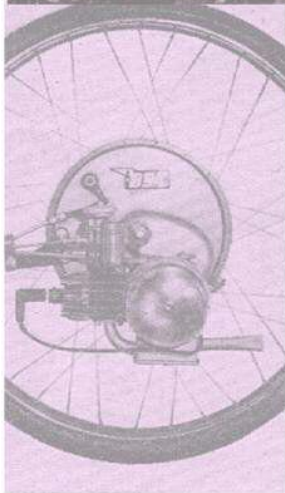


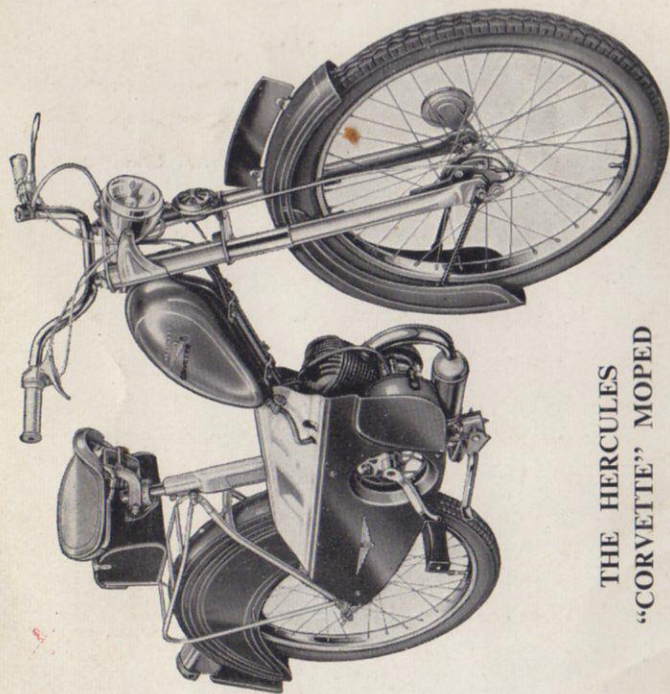
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Hercules *Corvette*

**RIDERS
HANDBOOK**

**PRICE
2/6**



THE HERCULES
"CORVETTE" MOPED

INTRODUCTION

To get the best from your new Hercules 'Corvette', please follow very carefully the instructions contained in the following pages, and particularly read pages 6-11 before starting to ride. The manner in which your moped is ridden in the first three or four hundred miles will have an important bearing on its performance during the rest of its life.

You will find your 'Corvette' is easy to ride and economical to run. It is an outstanding example of compact power, allied to reliability and efficiency, and if you follow the simple instructions contained in this handbook, your 'Corvette' will give you many thousands of miles of enjoyable travel.

Published by

THE HERCULES CYCLE & MOTOR CO. LTD.

BRITANNIA WORKS. HANDSWORTH, BIRMINGHAM. 21.

TELEGRAMS CYMO. BIRMINGHAM.

TELEPHONE SMETHWICK 1414

LONDON OFFICE: 3 SOHO SQUARE, LONDON SW1 TEL: GERRARD 7544

GENERAL SPECIFICATION

Engine

Type: Air cooled single cylinder.

Bore: 40 mm.

Stroke: 39.6 mm.

Capacity: 49.6 c.c.

Compression Ratio: 6.1 : 1.

Cylinder: Special Cast Iron.

Cylinder Head: Alpa alloy with sem-spheric combustion chamber.

Piston: High-silicon alloy. Dome topped.

Big-End Bearing: Parallel roller bearing.

Small-End Bearing: Parallel roller bearing.

Mainshaft Bearings: Ball bearing.

Clutch: Fully automatic, no adjustment or maintenance required.

Gear Ratio: Approx. 14.2 : 1

Power Chain: Extra heavy duty roller chain, 1/2" pitch × 3/16" wide.

Carburettor: "Gurtner" D.12 with 23 main jet, fitted with automatic cold-start device and air filter.

Sparking Plug: Bosch W.225TI. AC M43F or K.L.G. F.70. (14 mm. × 1/2" reach). Gap—.024".

Ignition and Lighting: Flywheel magneto 6v. 18 watt. (Headlamp 6v. 15/15w. Tail lamp 6v. 3w.).

Ignition Setting: 4.5 mm. (3/16") in advance of top dead centre.

Contact Breaker Points Gap: .45 mm.—.5 mm. (.018"—.020")

Lubrication: Petroil.

NOTE: High Tension plug lead must not be shortened as this is a special type incorporating resistance that acts as a suppressor.

GENERAL SPECIFICATION (continued)

Chassis

Wheelbase: 45".

Length Overall:

Height Overall: 40½".

Total Weight: 100 lbs. approx.

Frame: Special section steel tubing. Single tube spine. Adjustable seat height.

Fork: Telescopic. Easily dismantled and assembled.

Handlebar: Heavy duty, high raised pattern, with two point attachment to the fork.

Brakes: 3½" dia. internal expanding, front and rear. Hand operated.

Pedals: All Rubber.

Tyres: 23" dia. × 2" with schrader valves.

Mudguards: Steel. Both valanced.

Fuel Tank: 10 pint capacity with reserve tap.

Saddle: Wright's E.1. Continental Cantilever pattern with rubber top actuated through a central coil spring, adjustable for height.

Controls: On right side of handlebar—twist grip throttle control and front brake lever. On left hand side of handlebar—rear brake lever, lighting switch, horn and ignition cut-out buttons. Choke control on carburettor and fuel tap on right hand side of machine.

Equipment: 4½" dia. headlamp, tail lamp and electric horn. Bipod stand. Parcel carrier, front and rear number plates (blank). Foot operated tyre inflator, toolbag and toolkit.

RUNNING INSTRUCTIONS

Before starting

1. TYRE PRESSURES

Riders Weight	Front Tyre	Rear Tyre
10 stone or under	.. 25 lb./sq. in.	.. 36 lb./sq. in.
11 stone	.. 27 lb./sq. in.	.. 40 lb./sq. in.
12 stone	.. 29 lb./sq. in.	.. 44 lb./sq. in.
13 stone and over	.. 31 lb./sq. in.	.. 48 lb./sq. in.

2. PETROIL FUEL

must be thoroughly mixed and added to the tank in the following proportions:

16 parts of lower grade petrol to 1 part of two-stroke self-mixing oil; or

20 parts of lower grade petrol to 1 part of S.A.E. 20 motor-engine oil.

Remember that the special self-mixing oils are the only ones which may be poured *straight into* your tank. Normal engine-oils must be added to the petrol in a separate container and thoroughly shaken up *before* being poured into your tank. Never use grade 1 petrol.

RUNNING INSTRUCTIONS (continued)

3. CLUTCH

The "Multimatic" clutch is centrifugal incorporating sets of weights and a locking device affording the maximum performance of the engine, whilst avoiding the wear of the friction surfaces which start the moped without any pedalling being required. The transmission needs no lubrication or adjustment. The "Multimatic" clutch gives the impression of having two speeds. At approximately 9 m.p.h. the locking weight comes into play and the slipping stops. The engine is locked as if in second gear. As soon as the speed of the moped falls under 9 m.p.h. the locking weight is released, the clutch slips again.

4. RUNNING-IN INSTRUCTIONS

should be carefully studied. All new engines have to cover a certain distance before they develop their full power. The Corvette engine requires about 400 miles, during which it should never be allowed to race or labour. For the first 200 miles do not exceed 16 m.p.h. During the next 200 miles the maximum speed may be increased to 22 m.p.h. In the running-in process, a slightly greater proportion of oil should be used in the fuel (about 20 per cent extra). During this period the engine will consume rather more fuel than after it has been run-in.

The life and performance of your Corvette engine largely depends upon the way you treat it during the first critical 400 miles. Care and patience at this stage will pay good dividends for years to follow.

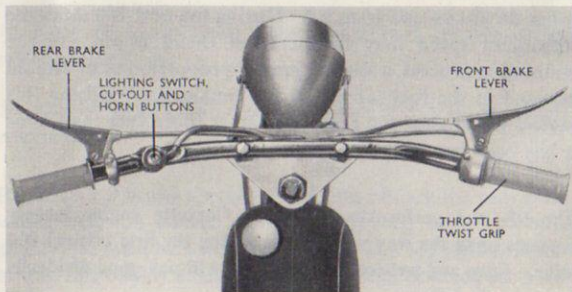
To start

Pull out the fuel tap to its open position. Completely close the twist grip control and depress choke lever. (Fig. 2). Re-open twist grip control not more than $3/16"$. Sit astride the saddle and start to pedal the Corvette as an ordinary bicycle. After reaching a speed of approximately three miles per hour the automatic clutch will engage and the engine will fire. From this point onwards there will be no need to continue pedalling and the only control necessary will be the twist grip throttle which should be turned inwards to increase the speed of the engine as required.

An alternative method of starting is as follows:—

Put the Corvette on its stand. Pull out the fuel tap to its open position. Completely close the twist grip control and depress choke lever. (Fig. 2). Re-open twist grip control not more than $3/16"$. Set pedal to convenient position and push smartly forward and downwards. The engine should now fire. Be careful to ensure rear wheel is clear of the ground.

Figure 1



6

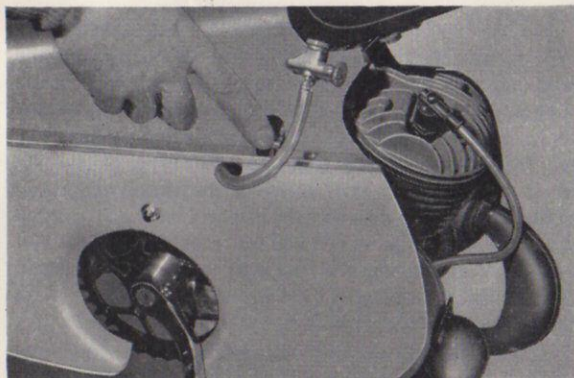


Figure 2

The speed of the engine should be reduced to idling, by turning twist grip outwards, before lowering the moped to the ground. Sit astride the moped and turn the throttle twist grip inwards. As the speed of the engine increases the moped will move forward.

When starting on a hill it is recommended that the engine should be assisted by pedalling.

The correct idling speed is essential for efficient operation of the Multimatic and therefore special care should be taken to ensure that the idling screw located in the carburettor is correctly adjusted. (Fig. 3). Turn screw to the right (clockwise) to increase idling speed.

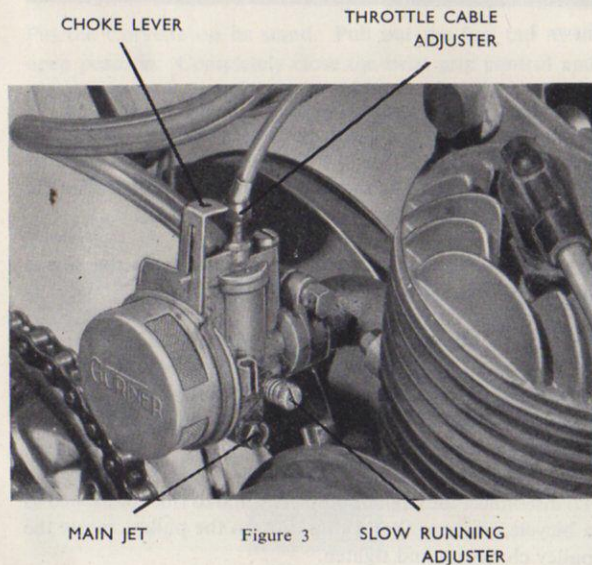
To disconnect the engine completely and to ride the moped as a bicycle, unscrew the 14 mm. nut on the pulley, rotate the pulley clockwise and tighten.

7

To stop

Close the throttle twist grip by turning outwards and apply front and rear brakes. When the road speed falls below 3 m.p.h. the automatic clutch will disengage and the engine will continue running at idling speed as the moped comes to rest. If the halt is of short duration as for instance at traffic lights, it is necessary only to await the signal to go and manipulation of the throttle twist grip will increase the speed of the engine and the moped will move forward. If the halt is of long duration stop the engine by means of the ignition cut-out, which is operated by depressing the button on the lighting switch. (Fig. 1).

Close the petrol tap.



MAINTENANCE

Routine Cleaning and Lubrication

1. ENGINE

As already stated, the cylinder and crank case are lubricated by the petrol fuel and provided that you adhere carefully to the recommended ratio of petrol to oil, the cylinder and crank case require no further lubrication.

2. CARBURETTOR

It is possible for very fine impurities to pass through the fuel-filters and to settle at the bottom of the float chamber or in the fuel ducts, or perhaps choke the jet. To clean the float chamber, disconnect fuel pipe, loosen cap screw, twist the retainer spring and remove the cap. Take out float (use every care as it is very fragile). Pour petrol into chamber and rinse carefully. Clean petrol filter (located in carburettor union) and air inlet filter. To clean the jet, use a screw driver to remove it from the lower end of centre tube. The jet should be cleared of any obstruction by blowing through it, or pushing a paint brush bristle through it. Never use a needle or similar article for this purpose.

3. AIR FILTER

The air-filter absorbs the dust to prevent it getting into the engine, and accordingly it has to be cleared periodically—at 1,000 to 3,000 mile intervals according to the running condition. To do this, remove the spring clip and take the whole filter away from the carburettor. The filter should be washed in petrol and allowed to drain before replacing.

4. FUEL FILTER AND FUEL PIPE

There are two fuel filters, the upper one fitted on to the fuel tap and the lower one fitted into the carburettor union to which the fuel-pipe is connected. Both these filters should occasionally be removed, rinsed in clean petrol and then re-fitted. At the same time check that the fuel pipe is quite clear.

5. CONTROL CABLES

The control cables of carburettor and front and rear brakes should all occasionally have a few drops of oil run into their upper ends, the controls meanwhile being operated to assist the oil to run down the inner wires of the cables. There are also several force-feed oilers on the market which can be used if preferred, and which make a very thorough job of cable lubrication.

6. CHAINS

If the rollers look dry and shiny, lubricate with a little motor or gear oil. Apply oil sparingly to power chain. Every 3,000 miles it is advisable to remove the chains, wash in petrol or paraffin, and immerse in warm chain grease. Let surplus lubricant drain off before refitting. It is important, when replacing the chains, to make sure that the spring clips of the connecting links are the right way round—with the open end of the spring to the rear in relation to the forward movement of the chain.

7. HUB BEARINGS

Three or four drops of oil should be applied to the lubricators located in the barrels of the hubs, every 1,000 miles or so. It is most important that not more than three or four drops are applied at any one time, otherwise there is a danger of the oil seeping through to the brake linings and thereby rendering the brakes ineffective.

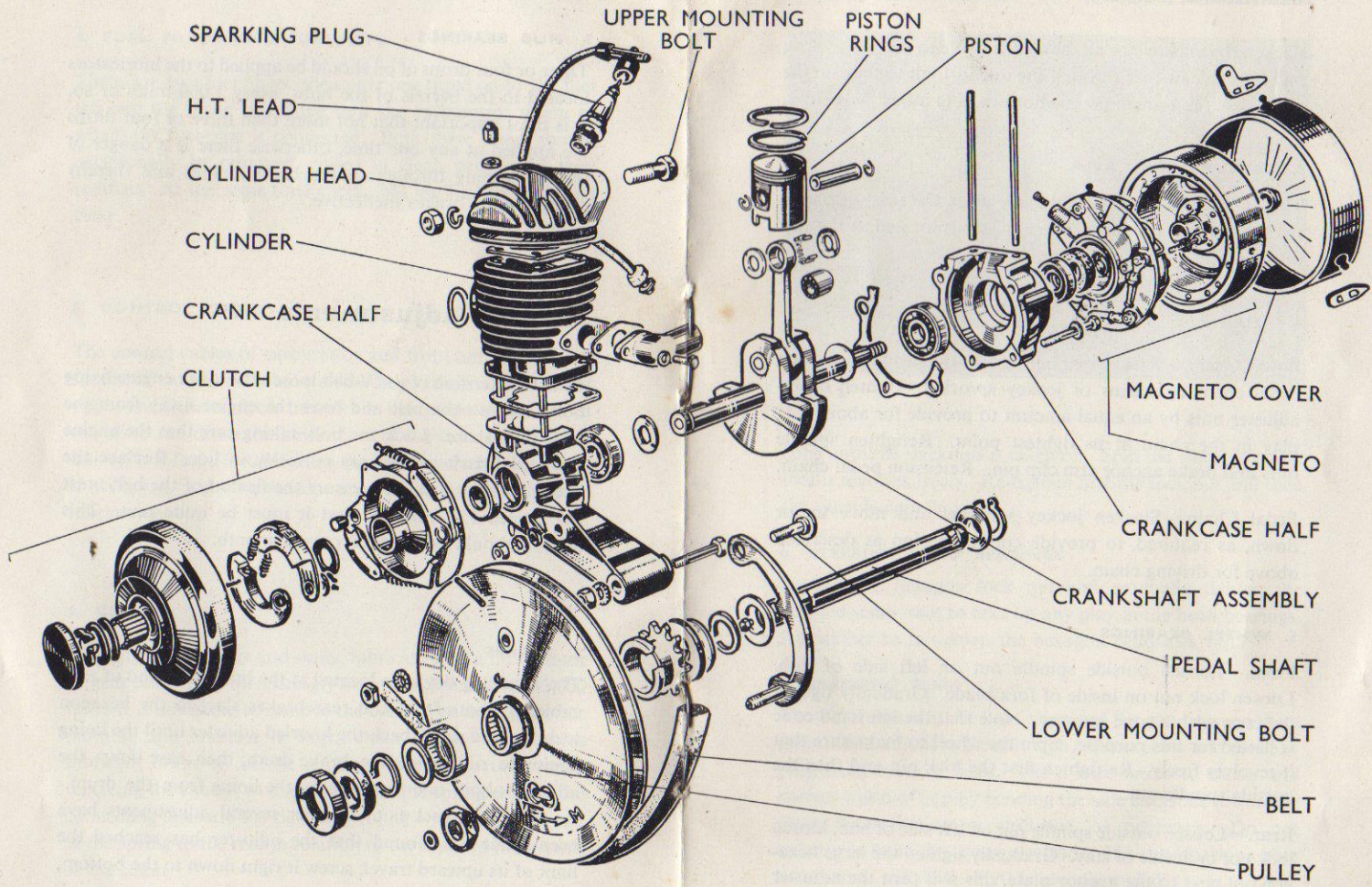
Routine adjustments

1. V BELT

To set the tension of the V belt loosen the lower engine fixing bolt—remove the belt and lever the engine away from the pedal crankcase. Lock the bolt, taking care that the engine and pedal-shaft pulleys are correctly in line. Replace the V belt. Under a slight pressure the flexion of the belt must not exceed 1/2 inch. At rest it must be quite taut. This tension should be checked once a month.

2. BRAKES

The adjusting device is located at the hub brake end of each cable, for both front and rear brakes slacken the hexagon lock nut and screw back the knurled adjuster until the lining begins to rub inside the brake drum, then ease down the adjuster about one turn to clear the lining from the drum. Re-tighten the lock nut. If, after several adjustments have been made it is found that the adjuster has reached the limit of its upward travel, screw it right down to the bottom,



SPARKING PLUG

H.T. LEAD

CYLINDER HEAD

CYLINDER

CRANKCASE HALF

CLUTCH

UPPER MOUNTING BOLT

PISTON RINGS

PISTON

MAGNETO COVER

MAGNETO

CRANKCASE HALF

CRANKSHAFT ASSEMBLY

PEDAL SHAFT

LOWER MOUNTING BOLT

BELT

PULLEY

MAINTENANCE (Continued)

slacken the anchor-nut attaching the cable to the brake-arm, pull the cable further through the anchor-bolt to take up the cable slack, re-tighten the anchor nut, and adjust as before.

3. CARBURETTOR CABLE

This cable must have a slight slack when the twist grip is in the fully closed position. The adjuster is located at the top of the carburettor.

4. CHAINS

Power Chain.—Slacken rear hub spindle nuts and also slacken pedal chain by means of jockey sprocket. Tighten chain-adjuster nuts by an equal amount to provide for about 3/4" play in the chain at its tightest point. Retighten spindle nuts and brake anchor arm clip pin. Retension pedal chain.

Pedal Chain.—Slacken jockey sprocket and move up or down, as required, to provide correct tension as described above for driving chain.

5. WHEEL BEARINGS

Front.—Loosen outside spindle nut on left side of hub. Loosen lock nut on inside of fork blade. Gradually tighten the cone with a cone spanner. Note that the left hand cone is flatted for this purpose. Spin the wheel to make sure that it revolves freely. Re-tighten first the lock nut and then the outside spindle nut.

Rear.—Loosen outside spindle nut on left side of hub, loosen lock nut on inside of stay. Gradually tighten the large hexagon nut next to the anchor plate, this will turn the adjuster

MAINTENANCE (Continued)

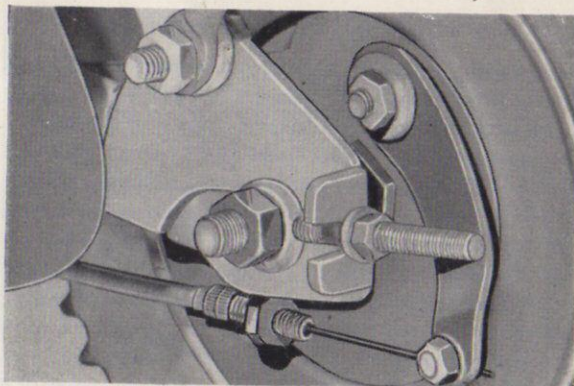


Figure 4

cone until the slackness is taken off. Spin the wheel to check that it revolves freely. Re-tighten first the lock nut and then the outside spindle nut.

6. STEERING HEAD BEARINGS

Loosen the hexagon lock nut and gradually tighten the knurled screw-race to take up any play in the head bearings. Remember to re-tighten the hexagon head lock nut.

7. SPARKING PLUG

The electrodes must be kept clean and the gap between them maintained at .024". Detach high tension cable and unscrew plug from cylinder head. Use a wire brush to clean, and correct width of gap by bending the side electrode toward or away from the centre electrode, as necessary. Do not attempt to bend the centre electrode. If a new sparking plug is required, a K.L.G. F.70 is recommended.

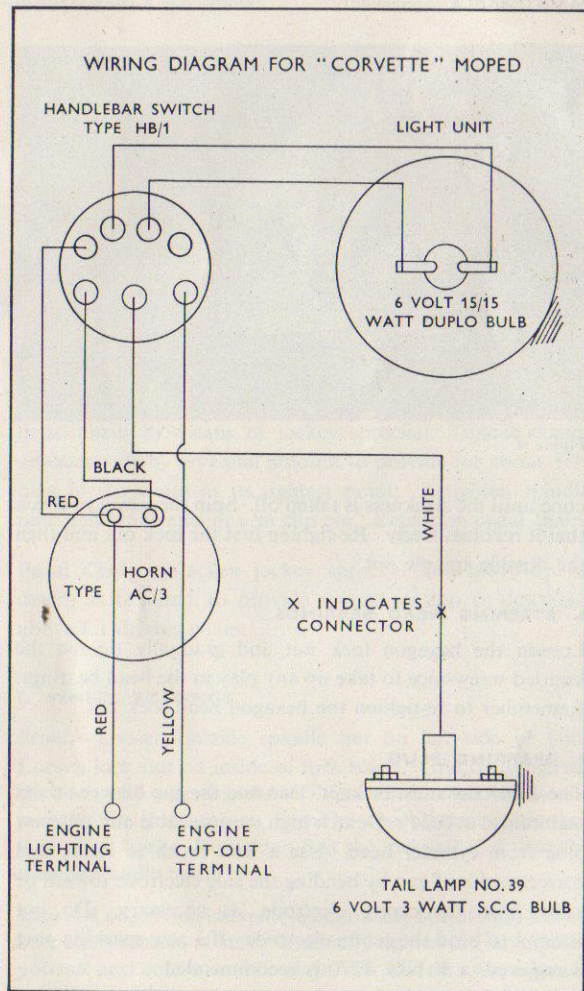


Figure 6

MAINTENANCE (Continued)

8. MAGNETO

The electric current for ignition, horn and lighting is generated by a flywheel magneto. The high tension current is controlled by contact breaker which requires occasional attention. Remove right hand fairing and then magneto plastic cover which is held by three rubber clips. The contact breaker will now be visible through one of the slots in the flywheel Fig 7. The points of the contact breaker should be free from burnt oil or grease. To clean, use a piece of fine emery cloth and finish off with a petrol-moistened rag. Do not leave any lint on the points. The gap between the points should be $.018''-.020''$ (.45 mm. —.5 mm.). If adjustment is necessary, revolve the flywheel so that the contact lever is lifted to its highest position on the cam. Loosen the adjuster contact plate fixing screw, sufficient to allow the contact plate to move. Insert the blade of a small screw driver ($1/8''$) into the eccentric adjuster pin and revolve in either direction to obtain contact breaker gap of $.018''-.020''$ (.45 mm. —.5 mm.).

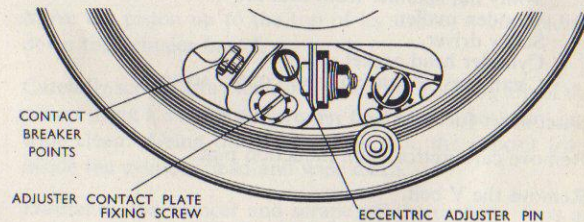


Figure 7

Decarbonizing

Decarbonising is the operation of removing the carbon deposit on the piston, in the combustion chamber, cylinder ports, exhaust pipe and silencer. If allowed to accumulate this deposit prevents the correct flow of the gases through the ports, exhaust pipe, and silencer, so causing the engine to overheat and lose efficiency. The carbon in the combustion chamber may become red hot causing detonation and knocking.

It is recommended that the first decarbonising should be carried out after 1,000 miles and thereafter at each 1,500 miles.

Your Hercules dealer will be pleased to undertake this work for you at a reasonable charge, but if you feel competent to tackle the job yourself, it should be undertaken as follows:

Before starting, the following items will be needed.

- Open jaw spanner 32 mm.
- Open jaw or socket spanner 17 mm.
- Open jaw spanner 14 mm.
- Box spanner 10 mm.
- Old knife or scraper.
- 3-way flat spanner from tool kit.
- Wooden mallet.
- Screw driver.
- Cylinder head gasket.
- Clean rags. Aluminium or copper scraper.

Disconnect fuel pipe and remove fairings.

Remove carburettor from induction pipe.

Remove the V belt.

Remove chains.

Remove R.H. crank and chainwheel.

Disconnect the lighting and ignition cut-out wires from the magneto case.

Remove sparking plug.

Unscrew exhaust pipe nut and remove copper washer at the lower attachment.

Unscrew and remove the 14 mm. nut, washer and bolt at the lower attachment. Remove silencer, and exhaust pipe.

Unscrew and remove the 17 mm. bolt and washer at the upper attachment, and while supporting the engine, remove the bolt.

The engine may now be removed from the frame and placed on a workbench.

Remove the four cylinder head nuts and washers, and loosen the cylinder head by tapping it all round with a wooden mallet. Do not tap the cooling fins, or try to prise the head off. Remove the cylinder head gasket.

By turning the flywheel bring the piston so that its top is just below the lower edge of the exhaust port. While doing this it is advisable to hold down the cylinder barrel.

Scrape away the carbon deposit from inside the exhaust port.

Move the piston up to the top of its stroke, while holding down the cylinder barrel.

Carefully scrape away the carbon deposit from the top of the piston using a soft-metal scraper, copper or aluminium and wipe clean. Using the same tool scrape the deposit from inside the cylinder head and wipe clean.

Dismantle the silencer and scrape off the carbon. Pass an old chain to and fro through the exhaust pipe and shake the free carbon out.

MAINTENANCE (Continued)

Assemble the silencer and exhaust pipe.

Ensure that the mating faces of the cylinder and cylinder head are smooth and clean.

Fit the new gasket and cylinder head over the four studs and screw on the four nuts, with washers. When all four nuts are finger tight continue to tighten a quarter of a turn at a time on each nut. Tighten the nuts in pairs, crosswise.

Replace the engine in the frame by positioning the cylinder head mounting the frame brackets and inserting the 17 mm. bolt. The engine will hang on this bolt while the nut with washer is loosely screwed on.

Screw in the exhaust pipe nut after putting the copper washer between the cylinder and exhaust pipe flange, and holding the silencer bracket in position.

Swing the engine and silencer into its rearward position and fit the 14 mm. bolt washer and nut. Tighten both mounting bolts.

Replace power chain.

Fit the V belt by putting it on the clutch wheel first and easing it over the large belt wheel, while turning. Do this by hand. The use of a tool may damage the edge of the aluminium belt wheel. Test the tension of the belt and adjust if needed.

Clean the sparking plug and set gap to .024". Replace with copper washer and tighten down.

Fit carburettor to induction pipe, making sure that it is vertical.

Connect ignition cut-out wire and lighting wire to their respective terminals and fit high tension lead to the plug.

Re-fit crank and chainwheel, fairings, and fuel pipe.

Re-fit pedal chain.

MAINTENANCE SUMMARY

Weekly

Check tyre pressures.

Apply a few drops of oil to the handlebar end of the controls and control cables and adjust if necessary.

Apply a few drops of oil to the chains and adjust if necessary.

Every 1,000 Miles

Decarbonise after the initial 1,000 miles, thereafter every 1,500 miles approx.

Clean sparking plug and set gap .024".

Lubricate belt wheel by applying a pressure gun to the grease nipple on the end of the pedal shaft and giving two or three strokes. Use high grade, high-melting grease.

Check tension of the V belt and adjust if necessary.

Every 2,000 Miles

Clean carburettor and filters.

Lubricate hub bearings and adjust if necessary.

Examine, and adjust if necessary, the contact breaker points.

Adjust steering-head bearing, if necessary.

FAULTS and their CORRECTION

Engine will not Start

1. FUEL SUPPLY

Ensure that fuel is in the tank, that petrol tap is open, and the choke lever is depressed. Check that the petrol is reaching the carburettor, disconnect fuel pipe and see if petrol flows freely. Remove the jet and blow through it.

If the engine has been flooded, close petrol tap, drain the carburettor by removing the jet, remove the sparking plug, open the throttle and rotate the engine by means of the pedals.

2. ELECTRIC CIRCUIT

Ensure that H.T. lead is connected with sparking plug and flywheel magneto. Ensure that the spring between the ignition coil and H.T. lead is in place. Check that sparking plug is clean and dry and that the gap opening is correct (see page 19). Test the plug, put threaded part on the engine and check that a spark appears when the engine is rotating. If there is no spark, change the plug. If there is still no spark check that the points of the contact breaker are clean and that the gap between the points is .018" — .020" (see page 19).

CORRECTION OF FAULTS (Continued)

Engine runs unevenly

1. FUEL SUPPLY

Check that petrol mixture is correct (see page 6). Ensure that fuel pipe is free and that petrol runs freely. Check fuel filter on carburettor and wash in petrol. Clean air filter of carburettor if necessary. The carburettor float should move freely. Remove jet and blow through it. Ensure that air hole in tank filler cap is clear.

2. ELECTRIC CIRCUIT

Examine sparking plug, and if necessary, clean and adjust gap (see page 19). Check contact breaker points and if necessary clean and adjust (see page 19).

When cleaning the engine take care to prevent paraffin, petrol, oil or grease penetrating into the automatic clutch.

Oil solvents or paraffin should not be allowed to come into contact with the pedal axle bushes which are oil impregnated.

INDEX

Adjustment, routine	11-17
Cleaning and Lubrication	9-10-11
Decarbonising	18-19-20
Faults and their Correction	22-23
Ignition	17
Maintenance	9-10-11
Maintenance Summary	21
Running Instructions	4-8
Running-in Instructions	5
Specification, Power Unit	2
Specification, Chassis	3
Tyre Pressures	4