

SECTION EFIRST 2000 MILES

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SECTION E FIRST 2,000 MILES

1. Running-in

There are no fixed rules for running-in, but we recommend the use of a 32:1 petrol mix for the first 500-750 miles.

In addition, use common sense and avoid:-

High engine speeds

Large throttle openings, particularly at low engine speeds - make use of gears to avoid "slogging".

Long periods at constant speeds and throttle opening.

From 500 miles to 2,000 miles, engine duty can gradually be increased.

2. Checks after first 500 miles running

This work will be carried out free if the bike is returned to the works.

1. Check all coolant hose connections and clips for leaks and tightness.
2. Check engine mounting bolts for tightness.
3. Check steering head bearing and adjust if necessary (See section G18).
4. Change clutch and gearbox oils.
5. Carry out full lubrication.
6. Generally "check-over" the bike to check that nuts are tight and adjustments correct.

3. Points to watch during early running

1. It is advisable to add about $\frac{1}{4}$ pint oil to each gallon of petrol for first 500 miles.
2. Ensure final drive chain is kept well lubricated while the rubber "gaiters" are wearing themselves in.
3. Check chain and clutch adjustments as these settle down.
4. Check that oil consumption from the oil tank is between the limits 300-600 miles/pint.

SECTION F STARTING PROCEDURE

The Procedure

1. Switch the petrol on.
2. Depress the choke lever fully for cold start only.
3. Switch on ignition.
4. Leave throttle closed - this is especially important when choke is used.
5. Kick-over smartly.
6. Return choke lever to upper position when engine is running.

Three gentle reminders

The engine starts better with the ignition switched on and continues longer with the petrol turned on!

Be sure to switch "off" the ignition when the engine is not running to avoid the risk of a flat battery.

Don't forget to return the choke lever to the normal "Up" position after a cold start.

SECTION GROUTINE MAINTENANCEINDEX

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SECTION G ROUTINE MAINTENANCE

Some regular maintenance is essential to maintain serviceability and avoid undue wear. The following items are affected by the severity of use, the environment of use (i.e. wet, salt, mud, dust, etc.) and other factors.

Consequently, it is not possible to recommend fixed maintenance periods, and the rider must use his discretion based on experience of his particular type of operation, and on the following information.

1. Engine Oil

Usage should be better 300 miles per pint: for safety, the tank should not be allowed to fall below half full.

The oil tank filler cap is located under the hingeing seat. Take care not to obstruct the vent hole in the filler neck - for example by putting plastic bags or clothing over it.

The oil level can be seen through the filler neck or through a translucent panel in the left side of the tank.

The oil pump is a reliable, positive displacement unit and no maintenance is required. Provided that the cable is properly adjusted to have as near "zero" free play as possible, the pump will deliver correctly metered quantities of oil under all conditions.

If for any reason, the oil supply to the engine is questioned, this may be checked by pulling the outer cable from the oil pump with the engine running to give the effect as though the throttle was wide open, and then blipping the throttle for a few minutes. After a short while, the increased oil supply will result in blue exhaust smoke.

2. Coolant

Some evaporation will occur. Experience will show the frequency at which topping-up is necessary. The filler cap is on the header tank, behind the steering head.

Top-up with the correct water and/or anti-freeze mixture (see specification).

3. Tyre pressures

The rider should satisfy himself that the tyre pressures are satisfactory before each journey.

Front tyre pressure:	Solo - 24 lb/sq.in.
	Dual - 24 " " "

Rear tyre pressure:	Solo - 27 " " "
	Dual - 30 " " "

4. Hydraulic fluid

No leakage should occur, but the rider should check weekly as part of the lubrication programme.

5. Greasing and oiling

Control levers, control cables, pedal fulcrums, rear swinging arm hinge, rear brake arm, seat hinges etc. are susceptible to wet and dirt. As a guide they should be oiled and greased weekly.

Under adverse road conditions the front brake calliper can jam on cross shafts. When required clean these and lightly smear with silicone grease; this must not be allowed to touch the hydraulic piston.

The swinging arm pivot grease nipple is located centrally underneath the pivot tube. This must be greased regularly; if, through neglect, dirt replaces grease in the bearings, your road holding and steering will soon deteriorate.

Correct operation of the gearbox depends on the spherical bearings in the external linkage being free to move. Little but frequent oiling is required. If the covers are fitted, oil less frequently, but check the freedom of movement regularly.

6. Front forks

If gaiters are not fitted, the sliders should be kept clean to avoid grit entering the seals.

The forks normally require no other maintenance. If inadequate damping is suspected, the oil charge in the forks can be renewed. If leakage has taken place, the seals may need renewing. See overhaul section for details.

7. Battery Acid Level

Evaporation will depend on conditions of usage and again experience will establish the frequency between topping-up periods. At first the level should be checked weekly. After removing either side panel, the acid level can be seen through the battery casing.

For topping up, the battery is removed by releasing the retaining strap: the leads are long enough not to need disconnecting.

8. Lighting system

Check the bulbs frequently, especially the stop/tail lamp.

9. Ignition System

9.1. Timing

Access to the lensed unit is by undoing the top and bottom oil pump bolts and removing the oil pump complete (the front and back bolts hold the cover onto the oil pump and need not be touched). To reset the timing, slacken the clampnut; the advance/retard mechanism can then be rotated on the shaft.

The standard ignition setting is obtained by setting the right piston .3" before top dead centre, measured with a depth gauge through the plug hole; then rotating the chopper at full advance with the ignition switched on until a spark occurs at the spark plug (which can be rested on the cylinder head); then tighten the clampnut. A special tool is available to assist in setting the piston correctly. Note that the photo-electric cell must not be in bright sunlight when checking the timing - it cannot tell the difference between sunlight and its own light beam!

9.2. Maintenance

The "Lumenition" ignition system needs no maintenance once it is correctly set. If it is operating normally, we do not recommend routine testing. The electronics do not deteriorate and therefore only the HT leads and spark plugs require checking and service.

If the system malfunctions, first check all connections.

The system comprises three main components:-

Heat Sink (Power Unit)

Opto-electronic Assembly (Lensed Unit)

Coils

A. To test complete system

1. Remove a spark plug. Replace the lead and lay the plug on the cylinder head. On cranking the engine sparking should occur with ignition switched on.

B. To test the coil and heat sink assembly (power unit)

1. Unplug the lensed unit at the 3-way connector.
2. Remove a spark plug. Replace the lead and lay the plug on the cylinder head.
3. Turn on the ignition switch.
4. By means of a small piece of wire shaped like a hair pin connect the blue wire to the black wire on the heat sink side of the 3-way connector. When breaking this connection sparks should occur.
5. If there is a very weak spark check the coil. If there is no spark suspect a Heat Sink fault.

C. Testing the Opto-electric assembly (Lensed Unit)

The Lensed Unit may be tested with a Lumenition Tester Part LT1 or with a low-reading Voltmeter.

1. Testing with a Lumenition Tester Part No. LT1

Switch off ignition. Connect the large crocodile clip on the Tester to a good earth and connect its red lead to the positive of the battery. Plug the 3-way connector of the Tester to the 3-way connector of the lensed unit. With an uninterrupted beam of light between lenses the red light should be on. With an interrupted beam of light the red light should be off.

2. Testing with a Voltmeter

This test is only valid with a good Heat Sink Assembly. With the Lumenition system completely wired up, including the 3-way connector, and the ignition switch on, connect the positive lead of Voltmeter carefully to the blue lead at the back of the 3-way connector, and connect the negative lead of the Voltmeter to the earth point of the Heat Sink Assembly. With an uninterrupted beam of light between lenses the meter should read 0.1 to 0.2 volts. With an interrupted beam of light the meter should read 0.8 to 0.9 volts. Before suspecting the Lensed Unit ensure good Voltmeter connections.

3. Cleaning the lensed unit

The lensed unit will function correctly with up to 90% of the lenses obscured. Beyond this, sparks will occur at irregular intervals, giving poor timing, or not at all. Careful cleaning should cure the problem.

9.3 Sparkign plugs

Sparkign plugs should be replaced at 6,000 mile intervals, or as experience dictates. The leads and the insulators on the heads of the coils should be kept clean. The plug gap should be maintained at 0.025" (0.65 mm).

10. Air filter

Clean and re-oil every 5,000 miles. Exceptionally dusty conditions may require more frequent changes. A blocked filter will cause low power and over-richness leading to high fuel consumption.

11. Primary chain

The primary chain has a nitrile-rubber faced tensioner underneath the bottom run. This is mounted on a removable plate under the chain case, with its rear end supported by an adjustment screw.

To adjust the tensioner, slacken the lock nut, then screw in the adjustment screw until resistance is felt as the chain tightens. Then unscrew the adjustment screw three full turns - the thread is UNF - and retighten the locknut.

12. Driving chain

The driving chain tension should be checked at about monthly intervals. Midway along the plastic enclosure, the chain runs through internal guides. By moving the flexible plastic enclosure up and down, the amount of chain "slack" can be felt. This movement should be between $\frac{1}{2}$ " - $\frac{3}{4}$ " with normal rider's weight on the back wheel.

Adjust the chain, if necessary, by means of the eccentrically mounted swinging arm pivot spindle (see Fig. 3), as follows:-

1. Slacken both swinging arm pivot pinch bolts (6) in the frame.
2. Slacken the allen screw in the right-hand side of the eccentric adjuster.

3. Rotate the spindle (2) at the left-hand side of the machine with an Allen key to tighten or slacken the chain, ensuring that the adjustment stays in the lower half of the circle.
4. With the machine loaded, correct the adjustment to $\frac{1}{8}$ " - $\frac{3}{8}$ " movement at the centre of the top chain gaiter.
5. Tighten pinch bolts (6) and the right hand side Allen screw.
6. Check back brake adjustment.

13. Brake adjustment

The front disc brakes are self-adjusting.

The rear brake is adjusted by means of a cable adjuster at the operating arm on the rear hub. (See Fig. 4).

For cleaning purposes the rear brake backplate can be removed leaving wheel in place.

14. Bleeding the front brake system

If air enters the brake hydraulic system for any reason, the brake will feel "spongy". To bleed the brake:-

1. Check that the reservoir is full of clean fluid (Lockheed 329s) and wrap the reservoir round with cloth to prevent any chance of spillage onto the bike.
2. Place a receptacle under the bleed valve on one of the callipers and unscrew the bleed valve.
3. Pump the brake lever gently and steadily until the fluid coming out of the bleed valve is completely free of bubbles. Check that the reservoir does not empty of fluid while doing this.
4. Re-tighten the bleed valve.
5. Repeat with other bleed valve (for dual discs)
6. Check that the resistance to lever movement is now "firm" and not "spongy".
7. It is essential to fill the reservoir half full and replace rubber diaphragm.

15. Brake lining check

Front brake pads and rear brake linings should be checked for wear at around three monthly, or 4,000 mile, intervals.

The front brake pads can be checked visually at the disc without removing the front wheel. Replacement will be necessary when the friction material is worn down to $\frac{1}{16}$ in. (See Fig 5).

To check rear brake lining wear, the back plate must be removed from the wheel (see Section H Items 1-5). When the linings are worn down to $\frac{1}{16}$ in., replacement will be necessary (see Fig 5).

16. Gearbox and Transmission case oil

Oil changes are recommended at 12,000 mile intervals.

The gearbox filler plug is on the top of the box, the level plug is on the end plate adjacent to the kickstart shaft, and the drain plug is underneath. They can be reached from the right hand side of the machine. The oil level should be checked with the bike leaning on its prop stand. The transmission case filler plug is located just above the clutch access cover; the level plug is set low on the rear of the casing to the rear; and the drain plug is set in the base of the case. They can be reached from the left hand side of the machine.

17. Clutch adjustment

Clutch adjustment should seldom be necessary, although it must be done if clutch slip occurs or if there is no free movement at the end of the operating lever in the clutch. This should not normally occur at less than 10,000 mile intervals.

Checking operating lever clearance

1. Slacken off the cable adjuster at the handlebar lever.
2. Remove the clutch cable gaiter at the gearbox.
3. Pull the cable at the clutch end and check the amount of free movement before the resistance of the clutch springs is felt. If the free movement is less than 1/8" then adjustment of the clutch is necessary.

Clutch adjustment (See Fig 7)

1. Hinge down rear end of chain enclosure.
2. Rotate the wheel to bring the spring link into view on the sprocket. Remove the spring link. Join the ends of the chain with a long loop of string to facilitate replacement and pull chain until it disengages from the drive sprocket.
3. Remove the three bolts from the drive sprocket bearing support on the left hand side of the gearbox and remove complete with sprocket.
4. Remove the four screws from the clutch access cover (1) and withdraw the cover and oil seal.
5. Slacken the three locknuts (2) on the adjusters (3) and unscrew the adjusters 2 or 3 turns.
6. Gently screw each adjuster back in until resistance is felt as it just touches the thrust washer (4).
7. Back off each adjuster exactly half turn, and holding it in that position, tighten the locknut.
8. Check the operating lever clearance and that the thrust plate lifts squarely when turning engine over..

9. Reset the cable adjuster at the handlebar lever.
10. Refit the clutch access cover.
11. Replace the drive sprocket bearing support and sprocket, ensuring that the string loop passes round the sprocket.
12. Gently pull the chain over the drive sprocket and continue until the two ends can be engaged on the rear sprocket. Remove the string and refit the spring link.
13. Refit the chain enclosure end piece.
18. Steering head adjustment

The steering head has taper bearings, pre-packed with grease and enclosed. Adjustment will not normally be necessary, but may be done as follows:-

1. With the front wheel clear of the ground, slack off the fork pinch bolts in the bottom yoke.
2. Tighten or loosen the stiffnut on top of the steering head until the steering rotates freely but without any perceptible play.
3. Re-tighten the bottom yoke pinch bolts.

19. Carburettor adjustment

The Amal Concentric Mk. II differs from previous Amals in having a separate starter jet instead of a choke slide. In other respects, this follows normal Amal practice.

The height of the needle in the slide controls mainly the mixture in the middle of the range - lowering the needle weakens the mixture. The standard setting is on the middle groove, and normally this should not be altered.

The slow running is controlled by two screws on the left hand side:-

The sloping screw, with the head downwards, is the throttle stop; screwing it in increases the slow-running speed.

The horizontal screw alongside it controls the air bleed to the slow running jet; screwing it in richens the mixture.

A sudden deterioration in slow running may be due to a blocked pilot jet. Remove the carburettor by undoing one of the "Jubilee" clips; unscrew the four setscrews which secure the float chamber. The pilot jet is at the top of the float chamber body; unscrew it and blow through the hole. Do NOT use wire to clear the jet. The jet at the bottom of a long tube is the starter jet; if you remove this, be sure you replace each jet in its correct position.

A coarse fuel filter is fitted over the fuel tap inside the fuel tank. Another filter is inside the banjo union at the bottom of the float chamber; be careful not to overtighten the banjo when refitting.

SECTION HWHEEL REMOVAL AND REPLACEMENTINDEX

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SECTION H WHEEL REMOVAL AND REPLACEMENT1. Front wheel removal

1. Remove the caliper retaining screws in the fork leg.
2. Swing the calipers clear of the discs.
3. Remove spindle nut at left hand fork leg.
4. Slacken pinch bolt in right hand fork leg.
5. Withdraw spindle and remove wheel and distance piece at left hand side.

2. Front wheel replacement

1. Locate wheel between forks.
2. Position calipers over discs.
3. Replace spindle and distance piece.
4. Replace spindle nut and tighten.
5. Tighten pinch bolt.
6. Refit calipers to fork legs.

3. Rear wheel removal (See Figs 8-10)

1. It is easier to disconnect the brake cable clevis pin and unscrew the adjuster from its housing.
2. Disconnect the brake torque arm at the hub.
3. Slacken and remove one spindle nut. DO NOT REMOVE THE SPECIAL SLOTTED NUT ON CUSH HUB SPINDLE.
4. With the wheel supported, withdraw the spindle and remove the spacer between the brakeplate and the swinging arm.
5. Remove the brake plate.
6. The wheel can now be eased off the cush rubbers and removed.

For dismantling of the cush hub refer to overhaul section.

4. Rear wheel replacement

Reverse the removal procedure to replace the wheel. Some rubber lubricant on the cush rubbers will ease assembly.

5. Front wheel removal - drum brake type

1. Slacken off brake cable adjuster and remove the clevis pin at the operating arm.
2. Disconnect the brake torque arm at the brake plate by removing the large Allen screw.
3. Remove the spindle nut at left fork leg.
4. Slacken pinch bolt in right fork leg.
5. Withdraw spindle and remove wheel and distance piece at left side.

6. Front wheel replacement - drum brake type

1. Locate wheel between forks.
2. Replace distance piece (at left side) and spindle.
3. Replace spindle nut and tighten.
4. Tighten pinch bolt.
5. Refit brake torque arm with Allen screw.
6. Refit brake cable clevis pin and readjust the cable.