general condition of the vehicle was immaculate throughout.

John wisely joined the Land Crab Club and soon met up with Graham Anderson, the owner of our test Kimberley and a fount of information and advice. John soon learnt that the cars tend to overheat, with the Kimberley being the worse thanks to its four-headlight arrangement. The electric fan cuts in at too high a temperature and doesn't draw sufficient air.

John's problem was alleviated by changing

the thermo switch setting from 99 degrees C to 90 degrees C and fitting a more powerful electric fan from a Nissan Pulsar.

John also learnt of the automatic's reputation for cooking itself on a long trip. So, to extend the life of the engine and transmission John has fitted dual oil coolers.

The rear suspension has also been modified to prevent it sagging under load. Being a late model, the car is equipped with bucket seats and carpets, and John has set about fitting period accessories such as radio, sun visor, rear 'Venetian' blind, BL mud flaps, and under-bonnet light. He is on the look-out for fog and spot lights. John has added just 2000 miles to the odometer.

Graham Anderson first became interested in these vehicles in 1982 and, while living in the

UK, he bought an Austin Maxi. Back in Australia he bought a Tasman, followed by a down-at-heel Kimberley which he still has. Then came our test Mk2 manual Kimberley, bought from Victoria after it had sat in a garage for ten years. Although it only had 29,000 miles on the clock and was in reasonable condition, Graham decided on a ground-up restoration.

The vehicle was completely stripped, the body taken back to the bare metal and repainted in two-pack. Graham discovered that just six weeks after the car was sold, it had been recalled by BLA and fitted with a new engine. Graham checked both engine and gearbox; new water pump, brass welds, plugs, and the now-necessary engine oil cooler were fitted.

He also modified the large nut that holds the final-drive gear to the driveshaft, as he had experienced it coming adrift on other cars, with disastrous results.

Graham believes that the Kimberley/Tasman was one of the most underrated cars ever developed by BLA. "If BLA had given more thought to the cooling and installed a 3.7:1 diff for more pleasant touring, it would have been a far more acceptable car. I don't know why they persisted with the cable gearchange when the UK variants used a far more efficient rod gearchange."





## THE CAR'S STORY

Graham added, "Roadholding and comfort is great and there wasn't another car available at the time that could match it. I believe the body looks great and was way ahead of its time. The brakes are excellent for the weight of the car. I really like the suspension - especially the way that it changes to match the speed of the car. Comparing it with the other cars of the day, the

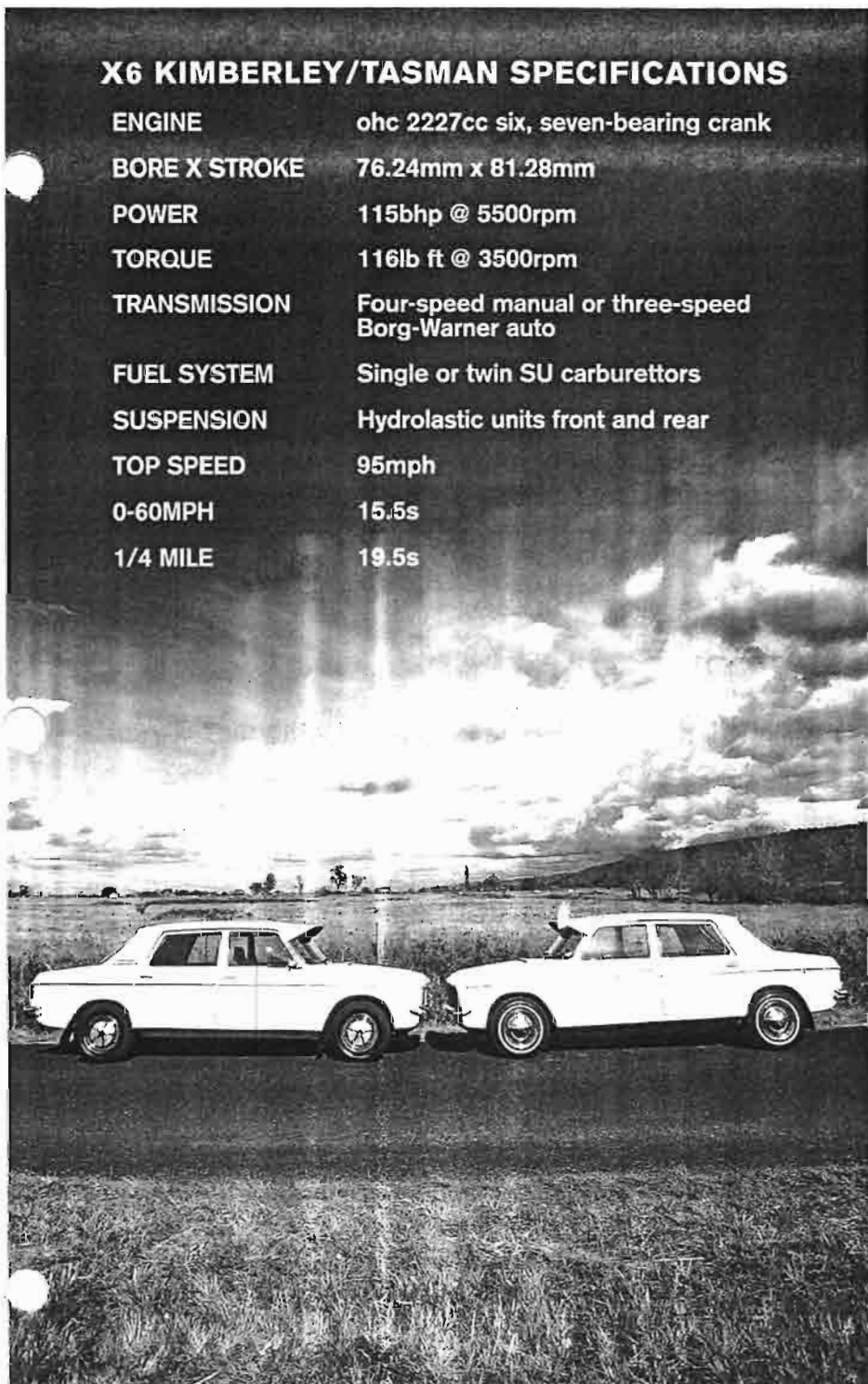
Kimberley is much better. So much space inside - it's wonderful. BLA didn't do it justice. "It is a car that you can really drive."

### AN UNBIASED OPINION...

These are two absolutely delightful cars that don't try to be anything but four-door sedans. The Kimberley is more attractive; its four

### X6 KIMBERLEY/TASMAN SPECIFICATIONS

ENGINE	ohc 2227cc six, seven-bearing crank
BORE X STROKE	76.24mm x 81.28mm
POWER	115bhp @ 5500rpm
TORQUE	116lb ft @ 3500rpm
TRANSMISSION	Four-speed manual or three-speed Borg-Warner auto
FUEL SYSTEM	Single or twin SU carburettors
SUSPENSION	Hydrolastic units front and rear
TOP SPEED	95mph
0-60MPH	15.5s
1/4 MILE	19.5s



headlights, additional chrome and blacked-out rear panels set the model over and above the Tasman.

The Tasman is 100 per cent original, with the wear and tear you'd expect on a car with 15,000 miles on the clock. The Kimberley is, 'one out of the box' - while it has been restored you would have to look hard to pick it.

You do sit upright in the Kimberley, but it suits the car and helps with the reasonably heavy but responsive steering. It is a very comfortable car, one I'd be happy to go touring in. I particularly like the centre armrest, which makes the front seats very armchair-like. At 2613 lbs it's heavy, but the 2.2-litre six stirred by the four-speed manual pulls it along at an acceptable clip. Handling is excellent, without the lurching that I expected from Hydrolastic suspension.

The Tasman feels very different, being nowhere near as comfortable in the cabin. The seats are okay but there's nowhere to rest your elbows.

While the performance of the engine coupled to the auto is reasonable, it seems sluggish after the manual Kimberley. From the smile on Graham's face, I suspect that the Kimberley might be putting out a few more horsepower!

Perhaps the car could have sold in far greater numbers. Whether it would have made a great difference to the future of BLA is debatable, but the X6 Kimberley/Tasman was and is a good car, and deserved a better fate. ★

Graham Anderson  
3 Buffalo Road  
Gladesville  
N.S.W. 2111  
6 / 7 / 98

Dear Daryl & Janice.

Hard to believe that another year has slipped by and it is time to pay the Club dues !

Looking forward to Austins over Australia next year in Adelaide - sent off our booking last week.

Recently, I have been involved with two other Club members with their X6 cars.

**John Bland** has a great example of a Mk 11 Tasman auto, which is very low mileage. John experienced the usual problems, so decided to fit an oil cooler to the engine, and also a separate oil cooler for the Borg Warner 35 gearbox. It is interesting that the Tasman / Kimberley parts book quotes oil cooler connectors for the auto box - part no. W188017, but not illustrated. Assistance from **Richard Locke** helped in working out where to fit the outlet and return pipes. So it is up and running ! I'm interested in why these were never fitted standard as it would have made a much more reliable gearbox- especially for towing.

Have also been able to help **Chris Verkroost** with his failed auto box. The main problem was that the centre was torn out of the drive plate on the torque converter which I gather is not an unusual problem on Borg Warner 35 auto boxes.

Look forward to seeing you next Easter !

Would it be possible for one of you chaps to tell the editor how this is done, and he can tell everyone else ?



CH CH

What's missing ? U R

*S*

## FITTING A NISSAN PULSAR VECTOR FAN TO AN

### AUSTIN TASMAN

By John Bland

**HISTORY** When I purchased the car, I was told by long time Kimberely owner and club member **Graham Anderson** that I would have to fit an over-ride switch to the electric radiator fan or fit a larger capacity fan to overcome an inherent fault of over heating in traffic and the like. Initially, I fitted an over-ride switch on the fan after being caught in traffic and finding that the fan would cut in and switch on about 3/4 of the way up the temperature gauge. The fan would not reduce the temperature, just maintain it at that level. I thought that was totally unsatisfactory as I thought the fan should reduce the temperature. Being a new owner, I found manually switching the fan on a real pain as I would usually forget and the temperature would rise too much before I remembered to turn it on. I discussed this with Graham and he suggested fitting Davies Craig fan for \$180 or a Repco one for \$130.

I thought this was expensive so I went to a wreckers yard with a spare original fan and had a look at what was on offer. There was a large selection- at least 25 and nearly all different- so I went through them one by one. I came across the Nissan fan which had no surround around it. However, it looked nearly identical to the original.

I took it outside and compared the physical size to the Tasman fan and found that the Nissan motor appeared to be the same size. The fan had 5 blades instead of 4 and the mounting was similar to the Tasman. I parted with \$35 after running both fans before I left the wreckers. The Nissan fan ran at higher revs and had more torque than the Tasman's so I hoped it would do the job.

Fitting the fan involved cutting about 1/4" to 5/16" off each blade so that it would fit into the existing fan surround. I found the existing fan surround was not circular, and it would be difficult to alter it so I cut a small amount extra off each blade so it would fit. Each blade has to be the same length so it does not alter the balance of the motor- so care must be taken when marking and cutting excess blade. The blade is plastic so it was easy to cut. I used a pair of tin snips for the job. Also where the motor fits through the mounting bracket was too neat a fit so I needed to go round it with a file. I took off about 1/32". The mounting plate on the Nissan fan is circular and has about 20 holes in it. You will find 4 that nearly line up with the existing bracket holes. Elongate this about 1/16" outwards and they will fit. The fan is now ready to install. Using the existing screws and rubber washers install the motor and then put the fan blades on from the other side. A coat of paint before assembly would help. Connect up the wiring to the existing wires and you are in business.

I also altered the fanstat at the same time. I removed the fanstat and put in it an assembled state hung on 3 wires into a pot of water leaving the wire connectors out so I could connect the current to it. I used a 9 v smoke detector battery and ran one lead to the wires holding the fanstat in the pot and the others to a test light which was connected to the fanstat centre wire. I put a thermometer in the pot and heated up the pot of water. I found that the fanstat was turning the fan on at 99 c - too high! I then lifted the 3 tabs that hold the top and bottom of the fanstat together and took it apart. There is a shaped metal strip which has a curve in it. Straightening this out a small amount and then re assemble and retest using the above method. When I first bent it, it lowered the fanstat temperature to about 70 c - too low. Patience is a virtue and I eventually set in to 90 c. It takes about 10 minutes to get it right. Seal the fanstat back up again and install it in the radiator.



You will find as I have found that the fan cuts in with the temperature gauge about 7/16 " up the scale. and the extra capacity of the fan brings the temperature down to normal and cuts out. Total cost was \$35 plus \$1 for the electrical connectors and you should still have a fan that looks very similar to the original. It would probably take about 1- 1 1/2 hours total to do this modification after taking the fan and bracket out of the engine bay. This modification was done in winter and the real test will be in summer.

**P.S.** Graham Anderson and I had new hoses fitted to the front displacers of our cars. This was done by Pertek at Rydalmore [02] 9638 5422. They have kept a record of the part numbers used to repair them if it is any help to anybody.

## FROM THE BACK SEAT

### **PRESIDENT/ TREASURER/ LIBRARIAN KEEPER OF THE SPARES.**

Pat Farrell 03 9762 4457  
4 Wayne Avenue, Boronia Vic 3155

### **REGALIA OFFICER**

Mike Gilmour 02 4681 8887  
Lot 57 Remembrance Drive  
Tahmor NSW 2340

### **DATA REGISTRAR**

Peter Jones  
4 Yarandin Court, Worongary QLD 4213

### **PUBLIC OFFICER**

David Hopper [ 07] 46 333 162  
8 Evergreen St, Toowoomba QLD 4350

### **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

### **A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

### **SOCIAL CONVENORS**

Brisbane; Peter Jones as above  
Melbourne; Paul Nichols 47 Moores Road, Monbulk Vic. 3793 03 9877 1425  
Sydney; Mike Gilmour as above

Opinions expressed within are not necessarily shared by the Editor or Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month

# WHO'S WHO

AS AT 3 / 9 / 98

A.M.V.C. of Q.L.D.	1376 Old Cleveland Road (07) 3399 1152 Carindale Q.L.D. 4152	
A.M.V.C. of N.S.W.	Box 3943 Parramatta (02) 9651 2394 N.S.W. 2124	
A.M.V.C. of W.A.	Box 189 Bassendean (08) 9622 1192 W.A. 6934	
ALLEN Peter	6 A Lambeth Place [03] 9534 7726 St Kilda Vic 3182	Mk 1 1800
ANDERSON Graeme	3 Buffalo Rd (02) 9816 3389 Gladesville NSW 2111	Kimberley
BAIRD Mary	34 Culzean Crescent [03] 524 38154 Highton Vic 3216	Mk 11 1800
BARLING Joe	125 The Ridgeway Ching (081) 529 608 London E4 6QU U.K	Wolseley 6x3 Wolseley 18/85 Mkl
BERRY Walter	12 Elkin Ave, (02) 4987 1680 Raymond Terrace NSW 2324	Mk 1 & Mk 11 Austin 1800 mk I
BLAND John	25 Keats Street [02] 9871 5674 Carlingford N.S.W. 2118	Mk 11 Tasman
BOURDAIRE Rudy	436 Maitland Bar Rd (063) 733 633 Mudgee NSW 28	MkII
BRENDLE Clifford	133 Old Para Court [03] 9434 2226 Montmorency Vic 3094	Mk 11 1800
BRIGHT Douglas	26 Boynton Street [03] 622 92665 Kingston Tas. 7050	Mk 11 1800
BRYANT Glen	18 Lochbuy St (06) 251 7813 McQuarie ACT 2614	Tasman Mk 1
BURFOOT Jim	250 School house Road (03) 5964 7356 Woori Yallock Vic 3139	SWB Gipsy LWB Gipsy
CAMERON Derek	26 Tudawali Cres Mulgrave 3170 Vic	Mk 1 1800
CAMERON Laurie	913 Riversdale Road [03] 9836 6406 Surrey Hills 3127	Mk 1 & 11 1800
CAMERON Neil	Box 64 [08] 984 48358 Albany W.A. 6381	Mk 11 1800
CAMPBELL David	3 Forest Avenue [07] 5465 7070 Plain Land QLD 4341	Mk 11 Ute
CHARMAN James	40 William Street [03] 9466 4776 Lalor Vic 3075	Mk 11 1800
CHAMPLIN Gabe	121 Cressy Road [02] 9887 2881 East Ryde NSW 2113	Ute
CODD Peter	Box 2351 Nerang East [07] 5545 2204 Q.L.D. 4211	Mkl 1966 MkII 1970
COOPER Geoffrey	10 Tonks Street [07] 3277 2717 Moorooka QLD 410	Mk 11 1800
COPELAND Terence	11 Windsor Street Margate QLD 4019	Mk 11 1800 x2
COVEY Michael	MC 6123 (042)265 110 South Coast Mail Centre B/h [042] 273 444 Wollongong NSW 2521	Ute
DAVIS Nathan	Box 554 Wauchope [02] 6585 6046 N.S.W. 2446	Mk 11 1800

DAY Colin	"Cooranga" RSD 233 Cohuna Vic 3568	(03) 5456 8227	Mk 1 1800
DOUGLAS Keith	50-66 Mackelroy Plenty Vic 3090	(03) 9432 2820 B/h 9478 3219	MkII Auto. MkII Man.
DUBBER Ronald	RMB 4603 Sagars Rd Hazelwood Nth Vic 3840	[03] 5166 1328	Mk 1
DUFFIN Jim	56 Ruhamah Avenue North Geelong Vic 3215	[03] 527 88373	Mk 1, Mk 11 Nomad
EALEY David	19 Hendersonhill Rd Silvan Vic 3795	(03) 9737 9235	MkII Ute Man.
ENGLISH Albert	M/S 299 Quarry Rd Bunderberg Qld 4670	(071) 578 191	MkI Sedan MkII Sedan
FARRELL Pat	4 Wayne Ave Boronia Vic 3155	(03) 9762 4457 015 326 606	2 xMkII 1800s Morris 1800 Mk 11 ute
FIENBERG Greg	IronBark Valley Putty NSW 2330	[02] 6579 7075	Mk 1 & Mk 11 Kim
FLOREY Donald	419 Windermere St Ballarat Vic 3350	[03] 5331 1051	MkII Tasman Man/ 3 Litre
FORDYCE Grahame	20 Wynnum North Road Wynnum QLD 4178	[07] 3396 8201	2 Mk 11 Ute's
FRY Garry	6/ 84 Wellington Street Bondi NSW 2026	[02] 9130 6591 0414 992 386	18/85, 3 Litre Rally car
GILMOUR Michael	53 Remembrance Drive Tahmor NSW 2573	[02] 4681 8887	Few Kimberley's
GOODALL Robert	95 Osborne Ave Mt Waverley Vic 3149	[03] 9515 7015 mob 0417 380 634	2 Mk 11 Kims
GREASLEY Paul	18 Palmerston St Kalgoorlie WA 6340	(090) 911 208	MkII Man. MkI
GREENWOOD Russell	175 Kilgour Street East Geelong Vic 3219	[03] 5229 7780	Mk 11 ute Mk 1
GRIFFITHS John	93 Wills Street Kew Vic 3101	(03) 9853 8251	Mk 1 1800
GUINEA Kerry	Box 45 Wulguru QLD 4811	(077) 783 379	Mk 1 1800
HALE Donald	41 Jamieson Street Dalesford Vic 3460		2 Mk 1 man 1 Mk 11 auto 2 Mk 11 Kim. A & M
HILL Matt	C/ 47 Bendigo Street Richmond Vic 3122	[03] 9428 5651	Mk 11 1800
HOGG Allan	22 Huntingdale Ave Miranda NSW 2228	(02) 9522 8184	MkI Kimberley A 30, A 90, A 95
HOLMES Geoffrey	14 Brukner Close Cowrie ACT 2904	(06) 291 7196	MkI Sedan
HOPKINS Rick	PO Box 51 Taralga NSW 2580	(048) 402 309	3 Mk 1s [1 ute] 2 Mk 11 s
HOPPER David	8 Evergreen Street Toowoomba QLD 4350	[07] 46 333 162	Mk 1 1800 {Restored}
HUCK David	Leyland Park RMB 8A March Rd Orange NSW 2800	(063) 658 328	Mk 1 1800 Mk 11 1800[restored]
HULLEY George	46 McMillan Rd Narooma NSW 2546	(044) 762 144	MkII Ute [Restored]
HUSSEY Neil	18 Channel St Mornington Vic 3931	(059) 755 857	MkII Kimberley

JONES Peter	4 Yarandin Court Worongary Qld 4213	silent	MkII [not silent]
KENDRICK Lee	56 Reserve Road Grovesdale Vic 3216	[03] 524 362 37	Mk 11 1800
KENNON Tim	12 Nirissa Gve Oak Park Vic 3046	(03) 9304 1021	Rally Car SMO 225G
KNOX Stephen	2 Northam Road Wantirna Vic 3152	[03] 9720 2472	Mk 1 Mk 11
LEDDEN Quin	Box 135 Annandale NSW 2038	(02) 9660 3672	Mk 11 1800
LEIGHTON Adrian	20 Clarinda Avenue Faulconbridge NSW 2776	[02] 4751 6926	Mk 1800 Mk11 1800
LENNY Ed	51 Prince St Goulbourn NSW 2580	(048) 212 015	MkI Auto.
LESLIE Robert	6 Celia St Glen Iris Vic 3166	(03) 9889 2418	MkI
LEWIS Chris	18 Lucas Street Caulfield South Vic 3162	(03) 9596 5730	Mk 11
LOCKE Richard	31 Sunways Ave 7 Mile Beach Tas 7170	(03) 62 486 765	Looking for the right one !
LYLE Ken	3/11 Foundry St Mayland Perth WA 6051	(08) 9271 3737	Princess 1800 MkII Ute MkII Sedan MkII 1800 Sedan MkII Ute under resto
LYNCH Raymond	10 Cecelia Drive East Keilor Vic 3870	(03) 331 3870	1800 Ute A70 Ute
MARSHALL Geoff	19 Anne St Blackburn Nth Vic 3130	(03) 9877 1425	Mk 11 Kimberely & Mk 1 Kimberely
MACKELLAR Robert	33 Third Avenue Sandgate QLD 4017	[07] 3869 0834	
McINERNEY Barry	1 Reserve Street Neutral Bay N.S.W. 2089		
McINTYRE Ian	18 Yondell Avenue Springwood N.S.W. 2777	[02] 47 514 338	2 x 1800 Mk 11s
MSPHAIL Stephen	19 Joan Street Chester Hill NSW 2162	(02) 9645 2190	3 x 1800 Mk 11 s 2 Morris Nomads
MATTHEWS David	P.O.Box 121 Liadhurst East Sussex U.K.	0011441 892 784 000	Mk 11 Ute
MEDLEN Robert	2 Grassdale Rise Woodlea Estate Aberfoyle Park SA 5159	(08) 370 7794	Mk 1 1800
MELVILLE Neil	C/- Cowaramup PO WA 6284	(08) 9755 5332	2xMkI Sedans 2xMkII Utes
MIGNANELLI Ferdinando	34 Harold Street Bulleen Vic 3105	[03] 9850 7775	Mk 11 1800
MITCHELL Bill	Box 128 Beaufort 3373 Vic.	[03] 53 492 720	Mk 11 Ute
NICHOLS Paul	47 Moores Rd Monbulk Vic 3793	(03) 9752 1489	MkI Rally Car
NICHOLSON Lee	9 Hobart Street Bentleigh Vic 3204	[03] 9557 6172	Mk 11 1800
LAN John	217 Badger Creek Road Badger Creek Vic 3777	[03] 5962 3435	2 x Wolsley 18/ 85 s
PARER Terry	P.O. Box 5 St. George QLD 4487	(076) 25 3371	Mk 11 1800

PATIENCE Ken	149 Brees Rd East Keilor Vic 3033	(03) 9337 4661	2xMkII Sedans Westminster A99 Ute Ken under restoration Mk 11
PEDERSON Hans	High Performance Products 3 Thornton Cres, Mitcham Vic 3132	(03) 9874 1800	
PEDERSON Herman	14 Vernon St Blackburn Sth Vic 3130	Should have	Mk I S
PETERS Robert	32 Price St Torquay Vic 3288	[03] 52 612 326	MkI 1800
PHILLIPS Colin	99 Lurline St Katoomba NSW 2580		MkI 1800 Man.
PITMAN Eric	19 Church Street Yakandandah Vic 3749	[060] 271 209	Mk 1 ute 2 x Mk 11 sedans
POWELL Ian	7 Acacia St Elsternwick Vic 3185	(03)9 523 7097	2xMkII Man.
RAMAGE Donald	11 Rotherwood Street Wendouree Vic 3355	[03] 5339 9020	Mk 1 1800 auto
ROBERTSON Brian	32 Robert St Telopea NSW 2117	(02) 9873 1555 0414 985 315	Looking
ROBERTS James	20 Wynnum North Road Wynnum QLD 4178	[07] 3396 8201	Mk 11 1800
ROBSON John	23 Dalgety Street Claremont Tas. 7011.		Ute
SMALLCOMBE Franklin	30 Illawarra Dve Kin kora Gladstone Qld 4680	(079) 781 527	2 Utes
STAGNITTA Mario	78 Somerset Road Camberfield Vic 3061	[03] 9359 0403	Mk 1
STEPHENS Daryl	22 Davison Street Mitcham Vic 3132	(03) 9873 3038	Mk 1
STRELNIKOV Basil	256 Walsh Street Mareeba Qld 4880	(070) 921 535	MkI MkII
SUMMERELL Bruce	Verona Road, Quaama Via Bega 2550	[02] 6493 8522 B/H[02] 6492 9575	Mk 1 ute
TADMAN Peter	PO Box 283 Nundah Qld 4012	(07) 3266 4537	Mk II Mk I Ute..
Van De Wiel Hanika	81 Drysdale Street Portarlinton Vic 3223	[03] 525 93818	Mk 11 1800
VERKROOST Chris	26 Kensington Road Summer Hill NSW 2130	[02] 9799 9204	Mk 11 Kim.
VINCENT Andrew	44 Heathcliff Cres Balgowlah Heights NSW 2093	[02] 9948 8123	Mk 11 1800
WATSON John	10 Eastcote Lane, Wellington Kent	[081] 856 3013	Mk 11 Morris
WILTSHIRE Ian	37 Old Borough Drive Onkaparanga Hills SA 5163	[08] 8325 0109	Mk 11 1800 Maxi 1750
WINWOOD Jonathon	158 Prince Charles Ave Kurnell NSW 2231	[02] 9668 8406	Mk 1 1800 & Mk 11 1800
WOOD Tony	31 All hallows Road Blackpool England FY2 0AS	0011 441 253 352 730	
WRIGHT Cameron	The Court House Learmonth Vic 3352	[03] 5343 2390	Mk 11

# TREASURER'S REPORT

By Pat Farrell

The financial statement for 1997/1998 is enclosed for your perusal. There are several factors in the report which need some explanation.

The Club ordered [ and paid for ] a couple of new automatic gearboxes from the U.K. last October. These are yet to appear ! Also, we paid \$200 tooling costs to re manufacture the original BMC mudflaps which will have to be written off.

I have wound the spares operation back this year due to the poor performance of the Aussie Dollar against Sterling. I also sold off some slow moving spares at club cost to create some space in my garage. I have also- in spite of my best efforts- not claimed all the telephone and postage costs included in my part of running the Club and the spares operation. Not included is the 19 re manufactured clutch thrust bearings, as Daryl financed them

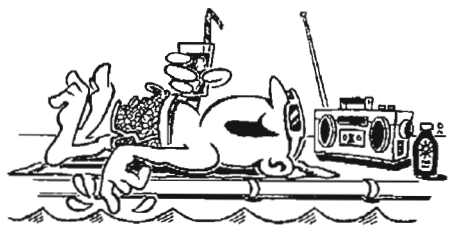
## EXPENDITURE

Telephone, postage including newsletter, stationary {D Stephens}	\$1460-85
Printing of newsletter {K Douglas}	321-40
Spare parts purchase	1075-00
Tooling costs for mud flaps	200-00
L.O.C.I. subscription	40-00
Postage spares	58-50
A.C.C.M. subs	59-00
Yellow pages	78-00
Sales Tax, duty on spare parts	217-15
Auto boxes- not sold yet	661-36
Total expenditure	<u>\$4171 -26</u>

## RECEIPTS

Members subs 1997/98	\$2488-00
Members subs 1998/99	89-00
Spare parts sales	836-00
	<u>\$3413-00</u>
Bank balance as at 1/7/97	\$1125-10
Total receipts[ including Bank balance]	\$4538-10
Stock on hand [ spares]	\$1510-00
Bank balance as at 30/6/98	<u>\$497-90</u>





# The Queenslander

## NEW RULES FOR QUEENSLAND CARS ON HISTORIC REGO

In July a new set of guild lines were introduced for cars (& motor bikes) over thirty years old. These rules have been made more flexible in most cases, but a couple of regulations have been made tougher.

The first and most important thing for any member to do is go to your local Queensland Transport office and obtain a copy of the 'A Special Interest Vehicle Guide' (a copy has been past on to Daryl for the clubs records), and carry it in your car at all times.

The other night whilst at a local club meeting, a spokesman from Queensland Transport came and spoke to the members and a couple of important points were mentioned.

Firstly for all cars (on concessional registration) seen on the road during working days, the rego number, time, and place is recorded and placed on a computer data-base, this is to see if the vehicle is being used for work or pleasure outside of club runs.

Unmarked cars are used for this and the checking of weddings ect. on Saturdays, as well as general checking on all other days.

Remember you can only go out on a club run with club you are amember of, if you wise to go out with any other clubs you must notify your club in writing before the event.

Penalties can be fine of up to \$800 (at present) and loss of registration plates, as a vehicle vialating the rules is classed as un-registered and in Queensland the police and Queensland Transport can remove plates.

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BUY



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## **AUSTINS OVER AUSTRALIA EASTER "99"**

**Friday April 2 to Monday April 5 1999  
ADELAIDE, SOUTH AUSTRALIA**

The AUSTIN 7 CLUB of S.A. and the organising committee of Austins Over Australia "99" extends a warm welcome to you to attend the 5th Austins over Australia event to be held during Easter 1999 in Adelaide. If you have an Austin of any size, shape or model we would be pleased if you and your family would come along and join in the fun & friendship that Austins Over Australia in "99" will bring.

On the reverse side of this sheet is the details of the rally . Should you have any queries or concerns, please contact any one of the 4 organising committee members whose names & phone numbers appear at the bottom of this page.

Attached is an entry form for you to complete. This form should be returned to

Austins Over Australia "99"  
41 Liascos Avenue  
Newton S.A. 5074

Together with

- a cheque for the amount indicated on the entry form
- your signature & date on the declaration (on the reverse side of the entry form)
- a photo of your car (preferably with you along side it)
- a brief write up about your car (use your imagination)

All entries will be acknowledged with the issuance of a receipt, rally number & other relevant info in September 1998.

### **CLOSING DATE**

**NOVEMBER 30**

Late entries may be accepted at the discretion of the organising committee.

We look forward to receiving your entry & seeing you in Adelaide for Easter 99.

Your Austins Over Australia "99" Committee

Dave Hall (Rally Director)  
(08) 8337 7045 (PH/FAX)

Ralph Drage  
(08) 8251 2637

Ian Jones  
(08) 8447 5861

Geoff Carroll  
(08)8270 3841

## RALLY PROGRAM

### THURSDAY April 1

6.00 pm.to 9.00 pm Registration, issuance of rally pack, wine glasses & mugs & fellowship at the Rally Headquarters, Marineland Holiday Village at West Beach where cake with tea or coffee will be available.

### GOOD FRIDAY April 2

9.00 am. to 12 noon Registration continues for any late comers.

10.00 am A short orientation tour of Adelaide, including historic Port Adelaide and the local beaches will be conducted throughout the day. Entrants will be informed of the times upon registration.

6.30 pm. Casual welcoming dinner comprising of finger foods at the Sea Rescue building alongside the Marineland Holiday Village.

### EASTER SATURDAY April 3

9.00 am. Depart from West beach. Travel to and through the Barossa Valley, including visits to a Winery (or more than 1 if you wish). An optional sit down rally lunch will be available at a school in Tanunda. Cars will be displayed on the school oval in model order.

Evening will be free.

### EASTER SUNDAY April 4

9.00 am. Depart Wigley Reserve at Glenelg (affectionately known as the Bay) for the Adelaide hills and the National Motor Museum at Birdwood. We will be following the route of the renown "Bay to Birdwood" run. The cars will be parked on the oval of the museum in club groups. An optional BBQ lunch will be available.

The return trip from Birdwood will be via the historic township of Hahndorf.

7.00 pm. A dinner dance at a very nice entertainment venue (Donato Reception Centre) which is about 15km from West beach. (Dress to your desire - neat casual dress is recommended).

### EASTER MONDAY April 5

8.30 am. Depart West Beach and drive to the picturesque McLaren on the Lake in McLaren Vale where morning tea will be available, then on to Goolwa (which is at the mouth of the mighty River Murray). Here you will have the opportunity of a trip (which will include lunch) on either a paddle steamer or the steam driven "Cockle Train". After the trip it is a nice journey via Victor Harbour back to West Beach along the southern coast beaches. Please indicate on the entry form which of these options you would prefer.

7.30 pm. Farewell chats at the Marineland Holiday Village where cake will again be served with tea or coffee.

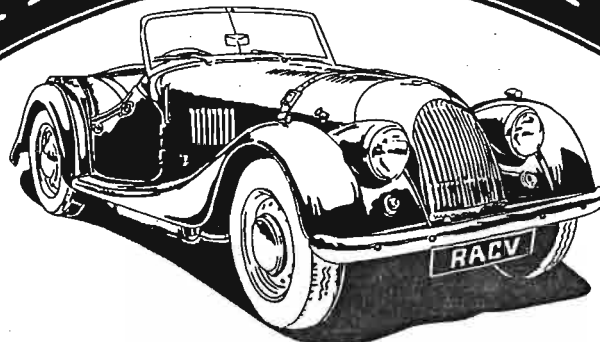
The optional meals are all being catered for by different organisations. It is not mandatory that you take up any or all of these options, but it is recommended that you take up the lunches. The entry form has the provision for you to confirm which meals/activities you wish to take advantage of. Tickets will be issued accordingly. No ticket, no entry/meal.

The following table is for your own use, should you wish to use it, to record which options you have chosen on the attached entry form

<b>MEALS</b>		
• FRIDAY - Welcome Dinner		
• SATURDAY - Lunch in the Barossa		
• SUNDAY - BBQ lunch at Birdwood Mill		
• SUNDAY - Dinner Dance		
• MONDAY - Morning Tea at McLaren Vale		
<b>ACTIVITY ON MONDAY (includes lunch)</b>		
BOAT TRIP OR		
RIDE ON THE COCKLE TRAIN		
REGALIA	No OF COFFE MUGS	
	No OF WINE GLASSES	



# THE RACV GREAT AUSTRALIAN



PENINSULA  
HEALTH CARE NETWORK

## RALLY

MELBOURNE TO PORTSEA

# Sat 23rd JANUARY 1999

All proceeds from this event will be donated to the  
Peninsula Health Care Network\*

You are invited to participate in this unique event.

The event will be a one day rally featuring Veteran, Vintage, Classic, Late Classic and Modern Classic cars and Motorcycles. Participants are asked to dress in the era and style of their mode of transport.

Entry fee **\$25** per vehicle

which includes a Rally Bag

Entry forms and associated material will be posted to your Club  
or to individuals on request by 1st October 1998.

Enquiries — Phone (03) 9801 3109

**RACV is proud to sponsor this event.**

**Host Car Club: ALL BRITISH CLASSICS CAR CLUB**

\*The Peninsula Health Care Network, through 15 agencies at eleven locations, provides a wide range of public health services to the Mornington Peninsula community including Emergency Treatment, Hospitalisation, Rehabilitation, Psychiatric Treatment and Care, Aged Care and Health Promotion and Education.

# FOR SALE...

1800 mk 11 Workshop manuals [2] Offers Eric QLD 3899 4643

1800 mk 11 1969 GC 67,000 miles Man urgent sale \$800 Mike Kelly [075] 546 98797

1800 mk 11 White/red body and interior shot goes \$50 or so Bue brae Blackburn Vic [03] 9877 1451

1800 mk 1 1965 White/ blue Good condition \$500 Andrew Laughhead Koorawatha N.S.W. [02] 638 37213

1800 mk 11 1970 EC. man. 100,000 miles. one owner sugar cane / blue Mrs Bates \$4000 [049] 731 279 always garaged

1800 mk 11 auto body poor, auto has problems, plus 4 complete manual power units, plus heaps of spares B/h Michael [03] 9689 7555 offers Footscray Vic

A 50 Cambridge G.C. One owner 69,000 miles heaps of spares \$1,000 [03] 5595 1878

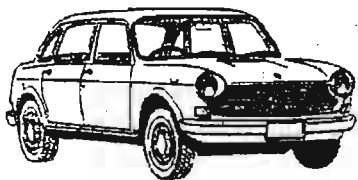
1800 mk 11 ute Kimberely interior [ seats etc ] OK mechanically No brakes[ no fluid] usual rust Pat Farrell [03] 9762 4457 \$500 ONO or swap for Mk 1 1/2 sedan

1800 mk 11 auto good running order, reco'd head, excellent interior, new exhaust no reg. 18VERCH5098 \$600 member Bill Mitchell Beaufort [03] 534 92720

Wanted to swap- 1 set [4] Globe Rallymasters 14" x 6" for genuine Rostyles to suit Austin

1800 **GLOBES NOT FOR SALE.** Pat Farrell [03] 9762 4457

One should always have a spare pair of  
pants when golfing  
in case one gets a hole in one !



# LANDCRAB

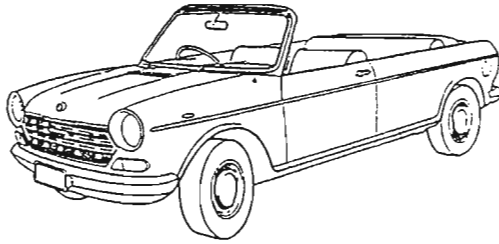
CLUB OF AUSTRALASIA INC.



Welcome to newsletter 83 for December 1998 & January 1999

# MERRY XMAS





# SAGGING REAR ENDS

## a bit cheeky

Most of our cars suffer from this problem at some stage. One solution to the problem is to space the rear end up- bearing in mind the car will rise 4 times as length of the spacer.

Another solution is the Aeons described in this issue.

A further solution is fitting the bigger front hydrolastic units to the rear- using either a Ute or Kimberely cradle.

And now we have a brilliant solution !

**Bruce Nicholson of 8 Hobart Street, Benteigh in Victoria 03 9557 6172** has remanufactured the rear pushrod with a adjusting nut on it. To raise or lower the rear, the pushrod adjustment which is accesible through an inspection hole in the cradle- is just turned and locked. Brilliant

The adjustable push rods are available from Bruce.

## editorial

For the newer members, this issue examines the Aeons. For those who need them, I can have the brackets made locally, to the original specs, for \$70 a pair.

Also, there is a facinating article by Walter Berry on a rather universal problem.

A Priest and a Rabbi happened to be sharing adjacent seats on a train. By co incidence, they were doing the same crossword.

"4 across - starts with S and is found on the bottom of a bird cage."

"seed "

" of course ! May I borrow your eraser, please ? "



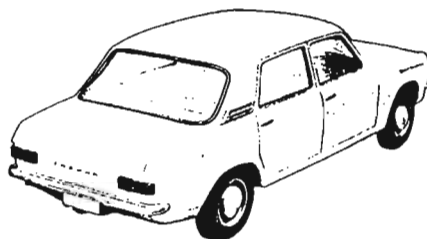
Thomas Pitt	Box 331	[02] 6857 2133	Mk 1 1800
	Condobolin N.S.W. 2877		

"I bought this low mileage [ 52,200 ] vehicle to restore and put under full rego in the future."

Jane McAvoy	C/- 180 Kees Road	[03] 5282 2518	Mk 11 1800 Auto
Craig Weaver	Lara Vic 3212		Mk 11 1800 Man

James Gaida	13 Belchester Avenue	[03] 9739 1539	Mk 1 1800
	Coldstream Vic 3770		

Omitted from the directory last issue were Richard Snedden, Dave Rudman, Eric O'Meley, Mathew Drew, Meg Ellington, Stuart Ratcliff, Bruce Gardner, Stuart Glover and Rodney Swile



## FROM THE BACK SEAT

### **PRESIDENT/ TREASURER/ LIBRARIAN KEEPER OF THE SPARES.**

Pat Farrell 03 9762 4457  
4 Wayne Avenue, Boronia Vic 3155

### **REGALIA OFFICER**

Mike Gilmour 02 4681 8887  
Lot 57 Remembrance Drive  
Tahmor NSW 2340

### **DATA REGISTRAR**

Peter Jones  
4 Yarandin Court, Worongary QLD 4213

### **PUBLIC OFFICER**

David Hopper [ 07] 46 333 162  
8 Evergreen St, Toowoomba QLD 4350

### **EDITOR/ SECRETARY**

Daryl Stephens 03 9873 3038  
22 Davison Street, Mitcham. Vic. 3132

### **A.M.V.C. Sub Committee**

Pat Farrell as above  
Geoff Marshall 03 9877 1425  
19 Anne Street, Blackburn Vic 3130

### **SOCIAL CONVENORS**

Brisbane; Peter Jones as above  
Melbourne; Paul Nichols 47 Moores Road, Monbulk Vic. 3793 03 9877 1425  
Sydney; Mike Gilmour as above

Opinions expressed within are not necessarily shared by the Editor or Officers of the Club. Whilst great care is taken to ensure that the technical information and the advice offered in these pages is correct, the Editor and Officers of the Club cannot be held responsible for any problems that may ensue from acting on such advice and information

Cut off date for inclusion of articles in the newsletter is the 25 th of the even month. Publication date attempts, often in vain to be 25 th of the odd month



# QLD STEERING WHEEL SPECIALISTS

PO BOX 407 STONES CORNER BRISBANE AUSTRALIA 4120

Ph: (07) 3891 6361

Fax: (07) 3391 2716

E.mail: [pearl@powerup.com.au](mailto:pearl@powerup.com.au)

Web Page: <http://www.powerup.com.au/~pearl/>

Thursday, 11 June 1998

Mr. D. Hopper  
8 Evergreen Crt.  
Toowoomba 4350

Re: *Your Steering Wheel*

Dear Mr. Hopper,

Thankyou for your inquiry about having your steering wheel pearl coated.

Pearl Finishing is a family owned business that has been around for over 30 years and we take high pride in our workmanship. I can personally guarantee that your wheel will come back to you better than when it left the show room floor those many years ago.

Attached to this letter you will find a colour chart, some photos of our work and a price list.

Normal turn around time to repair and pearl coat a wheel is 1 week, 2 - 3 weeks for plain black. The easiest way to send the wheel to us is with Australia Post although you may drop it off personally at our workshop if you give us a phone call first to arrange a suitable time.

When you send your wheel to us, please include your Name, Address and a Day Time Phone Number and I will contact you with a quote. Then, when you are entirely happy, you may forward a check or money order while the work is being completed. We also accept Bankcard, Visa and Mastercard. If at this stage you decide not to go ahead the wheel it will be returned to you free of charge

Please phone or fax if you have any questions or sticky problems.

Yours sincerely,

**Jon Hansford**

# MAIL BAG

Dear Daryl,

Firstly just to let you know about our new phone number 07 4633 3162 and secondly to thank you for your help and advise, if I would just slow down and think a bit more one would fit the aeon much easier. A special thanks to Ken Patience for sending instruction on the fitting of rear aeon bumpers, we also fitted the ute cradles with the bigger bags why?? With 3 children and a full boot full just to go on a weekend holiday, the back was that far down the council was paying me to sweep the road but now the ride is superb and steering light. Aeon spec sheet may come in handy for other members.

Those in Queensland will find Craig Wall very helpful with price and delivery cost for 2 aeon is \$40.29 each. Wife just got home to in form me that one of our little darling spilt milk on the floor how I ask when no drink or food is allowed in car. Interior has only been fully restored about one & half weeks ago, keep smiling. Those who would like to get there steering wheel coated you will find Jon Hansford Good to deal with Jon did not hesitate to give advice in the right areas. See price list.

The mark 1 is just about finished the speedo being the one thing not calibrated yet well so tells the man in blue who my wife had the pleasure of talking too,

"Is there any reason you are doing 111Km/h"

No but I'm only driving an Austin officer, you have 21 days to pay thankyou.

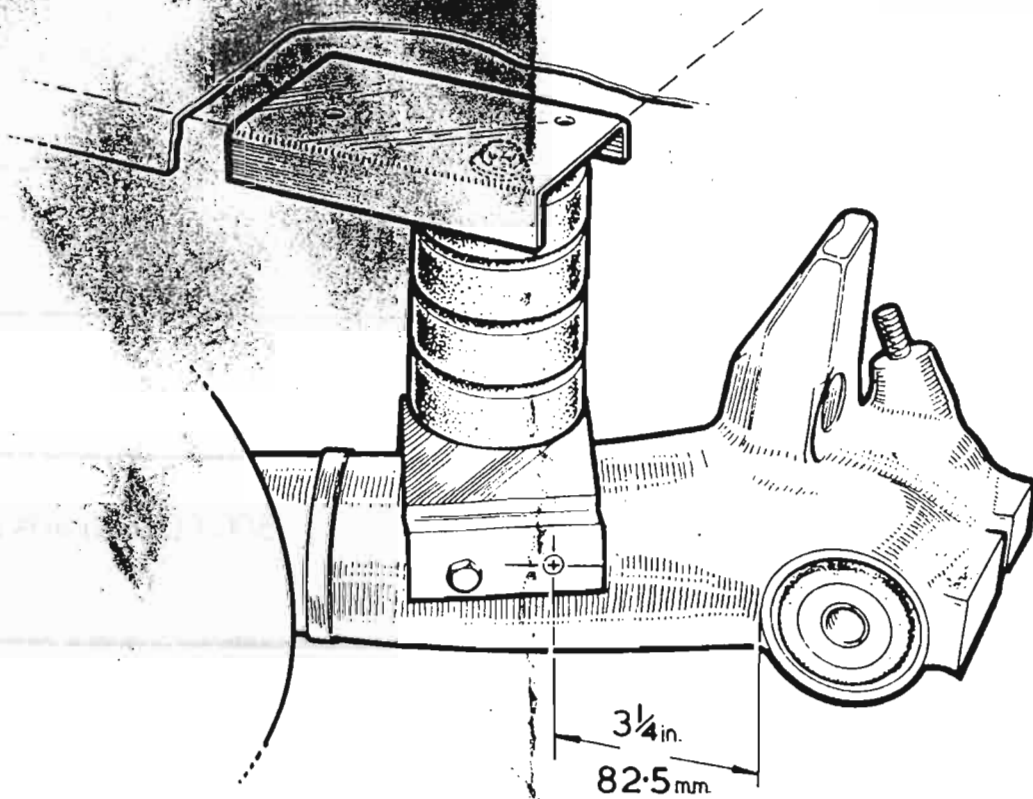
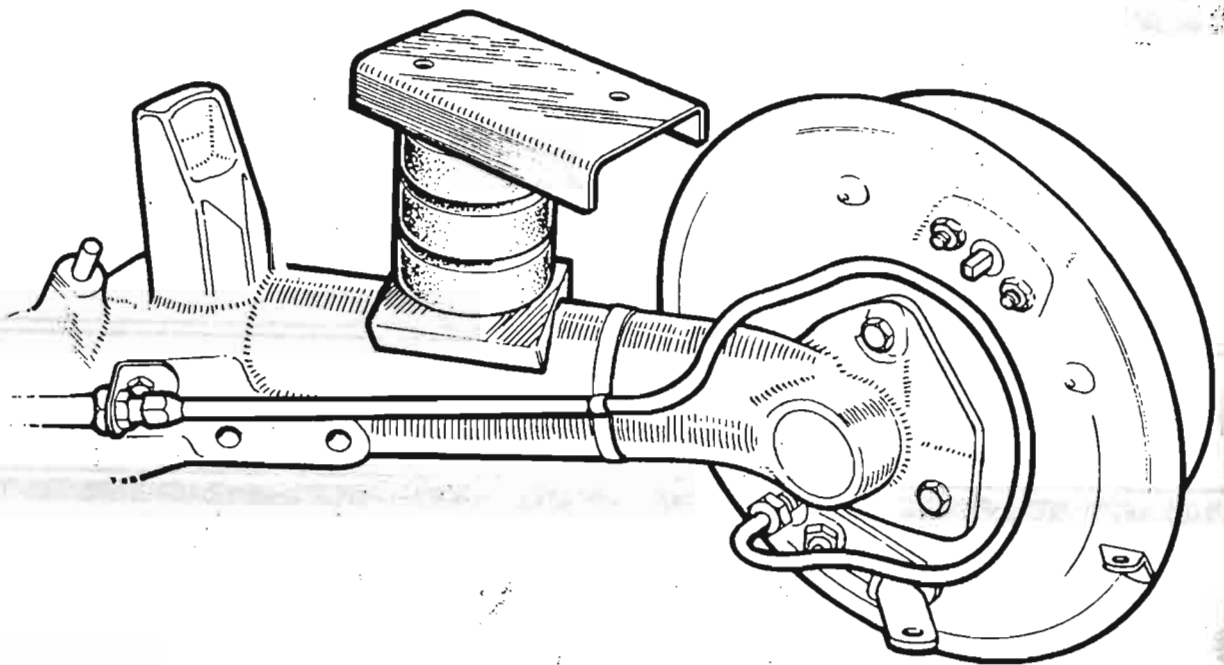
Mini autos in Ipswich if any body is looking for rear pivot bearing and caps for the hydro bars.07 32814255 Ken.

Oil filters the guys at House of M.Gs Brisbane are able to help and have a adaptor so you can use a holden filter\$8.00 the adaptor cost\$79.50 so easy. Hope to see a lot of members at the A over A in A in 99

A special thanks to Nolene of Queensland for the mark 2 she no longer required added to my collection 2 mark1 1mark2

Regards

David, Karen, Andrew, Nicole & Mark Hopper





# QLD STEERING WHEEL SPECIALISTS

PO BOX 407 STONES CORNER BRISBANE AUSTRALIA 4120

Ph: (07) 3891 6361

Fax: (07) 3391 2716

E.mail: [pearl@powerup.com.au](mailto:pearl@powerup.com.au)

Web Page: <http://www.powerup.com.au/~pearl/>

## Price list - Effective April 1998

Pearl Coating of a Steering Wheel	160.00
-----------------------------------	--------

Repairs (if required)	10.00 upwards
Eg: A few minor hair line cracks	10.00
A few cracks up to 2mm wide	20.00
Small pieces missing and cracks	40.00
Major repairs, large pieces missing etc.	quote only

Kenworth and Mack Truck Soft Touch Steering Wheels	190.00 including rebuild of foam area
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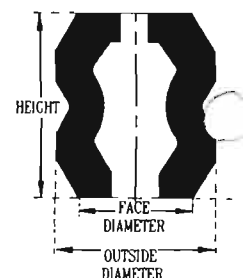
Large Knobs and Hand Brake Handles	25.00 each
Small Knobs and Door Lock Buttons	15.00 each

Plain Black Finish on Steering Wheels	300.00 upwards including repairs
---------------------------------------	----------------------------------

Return packaging and postage in Australia	10.00
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## AEON SPRING STANDARD RANGE

The full deflection and maximum outside diameter correspond to max. bump load. Deflection under static load will be less. Exact load/deflection curves for the individual springs are available on request. Where the Aeon spring is the sole suspension medium the max. static load applies. This allows for suspension movement and dynamic forces in trailer applications etc. All springs except type 705, 760, 0200, 0260, 0300 & 0325 are supplied with steel bushes.



PART NUMBER	FREE HEIGHT mm	OUTER DIAMETER mm	FACE DIAMETER mm	MAX STATIC LOAD KGS	MAX STATIC LOAD KGS SOLE SUSPENSION	MAX BUMP LOAD KGS SPRING ASSISTED	FULL DEFLECTION mm	OUTSIDE DIAMETER AT MAX BUMP mm	APPROX. WEIGHT KGS.
<b>SINGLE CONVOLUTION</b>									
155-M	54	55	43	70	151	226	36	79	0.141
170-M	70	85	57	190	1215	1814	50	124	0.368
170-H	70	85	57	250	1215	1820	42	122	0.368
103B-M	91	108	87	400	1367	2041	54	152	0.764
103B-H	91	108	87	500	1519	2268	46	148	0.793
1525-S	121	142	104	600	2734	4082	78	188	1.842
1525-M	121	142	104	750	3039	4536	70	185	1.842
1525-H	121	142	104	900	3040	4538	62	172	1.842
<b>DOUBLE CONVOLUTIONS</b>									
505-H	79	63	41	40	303	453	45	83	0.198
515-H	94	85	62	110	455	680	52	114	0.425
520-H	98	59	49	130	493	740	55	79	0.225
520-M	98	59	49	100	416	625	60	84	0.225
530S-M	120	85	54	160	759	1134	75	123	0.510
530S-H	120	85	54	190	958	1375	69	119	0.454
530L-H	120	85	54	150	759	1134	73	121	0.454
530L-S	120	85	54	80	616	875	82	129	0.510
535-M	130	100	79	440	1367	2041	80	157	0.822
535-H	130	100	79	525	1823	2722	78	150	0.822
540-M	132	110	79	535	2127	3175	80	168	0.921
540-H	132	110	79	640	2279	3402	75	143	1.162
550-M	95	95	65	200	1671	2495	62	145	0.539
550-H	95	95	65	360	1823	2721	58	140	0.539
720-M	118	67	47	100	273	408	69	96	0.390
<b>TRIPLE CONVOLUTIONS</b>									
705-A	61	35	25	50	121	181	38	51	0.050
705-B	52	35	35	50	151	227	35	55	0.040
705-D	61	35	25	30	121	181	42	50	0.050
750-M	86	67	47	90	273	408	46	88	0.285
760FBS-M	240	136	107	900	4254	6350	143	230	3.060
760FBS-H	240	136	107	1200	4254	6350	132	215	3.060
<b>FOUR CONVOLUTIONS</b>									
9185-H	119	67	47	80	182	272	45	88	0.300
<b>RECTANGULAR SPRINGS</b>									
		LENGTH	WIDTH					LENGTH/ WIDTH	
0200-H	148	258	112	2800	10636	15876	70	328/165	3.630
0200-XH	148	258	112	3500	10636	15876	45	311/152	3.630
0260-3C-M	179	260	112	1875	8470	12100	110	418/222	4.400
0260-3C-H	179	260	112	2600	8470	13500	100	335/183	4.400
0260-2C-M	176	264	114	2000	9520	16600	110	361/201	4.400
0260-2C-H	176	264	114	2700	9520	18000	100	337/186	4.400
0300-3C-M	184	279	150	2700	11620	16600	106	428/216	6.800
0300-3C-H	184	279	150	3200	11620	21500	95	424/211	6.800
0300-2C-M	184	279	150	3400	12670	20000	100	415/216	6.800
0300-2C-H	184	279	150	4700	12670	23000	79	411/212	6.800
0325-3C-M	187	336	189	3500	14700	21000	109	480/280	10.800
0325-3C-H	187	336	189	4750	28000	40000	109	480/280	10.800
0325-2C-M	187	336	189	4500	21805	31150	105	480/280	10.800
0325-2C-H	187	336	189	6000	35700	51000	106	480/280	10.800



## Fitting Instructions

### 1800 REAR BUMP STOP KIT

C-AJJ 4125

Place the rear end of the car safely on axle stands and remove both road wheels.

Select the correct RH upper bracket (this does not have the corner removed to clear the petrol tank) and offer it up to the underside of the boot floor, as shown in Fig. 2. The mounting stud should be at the forward end against the folded body flange, and the outer edge against the vertical flange as shown. Remove the boot floor covering before drilling up into the boot using the holes in the upper bracket as a template.

Push the small end of the bump rubber onto the mounting stud (a smear of soft soap will help) and fit the bracket to the body with the bolts, nuts and washers provided.

Remove the standard brake pipe and clip from the suspension arm. The new brake pipe should be bent to adopt the shape shown on Fig. 1. Note the new pipe has a right angled bend and this should be fitted to the wheel cylinder before bending to its final shape. When fitted make sure the pipe is clear of the hand brake rods. Fit the new retaining clip around the suspension arm and brake pipe.

Place the bottom bracket on the suspension arm as shown in Fig. 2. Before marking off on the arm the two bolt holes, jack the suspension arm up into position and adjust bracket so as the bump rubber is vertical and the bottom bracket platform is horizontal. Drill  $17/64$ " (6.7 %) holes and tap  $5/16$ " UNF. Finally attach the bottom brackets with bolts and washers supplied. Repeat this operation on the left side of the car.

### TOP UP AND BLEED BRAKING SYSTEM.

#### Contents:-

<u>Part No.</u>	<u>Description</u>	<u>No. Off</u>
C-AHT 664	Brake Pipe	2
11K 2112	Clip (pipe to radius arm)	2
C-AHT 166	Bracket - Upper LH	1
C-AHT 165	Bracket - Upper RH	1
C-AHT 167	Bracket - Lower	2
C-AHT 168	Bump Rubber	2
HZS 0404	Bolt $\frac{1}{4}$ " UNF x $\frac{1}{2}$ "	4
FNZ 104	Nut $\frac{1}{4}$ " UNF	4
LWZ 204	Spring Washer $\frac{1}{4}$ "	4
PWZ 104	Plain Washer $\frac{1}{4}$ "	4
HZS 0506	Bolt $5/16$ " UNF x $\frac{3}{4}$ "	4
PWZ 105	Plain Washer $5/16$ "	4
LWZ 205	Spring Washer $5/16$ "	4

LEYLAND ST  
BRITISH LEYLAND UK LTD  
ABINGDON, OXON OX14 1AU





**SUPRA**

**AUTOMOTIVE LT**

AWF/jim

Kineton Road, Southam, Leamington Spa  
Warwickshire CV 33 0DG

Telephone : Southam (092 681) 3838 Telex; 31109  
Cables : Supauto Southam Leamington Spa

Mr.W.S.Berry  
Builders & Domestic Supplies  
12 Elkin Ave.  
Raymond Terr.  
NSW 2324  
Australia.

3.6.85

Dear Sirs,

We have for acknowledgement your letter dated 6th.May which we received 20th.May making reference to couplings to our reference MTR201.

We are very sorry that you have found reasons to complain on the limited life you are experiencing from our coupling and as a consequence, your letter has been passed to our inspection/quality control department for a full investigation to be made and a further letter will follow.

Please be assured this matter will be treated as urgent and a full report will be sent to you and it may necessitate you returning to us one of our couplings that have been fitted to a vehicle and such being the case we will pay all costs.

Yours faithfully,

Export Administration Dept.

12 Elkin Avenue  
Heatherbrae  
RAYMOND TERRACE NSW 2324  
AUSTRALIA

6th May 1985

The Sales Manager  
Supra Automotive Manufacturers  
Southam  
Warwickshire  
GREAT BRITAIN

Dear Sir,

I operate a small fleet of Austin 1800 vehicles in N.S.W. due to their outstanding strength characteristics.

With the original drive shaft resilient couplings (Universal) and Leyland replacement couplings we had outstanding mileages before replacement.

In recent years the genuine part has no longer been available and cheap Asian imports gave very poor service. Within the last two years SUPRA Couplings have become available

MTR - 201  
LEYLAND 1800 - 2200  
SIX 18/85

We anticipated a much improved product life and unfortunately we have already experienced the failure of couplings on different vehicles at 5,000 and 6,000 miles. The drive shafts have all been checked for run-out, without fault, the drive coupling U-Bolts are tightened to Leyland specification of 8-10ft lbs.

Would you indicate an alternative tension specification to the U-Bolts or have valid reasons for coupling failure at such low mileage.

Yours faithfully,

W. S. Berry  
Builders and Domestic Supplies

12 Elkin Avenue  
Heatherbrae  
RAYMOND TERRACE N.S.W. 2324  
AUSTRALIA

16TH JULY 1986

Mr A.W. Fowler  
Export Sales Director  
Supra Automotive  
Kineton Road,  
Southam  
Warwickshire  
GREAT BRITAIN

Dear Sir,

Thankyou for the letters of the 3rd and 10th of June  
in reply to my query dated 6th May and received by you 20th May.

Prior to contacting you re the failure of the 1800  
universal couplings I had returned two items that failed at  
5,000 and 6,000 miles to the retailers who had passed them back  
to the and I have only now been able to reclaim them. I felt it  
desirable to as I have recently changed another one at a similar  
mileage on a third vehicle.

I am forwarding the parcel airmail at the cost of  
\$A20-00 as Australia Post advises sea mail would need 3 months  
to guarantee delivery. I will be keenly interested in the  
results of your inspections.

Again, thankyou for your positive response.

Yours faithfully

W.S Berry  
Builders and Domestic Supplies

10.6.85

Dear Sirs,

Further to our letter of 3rd.June in reply to your letter of 6th.May concerning the poor service you have received from one of our couplings MTR201.

On information received from our quality inspection department, the coupling in question should have given far longer service than the 5000, 6000 miles stipulated in your letter. Notwithstanding the British Quality control we enforce on all our products it does transpire on occasions that an item can prove to be faulty due to either inferior material or an operational malfunction but such faults cannot be ascertained without complete inspection of the unit in question.

May we therefore ask you to send back to us one or two of the units which have given this poor service so full inspection can be made and we will reimburse you with all the relevant charges.

At this juncture we would add, that our couplings covering both the Mini and the 1800 have been sold extensively throughout the world with negligible complaint and indeed we do hold British Leyland approval and were some years ago supplying that company through their Unipart operation.

Also pleased be assured, that we are concerned with this complaint and we are interested to find out the reason for the premature failure.

Yours faithfully,

  
A.W.Fowler  
Export Sales Director.



AWF/jim

Registered Office:

Kineton Road, Southam, Leamington Spa

Warwickshire CV 33 0DG

Telephone : Southam (092 681) 3838 Telex : 31109

Cables : Supauto Southam Leamington Spa

W.S.Berry  
Builders & Domestic Suppl.  
12 Elkin Ave;  
Heatherbrae  
Raymond Terr;  
NSW. 2324  
Australia.

27.8.85

Dear Sirs,

Complaint Coupling - MTR201

We wish to refer to our letter of 5th. August making reference to the two sample faulty couplings you were returning to us and against which you had incurred a cost of A\$20.

In the meantime, we are pleased to confirm receipt of the 2 samples in question and they have been subject to a full investigation by our quality control dept., but regretfully we have not been able to reach any definite conclusions that gives a satisfactory conclusion. The torque you had applied in line with Leyland specification was correct and therefore the premature failure could not be attributed to any excessive play due to incorrect torque being applied.

The technical inspection reports suggests as follows:

1. The shore hardness of the rubber is to specification.
2. The adhesive chemosil applied in the bonding likewise is to specification.
3. The adhesive Dip (thickness of coating) applied to the metal crucifix shewed 1% variance.
4. In the process of the bonding some aeroating had occurred.

It is with regret therefore, that we are not able to come up with a satisfactory technical reason for the premature failure and whilst there was some slight deviations to the original specification they would not have been of any significant contribution.

Under separate cover we are sending to you 4 complete new units free of charge which have been subject to visual inspection together with our cheque in reimbursement of your A\$20 incurred on the return of these faulty units.

Directors: R.C. Neal, Chairman. P. Dighton, Managing Director. R.E. Shippey, Purchasing Director.  
A.W. Fowler, Export Sales Director. P.M. Harbidge, Financial Director. N.W. Cooper, Sales Director.

Registered in England No. 11331



AWF/jim

Registered Office:

Kinton Road, Southam, Leamington Spa  
Warwickshire CV 33 0DG

Telephone : Southam (092 681) 3838 Telex : 311099

Cables : Supauto Southam Leamington Spa

W.S.Berry  
Builders & Domestic Supplies  
12 Elkin Ave;  
Heatherbrae  
Raymond Terrace  
NSW. 2324  
Australia

5.8.85

Dear Sirs,

We have for acknowledgement your letter of 16th. July in reply to our letters of 3rd. & 10th. June relative to the complaint you registered to us in respect of our coupling ref:MTR201 suitable for British Leyland 1800 models.

We have noted that you have arranged for 2 samples to be sent to us and you incurred a cost of \$20. As soon as these samples are received they will be subject to comprehensive inspection and you will ultimately receive a full report. Notwithstanding the contents of that report, you will be fully reimbursed for all costs and inconvenience caused.

We do thank you for your co-operation in returning these samples to us as we are proud of our company name and reputation, and we would not like any product that we have supplied to be proved inferior.

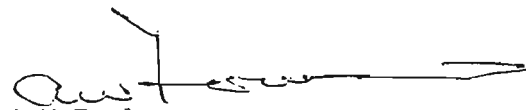
Yours faithfully,

A handwritten signature in cursive script, appearing to read 'A.W. Fowler', is written over the typed name.

A.W. Fowler  
Export Sales Director.

We can only apologise to you for all the inconvenience you have been caused we also thank you for bringing this complaint to our attention which in turn helps us to maintain a standard which we wish to associate with the Supra brand name and image.

Yours faithfully,

  
A.W. Fowler  
Export Sales Director,

## MK 11 SUSPENSION PUMP

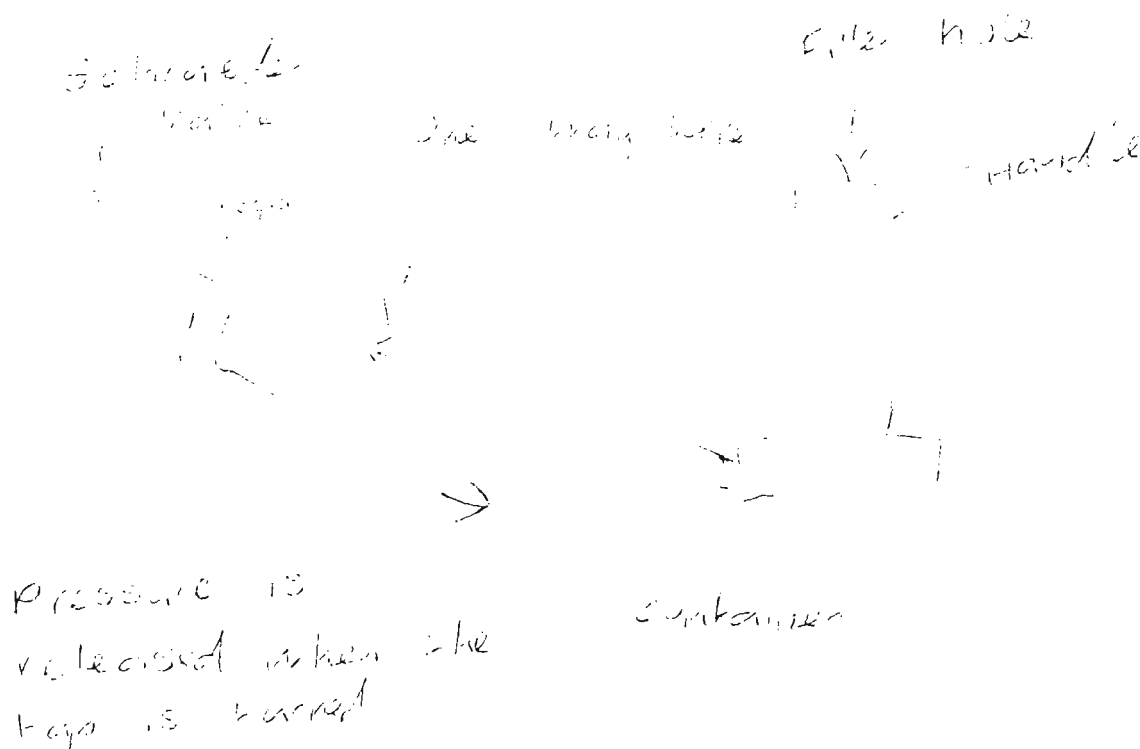
By Daryl Stephens

A normal hydraulic jack is a high pressure pump. Most of them are designed to operate up to 10,000 P.S.I. Therefore it stands to reason that they can handle the 300 P.S.I. or so needed to pump up the hydrolastic.

Bearing this in mind, I went into a place specialising in jacks- strangely enough called the Jack Specialist and asked if a normal hydraulic jack could be modified to become a small hydraulic pump. They basically modified a Lightburn jack, took \$50 off me, and everybody was happy.

It may have been possible to arrange for it to suck as well but I forgot to ask. The suspension should be sucked out- evacuated - after it has been open to the air. However, another way to remove the air is to pump it up, deflate it and pump it up again. Normally this procedure is repeated twice. Under deflation, if no air bubbles are coming out, there is no air in the system.

This is how the hose from the jack was set up.





# DOWN FUTURE ROAD !

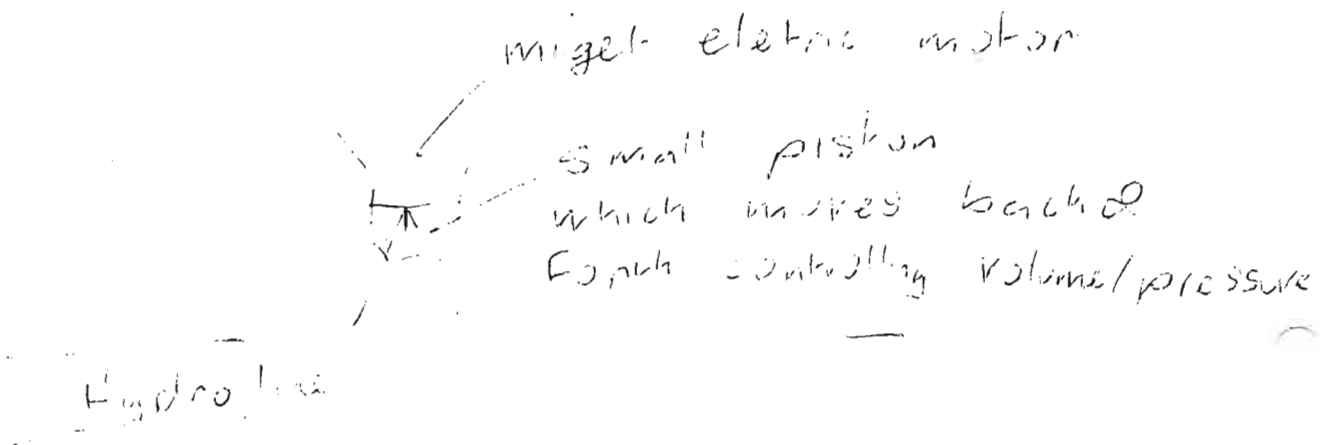
with apologies to The Seekers  
by Daryl Stephens

As we all know, the hydrolastic bags will let go on hot days. This is because the fluid gets hot and increases in volume, which increases the pressure and the cars sit much higher of the road. In days gone by, if there was a weekend of around 40c, the mechanics at the B.M.C. dealers would be betting on how many cars would come in with collapsed suspensions on the following Monday. [ Nearly always the rear ]

What we need is some sort of a sender to establish when the suspension fluid temperature is too high and release some pressure. Then when the temperature has dropped- things change very rapidly in Melbourne ! - a small electric motor would pump the system up again.

Theoretically, the hydrolastic suspension lends itself to 'anti roll'. Basically, a sender would be used to establish when one side starts to drop due to the cornering forces. Then a small electric pump would spring into action and increase the pressure that side till the sender said the car was level. Then the procedure would be reversed when the corner was being exited.

These two ideas may be incorporated into the one mechanism. Here is a rough sketch on a possible method of doing it. Should somebody be able to develop these ideas further, I think there would be a lot a takers in the club !



readers poll 1968

## the winners



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