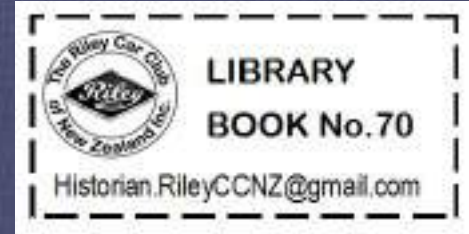
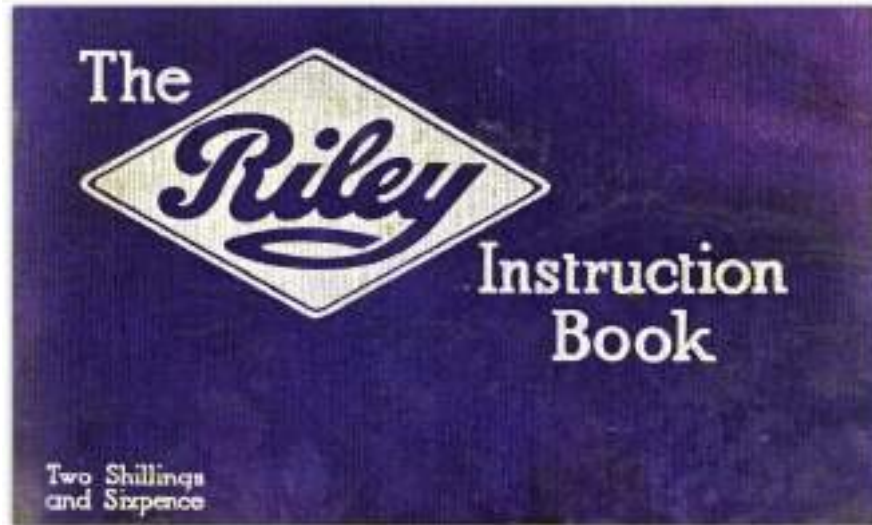


The



**Instruction
Book**

No.1



The first instruction book produced by the Riley Company is not dated but covers the Eleven/40 Riley so probably printed in the early 1920s.

The introduction statement on page 2 confirms this was their first instruction book.

This reproduction uses the original pictures and text as faithfully as possible and was printed in 2014.

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Lindsay.Stephens@gmail.com

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The Riley Instruction Book

*Designed and compiled
in the interests of Drivers
and Owners of the*

Eleven / 40 Riley

.....
Riley (Coventry) Ltd.

Durbar Avenue, Coventry

Phone: 1251 Coventry

Wires: "Kite. Coventry"

LONDON OFFICE, SHOW ROOMS & SERVICE DEPOT:

42 NORTH AUDLEY STREET, W.1

'Phone: Mayfair 1456

Wires: "Kitecall. Audley, London"

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THE simplicity and ease of control of the Riley Car is emphasised by the fact that this is the first Instruction Book we have issued. To-day, however, there are so many Rileys distributed over the country and abroad that we feel such a book is essential to good service.

In its compilation our overruling purpose has been to assist, in every possible manner, drivers and owners of the Riley to care for, maintain, and secure the best possible results from the cars that bear that name, and they will find that object more easily attained if the following pages are carefully perused.

After such perusal they will have a far better knowledge of every component part, and when replacements are required, a reference to that section of the book describing the part concerned, will enable them to adopt the correct method of procedure and thus ensure success.

On this page we illustrate the number plate which will be found on the near side, or left hand bonnet board. This gives the registered number of the car, and must be quoted when sending enquiries concerning same, or ordering spare parts.



The removal of this plate invalidates our guarantee, copy of which will be found on page 34.

Riley owners should further note that we shall supplement the information given in these pages as occasion may demand, and **we invite every Riley owner to send us his address in order that he may be kept posted with these supplements.**

In the design of the Eleven/40 Riley the objective we have always had in view has been to produce a car as near as possible to Owner-Driver's ideal. Here we illustrate the plan and elevation of the Chassis and ask

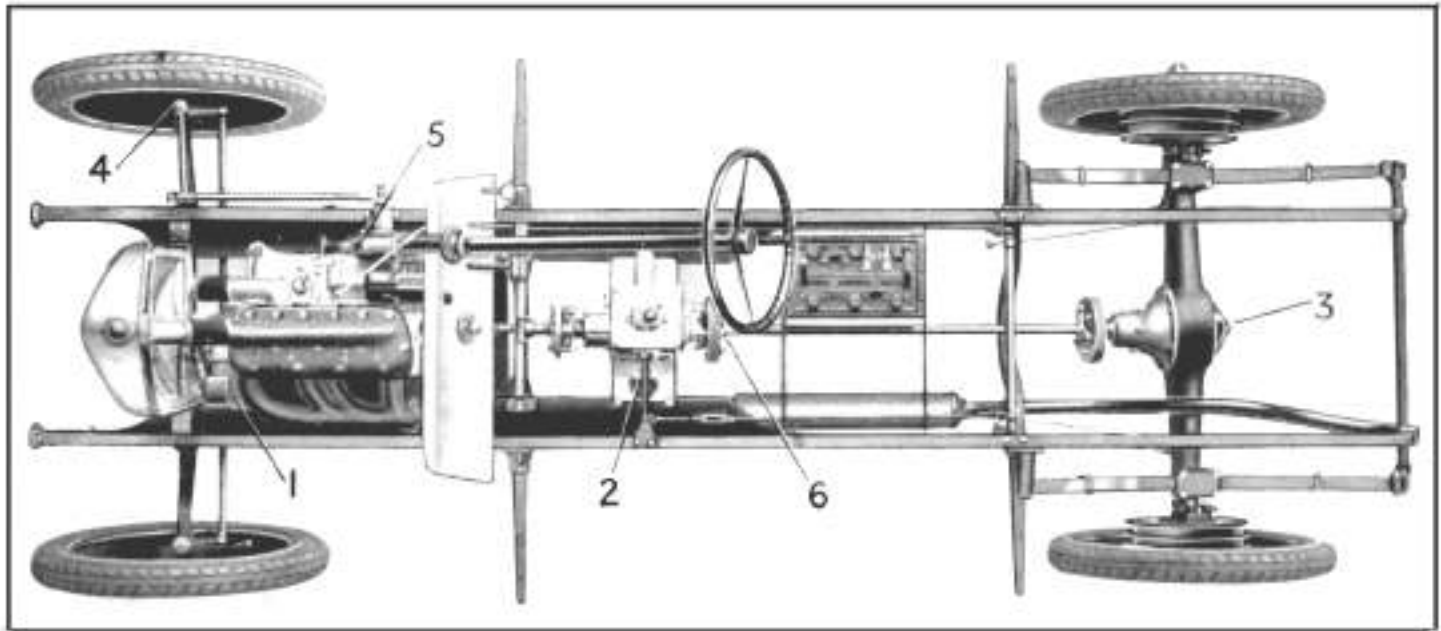


Fig. 2.

readers to note that the main lubrication points have been reduced to 6,
namely: 1. Engine. 2. Gear Box. 3. Back Axle.
4. Front Axle. 5. Steering Box. 6. Sliding Coupling.

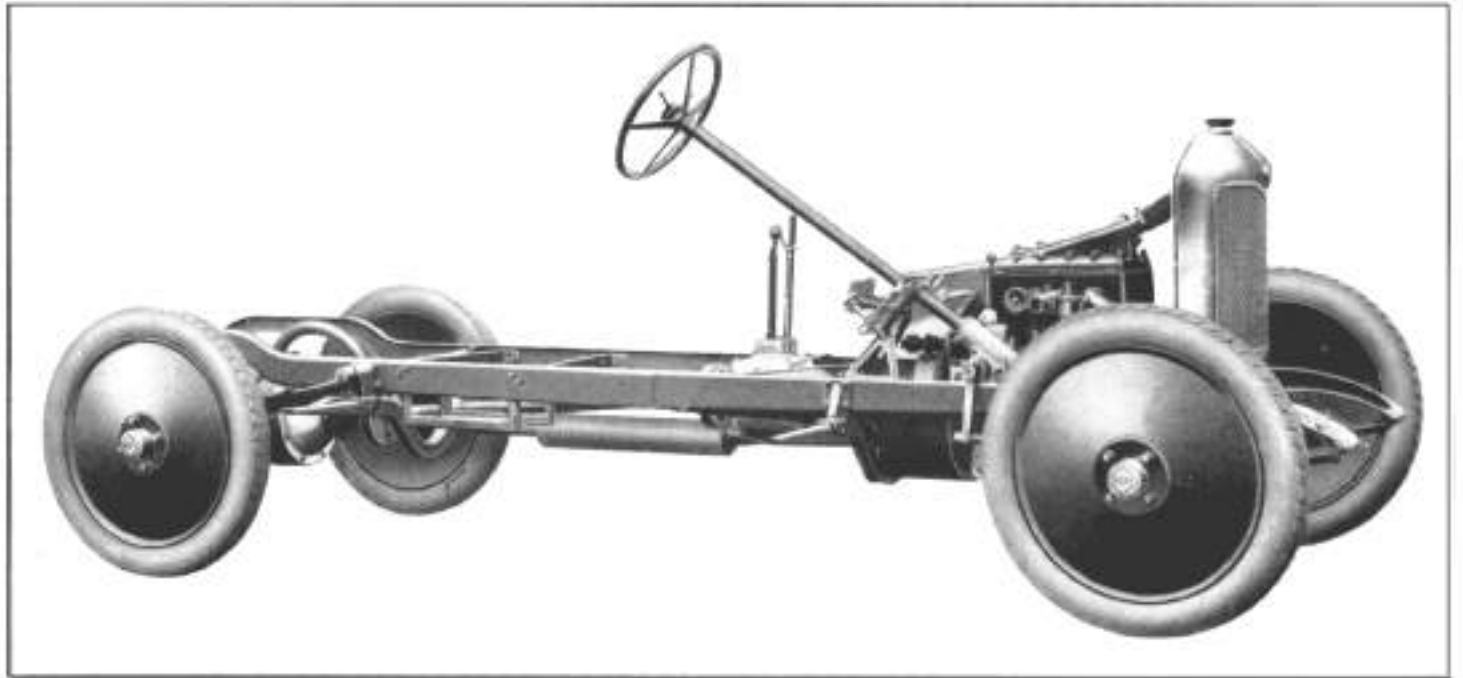


Fig. 4.

Radiator



Fig. 3.

Fig. 3 illustrates the neat design of the Radiator, which is typical of the RILEY Car.

Before starting Car, remove the filler cap B and ascertain that there is sufficient water. The correct height is just below the filter which is fitted inside the filler. If the level is low, fill up with soft or rain water, as this does not fur the inside of the tubes, whereas hard tap water does.

During frosty weather, before leaving the car for the night, remove the drain plug A and let all the water flow out, as if the water freezes, it is almost sure to crack the pipes and probably also the cylinder, which is a costly replacement. Of course, this procedure is unnecessary if the garage is heated or a heating lamp fitted to the Radiator or under the bonnet.

Engine Features

The engine has been well named the Heart of the Car, and it should be taken as much care of as that vital organ of the human body.

The Eleven RILEY Engine is a four cylinder embracing a monobloc casting with a detachable head. The bore and stroke are respectively 658 m/m and 110 m/m, giving a cubic capacity of 1498 c.c.s. The R.A.C. rating is 1074.

The sturdy crankshaft is supported in three white metal-lined bearings, as is also the camshaft, the cams being solid with the camshaft. One of the essentials for the best output from an engine, is that it is kept clean,

especially the magneto and terminals, in fact you should take as much pride in the appearance of the engine as you do of the body work of the Car. When washing the Car, see that no water obtains access to the magneto or high tension leads.

Examining Oil Indicator. (Arrows show water circulation)

Referring to Fig. 4 which shows the oil indicator being examined. Do not forget that this examination must only be made when the engine is stopped, and with the car on the level, not on a hill. If otherwise, an incorrect reading will result. It not necessary to keep the level up to the maximum, but on no account should It be filled above this mark, hence it is wise when

filling up to allow the oil to find its level first.

On examining the oil indicator after a run, as it will be covered with oil, owing to splash, first remove and wipe it clean, then take reading.

Drain Plug and Filter.

After 2,000 miles your engine oil has usually lost its viscosity and oiling properties, and is of no further use, so it must be removed and fresh oil added.

(See paragraph under Oil Filler for particulars concerning oil.)

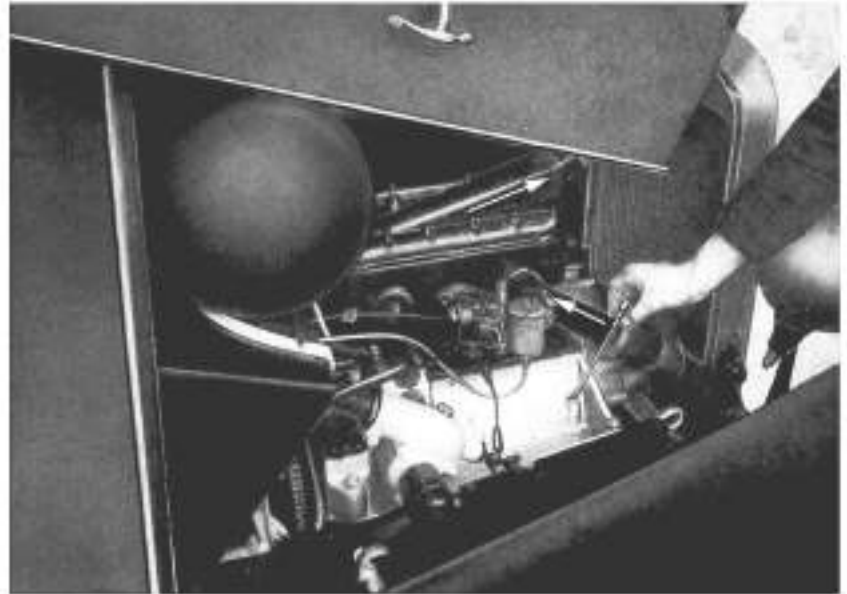
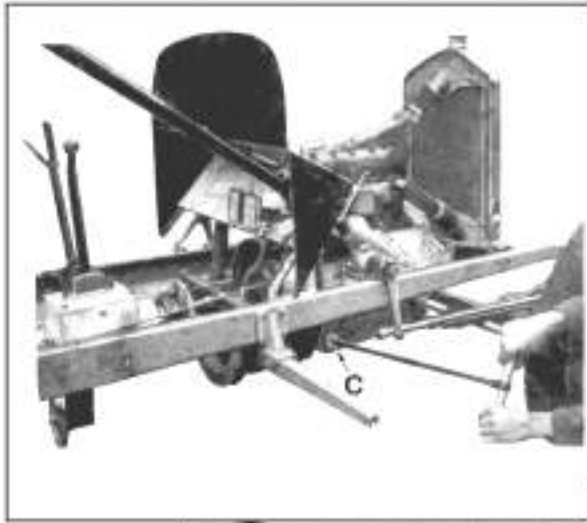


Fig. 4.

Fig. 5.



Removing Oil Sump Plug.

Fig. 5 shows the position of the drain plug C, and also the easy method of removing same by means of the jack iron. You will of course, place a receptacle to catch the oil, as you do not want it over your garage floor. It is best to drain off the oil when the engine is warm, as the oil will flow easier.

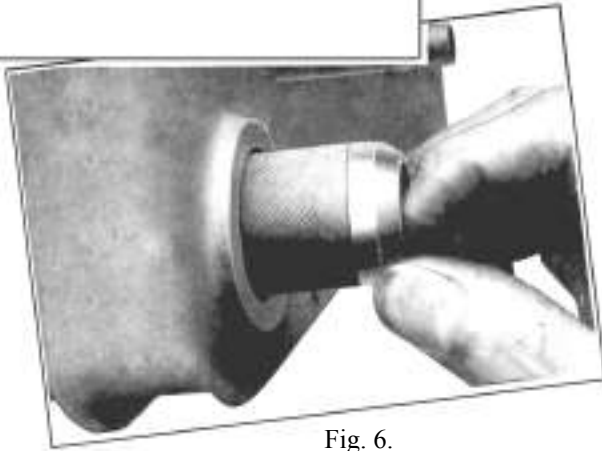


Fig. 6.

Removing Oil Filter.

When draining your oil sump take the opportunity of cleaning the oil filter, which can be removed as shown in Fig.6. Do not clean with a piece of rag as this only clogs the gauze, but wash in petrol, using a small brush.

Timing Chain Adjustment.

A view illustrating the camshaft and dynamo drive, is given in Fig.7.

Notice in this view the dynamo housing I, and how it is mounted eccentric for adjustment of the chain. When the chain stretches, it is only necessary to unlock the bolt J in Fig. 8, and twist the dynamo round in direction of arrow to tighten the chain. Do not forget to relock the clamp bolt J, very little pressure is required to do this.

It is quite unnecessary to remove the Timing cover for this adjustment.

Tappet Adjustment.

With regard to tappet clearance, the amount which we recommend for the best performance is .005 ins. on both inlet and exhaust valves, when engine is cold. The clearance should be checked occasionally, especially if engine begins to get noisy, as this is usually the cause.

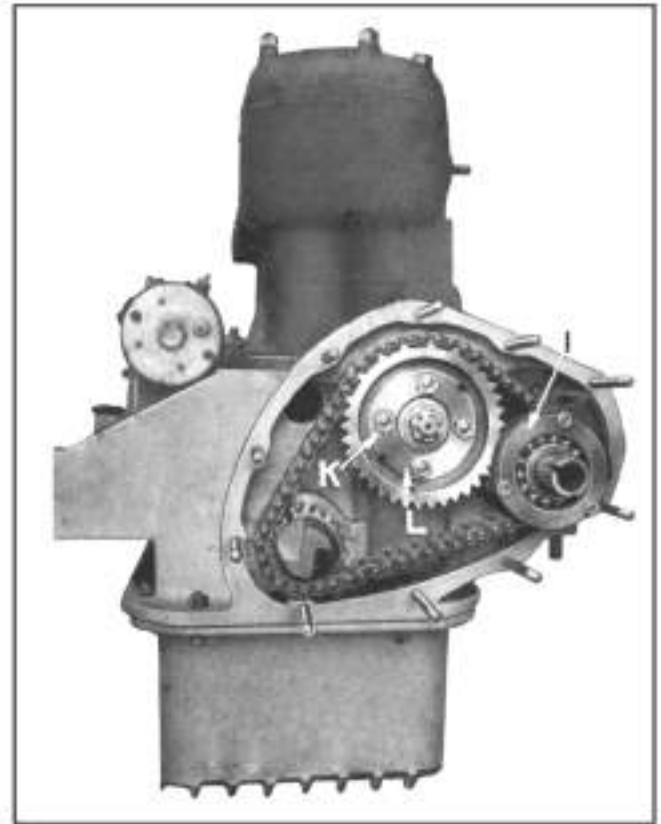


Fig. 7.

Tappet Adjustment.

First ascertain that the cam is not acting on the valve by turning the engine over, with starting handle, until the valve you are testing has dropped on its seating. The light tappet spring P, Fig. 8, holds the tappet close to the valve stem, and has been provided to make the engine as silent as possible. Therefore, to test clearance, the tappet must be pressed down with the finger and a .005 feeler, or a visiting card pushed between valve stem and tappet adjusting screw.

If the clearance is incorrect, the tappets must be adjusted.

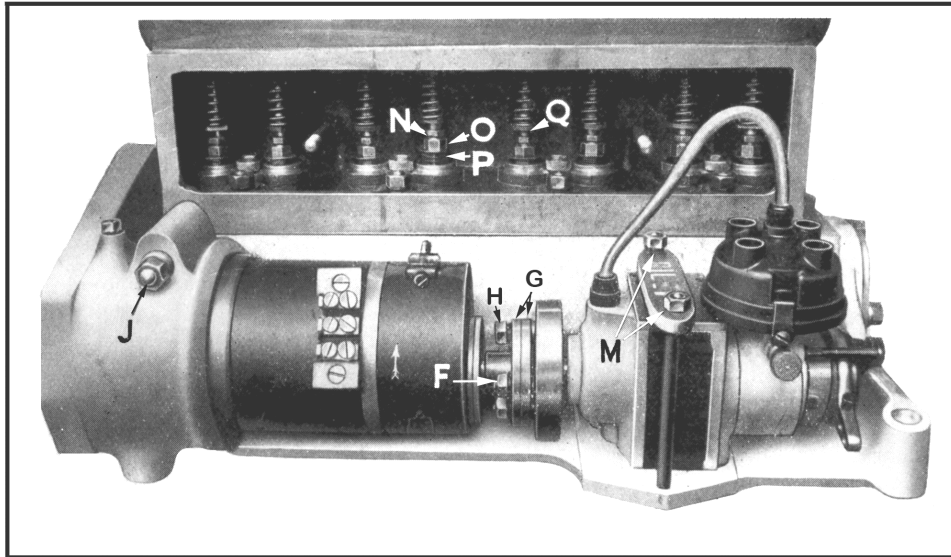


Fig. 8.

To accomplish this, first unlock the nut O, then adjust the bolt N, until the necessary clearance is obtained. Re-lock nut O, taking care that the adjusting bolt does not move during the operation.

Mag. Drive.

The drive from the dynamo to the magneto is as follows. The two plates G, are coned and clamp on to a conical extension piece on the dynamo shaft, and drive by friction. The plates are clamped by two set screws H, and also two bolts F, which carry the drive to the flexible coupling of the magneto.

Mag. Removal.

To remove the magneto, the two nuts should be removed from the bolts marked F and the clamping strap taken off the top of the magneto by removing the two nuts M, when the magneto can be withdrawn complete with coupling. Fig. 9 is from a line drawing of the complete dynamo and magneto drive.

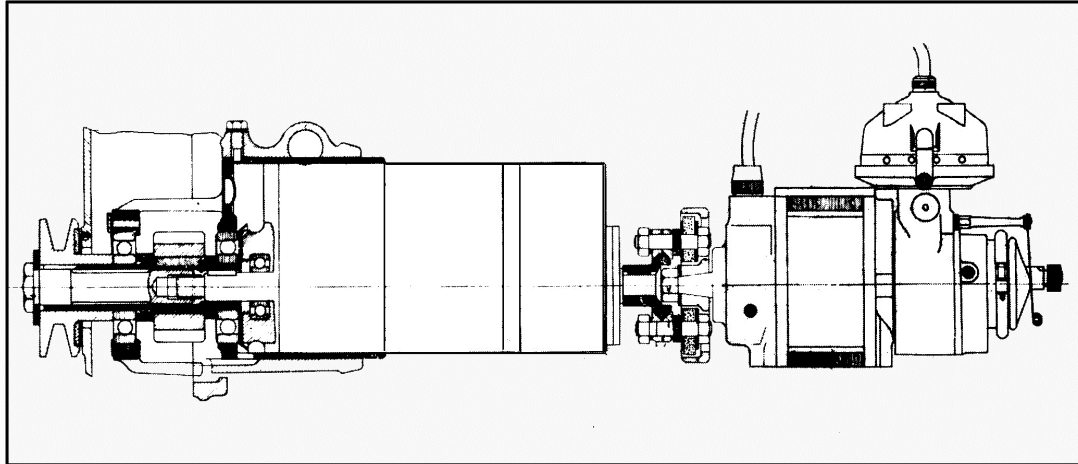


Fig. 9.

Mag. Adjusting.

Fig 10 shows how the aid of a small looking glass helps in checking the timing. By holding the glass, one can see the reflection of the contact breaker as shown at R.

In this view the cylinder has been removed to show the pistons. It is as well to point out here, that the pistons are offset from the conn. rod so that if pistons are removed, care must be taken to see that they are assembled correctly.

By noting the position of the split pin which fixes the gudgeon, no trouble will be experienced. The split pin S, of the two centre pistons face each other, and those on the outside pistons project outwards as shown at T. Also the pistons are numbered 1,2,3,4, and if the figures all read the right way up, the pistons are in the correct position.

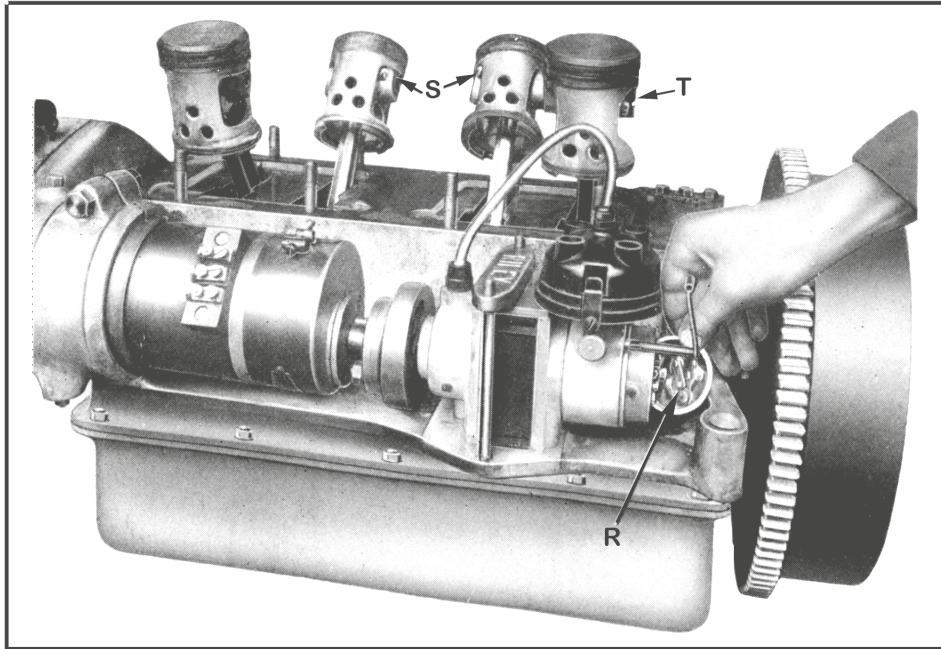


Fig. 10.

To check the magneto timing, first rotate engine until the contact breaker points are just separating with the distributor arm over No. 1, and the mag. control lever on steering column is fully retard. (Fig. 38 shows mag. lever advanced.) The engine should now be at top dead centre, which can be checked by the marks on fly-wheel, Fig. 16. On no account must the ignition be advanced further than this, or it will be firing too early.

Retiming Magneto. If timing is incorrect, leave the magneto in this position with points just separating, and unlock nuts on studs F and H, Fig. 8.

These unclamp the magneto drive plates. While holding the magneto stationary, turn engine over till the T.D.C. arrows on crankcase and flywheel are level. Then lock the four nuts on driving plates.

The firing order of the RILEY ENGINE is 1, 2, 4, 3, and all the marks on flywheel relate to No. 1 cylinder, which is the one nearest the radiator. To check this, take off the Valve Cover plate, then turn engine until the second Valve opens and then closes. Then turn engine still more until arrow on flywheel is opposite arrow on crankcase.

One of the troubles likely to arise with the magneto is the fibre bush in the rocker arm swelling during damp weather, and thereby locking the breaker arm. This only requires easing with sandpaper. (For full information regarding the magneto, see the separate book on this part of the car.)

Starting Handle Shaft.

Even though the starting handle is only occasionally used, it is best to keep it oiled. Engine oil should be applied to U, Fig.11, every 5,000 miles. In using the starting handle, see that the catch ball is on the same flat of the square as the hole in the handle, and there is then no fear of it slipping off. Being a loose tool, owners are liable to forget and leave it on the shaft, when, if it is not fitted on the ball catch, it will drop off and a replacement will be needed.

Dynamo Removal.

In Fig. 11, we also illustrate how to remove the dynamo for inspection. It is only necessary to remove the special nut D, shown partly withdrawn and unclamp the bolt J, when the dynamo can be

pulled out in direction of arrow, leaving all the chain drive mechanism intact. (See booklet on electric set for information regarding dynamo and for wiring diagrams.)

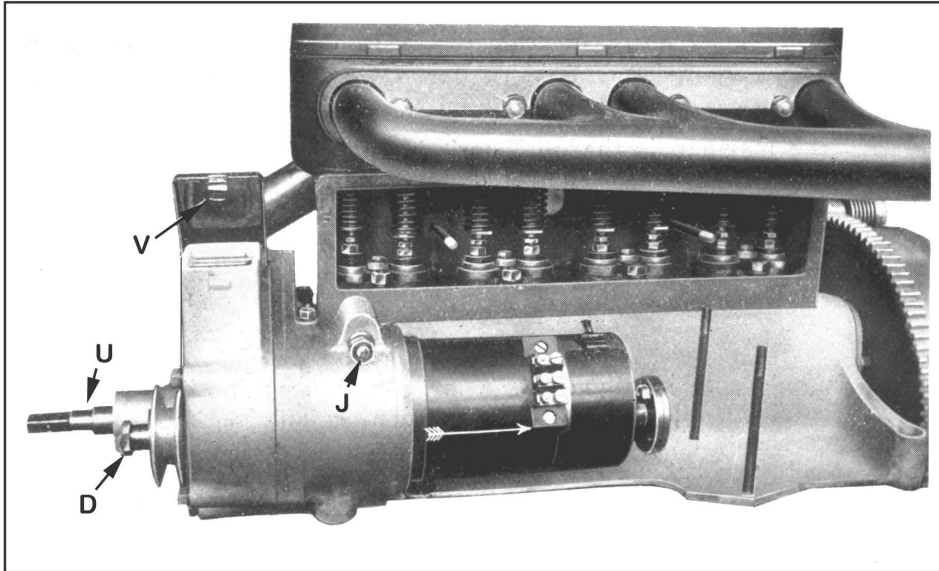


Fig. 11.

Oil Filler.

The oil filler lid V, is shown open in Fig. 11. In Winter a slightly thinner oil should be used than in Summer, but it is real economy to use at all times only the best oil procurable, also it is imperative that a mineral oil should never be mixed with a vegetable oil.

If you have any doubt as to quality, the best method is to drain the oil sump and wash out with paraffin before filling with fresh oil.

Oil Sump. Fig. 12 is a view of the bottom of the crankcase with the oil sump removed. Notice the oil troughs W, from which the dippers X, obtain the supply of oil. Also the sturdy crankshaft in three large hearings, and the oil pump and filter which project into the oil sump.

Oil Circulation. As the oiling of the engine is important, we have introduced a line drawing of the engine showing the oil distribution, so that the owners will the better understand the system.

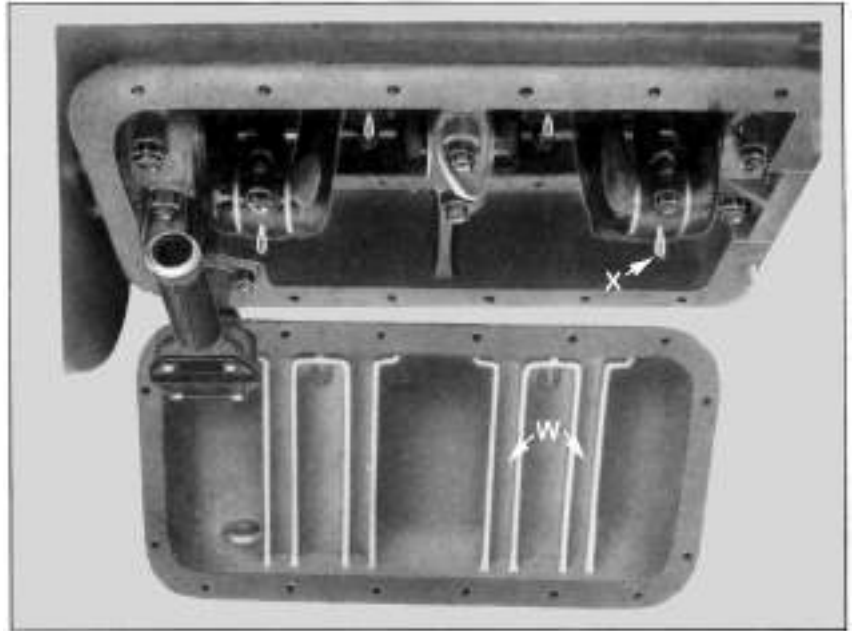


Fig. 12.

The oil is contained in the oil sump, which has cooling fins cast on to help cool the oil.

The oil pump is driven from the camshaft by spiral gears: the pump itself is submerged in the oil, and therefore starts pumping as soon as the engine revolves.

The oil is drawn into the pump through the filter, hence there is no danger of any foreign matter obtaining access to

the bearings. It is then pumped up the tube in the direction of the arrow to the main supply tube which runs lengthways through the crankcase. From the main supply tube, the oil is pumped to the three channels over each of the crankshaft bearings. It also directs a supply of oil into the timing chain gears, and also into the four dipper troughs in the sump.

The clutch bush is lubricated through the hole drilled in the crankshaft, which obtains a supply of lubricant from the rear bearing.

All other parts of the engine are lubricated by splash.

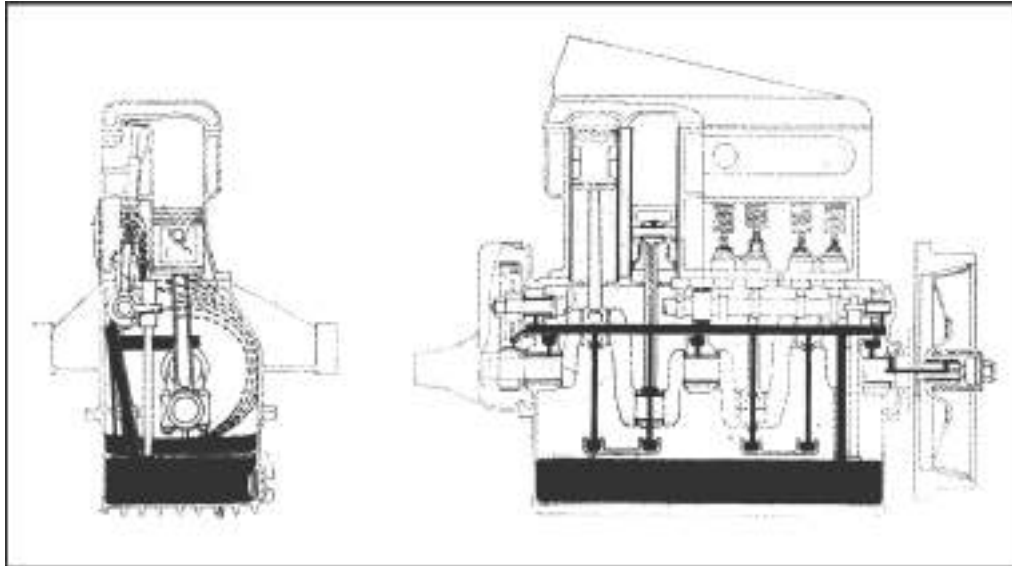


Fig. 13.

The dippers attached to the connecting rods enter the oil troughs in the sump and throw the oil as shown diagrammatically in Fig. 13.

Decarbonizing.

The operation of decarbonizing is necessary when the engine commences to knock or pink. The mileage with individual driving, should average about 5,000. Having a detachable head, the Eleven Riley possesses excellent features for the quick and easy execution of the necessary work.

Removing Cylinder Head.

First drain off the water by removing the plug at the bottom of the radiator, see Fig.3, and also remove the bonnet and the sparking plug leads. Then unlock the two bolts Y, Fig. 14, which hold the water extension pipe to the cylinder head. This point will be appreciated by owners who have previously owned a car in which the rubber connections had to be broken, as they usually leak after having once been removed.

Now proceed to remove all the cylinder head nuts, and having done this, apply wedges or screw drivers between the projections provided for this purpose on the cylinder and cylinder head, and lever the head off. On no account press the screwdriver on the Gasket (Copper asbestos washer), or a new one will be required.

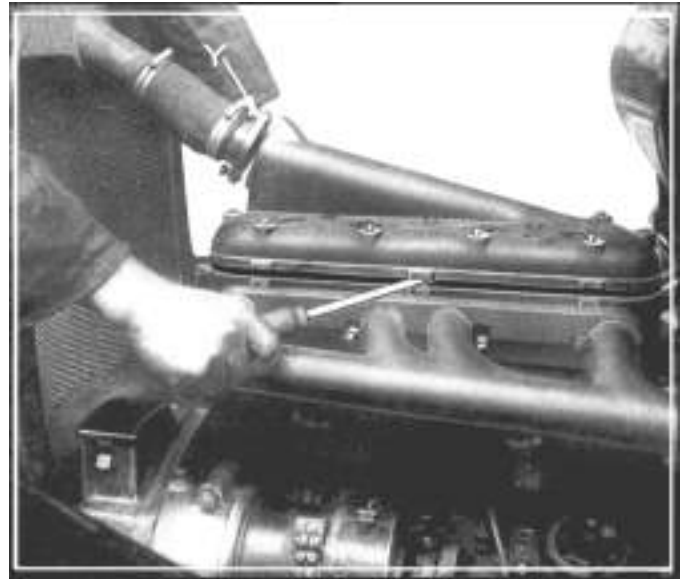


Fig. 14.

Before proceeding to remove the carbon deposit from the cylinder head, top of pistons, and top of valves, etc., first plug with rag all the holes to which the carbon could obtain access, as none must fall into cylinder or get into threaded holes, or trouble will be experienced when you start to assemble the engine.

Grind Valves.

While the head is down, always take the opportunity of grinding in valves, which will improve the slow running and also the power of the engine. There are plenty of tools on the

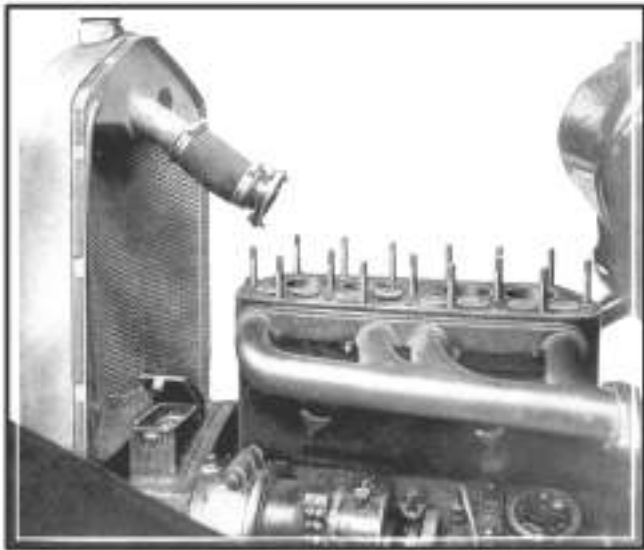


Fig. 15.

market to enable an easy removal of valves. The main object is to lever up the valve spring and cup, Q, Fig. 8, so that the cotter can be extracted from the valve stem.

The process of grinding in a valve consists of smearing oil and fine emery (which can be obtained ready in a paste) on the valve seating, and rotating the valve by means of a screwdriver fixed in the slot on the head, when effecting this operation do not forget to lift the valve now and again, or the result will be grooves in the seat.

The operation can be made easier by slipping a spring under the valve head, which spring, when the pressure is released, will lift the valve automatically. Remove all traces of the grinding paste before replacing the valves.

Assembling Head.

Before assembling the head, examine the gasket and even if it is

only slightly damaged, it will pay to fit a new one. The gasket should be smeared over with Shellac or Gold-size so as to form

a perfect joint. When pulling down head nuts, great care must be taken not to get uneven pressure on the head. Pull the nuts up diagonally with engine cold, then start the engine and when warm finish tightening the nuts, but do not over do it.

Valve Timing. Fig. 16 illustrates the marked flywheel to assist owners in timing their engine. As the cams are solid with the camshaft, it is only necessary to time one valve, when all the others must be correct. The marks are for No. 1 cylinder which is the one nearest the radiator.

The arrow on both crankcase and flywheel is top dead centre, in other words, when the arrows are in line with each other the piston of the No. 1 cylinder is at the top of the stroke. The mark INO indicates that when this mark is in line with arrow on crankcase, the inlet valve of No. 1 cylinder (second valve from radiator) should be commencing to open. Of course this is on the suction stroke and not the firing stroke. The unmarked line is when the exhaust valve closes.

Timing valves. Although the owner will not require to retime his valves, we will describe the process of timing an engine, so that he will understand the functions of the parts concerned.

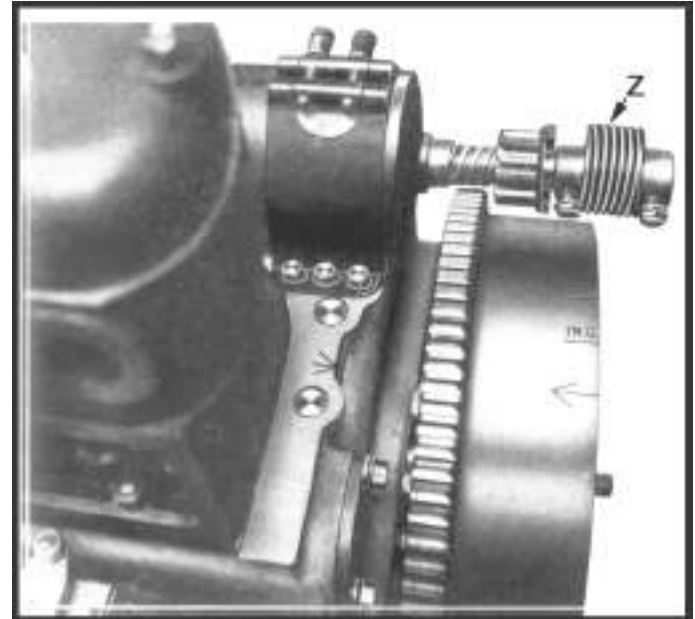


Fig. 16.

The engine is assembled and the camshaft is arranged so that the No. 1 inlet valve is commencing to lift, and the crank in a position that the mark IN O on flywheel is approximately in line with arrow on crankcase. Then the Timing Chain is fitted. The camshaft driving wheel is provided with adjustment for final setting, and when this is OK the locking plate L, Fig. 7, is fixed by the bolts K, and the two indents made which lock the drive in that position.

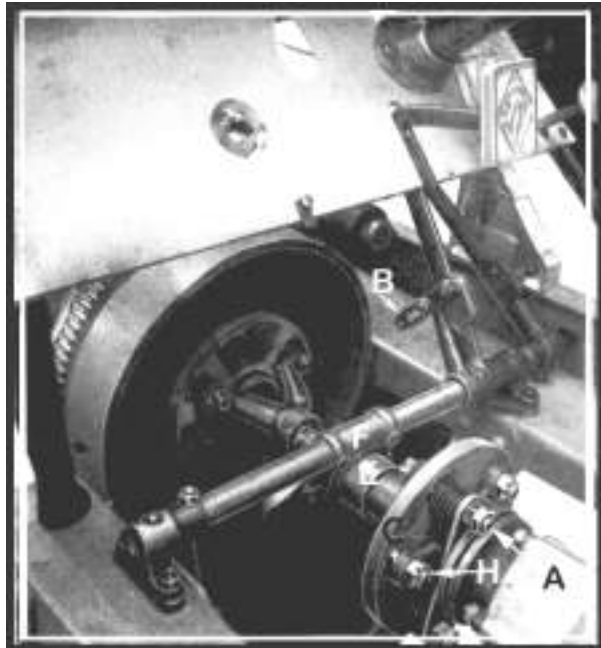


Fig. 17.

Starter Pinion. The starter pinion is also shown in Fig. 16, the spring which takes the impact of the drive being marked Z. On no account oil the Helix drive for starter pinion, as the oil only collects the dust and grit, which results in the pinion being jammed. All that is necessary is to occasionally slightly smear with graphite or black lead. For further information required on electric starter see the Booklet on Electrical sets.

Clutch. The clutch of the Eleven Riley is a fabric covered cone acting in the steel flywheel. The clutch bush is automatically oiled from the engine. A clutch stop is also fitted, the pressure of which can be adjusted to suit individual driving. Fig. 17 shows the general arrangement of the clutch and pedals.

Clutch Link Adjustment. The links marked B, are provided for adjustment of the stirrup arms F, in relation to thrust block E. Always adjust the links B, so that there is clearance between the release pins and the thrust block E. The only time the pins should come into contact with thrust block is when pushing out clutch.

Fig. 18.

Clutch Stop. To adjust the pressure on the clutch stop, it is only necessary to unlock the lock nuts A, and then adjust the nuts to suit. As the nuts are tightened or loosened, more or less tension is put on the three springs. Adjust the three nuts equally, and when correct, tighten the lock nuts.

To Remove Cone. If the fabric on the cone requires examining or replacing, it is quite easy to remove the cone complete without dismantling the car. First remove the three bolts A, and also the three marked H, when the coupling C, can be withdrawn as shown in Fig. 18.

Undo the three nuts G, Fig 18, and turn engine over until one of the three bolts are at the bottom, when, by a downward movement, the clutch shaft can be removed. When examining Fig. 18, note the oil hole for the release thrust, marked I. Use engine oil every 5,000 miles.

By removing the clutch nut J, shown in position in Fig. 18, the clutch with spring, bushes and flexible coupling will come away complete as shown in Fig. 19. the clutch spring is held in a container, and will not fly out when the clutch nut is removed. The clutch release shafts brackets require engine oil every 5,000 miles. This should be applied at oil holes marked K. If the clutch becomes greasy through oil obtaining access to it, the car will not give of its best by reason of the clutch slipping. This can be easily cured by fixing clutch out, and running some paraffin on to the fabric.

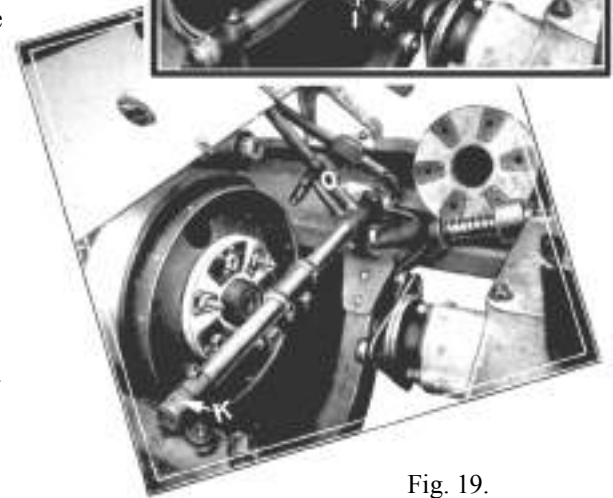


Fig. 19.

GEARBOX

Description. The Gearbox of the Eleven/40 Riley car comprises four speeds forward and one reverse. Either central, or right hand change can be fitted to customers requirements. The constant, mainshaft, and also the layshaft run on ball bearings. The central change model is illustrated in Fig. 20.

Brake Adjustment. Note the two turnbuckles I and J, for adjusting the hand and foot brake respectively. Do not forget to tighten the lock-nuts after the necessary adjustment has been made.

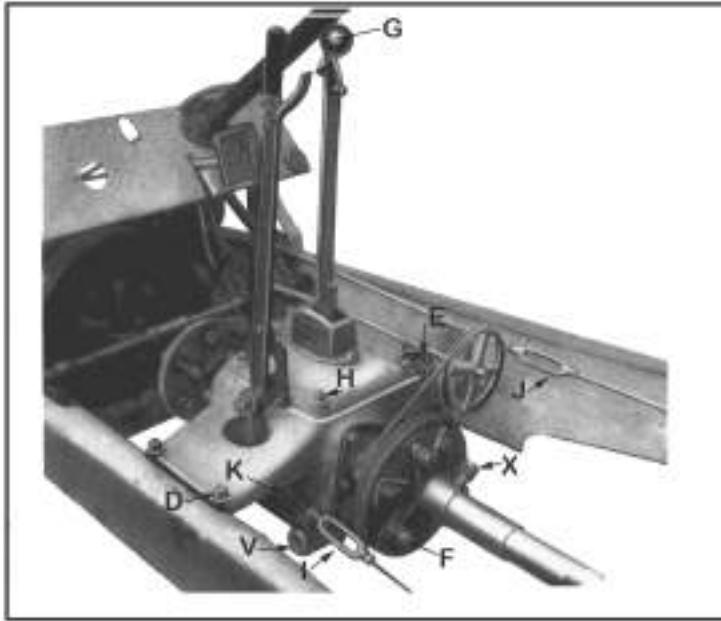


Fig. 20.

Oil Filler. The Oil Filler is on the right hand side marked E, in Fig. 20. The oil we recommend is best quality gear oil, and the box should be filled until oil is on a level with the bottom of filler opening. Too much oil is bad, and is only waste, as it will be forced out through the bearings at front and back of box and also out of the lid. The brake and reverse catch rods should be lubricated with engine oil every 5,000 miles.

Remove Box. To remove the box from the chassis, first take out the three bolts F, from each end of box which hold the spiders to the flexible discs. Then the three holding bolts D, and also disconnect the brake rod from lever at K, when the box can be removed bodily from the chassis.

Remove Lid. If you wish to inspect the gears it is necessary to remove the lid. To accomplish this, first remove the ball marked G, from top of lever, then the four nuts H, when the lid can be lifted off. In later cars it is only necessary to remove four nuts, when the complete lid and levers can be raised as one unit.

Fig. 21 illustrates the box with the lid and lever removed, and also shows the interlocker system. L is the reverse striker. M is the top and 3rd speed, and N is the 1st and 2nd speed striker. The interlocker O, locks the operating strikers the gears not being used, so that it is impossible to get two lots of gears in at once. To remove the interlocker, detach the split pin P, lift off the lock washer Q, which leaves the interlocker free to be lifted out.

Sticking Striker Balls. Through the bad use of box, or because dirt and grit have obtained access thereto, the owner is sometimes with the gear slipping out of mesh. The line drawing, Fig. 22, illustrates the reason and cure for same.

The gear strikers are locked in their various positions by means of balls A, being forced into slots cut in the striker rods. Now if small pieces of metal or grit obtain access to the hole in which the ball slides it will jam the ball, and the gear will not stop in position.

Fig. 21.

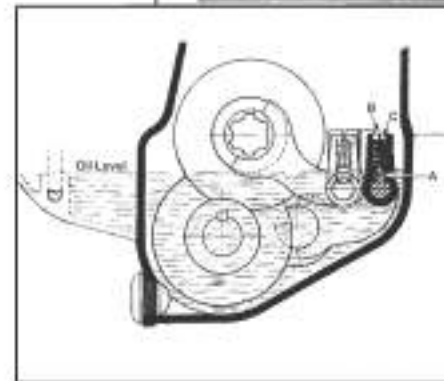
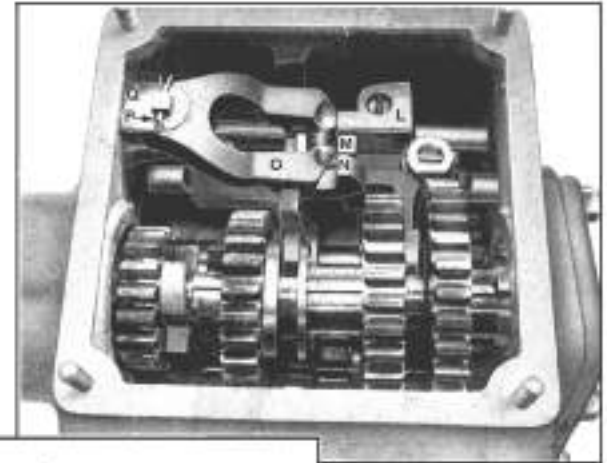


Fig. 22.

Fig. 23.

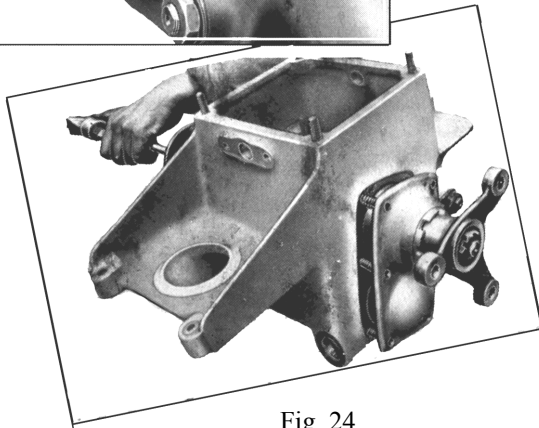
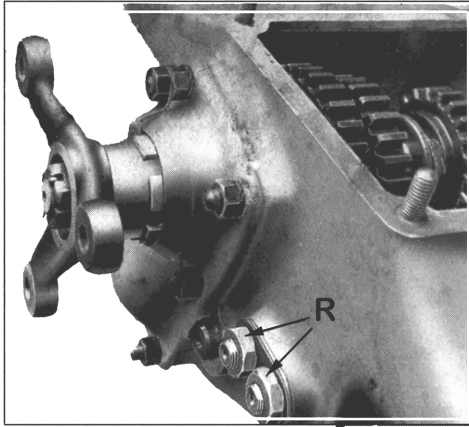


Fig. 24.

To overcome this, the offending striker must be removed by knocking out the striker shaft. Remove split pin B and top plate C, when the spring and ball will fall out. Wash out all grit with paraffin and replace.

Striker Adjustment.

The two nuts R, of which another pair are situated at the opposite end of box, are for adjusting the strikers so that all the three L, M, and N, see Fig. 21, are perfectly in line, so that the change speed lever and interlocker do not foul the them. The operation consists of slackening off the nuts on one side and tightening those opposite thereby drawing the striker across the box.

Dismantling Box.

The following instructions and illustrations are given in case the owner wishes to dismantle the box himself, although in case of gear trouble, we recommend that the box be forwarded to us complete. First remove the lid as directed on page 23, then the interlocker, and striker shafts.

Remove Mainshaft.

Fig. 24, illustrates the operation of removing the Mainshaft.

First remove the six nuts which hold the mainshaft cover to the case.

Then remove a cork oil plug from the hollow constant shaft S, Fig.25, when a $\frac{3}{8}$ in. bar can be pushed up constant shaft until it comes into contact with end of mainshaft.

The complete mainshaft, cover and coupling can be removed as shown in Fig. 24.

Remove Constant Shaft.

Next remove the four nuts from Studs T, which allow the constant cover to be removed, and proceed to knock out the constant shaft as illustrated in Fig. 25.

Remove Layshaft.

The last part to be removed is the layshaft. First remove the Cover U, Fig. 25, and knock the shaft out till the bearing projects from opposite side, see Fig. 26. Then remove the bearing from end of shaft, when the complete shafts with gears mounted on can be the top of the box. This view also illustrates the position of the oil plug V, which can be removed with the jack-iron in the same manner as the engine oil sump plug shown in Fig. 5.

Every six months the oil should be drained off, the box swilled out with paraffin and refilled with fresh oil.

Fig. 25.

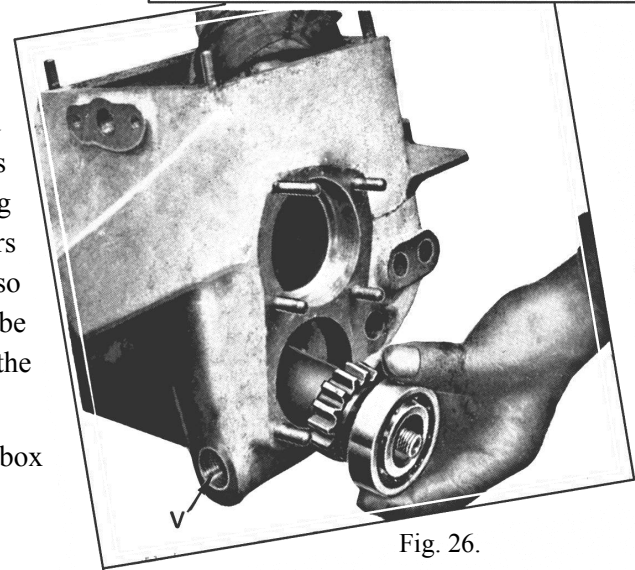
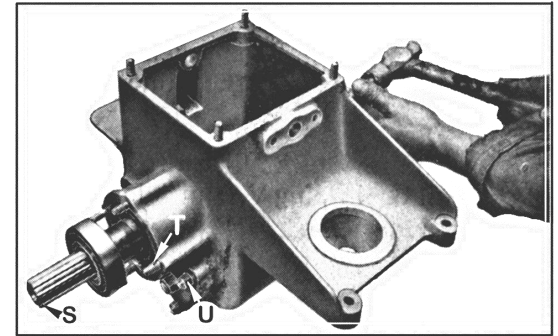
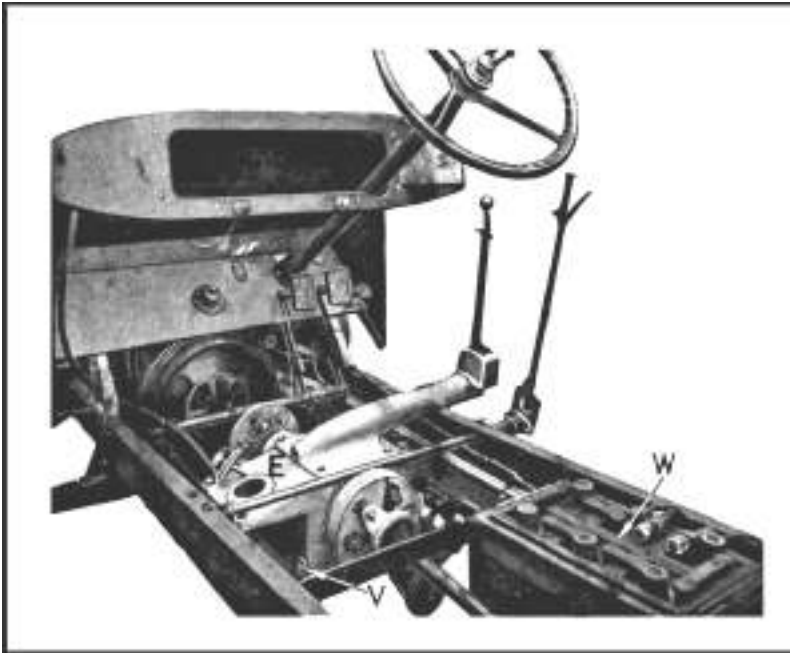


Fig. 26.

Remove Layshaft.

Fig. 27 is a general view of the right hand change model. All the previous adjustments, etc., are exactly the same on this model.

To remove the lid and change speed mechanism, it is only necessary to undo the four nuts on top of the lid. The oil drain plug V, and filter lid E, are as shown in this view.



This view also shows the position of the accumulator W. The cells should be checked each week and kept full of acid to $\frac{1}{4}$ in. above the plates.

If level gets low, fill with distilled water. Keep the terminals clean and free from corrosion.

For further particulars of accumulator see booklet on electrical sets.

Fig. 27.

Rear Axle.

Description. The Eleven Riley Rear Axle is of the semi-floating bridge type, the drive being conveyed by a spiral bevel. The brakes, both foot and hand, operate inside the large ribbed brake drums. Dunlop disc wheels are fitted as standard, and Fig. 28 is a general view of the axle and shows how an owner, using the brace supplied in the Tool Kit, should check the tightness of the wheel nuts. The nuts on all the wheels should be periodically tested, remembering that those on the RH, or offside Wheels have a R.H. thread, and those on the L.H. or near side have a L.H. thread. The nuts are marked respectively R. and L.

Inspecting Shoes. Fig. 29 is a close-up view with car jacked up and the wheel and brake drum removed for inspection of the brake shoes. To remove the drum it is only necessary to unlock the six bolts from the brake drum centre D.

When using the Jack for raising the Axle place it under the bracket which carries the Cam tubes, as shown in the photograph. This seems only a small point, but if the Jack is put under the Cam tubes they will bend and bind the brake work, as they are not designed to stand the strain.

Oil Filler. The Oil Filler is marked A and should be filled level with the bottom of the filler opening. The case holds about half gallon and

Fig. 28.

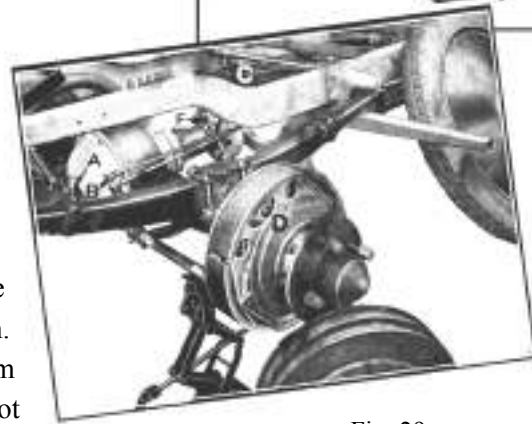


Fig. 29.

Fig. 30.



the oil we recommend is best quality gear oil. The brake rod eye pins B and also the compensating lever eyes C should be oiled with engine oil every 5,000 miles.

Road Springs.

Gaiters are supplied fitted on the road springs, and only need removing every 6,000 to 10,000 miles. Then the leaves of the springs require a mixture of graphite and oil forced between them. Before replacing the gaiters put plenty of grease over the springs.

Remove Hub.

To remove the hub unlock the six nuts from studs E, Fig. 30, when the hub and axle shaft will come away complete. Never try to remove the hub from the axle shaft.

Remove Drive Case.

To remove the Drive Case, first disconnect the propeller shaft removing the case three bolts F, Fig. 29, and withdrawing the two hubs and axle shafts. See Fig. 30.

The Drive Case, complete with hearings and drive, can now be withdrawn from the axle sleeve as shown in Fig. 31, by removing the eight bolts which hold it in position.



Fig. 31.

Renewing Brake Lining.

If upon inspection the Brake Linings are worn and require re-lining with fabric, it is necessary to remove the shoes. To accomplish this take off the locking wire G, and remove the grub screw H, Fig. 32, from nut on end of sleeve. Unscrew the large nut and remove the bearing I, and the brake drum centre D, which exposes the shoes.

Remove Shoes.

To remove the shoes, first take out the split pin K, and remove the plate from the pivot pin, when the shoes can be levered over the cam plate L.

Fig. 33 shows one shoe removed. Notice the steel slippers M, which can easily be replaced when worn.

Pinion Adjustment.

Fig. 34 is a photo of the driving pinion housing with the lock plate removed to show the adjusting sleeve inside. We do not advise owners to attempt adjusting this themselves, as they are assembled correct in a special fixture before delivery. The only time it is necessary is after a general overhaul, and this is best done by a proper mechanic. The following is a description of the process. Remove the plate N, and with a tommy bar screw the inner sleeve O, right or left according to the direction the bevel

Fig. 32.

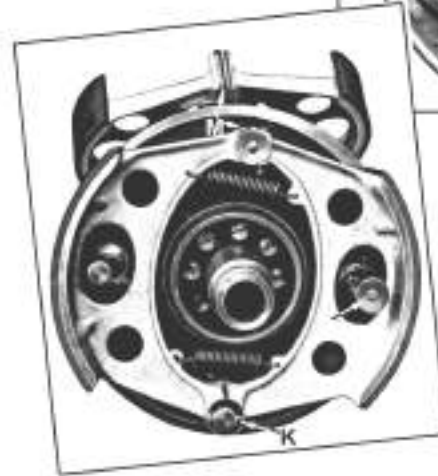


Fig. 33.

Fig. 34.



pinion requires to go, viz., further into or out of mesh with the wheel. When you have obtained the correct position, replace the lock plate N, the projecting pin fitting into the slot in the sleeve. You will notice that four holes are drilled in the plate N, so that if the slot in the sleeve comes central with opening, the holes at right angles to the projecting pin are used, but if the slot happens to come at the sides of the opening, the holes in line with the pin are used. So that the mechanic will understand the mechanism we have included a line drawing of the rear axle drive in Fig. 35. As will be seen from the drawing, the operation of turning the inner sleeve here marked No. 5486, bodily moves the pinion complete with its bearings in whichever direction it is screwed.

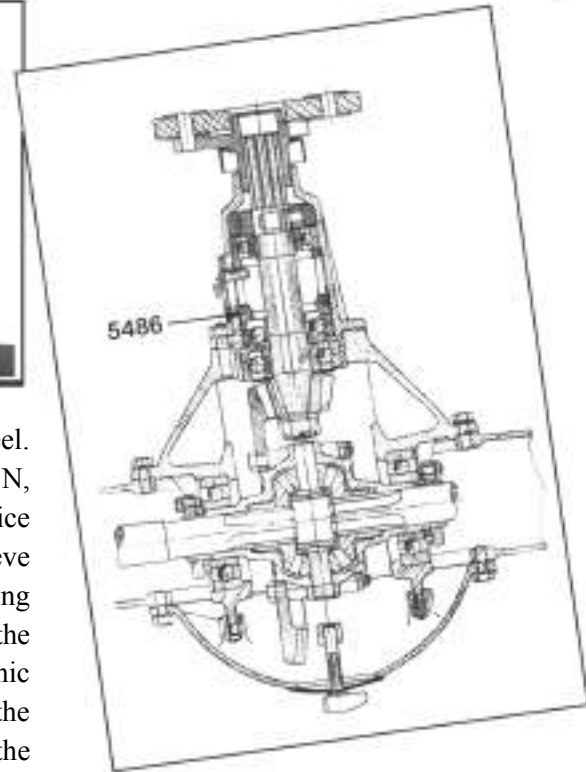


Fig. 35.

Front Axle

The design of the ELEVEN RILEY FRONT AXLE leaves only one point to be considered by the owner, and that is lubrication.

Fig. 36 depicts the arrangement of the axle. B is the oil chamber which should be filled every 5,000 miles with Engine oil, *not Grease*.

The swivel pin is hollow so as to communicate with the bottom bush.

The road springs, D, require the same attention as mentioned in the part dealing with rear axle springs.

Every twelve months the wheels should be removed and the hubs filled with grease.

Swivel Bushes. If after long service, play develops in the swivel, the bushes require replacing.

First jack up car and remove the wheels and hubs, then unscrew the Top Oil Chamber, B, and Bottom Cap, and also the cotter pin, C, Fig. 36. The swivel Pin can now be knocked out in upward direction as shown in Fig. 37.

By disconnecting the Ball Joint, the swivel arm can be taken to the bench and the bushes pressed out.

Ball Joint. In Fig. 37, the Tie Rod joint has been taken to pieces so as to illustrate the construction.

The two ball cups marked E, which clip the ball F, are lined with ferodo, and every twelve months should be smeared over with Graphite. This also applies to the ball joints on the steering coupling rod.

Fig. 36.

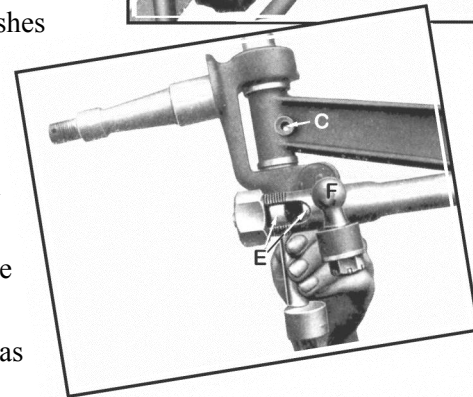
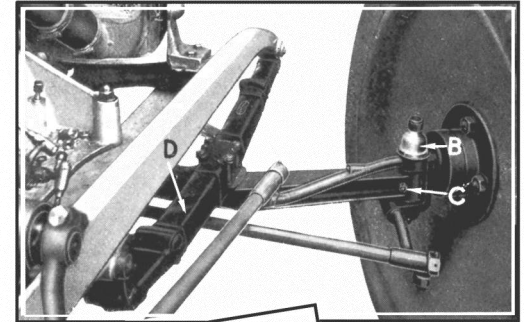


Fig. 37.

Fig. 38.



Fig. 39.

Steering Gear.

The steering gear of the Eleven Riley is of the worm and worm wheel type, and the rake can be adjusted to suit individual requirements.

Control. The left hand control lever is the magneto control, and its position in Fig. 38 is full advance. The right hand lever is the throttle control, and the lever is in closed position.

Loose Column. If the Whole column should develop play, it is probable that the split ring D, Fig. 18, inside the mouth footboard bracket, is not in position, and that the clamping Bolt L, Fig. 18 has become slack.

If only the top of the column is slack, it is only necessary to tighten the nut on the clamp as shown in Fig. 38 until play has been taken up.

Oil Fillers. There are two oil fillers on the steering, the plug H, and the spring clip G. Both these should have Engine oil added every 5,000 miles.

Removing Back Lash. To take up the back lash of the steering worm, remove the locking wire, and unclamp the square head set-screw I, and screw up the adjuster J, until the slackness has been taken up. Do not screw up too tight, as you will bind the steering.

Tighten the set screw I, and replace the wire. The set screw also clamps the complete controls, so that if control case on top of column is loose, the set screw is not tight enough.

Worn Worm Wheel. As mentioned in the description, a complete worm wheel is provided, so that in case of wear after much service, a fresh portion can be brought into use.

To accomplish this, remove the clamping bolt and take off the steering Lever K, as shown in Fig. 39. Then turn the steering wheel until the square shaft L has moved round to a fresh position. Replace the lever and locking bolt, not forgetting the lock washer, which goes in the slot in the lever.

Control Rods. Every 5,000 miles oil all the control rod joints, M and N, and also the accelerator O, with engine oil.

Adjusting Mesh of Worm. The steering column is mounted eccentric in the box, so that the worm and worm wheel can be adjusted for correct mesh.

If this requires adjusting, it is only necessary to unclamp bolt P, when the whole column can be twisted round, and the worm either put further into or out of engagement with the worm wheel.

Do not forget to tighten the clamp bolt P.

Hints and Tips

If trouble is experienced when driving at night, it is well to know that the cable to the side lamps can be pulled out a certain distance, and the lamp used as an inspection lamp.

Fig. 40 illustrates the use of the lamp in inspecting the level of the petrol. As you will agree, this is much better than striking a match.

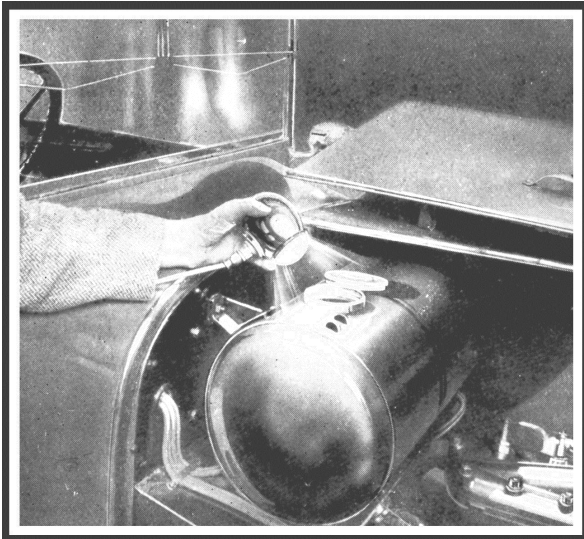


Fig. 40.

Before attempting to start the car, make sure that there is plenty of petrol, that the radiator is full of water, and plenty of oil in the engine, and last but not least, that the gear lever is in neutral.

On cold mornings, swing the engine over with the starting handle, with the magneto switch off, before using the electric starter.

To start engine turn on petrol tap and switch on the Magneto. Close the air strangler by pulling the wire attached to the instrument board, and while holding out press starter switch. Remove foot from starter switch as soon as engine fires.

To ease the work of the starter on cold mornings press out the clutch pedal, which saves churning up the oil in the Gear Box. Also flood the Carburettor. If the battery is run down and engine has to be start by hand, a good tip is to provide a piece of wood cut to a length which will hold out the clutch and wedge against the instrument board.

Do not use force when changing gear.

Do not skid your wheels it only ruins your tyres.

Do not run the engine unnecessarily fast when the car is at rest.

Providing the instructions given are carried out, you will find the services at your disposal all that can be desired.

Requests by letter for spares should be addressed to the Company, R. and S. Department.

In obtaining replacements or spares, do not forget to mention the number of your car, see Fig. 1, and clearly state if you are claiming for a replacement under the Company Guarantee, in which case, the defective part should be returned at once.

Spare parts are despatched from the works per return, upon receipt of letter or telegram, any hour up till 5.30 p.m.

With such close tolerances however, it is essential that a little care should be exercised in driving a new engine, as racing the engine or revving up when cold are apt to cause, through lack of proper lubrication, overheating and the troubles which follow.

Guarantee

We give the following guarantee with all motor vehicles, component parts and accessories manufactured by the Company and purchased from the Company direct or from one of its authorised Agents or Dealers instead of the guarantee or warranty implied by statute or otherwise. as to the quality or fitness of such motor vehicles component parts and accessories; any such guarantee or warranty being in all cases excluded. In the case of vehicles which have been used for Hiring-out purposes, no guarantee of any kind is given, or is it to be implied.

WE GUARANTEE subject to the conditions mentioned that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, but this guarantee is to extend and be in force for a period of 12 months only from the date of purchase. Our liability under this guarantee is limited to the free supply of a new part in exchange for the part of a motor vehicle which may, upon examination by us prove defective. and we do not undertake to replace, refix, or bear the cost of replacing or refixing such new part to any motor vehicle. Neither do we undertake to supply any such new part unless written notice of the alleged defect is given to us within the said period of 12 months.

As motor vehicles are liable to derangements by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse, dirt, or neglect, or to defects in any motor vehicle from which identification numbers or marks have been removed, or which have been sold by any Agent for, or Dealer in motor vehicles, to any person or persons not being an Agent for or Dealer in motor vehicles, at less than the full retail price set out in the Company's price list current for the time being. Further this guarantee does not extend to or include tyres, ball bearings, speed indicators, or other goods or accessories not of this Company's manufacture, neither does it extend to or make this Company in any way liable in damages or otherwise for accidents to Persons or Property by reason of any such defect aforesaid.

IT SHALL BE A CONDITION OF THIS GUARANTEE that in the event of any defective part covered by this guarantee being disclosed in the motor vehicle, such defective part shall be returned to the Company's Works at Coventry, Carriage Paid, accompanied by an intimation by the sender, that he desires free supply of a new part under guarantee, and he must also furnish the Company at the same time with the Maker's number of the motor vehicle, the name of the Agent (if any) from whom he purchased and the date of the purchase.

THE TERM AGENT is used in a complementary sense only and those persons or firms whom we style our Agents are not authorised to advertise, incur any debt, or transact any business whatsoever on our account other than the sale of motor vehicles which they may purchase from us, nor are they authorised to give any warranty, or make any representation on our behalf other than those contained in the above guarantee.

THE COMPANY reserve the right to modify design and price of any model at any time as conditions may require.

Useful Information

Bore and Stroke - 65.8 m/m x 110 m/m.

Cubic Capacity - 1,498 c. c.'s.

R.A.C. - - 10-74 h.p.

Tax - - - - £11 per annum.

The engine number is stamped on the crankcase, just under the carburettor.

Gearbox Ratios -	}	1st	2nd	3rd	4th or top
		4.33	2.03	1.564	Direct

Back Axle Ratios - 4.416 or 4.75

To obtain total ratio, multiply the GB. ratio by the B.A. ratio,
viz., 3rd speed with 4.416 ratio= 1.564 x 4.416 = 6.9 to 1.

Petrol Tank Capacity 7¼ gallons.



BELOW is shown the engine output curve, from which the power of the engine for any revolutions per minute can be obtained.

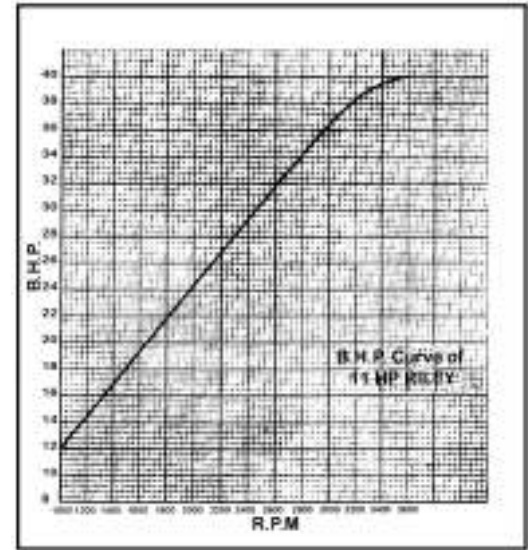
Table below gives the revolutions per minute of the engine for given miles per hour.

With 760 Wheels. With 4.416 B/A ratio.

Miles per hour.	1st Speed.	2nd Speed.	3rd Speed.	4th Speed or Top.
10	2142	1005	733	495
30		3015	2319	1485
60				3190

With 760 Wheels. With 4.75 B/A ratio.

Miles per hour.	1st Speed.	2nd Speed.	3rd Speed.	4th Speed or Top.
10	2304	1080	822	532
30		3240	2466	1596
60				3190



To obtain intermediate figures, take the 10 miles per hour figure and divide by 10, and multiply by miles per hour required.

For instance, 2nd speed at 25 miles per hour with 4.75 ratio =

$$\frac{1080}{10} \times \frac{25}{10} = 2700$$

Every 2,000 miles

SYMBOL	DESCRIPTION
B1.	
B2.	Drain oil sump, clean filter, and refill as B5.
B3.	Replenish gearbox with best quality gear oil.
B4.	Replenish back axle with best quality gear oil.
B5.	Clean out and refill engine with highest grade engine oil of summer density, and in winter of winter density.

Every 5,000 miles

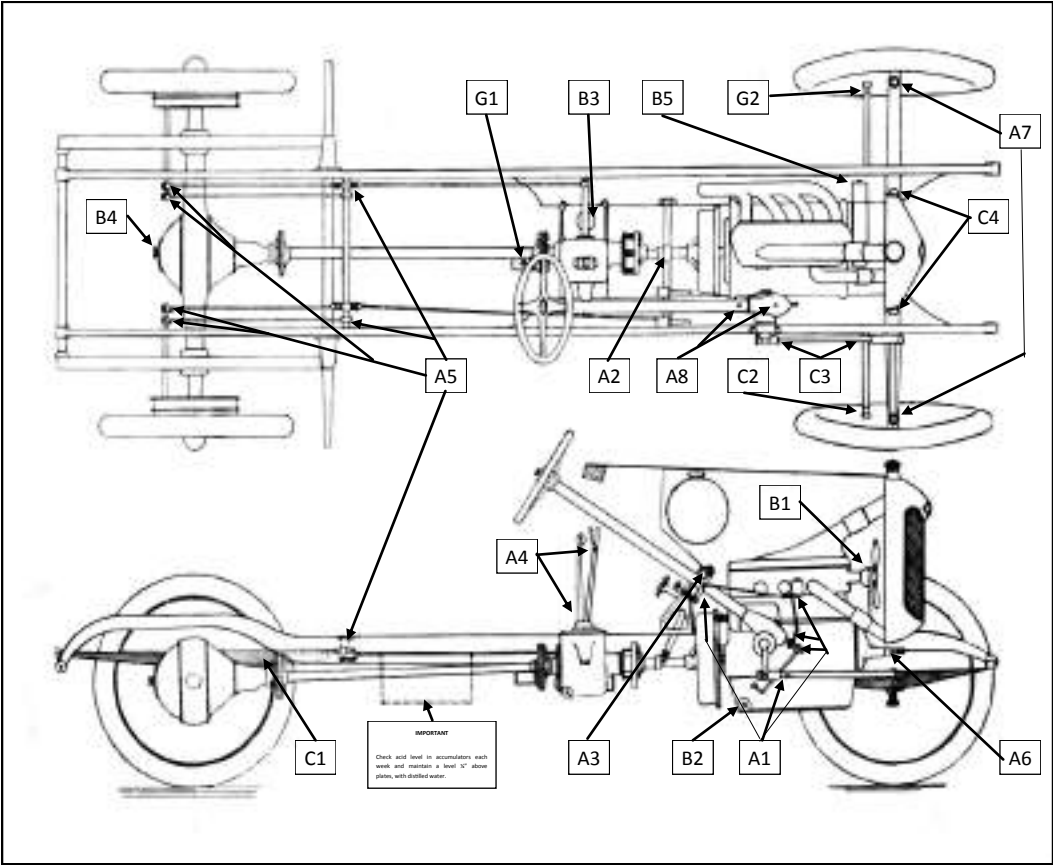
SYMBOL	DESCRIPTION
A1.	Oil carburettor and magneto joints with engine oil.
A2.	Oil clutch thrust block with engine oil.
A3.	Oil accelerator joints with engine oil.
A4.	Oil hand brake, and reverse rod pins, with engine oil.
A5.	Oil all brake rod eyes with engine oil.
A6.	Oil starting handle shaft with engine oil.
A7.	Oil front axle swivels with engine oil.
A8.	Oil steering column with engine oil.

Every 12 months

SYMBOL	DESCRIPTION
C1.	Remove spring gaiters and well grease springs.
C2.	Strip tie rod and fill ball cups with Graphite.
C3.	Strip coupling rod and fill ball cups with Graphite.
C4.	Put Graphite in ball cups of radiator supports.

NOTE: G1. The only greaser on the Riley Car is on the sliding coupling at the rear of gear box. Give a few turns every week.

Oiling Chart



Note. Although the chart states that Engine Gear Box and Back Axle only need refilling every 2,000 miles, it is advisable with a new car to check the level in these components after the first 500 miles.

Colonial Models only

Fan Belt Adjustment If the fan belt stretches, the slackness can be taken up by unlocking the bolt on the fan bracket and twisting the whole bracket round , which being mounted eccentric, varies the centres, thereby tightening the belt.

When you have found the correct position, tighten the bolt, which will lock the bracket in position.

The chamber inside the fan holds enough oil for 2,000 miles, and should be filled with engine oil until it overflows from the edge of the fan.

