

To His Royal Highness The Duke of Edinburgh Manusceurers of Vespa Scooters



ROD TYPE

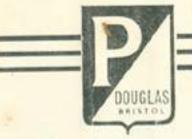
AND

MODEL G

STV. 152 L2.

Operation and Maintenance

https://www.motorcycle-manual.com/



# ROD TYPE ' AND MODEL G

Operation and Maintenance



# INTRODUCTORY NOTE

# BE VESPA-WISE

Now that you own a DOUGLAS-VESPA, which we trust will afford you great satisfaction, may we ask you to treat it with pride, and thus, by following a few simple rules of maintenance, help it to work for you efficiently?

In this booklet we have tried to set out the principal maintenance operations and procedures for carrying out minor overhauls. We feel however, that major servicing and particularly overhauls to the Engine and Gearbox should, whenever possible, be entrusted to Service Agents who have the necessary facilities to undertake this work.

Whilst the instructions herein are as clear and simple as possible, we realise that at times you may find yourself in difficulties. We have, therefore, made arrangements with our Service Agents to handle and answer any queries which may be causing you trouble. They only ask that you let them have the fullest possible information and details regarding your problem, with particular mention of the Engine and Frame numbers of your machine.

# DOUGLAS (SALES & SERVICE) LTD., KINGSWOOD, BRISTOL.

Telephone 67-1881/9

Directors: J. W. G. Kershaw (Chairman). C. McCormack (Managing). J. Griffith Hall. N. G. Cadman. H. J. Willis. H. R. Baines
E. F. Brockway. B. C. Owen.

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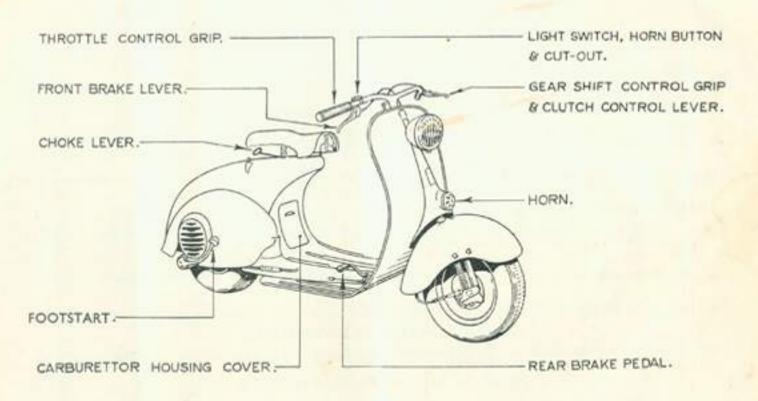


Fig. 1.



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#### VESPA OWNER PLEASE NOTE

YOUR GUARANTEE IS PRINTED ON THE LAST PAGE OF THE VESPA SPARES BOOK



# General description of Machine and summarised data

The VESPA has a two-stroke horizontal single-cylinder engine of 125 c.c. capacity.

Engine and Gearbox are in a single unit, with direct drive on the rear wheel.

Ignition and lighting are from flywheel magneto supplying H.T. current to the sparking plug, and L.T. current for lighting and horn, in conjunction with selenium rectifier and battery.

Cooling is ensured at all speeds by centrifugal fan fitted on flywheel.

The frame, of distinctive design, is pressed steel, electrically welded on a central longeron.

Front and rear wheels have spring suspension, while in addition the rear wheel has a hydraulic damper.

The wheels themselves are each composed of two flanges of pressed sheet steel. They are interchangeable, and being cantilever mounted, are easily removable, in the same manner as those of a motor car.

The tyres are low pressure and Interchangeable, giving long service; they are removable with unusual simplicity, owing to the form of the wheels themselves.

A tool kit neatly stowed away in one of the rear wings, is supplied as standard equipment. A luggage carrier is fitted, as well as a speedometer. Two keys are issued, with the serial number of the lock stamped on them.

Petrol tank	capaci	ty -			-	1,70		1.1 Imperial	Gallons
Emergency i	reserv	e <sub>1</sub> -		-	٠.			.2 Imperial	
Bore -	-			-				2.12 inches	54 m.m.
Stroke -					-		-	2.12 inches	
Capacity -								7.65 cu. ins.	
Compression	n ratio	-		-				6.4 to 1	17.0009.0000.1000
Fuel			-				2	Petrol-Oil m	lixture
Max. Brake	Power			24/	-		-	5 h.p. at 5,0	
Flywheel Ma	gneto				fully			p	
open						.012	ins.		
Gear ratios:	First	Gear				12.2		olo) 14.7 (Side	car)
		nd Gear				- LEXT 100-		olo) 8.18 (Side	
		d Gear				4.85		(Solo) 5.84 (Sid	
Gear box oi								pprox. 1/6th p	
Tyre size, fr	ont an	d rear			-		3 Inche		S. 14
8									



							Dunlop	Pirelli
Tyre Pressures -				5	olo	front	16 lbs. per sq. inch	. 16 lbs. per sq. inch
A Karanta and and and and							20 lbs. per sq. inch	
							16 lbs. per sq. Inch	
							32 lbs. per sq. inch	
							16 lbs. per sq. inch	
							24 lbs. per sq. inch	
							16 lbs. per sq. inch	
Overall length							67↓ Inches	
Overall height, unloa							THE RESERVE AND ADDRESS OF THE PARTY OF THE	
Overall handlebar wi					23			
Wheel base -								
Dry weight without								
Minimum turning cir					-	700	59 inches	
Limmum carming cir-	cie		-				37 Inches	
Battery -	* 0					(34)	6 volts, 5. A.h.	
Headlamp bulbs (two	beam	)			-		24×24 watts	
Parking light bulb						(*)	3 watts	
Tail lamp bulb				-	-	-	3 watts	
Speedometer bulb						-	3 watts	
								00004



# SECTION TWO

# ON THE ROAD

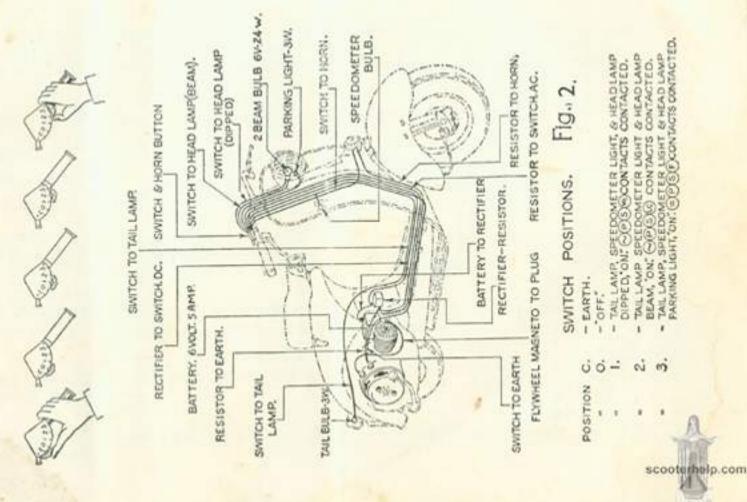
FILLING UP

On the chassis just behind the saddle you will find the fuel-tank cap.

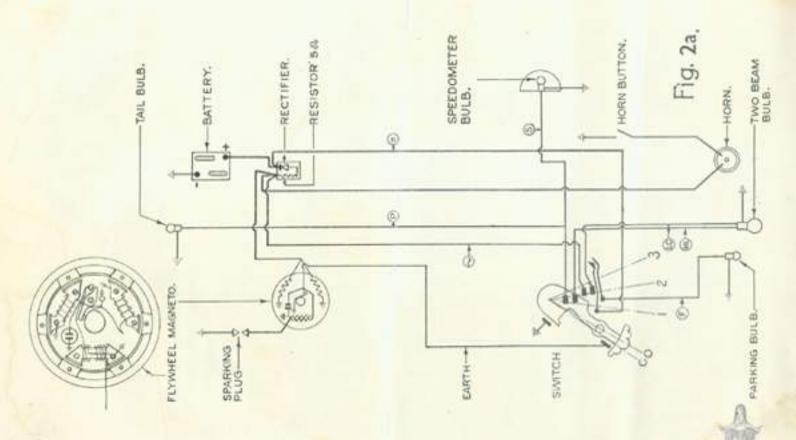
The fuel tank holds slightly more than a gallon, and you must remember never to fill with petrol alone, but always with the addition of oil in the fuel tank at the same time as the petrol.

It is very important that the correct quantity of lubricating oil should be added. See lubrication chart, page 22.





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NOTE:—It is much better to mix the petrol and oil in a can before putting it into the tank. If this cannot be done, put the petrol in first and then add the oil and shake the machine. Once the petrol and oil are thoroughly mixed, the oil will never sink to the bottom of the tank.

Details of lubricating oils suitable are given in the lubrication chart on page 22.

#### CONTROLS

(See figs. 1, 2, 2a and 3)

It is advisable before starting the machine to spend some time sitting in the saddle to familiarise yourself with the position and operation of the various controls and the "feel" of the machine.

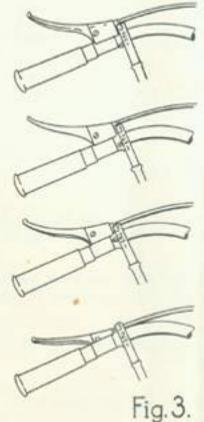
The THROTTLE control is the twist grip on the right handlebar, and operates through cable controls. To open the throttle turn the grip towards you.

Also on the right handlebar is the control lever for the FRONT BRAKE, which operates the brake by cable control.

Near the right hand twist grip there is the lighting switch incorporating cut-out (see fig. 2) and horn push button.

On the left handlebar are the CLUTCH lever and the GEAR CHANGE CONTROL, which are fitted into the twist grip (see fig. 3). This shows figures corresponding to the three gears, and a line indicating neutral. On the handlebar, at the edge of the twist grip, there is a line. To engage 1st gear depress the clutch lever and turn the twist grip until the number of the gear is opposite the line. Then slowly release the clutch lever, as described on page 18 under "Riding Technique."

On the right hand portion of the footplate is situated the REAR BRAKE CONTROL PEDAL. Accustom yourself to operating this pedal.



1st gear.

NEUTRAL.

2nd gear.

3rd gear.



The push-pull fuel cock is situated inside the carburettor compartment. To turn the fuel on, press the button in to its full extent and to turn it off, pull the button out to its full extent (or push it forward from behind).

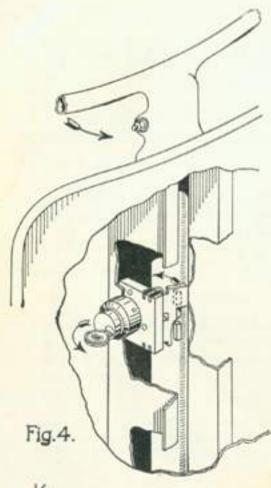
A small lever projects from the body of the cock just above the button. See that this lever is always over to the left as far as it will go. If the reserve fuel is required then the lever must be moved over to the right as far as it will go.

The control for the choke is situated under and to the rear of the saddle, and consists of a rod which on being lifted closes the choke valve of the carburettor. It is not recommended that this should be used unless difficulties are encountered in starting from cold.

On the right hand side of the rear part of the chassis is the footstart.

You will observe that the engine is covered by a cowling. If you have occasion to examine the engine, place the machine on the stand, then, with the gear control twist grip at neutral, and the fuel cock closed, depress the footstart to its full extent. Keeping it depressed, release the cowling catch and raise the cowling, after which, allow the footstart to return to its normal position. When closing the cowling, reverse the procedure.

The left hand rear wing holds the selenium rectifier and provides accommodation for the battery, but has space also for the tool kit.



The tool kit consists of:-

I single ended flat spanner 9 m.m.

I single ended flat spanner 10 m.m.

double ended flat spanner II and I4 m.m.

I double ended flat spanner 7 and 8 m.m.

Tommy Bar.

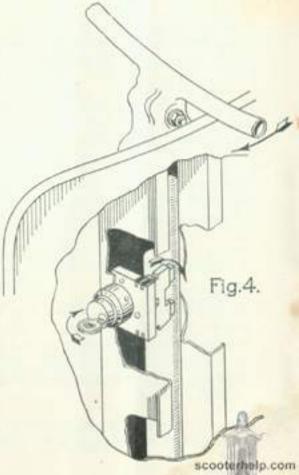
double ended box spanner II and I4 m.m.

double ended box spanner 21 and 22 m.m.

I Screwdriver, also, special carburettor spanner:-

double ended flat spanner 1"× fil"

all contained in a canvas tool roll. Finally, you have a SECURITY LOCK on the main Longeron just below the handlebar (see fig. 4). This enables you to lock the machine up when necessary,



with the handlebar in such a position that whilst the lock functions the machine cannot be moved in a straight line. To lock the machine, turn the key in an anti-clockwise direction, then turn the handlebars to the left to their full extent and they will lock automatically.

BEFORE ATTEMPTING TO RIDE THE MACHINE, MAKE SURE THAT IT IS UNLOCKED.

#### STARTING

Ensure that the gear change control is in neutral and that the petrol is turned on.

Operate the footstart, with the twist grip throttle control slightly open.

You will find it most convenient to stand facing the right hand side of the machine, holding the throttle twist grip in your right hand, and operating the footstart with the left foot, the whole time steadying the machine by holding the saddle with your left hand.

Do not close the choke valve (by lifting the rod beneath the saddle) unless you have difficulty in A starting the normal way.

If the carburettor is flooded to such an extent that the engine cannot be started, it will be necessary to turn off the petrol supply, remove the sparking plug and turn the engine over with the foot-start several times while holding the throttle fully open. After completing this operation, clean the sparking plug, refit it and start the engine in the normal way, but do not flood the carburettor.

#### RIDING TECHNIQUE

To set the machine in motion, engage first gear. To do this pull the clutch lever on the left handlebar towards you to its fullest extent and turn the gear control twist grip upwards and towards you so that the line is opposite the figure I. (See fig. 3). Now let the clutch in very gently by gradually releasing the lever. At the same time increase the engine speed by gradually opening the throttle, when the machine will pass smoothly into motion.

For the best results it is necessary for all movements to be carried out firmly and gradually.

N.B.—The throttle should not be opened to its fullest extent until the machine has completed 1,200 miles (See section on running-in).

Once having satisfactorily set the machine in motion for the first time, we urge you to stay in bottom gear for at least ten minutes, to give yourself confidence in balancing the machine, before attempting to change into a higher gear.

To develop a neat gear change technique may take you, if you are a beginner, some little time. To change up into a higher gear, accelerate until the required speed is reached. As a guide only to the beginner, the following speeds are suggested for changing up:—

First to second gear ... 10 m.p.h. Second to third gear ... 20 m.p.h.

The throttle should then be closed and the gearchange twist grip turned so that the line is opposite the figure 2. Now open up the throttle again.

The machine will now be in second gear. Repeat this procedure for changing into third gear.

The suggested speeds for gear changing given above are of course only approximate and, after a time experience will tell you the speeds at which changes should be effected.

Above all, try to avoid placing undue strain on the engine during its first 300 miles.

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When changing to a lower gear, turn the gear change twist grip back to the lower gear.

You will find that a little trouble taken in perfecting your gear changing technique will be amply repaid by greater riding comfort and longer machine life. Use the throttle to govern the speed of the machine; to lift the clutch and apply the brakes to slow the machine is wasteful when the same braking effect could be obtained by closing the throttle. On greasy roads the use of the engine as a brake is very much to be recommended, especially by effecting a smooth change to a lower gear.

#### RUNNING-IN

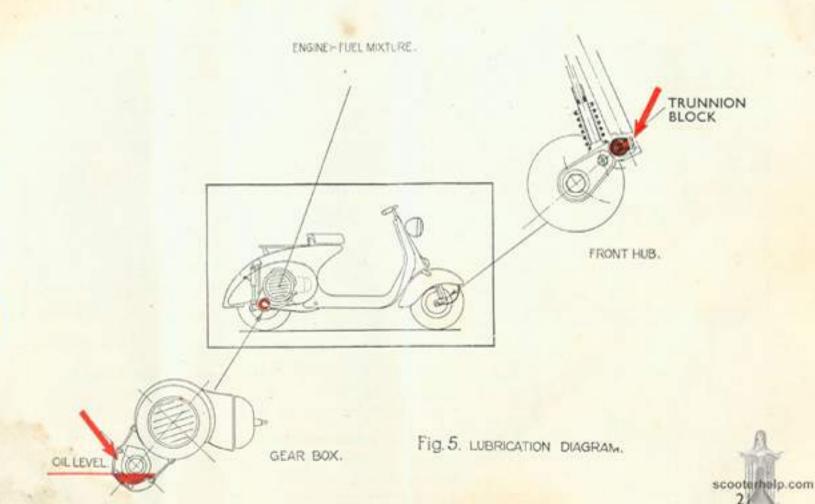
To ensure the best service and length of life from your machine, care should be taken with the running-in. The engine should never be allowed to labour, or over rev, and for the first 1,200 miles it is recommended that the throttle should never be completely open.

#### ENGINE CUT OUT

To stop the engine, the switch on the handlebar must be put at the earth position marked "C" Fig. 2a. Incidentally, this will leave the cylinder full of fuel vapour, facilitating easy starting on the next occasion.

Don't forget to turn off the petrol.

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#### LUBRICATION CHART

Part to be lu	ibricated			Lubrication		
Every 2,500	Every 5,000	*Shell	*B.P.	Exio	Wakefield	Mobil
Gear-box topping-up	Gear-box change oil	Shell 2T Two- Stroke Oil or Shell X-100 30	Energol Two- Stroke Oil or Energol SAE 30	Esso Extra Motor Oil 20W/30	Castrol XL	Mobiloil A
Front suspension Felt pad on flywheel cam Joints on brake control Speedo flexible drive	Control cables Gear-change quadrant	Retinax A	Energresse L.2.	Esso Multi-purpose Grease H	Castrolesse L.M.	Mobilgressa M.F
Engine at each re-fue	Ming	Shell 2T Two- Stroke Oil in ratio of 5% or i-pint to 1i galls, petrol	Energol Two- Strolle Oil in ratio of 5% or 1-bint to 14 galis. petrol	Essolube 30 in ratio of 5% or j-pint to 1g galls, petrol. Esso Two-Stroke Motor Oil in ratio of g-pint to 1g galls, petrol	Castrol Xt in ratio of 5% or j-pint to 1 j galls, petrol. Castrol Two-Stroke Oil in ratio of 2-pint to 1 j galls, petrol	Mobileil A in ratio of 5% of i-pint to 15 galls petrol or Mobil Mix in ratio of i-pint to 1, galls, petrol

<sup>\*</sup>Marketed also by National Benzole Co. Ltd., by arrangement with Shell-Mex & B.P. Ltd.

#### APPROVED PETROL OIL MIXTURE

Make	Description					
Shell	27 Two-Stroke Mixture					
В.Р.	B.PZoom					
National Ben- zole Co. Ltd.	Hi-Fil					

Hydraulic Dampers

When not working efficiently, contult your Dealer. If servicing is required, they should always be returned to the Works.



# SECTION THREE

# LUBRICATION

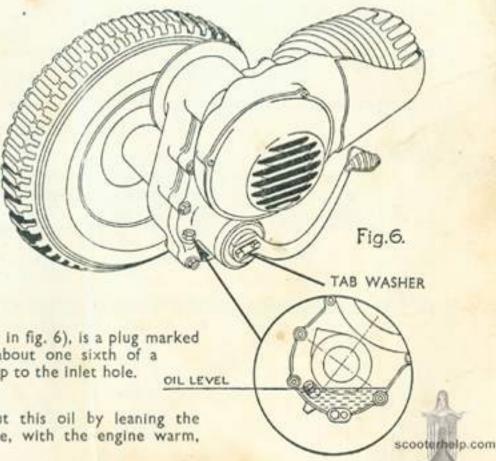
#### ENGINE LUBRICATION

This is attended to by the oil content of the fuel mixture in the tank. No additional lubrication is necessary, but it is of course essential that you never omit to add the necessary quantity of lubricating oil to the petrol when filling up. (See page 22).

# GEARBOX LUBRICATION

At the rear of the engine, (see arrow in fig. 6), is a plug marked OIL. Unscrew this and pour in about one sixth of a pint of Oil, until the oil level is just up to the inlet hole.

After the first 600 miles, drain out this oil by leaning the machine over on its right hand side, with the engine warm.



and before refilling rinse the gearbox thoroughly with flushing oil and drain thoroughly. After refilling ensure that the plug and fibre washer are secure.

Every 1,250 miles check the level of the oil, and replenish as may be necessary.

It is important that the chassis hinges for the engine wing are greased regularly.

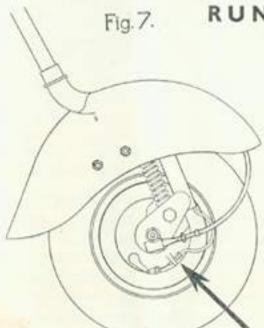
#### FRONT HUB

At the completion of every 600 miles, lubricate the front hub bearing, by a pressure gun. You will find the greasing point at the base of the steering tube, where it is joined to the front links. Be sure to grease nipple for trunnion block.

On page 22 there is lubrication chart covering all these points in simple form.



# SECTION FOUR



# RUNNING ADJUSTMENTS

#### GENERAL INSPECTION

You would be well advised from time to time to check that all essential nuts are tightly fitting, as of course there is normally a tendency when a machine is in constant use for some to be loosened by vibrations. Certainly after a thousand miles all nuts should be checked and tightened where necessary.

#### BRAKE ADJUSTMENT

Before attempting to adjust brakes, ensure that the wheel is off the ground.

#### FRONT BRAKE

On the right hand side of the front wheel there is an adjusting screw. (See fig. 7).

#### REAR BRAKE

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The adjusting screw is under the main arm of the engine bearing. (See fig. 8).

Correct adjustment of either brake necessitates play of about half an inch at the tip of the hand

Fig.8.

lever (on the right handlebar) or of the footbrake pedal, before the brake lining comes into contact with the brake drum. Ensure that the brakes are not binding, and that the wheels are perfectly free.

#### CLUTCH

The clutch control operates from the hand lever on the left handlebar, by a cable to the lever outside the clutch cover under the engine. At this point there is an adjustment nut, which will allow you to correct either excessive tautness of the cable, or excessive play.

(1 free movement on the clutch lever)

at 13869 Miles

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#### WHEEL REMOVAL

Before removing the rear wheel, turn off the petrol, place the machine over on its off side. This will give free access to the wheel. Remove the four nuts and spring washers at the hub and lift the wheel clear. The front wheel can be removed while the machine is on its stand.

Bear in mind that the wheels are interchangeable, and that if you find one tyre is showing more signs of wear than the other you can switch them over. Do not, however, forget that in this event you must modify the tyre pressures.

#### TYRE REMOVAL

To remove a tyre, first remove the wheel as described above. Let the air out of the tyre, unscrew the six nuts on the wheel nearest the circumference, which will allow the two halves of the wheel to fall apart. Take care to extract the valve of the inner tube from the hole in one of the wheel halves, so that the outer cover and the inner tube are freed completely.

#### SPARKING PLUG

You will find it advantageous to carry out an inspection of the sparking plug approximately every 600 miles. Disconnect the H.T. lead from the plug itself by pulling off the waterproof cover, and remove the plug from the cylinder by using a box spanner on the hexagon of the body of the plug.

Check the plug for cracks in the insulation; if these are apparent you need a new plug. Clean the electrodes with petrol, and check the gap in accordance with the following details:—

K.L.G. plug F.70, Gap ·023/·026. A.C. plug 45F., Gap ·022. Lodge plug H.N. Gap ·022/·026. A.C. Champion plug L.86, Gap ·020.

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#### CARBURETTOR FILTER

In the union joint where the fuel pipe connects with the carburettor there is a small gauze filter. From time to time it is recommended that this be cleaned. First remove the large nut at the top of the carburettor, slip the union joint, which is fixed to the fuel pipe, off the carburettor; the filter is fitted inside the union, easily accessible. Remove all impurities which may be clogging the meshes, and wash with clean petrol before replacing. Take care to screw the nut on the carburettor tightly. Mind you do not lose the fibre washers.

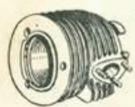
#### DECARBONISATION

Every 1,200 miles clean the cylinder exhaust port. Remove the exhaust pipe and cylinder head, and bring piston to dead bottom centre. When cleaning the exhaust port to take great care that no carbon deposit falls into the cylinder.

N.B.—This operation is one of those we recommend is carried out by your Service Agent.

0 00

9 0 0 9 0 0





Every 3,500 miles, decarbonise the cylinder head, the cylinder and the piston.

Dismantle the exhaust pipe, remove the cylinder head and the cylinder. When cleaning take great care that no carbon deposit enters the engine. When reassembling, remember to replace the gasket between the cylinder and the Cylinder Head by a new one. This also applies to the gasket at the base of the cylinder. (See fig. 9).

N.B.—This, also, is an operation, we recommend you to have done by a Service Agent.

#### ADJUSTMENT OF IGNITION

The gap between the contact breaker of the flywheel magneto should not be more or less than .012 ins. To gain access to the contact breaker points you must first remove the fan; if the points need cleaning use a very fine emery cloth or a special file for the purpose.

#### GEAR CONTROL CABLES

Two adjusters are provided on the handlebar assembly of the Model G for taking up the "slack".



#### CLEANING DETAILS:

In general, to keep your machine spick and span, first remove all dust and mud, then wash all unpainted surfaces with paraffin.

#### DISUSE:

If for any reason you decide to lay your Vespa up for a while, we recommend you to raise it off the ground resting the foot-plate on wooden blocks to take the weight off the tyres.

Empty the petrol tank and the emergency reserve, clear the engine and lubricate it by dropping oil through the Sparking plug hole of the cylinder head.

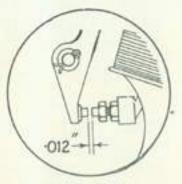


Fig. 10 CONTACT POINT

Then turn the engine over a few times to ensure that a thin film of oil spreads all over the internal surfaces to prevent rusting.



# SECTION FIVE

# FAULT FINDING

#### ENGINE STOPS OF OWN ACCORD

Reserve lever not in position? Fuel tap closed? No fuel at carburettor-Fuel tank quite empty? -Air hole in fuel tank cap blocked? -Air holes in top of carburettor float chamber blocked? Air leak in induction system? Choked main jet? Excessive fuel-(see final paragraph on section Fuel at carburettorre Starting) Spark plug not firing? Contact breaker arm sticking or points require attention? Internal failure in flywheel magneto? scooterhelp.com

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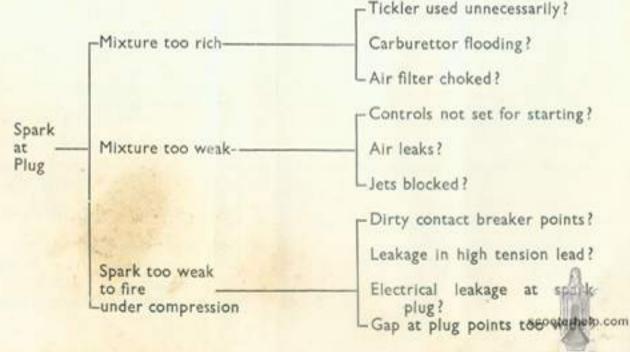
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#### ENGINE WILL NOT START

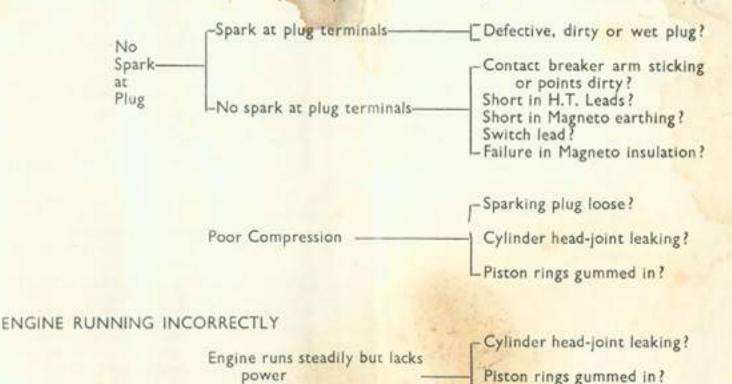
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#### FUEL REACHING CARBURETTOR



# FUEL REACHING CARBURETTOR (cont'd.)



Exhaust system blocked?

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#### ENGINE RUNS ERRATICALLY

Engine hunts — \_\_\_\_\_\_ Weak mixture?

Spark plug sooted?

Weak mixture?

Weak mixture?

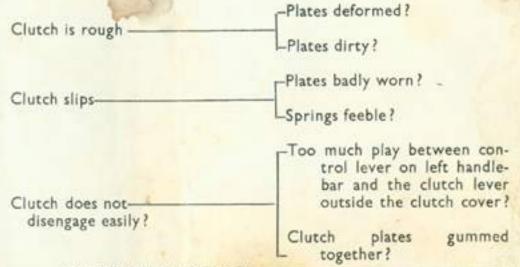
Engine overheating requires decarbonising?

Engine misfires

Obstruction in fuel system?
Faulty spark plug?
Weak mixture?
Contact breaker points, in flywheel magneto, dirty or incorrect gap?

Occasional short in H.T. leads?

#### CLUTCH TROUBLE



#### - PROPRIETARY ARTICLES

The following proprietary articles are used in the DOUGLAS-VESPA

Electrical equipment by Joseph Lucas (Electrical) Ltd.

Carburettor by Amal Ltd.

Speedometer by Smiths' Motor Accessories Ltd.

Flywheel magneto and handlebar switch by B.T.H.

For repair or replacement of these articles refer to your local dealer

# DOUGLAS SERVICE DEPOTS

DOUGLAS (Sales & Service) LTD, DEPOT,
II RUSTON STREET,
Off BROAD STREET,
BIRMINGHAM 16.
(Telephone MIDIand 6756)

DOUGLAS (Sales & Service) LTD. DEPOT, 130 RENFREW STREET, GLASGOW, C.2. (Telephone DOUglas 5332) DOUGLAS (Sales & Service) LTD. DEPOT,
406 FINCHLEY ROAD,
CHILDS HILL,
LONDON, N.W.2.
(Telephone SWIss Cottage 2371)

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