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By Appointment
To His Royal Highness The Duke of Edinburgh
Suppliers of Vespa Scooters

Vespa
Sprint

OPERATION AND MAINTENANCE



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OPERATION AND MAINTENANCE

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

Telephone 67-1881

DIVISION OF THE WESTINGHOUSE BRAKE AND SIGNAL COMPANY LIMITED

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NOTICE

To keep your VESPA in perfect running order and not to invalidate the guarantee offered by the contract, it is advisable to entrust repairs only to retailers or authorized service stations. Demand original VESPA spare parts exclusively. All VESPA spares are made of the same material, have undergone the same machining steps and inspections as the components of your VESPA. This means guarantee for long life and normal performance of your machine and for your personal safety.

Special care should be taken with regard to fuel mixture which should consist of a good quality petrol and oil of make, grade and in the amount prescribed in this booklet, page 15.

SERVICE EXCHANGE

Ask your Dealer for full particulars relating to the Service Exchange Scheme. The use of the facilities we offer through this medium ensures an economical, speedy, and reliable means of carrying out repairs when such become necessary.



INTRODUCTION

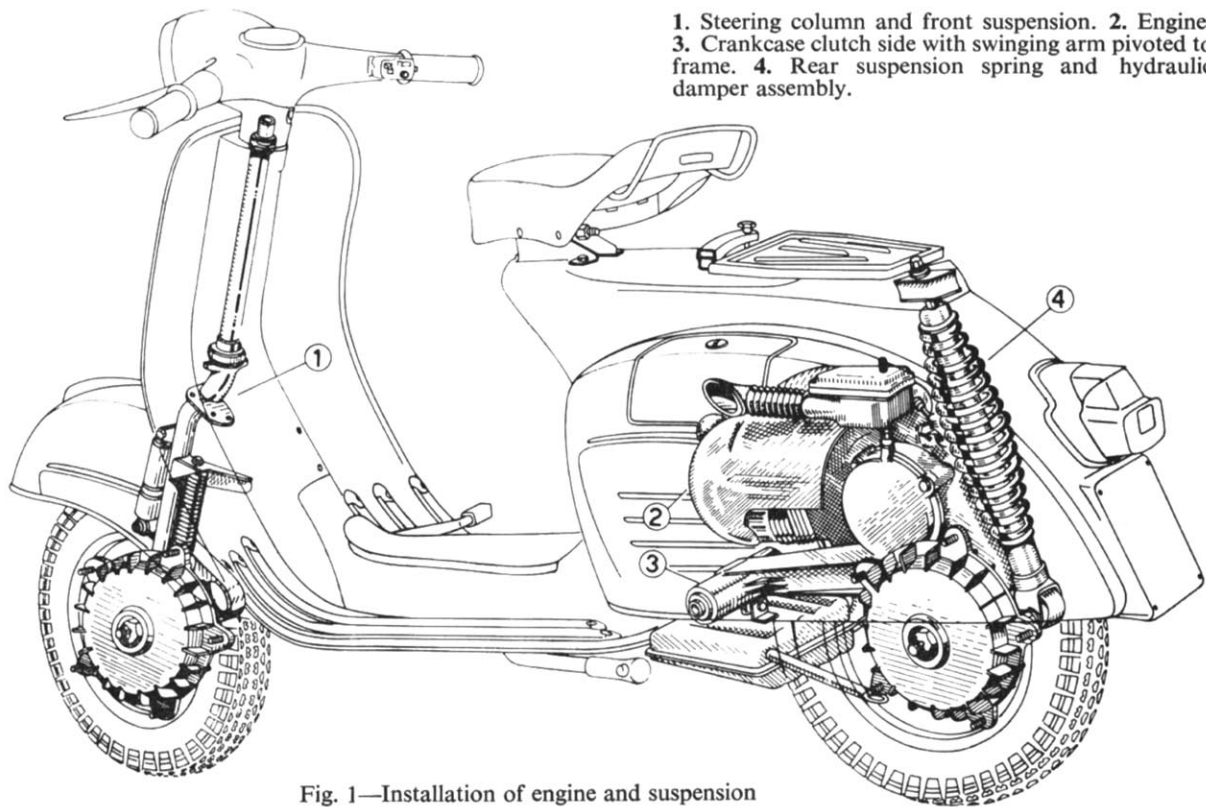
Douglas (Sales & Service) Ltd. wishes to welcome you into the family of Vespa owners and takes this opportunity of thanking you for your preference.

We feel sure that this scooter will give you complete satisfaction.

Because of its characteristics (comfort, economy, quiet running, etc.) the Vespa has a wide range of use: for practical operation,

pleasure trips, along the main highways or country roads. Long journeys on the Vespa will not fatigue you and you will no doubt be quick to note its excellent performance.

This booklet, with its simple instructions on operation and maintenance will furnish you all the information necessary for obtaining a complete working knowledge of your vehicle.



1. Steering column and front suspension. 2. Engine. 3. Crankcase clutch side with swinging arm pivoted to frame. 4. Rear suspension spring and hydraulic damper assembly.

Fig. 1—Installation of engine and suspension

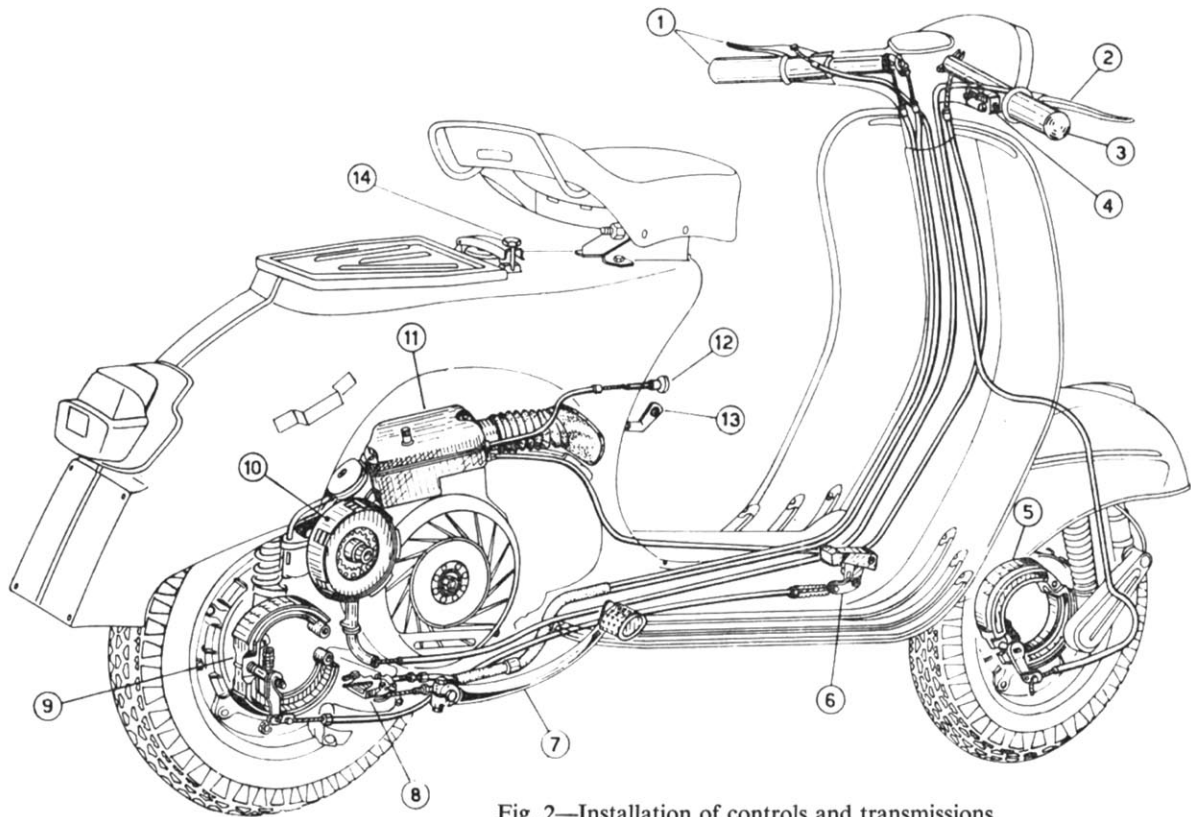


Fig. 2—Installation of controls and transmissions

Fig. 2

1. Gear change twist grip and clutch control lever. 2. Front brake lever. 3. Throttle twist grip. 4. Main switch unit. 5. Front brake shoes. 6. Rear brake pedal. 7. Kickstarter. 8. Gear selector. 9. Rear brake shoes. 10. Clutch. 11. Carburettor and air cleaner. 12. Choke control. 13. Fuel tap. 14. Filler cap.

PERFORMANCE AND SPECIFICATIONS

Consumption (according to CUNA Standards): 2.1 lt/100 Km. (107.4 mls./U.S. gal.; 129.2 mls./imp. gals.) (approx), petrol-oil mixture i.e. 2% oil.

Max. Speed (CUNA Standards) 94 Km/h (58.4 m.p.h.) approx.

Carrying capacity 2 persons and 10 Kg. (22 lbs.) of luggage.

Range 370 Km (230 mls.) approx.

Max. fuel capacity: 7.7 lt. (2.03 U.S. galls. or 1.7 imp. galls.)
(incl. 1.4 lt. - 0.37 U.S. galls or 0.3 imp. galls of reserve).

SIZE AND WEIGHT

Wheel Base 1200 mm (47.2")
Handlebar width 670 mm (26.3")
Total length 1770 mm (69.6")
Max. height 1045 mm (41")
Min. ground clearance 220 mm (8.7")
Turning radius 1400 mm (55.0")
Total dry weight 89 Kg. (195 lbs.)

ENGINE: single horizontal cylinder, two stroke rotary distribution: i.e. carbureted

mixture is regulated by the crankshaft rotation.

Bore 57 mm. (2.24") - Stroke 57 mm. (2.24")
Cylinder displacement 145.45 cc. Compression ratio 7.5 : 1.

H.T. external coil **ignition.**

Spark advance: $22^{\circ} \pm 1^{\circ}$ before T.D.C.

Sparkling plug types: Marelli CW 225 N-T
AC 43 F; Champion L 86; Bosch W 225 T 1;
K.L.G. F 70 or F 75.

1. Group carburettor air cleaner. 2. Piston. 3. Crankshaft. 4. Clutch. 5. Mainshaft and gear pinion assembly. 6. Gear selector. 7. Flywheel magneto. 8. Kickstarter. 9. Crankcase swinging arm clutch side (pivoted to the frame).

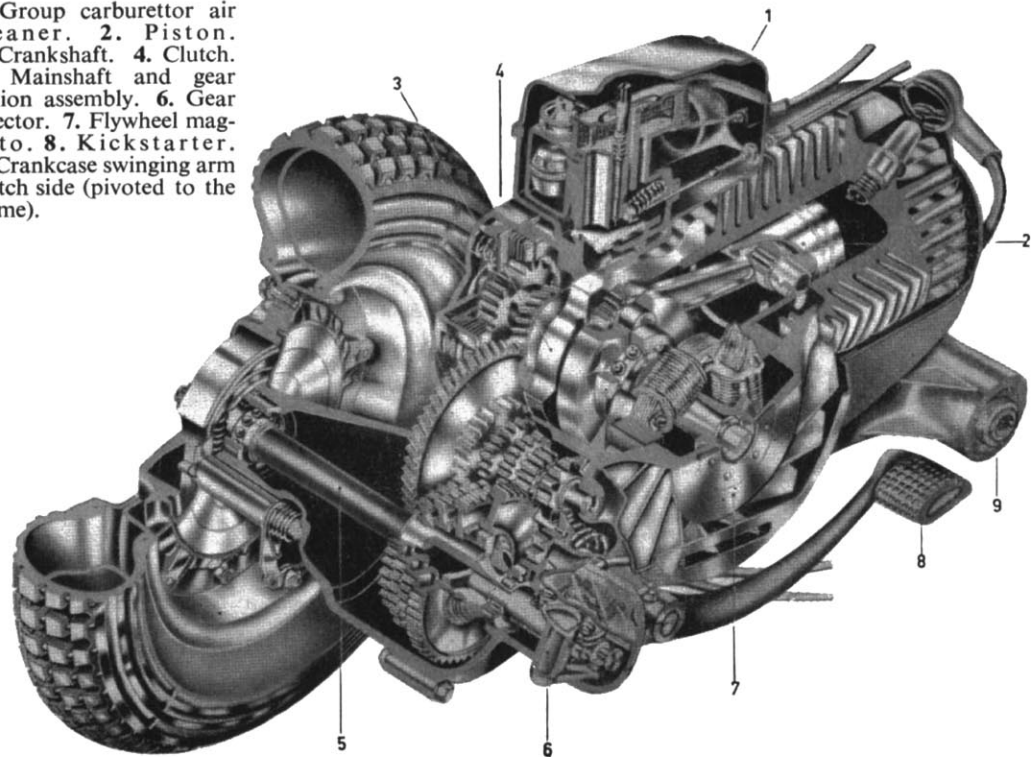


Fig. 3—Engine section

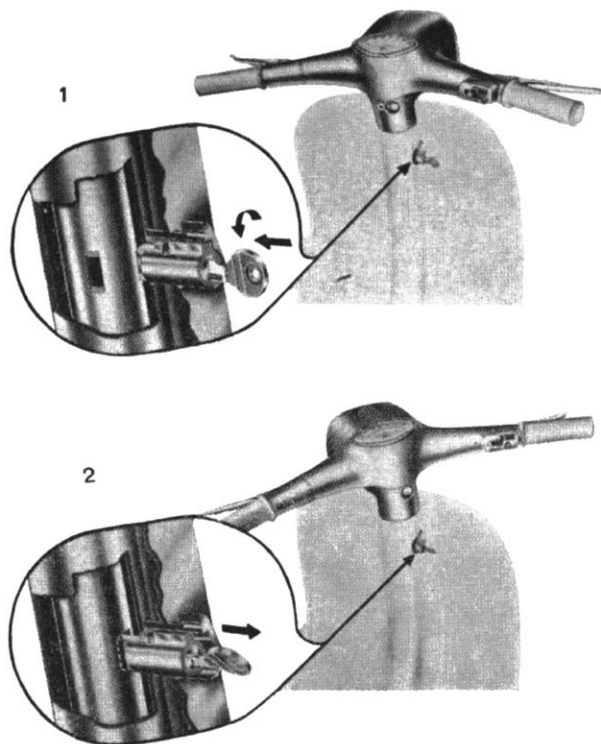


Fig. 4—Steering lock
 1. Normal position. 2. Locked position.

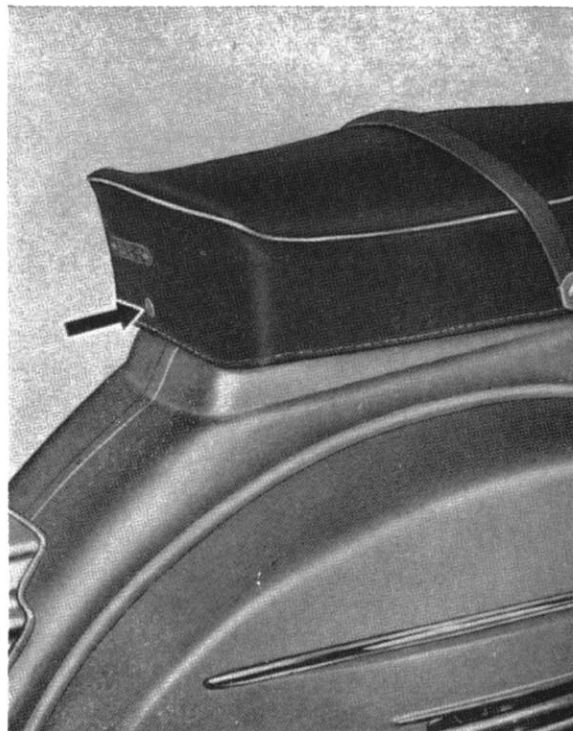


Fig. 5—Application of dual saddle
 N.B.—For access to fuel tank push the button indicated by arrow and pivot the seat on its forward edge.

OPERATING INSTRUCTIONS

OPERATION	INSTRUCTIONS	NOTES
b) Unlocking the handlebars ACCESS TO FUEL TANK	<p>To release the handlebars, insert the key in the lock, turn it to the left and pull it back; then turn the handlebars in the normal position.</p> <p>The fuel tank is provided with a hinged cap located under the dual seat. For access to fuel tank pivot the seat on its forward edge, after having released the rear attachment as shown at fig. 5.</p>	

OPERATING INSTRUCTIONS

OPERATION	INSTRUCTIONS	NOTES
FUEL SUPPLY	Use a mixture of oil and petrol, i.e. 2%. See lubrication chart.	Ensure that the fuel tank breather is always clean Use a mixture 2% by volume during and after running-in.
BEFORE OPERATING THE VEHICLE	Unscrew the plug in the gear box marked "OLIO" (See fig. 18) and check that the oil is level with the hole when the vehicle is standing upright.	

For running in first 2000 Km. (1200 mls.), do not keep the throttle open for long periods.

— **After first 1000 Km. (600 mls.),** change oil in gear box (see page 34 and page 15) and check that all **nuts and bolts** are tight.

— **Check tyre pressure:**
Front: 1.2 Kg/cm² (17 lbs./sq. in.); **Rear:** 1.75 Kg/cm² (25 lbs./sq. in. solo); **Rear:** 2.5 Kg/cm² (35 lbs./sq. in.) with pillion passenger.

OPERATING INSTRUCTIONS

OPERATION	INSTRUCTIONS	NOTES
STARTING	<p>— Carry out the operations indicated on fig. 6. Do not use the choke when the engine is warm; as soon as the engine is running smoothly bring the choke control back to its normal position.</p>	<p>In case of hard starting see page 34.</p>
SETTING THE SCOOTER IN MOTION	<p>— With the engine running at idling speed declutch and rotate the gear change twist grip and select first gear (fig. 6). For setting the vehicle in motion slowly let in the clutch and gradually open the throttle.</p>	
GEAR CHANGE	<p>— Close the throttle, declutch and select a higher or lower gear, as the case may be (fig. 6).</p>	<p>When it is necessary to decelerate do not hesitate in changing down.</p>
STOPPING THE ENGINE	<p>— Before stopping the engine change to “neutral” and then operate the cut-out button on the switch unit.</p>	

LUBRICATION CHART

Part to be lubricated			Lubrication				
After first 600 miles	Every 2,500 miles	Every 5,000 miles	*Shell	*B.P.	Esso	Wakefield	Mobil
Gear-box change oil	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 fly-wheel cam Joints on brake control Speedo flexible drive	Control cables Gear change quadrant	Retinax A	Energrease L.2	Esso Multi-Purpose Grease H	Castrolase L.M.	Mobilgrease M.P.
	Engine at each refueling		Shell 2T Two-Stroke Oil in ratio of 2% or ¼-pint to 1½ galls. petrol.	Energol Two-Stroke Oil in ratio of 2% or ¼-pint to 1½ galls. petrol.	Essolube 30 in ratio of 2% or ¼-pint to 1½ galls. petrol. Esso Two-Stroke Motor Oil in ratio of ¼-pint to 1 gall. petrol.	Castrol XL in ratio of 2% or ¼-pint to 1½ galls. petrol. Castrol Two-Stroke Oil in ratio of ¼-pint to 1 gall. petrol.	Mobiloil A in ratio of 2% or ¼-pint to 1½ galls. petrol. Mobil-Mix in ratio of ¼-pint to 1 gall. petrol.

*Marketed also by National Benzole Co. Ltd., by arrangement with Shell-Mex & B.P. Ltd.

APPROVED PETROL/OIL MIXTURE

Make	Description
Shell	2T Two-Stroke Mixture
B.P.	B.P.-Zoom
National Benzole Co. Ltd.	Hi-Fli

} To be used with equal parts of neat petrol.

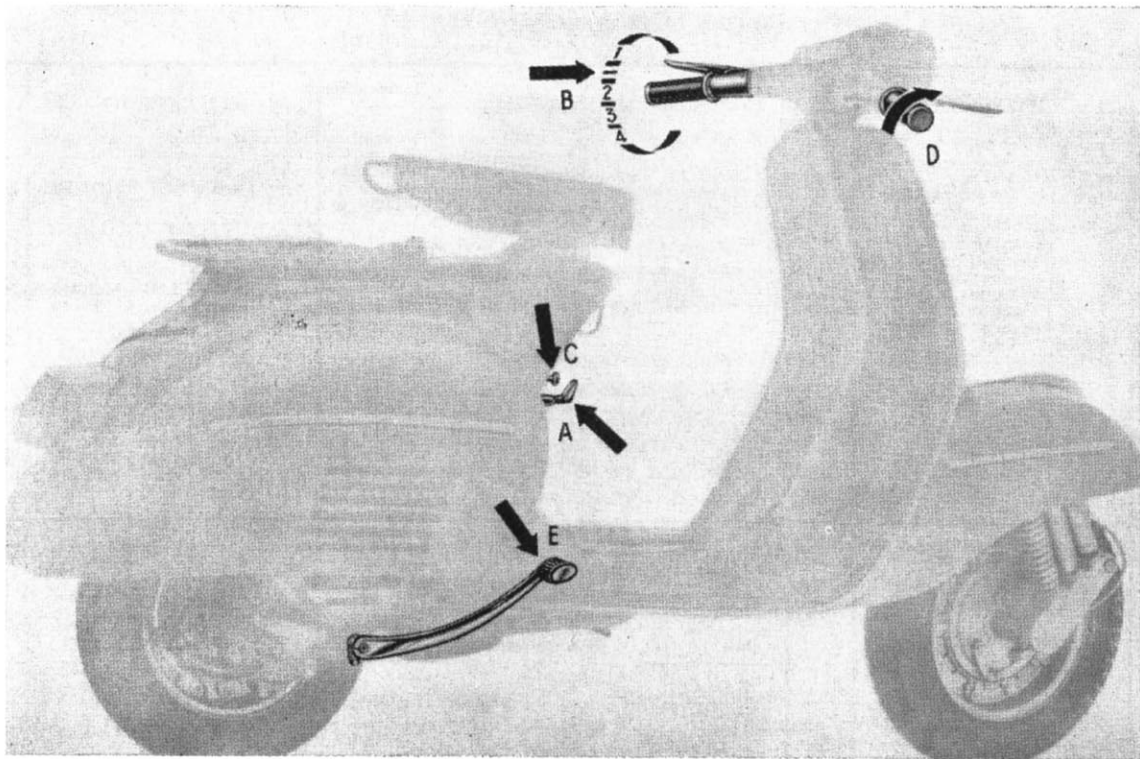


Fig. 6—Operations for starting

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

Fig. 6

Instructions:

A. Open the fuel tap. **B.** Selector neutral. **C.** Pull out the choke control rod (with cold engine). **D.** Bring throttle twist grip to idling position. **E.** Depress kickstarter.

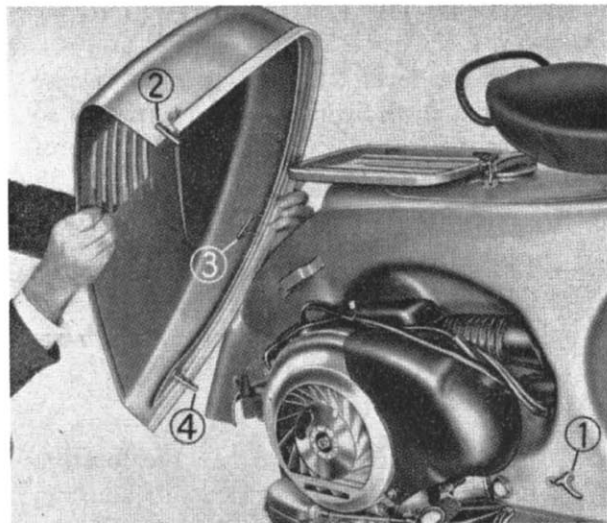


Fig. 7—Removing engine cowl

1. Lever for locking cowl. **2.** Front locating pin. **3.** Clasp securing cowl to chassis. **4.** Rear hooked pivot pin.

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

REMOVAL OF ENGINE COWLING

- Pull the lever “1” and turn to release it from cowl. Swing the cowl outwards so that the front locating pin “2” is free of its housing.
- Lift the cowl from the front upwards and swivel it on its lower section: so as to release the clasp “3” from the chassis bracket.
- Pull the cowl outwards on the locating pin “4” so as the latter clears its housing.

For reassembly carry out the reverse procedure.

ADJUSTMENT ON CARBURETTOR

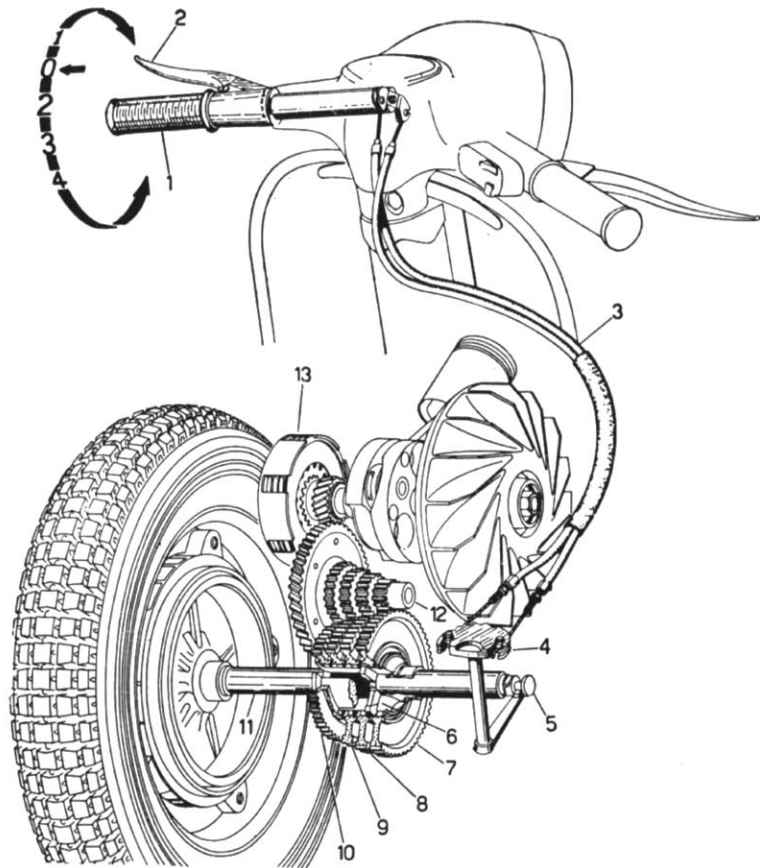
For adjusting the idling turn the slow running adjuster screw (fig. 9, n. 5).

- On the carburettor body a set screw is provided for adjusting the throttle cable play (see fig. 9); this screw is to be reset **only if necessary** or on dismantling and reassembly operations.
- On the rear end of the air cleaner case, is a plugged hole. When this plug is removed the spring loaded mixture adjusting screw is accessible (Fig 9, n. 14). **We recommend that, unless unavoidable, owners should avoid resetting this screw.** Any alteration should preferably be entrusted to a Service Station.

Fig. 8. Gear transmission

1. Gear change twist grip.
2. Clutch control lever.
3. Gear change cables.
4. Gear selector.
5. Selector stem.
6. Selector spider.
7. 1st gear.
8. 2nd gear.
9. 3rd gear.
10. Top gear.
11. Mainshaft.
12. Spring gear.
13. Clutch.

N.B.—The positions 1–2–3–4 on the gear change twist grip correspond to bottom, 2nd, 3rd and top gear respectively; the “0” indicates neutral.



OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

STARTING UP when the engine is flooded:

In the case of difficulties caused by flooding (presence of unvaporised mixture in the cylinder), the following methods can be used:

— Attempt push starting: engage 2nd year, declutch, push the vehicle to a certain

speed, sharply release the clutch and when the engine fires declutch immediately.

— Close the fuel tap, remove the sparking plug (Fig. 14) and clean; then kick over the engine several times.

Screw in the sparking plug and tighten, open the fuel tap and start the engine.

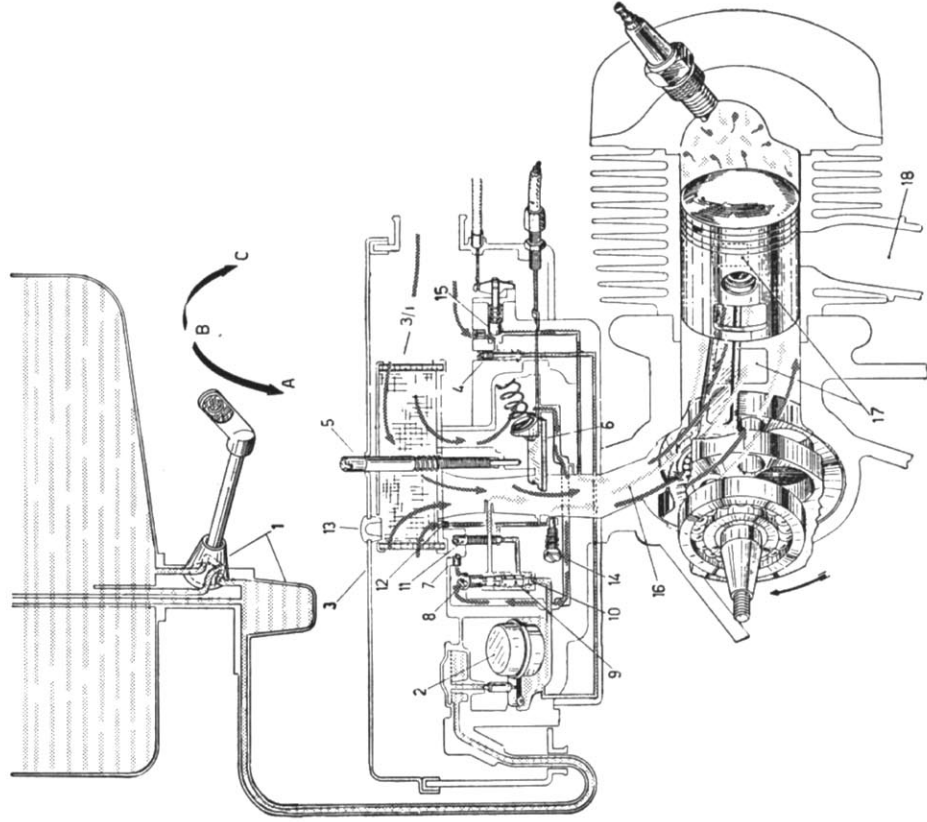


Fig. 9. Fuel supply and distribution diag.

1. Combined fuel tap and sediment bowl—A) Reserve; B) Open; C) Closed. 2. Float. 3. Carburettor and air cleaner. 3/1. Air filter. 4. Starter jet. 5. Throttle slide set screw. 6. Throttle slide. 7. Main jet air calibrator. 8. Air calibrator on mixer. 8. Mixer. 10. Main jet. 11. Slow running jet. 12. Slow running jet air calibrator. 13. Oil filler plug. 14. Mixture screw. 15. Starter valve. 16. Inlet port. 17. Transfer ports. 18. Exhaust port.

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
CHANGING WHEELS AND TYRES	<ul style="list-style-type: none">— For dismantling the wheels from the vehicles remove the nuts as indicated in fig. 10. On reassembly tighten said nuts alternately and progressively. — When a tyre has to be removed, first deflate and then remove the nuts joining the two wheel rims (fig. 10).	The front and rear wheel are interchangeable one with another providing that the tyre pressures are adjusted accordingly (page 33).

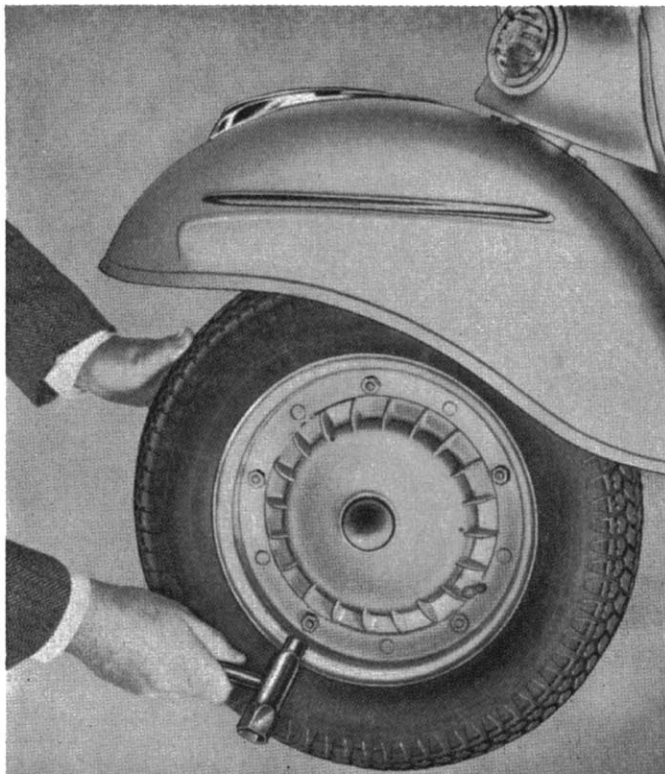


Fig. 10—Removing wheel from vehicle

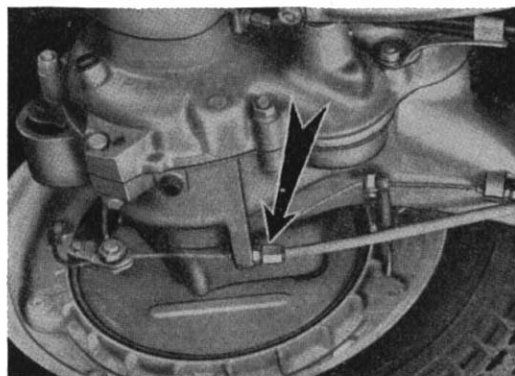
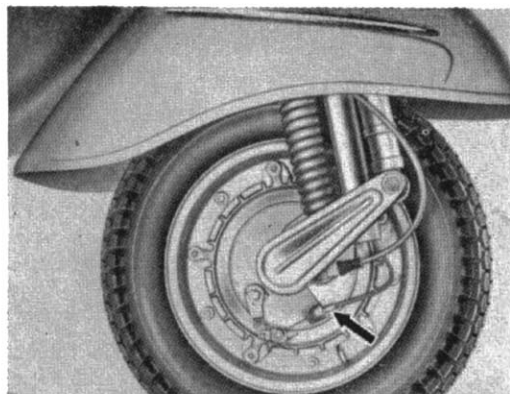


Fig. 11—Front and rear brake adjustment

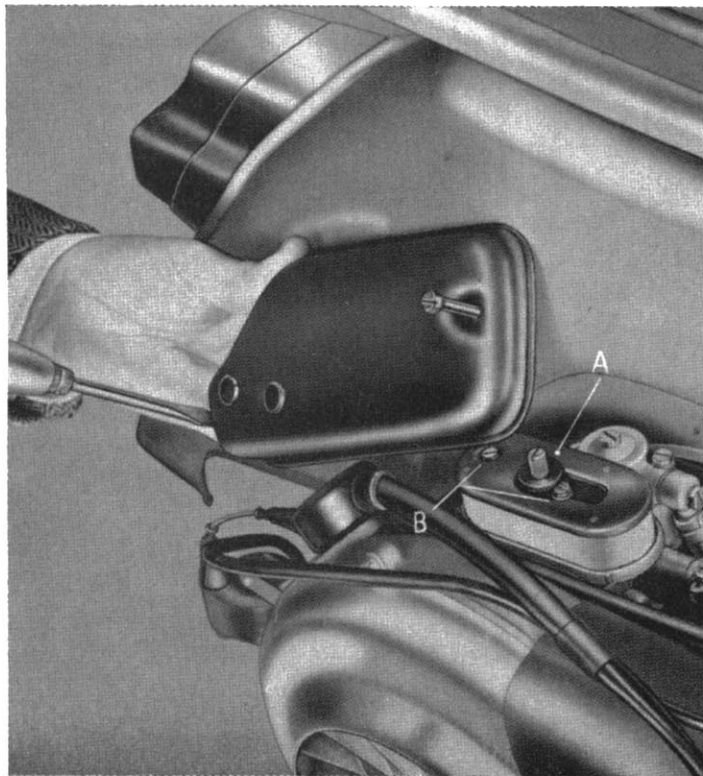


Fig. 12—Dismantling the air cleaner

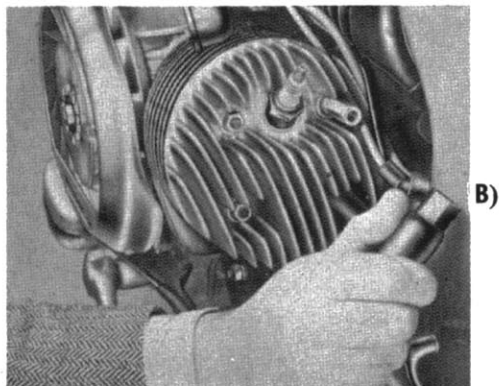
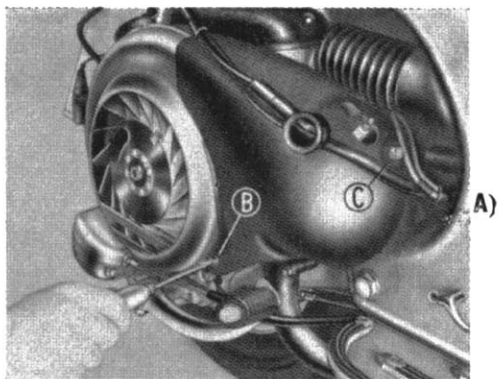


Fig. 13—Dismantling cooling hood from engine (A) and head (B).

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
<p>BRAKE ADJUSTMENT</p>	<p>Brakes are properly adjusted if:</p> <ul style="list-style-type: none"> — The wheel rotates freely when respective control lever or pedal are in resting position. — the braking action starts as soon as respective controls are operated. These conditions are obtained adjusting the cables by means of screws indicated with arrows in fig. 10. 	
<p>DISMANTLING AIR FILTER</p>	<ul style="list-style-type: none"> — To remove the air filter "A" from the air filter case take off the engine cowl (fig. 7) and air cleaner case cover fig.12. <p>Unscrew the two screws "B" securing the air filter and remove.</p>	<p>The air cleaner case cover can be removed by dismantling the two securing screws.</p> <p>If the air cleaner case is taken off, it is also possible to gain access to the carburettor.</p>

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
SPARKPLUG REMOVAL	<ul style="list-style-type: none"> — Remove engine cowl (fig. 6), disconnect the H.T. lead and extract the spark-plug using the box wrench as indicated in fig. 14. 	<p>On reassembling the spark-plug ensure that it is entered into the threaded hole at the correct angle.</p>
CHANGING OIL IN GEAR BOX	<ul style="list-style-type: none"> — Drain off through hole (after removing drain plug fig. 18). — Introduce a small quantity of flushing oil, run the engine a few minutes to ensure thorough circulation and cleaning and drain off again. — Afterwards refill gear box with fresh oil (up to level of filling hole). 	<p>This operation of changing oil should be carried out with warm engine.</p>

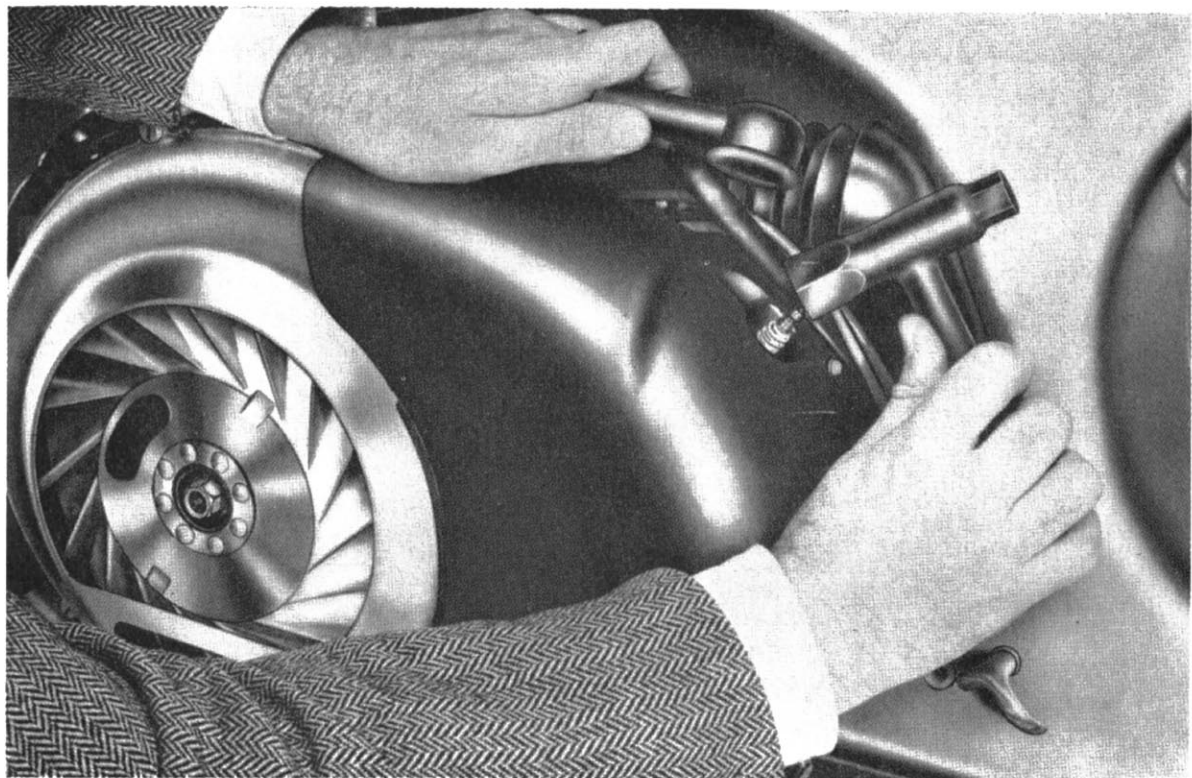


Fig. 14—Removing spark-plug

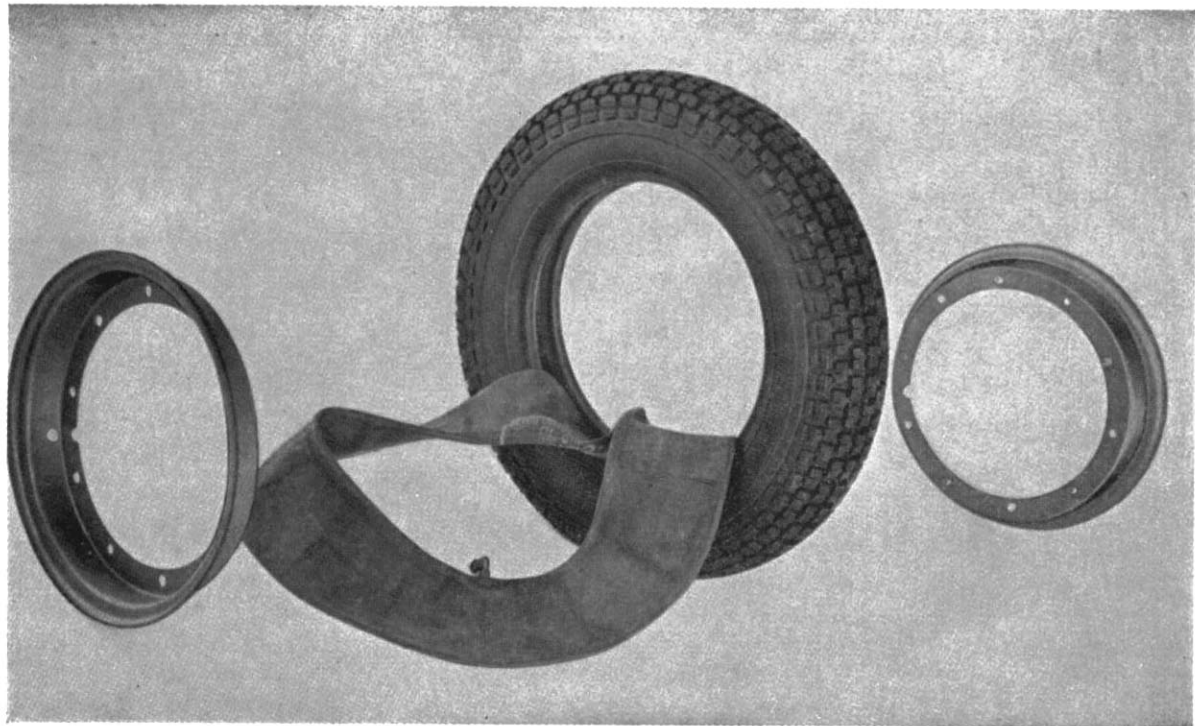


Fig. 15—Tyre removal

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
DISMANTLING CYLINDER HEAD	<ul style="list-style-type: none"> — Remove engine cowling, (fig. 13), disconnect the H.T. lead, dismantle the "Cooling hood" (fastenings "B" - "C", fig. 13) and unscrew the 4 securing nuts by means of a box wrench. 	
REPLACEMENT OF BULBS	<ul style="list-style-type: none"> — Should one of the bulbs in the headlamp or pilot light become defective, before replacing, check that the rear parking light bulb is serviceable and vice versa. 	<p>Before switching on the new light bulbs check (on assy.), that the socket contact points are efficient.</p>
CHECKING THE TIMING	<ul style="list-style-type: none"> — To ensure that maximum efficiency of the ignition system is obtained at all engine speeds proceed as follows: 	<p>If necessary to check the spark advance, consult your Service Station.</p>

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
<p>CHECKING AND SETTING THE FLYWHEEL MAGNETIC TIMING</p>	<ol style="list-style-type: none"> 1) Take off the plug located in the hole in the face of the flywheel rotor and rotate by hand until the contact breaker assembly (fig. 16) is seen through the hole. 2) The contact breaker points "A" should start to open at the position indicated when the extremity of the coil illustrated on the figure is 2÷4 mm. from the corresponding extremity of the pole shoe. 3) Again turn the rotor by hand, the max. opening of the contact breaker points should be between 0.3 to 0.5 mm. (0.011" to 0.019"). 4) If the conditions as per points 2) - 3) are not obtained, slacken the screw "B" and rotate the cam "C" accordingly. 	<p>In order not to alter the mechanical timing (spark advance) do not dismantle the base plate nor unlock the screws.</p> <p>Be sure to tighten the screw "B" before mounting the rotor.</p>

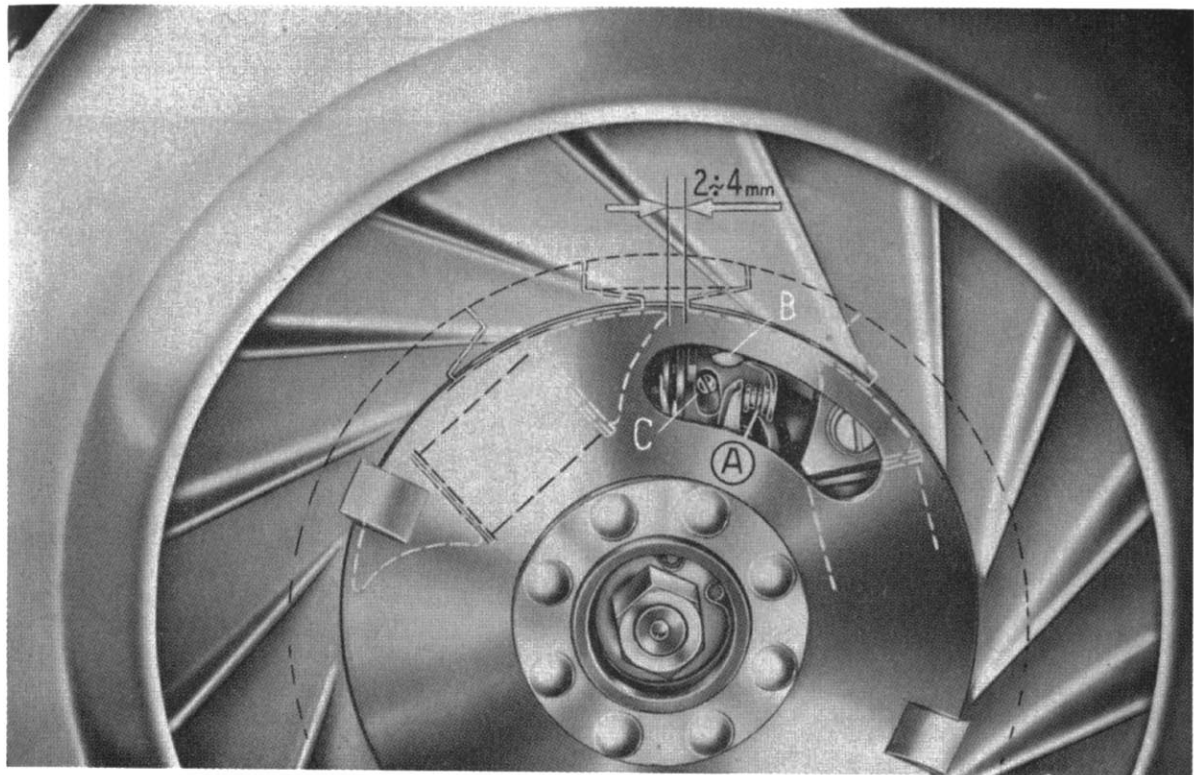


Fig. 16—Operations for checking the “magnetic” timing of the flywheel

SETTING THE HEADLAMP

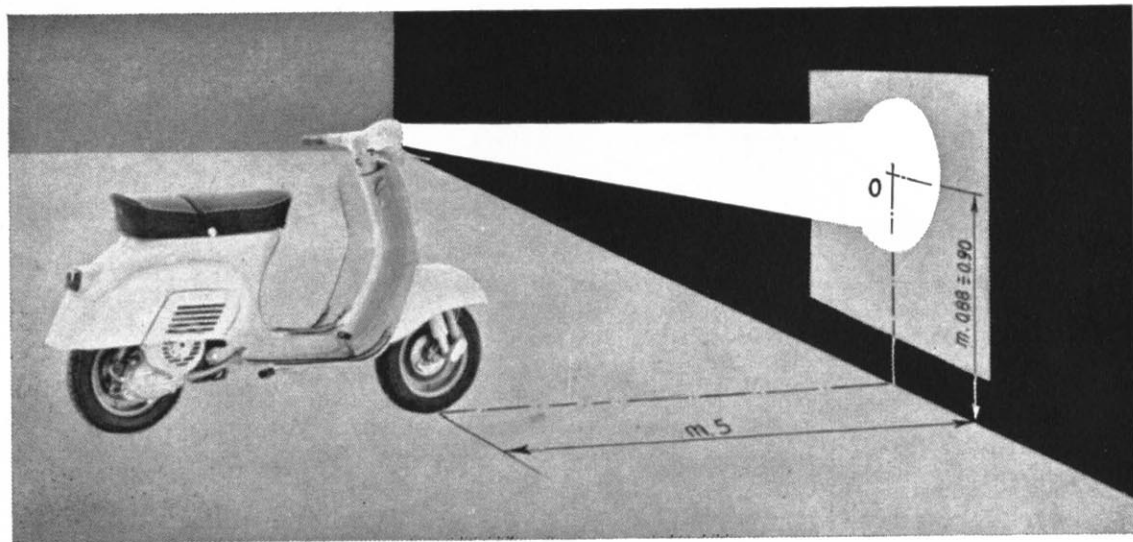


Fig. 17—Setting the headlamp

N.B.—The point “+” is valid for setting with one or two persons mounted.

OPERATING AND MAINTENANCE: COMMON OPERATIONS TO CARRY OUT

OPERATION	INSTRUCTIONS	NOTES
SETTING THE HEADLAMP	<p>The correct setting of the headlamp can be obtained by slackening the set screws which secure the Light unit in the handlebars housing. Before starting the operation, check that the front and rear tyres are inflated to their correct pressures; i.e. 1.2 and 2.5 Kg/cm² (17 lbs./sq. in. and 35 lbs./sq. in) then position the vehicle in front of a white screen as indicated at fig. 17.</p> <p>Start up the engine, set the throttle at about 1/3 full and switch on the main beam: with two persons mounted register the set screws so that the beam centre coincides with the “+” marked on the screen.</p>	<p>Do not wipe the reflector with a cloth or contact with fingers.</p> <p>The setting operation can be effected with only the driver mounted providing that if a passenger is to be carried the beam is reset.</p>

MAINTENANCE

If starting or running difficulties occur, **check the spark plug:**

— Clean the spark plug electrodes with a wire brush or emery cloth and adjust the gap 0.6 mm. (0.23"). Check porcelain insulation: if cracked or broken change the plug.

Clean in neat petrol.

Do not change the type of spark plug as recommended by manufacturers.

Every 4000 Km. (2400 mls.):

- 1) - Check oil level in gear box.
- 2) - De-coke the engine (cylinder head, piston crown and cylinder ports). Ensure that no residual carbon deposits remain inside the cylinder. Clean the exhaust pipe using a hooked steel wire.

3) - Grease front hub through the appropriate nipples and lubricate the speedometer drive and transmission, the brake lever and gear selector.

4) - Remove the air filter (see page 24), clean by agitating in an oil petrol bath and if possible air blast dry.

Every 8000 Km. (4800 mls.):

- 1) - Change oil in gear box (see fig. 18).
- 2) - Lubricate control cables transmissions and felt lubricating pad on flywheel. **(Consult your dealer).**
- 3) - Clean, and if necessary, adjust the contact breaker points (fig. 30). To avoid faulty ignition or other defects **consult your dealer for this operation.**

LAYING UP

We recommend, in addition to cleaning the vehicle, the following operations are carried out.

1) - With the engine stationary and throttle fully opened, introduce 40 cc. of **OIL** (see lubrication chart) through the appropriate

hole on the air cleaner case (n. 13, fig 9). After said operation depress the kickstarter three or four times.

2) - Drain off all fuel contained in the fuel tank; raise the wheels off the ground by placing wooden chocks under the footboard; then grease all unpainted metallic parts.

CLEANING THE VEHICLE

1) Engine

For cleaning the exposed surface of the engine use paraffin, a brush and clean rags.

2) Bodywork

Washing and polishing operations should not be carried out in the sun, particularly during the summer when the bodywork is warm.

Under no circumstances should petrol or

Diesel oil be used for washing painted surfaces or plastic material as they will deteriorate and lose their sheen. Always wash paintwork before polishing.

— Washing

Wash down using a low pressure hose, do not use a high pressure system as grit may be forced into the painted surface. As road grit

etc. becomes soft sponge down using a car-type shampoo if desired.

First lightly sponge down the painted surface then gradually exert more pressure in order to remove stains, etc. Wash frequently to avoid damage by abrasives picked up from the road surface. Rinse thoroughly and dry using a clean chamois leather.

Spots. Marks which prove difficult to remove caused by tar, oil, grease and squashed insects, etc. should be removed as soon as possible using a soft rag dipped in oil or turpentine. The affected area should be

cleansed with water as soon as possible afterwards.

— **Polishing**

Should the previous operation not restore the paint work to its original brightness or if painted surfaces have deteriorated for want of care, by the effect of the sun, dust or rain, it is necessary to introduce a polishing operation. For this, use polish or similar products of good quality.

Apply polish by means of a soft rag and by lightly rubbing uniformly the surfaces; the rubbing movement should be alternate and not circular.

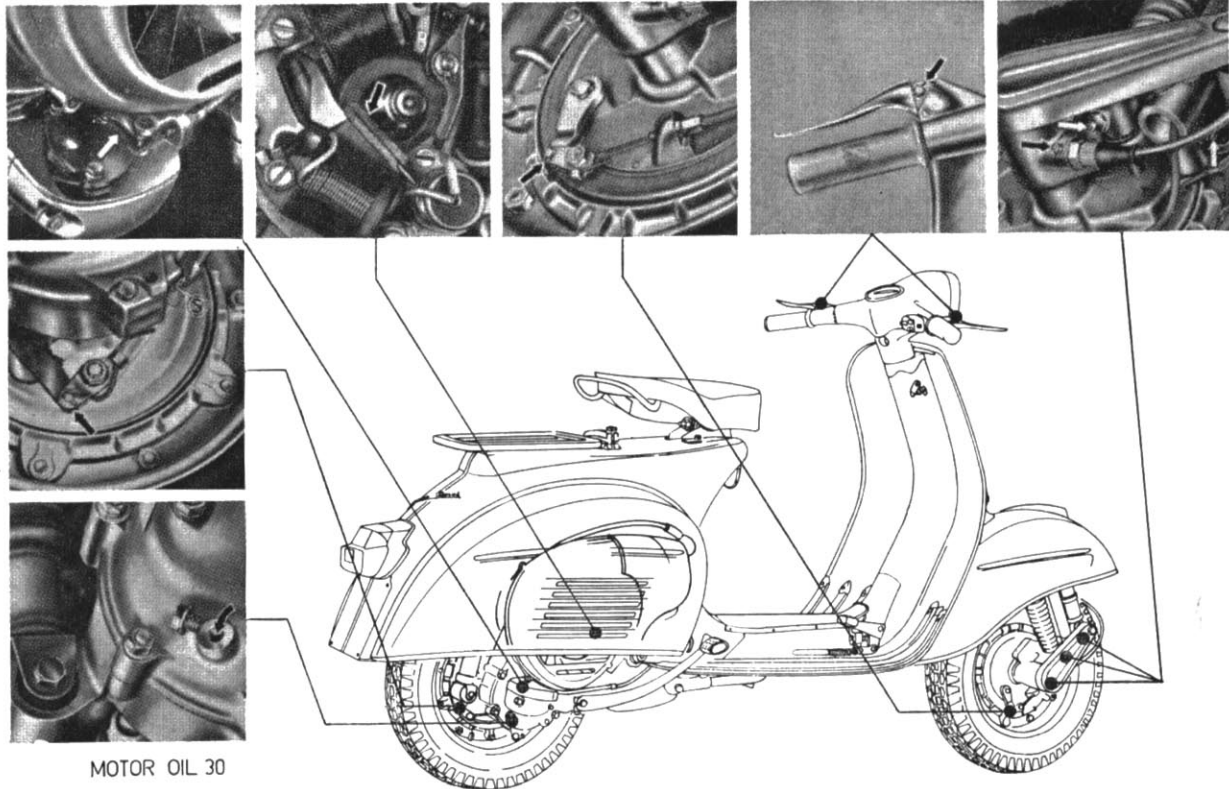
SUMMARY OF INSTRUCTIONS FOR MAINTENANCE AND LUBRICATION

Principal operations to carry out		Lubricants
4000 Km. (2400 mls.)	Every 8000 Km. (4800 mls.)	
<p>Gear box (top up)</p> <p>Fulcrum points of brake lever and pedal</p> <p>Gear selector</p> <p>Front suspension</p> <p>Speedometer drive and transmission</p> <p>Cleaning air filter (in petrol)</p> <p>Decoking cylinder head and piston</p> <p>Cleaning and adjusting sparking plug electrodes</p> <p>Decoking silencer</p>	<p>Gear box (change oil)</p> <p>Greasing control cables★</p> <p>Felt lubricating pad on fly-wheel★</p> <p>Cleaning and adjusting contact breaker points (check timing★)</p>	<p>See Lubrication Chart Page 15.</p>
<p>Engine: At each refilling (lubricated by oil in mixture)</p>		
<p>Front and rear dampers (only if defective★)</p>		

★ Consult your Dealer.

MULTI PURPOSE GREASE

MULTI PURPOSE GREASE



MOTOR OIL 30

Fig. 18—Lubrication scheme. Notice—For other lubricants see page 15.

FAULT FINDING

If the machine does not run properly, inspect and rectify as explained below.

If the suggested remedies are not sufficient to eliminate the trouble, consult your Dealer.

Fault finding	Remedies	Notes
<p>HARD STARTING</p> <p>1. Fuel system. Carburation. Ignition.</p> <p>Lack of fuel.</p> <p>Filter, jets, fuel tap, carburettor body clogged or dirty.</p> <p>Engine flooding.</p> <p>Air cleaner choked or dirty.</p> <p>Sparkling plug dirty. Porcelain of sparking plug cracked.</p> <p>Breaker points dirty, worn or pitted gap between breaker points incorrect.</p>	<p>Turn to Reserve and refill as soon as possible.</p> <p>Remove, wash in petrol and blow dry.</p> <p>See page 20.</p> <p>See pages 23, 24.</p> <p>Disconnect the plug lead. Check if sparking occurs between lead and crankcase when the kick-starter is operated.</p> <p>Consult your dealer.</p>	<div style="text-align: center;"> </div> <p style="text-align: center;">Fig. 19 Ignition circuit</p> <p>1. Flywheel coil. 2. H.T. coil. 3. Flywheel cam. 4. Contact breaker. 5. Condenser. 6. Sparking plug. 7. Engine cut-out.</p>

Fault finding	Remedies	Notes
<p>VARIOUS RUNNING DEFECTS</p> <p>1. Lack of power. High fuel consumption. Defective electrical equipment.</p> <p>Spark plug misfiring (see fig. 19).</p> <p>Silencer (or engine) choked.</p> <p>Spark plug loose in the cylinder head.</p> <p>Cylinder head loose.</p> <p>Air filter choked, dirty or choke control set in closed or partially closed position.</p> <p>Wire terminals disconnected or incorrectly connected.</p> <p>Headlight beam incorrectly set.</p> <p>Defective bulbs.</p>	<p>Clean or substitute. Clean the contact breaker. Check the electrode gap of the sparking plug, check the flywheel timing (see pages 30, 31).</p> <p>Clean (see page 34).</p> <p>Screw down with a wrench.</p> <p>Locate head properly and tighten nuts.</p> <p>Wash in neat petrol, air blast dry. Free off choke control lever and lubricate.</p> <p>Carefully check and connect.</p> <p>Adjust (see page 32).</p> <p>See page 29 for replacing.</p>	<p>In case of defective carburettor, lack of compression, noisy engine and suspensions, defective braking; general mechanical troubles consult your Dealer.</p> <p>When overhauling the front suspension, grease the wheel bearings. See Lubrication Chart, page 15.</p>

GENERAL SPECIFICATION

Engine (see characteristics at page 8 and fig. 3): The engine is pivoted to the chassis of the vehicle (fig. 1). The rear wheel is fitted on the outer side of the mainshaft.

Lubrication of engine (piston, cylinder, crankshaft) is effected by the oil in the fuel mixture. Clutch and gear box function in an oil bath.

Fuel supply (see fig. 9): gravity feed with mixture of oil and petrol.

Three way tap ("closed", "open", "reserve"). Carburettor provided with a throttle slide and starter device; air intake located inside the frame.

Clutch (see fig. 3): multiplate.

Gear box (see fig. 8): four speed drive with constant mesh gears. Operated by the twist grip on L.H. handlebars which functions in conjunction with the **clutch** control lever

Transmission ratio, engine to driving wheel:

Bottom gear . . .	1 : 14.46
2nd gear . . .	1 : 10.28
3rd gear . . .	1 : 7.31
4th gear . . .	1 : 5.36

Starting (see fig. 6): by means of a kick-starter on the R.H. side of the vehicle.

Cooling by means of a centrifugal fan.

Integral chassis of pressed sheet steel with steamlined monocoque type structure. It is completed, for protective means, by lateral engine and tool cowls and mudguard.

Handlebars: Light alloy casting comprising **speedometer** and trapezoidal shaped head-lamp. All transmission cables and various controls are concealed therein.

It is arranged for easy fitting of a windscreen (accessory).

Steering column, suspension: On the lower end of the steering column is pivoted the front wheel swinging hub: front and rear suspensions with helical spring and double acting hydraulic damper. Dual saddle fitted as standard equipment.

Security lock on the steering column.

Wheels: Interchangeable and made up of 2 x 10" pressed steel flanges, onto which are mounted 3.50 - 10" tyres.

Brakes: Mechanical, expanding type. Front brake is operated by hand, the rear brake is pedal operated.

Controls: clutch, gear box, throttle, front and rear brake, choke, provided with flexible and adjustable cables.

STANDARD TOOL KIT (contained in the tool cowl) 1 four ended box wrench (11 - 14 - 21 - 22 mm.); two double open-ended wrenches (11 - 14 and 7 - 10 mm.); one single open-ended wrench (8 mm.). One screwdriver.

ACCESSORIES

Refer to your Dealer.

ELECTRICAL EQUIPMENT

The electrical supply for illumination is a.c., fed directly from a 6 pole flywheel magneto (nominal voltage 6V), to the following groups:

Parking lights direct from battery.

The **head lamp**, installed in the handlebars, has a 25/25W double filament bulb (main and dipped beam), and with a 5W bulb (pilot light and parking light).

The **tail lamp**, with red reflector, has a 5W bulb which also illuminates the number plate and a 10W bulb for the STOP light.

Horn. D/C.

Speedometer. A 0.6W bulb is provided for illuminating the speedometer dial.

The light and dip **switch** unit, with two levers is installed on the right hand side of the handlebars; one of the control levers has three positions:

— pilot light, tail lamp and speedometer bulb on;

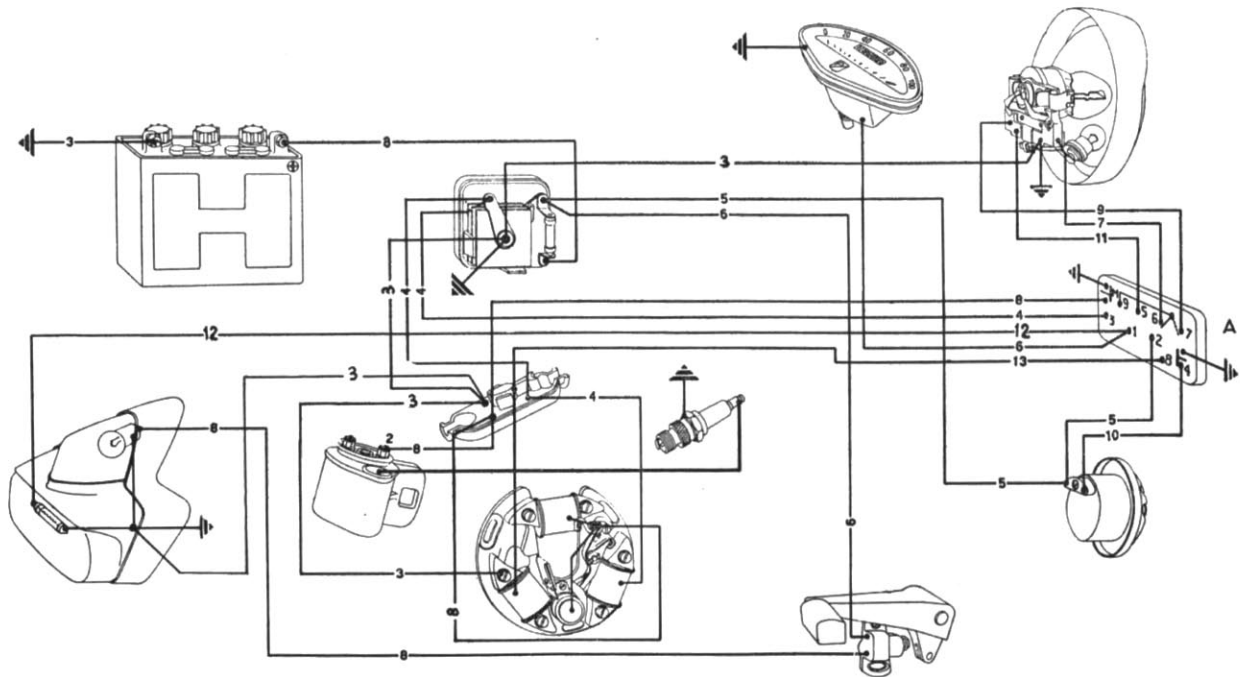
— lights off;

— head lamp, tail lamp and speedometer bulb on;

the other one gives the two lighting conditions of the head lamp (main and dipped beam).

The switch has also two push buttons for cut-out and horn respectively.

NOTE—A particular characteristic of this system is that all the loads (on bulbs and horn) are **in series** relative to the flywheel mag. coil, whereas the switches are in **parallel** with respect to said loads: therefore the lights and horn are operated by **opening** (instead of closing) the relative switches.



Bulbs } 6 V - 25/25 W: Headlamp.
 6 V - 5W: Front and rear lights.
 6 V - 0.6 W: Speedometer
 6 V - 10 W: Stop light.

A. Switch Board. 1-2. External ignition coil clamping nuts. 3. Black. 4. Yellow. 5. Green. 6. Sky blue. 7. Brown. 8. Red. 9. Violet. 10. White. 11. Pink. 12. Grey. 13. Yellow-black.

IDENTIFICATION DATA: consist of a prefix VLB 1 and progressive numbers. The chassis prefix and serial numbers stamped on the frame and engine, identify the

vehicle as prescribed by law, are always carried on the documents pertaining to the vehicle: **said series should be quoted when ordering spare parts.**

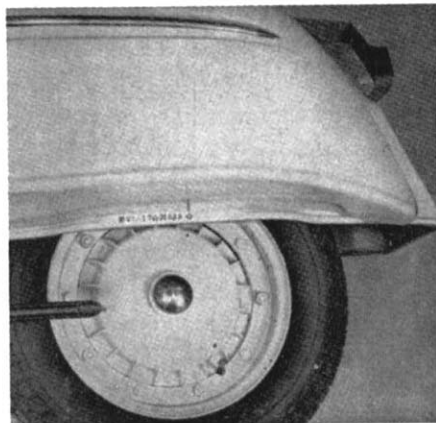
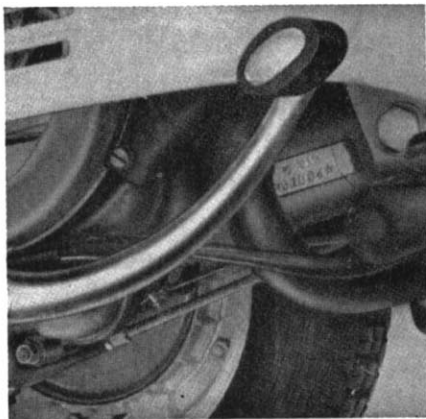


Fig. 21—Serial number stamped on engine (VLB 1 M.....) and on frame (VLB 1 T.....)

When referring to this publication
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