



"GREYHOUND"

A. J. W MOTORCYCLES LIMITED

MAINTENANCE NOTES FOR

AJW/GIULIETTA	"GREYHOUND"	P6 engine
	"WOLFHOUND"	P6 engine
	"WHIPPET"	P3 engine
	"COLLIE"	P3 engine
	"POINTER"	V1 engine
	"FOX CUB"	P3 engine
	"VIXEN"	P3 engine
	"GSS"	P3 engine
TESTI	"CHAMPION"	P6 engine

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OPERATING AND MAINTENANCE NOTES

Although these notes are compiled with a view to assisting owners of AJW and Giulietta Mopeds and Motorcycles fitted with Minarelli 50 cc engines, in the maintenance of their machines they may also be of help to owners of other Minarelli engined machines, such as Cimatti, Fantic, Italjet, Kerry Capitano Mondial, Pronto and Testi. However, it should be noted that the notes do not apply to the larger capacity engines, as used in Cotton and Dot Motorcycles or Capri Scooters.

These notes apply to all models except competition machines or where the text refers specifically to a particular type.

OPERATING NOTES

Engine lubrication

The engine is lubricated by mixing oil with the fuel. Use $\frac{1}{2}$ pint of SAE 30 oil (not multi-grade) to $1\frac{1}{2}$ gallons of fuel, or 24/25 to 1 mixture from a two stroke petrol dispensing pump. Fuel should be normal grade, i. e. neither commercial grade nor high octane. We recommend Shell, Esso Mixture and BP among others. Too much oil in the mixture can do as much damage as too little, as it disturbs the correct ratio of fuel to air and so leads to overheating, apart from causing heavy carbon deposits. When refuelling close tap or taps and pour the correct quantity of oil into half of the tank opposite to that in which the tap is located (or where two taps are fitted into the half of the tank which is not normally used). When the petrol is pumped in, this will mix up the oil quite effectively and there is no need to shake the machine. If ready mixed fuel is available ask for 25 to 1 mixture.

Gearbox lubrication

Remove the makers nameplate on the right hand side of the crankcase. Then pour in SAE 40 oil till it just commences to overflow. To drain the gearbox remove the plug situated underneath the gearbox. Gearbox should be drained and refilled regularly (see schedule). As the clutch runs in the same oil as the gears, it is not advisable to add Molybdenum disulphide or similar additives to the gearbox oil in case this gets on the plates of the clutch, which may then tend to slip badly.

Fuel tap(s)

Fuel is off with the tap lever horizontal in the direction of "C". Fuel is on with the lever pointing vertically downwards along the line of the fuel pipe. Fuel reserve (if fitted) is with the lever horizontal in the direction of "R" (R and C are stamped on the tap body). Always turn fuel off when engine is stopped for more than a few minutes.

Starting engine

Make sure the gears are in neutral. Turn on the fuel.

P6/4 and P6 engine with SHB 19-19D carburettor

If the engine is cold, lift up and twist to lock the black cold starting knob. Close the throttle and use the kickstarter or pedals. Allow the engine to run for a few moments before starting off, and then twist and release the black knob. If the engine is hot, do not touch the black knob.

P3, P4 and P6 engine with UAS 17, 18, 19 or 20 carburettor

If the engine is cold, depress once or twice the plunger on top of the float chamber, but do not flood the carburettor. It may also be necessary to shut air slide. Close the throttle and use the kickstarter or pedals. If the engine is hot, do not depress the plunger or shut air slide.

V1K, P3N, and P4 engines with SHA 14-12 or SHA 14-14 carburettors

If engine is cold depress choke lever. Use kickstart or pedals. Allow engine to run for a few moments before moving off. Throttle should then be opened fully and the choke lever will release itself. Do not use choke if engine is warm.

Automatic clutch, EZ, & V1 engines - pedal gear

With these engines it is necessary to hold the centrifugal clutch in engagement before using pedals, by lifting the trigger lever on left hand handlebar. As soon as engine fires this trigger lever must be released.

E3, P3 engines with T4-12S1 carburettor

If engine is cold depress priming pump plunger two or three times and use kickstart or pedals.

All engines

When starting from cold not use large throttle opening and as soon as engine is running smoothly do not forget to open choke. Lift airslide or return starting device (whichever is appropriate) failure to do this will result in a "sooted" spark plug.

If carburettor is flooded or choke is engaged when engine is warm the sparkplug will be fouled.

Stopping engine

Turn off fuel 100 yards or so before reaching destination, shut throttle and cut ignition by pressing switch situated on the handlebars.

Setting tickover

If the throttle stop screw on the right hand side of the carburettor is screwed in, engine speed will increase, unscrewing will conversely reduce engine speed. With engine warm adjust till engine runs regularly with throttle closed.

Gear changing P4, P6/4 and P6 engines

The gear operation is by foot lever on the left hand side. To change up, the gear lever is lifted with the toe, to change down depress the lever with the toe. (If a lever with double pedals is fitted, then depress the rear with the heel to change up and depress the front with the toe to change down). The gear change mechanism is such that each full depression of the gear lever only moves the gears down one ratio at a time and one full lift of the lever only moves the gears up one ratio at a time. Neutral is between 1st (bottom) and 2nd gear.

When changing up, it is only necessary to lift the clutch handlebar lever slightly and at the same time to shut the throttle momentarily. When changing down, lift the clutch lever fully and at the same time open the throttle to speed up the engine in order to ensure a shockless change.

Gear changing E3, P3 and P3N engines

Gear operation is by a combined gear change and clutch lever on LH handlebar. With the clutch lever lifted, it is possible to twist the handlebar grip which changes gear. As with the P6 engine, on changing up close the throttle, on changing down open the throttle. The twist grip is rotated forwards to change up and backwards to change down.

Use of gearbox

It is better to change down at the foot of a hill and open the throttle fully rather than to wait till the engine speed drops before making a change. Change down before entering a bend, change up and accelerate leaving it. When intending to pass another vehicle, change down to obtain maximum acceleration. Approaching traffic lights or a block, change into neutral (if necessary) whilst still moving.

Brakes

The front brake (or brakes where applicable) is applied by the lever on the RH side of the handlebar, the rear brake is operated by pedal on the RH side of the machine. IT IS MOST IMPORTANT THAT FULL USE IS MADE OF THE FRONT BRAKE, AS THIS PROVIDES MOST OF THE BRAKING POWER. When the machine is slowed down inertia transfers most of the weight of the machine and rider from the back to the front wheel. This transfer of weight helps to keep the front wheel firmly in contact with the road and so the front brake can be used hard without risk of skidding. If the rear brake alone is relied on there is a possibility that the lightly loaded wheel will lose contact with the road and lock, provoking a side slip. USE BOTH BRAKES BUT APPLY THE FRONT BRAKE FIRST AND WITH MORE POWER.

Throttle control

The throttle is opened by rotating the right hand grip inwards and closed by rotating in the opposite direction. Always try to operate the throttle as smoothly as possible. This will result in economy not only in fuel but in wear and tear on tyres and chain. NOTE THAT AS FAR AS POSSIBLE NOT MORE THAN $\frac{2}{3}$ OF THE AVAILABLE THROTTLE MOVEMENT SHOULD BE USED FOR NORMAL RUNNING. Opening the throttle on a level road, will not increase speed a great deal, but it will increase fuel consumption. Full throttle should normally only be used on hills or when overtaking other vehicles.

Automatic clutch engines

On automatic clutch engines it is most important that the handlebar trigger lever is released as soon as engine fires. When moving off from traffic lights or accelerating away after slowing for a corner the engine will pick up more quickly if the pedals are used.

Running in

Run in for at least 600 miles (or 1000 kilometres) on gradually increasing throttle openings. Do not let the engine labour in top gear, change down early and often. Suggested speeds for running in are: 20 mph (33 kph) for the first 60 miles (100 km),

20/25 mph (33/40 kph) for next 200 miles (320 km), 25/28 mph (40/45 kph) for next 100 miles (160 km) and 28/32 mph (45/52 kph) for next 100 miles (160 km). During the next 140 miles (220 km) an occasional short burst of full throttle may be used. No attempt to sustain full throttle should however be made until the engine is fully run in. If care is taken in the initial stages the result will be much improved engine performance and longer life. During running in the use of Colloidal Graphite added to the fuel is recommended, and in the first 200/300 miles 20/1 fuel/oil mixture can be used.

MAINTENANCE NOTES

Regular maintenance is as important as correct lubrication and leads to economy in upkeep costs.

Carburettor

There is a filter in the carburettor, accessible by removing the bolt holding the feed pipe to the body, and this should be cleaned regularly. Another filter is embodied in the tap, this should be checked periodically. The air cleaner (if fitted) should be regularly cleaned by washing in petrol. When replacing dip the filter into a little light oil diluted with petrol. Take care that the vent hole in the tank filler cap does not become clogged with dirt or fluff from cleaning rag.

Sparking plug

The gap between the points must be maintained at .016" (.4 mm) and only plugs with the correct heat value used. If "whiskering" occurs at the points, as a temporary measure the gap may be increased to .020" (.5 mm). NOTE THAT PLUG WHISKERING IS AN INDICATION THAT THE CYLINDER HEAD NEEDS CLEANING OR THAT UNSUITABLE FUEL IS BEING USED. If the plug is cleaned with a carborundum blast ALL traces of dust MUST be removed before replacing. Do not use excessive force when tightening the plug particularly when the engine is warm. Finally REPLACE PLUG REGULARLY. It is false economy not to do so as a worn plug means higher fuel consumption, and poor performance.

Magneto points

Access to the contact breaker can be obtained by removing the left hand crankcase cover. First remove the cotter pin securing the LH pedal crank (or kick starter) to its shaft and remove. Next undo the screws holding the cover, this can then be pulled outwards and upwards so exposing the flywheel. Fully open, the gap between the contact breaker points should be .015" (.4 mm) and should be maintained at this. If it is necessary to alter the gap, slacken off the clampscrew on the fixed point holder and move the holder as required. DO NOT FORGET TO RETIGHTEN. Should the points require cleaning, rotate the flywheel till they are fully open and insert a piece of clean stiff paper between the points. If the flywheel is now rotated again the points will close. Remove the paper and repeat until no trace of dirt remains on the paper when withdrawn. If after considerable mileage the points are pitted, clean, using only a carborundum card of the type sold specially for this purpose and then only sparingly. If a file is used it must not be used for any other purpose. The felt pad which lubricates the contact breaker cam should receive no more than 2 drops of oil now and again.

Magneto timing

Two lines are scribed on the flywheel rim marked "A" and "O", and on the crankcase there is another mark. To check the timing, rotate the flywheel until the piston is at TDC. Letter "O" line on the flywheel should then coincide with the mark on the crankcase. Then rotate the flywheel in opposite direction until letter "A" on the flywheel lines up with the crankcase mark, points should then be just breaking. If at any time it is necessary to remove the flywheel THE SPECIAL EXTRACTOR MUST BE USED. Attempting to remove the flywheel in any other way may result in damage to the flywheel.

Clutch control adjustment on 3, 4 and 6 speed engines

A free movement of at least .10" (2.5 mm) must be maintained at the handlebar end of the cable. When the cable requires adjustment, slacken the clampscrew of the nipple on the gearbox end of the cable and slide the nipple along the inner wire and retighten the clampscrew. There is also an adjuster on the pressure plate, and this can be reached by removing the makers nameplate on the right hand side of the crankcase. Normally this adjustment will not be necessary until a large mileage has been covered.

On single speed automatic clutch engines

There must be a free motion of at least 1 mm on the handlebar trigger lever before the control wire is moved. If when the trigger lever is lifted, operating the pedals does not turn the engine over, it will be necessary to take up play in the bowden cable. Loosen the clamp nut on the lever situated on top of right side of crankcase. Pull the inner wire tight and retighten clamp screw, at the same time making sure that the free motion is maintained.

Brakes

Adjustment will be required:

- a. To compensate for brake lining wear.
- b. When wheels are refitted after removal.

Remember the control cables must be adjusted at the brake end of the cables. The handlebar adjusters are only for temporary en route adjustments. To adjust the front brake(s), using a spanner, unlock the adjuster(s) screwed into the brake plate(s). After the play has been taken up DO NOT FORGET TO RETIGHTEN THE LOCKNUT(S). (Do not adjust the front brakes on the Testi Champion by using the cable adjuster at the handlebar lever. This may cause the dual brake yoke to foul the stirrup on the fork yoke, and limit brake control movement). To adjust the rear brake, first undo the adjuster on the brakeplate until the brake binds on the drum, then run the adjuster back until the wheel revolves freely. RETIGHTEN THE LOCKNUT. Check the operation of the stoplight (when fitted) and adjust as necessary. When removing the wheels it will be necessary to release the Bowden wire clamp screws. Ensure that the thin nuts holding the brake plates to the spindles are kept tight.

Rear chain

To adjust first slacken off the spindle nuts. Then by rotating the chain adjusting cams or with spanner on chain adjuster nuts tighten or slacken the chain as required. In correct adjustment with rider on the saddle there should be a total of $\frac{1}{2}$ " up and down movement on the lower run of chain. Because of possible uneven wear, it is advisable to check the chain tension in several places and make the adjustments at the tightest spot. DO NOT OVERTIGHTEN THE CHAIN AS THIS THROWS A HEAVY LOAD ON THE GEARBOX BEARINGS. When adjusting the chain take care to maintain wheel alignment by counting the number of cam notches or turns of nuts used on one side and repeating this on the other. When the limits of the adjusters have been reached the chain can be shortened, (but only if it is in good condition), by removing a link, otherwise renew the chain. RETIGHTEN THE REAR SPINDLE NUTS AFTER ADJUSTING THE CHAIN AND CHECK REAR BRAKE ADJUSTMENT. IF REAR BRAKE IS ROD OPERATED. The chain should be cleaned and lubricated regularly and the use of special chain lubricant is recommended.

Speedometer drive

There is a grease nipple on the gearbox. UNDER NO CIRCUMSTANCES SHOULD A GREASE GUN BE USED ON THIS BEFORE DISCONNECTING THE FLEXIBLE DRIVE otherwise grease will be forced up the drive and into the speedometer rendering it useless. Wipe off surplus grease before reconnecting the drive.

Wheel bearings

If these are of the cup and cone type, adjustment is made by slackening off the locknut, screwing in the adjustable cone until all play is taken up and then relocking. There should be the faintest discernible movement at the wheel rim when the bearings are correctly adjusted. If knock-out spindles are fitted, no adjustment is provided or necessary.

Steering head adjustment

Slacken off the cap nut at the top of the fork stem. The adjusting cone immediately below the fork bridge can then be done up with a peg spanner or pointed drift. Before making any adjustment slacken off the pinch bolts holding the fork stanchions to the lower fork yoke and the top yoke to the head stem. After adjustment of the head race, the forks should be bounced up and down vigorously several times before the pinch bolts are retightened.

Rear fork bearing

To take up any side play at the rear fork pivot, slacken off the lock nut on the right hand side and rotate the spindle clockwise then RETIGHTEN THE LOCK NUT.

Rear shockabsorbers

Check the fixing bolts regularly.

Care of tyres

Underinflation is the cause of many premature tyre failures, also if tyres are flabby, performance and steering will suffer. Keep to the recommended inflation pressures, remove any flints which become lodged in the treads and the tyres will give good service.

Lighting equipment

The lamps are fed by an alternating current from the generator via the junction box situated under the engine. Only correct wattage bulbs must be used. If a higher wattage bulb is used the result will be a poor light, if too low wattage bulbs are used the bulbs will burn out. If the light increases noticeably from the headlamp, this is an indication that the tail light has burnt out. Common causes of this are dirty contacts on the switch gear and also operating the dip switch too slowly. NOTE: Where a stop light is fitted, should the engine stop when the rear brake is operated, this is an indication of failure of the stop-light bulb.

Care of enamel and plating

The use of detergents on the enamel parts IS NOT RECOMMENDED, but its use is permissible for removing stains etc., from light alloy parts. To maintain the finish it is best to use plenty of clean water to wash down and to dry with a chamois leather, finally using a good wax polish. When new the polishing rag may show signs of colour bleeding. In industrial areas and coastal districts it is important to keep plated parts clean, as otherwise, salt and other corrosive, elements in the atmosphere will attack the plating, particularly in winter when salt is applied to clear snow from the roads.

Decarbonising

Provided the correct grade and quantity of oil is used in the fuel and the machine is not ridden for long periods at low speeds, there should be little or no build up of carbon. If however, there is a fall off in engine performance it may be necessary to clean carbon from the cylinder head and ports. After undoing the holding down nuts, the cylinder head can be removed. Rotate the engine until the piston is at TDC. Using a piece of hardwood, carbon can be scraped from the piston crown and inside of the cylinder head. After removing all traces of carbon dust from the piston crown, the piston can then be placed at BDC and with a screwdriver the exhaust port can be scraped clean. When reassembling all cylinder holding down nuts should be done up tightly. To avoid possible distortion do up nuts evenly a little at a time working diagonally across cylinder head. It is advisable always to replace the cylinder head gasket with a new one if the gasket appears to be hard. If it is necessary to inspect the rings it is best to remove the carburettor from the induction stub by twisting the carburettor as it is pulled off. If however the carburettor is difficult to move on the stub remove the stub complete with the carburettor. After the exhaust union nut(s) has been undone the cylinder barrel may be lifted off the holding down studs. To renew the piston rings it is advisable to remove at least two of the holding down studs. This can be best done by locking together two nuts and unscrewing the stud. DO NOT USE PIPE GRIPS TO REMOVE THE STUDS. To remove the gudgeon pin a circlip must be taken off. Use pointed pliers to ease the

circlip from the groove and twist out. IF CIRCLIPS ARE REMOVED ALWAYS REPLACE WITH NEW ONES. The gudgeon pin should only be removed or replaced after warming the piston, it must not be hammered in or out. When replacing the cylinder barrel make sure that the rings are properly located against the pegs in the ring grooves and feed the piston carefully into the barrel to avoid the possibility of trapping the rings in the ports. If the piston rings are replaced always check that there is sufficient clearance between the ends. The clearance should be between .006" and .008", if less it should be increased by a few strokes with a file. After decarbonising all nuts should be checked for tightness after the engine has been warmed up. Apart from the mess caused by a leaking exhaust union, the engine will not give full power unless the exhaust system is tight. After a considerable mileage it may be necessary to clean the silencer. On all except VI engines, the baffles, which are held in place either by a screw or by a bayonet joint can be removed by using a tommy bar through the holes provided for this purpose and any holes in the baffles can be cleared of carbon deposits with a small screwdriver or stiff wire. Baffles must always be replaced. Tampering with baffles or increasing the size of the outlet will not only bring complaints of noise and possible police action BUT WILL ALSO RESULT IN LOSS OF POWER. IT IS ESSENTIAL THAT THERE IS PROPER BAFFLING FOR DEVELOPMENT OF FULL POWER. The silencer fitted as standard has been matched to the engine's characteristics and any substitution will lead to loss of power and may result in damage. Note that it is not possible to dismantle the silencer fitted to VI Engines. Carbon deposits must either be burnt out or complete silencer replaced. IF PISTON IS REMOVED TAKE CARE TO REPLACE THE RIGHT WAY ROUND. THE LETTER 'S' ON PISTON CROWN MUST FACE FORWARD.

General

If maintenance is carried out systematically and regularly it should not take much time and the results will be worthwhile. On the following pages will be found a suggested routine and various recommendations.

Trouble shooting

Difficult starting or engine stopping on the road may be due to:

a. Carburation and fuel

1. Check that fuel tap is on, or if on that there is fuel in the tank.
2. That fuel pipe line or filter are not blocked by oil or dirt.
3. That float chamber and main jet are clear of water and dirt.
4. That air cleaner is not choked with dirt.
5. That control cable is not broken or frayed.
6. That carburettor is not flooding.

b. Ignition

1. Check that the plug terminal is attached to the plug.
2. That plug is clean and that gap is correct.
3. That there is a spark when engine is turned over, and if no spark.
4. Whether magneto points open properly and at correct time.
5. That plug lead is sound and there is no visible damage to plug terminal or the moulded end of external HT coil. Note. If at night starting is easier with lights off, this usually indicates that condenser needs replacing.

c. Mechanical

1. Check that clutch or that engine driving pinion are not slipping.
2. On V1 engines check adjustment of starting lever control.

Note: The above checks are intended to be some help but it must be remembered that starting difficulties will not normally occur provided correct fuel/oil mixtures are used.

d. Brake Light - engine stopping.

On the Greyhound and the Testi the magneto earth is wired through the rear brake stop light. If the engine stops when the rear brake is applied, it is likely that the stop light filament has broken thereby breaking the magneto earth circuit. If the back brake is released the engine can be re-started.

e. Lack of power may be due to: any of the above faults, plus

1. build up of carbon in cylinder head and/or in silencer
2. rings "gummed" up in grooves of piston
3. incorrect ignition timing
4. after a long period - failure of oil seals on the crankshaft.

Maintenance schedule

	Weekly	Monthly	600 miles (1,000 km)											
			Check											
			1	2	3	4	5	6	7	8	9	10	11	12
Check plug clean & reset gap	X													
Inspect tyres & check pressures	X													
Check chain & adjust as required	X													
Check brake adjustment	X													
Clean & wax enamel etc	X													
Check & adjust control cables		X X	X	X	X	X	X	X	X	X	X	X	X	X
Check magneto pts. & reset gap				X		X		X		X		X		X
Lubricate magneto cam				X			X			X			X	
Check wheel bearings		X			X			X			X			X
Clean fuel line filter		X			X			X			X			X
Clean silencer					X				X				X	
Clean cyl. hd. & ports of carbon					X				X				X	
Drain & refill gearbox		X				X				X				X
Check steering head bearings		X				X				X				X
Check rear fork pivot bearing		X				X				X				X
Remove & wash air cleaner		X				X				X				X

After the first 600 miles (1,000 kilometres) service, checks 1 to 12 are taken in rotation at intervals of 600 miles (1,000 kilometres) between checks.

Note: the above are suggestions only and are not exhaustive. Also it may well be, for example, that decarbonising will not be necessary at the intervals shown above. At the same time it will be appreciated that regular inspection, cleaning and adjustment (if necessary) will repay the time involved.

RECOMMENDATIONS

Petrol

Shell, BP, Regent, Mobilgas, Esso Mixture. Normal or Standard grades, premium grades are unnecessary except on competition engines.

Engine oil

Castrol Two Stroke, Duckhams Two Stroke, SAE 30 grade Energol, Esso, Shell Mobiloil and Filtrate. But not multigrade oils. For competition engines please ask for recommendations.

Gearbox oil

Castrol XXL, SAE 40 grade BP Energol, Esso, Mobiloil and Filtrate, Shell.

Sparking Plug

Lodge H14, KLG F70, Bosch W240 T1, Marelli CW240A, are all suitable for normal running, but for hard driving when the engine is fully run in, Lodge HN, KLG F80 or Bosch W275 T1 may give a better performance.

Tyre Pressures

Front - 26 lbs per sq in

Rear - 24 lbs per sq in

If pillion passenger is carried increase the rear tyre pressure by 2-5 lbs per sq in.

Carburettor

SHB 19-19D. Main jet 90-92.

UAS. Main jet 92-97 air bleed screw 1-1 $\frac{1}{4}$ turns open and taper niddle in middle notch.

SHA 14-12. Main jet 56 or 56: T4-12 S1 Main jet 56 or 58.

Note. The carburettor settings should not be departed from without consultation. The silencer and exhaust pipe must not be tampered with or replaced by non-standard equipment. The carburettor size and jets, and the exhaust system are all designed for balanced operation to give the best performance from the engine.

Rear Chain

$\frac{1}{2}$ " x 305 Coventry No. 112045. Lubricate with Duckhams or Filtrate Chain Lubricant.

Lamp Bulbs

Headlamp - 6 volt 15/15 watt Bosch Baoyonet or 6 v 15W SBC & 6 v 15W Festoon

Tail light - 6 volt 6 watt festoon.

Where stop light is fitted

Headlamp - 6 volt 25/25 watt Bosch Bayonet

Tail light - 6 volt 5 watt

Stop light - 6 volt 21 watt

} If 2 Filament bulb is fitted; otherwise

Tail light - 6 volt 6 watt festoon

Stop light - 6 volt 15 watt festoon

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