TORQUE TUBE

Newsletter of Riley Motor Club Qld Inc June 2013

www.rileyqld.org.au

Ian Ripley's Falcon

Bill White, Robin Hull, Ken Lonie and Ian Ripley with Ians newly acquired beautiful 1936 Riley Falcon. This Riley joins 2 other Rileys owned by Ian, a 1967 Kestrel and a white RMB (ex- Caboolture). Ians' Falcon is immaculate inside and out and we welcome it to the Queensland Club.

Editor: Bill Short
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Next Meeting:
Thursday 8pm 13th June, 2013
Jack Warr Club Shed
Ex CSIRO grounds Samford

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Minutes of Riley Club of Qld General Meeting, Held on 9th May, 2013

At the Jack Warr Riley Shed in Samford

1. The President declared the Meeting open at 8.15.

2. **Attendance** –As per attendance sheet.

3. **Apologies** were received from Alan and Sheila Hill, Linden and Del Thomson, Bev Burrows, Ross and Di Phillips and Jack Warr.

4. **Minutes** of the General Meeting held on Thursday 11th April, 2013 were circulated. The minutes were moved for adoption as a true and correct record of the meeting by Bill Short and seconded by Rod Longden. Carried.

5. **Business Arising:**

The President welcomed new member, Lyn Guthrie, to the meeting, as well as recent new member, Graeme Bourne. Lyn has purchased a 1950 RMD from WA and Graeme is restoring an RMA.

Since the last meeting, Matthew French has advised that he has resigned as secretary of the Riley Club of Queensland. Bill White has collected the secretarial files from Matthew and Alan Hill has agreed to act as secretary until such time as the club arranges a permanent replacement for Matthew. Given that Alan Hill is currently overseas on holidays, the president undertook to take the minutes for the May meeting.

Ken Lonie undertook to write to the other Riley Clubs of Australia and to advise Linden Thomson to update the website to show Alan Hill as secretary with all correspondence to be directed to Alan Hill's address.

There was no other business arising from the minutes.

6. **Secretary's Report & Correspondence:**

Outwards: To the knowledge of those in attendance, there was no outgoing correspondence for the month.

Inwards:
A Club Gazette was received from the Scottish Enthusiasts club.

Ken Lonie moved that the inwards correspondence be received.

Seconded by Bill White, Carried.

7. **Treasurers Report**: Linden Thomson had extended his apologies and was not in attendance, but forwarded through his report prior to the meeting.

Balance as per Bank Statement, 1 April 2013		**$4824.42CR**	
Income			
Joining and Membership Fees – by cash/cheque		$	280.00
ditto	-– online		140.00
Shed Donations			20.00
Interest			0.59
		$	440.59
Expenditure			
Shed expenses – Moreton Bay RC‡		$	200.50
Purchase of 31 chairs for Shed – K. & W. Lonie			218.54
Shed maintenance – W. White			27.00
Sundry expenses – W. White			28.00
		$	474.04
Balance as per Bank Statement, 30 April 2013		**$4790.97CR**	

‡ BPay

Accounts for payment
There were no new accounts for payment.

Bill White moved the adoption of the financial report and payment of accounts. Seconded by Bill Short. Carried.

8. Report from Club Captain: Robin Hull reported that the run to Rockhampton to meet up with members from Townsville, was a huge success. A total of 8 cars travelled from Woodford and met three cars from Townsville. Ian Ripley also joined us in Rockhampton with his recently acquired 1936 Kestrel in immaculate condition.

The meeting congratulated Robin on an excellent run and expressed a desire for this to be an annual event. Townsville members have since contacted us expressing their enjoyment with the run. A detailed report on the run is contained in the May edition of the Torque Tube.

Runs for May are to the Dalby rally on 11th and 12th May and Macleans Bridge at Lakeside on 18th and 19th May. The 19th May is also Motoring Heritage Day when as many old cars as possible should be on the road. The Nambour rally is on 2nd to 9th June and the RACQ Motorfest on 14th July. The RACQ Motorfest provides one of the few occasions to display our cars to the general public. These events are detailed in the Torque Tube.

10. Report from Torque Tube Editor: Bill Short encouraged members to submit articles on any topic for the Gazette. Another Torque Tube edition was successfully distributed prior to the meeting and an article on Peter Lee's drophead has been included.

11. Report on Jack Warr Riley Shed: Bill White reported that The Samford Tuesday Group have continued to sort out second hand spares and a quantity of surplus bits and pieces have

been taken to the tip. All the windows have now been maintained and work freely (Thanks largely to Bernie).
Bill will arrange a working bee in future months to paint and spruce up the main meeting area. The Lonies have donated a fridge which has now been installed and Bill White will dispose of the old unit.

Council have provided a garden with bark chip and plants at the entrance to the shed.

12. **Report from Registrar:** Mathew Schooneveldt was not in attendance but will update the register to include the Ian Ripley 1936 Kestrel in Rockhampton.

13. **Report from Spare Parts:** Neither Jack Warr or Graham Mackay were in attendance, but Jack had asked Bill White to advise the meeting that he now has available new RMB oil pump gears and new RMB distributor gears (for clockwise rotating distributors) are currently being manufactured. Jack also has a number of BSF taps and dies for sale.

14. **Report from Website Coordinator:** Linden Thompson advised prior to the meeting that the website is now up and running and he will make some additions during May. Linden also advised that he has updated the current membership list.

15. **General Business:** Bill Short advised that John Holmes who is building a car in Toowoomba, will be attending the South Australian rally and will be with three other people from Toowoomba. We need to include him in arrangement for travelling to SA.

Bill Short also advised that he had received the order of 50 spare electronic modules for the electronic distributors. Ken Lonie will deliver these to Jack next week and they will be available to members at $30 each.

Dorothy Cameron donated to the club a large photograph of a number of new Riley cars. The photograph has an interesting story which Ian Henderson relayed to the meeting. In about 1951, a dance group called the Ice Follies were performing in Brisbane and they all went down to Flinders motors and bought about 6 new Rileys together. The photo was shot on the banks of the Brisbane River in the Newtown area.

The President thanked the ladies in attendance for their efforts in preparing the BBQ which was held before the meeting and which was well attended and enjoyed by all. This is something we must do more often. Bill Short was also thanked for his cooking skills.

It was also agreed that Linden Thomson be asked to send out a letter to all lapsed members in his membership list, advising them that we note that they haven't renewed their membership and do they wish to continue as members of the club. If so, could they please forward the membership fee to the secretary/treasurer?

Ian Henderson and Bill White extended their apologies for the next meeting.

16. **Car reports:** There were no car reports given.

Next Meeting will commence at 8 pm on 13th June, 2013 at the Jack Warr Riley Shed at Samford.

Meeting Closed: Attendees were thanked for their attendance and the meeting closed at 9.15 pm.

Club Captain's Report

A rather quiet month after the trip to Rocky. On the 5th the David Hack day at Toowoomba, did anyone attend? On Saturday and Sunday the 11th and 12th the Dalby Rally. With over 70 cars entered, Riley persons in attendance were Pat and Betty Elliott in the RMA, Jan and Robin Lamb in the RMA, Stuart Paton in his 1935 Alvis and the Hulls in their 1931 Vauxhall. An enjoyable Rally but a little different to the norm. On Saturday there was a bus tour of a cattle feed lot (very interesting to most of the men) then on to a model aeroplane display, fascinating. The dinner was at the RSL and top notch. On Sunday there was a good run on the back roads to Kaimkillenbun where we had an inspection of the local engineering works where they manufacture various farm equipment, grain augers, silos, field bins for grain etc, all using very up to date methods, it was a pleasure to see such an Australian enterprise, but perhaps not so interesting for the tender gender.
On the 18th and 19th was Macleans Bridge at Lakeside. I did not attend but as reported Bill Short was there on Saturday and Bill White, Ian Haywood, Matthew Schoonveldt, Bernie Maudsley, Rod Langdonand, Mark Baldock were there on the Sunday and were treated to a good display of cars and many interesting persons to speak to.

Coming Events

June

Sunday 2nd to Sunday 9th

The Nambour Rally incorporating the QHMC rally enquiries 54761334 or secretary@scacc.org.au

Sunday 23rd

A lunch run to the Coominya Pub.

Departing from Boundary road Rocklea opposite Beaufighter Avenue at 9.30 .

July

Sunday 14th

RACQ Motorfest.

Sunday 21st

A lunch run.

August

The Rattle of Rileys.

Details as per January's Torque Tube, would intending participants please contact Robin Hull 5496 4953.

September

Sunday 22nd

The All British Day

St. Josephs College Sports Ground Vivian Street Tennyson display cars $15 8:30 to 2:00 pm.

Saturday 28th Sunday 29th

Weekend at Woodenbong .

October

19th 20th

Centenary of Canberra Rally

November

Saturday 16th Sunday 17th

The Gold Coast Antique Auto Club Autorama.

Enquiries Coral Cogzell 5534 5941 or www.gcaac.com.au

Swap Meets and Show Events

June

9th Swap Binda Ave, Kirsova 0418 885 582
All Japanese Day Earns haw College Banyo 0416 312 189
16th Mt Cotton Gramzow Rd from 7.30 0438 763 985
Caboolture Show & swap 5495 3312

July

14th Mudgeeraba Showgrounds 0412 958 839
14th RACQ Motorfest
27th Nambour Showgrounds 0412 958 839

August

3rd Rockhampton Showgrounds 0400 781 626
11th Rocklea Showgrounds $5 0412 183 804
25th Maclean Bridge 3341 9618
25th Jimboomba Swap and Show $5 3341 9618

September

14th Gympie Showgrounds 5482 2303
16th Beaudesert Showgrounds 5544 8174
22nd Beenleigh Showground 0411 477 020
29th Rocklea Showground 0418 763 886

October

6th Chrysler Swap and Show. 0414 809 498
20th display Kilcoy Showgrounds. $10 5497 2563

TECHNICAL TOPIC

Gearboxes

by John Marsden

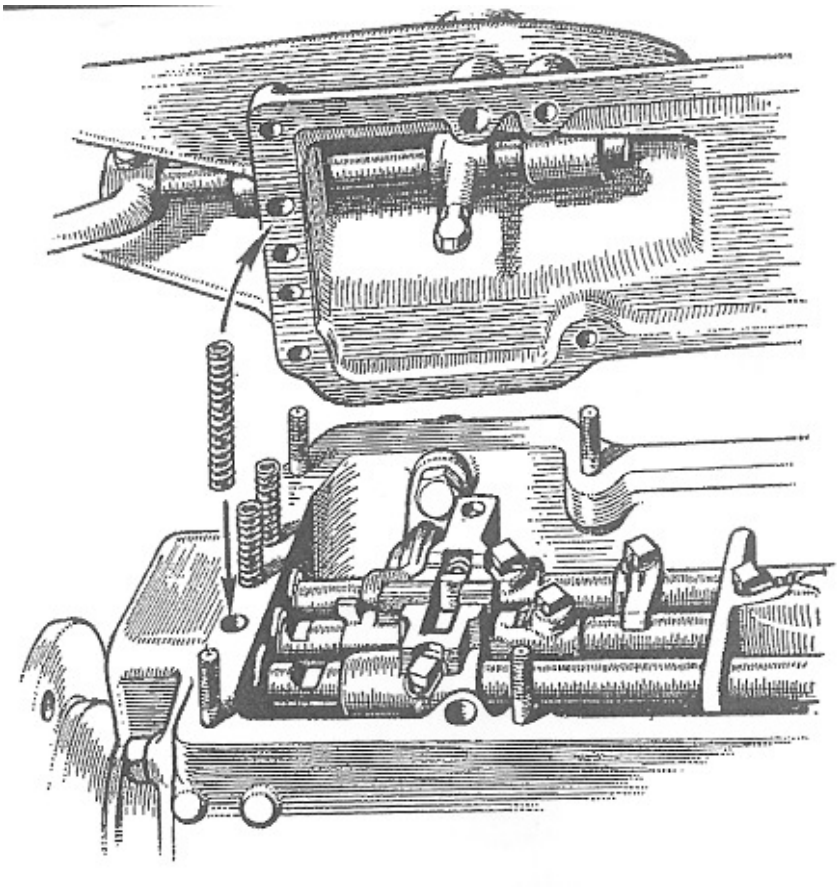
Riley Two'n'Half, Manual Transmission — Overhaul tips.
(Acknowledgement to the Riley Gazette Oct/Nov 2010)

The four speed manual Riley gear box is a fairly conventional, transmission. Members, with care and attention to instructions in the workshop manual, should be able to carry out an overhaul to replace bearings and other components. After sixty years or so of service, parts may require replacement. The most usual parts requiring replacement would be the; Layshaft and its needle rollers. Needle rollers in the primary shaft and the front and rear bearings (Primary & Main shaft) and speedo drive/ cable seal.

Correction to Manual: Dummy Layshaft length of 192mm is for the I½. For the 2½ the length is 208 mm. Dummy shaft cut from 19mm dia hardwood Dowel. (Not listed but to assist with assembling the needle rollers into the Drive Gear (Primary Shaft) cut 100mm from 19mm dowel, ex Hardware stores. (Note the hardwood dowel may require finishing to 19mm) note also that third and second gear bearing (needle rollers) may be found to be quite serviceable.

Parts most likely required: F2—22,23,56,58. Guard and spring plates
Other Materials :
Shop manual instruction, these parts must be replaced.
F2 — 11 Washer, G/Box Drain Plug.
F2 — 17 washer, plug —top cover.
F2 — 14 Gasket, Top Cover.
E19 —Bearing Main Shaft (NTN 6307LLUNR Sealed Bearing)
F2 —41 Layshaft
F2 —42 Roller (Layshaft).

F2 — 54 Bearing Drive Gear. (NSK 63O8zznr Sealed)
F2 — 62 Bearing drive Gear Spigot (15 needle Rollers)
F2 — 92 Gasket Speedometer gear casing. Speedo cable seal
F2-99C
F2 — 6 Retainer, gear change lever ball.
F2 — 129 Liner — Gear Lever Socket.



Replace Pedal rubber boots and pedal pads as required.
Use of sealed main bearings.
This type of bearing has been well proven in commercial use. They are not subject to contamination from what may be picked up by the lube oil.

Tools required:
Hand tools+ one three jaw puller—jaw length minimum 85mm. To draw off the rear drive flange. The dummy layshaft dowel and the 19mm x 100mm wood dowel.

Other materials:
Permatex aviation gasket cement No3. Thread sealant. Thread locker blue medium strength. Teflon thread tape (for drain and oil filter plugs) Super glue 1.4lt Penrite 85/140 gear oil+ 125ml Nulon G70. Various split pins. Clutch thrust bearing Arm to shaft cotter pin and nut. (Available from bicycle shops. Pedal arm to shaft as fitted to old push bikes).
BEAR brand flashtac, a hardware store item. Weatherproofing tape. Self adhesive aluminium tape—pricy but very effective for sealing around the firewall, tunnel cover and front floor area. Also as a sound deadener. Plenty of containers small and large for parts.

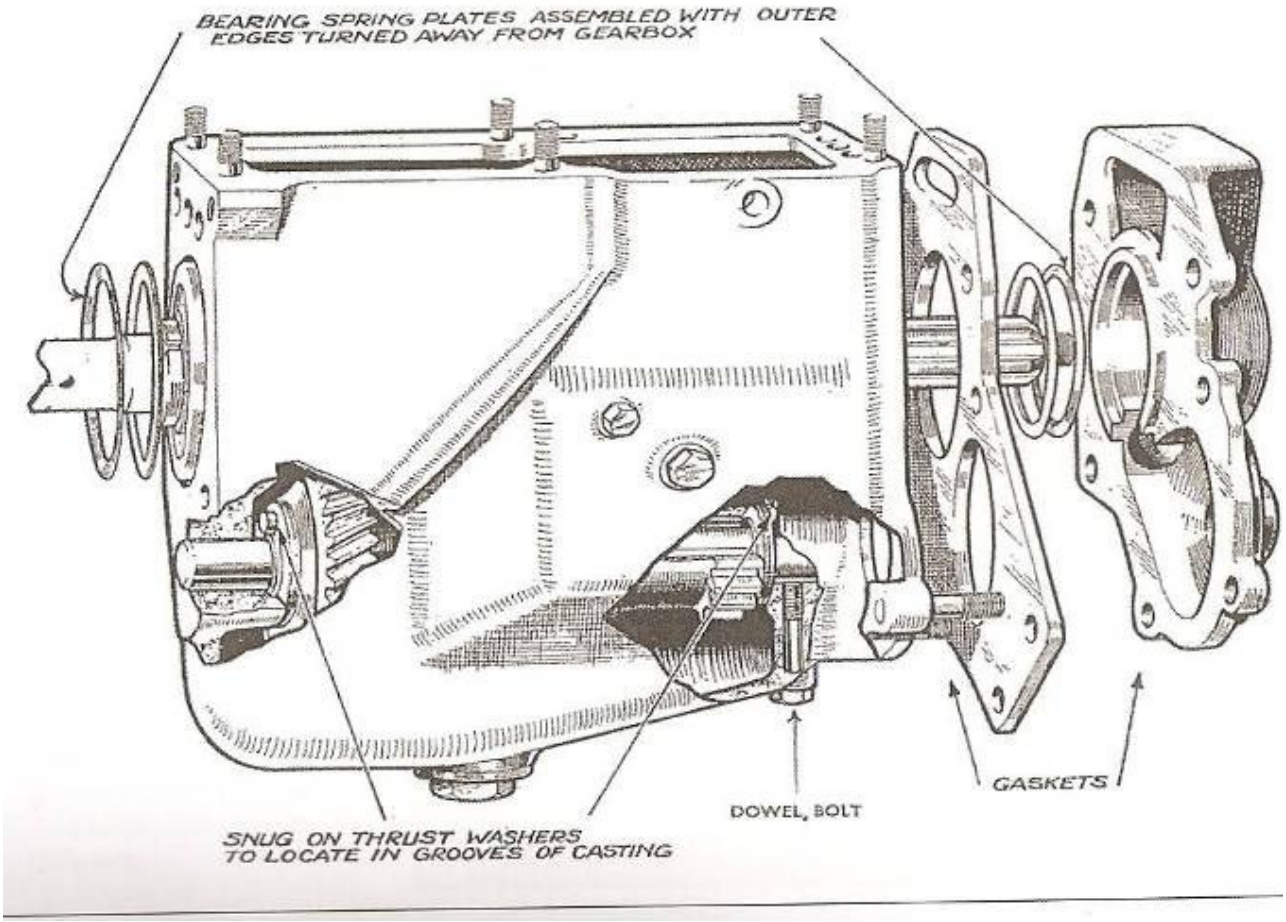
Gearbox out of the car and on the bench, odd pieces of timber are handy to support the box for Disassembly. It is handy to clamp the lower part of the bell housing to the edge of a bench with a clamp/ Remove the top cover and three shift indexing springs and ball bearing balls via a magnet.
Remove the lock wire from 3rd, 4th selector fork and its locking screw. Next, select reverse gear and 4th gear drive flange, unscrew the nut and washer. Now mark a spline flange and the shaft—centre punch, if it is unmarked—because on assembly the drive flange needs to go back on the main shaft as it was taken off. With the three armed puller take off the drive flange.

The speedometer rear housing can be taken off. Now remove the clutch thrust bearing and take the nit off the cotter pin that locates the fork to its X shaft. More than likely driving out this cotter pin/washer/nut, from a bike shop for reassembly. Remove the X shaft check the condition of the X shaft rubber bearings, this could well be replaced E6—15 two of + a new split pin reassembly later. Now the Bell housing can be unbolted. Follow the shop manual from here: first remove the lock ring F2-59. This lock ring is removed by rotating it clockwise from the drive gear shaft after unlocking its lock washer F2 – 60 this washer is dished to face forward DO NOT FLATTEN OUT THE WASHER.

Remove all selector lock screws and lock wires. Withdraw the right hand 1st 2nd selector shaft from the rear. Now with a small dia magnet withdraw the inter-locking ball in the cross bore hole. Next take out 3rd 4th selector shaft (the centre shaft). Again collect the 2nd interlocking ball. Now remove reverse gear selector shaft making sure to slide off the F2 82 steady. Pick out the three selector forks.

Turn the box over and remove the layshaft locking bolt F2 51. Using the wood dummy layshaft drive out the steel layshaft from the front of the box. Be careful with this operation keeping the wood dummy in contact with the steel shaft till the steel shaft is all the way out.

Take care to keep the dummy shaft so that it is kept within the g/box housing both ends equal Now roll the g/box over with care, top facing up, the cluster gear assembly will drop to the bottom of the box. Follow the manual instructions to remove the primary (front shaft, remove the bearing) and the main shaft. Take care removing the main shaft as it is taken out from the top that the 1st gear does not slide off its spline. Check 3rd and 2nd hubs are very firm on the main shaft no lateral radial movement. If these gear hubs are without side ways movement and are firm fits that can be considered serviceable. Take out the layshaft cluster gear. Remove the dummy shaft collecting the needle rollers and inspect the layshaft, if worn replace it and replace its needle rollers. For reassembly using the dummy shaft and I suggest “Nulon Grease’ fit the new needle rollers. At both ends there are pegged thrust washers. To keep those pegged thrust washers in position clean off all traces of grease from the inside face of the washers and the ends of the cluster gear. To fit the thrust washers, use 3 dots of super glue, and glue the pegged washers to the ends of the cluster gear keeping each pegged washer aligned to each other, suggest vertically aligned. So that when the cluster is lowered back into the bottom



of the box, each pegged washer will align into the slot to accept its peg. (The super glue will break away after assembly, when the cluster gear rotates).

When the main shaft assembly is ready for its return into the box, I digress to explain what may be done if for example the 3rd 4th syncro hub comes apart. If you wish to inspect this assembly. To prepare for this operation cover the assembly with a stout piece of cloth, for when this unit comes apart the six springs and balls will fly free in some assemblies. If this is the case, then reassembly can be achieved without using a special tool. Required super glue, a large enough worm drive hose clamp of sufficient opened radius equal to the diameter of the hub with its six springs and balls extended. The balls super glued to the outer end of each spring (all trace of lubricant to be cleaned away from ball and end of the spring.)

Place the F2 –26 cone main shaft sliding on a firm bench or table with a spacer under this sliding hub which is thicker than the hose clamp to be pressed free of the hub when the dog is pushed down. With the six spring/ball units fitted into the sliding hub (horizontal alignment) Keep the F2-24 dog main shaft striking at hand (apply grease to inside of dog).

Now with the hose clamp aligned with the six balls screw closed the hose clamp till all the balls are within the hub. Then place the dog over the top of the clamp. Place a suitable flat piece of wood over the top of the dog and with a swift tap

knock the dog down over the hub. Balls and springs are again captive (the super glue will be broken up freeing the balls to move).

Brian Baker says: There was a factory modification to the later RMB gearbox sliding hub mainshaft top –3rd and that was to peen over the sliding hub balls to retain them. The reason being there was a tendency for the hub to stick in top gear when shifting down to third and the balls and springs would pop out and therefore jam in top and third. This would burn out the third gear brass cone. I have found this fault on 2 gearboxes that I have overhauled so I do this modification on all of the gearboxes that I now overhaul. The photo shows the modification I have done on an old pitted hub as an example.

Take care here, best to make up out of cardboard a containment 'cell' in case the balls/springs escape the hose clamp' Don't give up it can be done!

Follow the manual, fit the main shaft and rear sealed bearing. Then fit the primary (front drive shaft).
Carefully remove the wood dummy shaft, the grease will retain the needle rollers. With care offer up the drive shaft and align with the end of the main shaft sliding the two shafts together. Then the front sealed bearing can be place in position, endure alignment of both front and rear bearings. Bring both bearings towards each other, ensuring that the two shafts stay closely fitted and the bearings are seated in both ends of the box.

Then with care the box can be gently rolled over onto its top surface. The layshaft should drop into position so that its steel inner shaft can be pushed home from the rear of the box. Alignment must be checked and steel shaft and wood dummy must be kept in contact end to end, till the steel shaft is home. Note the hole in the layshaft for its retaining screw F2-51 will align for fitting. As the steel layshaft is pressed forward in contact with the wood dummy keep the retaining screw hole in the layshaft vertical, an alignment will allow the retaining screw to engage the hole in the layshaft.

The box is now ready for the selector forks to be placed in position. Reverse gear selector shaft first, from the rear towards the front, passing through its fork and F2 82 steady. With grease place an interlock ball into the X drilling. Fit the fork and steady locking screws, use loctite. Next fit 3rd 4th fork. Place an interlock ball with grease into cross drilling towards the centre 3rd 4th shaft. Now fit 1st 2nd shaft, fit locking screw, drop of loctite. Engage reverse gear and engage 4th gear. Now measurements must be made if new F2-22, 23 and F2– 56, 58 are unavailable. These parts are to keep the bearing s pressed into their recesses when the gear box operates from cold to hot. They are retained by both the bell housing and the speedo bear rear casing. Fit the rear speedometer casing with gasket (gasket goo and thread seal the studs) Next refit the rear drive flange matching up the spline, fit washer, drop of loctite and tension up castle nut and fit split pin. Next move reverse gear to the neutral position and unlock 4th gear and position selector fork and selector, fit lock screws, drop of loctite.

Now safety wire all selector shaft screws, 5 of. Refit the bell housing, ensuring spring shim to bearing setup. Brush a film of Nulon grease on the front drive gear shaft to lube the bell housing seal. Apply gasket goo to bell housing to seal the mating surface with the gear box to prevent oil from leaking out. Use thread sealer on all bell housing bolts. Place the three locking balls one above each selector shaft. Suggest careful stretching of the three locking springs each by 6mm. Fit top cover gasket and top cover, using gasket goo and loctite to studs. Fit new F2-6 and F2– 129 as required (gear stick socket and cap) over run. Example, front bearing moves forward with its drive gear and toothed lock ring.
What can happen if the main and primary/drive shaft bearings are not correctly retained in their recesses by the spring shim discs? Then the box can "jump out of gear' generally on over run. Example, front bearing moves forward with its drive gear and toothed lock ring. 4th gear selector fork stops forward movement as it contacts box casing, result 4th gear comes out of lockup.

WORKSHOP MANUAL WARNING
Parts that must be replaced when the transmission is re assembled after repairs or overhaul.
F2—22 Plate main shaft bearing
F2—23 Spring plate shaft bearing
F2—56 Guard –drive gear bearing
F2—58 Spring plate drive gear
Note: In the workshop manual illustration, F2-23 is shown incorrectly. This spring plated is mated with F2– 22 and are fitted between the rear of the gear box casing and F2—91 casing speedometer.

Follow the instructions carefully when fitting those spring plates. Problems will be for anyone rebuilding these gear boxes these parts are presently not available here or in England from Riley spares (I sourced second hand spring plates)
Why are these spring plates so important? They are designed to keep the primary/main shaft assemble with their bearings in the gear box casing correctly located either when the gear box is hot or cold. What has occurred over these many years is that those spring plates have fatigued. When this gradually happens the primary/main shaft will move both fore and aft with the result that gears will unlock. Also F2 –75 springs will lose their tension over F2—128 ball interlock. But it is the primary/main shaft moving that causes the gears to unlock. One gear box that I tested 4th gear would unlock on over-run as well as 2nd gear.

I also used sealed bearings for the primary and at the rear of the main shaft. These bearings were not around 60 years ago. Careful measurement is required to allow movement of those main bearings so that no binding will occur when the gearbox is hot.

Shed Report

Beginning with an excellent sausage sizzle, the club meeting was very successful. Many thanks to Wendy Lonie and the other ladies. Ken & Wendy brought a replacement refrigerator and so did Brian & Lynn Jackson.

The highlight of the evening was a great framed photo of a Riley Line from 1951. The wonderful photo was presented to the club by Dorothy.

Many thanks Dorothy.
Jack has sourced a Pathfinder Manual for the club library. Thanks Jack. Any Riley books or magazines would be greatly appreciated.

Bill White.

Specials and Replicas
Something to Ponder

I wonder if I am the only member of the Riley club who is confused by the definition of a special or replica. What makes one vehicle a special while another is considered to be a genuine factory product?

Obviously a vehicle which is very close to the original specifications is not a special. It seems that if a body shape is changed it is then a special where as a car with original body but has a Toyota gear box or Jaguar pistons is not given the designation “special”. A number of Riley Dropheads were produced by factories other than Nuffield. Should these vehicles be classified as “specials”? Further if a car is built as a copy of an original car, is it a special, a replica or is it no different to those other non Nuffield built Riley Dropheads? And of course when does a vehicle not qualify for the Designation of “Special”?

What combination of components allows one vehicle to be termed “special” while another vehicle with a different combination of components is not classified as a “special”. My view is that we need definitions which are clear and fair for all Riley owners and enthusiasts. What do you think? Why not put pen to paper and put your thoughts down in the Torque Tube so that we can formulate these definitions.

Bill White.

Editors Note

Hi,

There is a lot of technical information in this issue. I hope you find it useful as the topics touched on may in some way effect your vehicles now or sometime in the future. Thanks to Lindsay Stephens and John Marsden (Acknowledgement to the Riley Gazette Oct/Nov 2010) for their invaluable input.

Keep the photos and articles rolling in but please make sure that I can publish them. There is a problem with copyrighted material. I know it is a grey area but I don’t want the hassles.

Cheers.

Bill.

FOR SALE
1949 2.5 Riley RM Sports Saloon.

I purchased this vehicle in 1989 and registration label on windscreen is dated 1973. Not driven for 40 years.
Speedo reading is 77646 miles.
Parts not shown in photo include - front bumper, roof lining and wooden strips, rear window etc. these are stored in vehicle.
Note there are some small dents on left hand side and no covering on roof.
Original instruction book still with vehicle plus I have other Riley workshop manuals for sale also.

Asking price $5000.

Des King, 27 Marriott St. Westbury, Tas 7303. Phone 0363931229 or 0418121702 or 0419931222 email kingsofwestbury@yahoo.com.au

Girling Mechanical Brakes
How they work and how to look after them.

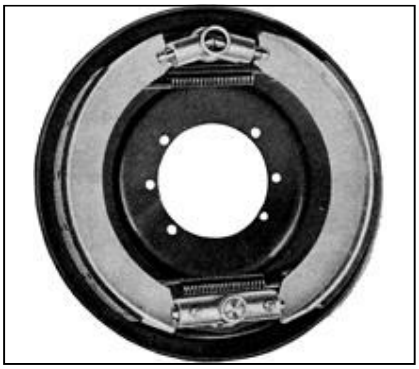
Extract from: The Service Station and Motor Mechanics Manual
Author: George George. Publisher: Angus and Robertson, Sydney. 1944

The Girling mechanical brake system is very simple in operation, requires no lubrication and practically no attention, and is at the same time highly efficient. These are some of the characteristics of the Girling Brake, an entirely British product, used at the present time (1939) on many prominent British cars including : Austin, Aston Martin, Beardmore, B.S.A., Daimler, E.R.A., Ford 8 h.p. and 10 hp, Lagonda, Lanchester, Morgan, Rapier, Riley, Rover and SS. The following may be claimed as the essentials of a good brake

1. It should be extremely powerful in emergencies, yet smooth and unobtrusive in normal use, and require no great physical effort to operate.
2. It should be perfectly balanced and free from snatch or grab at any speed.
3. Braking should be progressive over the entire range, and instantly responsive to pedal movement.
4. Above all it must be reliable at all times and in all weathers, and remain unaffected by hard and prolonged usage.
5. Adjustment must be simple and possible without the use of special appliances, or the necessity for jacking up the car.

It is claimed by the makers that Girling Brakes comply in every way with these ideals because of three features:

1. Elimination of torsional losses.
2. Elimination of frictional losses.
3. The ability to use a high overall ratio, i.e. pedal to shoe tip.

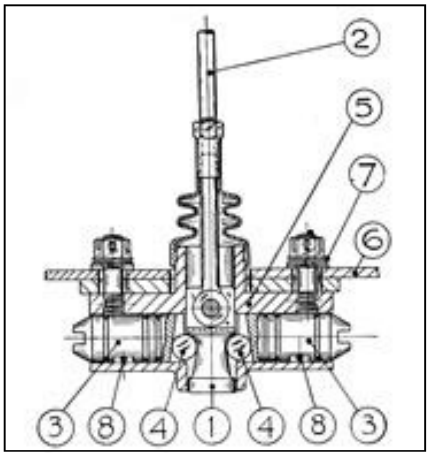


In other words, the basic idea of the Girling Braking System is to avoid friction and “lost” motion in the operating mechanism; thus the driver’s effort is transmitted with the minimum loss to the brake shoes. Pedal pressure is transmitted by rods in tension. With scarcely an exception, there is no torsion or compression, both of which are complicated forms of loading which demand elaborate precautions to prevent “give.” The brake rods are lightly loaded, as the multiplication leverage, or mechanical advantage, is affected mostly at the shoe tips. To expand the shoes on the drum, instead of the usual cam, there is a wedge or cone. To eliminate friction there is an ordinary hardened steel roller between the cone and each shoe tip.

FIG. 17. GENERAL VIEW OF THE BACKPLATE OF A GIRLING BRAKE DRUM.
At the top of the illustration is seen the shoe adjuster (See also Figs 19 and 20) and at the bottom the brake expander (See also Fig. 18).

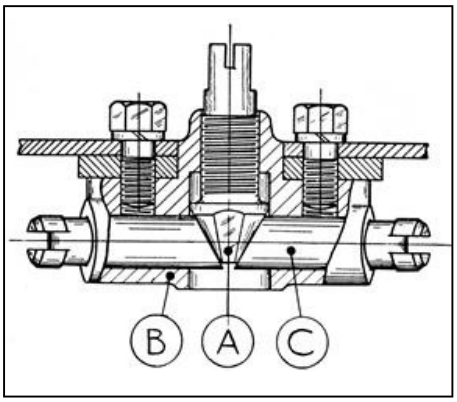
The joints of the brake rod consist of pins working in oversize holes. Thus, instead of the pin turning in the hole after the fashion of an ordinary bearing, it rolls around inside of the hole, thus eliminating friction.
There is full compensation between the four brakes, but in the unlikely event of a brake rod fracturing, care is taken that only two wheels would be affected. Further, the steering will not be upset if the rod to one wheel should break, as the wheel at the other end of the same axle will automatically lose its brake too.

FIG. 18. THE GIRLING BRAKE EXPANDER.



The Girling Brake Expander: The brake shoes are pressed from solid drawn "T" section steel and are operated by the Expander shown in Fig. 18. The hardened steel Cone (1), which is actuated by the Pull rod (2), causes the Plunger (3) to move outwards. Hardened steel Rollers (4) are interposed between the Cone and the Plungers to reduce friction to a minimum. The Plungers engage directly with the Brake Shoe Webs.
The Whole Expander mechanism is enclosed in a die-cast Housing (5), which retains a supply of lubricant and protects the moving parts from mud, etc. This Housing is a sliding attachment to the Backplate (6) by Studs and Spring Washers (7) (Which provide a slight frictional contact). The Housing does not withstand any of the stresses set up by braking as it virtually floats between the Brake Shoes. In view of this fact, it will be realized that the Brake Shoes are self-centering under the influence of the Brake Shoe Pull-off Springs.
It should be noted that the Rollers (4) are freely mounted and roll up grooves in the plunger and down the inclined face of the cone. This free mounting gives the cone twice the travel of the rollers and thus doubles the overall leverage, due to the cone angle. "When Shoes are removed for relining, Pin (8) retains the plunger in the housing. This type of Shoe Expander provides a high step up ratio and multiplies the low input of the pull rods very considerably (actually 6.33 to 1).
Girling Brake Shoe Adjuster: Adjustment for brake lining wear is made by the Brake Shoe Adjuster (See Fig. 19). One of these is found on each Backplate (See Fig. 17). This is the only adjustment required and provided in the whole system.

FIG. 19. THE GIRLING BRAKE SHOE ADJUSTER.



Reference to Fig. 19 shows the method by which lining wear is taken up. A hardened steel Cone A, the spindle of which is screwed with a fine thread, is carried in a steel housing B, which is spigoted and bolted firmly to the Backplate. On the outside end of this Cone Spindle are machined flats, which enable a spanner to be used to turn them, and on its inner face four flats, of a predetermined depth, are cut.
The Cone engages with the inclined faces of two Plungers C which slide in housing B. the outer end of these Plungers accurate grooves are machined in which the Brake Shoes are carried.
The housing and cone are both cadmium plated to prevent rust, and the thread of the cone spindle remains inside the housing at all times, thus preventing damage.
It will be noticed in the schedule of cars fitted with the Girling Brake System that alternate types of adjusters are in use, known respectively as the "straight" adjuster and the "inclined" adjuster.
Fig. 19 shows the "straight" type of adjuster in detail, while Fig. 20 illustrates both types of adjusters.
As the brake shoes are of different design, servicemen should note that when ordering replacements they specify whether the "straight" adjuster or the "inclined" adjuster type is required.
Operation for Adjustment: The rotation of the Cone in a clockwise direction causes it to move inwards, forcing apart the plungers and expanding the fulcrum ends of the brake shoes. All Cones operate in a clockwise direction.
When adjustment is being made, rotate cones with a spanner until a resistance is felt (this is the shoe coming into contact with the drum). Then slack back the cone to the nearest notch (this can be felt and heard). All drums should be treated in a similar manner. Jacking up of any wheel while making this adjustment is unnecessary.
After this adjustment is completed it is advisable to give the brake pedal a firm application (before road test) in order to centralise the brake shoes in the drums.

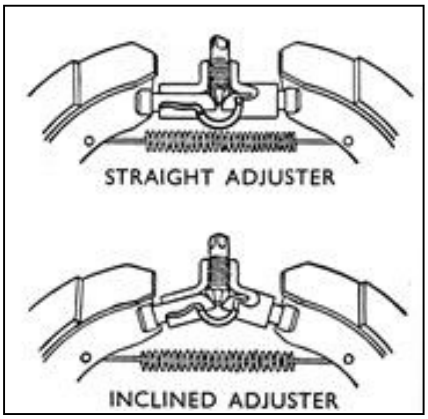


FIG. 20. THE TWO TYPES OF GIRLING BRAKE SHOE ADJUSTERS.

This is the only adjustment required and it must not be made with the Hand Brake on.

Girling Brake Rod Linkage: Reference to Fig. 21 shows a typical brake rod linkage layout used for Girling Brakes.
An entirely new method of operation is used. Several important advantages accrue from this design.
Longitudinal Rods (1), operated by the Brake Pedal (2) transmit motion to Transverse Rods (3) through the medium of Balance Levers (4) (mounted on the axle) which change the direction of the motion to left and right.
All rods are in tension with the exception of a short length of tube which is in compression. This short Compression member (5) serves two important purposes:
1. It is a convenient means of reversing the motion from front to rear.
2. It contains a light compression spring and plunger joint. This maintains a small degree of tension on all rods throughout the system.
This spring loaded plunger joint serves to prevent rod rattle, as all clevis pins are fitted to jaw ends with clearance. It has been found that a case hardened pin fitted in a jaw end with a definite clearance is very efficient frictionally; also it requires no lubrication.
A small gap (approx. 1/16 in.) (See Diagram Y, Fig. 21) is left between the plunger and tube when the brakes are in the "off" position. So long as this gap is maintained, the brake shoe actuating cones will not be pulled off their respective seatings.
The several advantages of this system of linkage are:-
1. Cross shafts, and indeed nearly all torsional members are deleted, therefore one of the causes of lost motion and uneven braking is eliminated.
2. The pedal effort is divided at the base of the pedal, thus approximately halving the loading of the rods.
3. The loading on all rods is approximately equal.
4. The load on all rods is low.
5. Any reaction on the pedal, due to spring deflection, is minimized.
6. The pedal leverage between pedal and shoe expander is low.
As shown in the previous paragraph, the linkage pedal leverage is low but, due to the high step-up ratio provided by the shoe expander, the overall ratio is high.
To summarize linkage is an assembly of straight rods, all of which are in tension and substantially equally loaded. Furthermore, the load in these rods is very low, due to the low leverage employed. Torsional members are virtually eliminated, resulting in a system of linkage in which lost motion is particularly absent.

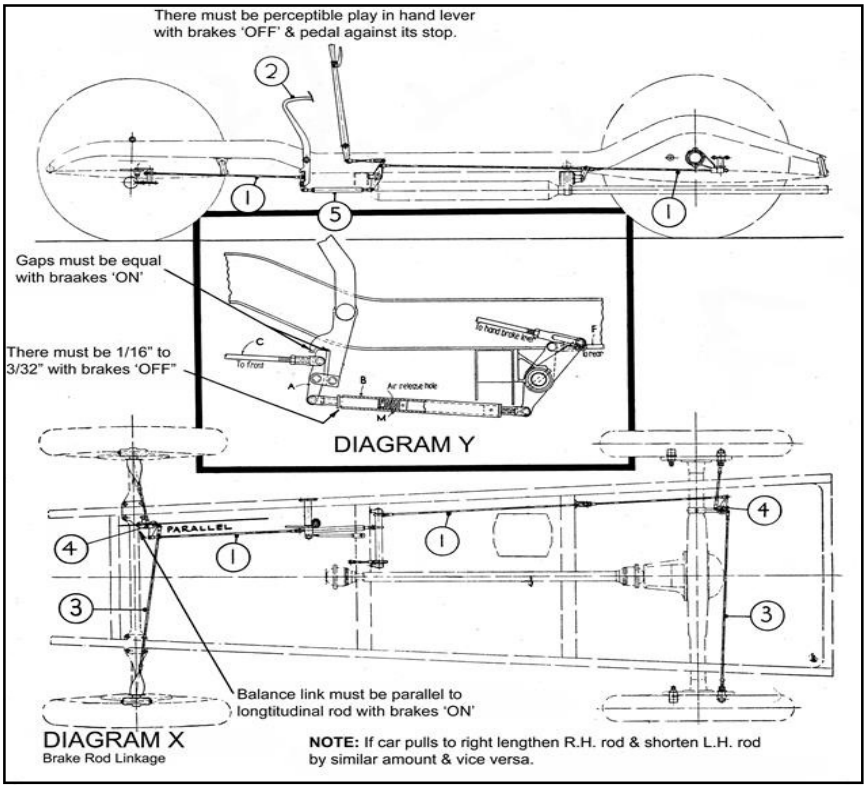


FIG. 21. GENERAL LAYOUT OF GIRLING BRAKE SYSTEM, EMPHASIZING THE MORE IMPORTANT POINTS IN SERVICING.

Balance: Girling Brakes are fully compensated, i.e., each individual brake is balanced against every other brake. Attempts have been made in the past to obtain a fully compensated mechanical brake, and it must be admitted that no great success was obtained. The reasons for this lack of success were twofold:-
1. Torsional members (cross shafts, etc.) introduced a lack of balance, as it is obvious that the levers on the operating or pedal side of a cross shaft received more than their fair share of the applied power.
2. The actual shoe expanding mechanism (generally a cam) did riot deliver an exactly equal effort to the shoe tips, due to frictional losses, and, moreover, the applied effort was apt to vary in sympathy with different position of cam levers.

In the Girling Brake there are no cross shafts etc., to upset the equalization, and the Girling Expander is sensibly frictionless. More important still, it delivers an exactly equal effort to the shoe tips irrespective of the position of the operating rods. This equality of effort holds good at all times, and is not affected by adjustment.

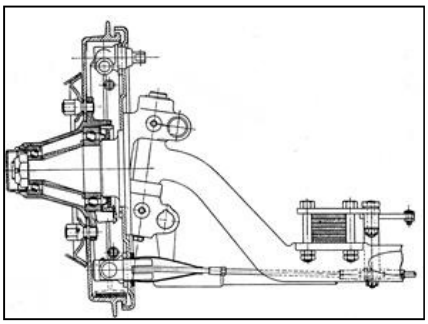


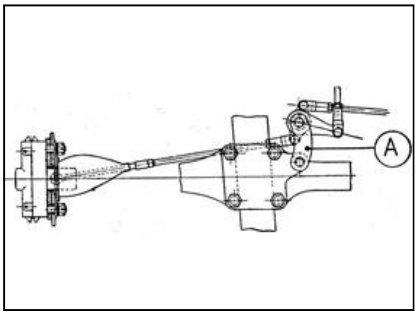
FIG. 22. SHOWING FRONT BRAKE LAYOUT, WITH BALANCE LEVER, ETC.

The fundamentals of equalization being complied with, it is quite simple to balance and proportion the pedal effort by simple mechanical compensators. These are three in number:-

1. A Swinging Link A (See Diagram Y, Fig.21), which is located at the base of the pedal. This Link proportions the pedal effort between front and rear brakes, and this proportion is not varied by adjustment. The Link is also provided with a Safety Stop, so that in the event of any rod failing, this Link will rock over against its stops and one set of brakes will always be available on the pedal.

A further point is that under no circumstance can one single front or rear wheel brake remain operative alone. This is extremely important as braking on any one wheel only, is definitely dangerous.

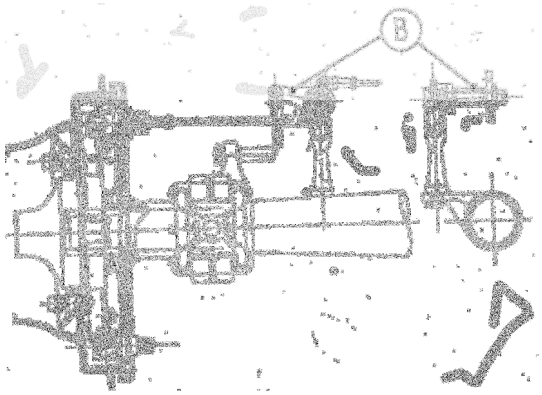
FIG. 23. SHOWING THE POSITION OF SWINGING LINK A.



2. A simple Swinging Link A (See Fig. 23) balances the applied effort to nearside and offside front brakes.

3. A Rocking Lever B (See Fig. 24) balances the applied effort between the near and offside rear brakes and, as mentioned in a previous paragraph, in cases of any failure in the transverse rods, both brakes on that axle go out of action by Virtue of the action of these compensators.

FIG.24. SHOWING REAR BRAKE LAYOUT,WITH BALANCING BLOCKING LEVER B.



Lubrication Service: The Girling Brake requires no lubrication or attention of any sort whatever. The adjuster and expander housings retain an adequate supply of lubricant and the balance levers work on a fixed fulcrum with the interposition of self-lubricating bushes. All holes in brake jaws are appreciably larger than the pins which fit them, but no rattle is present as the entire linkage is pulled one way by the light Spring (M) (See Fig. 21, Diagram Y). This type of joint is also very efficient.

It will thus be seen that a brake of extreme power requiring no great physical effort to operate, is attained by due attention to simple mechanical principles. The use of a high leverage between pedal and shoe tip, coupled with an almost complete elimination of friction and lost motion gives all the power that can be safely utilized.

The Girling Brake is silent in operation and above all reliable and unvarying at all times and under all conditions. It requires no lubrication. Adjustment for lining wear is the acme of simplicity.

Instructions for Re-lining Girling Brakes.

The operations involved in re-lining Girling brakes are exceedingly simple, and are carried out as follows:-

1. Jack up car and remove road Wheels.

2. Remove Drums: The general method of mounting the drum is on a spigot with small countersunk screws. Take out these screws and the drum can be withdrawn, disclosing the brake shoes, etc.

3. To dismantle the Brake: All that is required is a large screwdriver. Two small studs will be found welded to the backplate. Rest the screwdriver against one of these studs and it will be found quite easy to prise one shoe out of the groove in the plunger at expander end (See Fig. 25). Both shoes and springs can now be removed, leaving expander and adjuster units in position on the backplate. Do not detach these units from backplate. Be careful not to over stretch the spring when removing shoes.

4.Clean Down the Backplate: Check expander and adjuster units for “free” working. Slack back adjuster (anti-clockwise) to full “off” position. Adjuster cone spindle should screw quite easily into housing. Inspect shoe pull-off springs and replace if stretched or damaged.

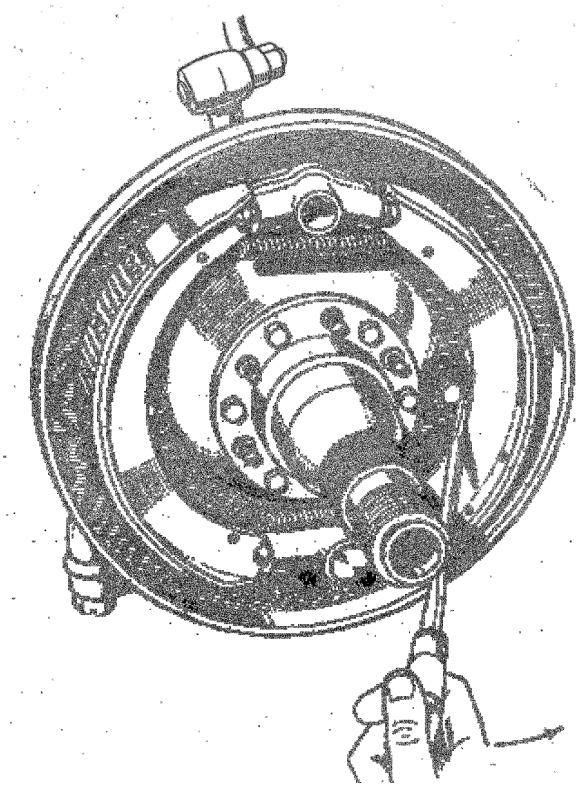


FIG. 25. THIS ILLUSTRATION SHOWS HOW EASY IT IS TO REMOVE A GIRLING BRAKE SHOE BY MEANS OF A LARGE SCREWDRIVER. (See text.)

5. To Re-fit New Shoes: Detach springs from old shoes and re-fit new shoes. Be sure that the springs are between shoe webs and back plates, otherwise shoes will not lie on the latter. Keep all grease off brake linings. Place shoes with springs attached against back plate. Fit shoe ends to adjuster grooves. Shoes have 1/2-round slots at one end; fit these slots to the ADJUSTER plungers; then insert the other end of one shoe in the EXPANDER plunger. Insert screwdriver under web of remaining shoe and against stud on back plate. Ease shoe into plunger groove.
6. Re-fit Drums: Be sure these are clean and free from grease, etc.
7. Ensure correct Clearance between Shoes and Drums: Slack off one complete turn, set pins that hold adjuster to back plate, and lock up brake shoes in the drum by turning the adjuster in a clockwise direction. Bolt up adjuster set pins tightly, and then slack adjuster to nearest notch. Give the brake pedal a firm application to ensure that shoes have centralized. Drums should now be quite free.
8. Re-fit Road Wheels and jack down. The operation of re-lining is now completed. Nothing further is required, and the car is now ready for the road. The makers recommend servicemen to always use Girling Replacement Shoes fitted With Ferodo Brake Lining. These are correctly riveted and ground to correct periphery, which ensures a fast and easy bed-in to drum.
Points to Remember.
DO NOT tighten up the brass expander nuts on outside of back plate. This unit (Aluminium) must be free to move.
DO NOT handle linings with greasy hands.
DO NOT overstretch shoe pull-off springs when removing shoes.
DO NOT remove expander and adjuster housings from back plate.
DO NOT forget to tighten up firmly adjuster housing set pins.

_____
Edited by: Lindsay.stephens@gmail.com May 2013 Girling Mechanical Brakes How they work and how to look after them.
Extract from: The Service Station and Motor Mechanics Manual
Author: George George. Publisher: Angus and Robertson, Sydney. 1944.

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What on earth is this naked anonymous man tinkering with his RMB all about?

Happened on the Central Queensland Riley Rally in April and the story will reveal all - well not reveal actually, but tell all. Enroute to Rockhampton, we were all tucked up in bed at the Gayndah Motel after a long days driving and a nice dinner. When, all of a sudden a horn alarm shattered the silence and woke everybody up. The responsible Riley owner, thinking it was his auto jumped out of bed and raced out to rip out the horn fuse or whatever it took to stop the ear-piercing alarm, forgetting that he was in his birthday suit and it was a public motel.
The said Riley owner had good reasons to suspect it was his problem as his blinkers and horn had been playing up after the installation of a power steering unit to the steering column recently.
However, in his haste, he didn't compute that the sound of the horn was not remotely similar to his horn noise. Turned out, it belonged to a fellow Rileyite in his modern Lexus - thanks Rod. The Riley owner raced back into his unit, possibly thinking that that was the end of the matter! The Riley owner is seriously considering putting the blinkers and horn on a stick attachment instead of threading it through the steering column which has been troublesome.

This is published with the kind permission of the Riley Owner on the proviso that he remains anonymous!!

Lovely Drophead

My apologies to the owner I have lost any details that I may have had on the car. Please contact me and I will rectify this blip in the next edition.

Hello Bill,

Thank you for this issue of Torque Tube. It was great to see Jack Warr formally recognised for his magnificent contributions.

I joined the RMCQ as an 18-year-old in January 1972 when I bought a Toonarf and found a recruitment notice from Ian Henderson that fell from the sun visor just after I drove the (unregistered) car home.

As a journalist, not an engineer, I probably would have given up on Rileys long ago if it hadn't been for the practical help cheerfully provided by experts such as Jack and Gordon Cameron.

Thanks to these stalwarts, I still have a Riley in my garage more than 40 years later.

And, on that note, I would like to welcome our latest DHC owner. I am sure she will also experience terrific help and support from the Club.

I've attached a couple of photos of the drophead which recently emerged from a long sleep because house renovations required it to spend couple of days in the great outdoors as the garage was rebuilt. It started easily and ran well.

I will finish full time employment soon and hope to once again become active in the club (after the home renovations are completed!).

Cheers

Peter Lee

Peter Lee's DHC

I Have A Question. Could Somebody Please Answer It?
Please participate and help a fellow Riley owner.

Send your answers to the editor and I will publish them next edition.

1. My vehicle is fitted with a genuine tachometer, apparently a rare option, but the cable is rotating in the opposite direction to that required by the tachometer, so do I have do something missing, like a reverse direction fitting to correct this and if so is it available from the club?

2. Another problem I am having is that the inlet manifold has been modified to take a pair of 1.75" S.U. carbys and even though it is starting and running **VERY** well I would like to verify the needle selection is optimum, I have heard or read somewhere that some Pathfinders had this size carby but cannot find info on this now, can any club members help?

Daryl Wood.