



**Ambassador**

**MOTOR CYCLES**

**MAINTENANCE MANUAL**

**AND**

**INSTRUCTION BOOK**

**FOR MODELS**

**SUPER 'S'**

**THREE STAR SPECIAL**

**ELECTRA '75'**

**AND**

**SPORTS MACHINE**





# Ambassador

## **MOTOR CYCLES**



*Manufactured In Great Britain*

*by*

**AMBASSADOR MOTOR CYCLES LTD.**

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**PRICE - TWO SHILLINGS AND SIXPENCE**

**JUNE, 1959**

## INTRODUCTION

As Manufacturers of the Ambassador Motor Cycle, we are naturally delighted that you have purchased one of our products. In doing so we consider that you have shown excellent judgement in selecting a machine which in design, manufacture, and material is second to none in the lighter classes of Motor Cycle.

However near perfection a mechanical device may be it becomes necessary at times to adjust and lubricate various points and in due course, perhaps, to fit replacement parts. The object of this booklet is to direct your maintenance activities along the lines which will provide maximum reward for the effort involved, to advise the novice in the use of the various controls and to draw attention to any items, neglect of which may detract from the full enjoyment and usefulness obtainable from your purchase.

Throughout the handbook we have endeavoured to be as non-technical as possible in the interests of the novice and would ask the indulgence of the more experienced rider who may consider certain sections too elementary.

Straightforward design, coupled with unusual rigidity and careful selection of materials and equipment has ensured ease of maintenance and no user is likely to experience any difficulty in carrying out the few simple tasks which may be necessary to keep the machine in good running order. Cultivate the habit of regular cleaning and maintenance, by this means minor irritations will be minimised and major catastrophies averted.

Finally we would wish you every success and satisfaction from your Motor Cycle and remind you that the advice and assistance of our highly experienced service department are always at your disposal to assist you with any query which may arise which does not appear to be dealt with in the following pages.

Any correspondence with us in connection with your machine should contain the engine and frame numbers, as these are the main means of identification. The engine number will be found on the nameplate attached to the upper side of the left-hand engine cover, the frame number being stamped on the right-hand side of the lower arm of the frame head lug.

AMBASSADOR MOTOR CYCLES.

NOTE.—This handbook deals only with the cycle parts and electrical wiring. A separate booklet accompanying this, and prepared by the engine manufacturers fully covers the Engine, Gearbox and A.C. Generator.

# DATA

	SUPER 'S'	3-STAR SPECIAL	ELECTRA '75'	SPORTS
Engine Unit, 4 speed ...	Villiers 2T Speci 8081B	Villiers 9E/4 Speci 770B	Villiers 2TS Speci 208D	Villiers 2T Speci 260D
Engine Unit, 3 speed ...		Villiers 9E/3 Speci 580B		
Bore ...	50 mm—1.970-in.	59mm—2.323-in.	50mm—1.970-in.	50mm—1.970-in.
Stroke ...	63.5mm—2.5-in.	76mm—2.834-in.	63.5mm—2.5-in.	63.5mm—2.5-in.
No. of Cylinders ...	2	1	2	2
Capacity ...	248cc.	198cc.	248cc.	248cc.
Compression Ratio ...	8.2—1	7.25—1	10—1	10—1
Gear Ratios, 4 speed ...	5.8, 7.6, 10.9, 17.6	6.2 7.74, 10.85, 17.95	5.8, 7.6, 10.9, 17.6	5.8, 7.6, 10.9, 17.6
Gear Ratios, 3 speed ...		6.2, 8.15, 15.55		
Tyres, front ...	3.25 x 17 Ribbed	3.25 x 17 Studded	3.25 x 17 Ribbed Whitewall	3.25 x 17 Ribbed
Tyres, rear ...	3.25 x 17 Studded	3.25 x 17 Studded	3.25 x 17 Studded Whitewall	3.25 x 17 Studded
Tyre Pressure, front ...	18-lb.	18-lb.	18-lb.	18-lb.
Tyre Pressure, rear ...	22-lb. Solo	22-lb. Solo	22-lb. Solo	22-lb. Solo
	28-lb. with Passenger	28-lb. with Passenger	28-lb. with Passenger	28-lb. with Passenger
Rear Chain ...	1-in. Pitch x .305-in. wide x 121 pitches.	1-in. Pitch x .305-in. wide x 121 pitches.	1-in. Pitch x .305-in. wide x 121 pitches.	1-in. Pitch x .305-in. wide x 121 pitches.
Petrol Tank Capacity ...	3 1/2-gallons	3 1/2-gallons	3 1/2-gallons	3 1/2-gallons
Weight, dry ...	312-lb.	269-lb.	318-lb.	296-lb.
Length, overall ...	6-ft. 9-in.	6-ft. 9-in.	6-ft. 9-in.	6-ft. 9-in.
Width, handlebar ...	26 1/2-in.	26 1/2-in.	26 1/2-in.	25-in.

## CONTROLS

**FILLER CAP.** Centrally situated on top of fuel tank. Press down and rotate anti-clockwise to release.

**FUEL TAP.** In left-hand rear corner beneath petrol tank. Pull knurled knob out for normal supply. For reserve supply rotate knob anti-clockwise and pull further out. This will provide sufficient fuel for some 25 miles of riding but replenishments should be made as soon as possible after the reserve supply has been brought into use. Remember to restore the tap to its normal 'ON' position. Always turn petrol off when stopping for any length of time.

**AIR CONTROL LEVER.** Single lever fitted to handlebar which should be closed, i.e., pushed as far as possible in an anti-clockwise direction for starting from cold. The lever should be opened either partly or fully when the engine has been running for a few moments. Failure to do this will result in 'bumpy' running which will disappear immediately lever is opened. Clicking or spitting from the carburettor or stopping of the engine when the lever is opened indicates that it has been opened before the engine is hot enough to take full air.

**STRANGLER.** (Three Star Special only). A small handle on the left-hand side of the carburettor air filter, operation of which opens or closes rectangular apertures in the air filter body. These holes should be closed for starting from cold and opened as soon as the engine is sufficiently warm to run satisfactorily with them open. They should remain open until the engine is again to be started from cold.

**THROTTLE TWIST GRIP.** Fitted to right-hand handlebar it controls speed of engine. Rotate towards rider to increase speed and vice versa.

**CLUTCH LEVER.** On left handlebar. Pull towards bar to release drive between engine and rear wheel. Used when moving off, changing gear and coming to rest. Always release gently.

**FRONT BRAKE LEVER.** On right handlebar. Pull towards bar to apply front brake; normally used in conjunction with rear brake when stopping or slowing down.

**DIPSWITCH.** Small trigger on extreme end of left handlebar. Thumb operated, it prevents dazzling approaching traffic when night riding.

**HORN PUSH.** Small knob on top of fitting carrying dipswitch.

**TICKLER.** Plunger protruding from top of lower portion of carburettor body on right-hand side. Depress to flood carburettor to provide rich mixture for cold starting.

**KICKSTARTER.** An almost vertical lever on right-hand side of engine-gearbox unit. Equipped with a folding top crank it should be depressed vigorously to start engine. This is not fitted to the Electra '75'.



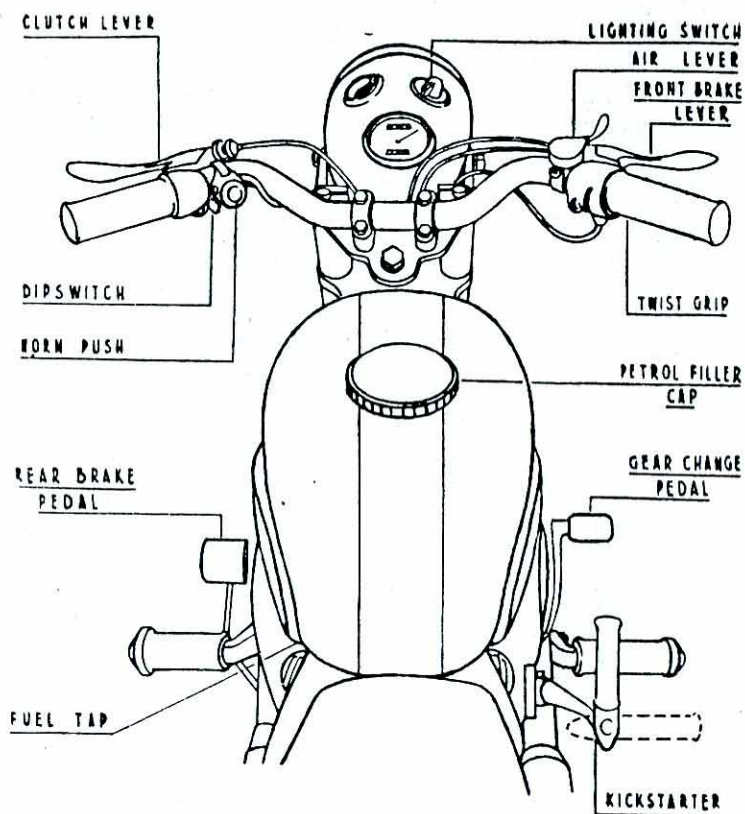


FIG. 1—PLAN OF MACHINE SHOWING CONTROLS

**GEAR CHANGE PEDAL.** Horizontal lever near to right footrest. Move upwards to engage lower gear and downwards to engage higher gear. There is a neutral position, i.e., no gear engaged, between first and second gears.

**REAR BRAKE PEDAL.** Foot operated lever passing beneath left-hand footrest. Used in conjunction with front brake for stopping or slowing down.

**IGNITION KEY.** (Not Three Star). Protruding from top of right-hand engine cover it should be turned to lie at right angles to the machine to start engine. To stop engine turn in anti-clockwise direction to lie in line with machine. Always remove key when leaving machine unattended.

**LIGHTING SWITCH.** (Three Star Special only). Situated in the headlamp shell to the right-hand side the switch has four positions—  
C.H.—Charge for normal daytime riding.

D. —Direct lighting, i.e., without passing through the battery.

H. —High, main headlamp bulb and tail.

L. —Low, headlamp and tail light for parking.

**LIGHTING SWITCH.** Situated in headlamp shell to right-hand side, the switch has three positions, dim, off and full, which are self explanatory.

## LUBRICATION

The lubrication of the engine, gearbox and primary chain are dealt with quite fully in the handbook devoted to the power unit, but there are obviously various other points on the machine requiring periodic lubrication if satisfactory operation is to be enjoyed.

**GREASE NIPPLES.** There are only two grease nipples on the whole of the cycle, one being on the steering head, to which a few shots of grease should be applied every 3,000-4,000 miles or thereabouts. The second nipple is for lubrication of the rear brake cam spindle.

Grease should only be applied sparingly as it is important that none should escape from the inner end of the bush and find its way on to the brake drum or brake shoe linings.

**REAR CHAIN.** On a machine fitted with full enclosure, cleaning and lubrication will only be necessary at fairly infrequent intervals, probably only when removal of the case is necessary for other reasons. An exposed chain does require relatively frequent oiling. The lubricant being applied between the side plates of the chain on the inside of the bottom run whilst the rear wheel is being rotated. At 2,000-3,000 mile intervals the chain should be removed, thoroughly cleaned in paraffin and allowed to soak for some hours in one of the lubricants recommended in the chart. Working the soft grease into the joints of the chain and finally wiping off all surplus grease. When re-fitting the chain always fit the spring clip with its closed end facing the direction of travel of the chain.



**HUB BEARINGS.** These are packed with grease during assembly and should not require further attention for some 6,000-8,000 miles, when the hub should be dismantled (as described in a later paragraph), the bearings removed and re-packed with grease.

**FRONT FORKS.** Although these forks do not embody any hydraulic mechanism, each leg contains about a tablespoonful of SAE 30 oil which is sufficient to provide adequate lubrication for some 6,000-8,000 miles, at which stage the fork could, with advantage, be dismantled for internal cleaning and fresh oil inserted.

**NOTE.**—The unsprung front mudguard is stabilised between the fork shrouds by a sliding slipper assembly carrying felt pads which are impregnated with oil before fitting. It is important that these pads are at all times well oiled.

**REAR SUSPENSION.** This should require no lubrication or maintenance whatever since both the swinging arm and the shock absorber units are carried on bonded rubber bushes. The damper part of these units is sealed and cannot be interfered with except by the manufacturer to whom it should be returned in the unlikely event of leakage or any other trouble.

**MISCELLANEOUS.** Any point at which relative movement takes place between two or more parts will always benefit by the application of a few spots of lubricant from an oil can, and periodic attention should be paid to exposed cable ends, yoke pieces, brake pedal shaft, handlebar levers, etc. It is neither necessary nor desirable to smear the machine with oil or grease which is liable to damage the user's clothes. After oiling, the joint should be wiped with a clean cloth to remove all surplus oil.

## RECOMMENDED LUBRICANTS

	WAKEFIELD	ESSO	MOBIL	BP	SHELL
Rear Chain	Castrolase CL	Esso Fluid Grease	Mobilgrease No. 2	Energrease AO	Retinax CD
Grease Gun & Rear Springing	Castrolase CL	Esso Multi-Purpose Grease II	Mobilgrease MP	Energrease C.3	Retinax A
Wheel Hubs	Castrolase Heavy	Esso Multi-Purpose Grease II	Mobilgrease MP	Energrease C.3	Retinax A
Oiling Points	Castrol XL	Essolube 30	Mobiloil A	Energol SAE 30	Shell X-100 30

## **TAKING OVER NEW MACHINE**

All Ambassador machines should arrive at the owner greased, oiled and correctly adjusted for immediate use, but it is desirable to sit astride the new model and familiarise oneself with the position and 'feel' of the various controls as shown in Fig. 1. Locate the kickstarter with the foot and make sure all controls come readily to hand. Operate the gear change pedal into its various positions moving the machine backwards and forwards in order to assist gear changing without the engine running, finally ensuring that the gears are in the neutral position, i.e., the lever one position down from the bottom gear position. This will enable the machine to be readily wheeled about.

It is assumed that your dealer has registered the machine, that the registration numbers are affixed to the front and rear mudguards and that if you are a learner driver the necessary L plates have also been attached as required by law.

## **STARTING THE MACHINE FROM COLD**

Ensure that there is petrol mixture as specified in the engine handbook, in the petrol tank. If the machine has been standing for any length of time, say overnight, shake vigorously from side to

side in order to ensure the oil is adequately mixed with the fuel. Make a habit of doing this every time the machine has been out of use for a few hours.

Turn on the petrol and slightly flood the carburettor by depressing the tickler on the top of the float chamber. In the case of the Super 'S' the tickler is reached by inserting a finger through the hole in the right-hand fairing immediately ahead of the horn, and for the first few times it may be necessary to feel around a little to locate it, but after a little use it will readily come to hand. Also on the Super 'S' it will be necessary to turn the ignition key on the right-hand engine cover, into the 'ON' position, i.e., key at right angles to machine. Close the choke on the air filter (Three Star Special) or the air lever (Super 'S'), and open the twist grip about one third of its movement. Depress the kickstarter a time or two in order to draw in some mixture. Now administer a determined kick and the engine should burst into life. A little practice will soon indicate the best positions for the controls to ensure positive starting. When the engine has been running for a few minutes, open the choke or air lever.

**STARTING—WARM ENGINE.** Proceed as above, but there is no necessity to flood the carburettor or close the choke or air lever.

## **RIDING THE MACHINE**

Having started the engine and felt its response by opening and closing the throttle a few times whilst sitting astride the machine, operate the clutch lever and whilst holding it against the handlebar



engage bottom gear by lifting the gear lever with the right foot as far upwards as it will go. Now gradually allow the clutch lever to return to its normal position and when it is felt that there is a tendency for the machine to move forwards, slightly open the throttle, paddle the machine forwards a pace or two in order to assist the getaway, at the same time allowing the clutch lever to go right home. If the engine stops instead of the machine going forward, it will be because the throttle has not been opened sufficiently or the clutch lever has been released too rapidly. With a little practice a smooth take off will be accomplished with ease. Ride along slowly a short while and then attempt to come to a standstill by closing the throttle, raising the clutch lever and gently applying both brakes; here again a little practice will soon show what pressure is necessary on both pedal and hand lever in order to stop in a certain distance. Repeat the stopping and starting procedure until some confidence and a certain degree of efficiency has been reached.

With the machine under way in bottom or first gear a change to a higher gear can be made by closing the throttle, operating the clutch lever, and smartly pushing down the gear change lever. Release the clutch lever and re-open the throttle. Repeat the process to obtain third gear and again for top gear on machines with four-speed gearboxes. It is impossible to lay down set road speeds at which a change to a higher gear should be made as this will vary considerably according to conditions and circumstances. Never hang on to a low gear if the engine seems to be over revving and similarly change to a lower gear if the engine appears to be labouring due to gradient or too low a road speed.

No doubt your first efforts at gear changing will be clumsy and rough but practice will soon result in correct synchronisation of the controls to produce a smooth effortless change.

Changing to a lower gear is accomplished in a similar manner except that the throttle is not closed when the clutch is withdrawn which results in the engine speed increasing slightly in keeping with the lower gear.

In order to be able to sit astride the machine with the engine running, after coming to rest, it will be necessary to set the gears in the neutral position as described earlier.

To the novice the above procedures may sound somewhat terrifying, but there is really not a great deal of skill required and only practise will result in clean and easy handling of the machine.

### **ROAD MANNERS AND SAFETY**

The motor cycle is an inherently unstable vehicle, and its rider is always more vulnerable than the occupant of any other mechanically propelled vehicle. At all times therefore the intelligent user will ride with discretion, seeing that his behaviour on the road does not inconvenience or endanger other road users, and that his manner of driving does not cause adverse criticism from ped-



estrians. As a motor cyclist, you are a member of a great sporting movement and any misbehaviour of the individual reflects on the movement as a whole.

Showing off, flashy riding, cutting in, too violent acceleration, and braking are not only unnecessary, ill mannered and dangerous, but result in aggravated wear and tear on the moving parts of the machine and should be avoided in the interests of all.

### **RUNNING IN**

The manner in which a new machine is handled during the early stages of its life will be reflected in its subsequent behaviour. For the first 500 miles the throttle should not be more than one-third open in any gear, and the particular gear selected should be such that the engine is turning over at a speed at which it is obviously happy. Avoid over revving on the one hand and slogging in too high a gear on the other. Allow the engine to warm up a little before moving off and remember the rich oil mixture mentioned in the engine manual.

Whilst the 'bedding in' of the moving parts is taking place, fairly frequent checks of all points of adjustment should be made, rear chain, brakes, cables, steering head, etc. The cylinder head nuts should also be checked with a spanner, while the engine is warm.

After 500 miles the performance can be gradually stepped up until at 1,500-2,000 miles it should be quite safe to use the machine's maximum performance for reasonably long periods.

### **CLEANING**

Never attempt to rub dry mud off any of the enamelled surfaces; this will very soon scratch into the finish and destroy the gloss. Mud and other road dirt should be soaked off with water, preferably a small hose, allowing the water to wash away the particles of grit. Dry off with a chamois leather and when thoroughly dry, polish with a good wax polish and a soft duster.

The engine casing can be cleaned by applying paraffin with a stiff brush. Contrary to popular belief chromium plating requires cleaning if it is to retain its original lustre over long periods. When wet, dry off with a chamois and in dry weather clean with a moistened leather. For winter use protect with a lanoline base rust preventative smeared on with a soft rag or apply one of the numerous protective coatings now available.

### **ADJUSTMENTS**

**REAR BRAKE.** Continued application will result in the pedal movement becoming excessive. This can be counteracted by screwing the knurled nut on the rear end of the brake rod further up the rod. The best condition is obtained when the wheel is quite free to rotate but a minimum movement of the pedal brings the shoes into contact with the drum.

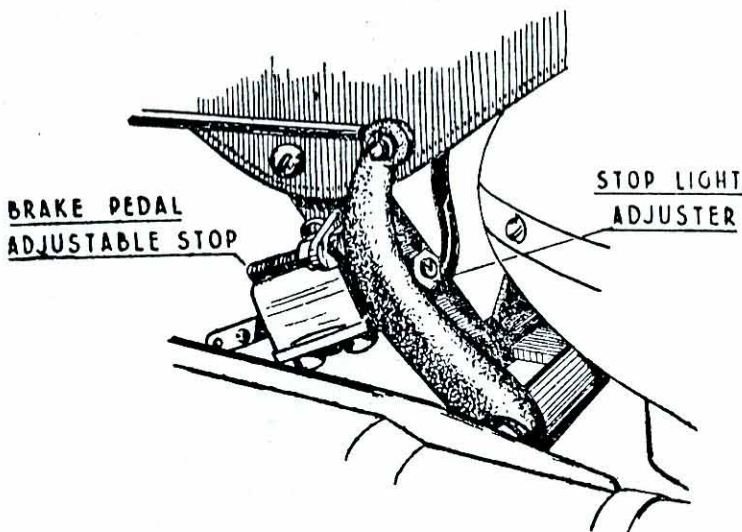


FIG. 2—BRAKE PEDAL LEVER—SUPER 'S'

Brake pedal position can be adjusted on the Super 'S' by means of the set pin and lock nut attached to the frame, close to the stoplight switch and butting against the brake lever (see Fig 2). On the opposite side of the lever is the stoplight switch adjustment which will almost certainly need attention when the pedal stop is adjusted.

On the Three-Star Special, brake pedal adjustment is rather more simple, a single screw and locknut butting against the stoplight switch attached to the brake lever being the only adjustment necessary. This screw is clearly visible in Fig. 3.

**FRONT BRAKE.** Cable operated on both models, some machines have adjusters located on the handlebar fittings, and adjustable with the fingers. Models having handlebar fairing have an adjuster on the brake plate. The brake should not be over adjusted or heating of the drum, glazing of the linings and loss of performance will occur.

**STEERING HEAD.** Once initial bedding in has taken place this adjustment will only be necessary at long intervals. To adjust, raise the front wheel off the ground so that play in the head races can be readily felt when the fork legs are held in the hands and moved in a fore and aft direction. Slacken the pinch bolts in the fork bottom bracket and slacken also the nut (marked A in Fig.

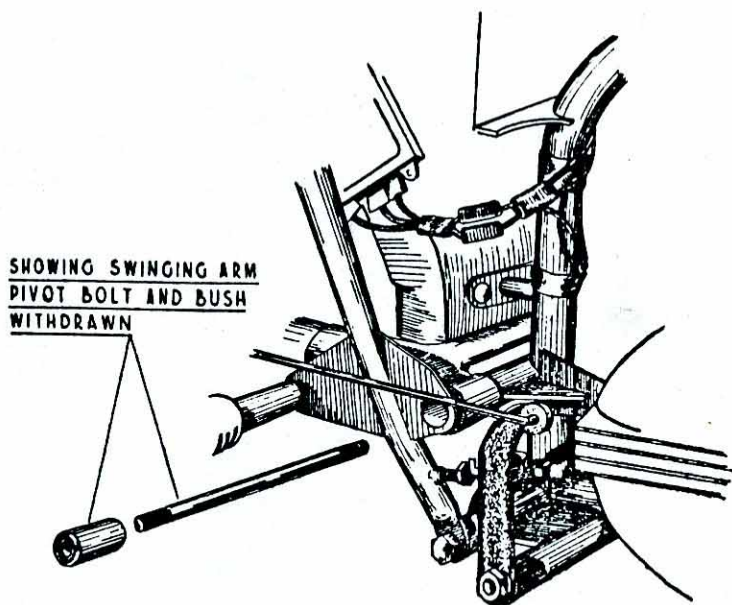


FIG. 3—BRAKE PEDAL ADJUSTMENT—THREE-STAR

4), at the base of the steering head assembly, and rotate the hexagon head of the stem bolt (B in Fig. 4), in a clockwise direction until all perceptible play has disappeared but the forks are still quite free throughout their complete movement from lock to lock. Re-tighten the locknut and check for freedom as it is possible that tightening the nut may slightly reduce the clearance. Finally re-tighten the pinch bolts.

**REAR CHAIN.** From time to time it will be necessary to adjust the rear chain and to do this it is necessary to raise the rear wheel off the ground and rotate it slowly whilst checking the amount of slack of the chain in various positions. Adjustment should be made with the chain in its tightest place. Total movement of the chain midway along the bottom run should be between  $\frac{3}{4}$ -in. and  $\frac{7}{8}$ -in. with no load on the wheel and the suspension units fully extended. On machines fitted with full enclosure it will be necessary to remove the lower half of the chaincase to obtain access to the chain by removal of the two bolts clearly visible on the lower half immediately below the swinging arm tube. Slightly slacken the spindle nuts and move the wheel in a rearwards direction by means of the adjusters fitted to each fork end. It is important that each adjuster is moved the same amount in order to maintain correct wheel alignment. It is a good plan to rotate each adjuster one whole turn at a time, and check the chain as the tension will be



affected if one side only is moved, afterwards bringing the other side into line.

Movement of the rear wheel will necessitate adjustment of the rear brake. Remember to tighten spindle nuts, making sure that they are making contact with the adjusters, tighten the adjuster lock-nuts and check the nuts on the brake anchor strap.

**WHEEL BEARINGS—THREE-STAR SPECIAL.** On this model front wheel bearings are of the cup and cone type and will sooner or later require adjusting to remove excessive wheel rock.

Slacken back the near side spindle nut and the locknut inside the fork end. With a thin cone spanner on the two flats which will be seen protruding from the hub, rotate the cone in a clockwise direction as necessary until side play is taken up. It is important

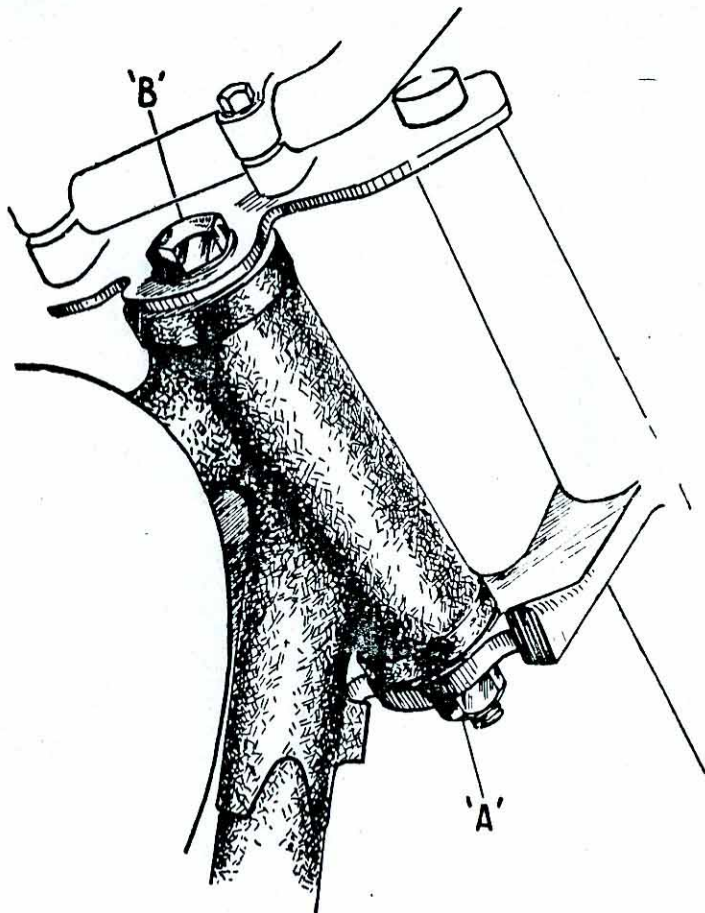


FIG. 4—STEERING HEAD ADJUSTMENT

that the assembly is perfectly free and it is preferable to have just perceptible slackness rather than any suspicion of being overtight. Tighten the locknut and re-check for being free. When all is correct re-tighten the spindle nut.

**TWIST GRIP.** In addition to the normal throttle cable adjuster situated on the top of the carburettor, the action of the twist grip is controlled by an adjustable friction pad enabling the grip to be set so that it remains in a set position when released, thus facilitating hand signalling, etc. There is a screw and locknut protruding from the underside of the twist grip body which controls the amount of friction in the grip. This should be set to suit individual requirements.

### **WHEELS AND HUBS**

**FRONT WHEEL, REMOVAL.** Screw the cable adjuster into its lowest position and release the end of the cable from the yoke on the brake lever by operating the brake with a spanner on the nut locking the brake lever into position, relieving the cable of all load and slipping it through the slot in the yoke. Remove cable adjuster from its threaded holder. Release the wheel nuts sufficiently for the washers to be withdrawn from the locating recess in the fork ends and the wheel will drop to the ground. Lean the machine or lift the front end sufficiently to roll the wheel clear.

**FRONT WHEEL, RE-FITTING.** The only difficulty likely to be encountered when re-fitting the wheel is ensuring that the brake anchor plate is correctly located on the two flats machined on the inner end of the offside mudguard stay bolt. These flats must enter the slot in the anchor plate whilst the wheel spindle is being guided into position in the fork ends. **THIS IS MOST IMPORTANT.** In order to facilitate re-engagement of the cable nipple in the brake lever yoke, it will be necessary to screw the cable adjuster right home and operate the lever with a spanner, as when removing, afterwards re-adjusting so the wheel is free to revolve but the minimum movement of the handlebar lever applies the brake.

**REAR WHEEL REMOVAL.** On machines equipped with full rear chain enclosure, it is first necessary to remove the bottom portion of the chaincase. This will enable the connecting link joining the ends of the rear chain to be located and removed. Take care that the chain does not come adrift from the gearbox sprocket, also preventing dragging in road grit, by allowing it to lie on a piece of newspaper or rag.

Completely remove the brake rod adjuster nut and the nut securing the brake anchor strap to the brake plate, swinging the strap clear. Release the spindle nuts, draw the wheel backwards and it will fall to the ground. Lean the machine over slightly to the nearside, and fully withdraw the wheel.

**REAR WHEEL, RE-FITTING.** If the rear wheel adjusters have not been touched whilst the wheel has been removed, replacement of the wheel will be quite straightforward. Remember to re-attach the

anchor strap, to ensure that the wheel spindle is hard against the adjusters before tightening the spindle nuts, and to fit the spring clip on the chain connecting link with its closed end pointing in the direction of travel of the chain.

**HUBS, DISMANTLING AND RE-ASSEMBLING, CUP AND CONE TYPE, THREE-STAR, FRONT.** In order to clean out and re-pack with fresh, clean grease, as recommended it is necessary to completely dismantle the fittings from inside the hub shell. Fig. 5 is a cross-section of this type of hub which makes the assembly quite clear. Remove the spindle nuts and the locknut from the plain side of the hub. This will enable the adjustable cone to be removed, holding the assembly over a suitable pan so that the balls thus released are not lost. The spindle and fixed cone may now be withdrawn from the opposite side. Again there will be a loss of balls. Wipe the grease from the cups in the hub shell and examine them for wear. Unless they are pitted or otherwise worn they should not be removed. If necessary they can be knocked

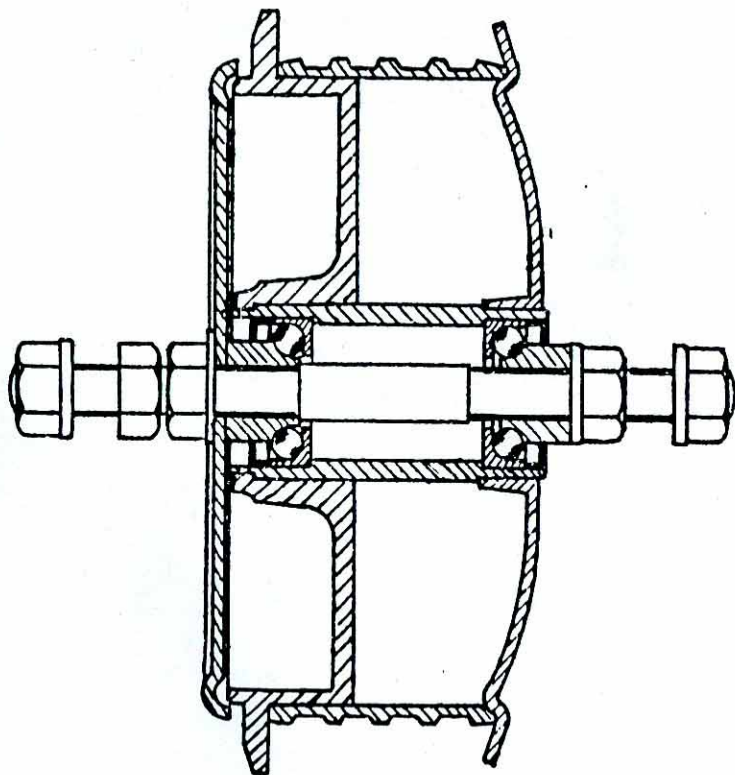


FIG. 5—FRONT HUB SHOWING CONES



out with a hammer and brass punch and replacements fitted. Examine also the cones and replace as necessary.

Having obtained any necessary replacements and fitted any new cups into the hub shell, liberally smear the cup tracks with grease and insert ten  $\frac{1}{4}$ -in. diameter balls into the track in the brake side of the hub. The grease will hold them in position while the spindle, together with the fixed cone is being inserted. Hold the assembly sufficiently close together to prevent accidental loss of balls while a further ten balls are dropped into the other cup and the adjustable cone screwed into position. Adjust until the spindle is free to rotate without any perceptible rock or end float. Fit and tighten locknut and re-check adjustment. Wipe off surplus grease especially on brake side. There may be packing washers between the fixed cone and the brake plate. These should be such as to provide minimum clearance between plate and drum without actual contact occurring.

**HUBS, DISMANTLING AND RE-ASSEMBLY. RIGID BALL JOURNAL TYPE.** The following directions apply to all front and rear hubs NOT having adjustable cones. See Fig. 6. Remove the spindle nuts and the locknuts and distance pieces from either end of the spindle, placing them in such a position that it will be quite clear which goes where, when re-assembling. The brake plate assembly may now be removed together with any washers with which it may be packed out. The spindle may now be drifted through the hub in either direction. It will bring with it a journal bearing together with felt and pensteel washers, the positions of which should be noted so that they may be re-assembled correctly. The remaining bearing together with its felt and steel washers may be drifted out. Wash all parts in paraffin or petrol removing all traces of the old grease from the bearings. Check the bearings for wear and rough running. A small amount of slack in this type of bearing will certainly be noted when the grease is removed. This is the normal running clearance and should not be confused with wear.

Smear each bearing with clean, fresh grease of the specified grade. Work it well into the bearing and wipe off flush with each side. Drift one bearing right home in one side of the hubshell. Insert the long end of the spindle into the opposite side of the hub and drive the spindle home into the same bearing. Thread the second bearing over the opposite end of the spindle and drift home on spindle and in hubshell. Each end should now be fitted with a dished steel washer, a felt washer and a further dished washer on the brake side, the plain side being fitted with a large dust cover. Distance pieces, brake plate and locknuts should now be re-fitted in their original positions.

**BRAKE PLATE, DISMANTLING AND RE-ASSEMBLING.** To remove the brake shoes, hold the brake plate assembly firmly on a workbench with the shoes uppermost. Insert a suitably dimen-

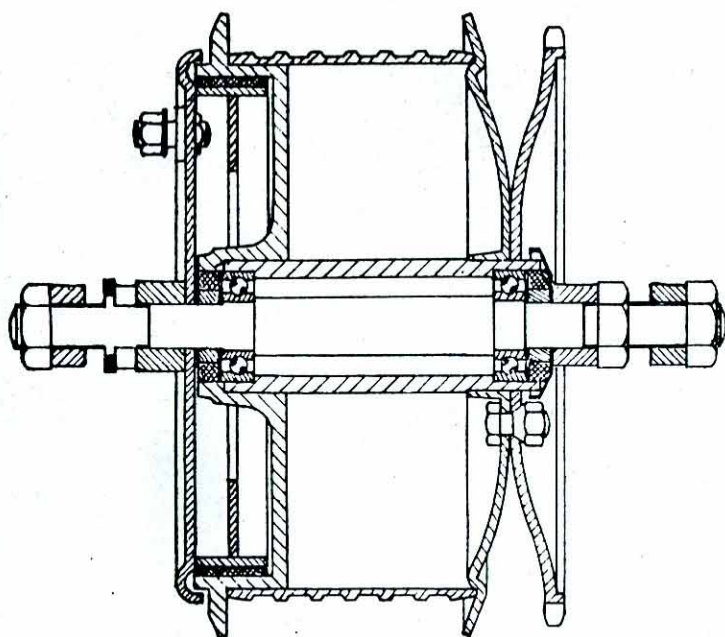


FIG. 6—HUB WITH RIGID JOURNAL BEARINGS

sioned screwdriver between the pivot pin and the shoulder on the brake shoe on the opposite end from the cam. Lever the end of the shoe out of the slot in the pivot pin at the same time tilting the shoe away from the brake plate with the other hand. Once the shoe is clear of the slot and tilted at a sufficient angle, the springs will do the rest and the shoes and springs will fall clear.

If the linings have worn down until they are level, or nearly level, with the rivet heads, new linings should be fitted. This is NOT a job to be undertaken by the average rider who has neither the tools nor the experience, and a badly fitted lining will not be worth having. When linings are correctly fitted, there should be no daylight visible between the shoe and the lining at any point.

To re-assemble the shoes, fit the springs to both shoes and place one shoe in position. Place the upper edge of the cam end of the second shoe on the flat of the cam immediately below the rivetted on washer, and the opposite end as near as possible to the groove in the pivot pin. Push down angularly on the upper corner of the brake shoe to swing it into its normal position. Considerable force will be required and care should be taken to avoid getting fingers pinched when the shoe goes home.

### TYRES

**CARE OF, REMOVAL AND FITTING.** Always maintain tyres at the correct pressures (see data at front of book). Under inflation



causes cracking of the tyre wall, uneven wear and break up of the fabric structure. Over inflation provides a rough ride and danger of bursting, but on the whole is not so damaging as under inflation. Periodically examine the tyre and pick out any stones or other sharp bodies which may have become embedded in the rubber.

Always replace the valve caps after inflation, and should one become lost, renew as soon as possible.

To remove a tyre, deflate by removing the valve cap and with its slotted end, unscrewing the valve core. Push the beads of the cover down into the well of the rim at a point opposite the valve. Insert a small tyre lever between the rim and the tyre at a point near the valve and a second lever a short distance away. Ease the tyre off the rim until one lever is free and can be removed, insert it again a few inches further round, and repeat the process until the bead can be eventually pulled off the rim by hand. If excessive force is necessary, it suggests that the opposite side of the tyre to that being worked on, i.e., diametrically opposite, is not sufficiently into the well of the rim.

To fit a new tyre or one that has been completely removed, see that the rim band is in position, on the wheel. Dust the tube, beads and rim with french chalk. Slightly inflate the tube and place it within the cover, placing the cover on the wheel with valve and valve hole in line. Fit the underneath bead using levers to complete the operation. Insert the valve into the hole in the rim and fit second bead commencing opposite the valve, and taking care not to pinch the tube. Inflate to correct pressure, fit and tighten valve locking nut and cap.

Where White Sidewall Tyres are fitted, an occasional scrubbing with soap and water will help to maintain the original whiteness.

## FRONT FORKS

**LOAD ADJUSTMENT AND DISMANTLING OF LEG.** These forks, of Ambassador design and manufacture, embody a load adjustment, which may be set to individual requirements. Fig. 7 shows quite clearly the component parts and indicates their relative positions. In order to carry out the load adjustment it is necessary to obtain from the Spares Department the special tool, Part No. FF130, price 12/6, and to proceed as follows:

Slacken the pinch bolts in the top bracket and by means of a tommy bar in the cross hole unscrew and remove the top cap. Insert the special tool down the centre of the spring then exposed, locate it in the slot across the top of the extension bar and unscrew. Removal of the bar will reveal two locknuts at its lower end. Adjustment of these nuts up the bar will increase the stiffness of the fork movement, while movement of the nuts in a downward direction will have the reverse effect. Movement to the extent of  $\frac{1}{4}$ -in. in either direction will have a most noticeable result. It is important that the extension bar in each leg is adjusted to the same



position, and we recommend that one leg is adjusted and re-assembled before commencing work on the other.

To re-assemble, insert the spring assembly into the fork leg and tighten by means of the special tool. Screw the spring top fixing (which is attached to the top cap) into the top of the spring, and screw the cap into position. Finally tighten the top bracket pinch bolts.

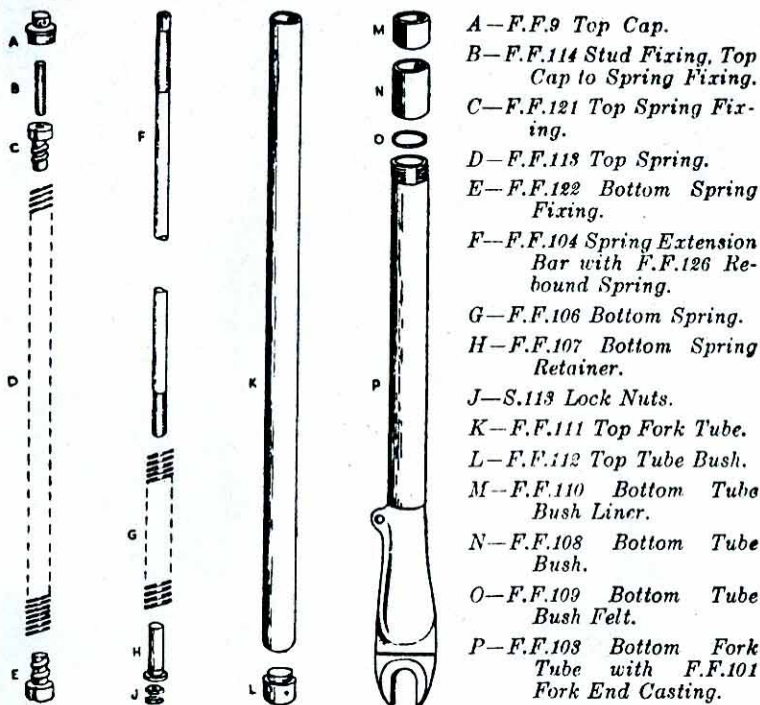


FIG. 7—FRONT FORK LEG COMPONENTS

**FORK REMOVAL FROM FRAME.** It may be desired to remove the forks from the frame without removing the legs individually. This can be accomplished by slackening the top bracket pinch bolts, removing the nut from the bottom end of the steering stem bolt, removing the headlamp bolts, finally removing the stem bolt and withdrawing the top bracket complete with handlebar and all fittings. This will allow the remainder of the fork assembly complete with wheel and mudguard to be withdrawn downwards. It is NOT an operation to be attempted single-handed and care will be needed to ensure no loss of balls from the head races. The headlamp will remain suspended by its cables.

Assembly should present no difficulty other than that of handling the complete fork into position. Examine head races, if renewal is

necessary they may be drifted out of position and new races fitted, making sure that they are square and fully home.

Grease the tracks and place 19 steel balls  $\frac{3}{32}$ -in diameter in each track, the grease will hold them in position while fitting the forks.

**FORK LEG, REMOVAL AND FITTING.** With the wheel and mudguard removed, slacken the pinch bolts in both top and bottom brackets. This should enable the fork leg complete to be jerked out in a downward direction. If it is tight a blow or two with a mallet or hide hammer on the top cap will release it. With the fork leg and headlamp removed, removal of the fork shroud can be effected by withdrawing completely the pinch bolt from the bottom bracket and the smaller bolt securing the lower end of the shroud. The leg may be dismantled as already described.

To re-assemble, place the top shroud in position, fitting the pinch bolt and the smaller shroud bolt but leaving them loose. Push the fork leg assembly through the bottom bracket and the shroud into the top bracket until the upper face of the top cap is flush with the top surface of the top bracket. The top pinch bolt may be tightened but do not tighten the lower pinch bolt and the shroud bolt until the headlamp is in position and squared up.

### **MISCELLANEOUS DISMANTLING, ETC.**

**DUAL SEAT REMOVAL.** Two types of dual seat fitting have been used on these models. One in which it was necessary to remove a large headed screw from each side of the seat before access to the tools and battery could be obtained, and another sprung on type with which it is only necessary to give a sharp upward snatch to the rear end of the seat and draw it backwards.

**SIDE FAIRING AND REAR PANEL REMOVAL AND FITTING.** In conjunction with the two types of seat mentioned above, there is also two types of fairing mounting. In each case the side fairings and rear panel come away together, although composed of three separate pieces. The earlier fitting employs three small screws to attach the side fairings to the top of the rear frame portion, normally hidden beneath the seat, and an additional similar screw near the bottom of the fairing either side. Removal of these screws enables the whole fairing to be removed backwards, straining it slightly to pass the side tubes of the rear frame.

The later type, almost identical, dispenses with the six screws in the top tube of the rear portion over which it now hooks, being retained only by the single pin at its lowest extremity.

Before the fairings can be removed it is, of course, necessary to disconnect the petrol pipe, remove seat and tank and remove also the nose piece. When the screws are removed, but before any attempt is made to remove the fairing, disconnect the horn wires and the snap connectors in the tail and stop lamp leads.

Apart from accident it should never be necessary to separate the fairings from the rear panel.

**PETROL TANK, REMOVAL AND FITTING.** With the petrol turned off, the pipe disconnected and the dual seat removed, unscrew the two nuts securing the rear tank rubber bracket, and remove the bracket and rubber. Pull the tank in a rearward direction to release it from the front mounting.

Fitting of the tank is greatly facilitated if the front rubber is fitted to the tank and a little oil or grease smeared on that part of the rubber which makes contact with the headlug. Place the tank approximately in position, and push forward as far as it will go. Place rear rubber and bracket in position, fit and tighten securing nuts.

**REAR SHOCK ABSORBER UNITS. ADJUSTMENT.** The rear shock absorber units are adjustable in three positions (see Fig. 8), by means of a key supplied in the tool kit. Machines leave the works with the units in the weak positions, i.e., normal solo setting. To adjust to a stronger position for pillion work rotate the lower portion in a clockwise direction until it clicks into the next position. Considerable effort will be required to effect the change over. It is, of course, important that both units are set in the same position.

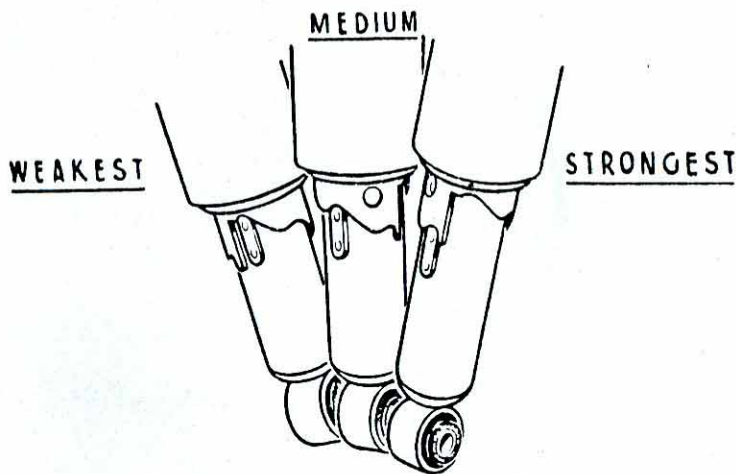


FIG. 8—SHOWING SHOCK ABSORBER ADJUSTMENT POSITIONS

**SILENCERS.** The characteristics of the exhaust system of a two stroke engine are of vital importance to good power output and economical and cool running. After a while the silencer will tend to become partially choked with a carbon/oil mixture and will need dismantling and cleaning. Removal of the small screw at the outlet end, enables the internal baffles to be drawn out by means of the strip welded across the outlet for this purpose. The deposit may be glutinous and tarry, in which case it may be removed with



paraffin and a brush, or it may be hard and brittle, in which case Gunk, Kleenoff or even caustic soda may be necessary.

It is convenient to do this work when the engine is being decarbonised.

**ELECTRICAL SYSTEM.** Wiring diagrams, prepared for all models are given on pages 24, 25 and 26.

## **"ELECTRA 75"**

### **SUPPLEMENTARY MAINTENANCE INSTRUCTIONS**

The following paragraphs deal only with those points which are different to the other models and are therefore mainly concerned with the electrical system where the essential difference is the use of a 12-volt circuit using two 6-volt 11 ampere hour batteries connected in series.

**STARTING.** The combined ignition and starter switch is fitted in a horizontal position in the right-hand engine cover. Rotation of the key in a clockwise direction turns on the ignition and causes the small warning light in the middle of the handlebar cover to become illuminated. Further rotation of the key against a spring pressure, rotates the engine. Releasing the key automatically disconnects the starter but leaves the ignition turned on.

Apart from the electric starter normal motor cycle starting procedure should be adopted, closing the air control (beneath handlebar cover) and moderately flooding the carburettor for cold starting. Should the engine fail to start, do not keep the starter in engagement but flick it on and off. It is best to have the machine on the stand and start the engine whilst standing at the right-hand side of the machine.

To ensure trouble-free starting it is important to maintain the sparking plug gap (.015") and contact breaker gap (.020"—.022") reasonably accurately, to keep the carburettor in clean condition, and the batteries well topped up at all times.

**BATTERIES.** Removal of the dual seat by withdrawing the two large screwdriver headed bolts from either side will reveal the voltage control regulator attached to a strip secured to the frame cross tube by a wing nut and a hexagon nut. Slackening the wing nut enables the strip to be swung on the bolt at the other end until access to the batteries becomes quite easy.

Removal of the wing nut between the batteries allows the battery securing strap to be removed which exposes the filler plugs in the

battery top. The plugs can be removed and topping up carried out without removing the batteries. Add distilled water till the plates are just covered. In the event of battery removal being required it is only necessary to disconnect one end of the lead joining the batteries together and the wires from the other terminals and lift the batteries out.

**WARNING LIGHT.** Fitted in the centre of the handlebar cover, this consists of two parts. The lens and bezel which are a press fit in the cover and the bulb holder which is pushed into the under side of the bezel body and may be readily withdrawn for bulb replacement. The correct bulb is 12-volt 2-watt "Baby miniature Bayonet."

Other correct bulbs are:—

Main Head	12-volt 36-watt—36-watt double filament.
Pilot	12-volt 2.5-watt
Stop and Tail	12-volt 6-watt—18-watt double filament.
Speedometer	12-volt 2.2-watt miniature bayonet.

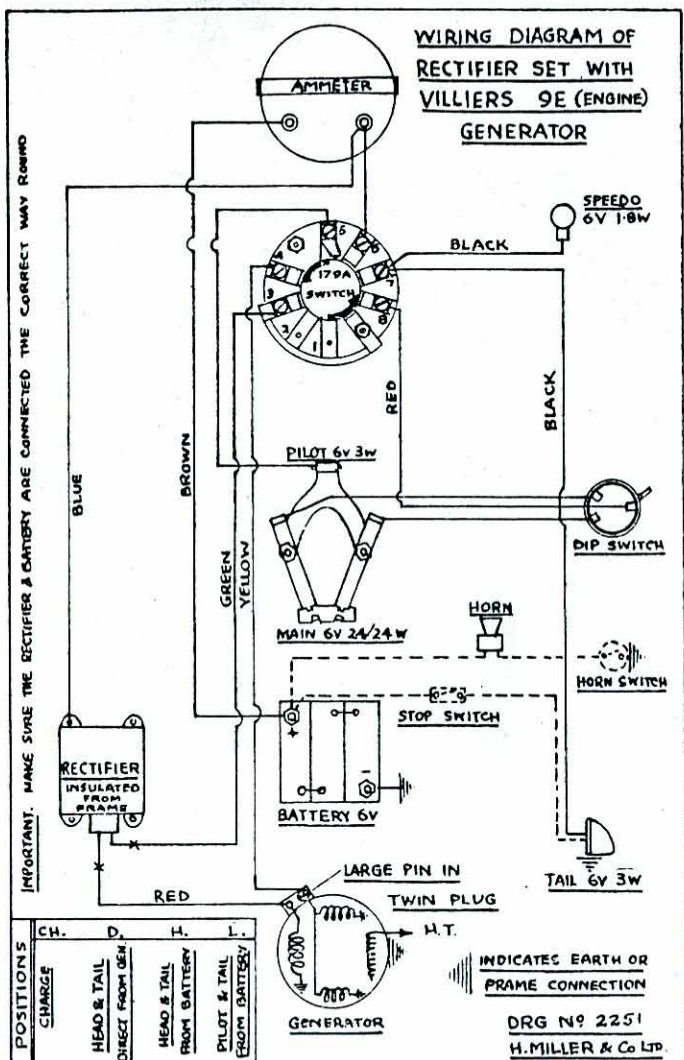
**HEADLAMP.** The headlamp is attached to the fork shrouds by two bolts to the rear and inward of the fork leg. These bolts pass through slots in the headlamp body, and by slackening off the lamp may be adjusted in a vertical plane as necessary.

**ENGINE REMOVAL.** To facilitate removal of the engine-gearbox unit, all electrical cables from the engine except that to the "A" terminal on the voltage regulator box are fitted with snap connectors 3 inches beyond the point of emergence from the engine, thus avoiding any necessity to interfere with the general wiring.

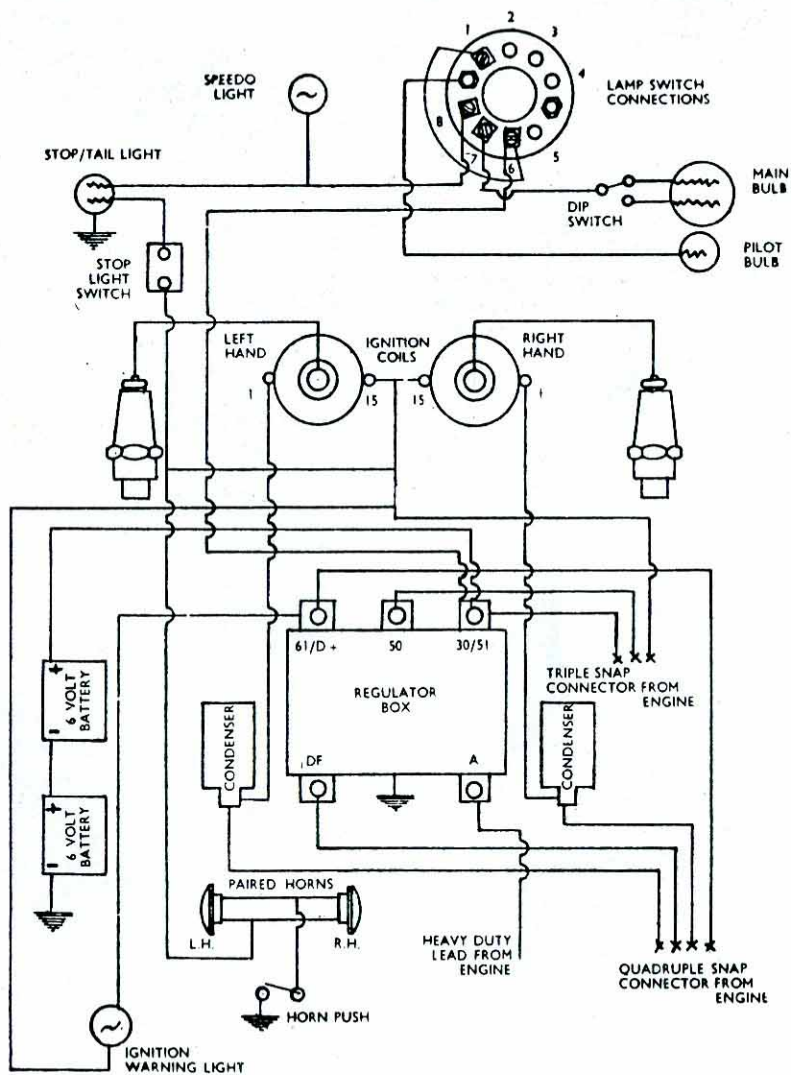
**TYRES.** It is inevitable that the white wall will tend to become dirty and discoloured in use. An occasional scrubbing with soap and water will help to maintain the original whiteness.







WIRING DIAGRAM THREE STAR SPECIAL



WIRING DIAGRAM—ELECTRA '75'

For the convenience of personal callers, the Spares and Service Department is open daily:

Monday to Friday—9 a.m. to 6 p.m.

Saturday morning—9 a.m. to 12 noon.

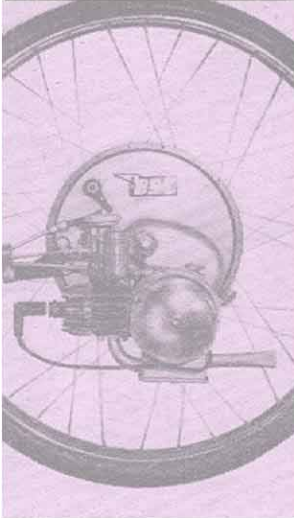
For Repairs or Servicing please contact Service Department beforehand in order to book an appointment. This will ensure that any work necessary will be carried out without delay.







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