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Driving Instructions, &c.

For 6 & 7 h.p. Three-speed A.J.S. Motor Cycle

AFTER receiving the machine, thoroughly examine it and get conversant with its details. Fill up with petrol and oil.

Only oil suitable for air cooled engines must be used.

Turn on the petrol tap by turning the tap lever downwards in line with the petrol pipe, and "flood" the carburetter by pressing the knob on top of float chamber. Turn on the oil tap, found below the elbow outside tank, by turning the lever in a line with the pipe (this tap can be left in the "on" position while riding and need only be turned off when the machine is left standing). For further particulars of lubrication see "Engine Lubrication" on Page 5.

Inject a small quantity of petrol into the cylinders through the compression taps by means of priming pipes under the tank. It will greatly facilitate the entry of the petrol into the cylinders if the exhaust valve lifter is raised. After the petrol has been injected see that the compression taps are closed again.

Unless the engine is difficult to turn when cold with the kick-starter, it is seldom necessary to inject petrol into cylinders.

Now mount the machine and carry out the following operations:—

1. See that the gear lever is in the "Neutral" position marked on gate change quadrant (Illustration, [illegible]).
2. Nearly close the air lever (the shorter one) of carburetter control and open throttle lever (the longer one) about one-third. The levers move to the left towards, and close to the right, the handle. The carburetter is an "A.M.A.C." For full details and hints on adjustments, etc., see page 18.
3. Lift the exhaust valve by means of the lever under the right handle bar grip.
4. Engage the kick-starter with the right foot, using the instep of the foot, and press sharply backwards and downwards, at the same time release the valve lifter and the engine should then start. Take the foot off the kick-starter pedal immediately the engine fires, but *do not allow the kick-starter to spring back with a "bang" after starting the engine. Bring the foot back with the pedal, and so prevent a heavy blow being given to the stop.*

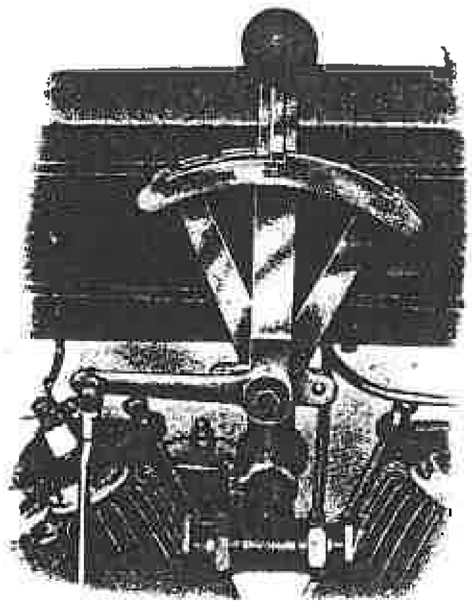
Presuming these instructions have been carried out, take out the clutch by means of the clutch lever on the left hand side of handle bar—place the gear lever in the low position, speed up the engine by opening the throttle a little, and gently release the clutch lever. The machine will then move forward on the low gear. When the machine has attained a fair speed on this gear, again pull out the clutch and move the gear lever into second gear position, immediately re-engaging the clutch.

Repeat this operation to engage high gear. When running on high gear the machine must be controlled by means of the throttle lever and braking. To stop, close the throttle, and when the machine is almost at a standstill, take out the clutch and apply the footbrake.

The change speed lever is operated as follows:— To engage the low gear from neutral, press the lever lightly to the *right* and pull backwards (see "Important warning" below). To engage second gear, again press lightly to the *right* and move the lever forward into second gear position. To engage high gear from second, press the lever to the *left* and move it forward into the high position. How to operate the gear lever will be obvious if a careful examination is made of the construction. The gear lever has a positive stop for each gear, whether engaging up or down, and is automatically locked in each position when released by the hand.

Important Warning

If the change speed lever does not move immediately into position, do not attempt to force it. Move the machine slightly backwards or forwards, or turn the back wheel, while keeping a little pressure on the lever. This will bring the "dogs" in the gear box into proper position for engagement, and the gears will engage without using unnecessary force. Under no circumstances must this lever be forced into position or the striking parts will be damaged and trouble ensue.



The A.J.S. Patent Change Speed Lever.

ILLUSTRATION 18.

This warning only applies when the machine is stationary, not when being ridden.

Always drive with the air lever of carburetter open as far as possible consistent with the engine firing properly. It is not always necessary to stop the engine when the machine is brought to a standstill, but it can be left quietly running until ready to start away again. This can be done by taking out the clutch and slipping the gear lever into the neutral position, afterwards releasing the clutch again. The engine will now be running free. Do not "race" the engine while standing, throttle it down just sufficient to keep it firing until ready to start away again. In the case of a short stop, as when obstructed by traffic, the clutch only need be taken out, but always remember to engage low gear when starting again.

Although it is not absolutely necessary to do so, it will be found a much nicer method of changing gear if the following instructions are carried out. When changing from a low to a higher gear, slightly close the throttle immediately before changing [illegible] let the engine [illegible] slightly raise the clutch [illegible] before changing. When changing down [illegible] gear. A bit of practice will soon make the rider proficient [illegible] higher gear when travelling fast. Never change from a [illegible] Always [illegible] the low gear [illegible] second gear [illegible] low gear when travelling [illegible] hour. Never [illegible] gear for [illegible] purposes [illegible] powerful enough.

When climbing a steep hill which necessitates changing down to a lower gear, always change while the machine has reasonable "way" on it. Do not let the machine come almost to a standstill before changing.

If the machine will not climb a hill on top gear, it is not fair to it to do so by slipping the clutch but change to a lower gear. If the clutch is allowed to slip for a lengthy period under such a heavy drawing load it will [illegible] *by heat, any material of which a clutch may be composed. There is really no excuse for the rider who destroys his clutch by this practice. It is not only bad driving, but it is trying to make the clutch do the work of the gear box which is utterly impossible.*

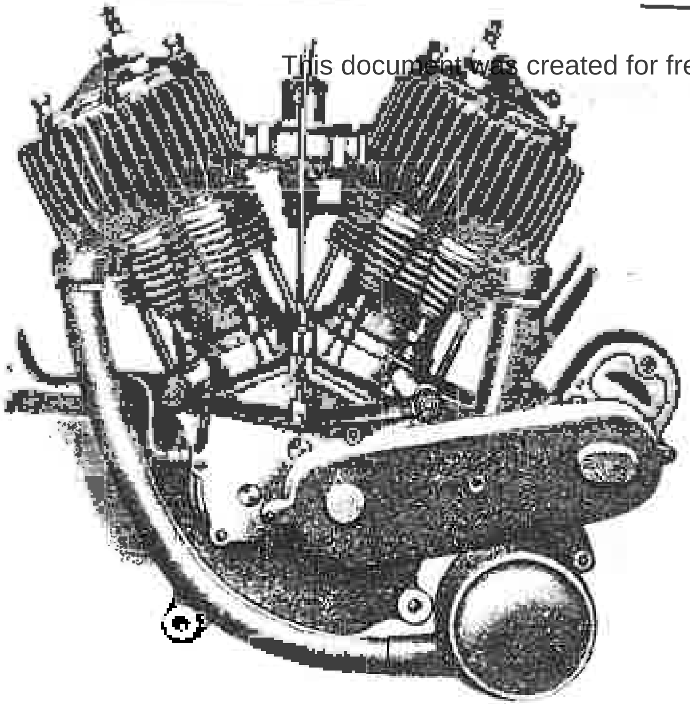
Do not run the machine unnecessarily on low gear. This gear is only provided for ease of starting, and climbing exceptionally steep hills, or when negotiating thick traffic demanding a very slow rate of progress. Using the low gear unnecessarily simply means extra wear and tear, high petrol consumption and shortens the life of the engine and transmission.

When climbing an exceptionally steep hill it is sometimes an advantage to slightly retard the spark, but under normal conditions the spark lever should be kept in the "advanced" position. If the engine has any tendency to "kick back" when starting it with the foot starter, slightly retard the ignition. The lever on the left handle bar is moved towards the rider [illegible] to retard.

When running at very low speeds on top gear a slight harshness in the drive may be felt, common with all petrol driven vehicles, however well balanced the engine may be, but the drive can be made just as sweet and comfortable as one may wish, by easing the clutch a little, by means of the clutch lever on the handle bar. A slight pressure of the hand on this lever allows the clutch to slip slightly under the impulses of the engine, and as the clutch is instantly corrected like a perfect shock absorber at the will of the rider. The foregoing hints also refer to "picking up" again after slowing down for a corner, or any other occasion when the machine is to be accelerated suddenly from a slow to a higher speed. It must be quite understood however that the clutch is not to be used [illegible] *to the extent that the engine can "race." Only just so much pressure should be exerted on the lever to allow the clutch to absorb the impulses of the engine. We strongly commend this paragraph to those riders who are anxious to get the best results and long life from the engine, gears, and chains, to say nothing of the added comfort and satisfaction.*

Do not control the speed of the machine with the free engine clutch, excepting in very congested traffic as previously mentioned. Always drive "on the throttle." The object of the clutch is **not** to control the speed, the throttle in conjunction with the gear box and brakes should be used for this purpose.

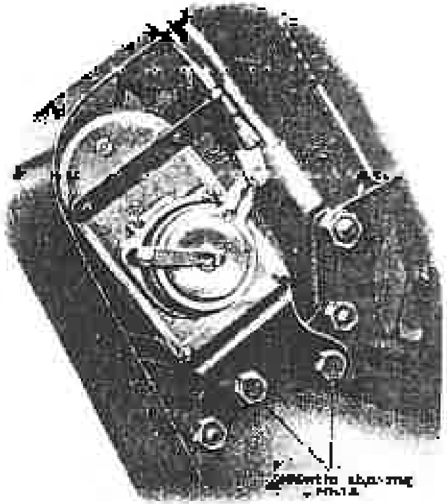
After a short run it will be found that the control of the machine is quite simple, and the disposition of the levers, operating the throttle and the clutch, give the rider absolute mastery over his mount. On low gear the machine can be throttled down to a perfect crawl, and on high gear it is capable of attaining a speed to satisfy even the fastest of riders.



A J S 7 h.p. Engine.

Lubrication.

Adjustments and Cleaning.

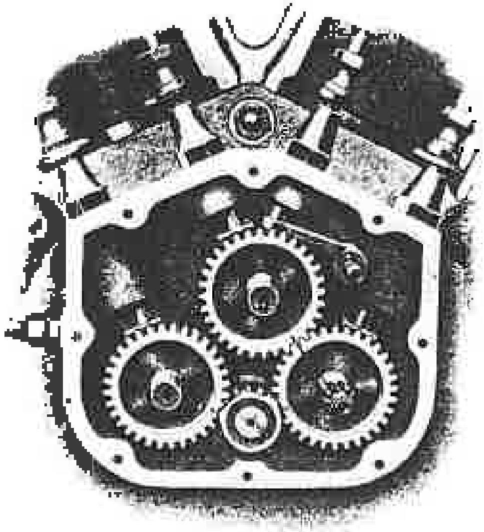


A.J.S. Magneto Adjustment.

Magneto Adjustment.

platform allows this. The magneto platform rests on two extensions of the front engine [illegible]. These plates have slots which, when the before-mentioned [illegible] are slacked off, permit the platform to be moved forward to tighten the chain. When the correct tension has been obtained, screw the nuts up again tightly. [illegible] [illegible] [illegible] the chain. [illegible]

Engine Timing. Except in case of necessity we do not advise tampering with the valve timing arrangement. However, if the engine has been completely dismantled for any reason, we make it a practice to so mark the timing pinions that replacement is a matter of perfect ease if the following instructions are carried out. To facilitate correct setting and meshing of the pinions these are marked with a dot, and this system of identification is shown in Illustration E. On the small timing pinion will be found a single dot and a double dot. These marks register with corresponding dots on the back and front exhaust cam wheels, the back exhaust wheel being stamped with one dot, and the front exhaust with two. The teeth of the back exhaust wheel must be meshed with those of the small pinion so that the single dot registers with the single dot on the small pinion, and the two dots on the front exhaust must register with the two dots on the small wheel. There are only two marks, the double inlet cam wheel which [illegible] with the front exhaust cam wheel. Upon this [illegible] [illegible] [illegible] [illegible] [illegible] the valve timing to their original [illegible].



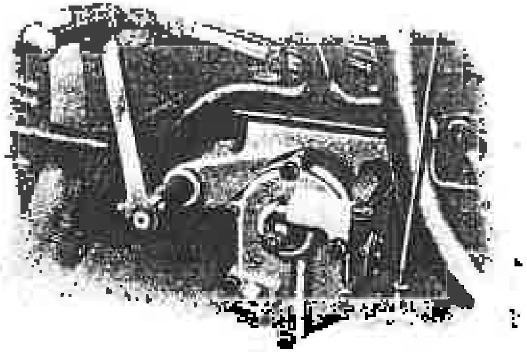
Arrangement of Timing Gear 7 h.p. A.J.S.

Illustration E.

The spark is timed to take place [illegible] before the top of the compression stroke, with the magneto contact breaker in the fully advanced position. [illegible] "Magneto Timing," page [illegible].

With the exception of carrying out the above instructions, do not tinker with the engine, nor fancy you can do better than the makers by tampering with the valve timing gear.

Gear Box.



A.J.S. Gear Box in position

Illustration F.

Lubrication.— The gear box needs no attention whatever with the exception of replenishing with oil every [illegible] miles. [illegible] as used for the engine is suitable, but a very thick oil is the most suitable. It will facilitate the entry of oil into the box if the back wheel is slowly revolved with gear in neutral position while pouring in the oil.

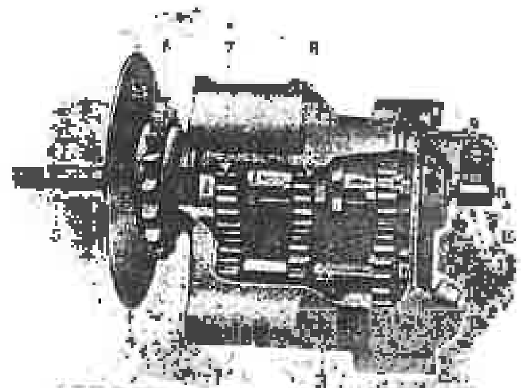
To dismantle the box the following operations must be carried out:—

First unscrew the [illegible] which holds the [illegible] lever on to the hexagon ended arm of operating shaft. The clutch lever can then be knocked off [illegible] of the [illegible] or removed. The lever arm, which is now free, can be swung over out entirely by pulling it out of its housing. The short push rod can then be taken out, and the thrust lock nut unscrewed from the end of the main shaft. This has a left-hand thread, and the [illegible] provided in the tool kit should be employed to [illegible] it, using the large spanner as a lever. Behind this will be seen the [illegible] washer. To take this out push the main shaft back a little so as to allow the washer to be withdrawn. This washer fits on to a dowel peg, and care should be taken when replacing to see that this is correctly in place. Now take out all bolts round the cover of the box and pull the cover off. The low gear dog wheel and lay shaft can then be taken out, also the sliding sleeve. The low gear shaft complete with clutch, etc., can be drawn out from the opposite side of the box. The assembly [illegible] reverse these operations.

N.B. Be sure the Thrust Lock Nut is tight after replacing.

Do not forget to put fresh oil in the box after dismantling.

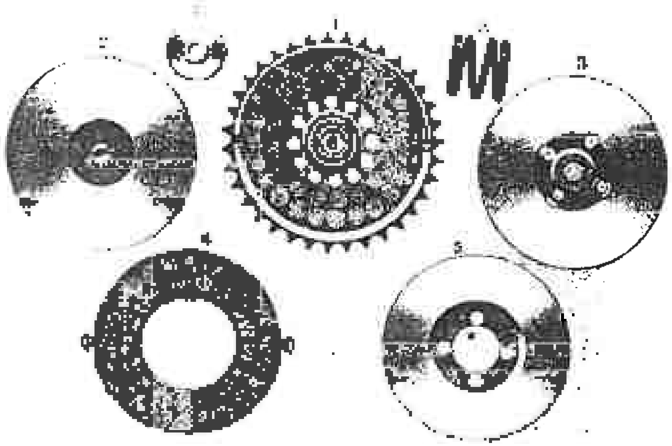
1. Clutch Operating [illegible] disengage Clutch.
2. Oil Filler.
3. Lay Shaft or Secondary Shaft.
4. Fixed Clutch Plate.
5. Main or Primary Shaft.
6. Sprocket for transmission power to Road Wheel.
7. High Gear Dog Wheel.
8. Sliding Sleeve.
9. Low Gear Dog Wheel.
10. Bell Crank Adjusting Screw.



A.J.S. 3 SPEED GEAR (PORTION OF CASE CUT AWAY)

Illustration G.

Clutch.



AJS ... CLUTCH PARTS.

[illegible]

1. Clutch Sprocket fitted with ... [illegible]
2. Sliding Plate ... [illegible]
3. [illegible] Plate.
4. Plate ... [illegible]
5. [illegible]
6. [illegible]
7. Clutch Spring Adjusting Nut.
8. Clutch Spring.

[illegible]

Adjustment

If the clutch should ... [illegible]

[illegible]

[illegible]

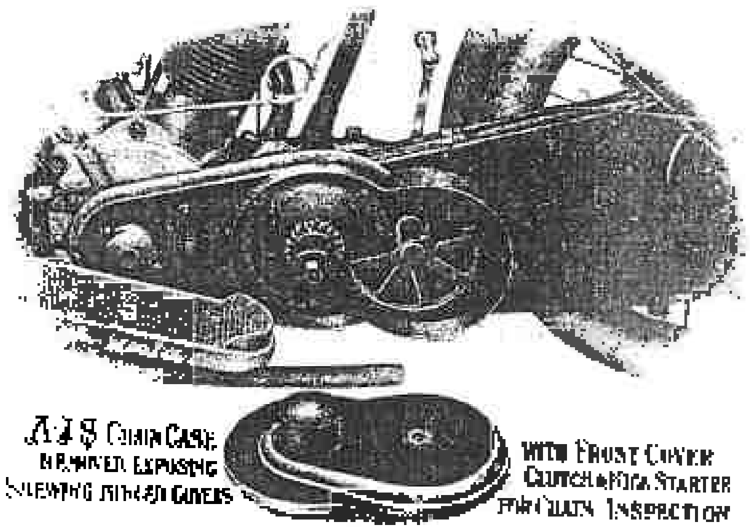
[illegible]

[illegible]

[illegible]

Clutch—continued.

[illegible]



[illegible]

[illegible]

[illegible]

Transmission

Adjustment of Chains. [illegible]

It is important that the nuts are screwed tightly [illegible] *after adjustment.*

Back Chain. [illegible]

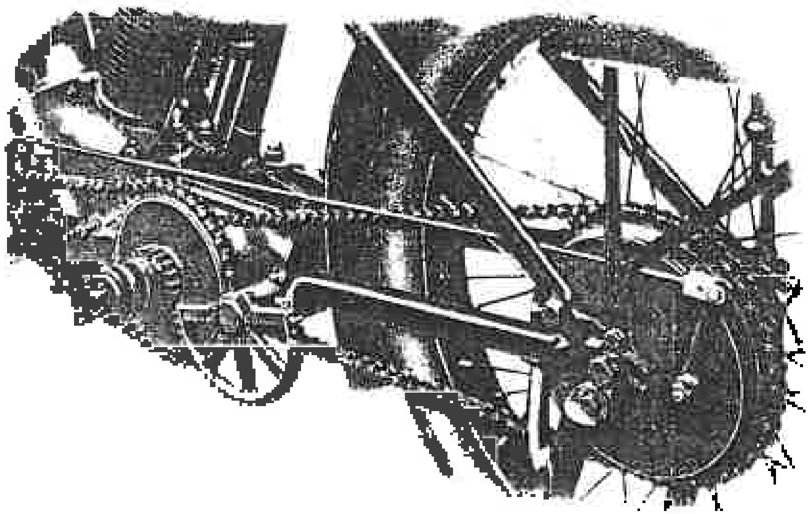


ILLUSTRATION J.

[illegible]

[illegible]

The chains should be adjusted and kept adjusted, so that they can be [illegible]

Care of Chains.

Lubrication. [illegible]

[illegible]

Chain Repairs.

[illegible]

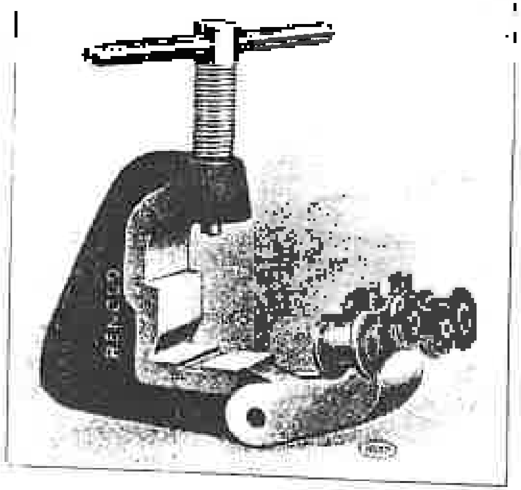


ILLUSTRATION K 1.

[illegible]

[illegible]

The illustrations show [illegible]

The fork is then swung [illegible] the [illegible] of the [illegible] end of the [illegible] on the supporting bridge which is provided for this purpose. The chain is now supported [illegible] of the rivet it is desired to remove.

By means of a small [illegible] on the [illegible] the screw [illegible] the [illegible] through the [illegible] [illegible].

The [illegible] the [illegible] plate [illegible] the [illegible] plate [illegible].

The fork is then swung back and the [illegible] end with-drawn, and the necessary repair parts inserted.

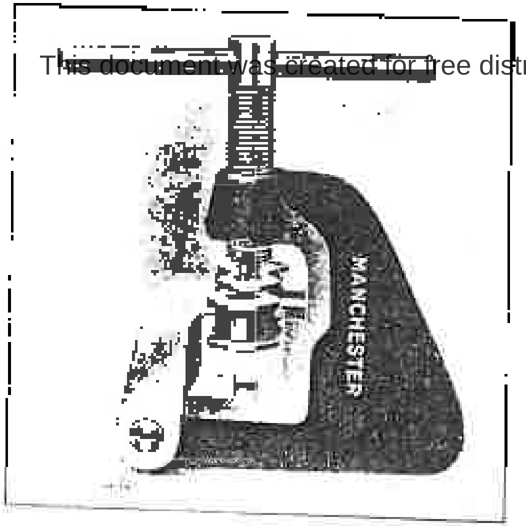
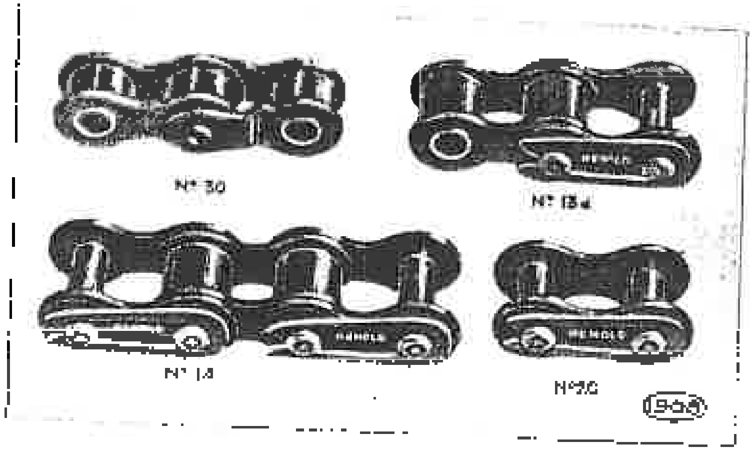


ILLUSTRATION K2.



Chain Repair Parts.

ILLUSTRATION [illegible]

[illegible] contains all the parts [illegible] repairs to [illegible]

[illegible] replace by parts No. [illegible]

[illegible] replace by parts No. [illegible]

[illegible] replace by parts No. [illegible]

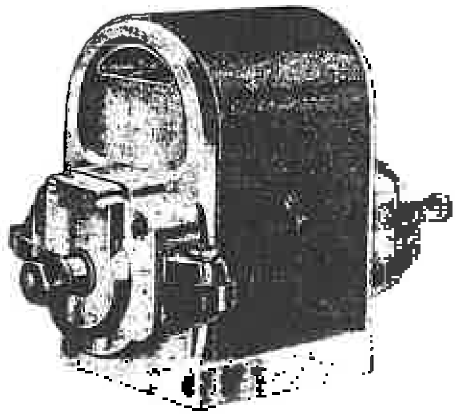
[illegible] No. [illegible]

When [illegible] it is most important that [illegible] should always face in the opposite direction to which the chain travels.

Chain Case.

The top, bottom, and back portion of the chain case can be detached independently, also a part of the front can be removed to expose the clutch and kick-starter (Illustration [illegible]). The rear part of the case is divided both horizontally and vertically. To remove the rear part unfasten the [illegible] which hold together the top and bottom halves of the horizontal division, [illegible] the vertical division. Next take out the two small bolts which will be found to pass through slots [illegible] in the rear part of the chain case. [illegible] the whole of the lower half of the chain case [illegible] [illegible] the end of the left [illegible] to allow the chain case to drop [illegible] [illegible] after these portions have been removed [illegible] [illegible] of engine [illegible] chain case.

Magneto.



Thomson-Bennett Magneto.

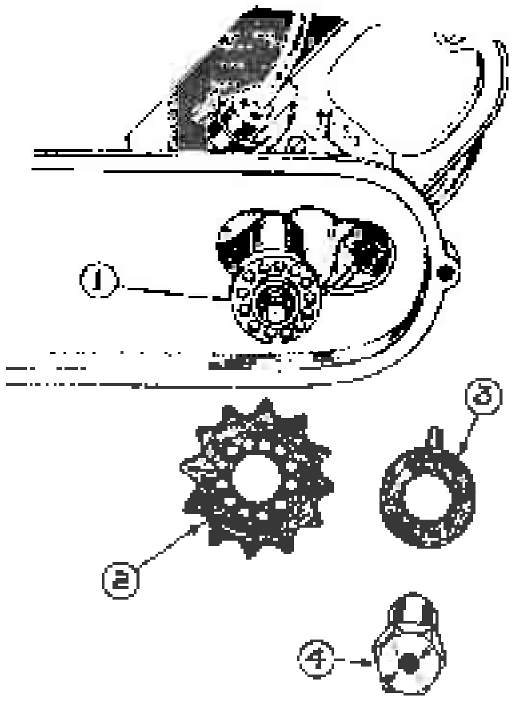
ILLUSTRATION M.

The magneto requires only the least possible amount of lubrication. It is fitted with ball bearings, and a few drops of oil [illegible] of the above [illegible] is required.

Adjustment. The platinum contacts should be examined after about 1000 miles, and if the break [illegible] more than the thickness of a visiting card they should be adjusted. The proper distance of the gap is [illegible] in. [illegible] A [illegible] small spanner is provided with each machine, and the [illegible] of [illegible] is the correct distance for the break of the points. [illegible] contact breaker can be [illegible] without removing the contact breaker from the magneto. If it is necessary to take the contact breaker out, [illegible] the [illegible] [illegible] [illegible] off [illegible] [illegible] [illegible] [illegible] [illegible]

Timing. If the magneto has been removed [illegible] it is necessary to [illegible] [illegible] after [illegible] [illegible] [illegible] the magneto shaft [illegible] [illegible] [illegible] [illegible] and on the magneto shaft [illegible] will be found. *These must point to*

[illegible]



Magneto Timing—Vernier Adjustment.

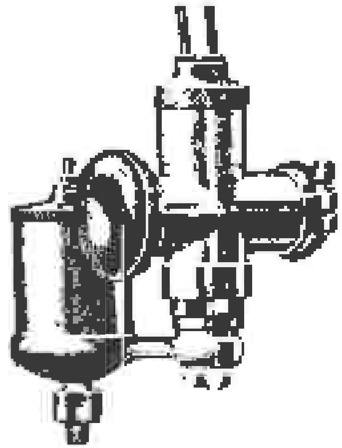
[illegible]

[illegible]

When Ignition Trouble is suspected.—[illegible]

Most Important. [illegible]

Carburetter A.M.A.C.



A.M.A.C. Carburetter

[illegible]

[illegible]

Slow Running. [illegible]

The following will [illegible] slow running:

[illegible]

Setting and Driving.—The jet should not be so large that the engine will take full air with the throttle full open. [illegible]

[illegible]

[illegible]

[illegible] action of the slides. [illegible] that the jet is [illegible] [illegible] of its [illegible]. When the carburetter is properly set the air lever should have [illegible].

For high speeds and hard driving: [illegible].

[illegible] Speeds [illegible].

Ordinary Speeds [illegible].

Easy Starting. To start the engine [illegible] the [illegible] Carburetter. The following can prevent easy starting:

Faulty [illegible] inlet valve guide. Petrol pipe stopped up with dirt, &c. Air lock in petrol pipe or tank. [illegible] Throttle too far open. Carburetter not [illegible]. Faulty ignition. [illegible] [illegible] (see "Slow Running").

If the engine is very difficult to start when cold, inject petrol through the compression taps.

Adjustment of Slides. Put the control levers in closed position, then screw the adjusters on top of throttle barrel [illegible] until all slack is just taken up. When doing this hold the cable to prevent it twisting with the adjuster. All clamp [illegible] must be [illegible] the [illegible] will work stiffly.

It is extremely important that the inlet pipe joints be absolutely air-tight to get satisfactory slow running.

Flooding. This can be caused by any of the following reasons:

[illegible] needle valve seating. [illegible] needle valve. [illegible] Split pin [illegible] being fixed under [illegible]. [illegible] Carburetter not vertical. [illegible] flooding.

[illegible] flooding [illegible] especially [illegible] on the needle valve seating. This can be cured by twisting the needle valve with the fingers while pulling upwards.

[illegible] the machine standing for long periods without turning off the petrol.

Petrol Consumption. To get the best results study carefully the [illegible] given under the heading "Setting and Driving."

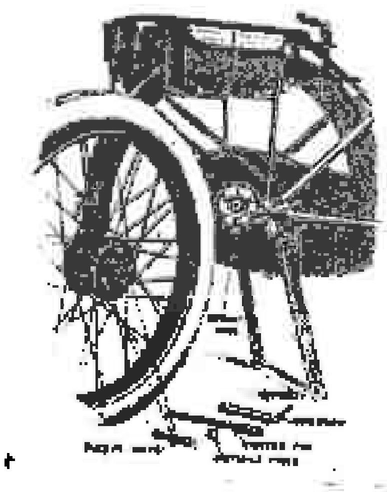
Other causes of heavy petrol consumption [illegible]:—

Allowing the engine to run for long periods when the machine is standing. Unnecessarily using the [illegible] and driving on the low gears without a cause. Driving with ignition retarded. [illegible] [illegible] "blow back." Air gauze stopped up [illegible]. Lift of exhaust valve too [illegible]. Choked silencer.

Important Note.—After a new machine has been run about 500 or 600 miles, and the engine thoroughly "run in," a smaller jet can usually be fitted to advantage, especially regarding petrol consumption.

Between the air intake and the body of carburetter is fitted a disc of gauze which prevents dust or [illegible] getting in the engine. Periodically clean this gauze. If the gauze is choked with dust, etc., no air can get to the carburetter, and erratic running takes place, the cause of which is difficult to trace.

Detachable Wheels.



Back Detachable Wheel Removed.

[illegible]

Back Wheel. To remove the back wheel proceed as follows. Put the machine on the stand [illegible] [illegible] unscrew the three sleeve nuts which pass through the brake drum. To prevent the wheel [illegible] while unscrewing the sleeve nuts, place the foot against the lowest [illegible] of wheel. The three sleeve nuts extend right through the [illegible] and [illegible], and screw on to the three threaded studs on the driving sprocket. There are also three plain studs on the sprocket [illegible] as [illegible]. These fit into the three remaining holes in the hub flange. After the sleeve nuts have been unscrewed, then unscrew the centre pin and draw it completely out, together with [illegible] piece. The space now left by the distance piece will allow the wheel to be drawn off the driving studs of sprocket. The whole operation should not take more than 30 or 40 seconds.

To replace the wheel, push it squarely on to the driving studs, and [illegible] the distance piece in position, screw up the centre pin moderately tight. The three sleeve nuts can now be screwed up tightly, afterwards giving a final turn to the centre pin. It is very important to [illegible] that when the centre pin is removed, the wheel [illegible] [illegible] [illegible] [illegible] [illegible] there is great danger of [illegible] the back end. [illegible] the centre pin [illegible] [illegible] the machine is not [illegible] on the stand [illegible] [illegible] [illegible] [illegible] driving studs [illegible] [illegible] the distance piece [illegible] will steady the wheel while [illegible] the driving studs.

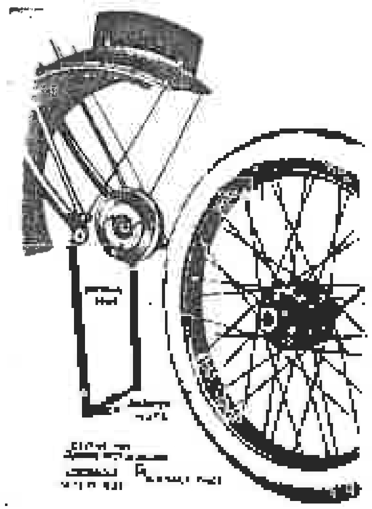
If [illegible] wishes to fit a new tube without removing the wheel [illegible] [illegible] take off the [illegible] [illegible] remove the tube [illegible]. Next take out the centre pin and distance [illegible] leaving the [illegible] [illegible]. This will be found to give sufficient space between the hub and the fork end to allow the tube to be passed through, and thus [illegible]. Now replace the distance piece and the centre pin and proceed [illegible] [illegible]. [illegible] the centre pin [illegible] holds the wheel [illegible] while [illegible] is being manipulated.

Periodically test the centre pin and sleeve nuts with the spanner, and keep them tight. If the sleeve nuts are loose a [illegible] will be felt when [illegible] at slow speeds. If this is noticed tighten the sleeve nuts at once. When the back wheel is removed, the wheel only is taken out, leaving the chain, sprocket, brake, chain case, etc., remaining in their original position. If desired the wheel complete with sprocket, brake, etc., can be taken out, which is quite a simple operation. Remove the back portion of chain case (see "Chain Case"), slack off spindle nuts and detach brake [illegible] by removing the [illegible] shackle. Take the chain off the sprocket by means of the spring link, and unscrew the anchor pin which projects into slot of brake anchor plate, [illegible]. The wheel will then fall out of slots in fork ends.

Care should be taken to prevent the ends of chain falling back into chain case while removing the wheel. The upper portion of chain should be laid back over the top of chain case and hooked on to the pin provided. The lower portion of chain will hang down below the bottom half of case.

When replacing the chain it will facilitate the fitting of spring link if the ends of the chain are connected on upper portion of the sprocket. This also applies to removing the spring link.

When the wheel is replaced see that the brake anchor pin is screwed into the slot in anchor plate and the spindle nuts are tight.



Showing Front Wheel detached [illegible]

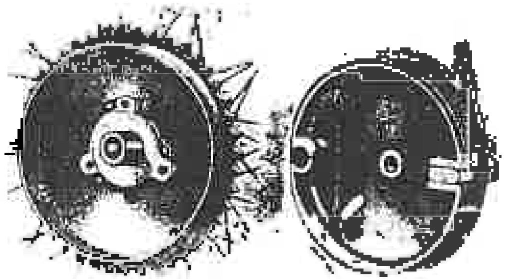
ILLUSTRATION [illegible]

Front Wheel. The front wheel is [illegible] brake [illegible] [illegible] the [illegible] stand [illegible] allow wheel to [illegible] the [illegible] rear wheel.

The adjustment of the hub bearings is perfectly [illegible]. [illegible] Do not let the hub [illegible], but take care that they are not adjusted too tightly.

This is a common cause of broken balls and cracked ball races. When properly adjusted, the weight of [illegible] should revolve the wheel, if placed above the centre of wheel. At the same time the wheel should have no shake.

This brake requires no attention with the exception of occasional adjustment at either end of the rod.



A.J.S. INTERNAL EXPANDING BRAKE

ILLUSTRATION [illegible]

Rear Stand.

The operation of the rear stand requires very little explanation.

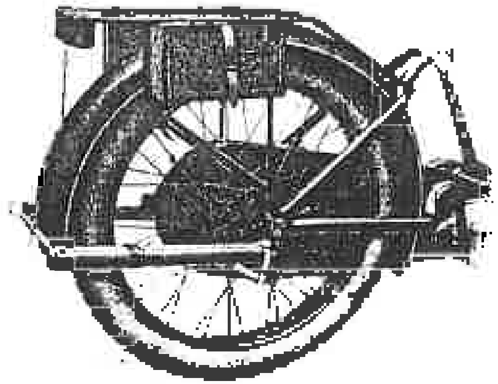


ILLUSTRATION 1.

Illustration 1 shows the stand [illegible]. Illustration 2 depicts the stand let down and the [illegible]. Illustration 3 shows the final stage of the [illegible], the [illegible] being fully completed and back wheel raised clear of the ground. [illegible] which holds it [illegible] and [illegible]. Now push down the stand in the ordinary way on to the ground and pull lever upwards towards rear of machine. When the operation is completed simply fold the lever down again and clip it in stand. To lower the machine simply reverse these operations.

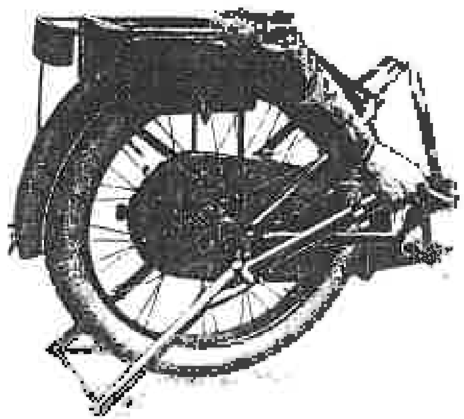


ILLUSTRATION 2.

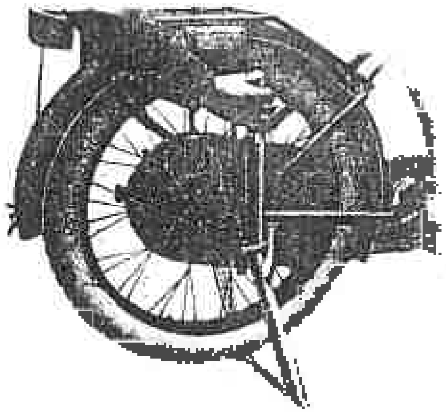
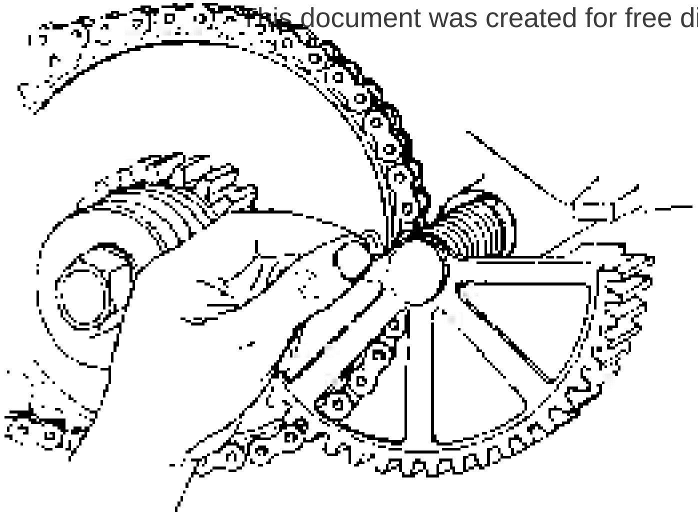
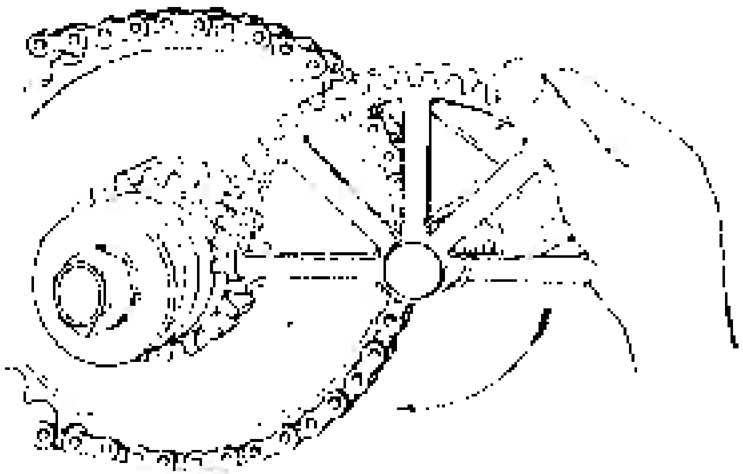


ILLUSTRATION 3.

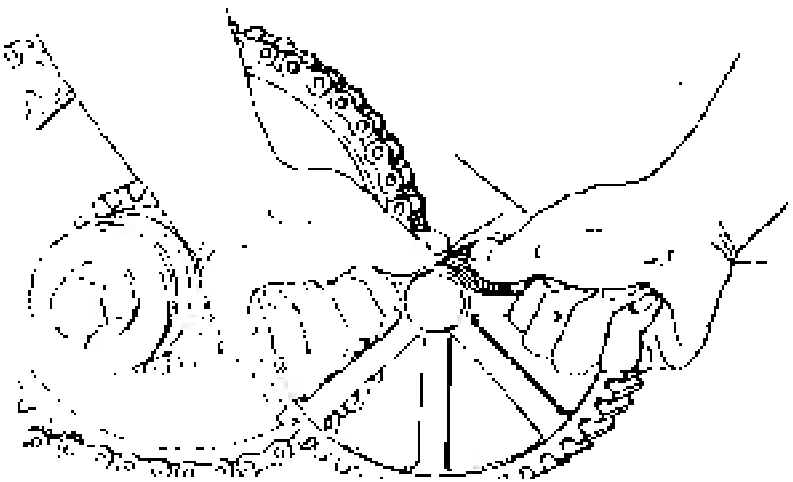
Method of Replacing Kickstarter Spring.



1. Hook the end of Spring over Peg [illegible] Kickstarter [illegible]

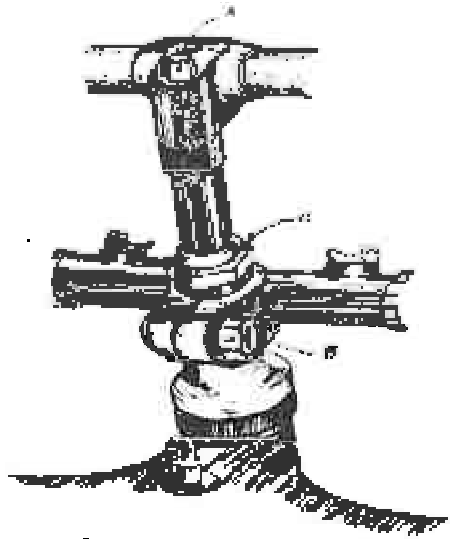


2. Turn [illegible] complete Revolution in Direction of Arrow.



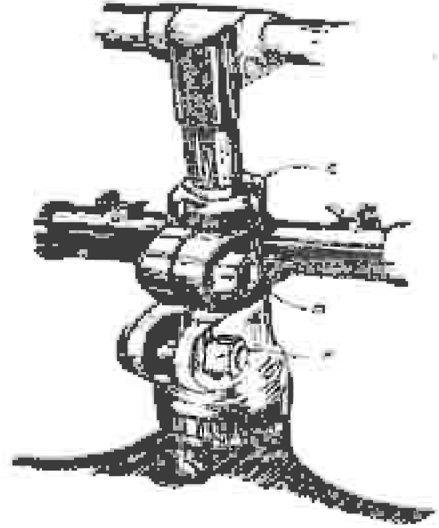
3. Push Quadrant into position at the same time pressing with both thumbs the other ends of the spring down and over Kickstarter Shaft Tube.

STEERING HEAD. (Adjustment).



Late 1930 & 1931 Models.

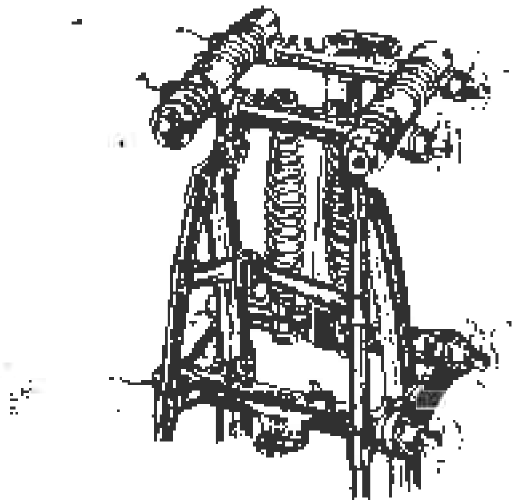
1. Unscrew Bolt A [illegible]
2. Slacken Nut B.
3. Adjust Steering head by Nut C.
4. Lock up Nut [illegible] Bolt A.



1929 & Early 1930 Models.

1. Slacken Nuts D and E.
2. Adjust [illegible]
3. Lock up D and E.

BRAMPTON SPRING FORK. (Adjustment).



1. Unscrew Lock Nuts A A (left hand thread).
2. Unscrew Lock Nuts B B (right hand thread).
3. Turn Spindles C C [illegible] until [illegible] is taken up.
4. Tighten up Lock Nuts.

General.

Remember you have a bicycle as well as a power plant. Frequently oil the links of spring fork. The individual pivots in the bush or nut with hamilton. Oil occasionally any little moving parts about the machine, such as brake shackles, Bowden lever, pegs of control rods, change speed lever, dust box catch lever, etc. An oil gun is a most useful accessory. A charge of oil can be drawn out of the oil tank and used for lubricating every part of the machine. If a sidecar is fitted, don't forget to lubricate the spring shackles, etc., if squeaks are to be avoided. If also leaves of the springs creak or squeak, separate them by inserting the end of a screwdriver, and force oil between with the oil gun.

Keep the machine clean. If mud, etc., is allowed to accumulate, it will work into bearings, especially the hubs, and cause undue wear. Do not wash the machine down with a hose-pipe. Dry off doing it is easy to get water in the petrol tank or carburetter, and cause trouble. Remove mud by means of a sponge and a bucket of water.

Pack tools tightly in the tool case with sloaning cloths, and so prevent them rattling about. Treat spare parts like tools, and so prevent spare parts in the locker of side-car where they will not be subjected to such punishment as when packed in the machine bags on carrier. The machine bags can be used for carrying spare tyres if they are carefully and tightly packed, but it should be carried clear of exhaust if they are not.

Keep the back tyre fully inflated, but not hard hard, and see that security bolts are tight. It is not necessary to have the front tyre inflated as hard as the back.

If the machine is used at all as a solo mount, do not fit all-steel studded tyres. They are positively dangerous on greasy mile or tramlines, especially if wet.

It is not necessary to carry a host of spare parts with the machine. The only parts that may be required under ordinary conditions are:—

One spare valve complete with spring, washer and cotter, a good auto sparking plug, an inside plaster for tyre in case of a nail cut or burst, and a good supply of observant common-sense.

For very long journeys or the extended tours it is wise to carry the additional spare parts from which complete with spring link, and a spare cover and tube in case of serious tyre trouble. A spare detachable wheel is also handy.

The 7 h.p. A.J.S. is designed to carry two persons, and luggage, quite well and do it easily, but if you have a freak hill to your district, do not try to climb it with all your friends heaped up in the side car and on the carrier. It is not fair to the machine, your friends, or the makers.

Any further information required we shall only be too happy to give if communicated with direct, but it will save unnecessary correspondence if our patrons will ascertain first, that the information is not already given in this booklet.

"Safety First" Hints.

1. **Never** drive faster than you can pull up in the distance you can see.
2. **Never** attempt to overtake another vehicle on a blind corner.
3. Always keep closely to your right side of the road when taking a blind corner.
4. If the machine will not comfortably climb a hill on high gear it is no disgrace to change down, and besides it is faster to do so.

Side Car Hints.

It is highly important that the sidecar be in perfect alignment with the cycle or all-round satisfaction cannot be obtained.

The side car wheel should be dead parallel with the wheel of cycle and perfectly vertical. The cycle also should be quite upright, and not leaning either outward or inward. Two straight pieces of wood about 7 or 8 feet long could be used to test the alignment. One piece should be placed alongside both wheels of cycle, and the other against the side car wheel, and when theoretical lines each and the distance should be equal.

If, although the alignment is correct, the machine has a tendency to steer to the left, the cycle should be adjusted to run a little to the right. If to steer to the right, slightly lean the machine to the left towards the side car.

Always drive the machine sitting in an upright position, and do not fall into the unsightly habit of leaning the body permanently towards the side car. It is not only unnecessary but it puts a great strain on the side car attachments.

After the machine has been in use a little time it sometimes happens that the side car fittings will take a permanent "set," causing the cycle to lean slightly towards the side car. This is easily remedied by means of the telescopic spring rod, between the seat pillar and the side car axle.

When turning a corner sharply to the left, lean the body to the left, when turning to the right lean the body to the right. It is not sufficient, however, to simply lean the body, the rider should throw the weight of his body in the direction he leans.

Always endeavour, however, to turn a corner at a reasonable speed, especially when turning to the left, as centrifugal force puts a great lateral strain on the machine and tends to lift the side car wheel from the ground. When turning to the right the lateral strain is thrown in the opposite direction and has a crushing effect on the side car axle via the torque rod. When taking a corner to the right at high speeds this strain is terrific and is a fruitful cause of side car axles breaking.

The A.J.S. side car axle is made specially strong for this reason, but the rider will be well advised if he takes corners at a reasonable and safe speed.

When turning to the left while climbing a very steep hill at a moderate speed it is not so necessary to lean in that direction, as the natural steadiness of the side car tends to turn the machine to the left. When turning in the slush under the same conditions the driver and passenger should lean well to the right.

When climbing a very steep hill the passenger should get in a position that will put as much weight as possible on the back wheel of cycle. It will prevent the wheel slipping, and will counteract the tendency of the side car to drag. When descending very steep hills it will help the steering also if the passenger will put as much weight on the driving wheel as possible. This paragraph only refers to "freak" hills.

With the exception of the instances mentioned above, there is no necessity for the passenger to be continually leaning to the left or to the right, especially if ordinary corners are taken at a reasonable and safe speed. It is not at all uncommon sight to see a passenger continually leaning in one direction or the other, even when turning a very slight curve in the road, with the intention of thus helping the steering. It is not only unnecessary but it tasks a deal of what should be pleasure.

The old saying "the race is not always to the swift," is very true, when applied to motoring. The careful driver who keeps to a moderate reasonable speed is usually much more certain of reaching his destination, not only in good time, but in comfort and safety.

As a last word on side cars, we would earnestly advise our friends to make the complete combination (if this has not already been done) and not fit one of the ultra cheap side cars with which the market is flooded. Some of the expensive ones are very badly designed it. They not only give continual trouble but in some cases are positively dangerous. However reliable the motor cycle may be, a side car which is always giving trouble spoils the whole combination.