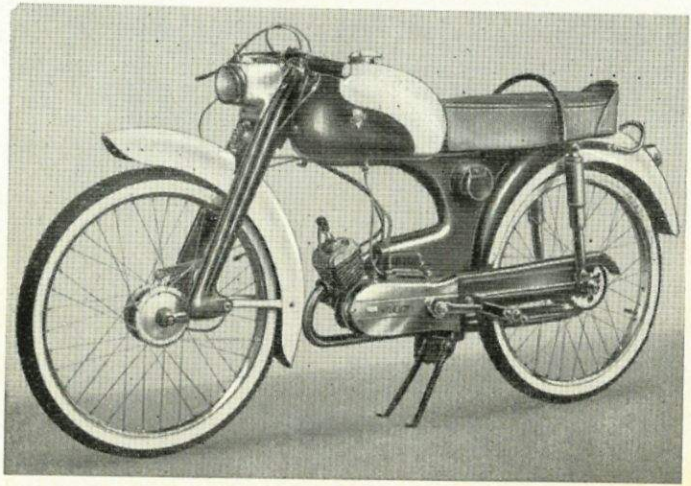
OFFICINE VIBERTI TORINO

CORSO PESCHIERA 251

OPERATOR HAND BOOK

VIVÌ Touring



VIVÌ Sport

VIVÌ Scooter

VIVÌ Delivery van

VIVÌ Delivery van

TECHNICAL DATA

	Touring	Sport	Scooter	Delivery Van
Engine, two-stroke, single-cylinder				
Type	Victoria M 51	id.	id.	id.
Bore	38	id.	id.	id.
Stroke	42	id.	id.	id.
Capacity	47,6	id.	id.	id.
Compression ratio	1:8	id.	id.	id.
Mean effective power	2,2	2,4	2,2	2,2
Rating	6000	6000	6000	6000

	Touring	Sport	Scooter	Delivery Van
Maximum gradient in 1st speed	18%	18%	18%	15%
Rims	19x2	19x2	19x2	del. 19x2 tras. 2,45x8
Tyres	23x2	23x2	23x2,25	delantero 23x2,25 trasero 3,50-8
Fuel and lubricating oil				
Fuel: 5% oil and petrol mixture				
Oil in gearbox	350	350	350	350
Capacity of fuel tank	6	6	6	6
Mixture consumption	1.45/100 km.	1.50/100 km.	1.55/100 km.	1.70/100 km.
Weight, empty	40	42	42	65
Payload	—	—	—	150

	Touring	Sport	Scooter	Delivery Van
Carburator				
Type	Bing 1/12	id.	id.	id.
Inlet manifold	12	12	12	12
Main nozzle summer	64	66	64	64
Main nozzle winter	64	66	64	64
Needle nozzle	215	215	215	215
Needle position	3	3	3	3
Engine to transmission ratio	3,94:1	3,94:1	3,94:1	3,94:1
Gearbox Low speed	3:1	3:1	3:1	3:1
Gearbox High speed	1,562:1	1,562:1	1,562:1	1,562:1
Reduction gear ratio	—	—	—	1,44 :1
Gearbox to rear wheel ratio	2,142:1	2,071:1	2,142:1	1,929:1

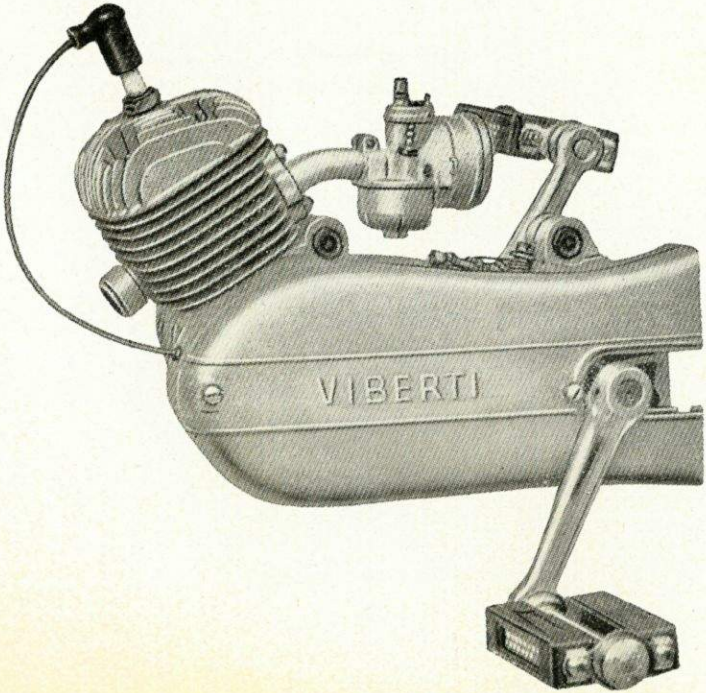
Total ratio	Touring	Sport	Scooter	Delivery Van
Low speed, reduced	—	—	—	32,833:1
Low speed, normal	25,318:1	24,479:1	25,318:1	22,801:1
High speed, reduced	—	—	—	17,095:1
High speed, normal	13,182:1	12,746:1	13,182:1	11,872:1

Ignition by a 18 W alternator magneto-flywheel

Clutch: oil-bath, disc type

Engine lubrication: by oil-petrol mixture

Gearbox lubrication: oil bath


VIBERTI

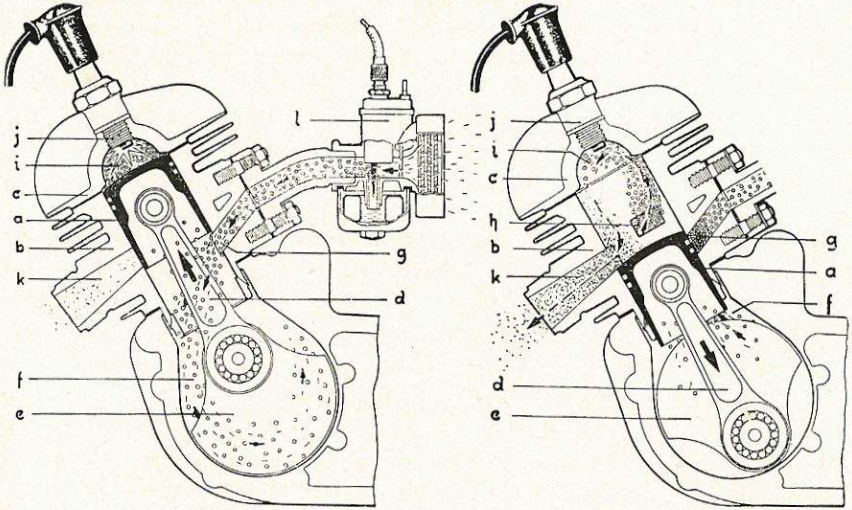
ENGINE

The engine of your VIVI motor cycle is of the two-stroke combustion type. The name « two-stroke » is given for two strokes, that is an alternating movement of the piston and consequently one revolution of the flywheel, are needed to produce the necessary power outpout. To regulate the passage of gases, i.e. fresh and burnt out mixture, four ducts are machined in the cylinder and are opened or closed by the alternating movement of the piston.

These are: The inlet duct, the exhaust duct and two mixture intake ducts.

When starting the engine, you rotate the flywheel. The piston, being connected to the flywheel through the connecting rod, slides in the cylinder thus performing an alternating run. As the piston rises, a depression takes place in the sump, the latter being sealed. As soon as the piston opens the inlet duct, the mixture, consisting of fuel, oil and air, is sucked-in into the sump. At this moment the mixture has not yet entered the combustion chamber, and therefore no explosion can take place with the piston reacing its top dead center (T.D.C.).

We must rotate the flywheel of another revolution before the engine is started.



a) piston
b) cylinder
c) cylinder head
d) connecting rod
e) flywheel
f) engine sump
g) inlet duct
h) mixture intake duct
i) combustion chamber
j) spark plug
k) exhaust duct
l) carburator

Fig. 1

In its downward stroke the piston closes the inlet duct and the mixture sucked-in into the sump is compressed; in the technical language, we say « pre-compressed ». When the piston is on the point of reaching the bottom dead center (B.D.C.), it opens the two mixture inlet channels and the precompressed mixture, lead through these channels from the sump, flows to the combustion chamber.

By the upward stroke of the piston the mixture is compressed in the cylinder, and at the same time new mixture is sucked-in into the sump as the piston opens the inlet duct. The ignition takes place when the piston is within 2 and 2.2 mm (0.0787") from its T.D.C. The mixture thus ignited is expanded and pushes the piston downward, thus compressing the mixture sucked-in into the sump.

As soon as the piston reaches a position close to the B.D.C., it opens the exhaust duct through which the burnt out mixture is exhausted. The burnt out mixture still being in the cylinder in pushed out by the fresh mixture as the piston opens the mixture inlet ducts.

We have pointed out that the mixture that consist of fuel, oil and air, is sucked-in into the sump. However the mixture composition must not be free of control. The rigth metering of the fuel-oil mixture for the quantity of air

necessary for combustion, is given by the carburator. Care must be taken that the required quantity of oil is mixed to the fuel, that is, one part of oil in twenty parts of fuel.

The addition of oil is necessary since the engine has no other lubricating means. The fuel-oil mixture is admitted into the sump in an atomized condition, thus performing the lubrication of all bearings and rotating components. This explains why and how important is to open the gas when running downhill, as the handle does not allows the passage. Never overlook this practice! As in this way all gears receive a small amount of lubricant to avoid operating them when dry.

THE CARBURATOR (Fig. 2)

According to its name, it might be understood that the carburator carburates the fuel-oil mixture. Actually it does not happen in this way. The fuel-oil mixture is atomized by the air inlet. The carburator operates as follows:

When you open the fuel cock, which you must close at the end of each trip, the fuel flows into the floater chamber.

In order to prevent an excessive quantity of fuel from flowing into the floater chamber, a round floater in provided to contact the floater needle and to stop more mixture of petrol and oil to enter when the required level is reached in the chamber. The fuel and oil mixture delivered from the floater chamber flows through the main nozzle and then through the other nozzle that delivers the mixture into the mixture chamber. The fuel delivered from the nozzle, which in the particular instance of your VIVI operates also as an atomizer nozzle, is mixed with air in small bubbles.

The transversal section of the mixture chamber, that is the opening, when operating the gas handle, is more or less opened by the throttle located in the gas duct. By increasing the opening of the throttle, the speed of air in the mixture chamber decreases. By opening the above mentioned throttle, the mixture would become too poor of fuel owing to the low speed of the air which could no longer suck in the necessary amount of fuel. In order to avoid such inconvenience, a needle is provided in the nozzle. The more the throttle of the gas duct is opened, the more the needle of the nozzle opens the same.

Thus is obtained that the air taken-in is mixed regularly and uniformly with the fuel.

THE MAGNETO FLYWHEEL (Fig. 3)

As you are certainly already aware, the spark or better, the arc developed by the ignition spark plug burns the mixture compressed in the compression chamber. The necessary current for producing the spark is provided for as follows by the magneto flywheel:

as the flywheel revolves, sliding on the cores of the ignition coil, the magnetic flow lines are interrupted. Then, in the main winding of the coil a weak current is developed — the primary current — which, through the closed switch and the metal parts of the magneto, flows back to the primary winding.

The primary current reaches its maximum value when the corners of the poles are set apart from the cores. Now the contacts are switched off and the current is cut-out. The direction of the current is then inverted and a high voltage current is produced in the secondary winding of the coil. The task of the condenser is now to collect the remaining primary current in order to avoid sparking at the contacts of the switch.

The secondary current flows through the ignition cable up to the center elec-

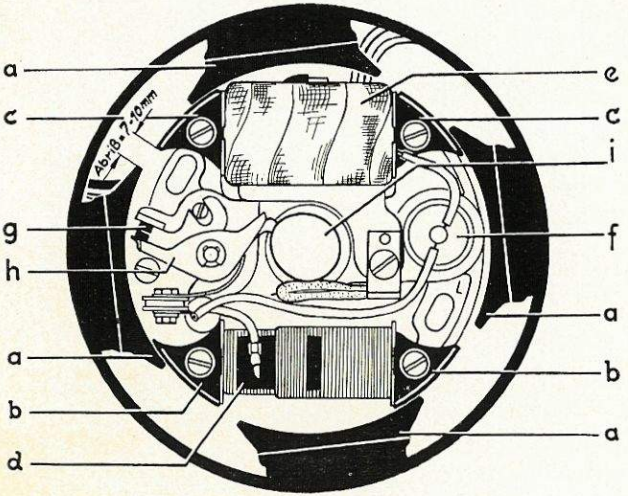


Fig. 3

a) pole
b) lighting coil core
c) ignition coil core
d) lighting coil
e) ignition coil
f) condenser
g) switch contact points
h) switch breaker arm
i) switch cam

trode of the ignition spark plug, where is discharged on to the ground electrode. The secondary current, passing through the center and ground electrodes produces a spark or an arc of a very short duration, thus igniting the mixture. When, however, the ignition spark plug is dirty, that is when foreign matters have entered between the center and ground electrodes, then the current flows through another path. Therefore the spark does not take place and the engine fail to start, or, if running, is stopped. From the foregoing, you may realize how important is to keep the spark plug electrodes clean and free from foreign matters.

Lighting

The magnetic flow brought about by the revolving flywheel with the cores of the lighting system, flows also through the winding.

When the circuit is closed, i.e. with the bulbs lit, the current flows through the winding of the lighting system. By the reaction of the alternating current on the magnetic flow of the flywheel, the regulation of the voltage of the alternating current (A.C.) takes place. By this automatic regulating device, also at

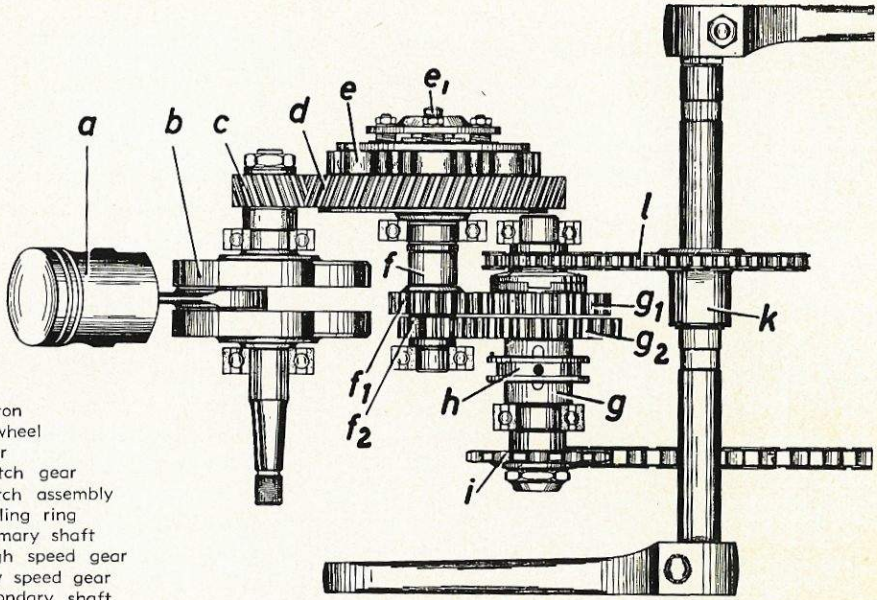
low speed ratio of the engine the light is still sufficent, and, at the same time, blowing out of the bulbs is avoided when the engine runs at a high rate. The foregoing holds true provided that 6V-15/15 W bulbs are used. The first 2000 VIVI are supplied with Bosch type flywheels, while the succesive ones are fitted with Marelli type flywheels.

POWER TRANSMISSION (Fig. 4)

The crankshaft transmits the power developed by the engine to the clutch gear through a pinion placed at the right hand side of the flywheel. The clutch assembly is fastened to the clutch gear where the clutch plates are located. Actually the task of the clutch is the transmission of the power of the engine to the primary shaft of the gearbox.

The primary shaft gears of the gearbox are in constant mesh with the gears of the secondary shaft which are sliding on it. If one of these gears is locked, which takes place when a gear is meshed by means of the gearshift handle, also the secondary shaft is set in rotation. On the secondary shaft the driving sprocket is keyed, which through the chain, drives the rear wheel.

Fig. 4



a) piston
b) flywheel
c) gear
d) clutch gear
e) clutch assembly
e1) sealing ring
f) primary shaft
f1) high speed gear
f2) low speed gear
g) secondary shaft
g1) high speed gear
g2) low speed gear
h) sliding sleeve
i) chain sprocket
k) pedal crank shaft
l) starting chain

THE CLUTCH (Fig. 5)

The tasks of the clutch are the following: when starting from a stationary position, by the proper use of the suitable lever, allows a smooth starting. As a matter of fact, when releasing the lever gradually and slowly, the power of the engine is transmitted to the gearbox at a regular rate.

Once the clutch is engaged the clutch plates are pressed by the relevant spring. The three clutch plates engage the steel discs keyed to the primary shaft of the gearbox. Thus the clutch actuates a connection between the generating source of the power and the clutch. When running, either for shifting the gear or to stop the vehicle, such power transmission may be discontinued by means of the suitable hand lever of the clutch which must be pulled.

When disengaging the clutch, the pressure plate does no longer press the clutch plates which gain thus a end play and disengage the steel discs. The power transmission is thus discontinued.

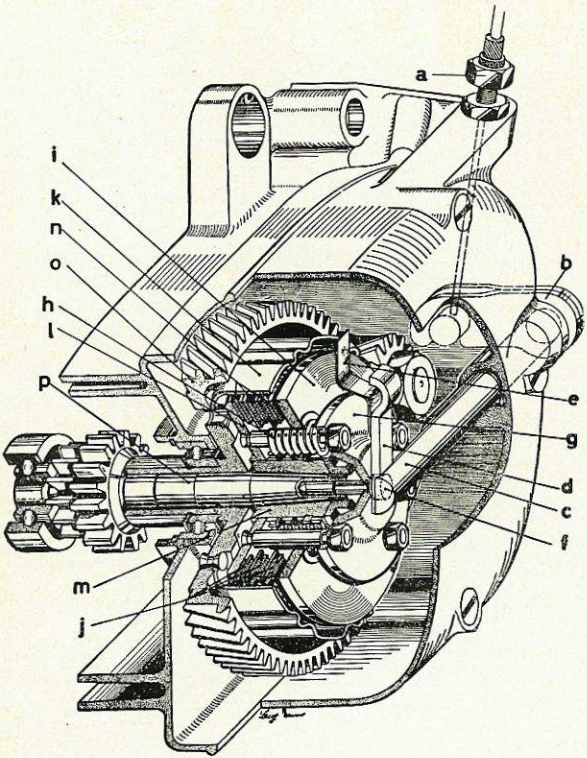


Fig. 5

a) adjusting screw for clutch cable
b) clutch control lever
c) clutch shaft
d) pressure lever
e) spring
f) pressure pin
g) pressure plate
h) spring
i) cover plate
j) clutch plate
k) plate
l) pressure plate
m) clutch hub
n) steel plate
o) clutch gear
p) gearbox primary shaft

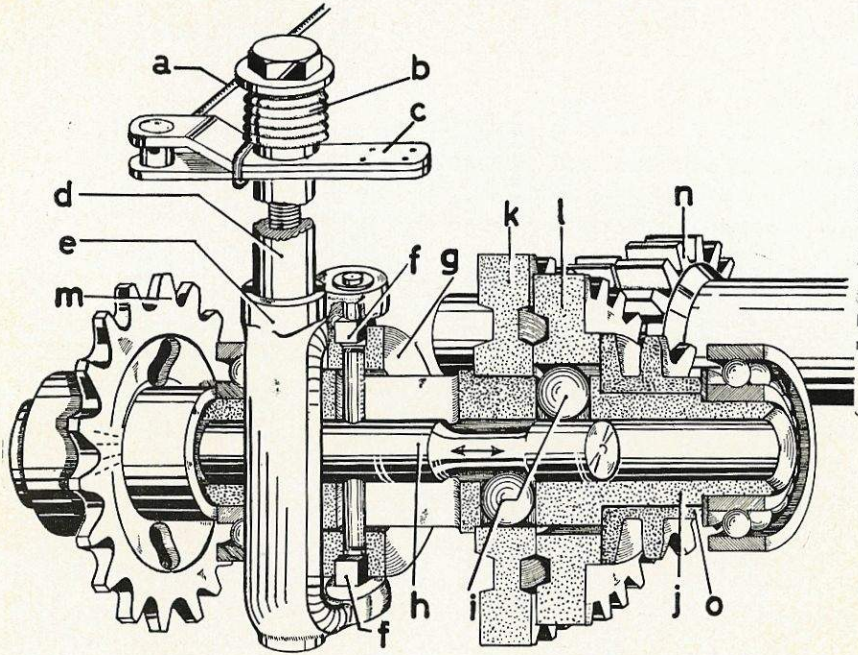
GEARBOX (Fig. 6)

The gearbox has the task to choose the more suitable power rating of the engine to meet the different conditions of the ground. The necessity of the gearbox may be better realized when the following points are considered:

1) On level ground the power developed by the engine is transformed in mere speed.

2) For climbing, the engine power must be transformed in climbing power. The engine therefore must deliver more power as the steepness of the climb increases. Also when starting more power is required than for level running.

The two ratios, i.e. the two gear speeds, assist the engine with its operation. Try and shift gear, for instance, when wou are climbing, when you find out that your motor cycle is loosing speed without you have moved the accelerator handle, from high to low speed, you will then realize that not only the engine will keep its rating, but that such rate will increase still leaving the accelerator handle in the same position.



a) metal cable
b) return spring
c) gear shift control lever
d) gearbox spindle
e) control fork
f) pins
g) plate
h) sliding shaft
i) gearbox control balls
j) gearbox secondary shaft
k) low speed gear
l) high speed gear
m) driving sprocket
n) gearbox primary shaft
o) starting gear

Fig. 6

However, if you turn the accelerator handle to its maximum position when running on a level road, the low speed being engaged, you will not be able to reach the desired highest speed. The engine, that could not develop its whole power at a low ratio, would exceed the R.P.M. rate suitable for the low gear, which would endanger the flywheel and the connecting rod. To this end the gearbox is fitted with a high gear having a higher ratio than the low gear. This gear must always be engaged when running on level ground and a 15 km/h (9.3 mph) speed is reached.

For shifting gear, a suitable handle is provided at the left of the handle bar. By operating the handle, from the idle position to the engagement of the low speed, the spindle sliding within the secondary shaft of the gearbox slides up to the point of pushing outward the two balls of the gearbox. These balls are meshed with the notches of low speed gear and lock the gear on to the secondary shaft. However you must shift the gear only after pulling the clutch hand lever, that is, after disengaging the same.

STARTING DEVICE (Fig. 7)

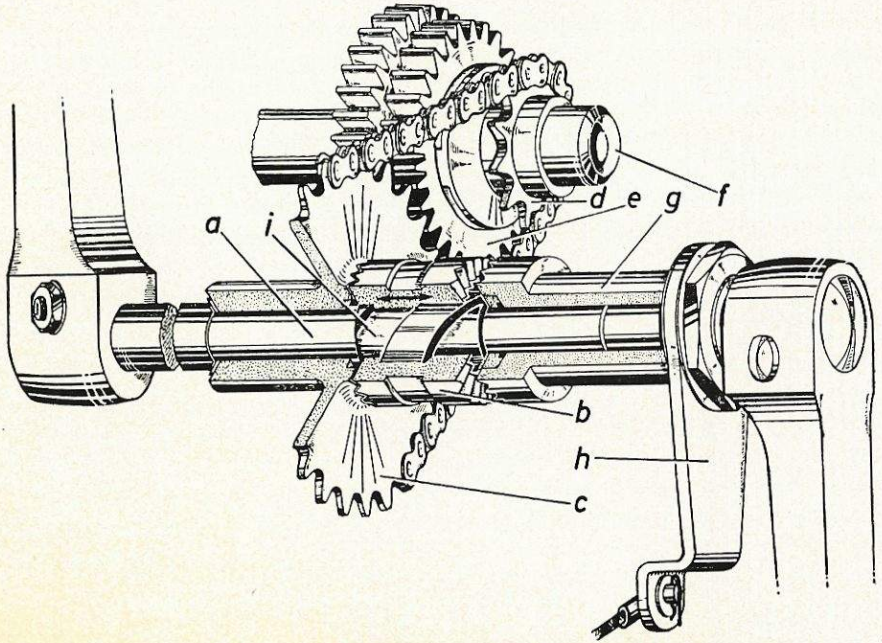
The starting device has the purpose of starting the engine and operating the brake acting on the rear wheel. Proceed as follows: By rotating the pedal crank shaft forward, the sleeve moves leftward. The teeth of the sliding sleeve mesh with the teeth of the gear of the chain; by means of a chain the chain pinion, the gearbox primary shaft, and should the clutch be engaged, also the flywheel, are set in motion.

When the pedal crank shaft is turned backward, the sleeve moves rightward and its teeth mesh those of the other sleeve.

The brake lever, being fastened to the sleeve by means of screws, operates, through a steel cable, the brake acting on the rear wheel.

To start the engine, set the gear shift handle in idle position. This operation must always be performed when starting from a stopped position.

Should the engine be started by moving forward the motor cycle, acting on the shaft of the pedal crank, which is to be avoided as far as possible, the high speed must be used.



a) pedal crank shaft
b) sleeve
c) chain over-drive
d) chain pinion
e) high speed gear
f) secondary shaft
g) sleeve
h) brake
i) shaft splines

Fig. 7

Bear in mind that the pedal crank must be stopped to be acted upon as soon as the engine is started. Owing to the low ratio it is impossible to rotate the shaft of the pedal crank to attain the still low r.p.m. rate of the engine. In such instance the teeth of the sliding sleeve would contact the teeth of the chain gear, thus bringing about the wear of the teeth. The same occurs when you try and assist the engine by acting on the pedal crank, for intance, when climbing. You must shift from high to low gear when you feel that the engine strains when climbing, as the engine has enough power to climb without being assisted by the pedals.

THE CHASSIS

The power of a good engine would be worthless if its frame would not be designed for a satisfactory behaviour in running and turning allowing the full power of the engine being utilized. Our VIVI has all these positive qualities which may be you have already found out and that every owner of such vehicle will confirm.

The framework

In order to improve its easy and confortable running, your VIVI is fitted with a swinging arm for springing the rear wheel. The swinging arms of the rear wheel bear on two silentblocs. The roughness of the road is damped by two spring collapsible shock absorbers whereto the swinging arms are attached The good road behaviour is thus still encreased by a suitable adherence of the rear wheel which involves a better use of the power developed by the engine. The center beam of the framework, which also serves as fuel tank, is of pressed steel sheet.

The front fork

The front fork is of the swinging arm type. The fork performs its damping action at its front end, where the spring elements are located. This construction permits a perfect operation of the spring action as well as good damping performance. Furthermore, also an easy and quick assembly and disassembly of the front wheel may be carried out without any trouble.

The handle bar

The VIVI is supplied with the handle bar fitted with instrument panel. The headlight, embodied in the handle bar, is interchangeable.

The brakes

Both for front and rear wheels inner shoe brakes are provided. The diameter of the brake drum (100 mm = 3.9370") and the width of the shoes (15 mm = 0.5910") ensure that, if necessary, you may relay on the quick response of the brakes. The brake acting on the rear wheel is operated by turning the pedals backward, as set forth in the paragraph covering the starting device.

RUNNING IN

The words « running-in » makes some owners of the motor cycle rather uneasy. You, as a owners of a VIVI, have nothing to trouble about. We only ask you not to require the maximum effort to your VIVI for the first 1000 kilometers. This is necessary, as the wall of the cylinder, the surfaces of the piston, of the bearings, and of other similar parts need a period of running-in. However you shall never run full speed, You will gradually give gas for the first 500 m and then after the 1000, and so on.

It is also advisable, from time to time, to throttle down and give gas again; in other words, you shall give the throttle handle a certain play without jerking. The engine will thus receive always fresh mixture and the proper lubrication. Bear also in mind that no engine, when cold, at the beginning of operation shall ever be subjected to the maximum effort until it is warmed up. This must be emprasized particularly in very cold climates, as the thermal expansion of the cylinder, owing to the cold surrounding temperature is slower than the expansion of the piston. On this account a piston of the exact size is always likely to be damaged when the cold engine is overstressed.

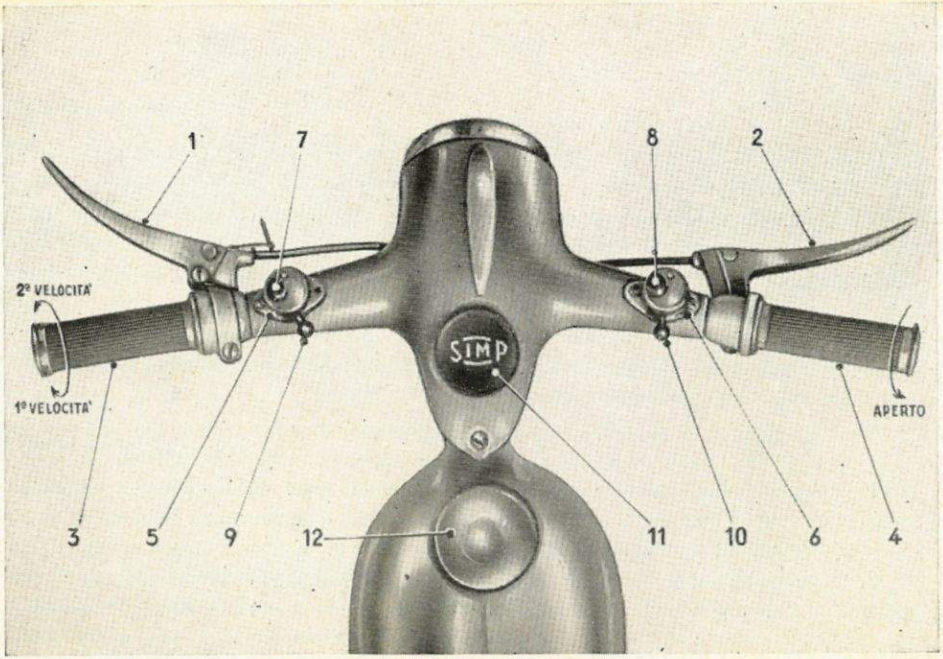


Fig. 8

1 - Clutch control lever
2 - Front wheel brake lever
3 - Gear shift handle
4 - Accelerator handle
5 - Lighting switch
6 - Lighting and buzzer switch
7 - Grounding button for engine stop
8 - Buzzer
9 - Lighting control lever
10 - Headlight lever
11 - Mileometer seat plug
12 - Fuel tank blanking plug

OPERATING INSTRUCTIONS

Operating your VIVI is very easy. Remove the stand of your VIVI, seat on the saddle, very confortably springed, and start getting acquainted with the various control levers. Fig. 8 and the following description will assist you in doing so.

a) **The mileometer**

Before you are able to evaluate the speed at first sight and before you learn to feel the engine, observe, while running the pointer of the mileometer. If the pointer in the town traffic or when climbing, shows a speed of only 15 km/h (10 mph), then, that is the right moment to shift to low gear. Othervise the engine would operate roughly, which is undesirable. When running downhill, throttle down and then apply the brakes when the speed is higher the that you could reach at full engine speed when running on level ground.

b) **The switches on the handle bar**

Two switches are provided on the handle bar. The left hand one is fitted with a lever to control the lighting system and, on top, with the ground button to stop the engine.
In the right hand switch the lever may be set in two positions: one for driving lights, the other for antidazzle light. On top of it is located the buzzer.

c) **The clutch lever**

This lever is to be used only when shifting gear or when stopping the vehicle. Using the clutch lever while running, or disingaging the clutch with the gear meshed and then start again, when reacing a traffic light, results in early wear for the clutch plates. Shift gear before reaching a road crossing and, should you stop, do it always with the engine idling.

d) **The gear shift handle**

You may use this handle only after pulling the clutch lever. For the positions of the gears, see fig. 8.

Idle: The handle is set in the intermediate position;
Low gear: The handle is turned backward up to the end;
High gear: The handle is turned foreward up to the end.

e) **The throttle handle**

By turning the handle to the OPEN direction (see fig. 8) the gas throttle is opened. Thus the engine will receive more air-fuel mixture; if the handle is turned to the opposite direction, less mixture will be delivered.
Do not belive that by opening the gas throttle at once the engine receives more acceleration. By doing so you will get one thing only: a higher fuel consumption. Always operate the throttle handle smoothly and gradually.

f) **The hand brake lever**

By pulling this lever the brake acting on the front wheel is operated. Bear in mind that the lever is to be acted upon gradually, as the wheels, when locked abruptly, give a less effective braking action and generally result in slipping for your vehicle.

g) **The fuel cock**

This is a three-position cock which, if properly used, will avoid you the trouble of an interrupted running because of an empty fuel tank. As a matter of fact, when turning the cock to the « riserva » position, opposite to the « C » (closed) position the engine can still use 1/3 litre of fuel, sufficent for running about 25 km.
At the end of the run the cock shall be turned to the « C » position and, before starting, to the « aperto » (open) position, as shown in fig. 9.
Should the engine stop for running out of fuel, you may still use the reserve. However, after filling up the tank, never overlook to reset the cock to the « aperto » position, so as to be sure and have the reserve available.

h) **The rear wheel brake**

The brake acting on the rear wheel is operated by turning backward the shaft of the pedal crank. Care must be taken to avoid turning backward the pedals while running, unless you intend actually to stop, otherwise the shoe lining rubbing on the brake drum results in early wear of the lining.

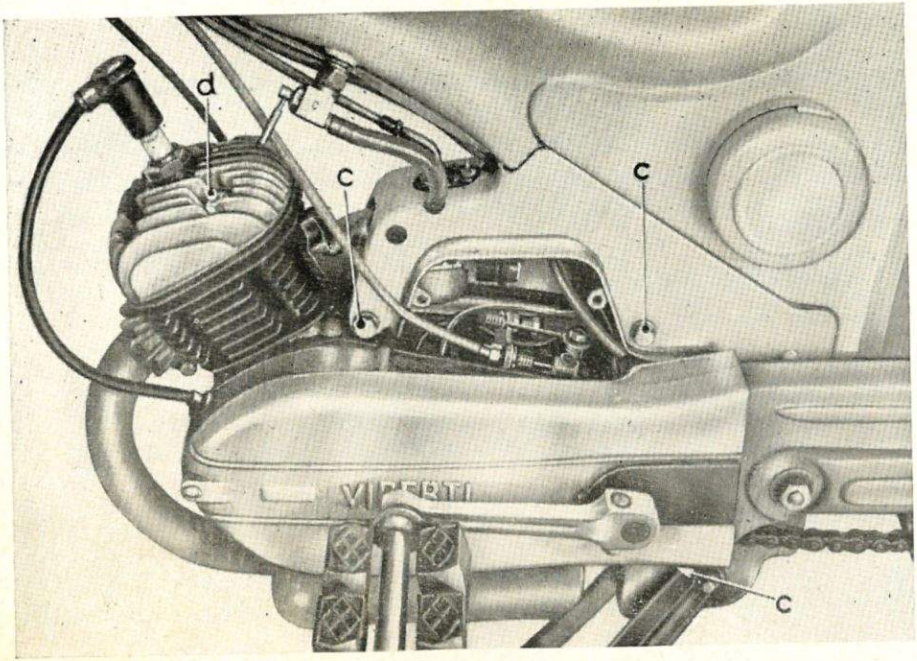


Fig. 9

INSPECTIONS TO BE CARRIED OUT BEFORE STARTING

Before your supplier delivers the VIVI to you, this has been thoroughly checked according to our standard specifications and you may start the engine right away and make your first run. However, since tomorrow, before each run you shall check:

1) the pressure of the tyres;
2) The fuel level;
3) The lighting system;
4) The brakes (which is of the upmost importance);
5) and, when necessary, the oil, in the gearbox.

Pressure of tyres

The pressure of tyres is very important both for the safe road holding of your VIVI and for the life of the tyres. You will surely find out that if the pressure

is too low the motor cycle side-skids, endangering the tyre covering plug. Should, on the contrary, the tires be over inflated, the VIVI will jump, which is particularly felt when running on rough roads.

Fuel level

The tank holds an amount of about 6 litres of fuel, a quantity sufficent for running over 400 km. When refuelling, ask for a mixture consisting of petrol with 5 percent of oil. We suggest using the 5% MISCELA AQUILOTTO containing AQUILOIL TTM, which we have tested and approved.

The special oil for two-stroke engines, as that to the above mentioned grade, includes also addictives having the purpose to avoid combustion residuates from damages due to corrosion.

The lighting system

The lighting system must be checked before every run, particularly if you intend riding by night.

After starting the engine, switch on the light for a short time to check for good operation and, also very important, the rear lamp for good working condition.

Brakes

According to the specification of the Road Code, the brakes must be checked before every run. Check for efficency by operating them after running a short distance. Should the braking action be unsatisfactory, do not go any further. Just stop and adjust the brakes, as set forth further down.

LUBRICATION

Never miss the opportunity to have your VIVI lubricated by technical specialized personnel, therefore, we suggest you to take your motor cycle for control in due time and well cleaned.

Should you carry out the lubrication by yourself, the following instructions will assist you in your task.

Check the oil in the gearbox

Checking the oil in the gearbox must be carried out before using the engine for the first time after running 1500 km, then every 500 km. To this purpose, unscrew the threaded plug, a fig. 10. Just a glauce will be enough to see if the oil level in the gearbox is sufficent, that is, if the oil reaches the threaded portion of the plug. Use of the same oil grade is strongly advised, at every replacement.

Replacing the oil

Replace the oil with warm engine, the first time after the first 300 km. To this purpose slacken screw, a fig. 11 and drain the iol.

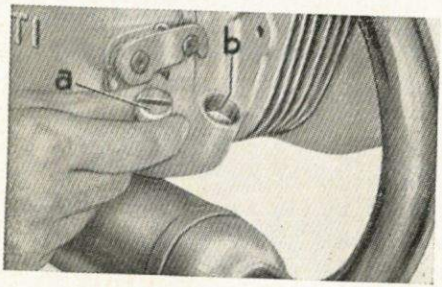


Fig. 10

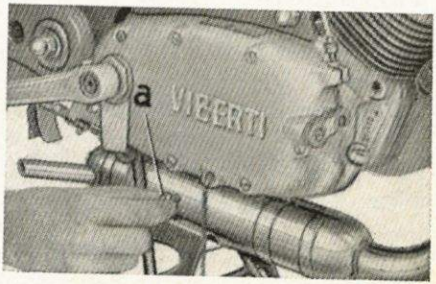


Fig. 11

When refilling the sump use only Aquiloil R 130 (350 cc). We have tested this grade and found it suitable both for summer and winter temperatures.

Control levers

The control levers, as the gear shift handle, the clutch lever, the throttle handle and the hand brake lever, shall be lubricated every 1500 km. that is, every month to keep all controls easy to operate.
It is sufficent to pour a few drops of oil into the sheath, with the latter being kept in vertical position, in order allow the oil reaching the bottom. Also, thoroughly clean and lubricate the sliding surfaces of the levers and, if necessary, disassemble and grease all parts by a grease of the proper grade.

The suspension

The rear suspension must be lubricated regularly. To carry out the first lubrication, unscrew the cheese head screw located on the upper joint and pour into the hole 2.5 cubic centimentres of semi-fluid oil (SAE 30). Subsequently, add small quantities of oil to top up.

Grease the springs of the arms of the front suspension every times they become noisy.

Steering handle and wheel hubs

The steering bar and the wheel hubs shall be disassembled every 10.000 km; the components shall be thorougly cleaned and greased by a grease of a special grade. Should you not be in a position to do this job by yourself, we suggest to have it done by specialized technical personnel.

Lubricating pad of the magneto flywheel

The lubricating pad of the magneto flywheel must be greased, by a grease of a special grade, every 3000 km.

Cleaning the exhaust duct

Depositing of combustion residuates is unavoidable for a two-stroke engine, however this depends upon the quality of the petrol and of the oil used, as

well as on your own behaviour when driving. Cleaning the above mentioned duct must be regularly carried out every 3000 km. To this purpose unscrew the nut locking together the end of the duct and the exhaust muffler, and remove the latter. Slacken the bolt of the clamp locking the exhaust pipe and remove it from the union; then scrape from the inside of same the combustion residuates.

Now, for a thorough cleaning of the engine, since the exhaust duct has already been removed, remove the carburator, the clutch control cable and the rear wheel chain. Unscrew then the upper and lower screws fastening the engine (d, fig. 9). Now the engine may be removed; slacken then the four bolts of the cylinder head (d, fig. 9). At this point, the cylinder head and the cylinder may be removed.

Clean thoroughly the cylinder exhaust duct from oily deposits; also, remove all combustion residuate from the combustion chamber by means of a brush.

We suggest to remove the spark plug before performing this operation in order to avoid clogging it. Before cleaning the piston, cover the opening beneath

it communicating with the flywheel by a clean rag, so that no foreign matters are permitted to contact the flywheel. Clean the piston by a brush. We emphasize the importance of cleaning the piston rings so that their performance does not decrease, which would damage the engine. Once the cleaning operations are over, wash all components of the engine in petrol.

The clutch

The clutch will be sufficently disengaged when, pulling the clutch lever, no abnormal play is found out (see fig. 12).

Should you check that the clearance between the clutch lever and its rest exceedes 2 mm, that means that the steel cable is out ot adjustment. As shifting the gears with the clutch not fully disengaged the gearbox gears are damaged, the following operations will be necessary to reset the steel cable to the proper tension.

1) Unscrew locknut b fig. 13 and act on the adjusting screw c fig. 13 until the lever of the clutch is reset to a 2 mm clearance.

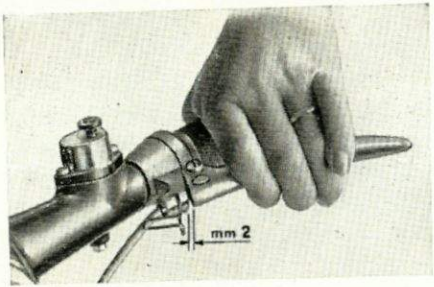


Fig. 12

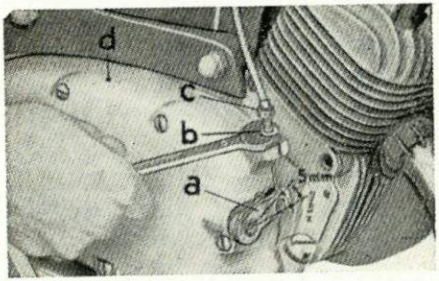


Fig. 13

To check for the proper adjustment, mesh the high gear and pull the clutch lever up to the point where the gear shift handle can no longer be turned.

In this position the clutch must be disengaged. To check this condition, push forward your VIVI without changing the position of the clutch lever. The motor cycle must proceed smoothly without you feeling any rubbing of the clutch plates.

Should you find out in performing this test any rubbing of the clutch plates, then the play of the clutch lever shall be decreased. If, however, in performing the test, you will notice that the plates slip, the play shall needs encreasing.

Owing to the normal wear of the clutch plates the play of the clutch actuation decreases. If this wear exceeds the limits allowed, then it means that the pressure pin f, fig. 5, has no play with regard to the pressure lever d fig. 5, although the clutch hand lever is given a 2 mm play. The clutch results then lifted up, which may be the cause of the slipping.

If so, remove the clutch cover d, fig. 13, after removing the right hand pedal and the eight fastening screws. Generally, behind the pressure pin f fig. 5, two spacer rings are provided, and, in this instance, one must be removed.

Reassemble then the clutch cover d fig. 13, and inspect clutch lever a, fig. 13, for correct play. This lever must have a 5 mm play, that is, it must move for five millimetres before you feel any pressure.

Gear shifting

The gear shift control lever must have only a 2 mm play. As normally the steel cable is subjected to elongation, adjust same by means of the suitable screw, as follows:

1) Mesh, by means of the suitable handle, the high gear;
2) Remove the cover on the carburator and controls on the left hand side;
3) Tighten the adjusting screw a, fig. 14, until the gasket of the control cable shows some play, so that the gear shift lever is no longer pulled by the cable.
4) Turn anticlockwise screw f, fig. 14 of the gear shift lever g, fig. 14, until the former is no longer supported by the lever. Now the gasket of cable e, fig. 14, is given a 2 mm play. In other instances the adjusting screw a, fig. 14, may need further tightening;
5) Tighten screw f, fig. 14, until same gear shift lever g, fig. 14, then rotate by a further complete turn. This further turn is necessary in order that the pressure of the spring operating with the high gear, is taken up by screw f, fig. 14.

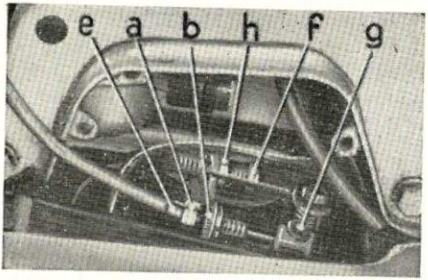


Fig. 14

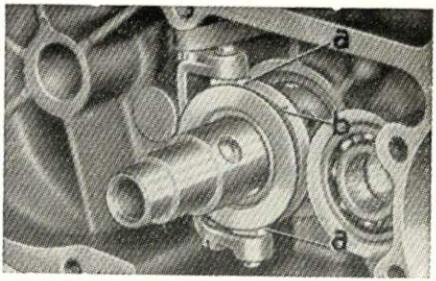


Fig. 15

If the foregoing specification are overlooked, pins a, fig. 15, and gear shift ring b, fig. 15, would be subjected to an early wear owing to the steady pressure of the above mentioned spring.

6) Tighten down locknut h, fig. 14, so as to ensure a positive fastening of screw f, fig. 14.
7) Now, act on adjusting screw a, fig. 14, until the gasket of the cable is given a 2 mm play. This adjusting screw must then be locked by means of locknut b, fig. 14.

8) Set the gear shift handle to the « idle » position.

9) Rotate by hand the driving sprocket of the chain; should you feel some resistance, that will mean that the gear shift fork g, fig. 14, is not in the proper « idle » position. By acting on adjusting screw f, fig. 14, no rattling noise of the gear teeth must be heard when rotating the driving sprocket of the chain.

Caution: If any rattling is heard in the gearbox, when in idle position, as set forth in point 9, this is due to the position of the gear shift fork and of the low speed gears.

The cause: The steel cable has slightly elongated, which is clearly felt when engaging the high gear. This play of the steel cable is taken up by acting on the adjusting screw a, fig. 14.

THE CARBURATOR

The carburator shall be thorougly cleaned and carefully checked. When using a first class fuel, cleaning will be needed only every 5000 km. Should the nozzle be clogged, proceed as follows:

a) **Disassembly of the carburator and cleaning of the nozzle**

1) Remove the sealing screw by means of a screw driver;

2) Remove the carburator from the cylinder and unscrew the floater chamber by means of a 14 mm wrench;

3) Unscrew nozzle b, fig. 16, by means of a screw driver;

4) For cleaning purposes, use a soft brush — avoid using a nail or wire, — otherwise the nozzle hole would be damaged. On reassembly, care must be taken in tightening down floater chamber by means of a wrench.

b) **Cleaning the carburator**

1) In order to clean the carburator thoroughly, remove cover b, fig. 17, after loosening screws c, fig. 17. The gas throttle d, fig. 17 as well as throttle e, fig. 17 are to be taken out but still remain attached to the steel cable.

2) Remove the idling adjusting screw f, fig. 17.

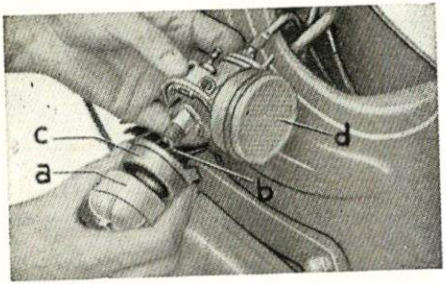


Fig. 16

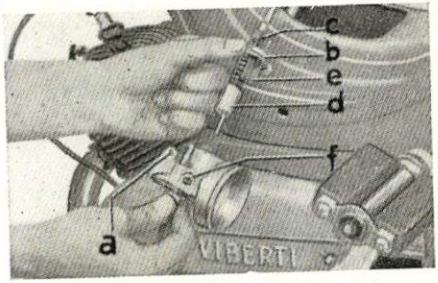


Fig. 17

3) Wash in petrol the fuel chamber, the floater and the floater chamber. Clean the various ducts by air blast or by a pneumatic pump.

Before assembly, every part must be checked. Should any part of the carburator show damages or excessive wear, replace the part, as otherwise it would lead to an excessive fuel consumption.

Caution: In order to provide for a satisfactory sealing of the floater chamber, replace the worn out gasket ring by a new one. Then, tighten down the sealing nut of the floater chamber by a wrench.

THE CONTACT POINTS OF THE SWITCH

Clean the contact points of the switch every 3000 km and check them for proper gap, as traces of burning are likely to appear on contacts a, fig. 19, such as to cause current deviations. Should the contact surfaces be not perfectly flat, no trouble will arise for the operation of the magneto flywheel, but with protracted use in such condition trouble may be the result.

To clean and check the gap of the contacts, remove cover a, fig. 18, and rotate flywheel b, fig. 18, until the contacts may be seen through the slots of the flywheel (see fig. 19).

The contacts smeared with oil shall be cleaned by a brush previously soaked

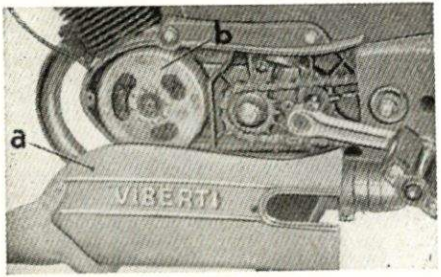


Fig 18

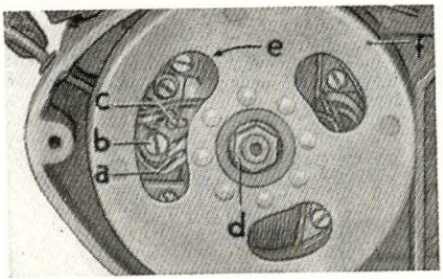


Fig. 19

in petrol, and then wiped dry by clean rags. File lightly the contacts showing traces of burning. Should the contacts show traces of heavy burning, replace them by new ones.

After cleaning the existing contacts or fitting new ones, check same for proper gap. The widest gap allowed, that is, the point where the switch pad is at the top of the eccentric cam of the switch, must be within 0.3 and 0.4 mm

If the gap needs adjusting, loosen the fastening screw b, fig. 19, and turn one way of the other adjusting screw c, fig. 19. While cleaning operations are being performed, smear the pad of the switch cam with grease to get it soaked.

Inspecting the ignition system

The ignition timing, as established by the manufacturing Firm, is within 2 and 2.2 mm before the piston reaching its T.D.C. Any alteration to this setting would result in decreasing the engine power output. Therefore any adjustment of the ignition point should be avoided, and should it become necessary, we suggest you to have it done by specialized technical personnel. The description as set forth hereunder will serve also as instruction for the workshops.

1) Clean and adjust the contacts of the switch as set forth hereabove;

2) Remove hexagon nut d, fig. 19, remove flywheel f, fig. 19, from its conical seat by means of the special puller, then screw on again the nut so as to use it for turning the engine flywheel in the following work operation.

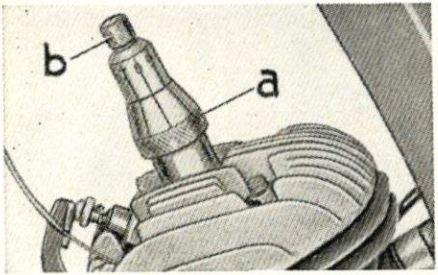


Fig. 20

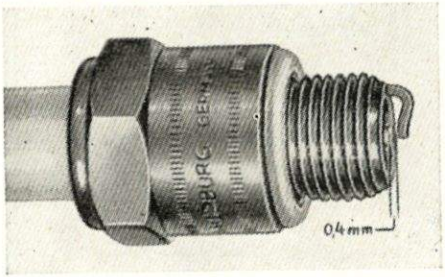


Fig. 21

3) Unscrew the spark plug and screw on the timing and check micrometric adjusting nut a, fig. 20, then unscrew micrometric screw b, fig. 20.

4) Bring the piston to its T.D.C. by turning the flywheel to the direction shown by arrow e, fig. 19, and screwing down micrometric screw b, fig. 20.

5) Slightly turn the flywheel to the direction opposite to arrow e, fig. 19.

Screw down micrometric screw b, fig. 20 by about 2.2 mm. Each movement of the micrometric screw corresponds to a 0.1 mm displacement; one complete turn, to 1 mm; 2.2 turns are therefore necessary.

6) Turn the magneto flywheel to the direction shown by arrow e, fig. 19, until the piston rests against the micrometric screw. Then rotate for a few further turns until the opening contacts a, fig. 19 come to view through the slots of the magneto flywheel.

7) When this position of the piston and of the contact points is reached, lock fastening nut d, fig. 19 by which also the magneto flywheel is locked.

THE SPARK PLUG

Clean the spark plug every 2000 km. Should fuel residuate be found in the spark plug, remove them by a wooden stick as they would ground the plug. The gap between the electrodes varies when the plug is working, owing to the effects, of burning, therefore the gap must be checked after cleaning. If necessary, bend the ground electrode until the the gap reaches a 0.4 mm width (see fig. 21).

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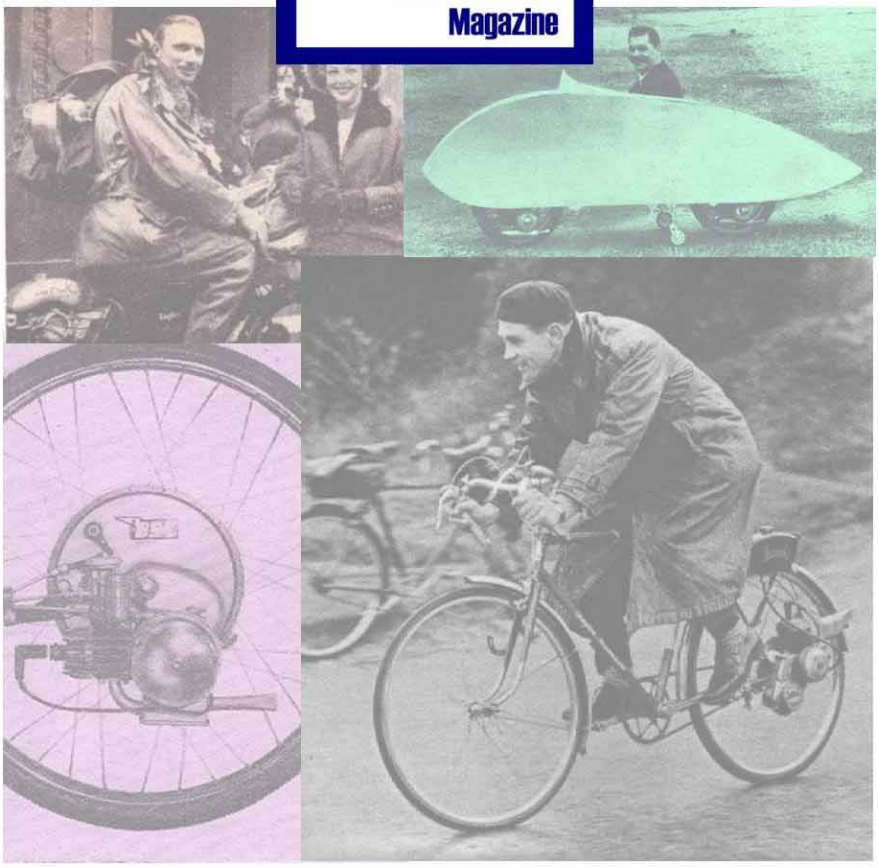

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