

mod. 1962

Vespa 150

OPERATION AND MAINTENANCE

STABILIMENTO DI PONTEDERA

UFFICIO TECNICO SERIE

Dis. 88356 M
2 a EDIZIONE, 600016102

Printed in Italy



Fig. 1 – Vespa 150

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 **Piaggio** spare parts exclusively. All PIAGGIO 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 gasoline and oil of make, grade and in the amount prescribed in this booklet, page 21.

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INTRODUCTORY NOTE

The « Piaggio Co. » welcoming you in the family of the Vespa owners, wishes to thank you for your preference, trusting that this scooter will be to your satisfaction. For its characteristics (comfort, low fuel consumption, noiseless running, neatness etc.) the Vespa can have a large field of use: for work purpose as well as tourist trips, both along large highways and narrow farm roads.

Long and hard rides will not worry you and, on driving the Vespa, you will soon realize its excellent performance.

This booklet, in which the simple instructions for operation and maintenance can be found, will enable you to better know your Vespa and use it in the most suitable way.

NOTE: This manual was copied from an original 1962 owners manual. It was carefully restored by Scooterstation. This manual may be freely copied and passed on to others for sharing. It may be altered and changed to the demands of each individual user, as long as Scooterstation remains mentioned as the provider of this manual. Scooterstation is not liable for any damage incurred through the use of this manual be it physical or mechanical.

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TECHNICAL DATA

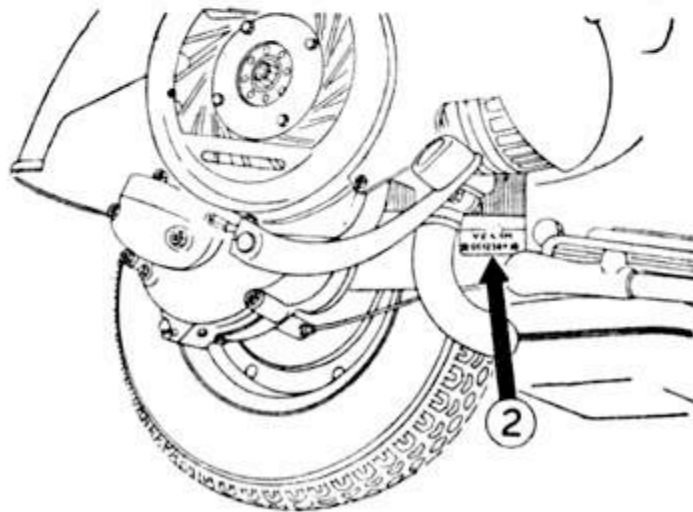
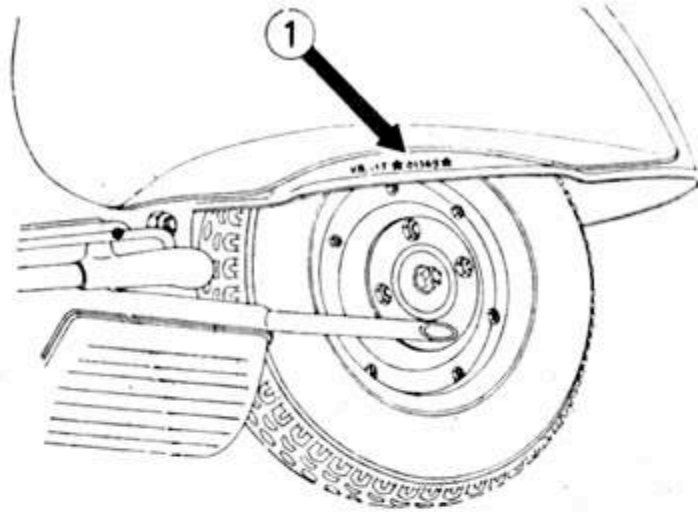


Fig. 2 & 3: - Stamping on frame (1) – Stamping on engine (2)

Fuel consumption (CUNA Standards)

2.2 liters to 100 Km (107 miles per USA gal ; 128 miles per imp. gal).

Max speed (CUNA)

85 Km "h (53 m.p.h.)

Carrying capacity

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

Range	360 Km (225 miles)	Wheel base	1180 mm (46.4")
Handlebar width	710 mm (27.9")	Max length	1745 mm (68.7")
Max height	1020 mm (40.1 ")	Ground clearance	130 mm (5.1 ")
Min. turning circle	1500 mm (59")	Weight (without fuel)	87 Kg (194 lbs)

IDENTIFICATION DATA

Serial numbers with prefix VBB are stamped on both frame and engine in the positions indicated on Figs. 2 and 3 respectively.

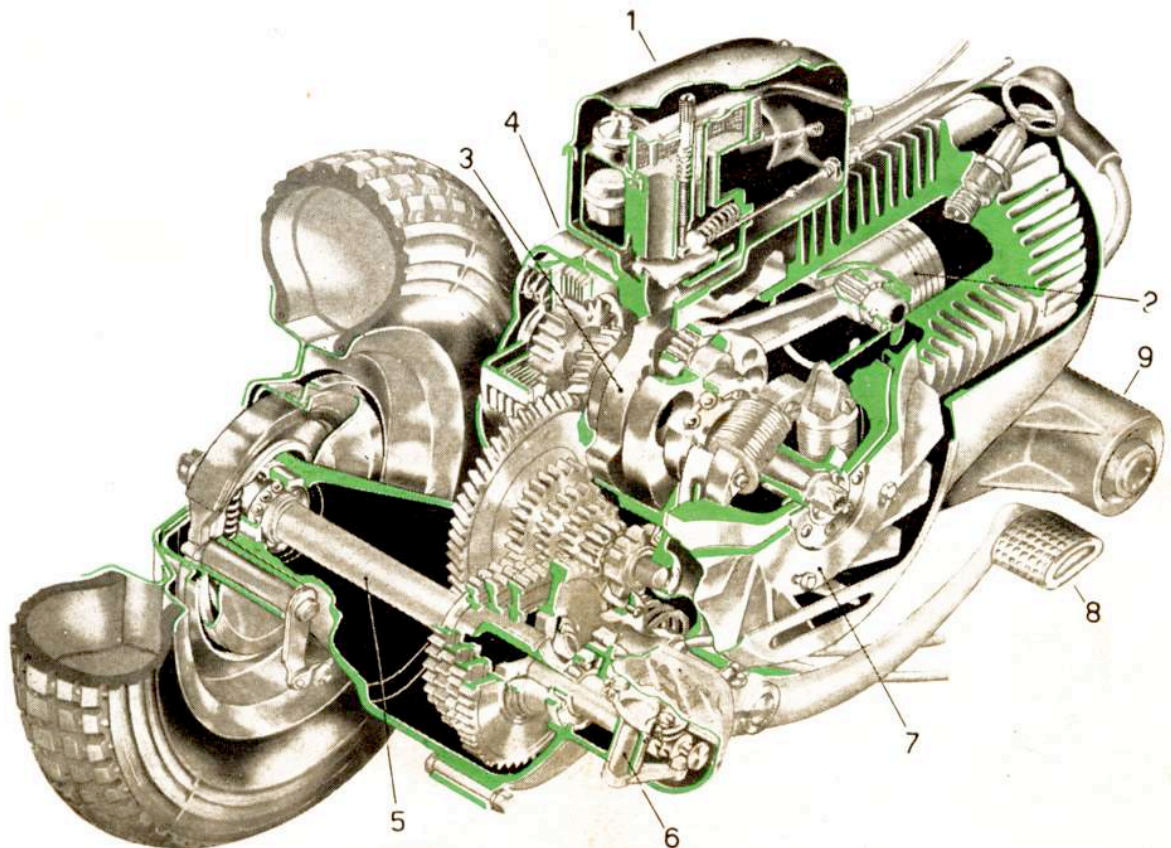


Fig. 4 – Section of engine

1. Air cleaner and carburettor - 2. Piston - 3. Crank shaft - 4. Clutch - 5. Mainshaft with gear pinions - 6. Gear shifter - 7. Flywheel magneto - 8. Kick-starter - 9. Crankcase arm (clutch side), pivoted to the frame.

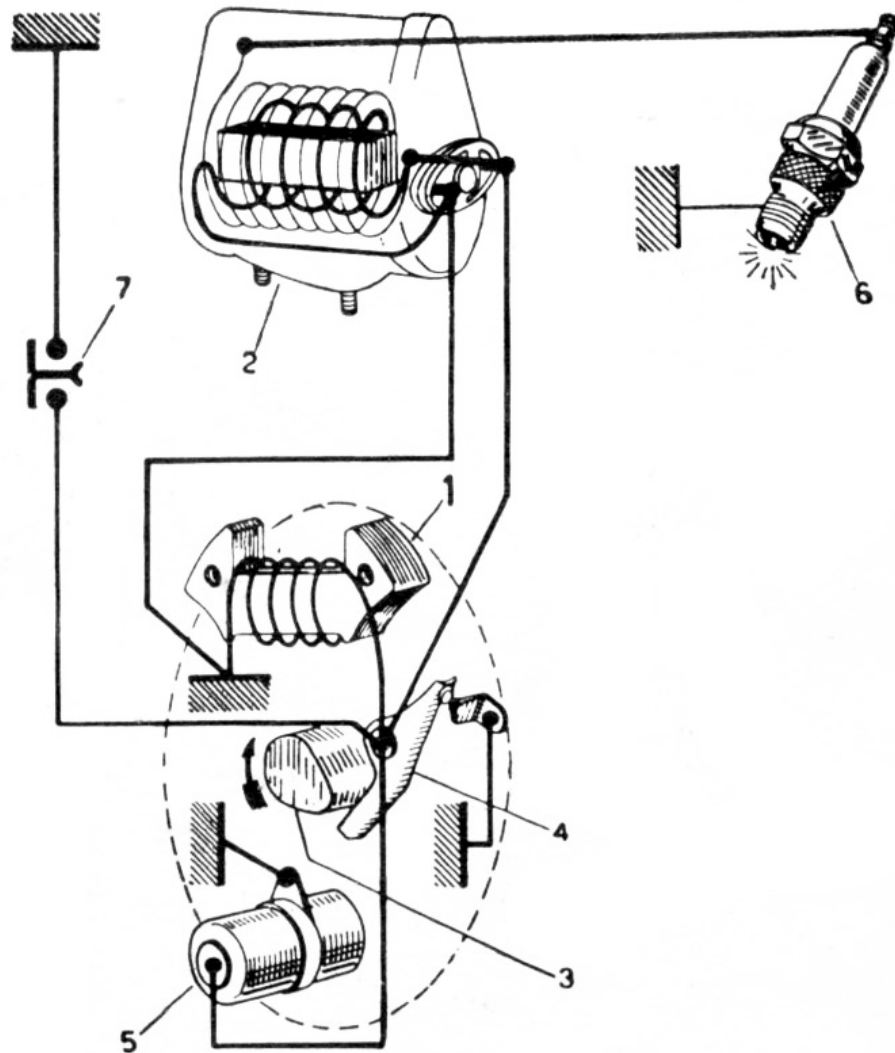


Fig. 5 - Ignition diagram

1. Ignition coil in flywheel magneto - 2. External H. T. coil - 3. Rotor cam - 4. Breaker - 5. Condenser - 6. Sparkplug - 7. Engine cut-out on switch.

Such numbers and prefixes identify the Vespa as prescribed by law and are repeated on the test card and other documents of the Vespa. They must be quoted when ordering spares.

ENGINE

Single horizontal cylinder, two-stroke, with deflector piston and rotary valve, i. e.: fuel mixture flow to the cylinder is controlled by the rotation of a crankweb (see Fig. 4).

The engine works on a 2% gasoline-oil mixture.

Bore	57 mm (2.24")
Stroke	57 mm (2.24")
Displacement	145.45 cc (8.88 cu.in)
Compression ratio	6.8 to 1 .

The engine is pivoted to the chassis of scooter through the cylindrical arm of the crankcase half, clutch side, provided with a spindle and two bushes (see Fig. 4). Its vibrations are damped by the rear suspension with variable rate coil spring and hydraulic damper (see also page 13). The rear wheel is secured to the end of the mainshaft.

Ignition by an external H. T. coil with primary winding fed by another coil inside the flywheel magneto (see Fig. 5).

Sparkplug: Marelli CW 230 A - T or CW 225 N - T, AC 43 F, Champion L. 86, Bosch W 225 T 1. - KLG F 70 or F 75.

Ignition timing with spark advance of $28^{\circ} \pm 10$.

Lubrication of piston, cylinder, wrist pin, connecting rod, crankshaft, main bearings is attended to by the oil in the fuel mixture.

Both clutch and gear box operate in oil bath.

Fuel supply by gravity with gasoline-oil mixture. The carburettor is embodied in the air cleaner case, has a plate-shaped slide valve and immersed jets.

Fuel tank with total capacity of 7.7 liters (2.03 USA gals; 1.7 imp. gals) and emergency reserve of about 1.4 l (0.37 USA gals; 0.3 imp. gals).

Three way tap («off» - «on» - «reserve»).

Transmission. The engine (see Fig. 4) directly drives the rear wheel through clutch, cush drive and gear box.

Engine to wheel transmission ratios:

First :	13.35 to 1
Second :	9.32 to 1
Third :	6.64 to 1
Fourth :	4.73 to 1

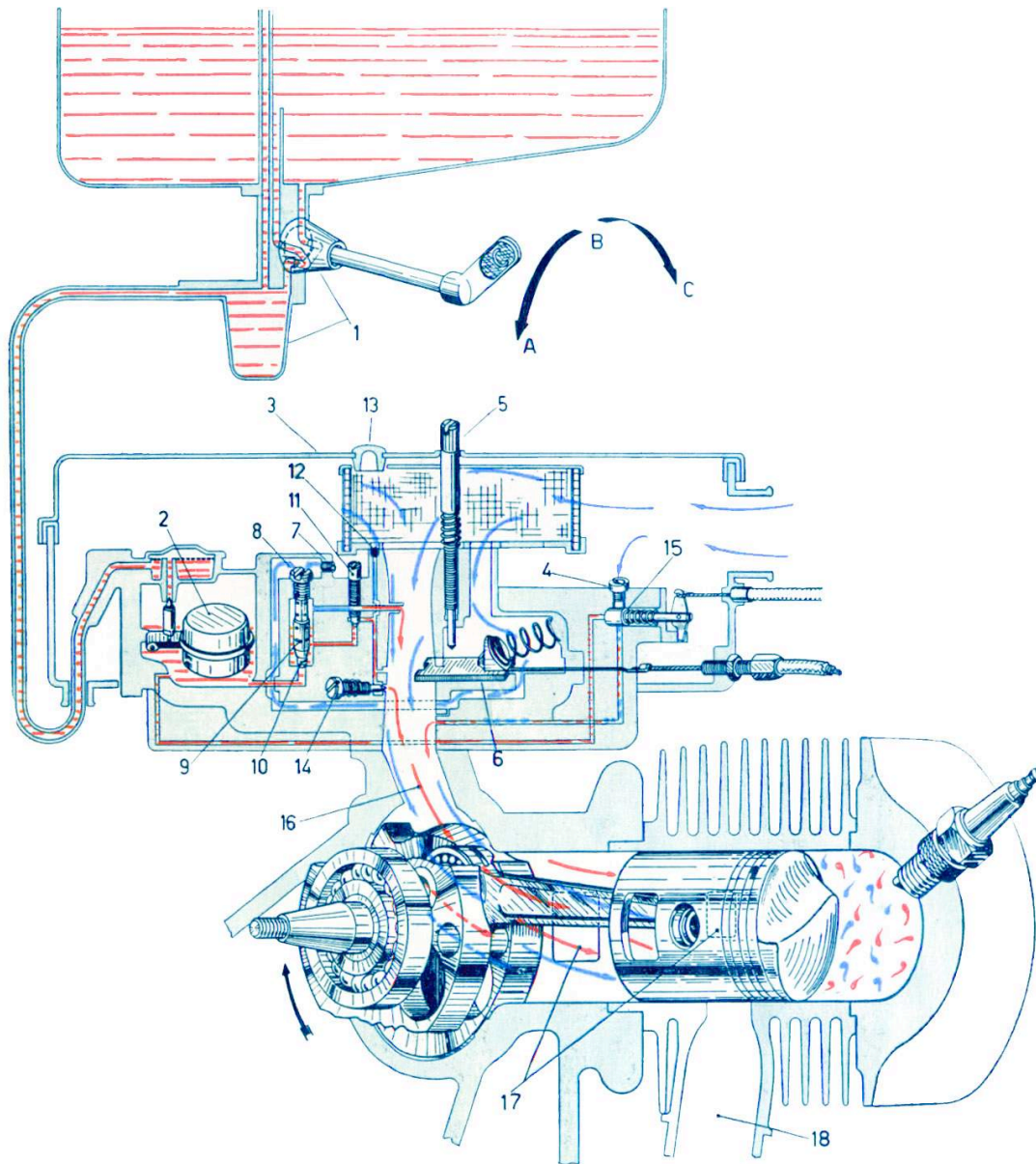


Fig. 6 - Feeding circuit

1. Fuel cock lever with sediment trap: A) Reserve, B) Open, C) Closed - 2. Float - 3. Air cleaner with carburettor - 4. Air vent for starter device - 5. Set screw for throttle slide - 6. Throttle slide - 7. Air vent for main jet - 8. Hole on mixer top - 9. Mixer - 10. Main jet - 11. Idling jet - 12. Air vent for idling jet - 13. Plug for inlet hole for oil; for laying up. - 14. Idling adjuster - 15. Valve for starter device - 16. Intake port - 17. Transfer ports - 18. Exhaust duct.

Clutch. Multiplate, with linings bonded to the driving discs (see Fig. 4). Control by lever, on left hand side of handlebars (see Fig. 8), and adjustable cable.

Gear box. 4-speed drive with mesh gears in oil bath (see Fig. 15). Its adjustable twistgrip control is coupled

with that of the clutch, on left hand side of handlebars (see Fig. 8).

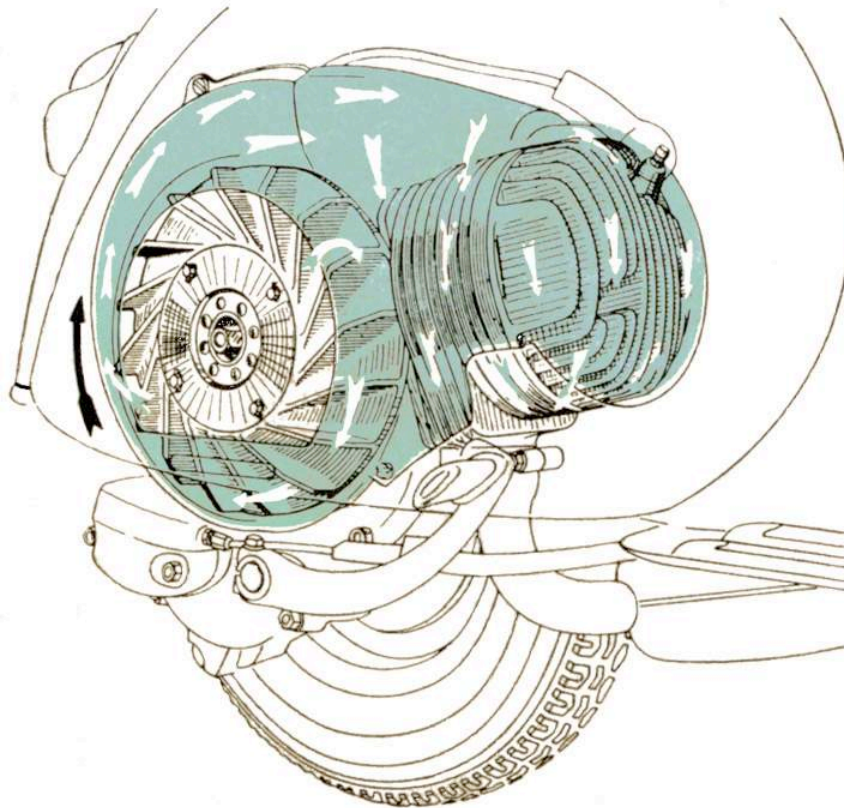
Starting. By means of kick-starter, right hand side of scooter. The multiple gear and consequently the engine is set in motion through a ratchet sector and a gear by operating the kick-starter.

Cooling effected at all engine speeds by a centrifugal fan (see Fig. 7).

Muffler. Expansion and absorption combined type with very high silencing efficiency.

Air cleaner mounted inside the body. Air goes to the carburettor through a large flexible inlet tube, a silencing chamber and porous filter, which ensures a very quiet air intake.

We recommend not to alter the muffler or the air cleaner but to keep them in perfect efficiency, in order that the noise level does not exceed the limits (prescribed by law.)



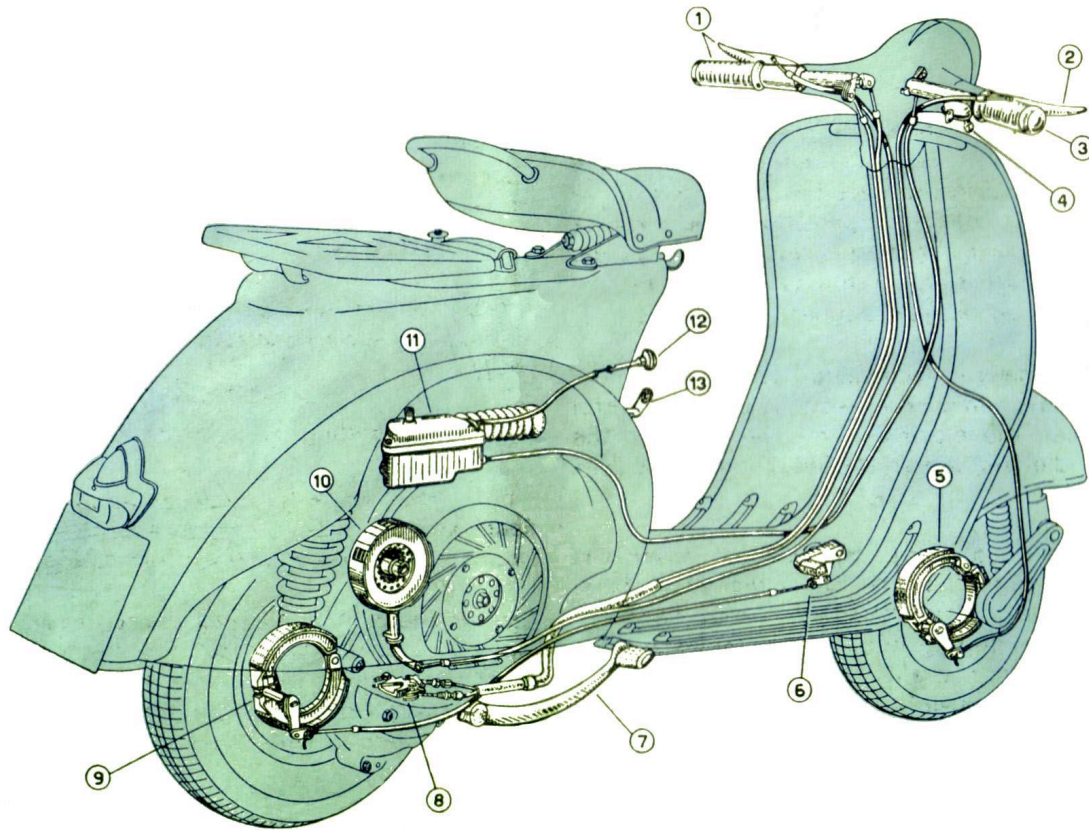


Fig. 8 VESPA controls

1. Gear change twistgrip with clutch control lever - 2. Front brake lever - 3. Throttle control grip - 4. Light and dip switch - 5. Front brake shoes - 6. Rear brake pedal - 7. Kick-starter - 8. Gear shifter - 9. Rear brake shoes - 10. Clutch - 11. Carburettor, air cleaner - 12. Starter device control lever - 13. Fuel tap.

FRAME

Stressed skin body of pressed steel sheet, (see Fig. 1), with streamlined, monocoque type structure. It gives full protection to the driver, to the passenger and to the machine units; it is completed in this function by the mudguard and, on the two sides, by the steel sheet engine bonnet and tool box.

Handlebars in light alloy, with arrangement for head lamp and speedometer. All control cables and electric wires, connected to the handlebars, are concealed inside them (see Fig. 8).

Steering column, suspension and wheels. The steering column bears the handlebars, clamped on its top end, and the front wheel swinging hub, pivoted at its bottom end through a stub axle (see Fig. 9).

Front suspension with variable rate coil spring and double action hydraulic damper.

Rear suspension: swinging bracket for engine and rear wheel, variable rate coil spring and coaxial, double action hydraulic tamper.

- *The wheels are interchangeable with rims of pressed steel sheet (0 8").*
- *Tyres of dia. 3.40-8".*

Saddle of the nose-pivoted, sprung type with central spring adjustable to the driver's weight.

Brakes. Expanding type with cable control.

Front: lever on R. H. side of handlebars.

Rear: control pedal on floorboard, R. H. Drums in light alloy with cooling fins.

Central stand. A two-legged stand, easy to operate, is arranged under the floorboard. A strong return spring in the middle holds it in contact with the floorboard and keeps it from vibrating while the scooter is being ridden.

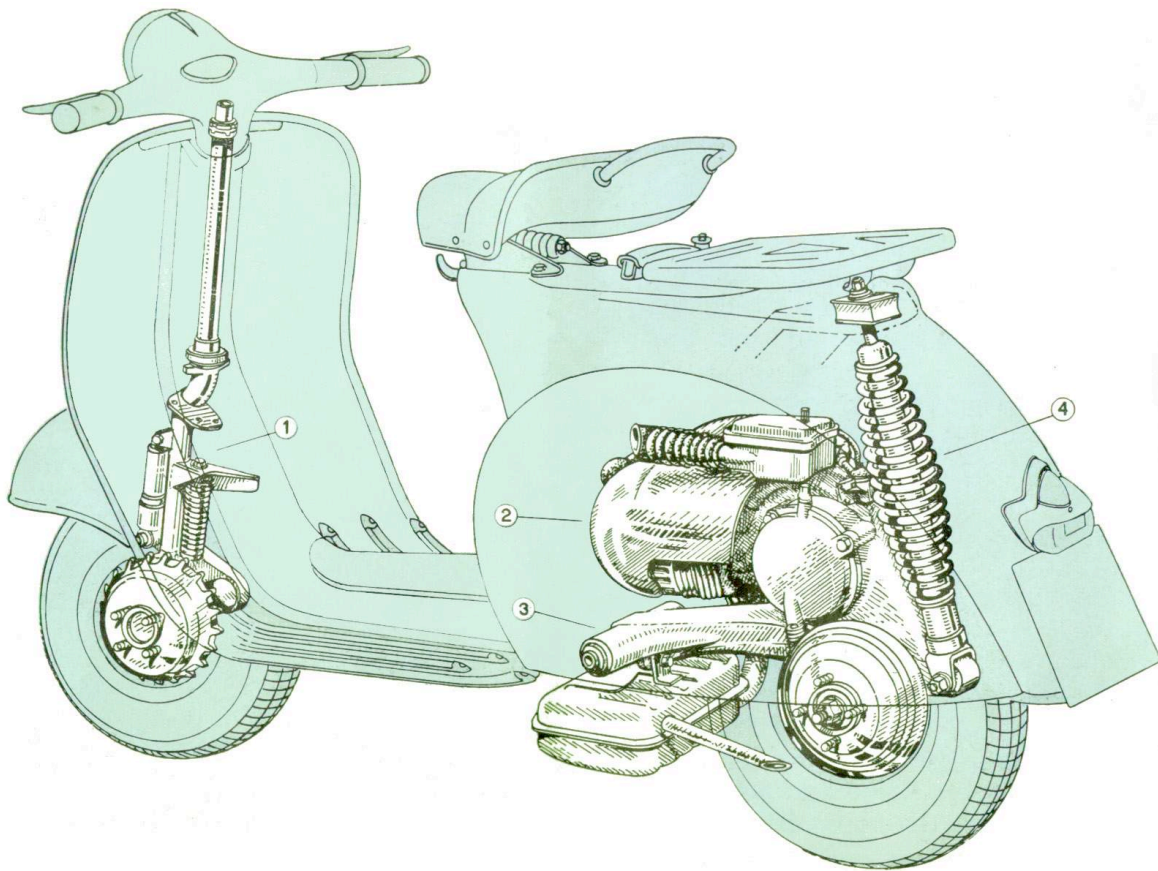


Fig. 9 – Engine and suspension

1. Steering column and front suspension – 2. Engine – 3. Pivoting arm of crankcase half, clutch side – 4. Rear suspension spring and hydraulic shock absorber

Steering lock. A suitable security lock is arranged on the frame, near the handlebars. Turning the key anticlockwise and the handlebars to the left, the lock engages the lugs welded on the steering column, so that the machine can only turn around. Turn the key clockwise for releasing the steering system (see Fig. 10).

We recommend not to lubricate the steering lock, even if it does not function properly. Do not attempt to ride the machine unless the key is in, and remains in, the lock and the handlebars move freely.

Speedometer. The speedometer is housed in the central portion of the handlebars (see Fig. 10) and adds to the appearance of the scooter. It is driven by the front wheel, the flex drive being completely enclosed in the steering column. The speedometer dial is lit during night riding by a bulb suitably installed in the head lamp.

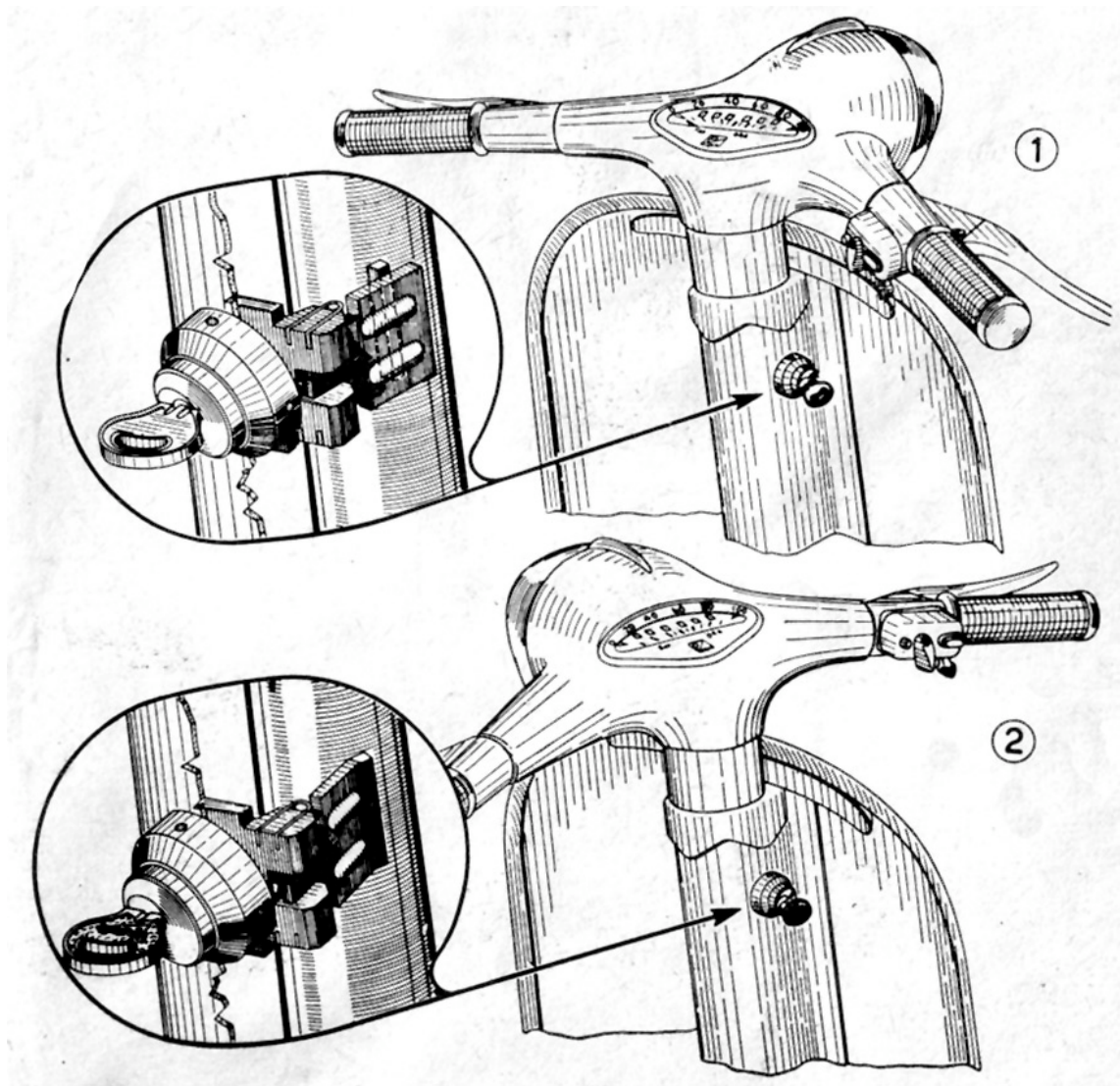


Fig. 10 – Security lock
1. Normal position – 2. closed

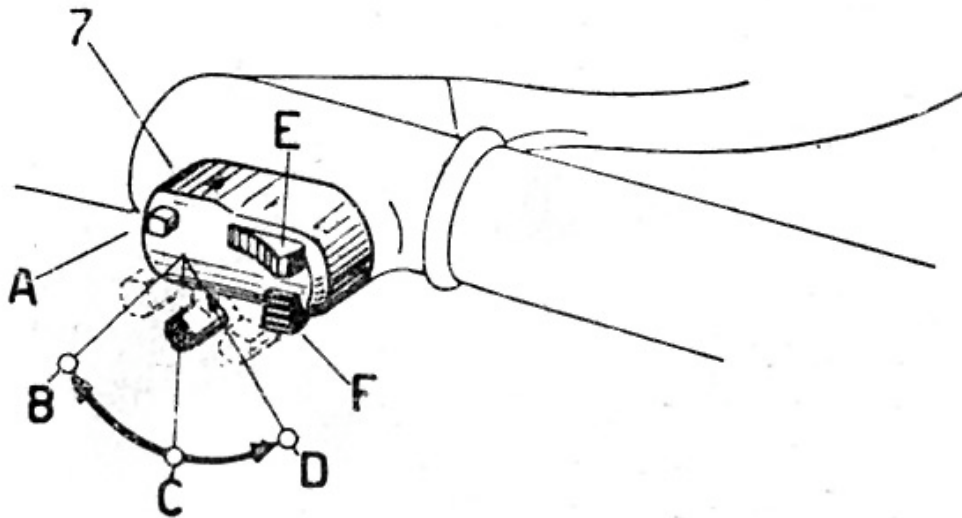


Fig. 11 – Handlebar switch

A – Engine cut-out B. Parking lights and speedometer bulb on – C. Lights off – D. Head lamp, tail lamp speedometer bulb on – E. Dip switch – F. Horn button - 7. Main switch

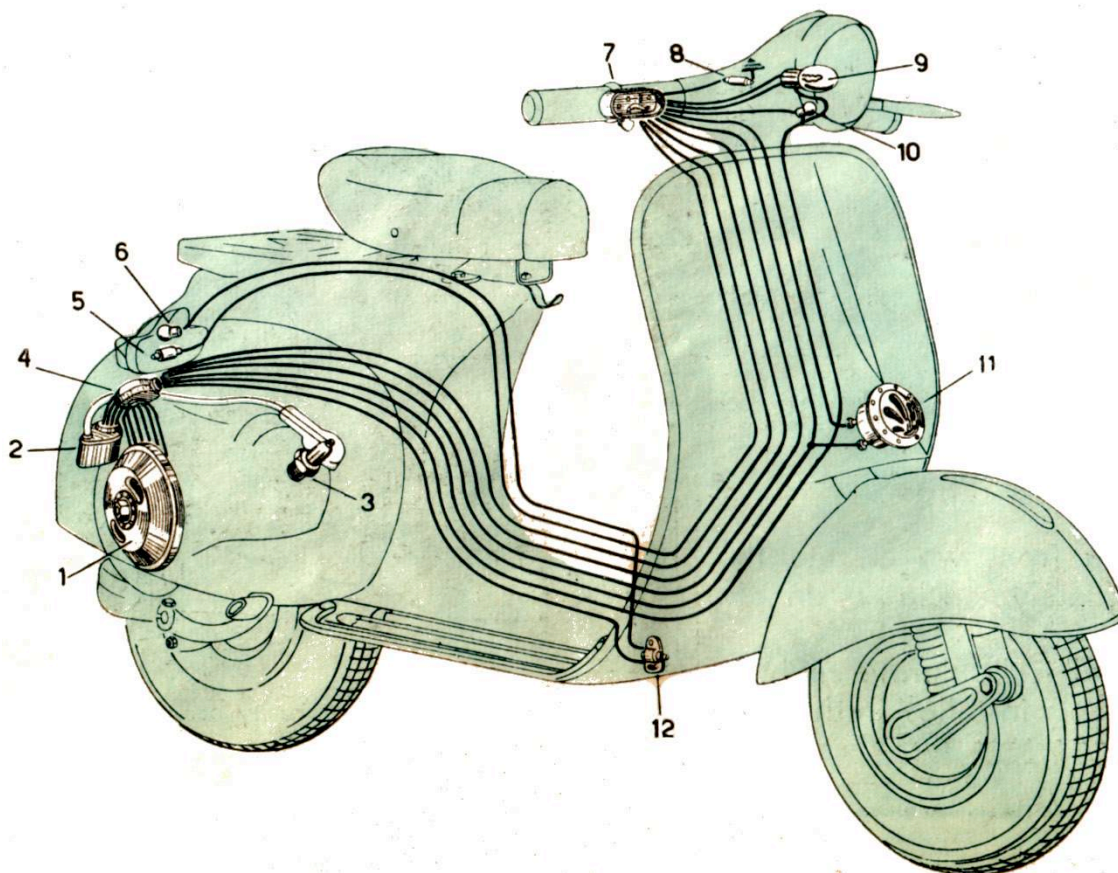


Fig. 11A – Cables & harness

1. Flywheel magneto - 2. External ignition coil - 3. Sparkplug - 4. Low tension terminal - 5. Tail lamp 16V-3W - (. STOP light - 6V-3W) - 7. Main switch - 8. Speedometer bulb (6V-0.6W) - 9. Double filament bulb (6V25/25W) - 10. Pilot light 6V-3W - 11. Horn - 12. STOP light switch - 13. Inside view of head lamp - 14. Black - 15. Red - 16. Grey - 17. Black-yellow - 18. Yellow - 19. White - 20. Sky blue - 21. Green - 22. Violet - 23. Brown.

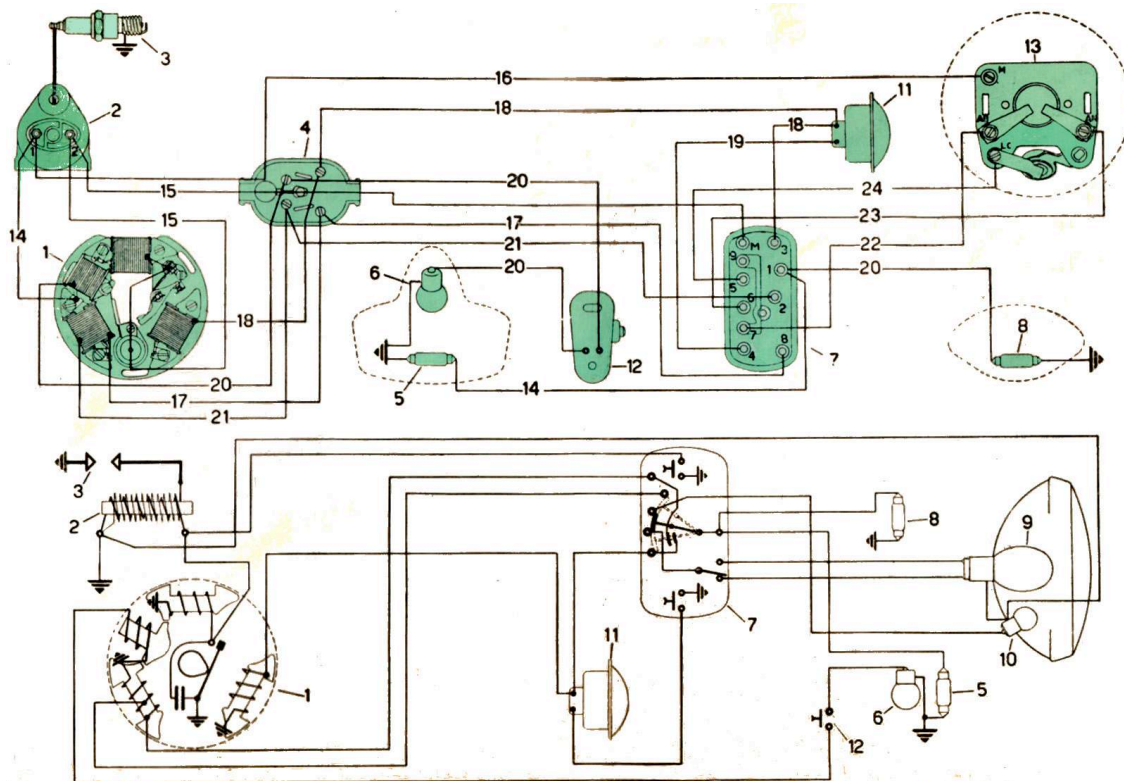


Fig. 12 – Electric wiring diagram

1. Flywheel magneto - 2. External ignition coil - 3. Sparkplug - 4. Low tension terminal - 5. Tail lamp 16V-3W - (. STOP light - 6V-3W) - 7. Main switch - 8. Speedometer bulb (6V-0.6W) - 9. Double filament bulb (6V25/25W) - 10. Pilot light 6V-3W - 11. Horn - 12. STOP light switch - 13. Inside view of head lamp - 14. Black - 15. Red - 16. Grey - 17. Black-yellow - 18. Yellow - 19. White - 20. Sky blue - 21. Green - 22. Violet - 23. Brown.

WIRING

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

The **head lamp**, 0 115 mm (4.5"), installed in the handlebars, has a 25/25W double filament bulb (main and dipped beam), and with a 3 W bulb (pilot light and parking light).

The **tail lamp**, with red reflector, has a 3 W bulb which also illuminates the number plate and a 3 W bulb for the STOP light.

Horn

A 0,6 W 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 (see Fig. 11) ; 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.

TOOL KIT

1 four-ended box wrench (11-14-21-22 mm) ; 2 double open-ended wrenches (11 - 14 and 7-10 mm) ; 1 single open-ended wrench (8 mm) ; 1 screwdriver. These tools are contained in a canvas roll which is placed in the left wing together with this booklet and the test card.

ACCESSORIES

On request the Vespa 150 can be equipped with following accessories:

Rear saddle of the nose pivoted, sprung type, to be secured to three chassis holes after removing the luggage rack. The central spring is adjustable to the driver's weight.

A foam rubber **pillion seat** can be used instead of the rear saddle. The seat can be secured to the rear luggage rack of the scooter. Both rear saddle and foam rubber seat are small and attractive looking and give remarkable comfort to the passenger, thus:: completing the efficiency of suspension (see Fig. 13).

Spare wheel and bracket. The wheel can be secured in two ways to the scooter:

- a. in front, by a light alloy bracket secured to the scooter longeron by means of two screws.
- b. at the rear, by a steel sheet pressing, provided with spacers, to be clamped onto the frame, under the luggage carrier or the rear saddle, by means of the three screws securing the latter.

A prompt re-starting of the scooter after a puncture is made possible by the spare wheel; the latter is held by either bracket in such a position where it is easily accessible and does not inconvenience the driver at all.

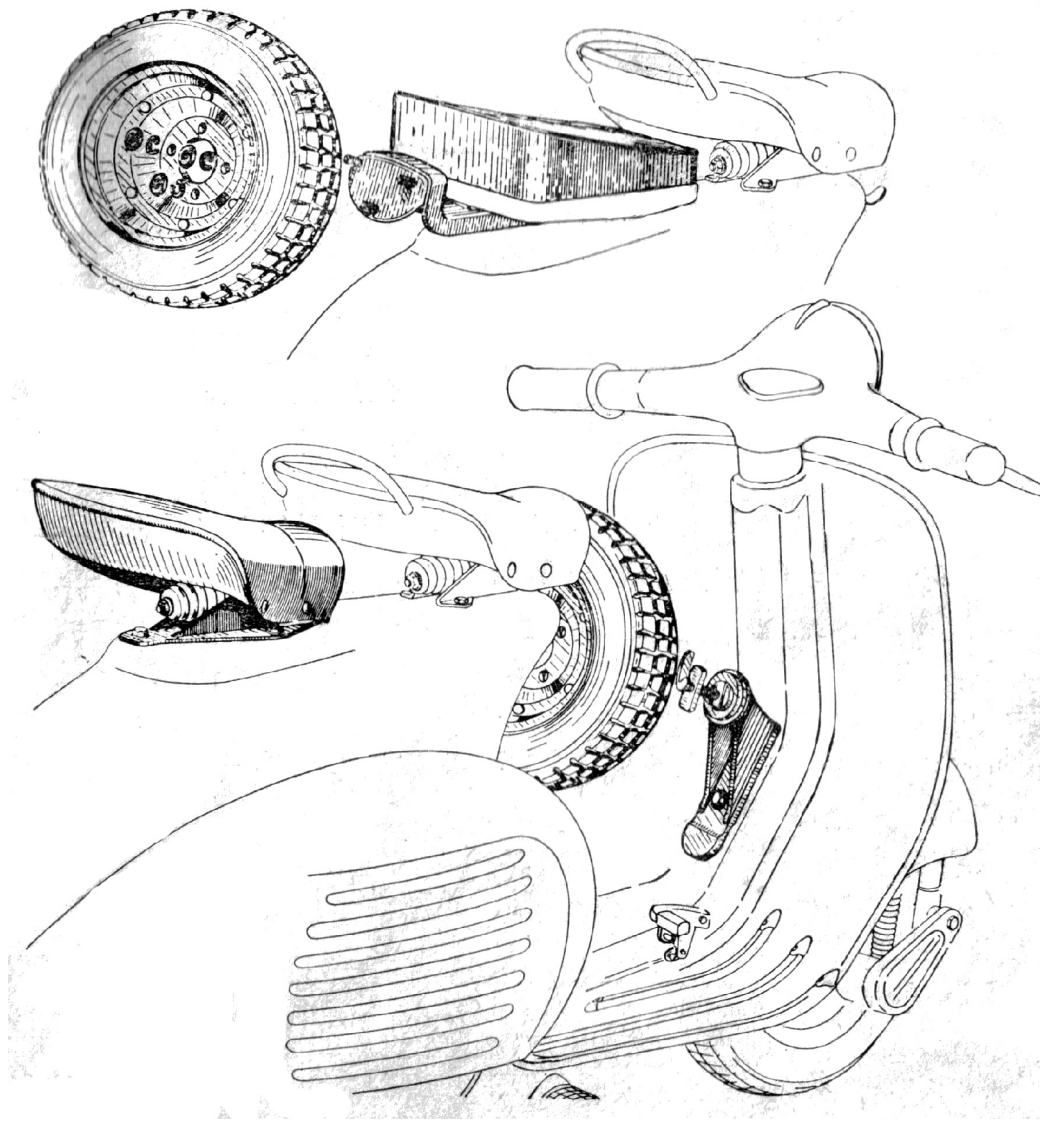


Fig. 13 – Pillion seat, spare wheel and bracket

Owing to the simple and rational design of the **Vespa** scooter, no particular experience is **required** for its operation, nor skilled personnel for its **maintenance**. The tasks can be carried out by any customer, even unexperienced, by following some general rules,

O P E R A T I O N

Fuel to be used during and after running-in should be a mixture of gasoline and oil, with 2% pure mineral oil ESSO SAE 30 i. e.: 20 cc of oil per liter of gasoline, or 1/4 pint per 1 1/2 gallon resp.

We recommend to use good quality, standard grade car gasoline, and to mix it with oil thoroughly. Keep the breather of filler cap clean.

Running-in. Important rules to be followed while running-in 2000 Km (1200 miles)

Do not exceed the following speeds:

1st gear:	20 Km/h (13 mph)
2nd gear:	30 Km/h (19 mph)
3rd gear:	40 Km/ /h (25 mph)
4th gear:	60 Km/h (37 mph)

- Do not hold these speeds for long periods neither use full throttle up-hill.
- Change oil in the gear box and check that nuts and bolts are not slack after the first 1000 Km (600 miles).
- Check that carburettor is well blocked on crankcase to avoid air infiltration.

Starting the engine. See (Fig. 14) the three positions of the tap: on, off, reserve.

Open fuel tap, put gear box in neutral (Fig. 14-15) and the throttle in slow running position, then depress the starting lever.

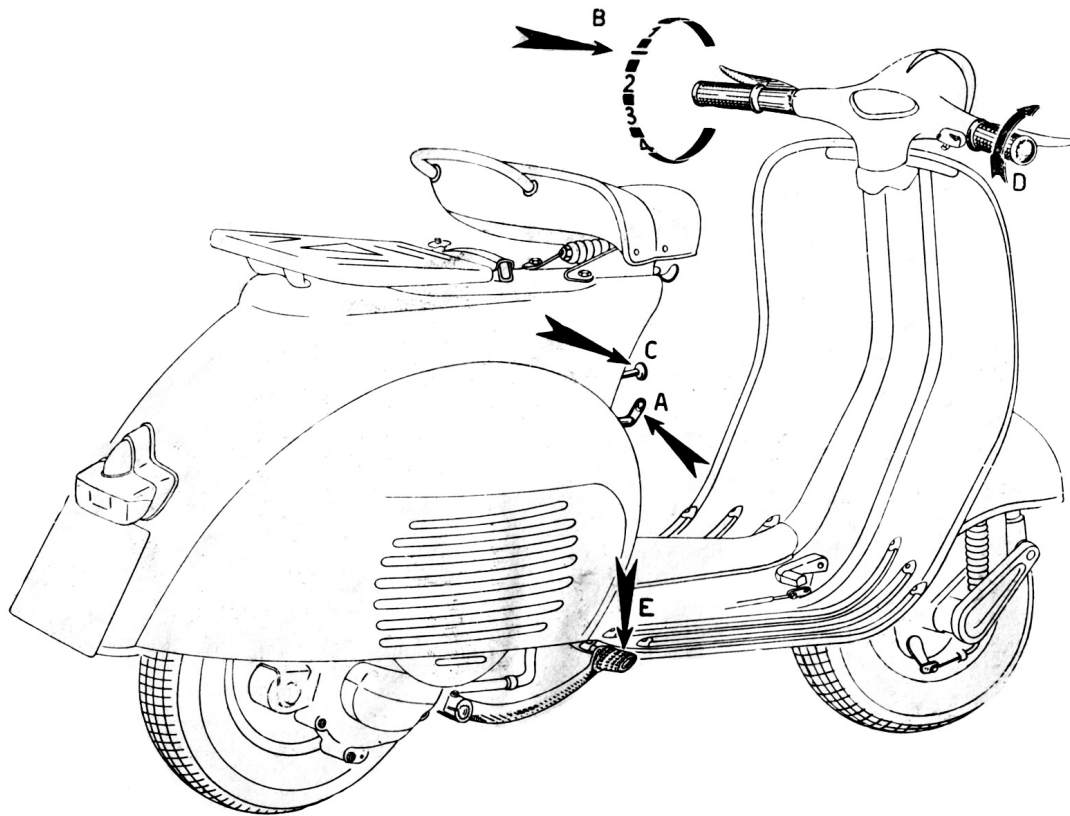
With cold engine, lift the starter device rod (lever "C" fig. 14). **With the throttle control twistgrip** in the position of minimum : under these conditions the starter device functions most efficiently. Do not use the starter device when the engine is warm. When the engine is running **the lever "C" must be brought to the normal position** so as to avoid rich carburation and consequent loss in performance, increased consumption etc.

In case of starting troubles due to engine being flooded (unvaporized fuel mixture in the cylinder, and combustion becomes therefore very difficult), proceed according to either one of following methods.

- Push-start the scooter: engage second gear, depress the clutch and push the machine to a certain speed; quickly release clutch lever and pull it back as soon as the engine fires.

- Close the fuel tap, remove sparkplug and action the engine by means of the kickstarter; wipe the plug dry and screw it back. Open the fuel tap and depress the starting lever.

Exercise care on re-assembling the sparking plug; start screwing it by hand at the proper angle to avoid damaging the cylinder; use the box wrench just for the last turns.



14 - Operations to carry out for starting the engine

A: open the fuel cock - B: select "neutral" c C: Pull out the starter device lever (with cold engine) - D: throttle control grip in idling position c E: depress the kickstarter.

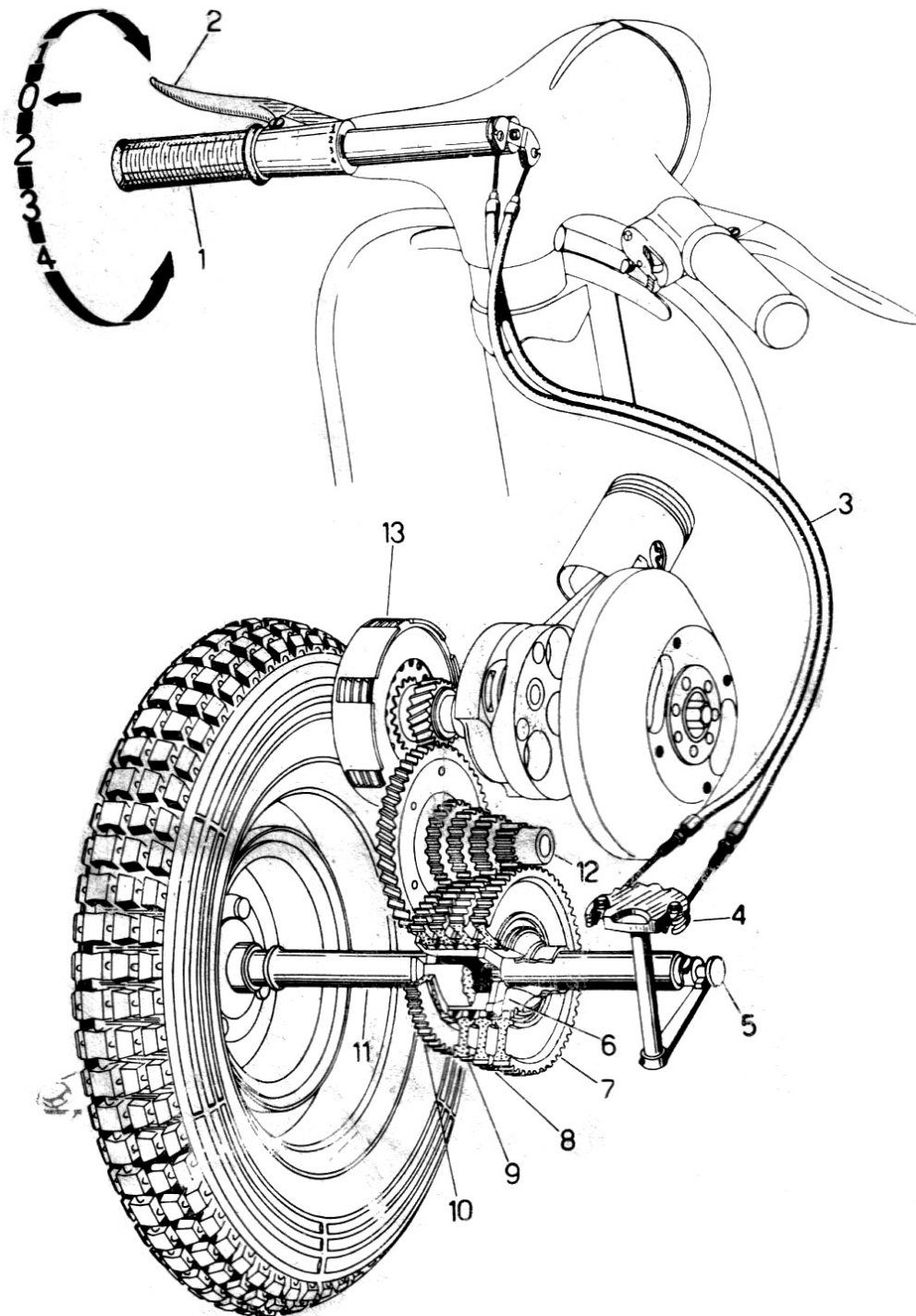


Fig. 15 - Drive system

1. Gear change twistgrip c 2. Clutch control lever c 3. Gear change control cables c 4. Gear shifter c 5. Selector stem c 6. Selector - 7. 1st gear pinion c 8. 2nd gear pinion c 9. 3rd gear pinion c 10. 4th gear pinion - 11. Mainshaft c 12. Cush gear c 13. Clutch.

N. B. - Positions 1-2-3-4 of the gear change twistgrip correspond to 1st 2nd, 3rd and 4th gear respectively; "0" indicates the neutral position.