TORQUETUBE

Newsletter of Riley Motor Club Qld , Australia Inc.
September 2017

www.rileyqld.org.au

BUSTED BITS EDITION OF TORQUETUBE

Above Alan Hill with a rare broken bit; a torsion bar broke on his way to the Merimbula National Rally in 2016

Editorial

It seems that the editor spends lots of time repairing broken bits on his Rileys. This has led to the thought that an edition of Torquetube could be dedicated to the art of repairing broken Riley bits. On the front page is a picture of Alan Hill with a rare event—a broken torsion bar. It is only the second broken torsion bar that I have ever heard of. The other event occurred during a Rally in Tasmania when a RM found a ditch.

Special thanks to Phil Soden who allowed me to utilise some story ideas and in particular the content of the buyers guide from **The Riley Gazette.** Thank you also to Robin Hull who wrote a story about busted wheels and provided pictures of busted clutch components. Finally, thank you to Graham MacKay for his story. Unfortunately I could not fit Robin's pictures of broken components into this magazine or a picture of parts available from the club spare parts. These will be picked up in next month's magazine.

The editor appreciates receiving articles by the 21st of the Month

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Mt Tamborine outing in August

This months run was to Mt Tambourine. Neither Dulce nor I know Brisbane that well, so when the Sat-Nav began taking us off course we became concerned. We got back on the motorway when a yellow blur flashed past us on the motorway and I recognised Robin Hulls RMB travelling at a blistering pace so we dropped the Honda down a gear and followed him, much relieved.

We met Trevor and Karenina at the Yatala pie shop and saw the astonishing flood photos from earlier this year. We also bought some pies for later. Now a posse, we set off for the Oxenford turn-off where we met Tom Palagyi in his beautiful RMA that he has owned for 48 years, and went to his home at Wongawallan to pick up his wife, Diane.

We then went in convoy up the winding road to Eagle Heights Mountain Resort and had coffee and enjoying the views all the way to the coast. From there we travelled to The Fortitude Brewery and Cheese Factory and had some excellent cheese platters followed by gourmet pizzas. The wait for the pizza was challenging, but made very easy by the great conversation and much laughter. Monsieur Chaguar was in great form. The day ended with sightseeing through the township.

Many thanks to those who travelled far to participate in the outing, notably Robin and Barbara Hull. It was a great day that was not diminished by the smallness of the group. All credit for its organisation to Tom Palagyi– he did a great job.

Robert and Dulce Spiers.

September Riley Motor Club events

5th and 12th September - Tues Riley Boys at Alan Hill's. Restorers activities, friendship and technical advice.

Thursday 14th 8 PM Monthly General Meeting of the Riley Motor Club, Samford Showgrounds .

Sunday 17th September 7 AM - All British Day, St Josephs College Sports Ground, Vivien St, Tennyson. $20 entry fee for spectators - $5 parking fee, $2 entry if walking in. Gates open at 7am.

For those who are going, we will meet you there or if you would like to meet somewhere and arrive as a group, please let Robert Spiers know by email or mobile, 0434196991, so we can make arrangements.

Tuesday 19th September - Tues Riley Boys. Restorers activities, friendship and technical advice at Alan Hills.

Sunday 24th September - Breakfast Run. The breakfast run in September will be just one week after the All British Day. Meet in Samford at 0800 to leave at 0815 for Jolly's Lookout at Mt Nebo.
UBD p105 M20.

Regards. Trevor. 0407 717 853

Tuesday 26th September - Tues Riley Boys at Alan Hill's. Restorers activities, friendship and technical advice.

Other Events During September

Sunday 3rd **Maleny Classics Annual Show n Shine,** Witta Recreational Club, 351 Witta Road, Witta via Maleny 9:00 AM - 1:00 PM
The Maleny Classics Annual Show n Shine is open to all pre 1980 vehicles. It is open to classic and custom cars and vintage caravans.

Car show setup from 8am, trade and retro market stalls welcome - $10 per site. Catering on site, spectators free, no pets and kids playground.

Show n shine entrants $10 per vehicle with nine trophy categories up for grabs. Car, bike and caravan entries on the website closer to the time. Enquiries Debs 0417 626 167.

Saturday 9th **Gympie 47th Annual Swap Meet And Car Show,** Gympie Showgrounds, Exhibition Road, Southside 6:00 AM - 1:00 PM
The Gympie Historic Auto Club Inc. is proud to present its 47th Annual Swap Meet of cars, parts, tools, collectables and bric-a-brac and our 5th Car Show . This is the oldest continuously running swap meet in Queensland.

Gates open for traders from 3:30pm Friday 8th. Traders to be set up by 6am Saturday. Buyers access from 6am Saturday. Outdoor sites $10, undercover sites $15, general admission $4. Swap bookings and enquires Noel (07) 5482 2303 or 0408 708 321. Car show set up from 7:30am Sat 9th for 10am start. Car show enquiries Barry 0409 827 562.

Saturday 16th **Historic Truck, Tractor and Machinery Show, QLD** Gatton Showgrounds, Woodlands Road, Gatton 8:00 AM - 4:00 PM
The HCVAQ will hold their 24th annual show on the 16th September, 2017 at the Gatton Showgrounds approximately 100kms west of Brisbane. Our special feature this year are International Trucks and tractors.

Adults $5, children under 14 free. All brands of trucks and tractors welcome to exhibit. There is no charge to exhibit your pride and joy. Classic cars, motorcycles, trucks and tractors will be made most welcome and we have plenty of space. Trade stands are also welcome. Entry forms available from the website. For more info (07) 5546 7050.

Saturday 30th **Chinchilla Auto Fest, QLD**
Chinchilla Primary School, corner Middle and Colamba Streets. 7:00 AM - 2:00 PM
The day features a car, bike and 4x4 show, swap meet and markets.

Trophies and raffles, kids entertainment, catering on site, displays and dyno. Entrants and stall holders from 7am $10, spectators from 8am $5 or family $10. Enquiries Owen 4669 1444 or Michael 0416 150 641.

Letters to the Editor

Hello Phil

I took a few pics yesterday at Samford of Graham's first RMCQ outing in his RMA. Everyone was very impressed. Nice to see another 1 1/2 on the road. I was stopped by a fuel pump failure just a couple of kms from the Showgrounds. However, a thump made it pump just enough to get me to the shed where I replaced it with my spare.

I know I should never say this but the RMD has always made it back to base. So too did my RMB - even waiting to get to my home before throwing a rod while idling in the driveway!

Cheers
Peter Lee

Hi Phil,
Great magazine from WA, please keep me on the list.
Cheers
Malcolm King

Phil, Thanks for the latest newsletter. I am constantly amazed that it seems to get better with each issue. It's a really enjoyable 'two expresso read' for me these days and I do look forward to receiving it.

I joined the 'boys' at Samford on Tuesday in the RMD. It was its first decent run after the refurbishment.

It was great, the roof was down and the sun was shining. The Riley pulled effortlessly emitting a lovely exhaust growl (amazing what a bit of carbon can do) and the brakes even pulled me up in a straight line at an unexpected traffic light change. As bonus, the speedo started working again!

Cheers
Peter Lee

Committee News

Registrar: Rileys continue to come out of the woodwork.
The club is aware of four more -- three from interstate and a Queensland one that hasn't been in the club for many years.
We now have around 91 cars known to the club in various conditions.
The stories Phil Wyllie is getting from club members about themselves and their cars is valuable. I have started to copy (cut and paste!) relevant information about the cars and I will put it in the Register folder sleeve with the history we already have. So far I have done 9 from Phil's interviews from this year."
As previously advised the folders now being kept at the Club House contain a wealth of information should any owners be chasing up the history of their vehicles. One such box contains details of current members' vehicles and the other has details of non-current members.
Members are welcome to consult these records at any time the shed is open, however it is requested that no material be removed, or added. To this end, copying facilities are available. Sec.
Graham Bourne has costed manufacturing the steering rack double eye and will provide a written quote.

Secretary: We still have the Taroom RMB in the club showroom and members are encouraged to spread the word that this is a good car, available at an exceptional price. And no oil leaks! Contact the "sales manager" Mark Baldock (0417958980).

Club house coordinator: Letter of immediate resignation from positions held within the Club from Bill White. Bill has described his reasons as heavy family commitments and he thanked the Members that he has worked with for many years. The Secretary will formally acknowledge Bill's resignation and contribution to the Club.

Bill did however advise that he will continue working on the area adjacent to the shed with Trevor and Ron.

Busted Wheel rims

You might say, 'that never happens'. Maybe '*that'* has never happened to you but it is more common than you may think. Recently when visiting Neil Patrick to return copied RMD bits I witnessed him check two rims for the thickness of the steel, they were neither the thinnest he had looked at nor were they the thickest but he discarded them anyway. Apparently, the early RM rims were made from a thinner steel and when they were stamped out a weakness was created in the inner rim and eventually the rims crack around the circle of the rim behind the hub cap. That is why Neil was checking wheel rims. The early ones are as thin as 3 mm and the later ones are as much as 4.2 mm thick.

Below: Cracked wheel rim chalked to highlight the cracking

More recently when visiting Colin Clark he told me this story: 'On a trip home from Canungra I began to hear a noise in the rear of my RMB. The noise became louder and naturally I pulled over to the side of the road and examined the car but no cause was obvious'. Being a careful Riley enthusiast, Colin investigated further. He said, 'when the rear right-hand hub cap was removed there to my horror the wheel rim was cracked almost all of the way around'. Colin speculated that if he had not stopped, the outer rim with its tyre would have parted company with the car and serious damage would have resulted. Colin, at that stage was unfamiliar with what Riley jacks can do to the chassis mounts so he utilised the Riley jack, raised the car, removed the wheel and replaced it with the spare. He continued his journey and returned home without further mishap.

As you do, Colin made a visit to the Spares annex of the Club house to purchase another wheel rim. To his further horror Ian informed him that no less than four inner rims had cracked in the years of his Riley driving. Perhaps Ian drives his Rileys hard? But may I ask you, does that motivate you to check your wheel rims? Perhaps a check of the steel thickness of your wheels may even motivate you to acquire the later thicker rims.

Another interesting wheel story generated by Robin Hull is about fitting Riley inner rims to modern outer rims. This has been done by many Riley owners because modern radials can be easily purchased anywhere in Australia and the six-inch width gives a better ride. Robin and Barbara had come to attend Albert's relaunch party and the spare rim for Albert was noticed. I had fitted Mitsubishi Triton outer rims to Riley inner rims and Robin asked me what the distance was between the inner rim and the inside edge of the outer rim and the distance between the inner rim and the outside edge of the outer rim. I said, 'in the middle'. 'No, its not' he said, 'the inner rim is closer to the inner edge of the outer rim than the outer edge.' We were actually referring to different things. I was looking at the weld point and he was looking at the face of the inner rim.

Below: spare wheel rim for Albert

Editor

Busted Wheel Rims and Modern outer Rims by Robin Hull

The following is a few considerations about Riley RM road wheels. The first is that they can and do crack, however the Riley enthusiast can select rims that are less likely to crack. Secondly, wider outer rims can be fitted to the Riley centres enabling the Riley enthusiast to utilise modern steel belted radial tyres.

Above: Jig for welding Modern outers to Riley inner rims.

(The wheel centring method employed by Robin involves bolting the Riley centre into his jig, fitting the Nissan outer rim around the centre and fitting spacers in the gaps between the inner and outer rim. The inner and outer rim are then tacked together and fitted to a Riley and the wheel spun to ensure that the wheel is true. If the wheel does not run true the tacks are adjusted and then the inner and outer rim are welded together. *Editor*)

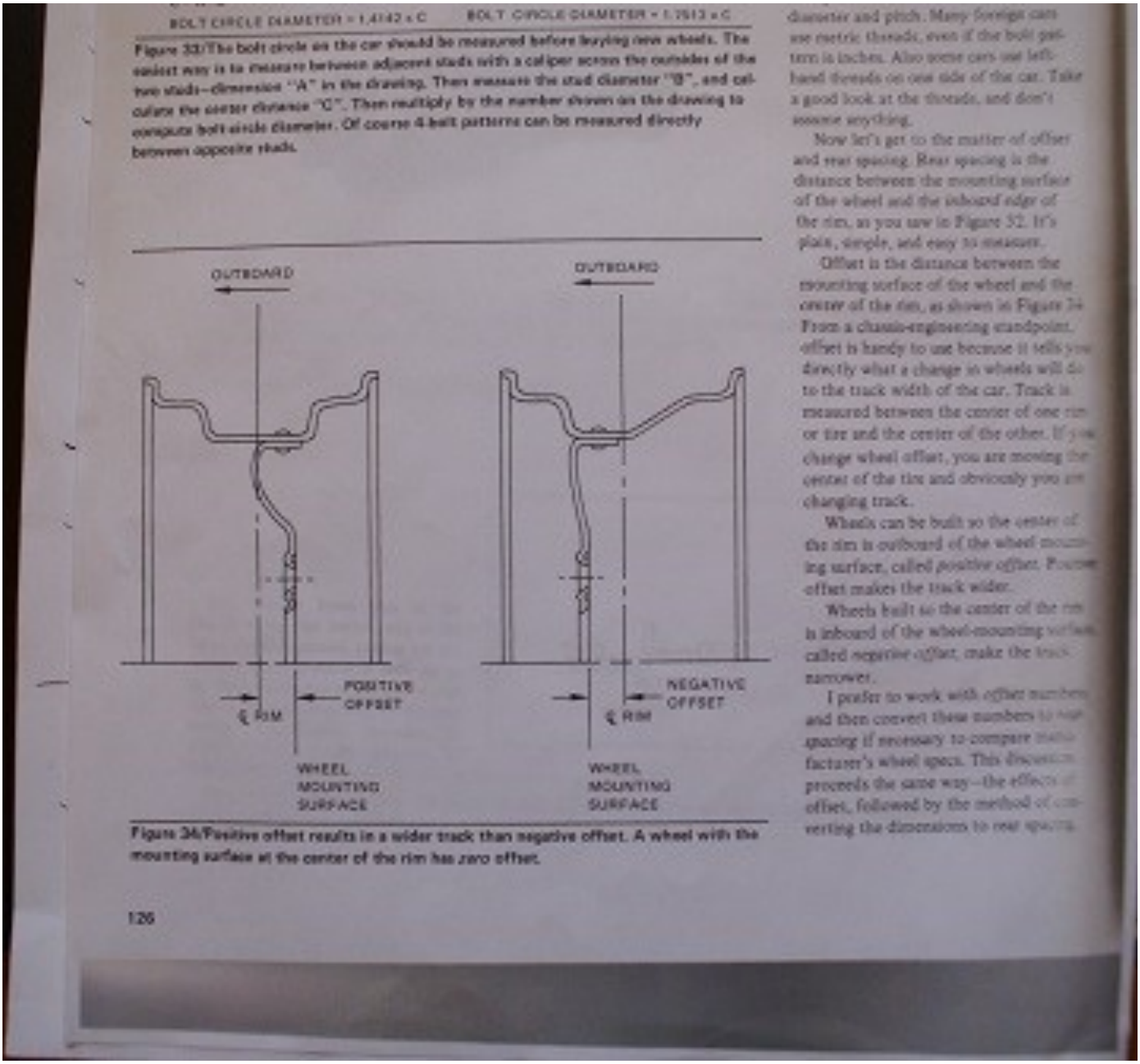
I personally have not seen the offending cracked wheels but as I understand it, the wheels crack circumferentially inside the area where the hub caps are clipped on. This has happened to numerous Riley wheels. The wheel centres have been made from steel of various thicknesses. The thinnest that I have been made aware of is 3 mm and the thickest is 4.2 mm and various thicknesses in between. Whether the thinner wheels were intended for the RMAs and the thicker for the RMBs is dubious. I consider it much more likely that the earlier wheels were made of a thinner material until it was discovered that their thinness made them vulnerable to failure and wheels were subsequently made of a thicker material. Considering the number of wheels that are in use and the very few that have given trouble it is still worthy to give the subject some consideration.

If opportunity arises and you have a choice between rims, it is advisable to check the thickness of the steel and choose rims of 4.2 thickness or as close to that as can be acquired. A range of rims are available from the Riley Spare Parts annex at the club house.

Above: Nissan Navara outer rim separated from inner rim

Once the best rims possible have been selected it is worth considering fitting modern outer rims to the original Riley centres. The reason for doing so are these; modern double J safety rims can be fitted and steel belted radial tyres can be fitted. These require a wider rim to comply with the regulations. E.g. A 205 X 16 tyre requires a 6-inch rim.

When fitting rims to the Riley centres a critical dimension is the offset. Offset can be defined as the distance between the mounting surface of the wheel (the part of the wheel that rests against the brake drum) and the centre of the tyre mounting flanges.



Above: Offset diagram provided by Robin to illustrate negative and positive offset

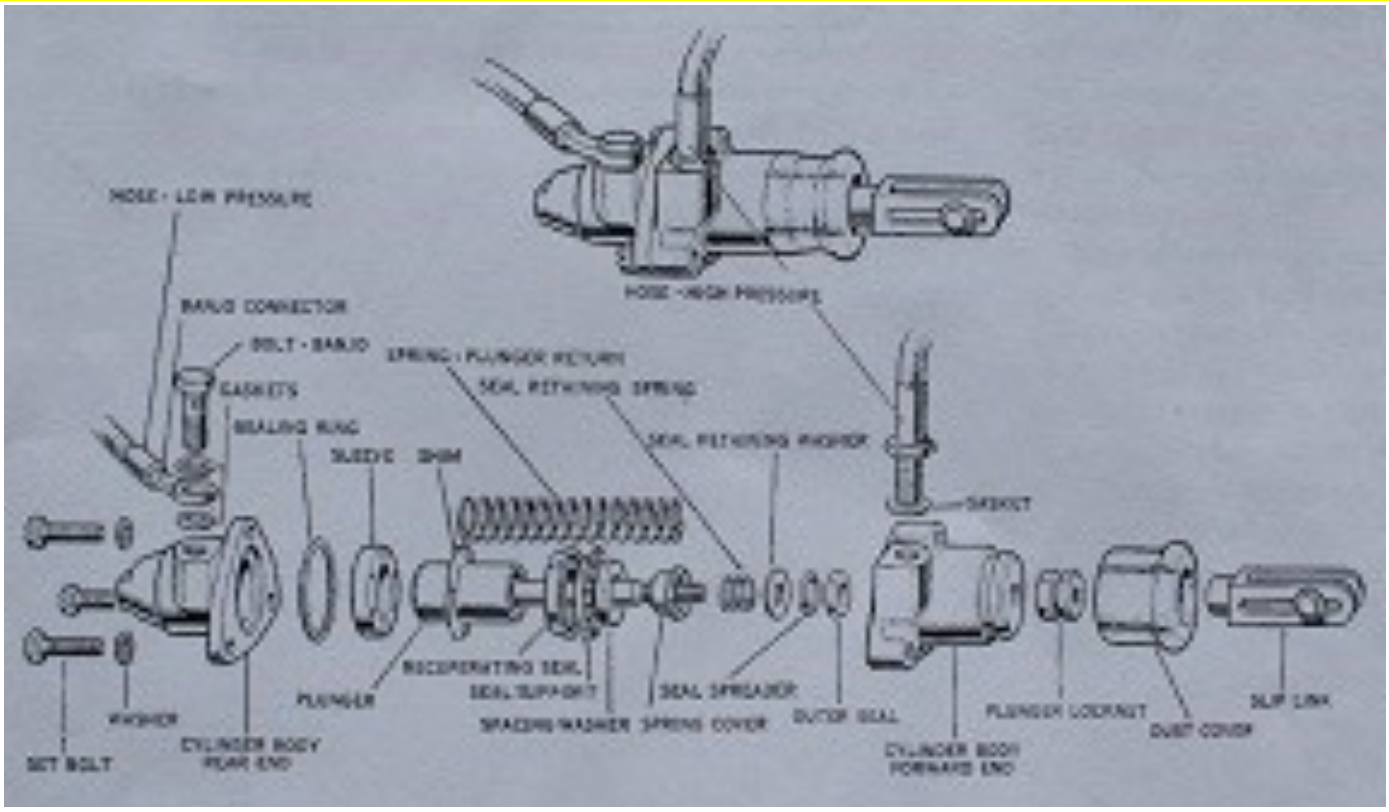
The offset is most important. The original offset was 46 mm negative. The Queensland regulation allows for an increase in the track by 25 mm. Having the incorrect offset can result in the tyre rubbing against the inner or the outer guards.

Riley RMs have 5-wheel bolts at 4 ¾ pitch circle diameter (PCD). General Motors cars were built with the same stud pattern but Commodore wheels are 5 bolts at 120 mm PCD. This is close to 120.65 but not close enough. To fit commodore wheels on a Riley requires that the stud holes are redrilled at the correct PCD or the wheel mounting holes need to be re- machined.

Below: Robin inspecting the Nissan inner rim

Robin Hull

Busted brakes



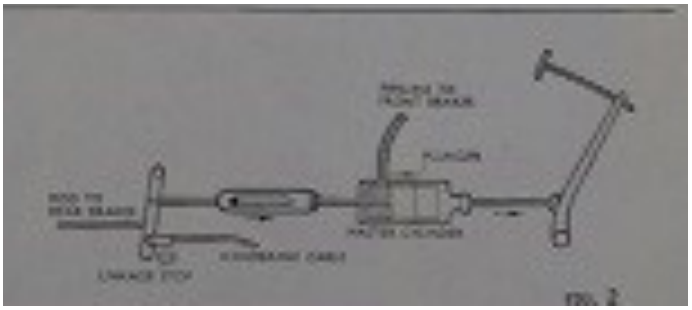
Above: 3 Bolt master cylinder illustrated

The Riley Motor Repair manual pictures a screw on end cap for the brake master cylinder and the only one that has ever come into my possession was a few years ago with Albert, the Drop Head. All the other master cylinders that I have seen have a cylinder end with three bolts to hold it in place. A Riley club member once told me that the single end cap model was only used on the RMA until later in the production run when the single end cap type was used for all RMs. Anyway, I couldn't get the end cap off. First, it was secured in a large bench vice and a half inch drive socket was used without avail, then a pipe was used to extend the half inch elbow. That didn't work. So, a three-quarter inch socket, elbow and long extension bar was employed again without result. The final fall back was a lot of heat but still no result. So, I took it to Jack Warr's house and showed it to Graham MacKay and he volunteered to give it a go. After a few weeks, we met again and he informed me that with a heavy pneumatic hammer drive and lots of heat it gave in. The lessons learned are twofold; if you want something to resist coming apart drop it into the Brisbane River for a few weeks and leave it out in the elements for a decade or two. It is bound to defeat the efforts of at least one skinny old bloke. Second lesson; get a three-bolt master cylinder; they are far easier to disassemble.

The other unrelated issue is that the three-bolt master cylinder is not pictured in the workshop manual and unless you take care to check the order and location of parts during disassembly you could be in for a head scratching exercise. That is the motive for writing this story and it is recommended that at least *the picture above* is incorporated into your workshop manual. You will also find that the clear advantage of the 3-bolt version of the master cylinder is that it seems less prone to leakage.

At this point it is worth mentioning that the cylinder forms part of the linkage to the rear brakes and as the brake pedal is pressed, the cylinder body is pulled forward putting pressure on the brake fluid at the same time as pulling the rear brake rod forward operating both the front and rear brakes. A period advertisement about the brakes boasted that if one of the front

or rear system failed the other system would compensate. Not true. As a young enthusiast in Western Australia the flexible hose on the front driver's side wheel had not been positioned carefully and over time when on full lock the rim wore a hole through the hose. At the time of brake failure, the car was being driven along Guildford Road from Bassendean and it was discovered that rear brakes were only about as good as taking your foot off the accelerator pedal. (The experienced and wise amongst readers may say it was simply not adjusted correctly?)



Above: The master cylinder in the brake system as per picture in diagram

This raises another concern for the mature (old) enthusiast – that's me. Because the Master cylinder is designed to move with the brake application the high pressure flexible hose is prone to rub against the rear brake rod. This has been resolved in Harold, George and Albert (My RMs) by the use of some sheet metal that has been turned around the two flexible hoses protecting both hoses from wearing on the rear brake rod. One of my mates, namely Paul Baee has a more sophisticated solution. He has wrapped a plastic binding around his brake flexible hose so no rattles.

Disassembly is simple. The flexible hose from the reservoir is disconnected by loosening the hose clamp and the high-pressure hose is disconnected by undoing the hose coupling and undoing the retaining nut. The Master cylinder then is disconnected from the brake pedal by removing a clevis pin on the pedal arm and then the master cylinder can be unscrewed from the brake rod or the clevis pin can be removed from the other end of the brake rod. If the cylinder is of the type shown in the repair manual the master cylinder end cap is unscrewed, the slip link and lock nut is screwed off the plunger and it all comes apart unless, of course, the endcap can't be unscrewed. The three-bolt type is simply a matter of removing the bolts, removing the cylinder end body, unscrewing the slip link and lock nut and taking out the parts.

The plunger and rubbers all come as part of a kit and these can be obtained in Queensland from your friendly Spare Parts officer, Ian Henderson who is willing to exchange them for money. He can be visited at the Spare parts annex of the Club house on Tuesday mornings or if asked nicely he will post them to your address.

Assembly is simply a reverse sequence of the disassembly. All parts should be smeared with brake fluid and assembly is simply a matter of following the arrangement shown in *the picture at the beginning of the article* In the end of the cylinder the outer seal is fitted with the seal spreader in the lip of the seal. The washer is then placed on the spreader and then the spring and the spring cover. The sealing ring is then fitted into the cylinder body rear end so that the flat side is facing outwards. The plunger is then fitted into the sleeve and the shim, recuperating seal (flat side against the shim) and seal support are fitted over the plunger. The spring is then fitted into the open end of the plunger. The plunger is then pressed through the spring, spring cover, seal retaining spring, seal retaining washer, seal spreader and outer seal through the cylinder body. The cylinder rear end and cylinder body are then mated and bolted together.

Above: the Master cylinder in situ

After refitting the master cylinder to the linkages and the hoses, and filling the reservoir all that may be required is bleeding the brakes. In my case the bride is usually called upon to press the brake pedal with the instruction to press firmly but not too quickly, to hold the position until the bleeding screw was turned to the closed position and then she was asked to release the pedal. This procedure was done first on the nearest brakes (the driver's side) and then the passenger's side. Years ago, I found that too vigorous and rapid pressing of the brake pedal aerated the brake fluid. Another lesson learned was that if after several attempts and some air was not expelled from the system, jacking the front end up made it possible for gravity to assist in the bleeding process.

In every case when rebuilding brakes in RMs when checking the rear rods there was wear in the clevis pins and these were restored by drilling out the clevis joints and fitting oversize pins. In the middle of the system wear was removed from the torquetube axis point by fitting a new bush so there was no upward movement in the brake when the pedal was pressed. These can be obtained through the club spares.

Above: Master Cylinder assembled and fitted to linkages

When all of this has been done it is simply a matter of adjusting the rear brakes. In my case, the brakes were adjusted, the brake applied so the brake shoes were centralised and the adjustment refined so that the wheels span without resistance from the brakes.

(sources: Riley repair manual and Girling Master cylinder manual)

Phil Wyllie

Busted clutch rod and other clutch components

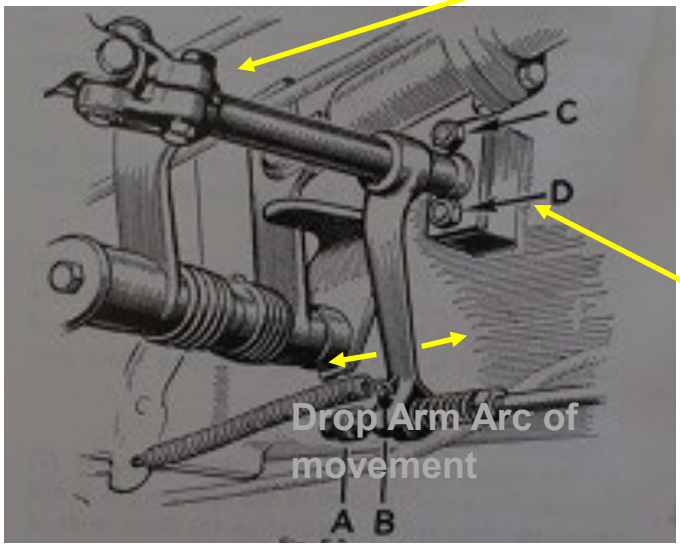
It broke. It could not have happened in a more inconvenient place. It was in the middle of the city, admittedly it was Perth in the late 1980s, maybe 86 or 87 but Rileys are not light and I had to push Harold, my 1948 RMB into a 'deliveries only' parking spot. Thankfully, there was some wire in the boot and the clutch was rigged (only just) sufficiently to get me home. Thankfully that wasn't very far. But broken clutch rods are a common experience and care needs to be taken to minimalize the frequency of clutch rod failure. Apparently, the clutch pressure plate springs were originally set to provide around 1000 pounds of pressure so correct adjustment of the clutch rod is essential. In the 1990s Jack Warr was providing pressure plates with springs providing 800 pounds of pressure but some argue that anything less than 1000 pounds causes clutch slippage.

Below: Clutch rod in situ

And more Clutch rods

After a second brake rod failure, thought was focused on keeping a spare in the boot and setting the rod as correctly as possible. It seems that the clutch operating joint needs to be set so that the drop arm is around 5 degrees before vertical so that when the clutch pedal is depressed the rod moves from around that position to 5 degrees after vertical. If it is set before or after these points every time the clutch pedal is depressed the clutch rod is slightly stressed until eventually clutch rod failure results. This is precisely what was happening to my car. To adjust the clutch release shaft the retaining bolts that are screwed into the chassis through the spherical bush housing were removed, the pinch bolt holding the toggle in place was slackened and the release shaft withdrawn from the toggle and replaced on the splines until a position of 5 degrees before vertical was achieved.

Below: 10 degrees arc of drop arm illustrated.

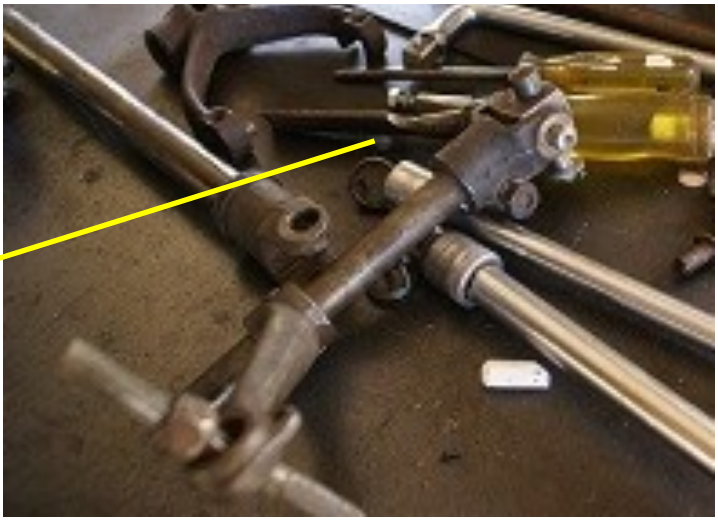


6 Degrees equals one minute on a clock face so the drop lever is only just forward of the vertical and only needs to move to about the same position after vertical when the clutch pedal is depressed.

I have learned that whenever the gear box was removed from the car the action of the clutch needed to be checked to ensure that no change in the position of the clutch mechanism occurred. If it did the position of the release shaft was withdrawn and refitted into its correct position.

If the driver's side floor is removed it is possible to see the release shaft, the clutch rod, relay rod and other moving parts move when the clutch pedal is depressed. If there is significant wear in the Universal joint it is possible for the joint to fracture and break so oversized bushes need to be fitted into the joint. The worn brass spherical bush can be replaced with a new one from Club spares and when fitted much of the below floor chatter that your car may have will disappear.

Universal joint re-bushed and spherical chassis bush.



Another modification that was found to benefit the clutch operation was to drill out the pin locations and to fit oversized pins through the whole clutch mechanism. Taking out the slack created by wear actually made the clutch operation much more positive and easier on the leg muscles. Another smart purchase from club spares was to replace the clutch rod with a clutch cable. No more clutch rod failures! These clutch cables are also available from your friendly spare parts officer.

Busted Half Shaft

I was visiting a mate who lived on Railway Parade in Mount Lawley, WA. It was a steep driveway so Harold, my 1948 RMB was parked across the driveway on the nature strip. On departure, the engine was started, the clutch let out but nothing happened. It was just like that. There was no warning, no noise, no sudden letting go. Just, no go. Thankfully, home was just a few Kilometres away and Bob towed me home.

First the wheel nuts were loosened on the two rear wheels, then the rear end was jacked up and stands were placed under the chassis. The road wheels were removed, then the pin in the brake linkage was withdrawn, the brake drum taken off and the eight nuts holding the brake backing plate to the differential were removed. The half shaft with the brake backing plate was then easily withdrawn and there it was; a busted half shaft. At the time Cliff Goodman was the spare parts officer for the Western Australian Club and he provided me with my first new half shaft. It was different from Jack's Warr's offering in that instead of a big nut on the end of the half shaft it was welded. But, whether welded or threaded with a locknut both men said the hub would not come off as the hub was heat shrunk onto the shaft. Both Jack's shaft and Cliff's shaft were a better-quality steel than the original and neither had that big shoulder right next to the diff. Instead they had a long shaft that was the same thickness as the splined end allowing the shaft to flex under torque.

Below: Tube spanner

Now, I still had a problem. The broken spline was still in the diff. To remediate the problem, the other half shaft was withdrawn from the diff and then I was faced with one of two options. I could have borrowed my wife's broom handle poked the broken spline out and then the axle could have been reassembled with the half shaft that I had acquired from Cliff. At this point it has to be pointed out that once a half shaft has been used, it becomes handed. That means that a half shaft that is fitted to the driver's side flexes anti-clockwise and if it is put on the other side it flexes in the opposite direction making it much more vulnerable to breaking. (Sometimes, if you have a second- hand spare in the boot and you are a long way from home and no garage nearby you have to knock out a broken spline and if your spare is second hand and is left or right handed you simply put it in and hope that it gets you home). Alternatively, you can empty the oil out of the diff, disconnect the brake rods, undo the nuts holding the diff housing onto the torquetube and the springs, remove the diff housing, knock out the broken spline and clean out the bits of half shaft that are sure to be lurking about in the bottom of the diff housing and then put the whole thing back together again.

Below: Half shaft removed. **Notice the damaged nut. It is important to lock the nut with the tab otherwise the nut may undo and your half shaft may slip out of the axle and run past your car as happened to Massimo Perotti on the East Perth Bridge many years ago.**

In my case, the diff housing was withdrawn, a new gasket was made for the mating surface on the diff housing, the diff housing was thoroughly cleaned and using a little bit of PVC gasket cement the diff housing was remated with the torque tube and the nuts replaced and tightened and the springs reconnected. The broken half shaft was then set on the bench. The large nut that holds the shaft onto the hub was then inspected and found to have been removed previously with the use of a cold chisel. Now, if that surprises you, it is because you have never withdrawn a half shaft from its housing. I have never come across one that has not been at least slightly butchered. A tube spanner was manufactured, the locking tab pushed back, the nut removed and the half shaft slipped out of the backing plate. Replacement is the reverse of the disassembly procedure except that it is wise to fit a new oil seal on the outside collar of the shaft bearing. when this was completed the half-shafts were refitted into the diff, the nuts put back on and tightened, the brake rods replaced, then the brake drums replaced and the road wheels put back on.

Below: The old half shaft on the hub with the nut, a new half shaft, and tube spanner

(Notes: The oil seal is NAK 2.000/ 2.876/ 0.355—3 This and a new half shaft may be purchased from your friendly spare parts officer and the tube spanner may be borrowed).

Phil Wyllie

A Riley Imp by Graham MacKay

The Imp's entry into Australia came curtesy of the Riley Agent in Adelaide. Its next appearance was when the car was sold to Downings. For whatever reason, the car had been previously disassembled, the chassis had been sold to someone in New Zealand and the car came to Downings in pieces. Harold Downing made the new chassis, but everything else was original. One of the things added to the car was an oil pump with an extra oil reservoir with its own cooler. The extra oil and pump had been added so that the car could complete a race without running out of oil.

Downings sold it by auction and it disappeared from public view for some time. The car re-emerged into the public arena when its current owner, Gerry Murphy put it up for sale. Once again it had been disassembled. It was shabby but complete. The reason for the sale was that Gerry Murphy wanted to race a supercharged Peugeot. He needed to sell the Imp to get sufficient money to prepare the Peugeot for racing. So, in 1968 the Imp was put up for sale in Beaconsfield, Victoria and Neal Brandt accompanied me with a car trailer and we picked the car up with all its pieces and brought the car up to Brisbane.

Below: The oil reservoir

I wanted to enter the car in the Riley National Rally on the Sunshine Coast. Gordon Cameron had a house at Marcoola at the time and it became the headquarters of the rally. The Imp ran faultlessly; it included a drive from SW Brisbane to the Sunshine Coast, participation in the rally and the drive home and the whole event was completed without incident.

A 9 HP engine powers the car, with a 4-speed gear box. Because of the drivers sitting position the transmission was a long way forward of the driver's sitting position and the car came with a long gear stick, like a wand and gear shifts involved a 12-inch movement from one gear to another. The first attempted solution to this inconvenience was to extend the mechanism above the gearbox but that meant that the gear positions were too close together making it easy to select first instead of third or second instead of fourth. The final version of the extended gear selector mechanism is in the car. The picture shows the extended gearbox top and its new position relative to the driver.

Above: the extended housing for the gear lever

Everything in the car is Riley 9 except for the diff. The diff is out of a Riley RMA. It provides a faster drive on the flat but insufficient power to motor up hills. It was used to compete at Bathurst and after that it was used to compete in the Australian Grand Prix during the Olympic Games in Melbourne during 1956. Maybe it is the only Olympic Games that featured a car event. Later the car was entered into the Australian Grand Prix at Lowood. Brightway Hardware were the sponsors of the event and they provided the trophy; the 'Brightway Cup.' Whoever won the cup was given an automatic entry into the Australian Grand Prix and that is how Downings got this car into the Olympics.

The car was shabby when it came into my hands but as far as I could tell it was complete at the time of purchase. Maybe the original paint was green. Downings painted it white and when it came into my hands I had it painted Riley Blue. The car came with a damaged aluminium bonnet but recently Ken Grey copied the original in aluminium by hand. It is a remarkable result as the material was rolled, hinged and catches fitted all by hand.

The car features a recess behind the driver's cockpit for the hood cover to fit into, the body and doors are all aluminium and the guards are made from steel. The single large windscreen can be turned forwards leaving twin small windows to deflect the wind for driver and passenger for competition driving.

Graham MacKay

A BUSTED RM RILEY BUYERS GUIDE

The good news about buying a Riley is that there is an amazing array of spare parts available to restore and maintain the car that you are thinking of purchasing. If it is not available from your local Spare Parts Officer, he or she can usually get it from interstate or for a little extra money you can join the RM club or Riley Register and purchase parts from England. It is certainly a very handsome car and you should be congratulated on considering one. They have beautiful sleek lines with the pre-war elegance of running boards, chrome strips and lamp pods mounted on the front mud-guards. They have the old- world style yet the power to keep up with modern traffic. But there are certain considerations when purchasing one of these beautiful cars.

Engine

The RMA and RME has a 1 ½ litre engine while the RMB, RMC, RMD and RMF has a 2 ½ litre engine. Both have twin cams positioned high on the block. A visual check under the bonnet and under the car will reveal oil leaks. Seepage is normal for this car but a wet under-carriage is an indicator of work to be done. If the car can be started, a short drive may produce blue exhaust smoke and this is your first indicator of a worn engine. Checking the oil pressure gauge is another indicator of the engine's condition. Once the engine is warm the oil pump should produce 40 PSI for a 1 ½ and 30 PSI for a 2 ½ at 35 MPH. If it is less than that it is a clear indicator of engine wear or less likely a poorly adjusted oil relief valve.

Above: worn oil pump gears

If the oil pressure is higher than normal, it could be that the oil galleries are clogged. Either blue smoke or errant oil pressure is an indicator that an engine rebuild is a likely requirement. Recently one member of the Queensland Club reported that his DIY engine rebuild cost him $2000; not a significant extra cost when considering acquiring a Riley.

Another engine issue to look out for is if the engine runs hot. Again the 1 ½ should run at around 75 degrees Celsius and the 2 ½ at around 82 degrees Celsius except in traffic or doing a hill climb and even a good engine will produce up to 95 degrees Celsius. If the engine runs hot the cause could be that the radiator or the engine water ways or both are clogged. Recently, after an engine rebuild when the motor re-conditioner cleaned out the engine two hand fulls of rust was shaken out of the block before rebuilding commenced. The first step is to take the radiator to a Radiator shop and have them clean it out and do a reverse flush of the engine. It is also worth checking the aluminium inlet manifold for clogging as a reverse flush won't unclog it. An inexpensive but helpful procedure is to remove the welsh plugs, use a high-pressure hose to clean out the block and replace the welsh plugs with new ones.

Below: bowl of rust knocked out of a engine that had previously been thoroughly cleaned and engineered by an engine re-conditioner. It is a good idea to clean out a re-conditioned engine before a re-build.

Gear Box

The four-speed gear box will provide a clear rumble if it has a worn lay shaft. Worn bearings will also provide a rumble while tired gears will produce a discernible whine. In the RMA, RME, RMB, RMD and RMF the floor mounted gear lever is mounted in a brass bush. If the lever is sloppy in the bush it is likely that the gearbox has significant wear. If your dream car is an early Roadster (RMC) there is an amazing number of linkages that will produce a sloppy gear change if worn and this will mean a significant amount of re-bushing. But do not despair! Re-bushing is easy to do and there will be at least one person in the car club who will be able to provide advice and perhaps a helping hand.

Below: busted gear box ready for repair

Clutch

Clutch, pressure plate and thrust bearing can be purchased from your spare parts officer once you have joined the club and replacement of these involves significant work, but restoring a sloppy clutch operating system requires only a little work. If the driver's side floor is removed it is possible to see the release shaft, the clutch rod, relay rod and other moving parts move when the clutch pedal is depressed and worn parts can easily be seen (see the article on busted clutch rods for remedial action). Another problem to look out for is clutch shudder as you engage the first gear. This is common in 2 ½ litre cars. It could be that the engine mounts are tired, the steady cable may not be adjusted correctly or the fingers on the pressure plate may not be set correctly. The first thing to do is to replace the mount rubbers, then check the steady cables, one is at the front of the engine and the other is bolted on the driver's side of the gearbox. After that, if the problem persists the removal of the gearbox is required to adjust the fingers of the pressure plate.

Brakes

During your test drive, it is worth making a hard application of the foot brake. If the car pulls to the side, there will be brake fluid on the front brakes or diff oil on one of the rear brakes. The later RME and RMF cars have all hydraulic brakes and all RMs have brake drums. A brief check of the master cylinder will reveal whether there is a leak there or alternatively if the car slows but the pedal travels to the floor the outer seal is worn and the master cylinder parts need to be replaced. The efficiency of the brakes can also be effected if there is wear in the linkages and this is covered in another article in this issue of Torquetube.

Steering

There should be very little or no play in your steering. But if there is, some aspects of worn steering racks can be repaired and steering racks can be purchased from your Spare Parts Officer.

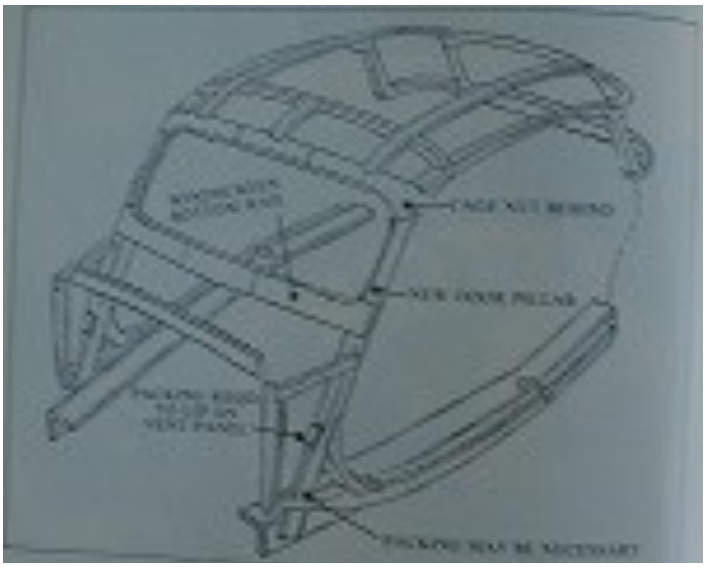
Rear Springs

If your rear springs are flat they are fine. If they bow downwards at the ends they need to be re-set. Often the bushes are worn and these can be replaced with club spares or through a vendor of vintage or classic car rubber vendors.

Timber Frame

All RMs have timber frames and although steel covers most of the frame there are a few telltale indicators of wood rot. First the 'A' frame (front door post) can be checked for integrity by picking at the bottom of the post with a screw driver. If the bottom of the door post falls off the problems are significant and a full body

off restoration is required. Another indicator of 'A' frame deterioration is the integrity of the door catches. If they are loose or there is evidence of reinforcement with bog, timber filling or extra steel it is likely that a body off restoration is required. The rear window surround and roof frame is all timber and these can be checked from inside of the car. A long darning needle or similar will penetrate the headlining and if damp has penetrated the roof it will easily be discovered when the needle is pressed into the timber. As with all of the mechanical parts samples of timber parts may be borrowed or timber frame parts may be purchased through your club.



Above: RM timber frame

FOR SALE

Graham MacKay's Riley Drophead

After all these years, it has come to the time to part with my 2.5 Riley Drophead. Open to all offers.

Phone Graham MacKay on 0412 071 903

John Rickett's RMA

Mechanically sound runs sweet
Has new high compression Pistons fitted
Paint is good does need some woodwork restoration
New front leather seats rest of the interior is original
$9000.00 neg
For any further enquiries don't hesitate to call (02) 69421113 or email on wandjrickett@icloud.com.au ask for John Rickett
Located in Cootamundra NSW

For Sale Continued

Philip Russell's 1951 RMB

The car had a ground up restoration approx. 1999 , the car was then driven on a Shannon's rally to Canberra, I have owned it since 2002 and it has done 2,000 km. It sits in my garage (I have a few other cars) the car has

power steering (blue plate) power brakes (blue plate) It has a Toyota 5 speed Seleca gearbox which makes driving pleasant , chrome spoke wire wheels , I still have the original steel rims , all leather interior , I would like to get around $24,000 but am negotiable, it is a pleasure to drive and PARK !!

Ray Perriman's RME

This car came with Ray and Maureen Perryman from England when they migrated to Australia. Ray has kept the vehicle in pristine condition. It is ready to drive with only 54557 miles on the odometer, the Chassis no is QHS2693. It is being sold because Ray has passed away. The price is very modest and may be obtained through a phone call to Maureen.

Maureen Perryman may be contacted on
07 3209 2232 or
e-mail: rmperryman@gmail.com

For Sale (page 3)

Taroom 1950 RMB.

This car appears to have been fully re-built a few years ago with some items yet to be completed. The majority of the wood work has been replaced and the roof timber is still original but in good condition. The interior roof lining needs to be installed and is with the car including bows and the front seats have been recovered at some time. The rear seat is original and in a visually tired condition.

The interior requires finishing, including carpets and a general tidy up. A section of the boot floor is missing and the spare is visible upon opening the boot lid.

The exterior paint is just satisfactory, but serviceable and the hood is in basically sound condition but requires a good clean as it has been coated with some sort of lacquer in the past which could be removed.

The engine starts easily and sounds good and apparently it has been rebuilt, including a new exhaust. clutch, gearbox and differential seem good and there are no oil leaks evident. Apparently the wheel cylinders have been sleeved and the master cylinder rebuilt and linings replaced. The brakes work as well as they ever have.

With the exception of the tyres, this car seems to be roadworthy and could be purchased as a running restoration to be completed over time with no real urgency. It could best be described as untidy, with a lot of potential, as most of the major restoration work has been completed.

The owner has valued this car realistically at $12,000 and would accept an offer in this vicinity.

Please contact either Mark Baldock 07 5491 5409 or Ken Lonie 0409 613 231 for further information or to pursue the sale, both of whom have been liaising with the owner".

The Last Word: Do you remember the comment about the unbreakable clutch cable? It broke today.