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125 cc
SPORT AND
SCRAMBLER
MODELS

RIDER'S
HANDBOOK

FOREWORD

This book contains non-technical information for carrying out all maintenance operations likely to be called for in service, and driving instructions.

All owners should carefully read and put in practice these instructions in order to avoid troubles caused by neglect or bad servicing. All major overhauls should be entrusted only to officially designated Moto Guzzi dealers who have the necessary facilities for the execution of perfect jobs.

Always ensure that all replacements are made with genuine Moto Guzzi parts only as failure to comply with this recommendation will absolve the Manufactures from all guarantee liabilities.

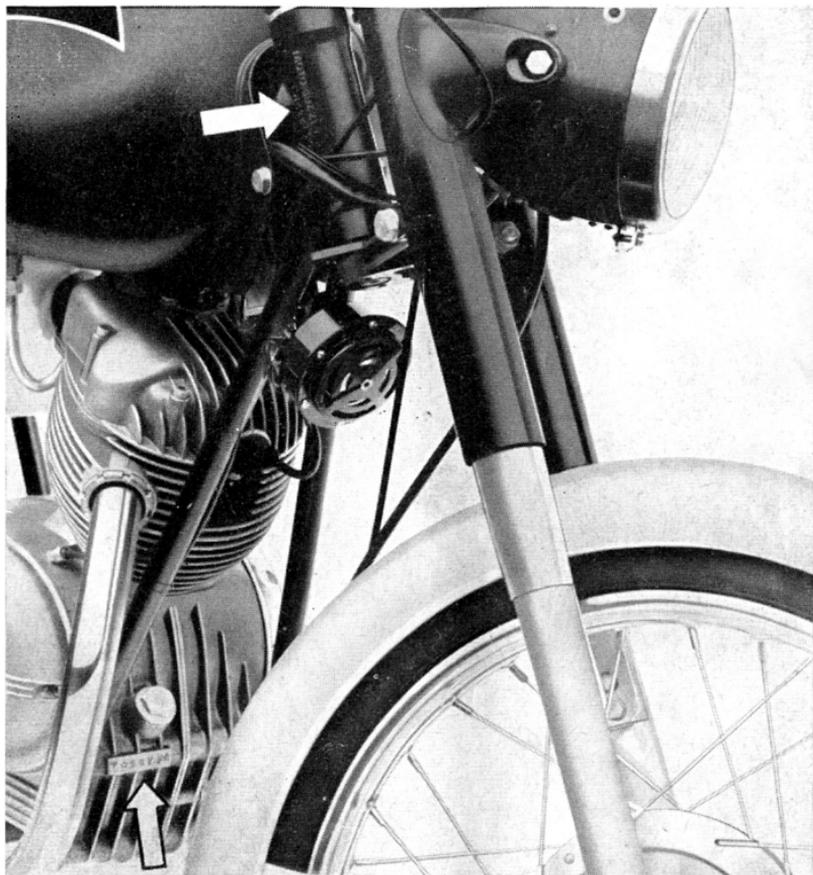
The contents of this booklet are not binding and though the main specifications of the described model remain unchanged, Moto Guzzi shall be free to introduce any detail modification of a technical-economical nature without being obliged to bring this booklet up-to-date.

IDENTIFICATION DATA

Every « 125 » Sport is identified by a single serial number for both frame and engine. This number is stamped on the right down tube and on the front crankcase cover in the position shown in fig. 1.

It is the only number valid for the legal identification of the machine and should always be referred to when ordering spare parts.

Fig. 1



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Fig. 2
125 Sport,
Left hand view

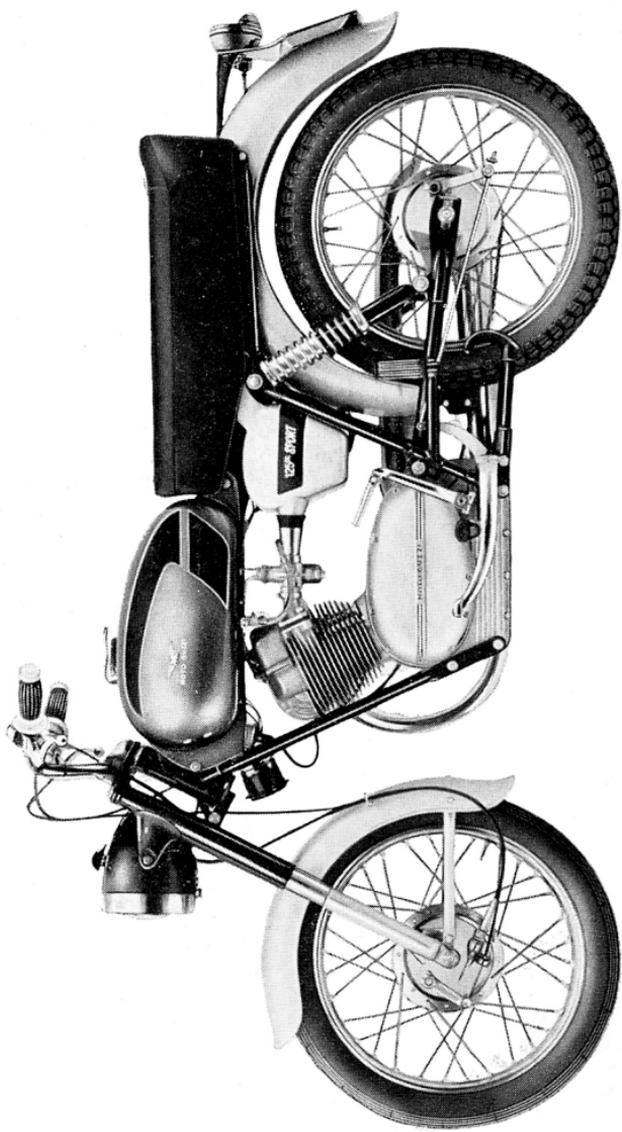


Fig. 3
125 Sport,
Right hand
view

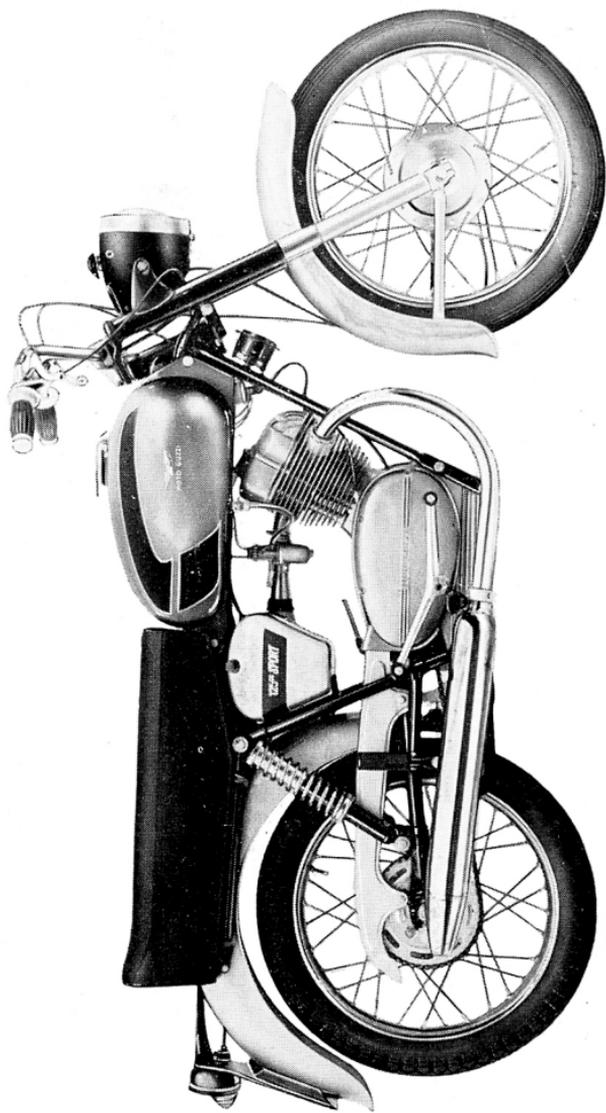


Fig. 4
125 Scrambler,
Left hand
view

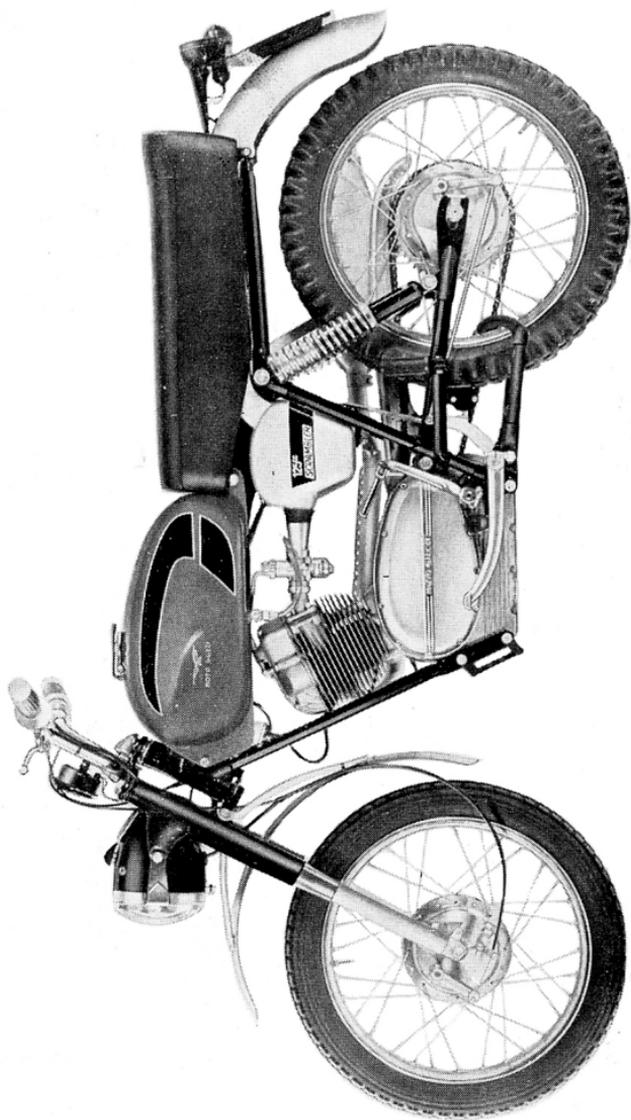
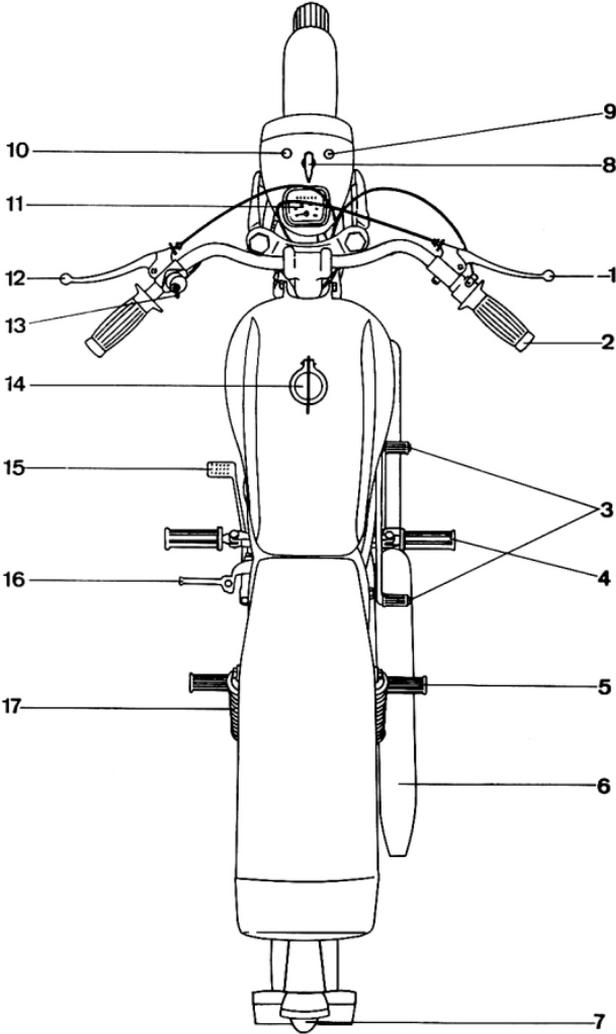


Fig. 5
125 Scrambler,
Right hand
view



Fig. 6
Controls
and
accessories



CONTROLS and ACCESSORIES

(fig. 6)

- 1 - Front brake lever.
- 2 - Twist grip throttle control.
- 3 - Gearshift.
- 4 - Folding foot rest.
- 5 - Folding foot rest, pillion rider.
- 6 - Muffler.
- 7 - Tail lamp for plate illumination and stop light.
- 8 - Ignition key.
- 9 - Red warning light, main light on.
- 10 - Green warning light, town driving and parking lighton.
- 11 - Speedometer.
- 12 - Clutch lever.
- 13 - Dip switch and horn button.
- 14 - Petrol filler cap.
- 15 - Rear brake pedal.
- 16 - Kickstarter.
- 17 - Rear suspension and hydraulic shock absorbers.

TOOL KIT

(Fig. 7)

- 1 - Tool bag.
- 2 - Block for oil drain cap.
- 3 - Box wrench, spark plug.
- 4 - Double ended box wrench, 17-17 mm.
- 5 - Tire lever.
- 6 - Tire lever.
- 7 - Allen wrench.
- 8 - Double ended flat wrench, 8-10 mm.
- 9 - Screwdriver.
- 10 - Wrench, tappet adjusting.

Fig. 7

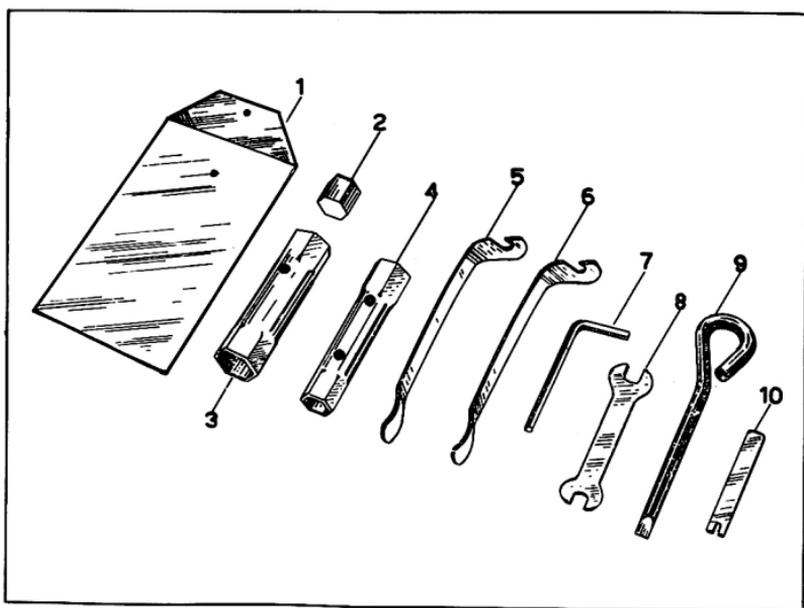


Fig. 8
Silencer,
125 Sport

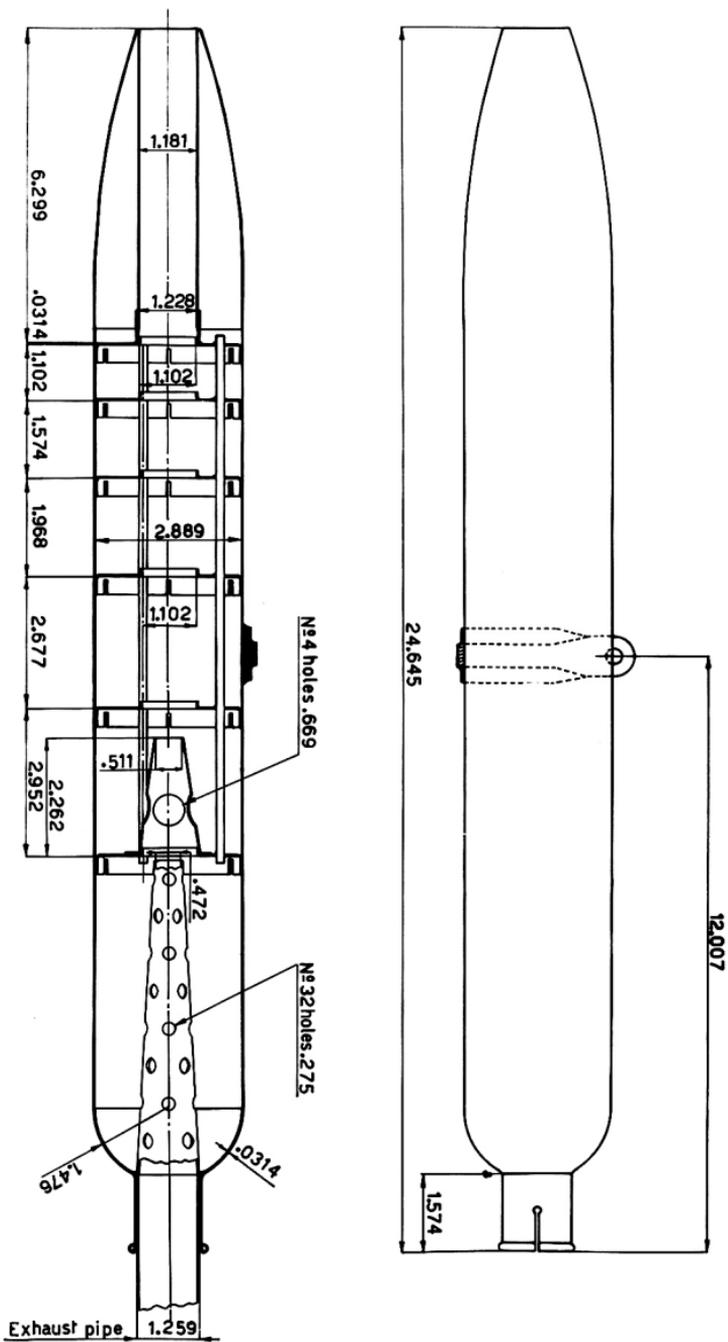
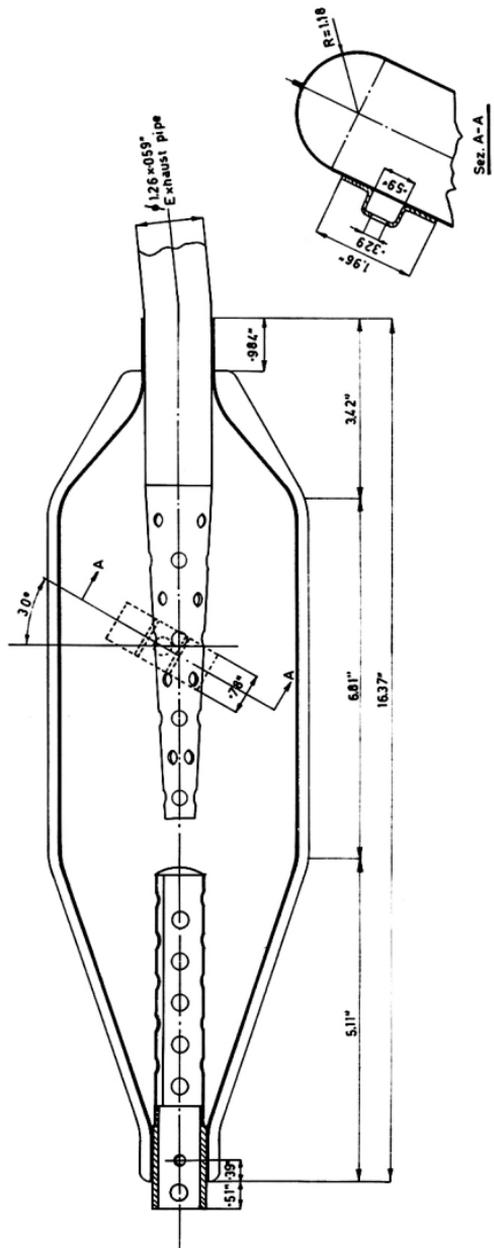


Fig. 8/1
Silencer,
125 Scrambler



MAIN FEATURES « Sport » Model

ENGINE	Single cylinder, four stroke, bore 52 mm. (2.043"), stroke 58 mm. 2.283"), swept volume 123.175 cc. (7.515 cu. in.), compression ratio 9.8 : 1, output 12 HP.
Cylinder barrel	Of light alloy with special cast iron inserted liner.
Cylinder head	Of light alloy with valve gearing in oil bath.
Crankcase	Bottom part heavily finned for better oil cooling.
Valve operation	Overhead valves, push rods and rocker operated.



Fig. 9
Engine

Push rods timed by camshaft and flat bottom tappets. Normal rocker-valve clearance (cold engine):

— inlet 0.10 mm. (.0039")

— exhaust 0.15 mm. (.0059").

Fuel feed

By gravity from the tank - Carburetor setting and make: Dell'Orto UB 20 B - Choke 20 mm. (.787") - Atomizer n. 260 B - Main jet n. 90 - Pilot jet n. 40 - Throttle slide n. 50 - Taper needle n. B 10, second notch from top.

Ignition

By flywheel alternator (6V - 28W) with external H.T. coil.

Spark plug:

for normal cruising Marelli n. 225 (Bosch thermic scale);

for long distance cruising Marelli n. 260 (Bosch thermic scale).

Lubrication

Forced, by gear pump and detachable filter.

Cooling

By air, cylinder and cylinder head deeply finned.

Clutch

Multiplate discs in oil bath (5 discs).

Transmission

Primary drive by helical gears (engine-gearbox), secondary drive by roller chain:

— Engine-gearbox ratio . 2.8 to 1 (25-70)

— Gearbox-sprocket ratio 2.94 to 1 (16-47)

Overall gear ratios:

— Bottom gear 25 to 1

— Second gear 14,9 to 1

— Third gear 10,6 to 1

— Top gear 8,2 to 1

Gearbox

Constant mesh gears, 4 speeds foot operated.

— Bottom gear 1 to 3.04

— Second gear 1 to 1.81

— Third gear 1 to 1.29

— Top gear 1 to 1

FRAME	Welded tubular structure.
Front suspension :	Telescopic fork with hydraulic dampers.
Rear suspension	Swinging arm and coil springs on the dampers.
Handlebar	Raised type, adjustable.
Seat	Dual seat.
Brakes	Expanding on both wheels. Front, hand operated - rear, foot operated.
Wheels	Spoked steel rims 17 x 2¼.
Tires	Front 2½ x 17 ribbed, rear 2.75 x 17 R block tread. Tire pressure : — Front tire abt. 1.7 kgs/mm ² (abt. 24 lbs/sq. in.) solo. — Front tire abt. 1.85 kgs/mm ² (abt. 26 lbs/sq. in.) with pillion. — Rear tire abt. 1.85 kgs/mm ² (abt. 26 lbs/sq. in.) solo. — Rear tire abt. 2.8 kgs/mm ² (abt. 35 lbs/sq. in.) with pillion. Overall dimension and weight : — wheelbase . 1.250 mts. (abt. 49.21") — length . . 1.900 » (« 74.80") — width . . 0.720 » (» 28.34") — height (dry) . 1.030 » (» 40.56") — minimum ground clearance . 0.160 » (6.30") — dry weight . abt. 93 kgs (205 lbs)
Performances (see fig. 10)	The maximum permissible speeds in each gear are marked off on the speedometer reproduced in fig. 10.

- bottom gear . kms. 33 (20.5 m.p.h.)
- second gear . » 55 (34.1 »)
- third gear . . » 77 (47.8 »)
- top gear . . » 112 (70 »)

Maximum gradient climable: 31%.

Fuel consumption

2.7 lts. for 100 kms. (about 104 m.p.g. imp - 87 m.p.g. USA, measured according to CUNA standards).

Fuel replenishments

Petrol tank capacity 12.5 litres (Imp. gall. 2.749, US gall. 3.302) including a reserve of about 2 litres (Imp. gall. 0.439, US gall. 0.528). Use only high grade petrol. Oil sump in crankcase. Quantity required: abt. 1.9 litres (0.439 Imp. gall., 0.501 US gall).

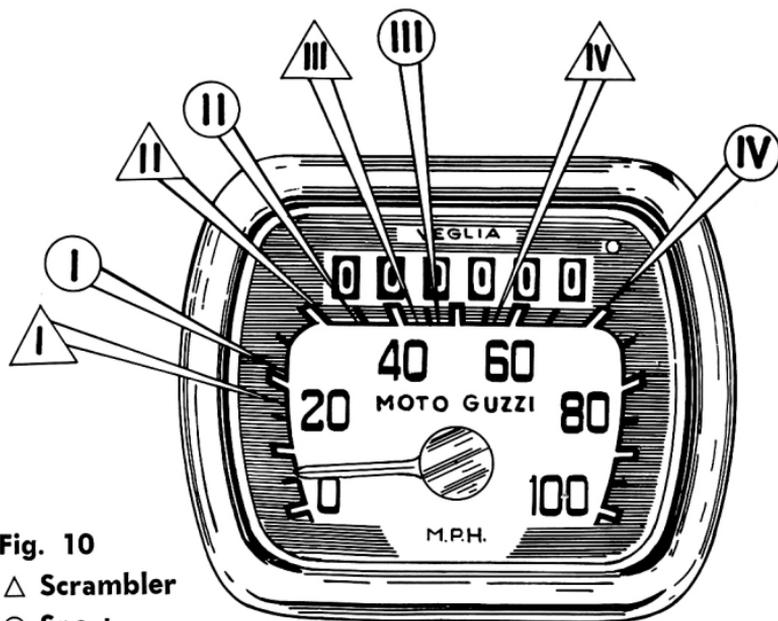


Fig. 10

△ Scrambler

○ Sport

MAIN FEATURES « Scrambler » Model

ENGINE	Single cylinder, four stroke, bore 52 mm. (2.043"), stroke 58 mm. (2.283"), swept volume 123.175 cc. (7.515 cu. in.), compression ratio 9.8 : 1, output 12 HP.
Cylinder barrel	Of light alloy with special cast iron inserted liner.
Cylinder head	Of light alloy with valve gearing in oil bath.
Crankcase	Bottom part heavily finned for better oil cooling.
Valve operation	Overhead valves, push rods and rocker operated. Push rods timed by camshaft and flat bottom tappets Normal rocker-valve clearance (cold engine) — inlet 0.10 mm. (.0039") — exhaust 0.15 mm. (.0059").
Fuel feed	By gravity from the tank - Carburetor setting and make: Dell'Orto UB 20 B - Choke 20 mm. (.787") - Atomizer n. 260 B - Main jet n. 90 - Pilot jet n. 40 - Throttle slide n. 50 - Taper needle n. B 10, second notch from top.
Ignition	By flywheel alternator (6V - 28W) with external H.T. coil. Spark plug: For normal cruising Marelli n. 260 (Bosch thermic scale);
Lubrication	Forced, by gear pump and detachable filter.
Cooling	By air, cylinder and cylinder head deeply finned.
Clutch	Multiplate disc in oil bath (5 disc).

Transmission	<p>Primary drive by helical gears (engine-gear-box) secondary drive by roller chain.</p> <p>— Engine-gearbox ratio . 2.8 to 1 (25-70)</p> <p>— Gearbox-sprocket ratio 3.2 to 1 (15-18)</p> <p>— Overall gear ratios:</p> <p>— Bottom gear 27.2 to 1</p> <p>— Second gear 16.2 to 1</p> <p>— Third gear 11.5 to 1</p> <p>— Top gear 8.9 to 1</p>
Gearbox	<p>Constant mesh gears, 4 speeds foot operated.</p> <p>— Ratios: bottom gear . . . 1 to 3.04</p> <p> second gear . . . 1 to 1.81</p> <p> third gear . . . 1 to 1.29</p> <p> top gear 1 to 1</p>
FRAME	Welded tubular structure.
Front suspension	Telescopic fork with hydraulic dampers.
Rear suspension	Swinging arm and coil springs on the dampers.
Handlebar	Raised type, adjustable.
Seat	Dual seat.
Brakes	Expanding on both wheels. Front, hand operated-rear, foot operated.
Wheels	Spoked steel rims 17 x 2 1/4.
Tires	<p>Front 2.75 x 17 Block Tread; rear 3.000 — 17 Special for motocross.</p> <p>Tire pressure:</p> <p>— front tire abt. 1.7 kgs/mm² (abt. 24 lbs/sq. in.) solo</p>

- front tire abt. 1.85 kgs/mm²
(abt. 26 lbs/sq. in.) with pillion
- rear tire abt. 1.85 kgs/mm²
(abt. 26 lbs/sq. in.) solo
- rear tire abt. 2.8 kgs/mm²
(abt. 35 lbs/sq. in.) with pillion

Overall dimensions and weight

- wheelbase . . . 1.250 mts. (abt. 49.21")
- Length . . . 1.900 » (» 74.80")
- width . . . 0.740 » (» 29.13")
- height (dry) . 1.040 » (» 40.94")
- minimum ground clearance . 0.180 » (» 7.08")
- dry weight . . . abt. 95 kgs. 210 lbs)

Performances
(see fig. 10)

The maximum permissible speeds in each gear are marked off on the speedometer reproduced in fig. 10.

- bottom gear . . kms. 30 (18,6 m.p.h.)
- second gear . . » 51 (31.7 »)
- third gear . . » 71 (44.1 »)
- top gear . . . » 93 (57.8 »)

Maximum gradient climbable: 33 %.

Fuel consumption

3 lts. for 100 kms. (about 94 m.p.g. imp. 78 m.p.g. USA, measured according to CUNA standards).

Fuel replenishments

Petrol tank capacity 12.5 litres (Imp. gall. 2.749, US gall. 3.302) including a reserve of about 2 litres (Imp. gall. 0.439, US gall. 0.528). Use only high grade petrol. Oil sump in crankcase. Quantity required: abt. 1.9 litres (0.439 Imp. gall., 0.501 US gall.).

MAINTENANCE INSTRUCTIONS

Before starting make sure there is sufficient oil in the crankcase sump. Oil level is checked by means of the dipstick welded on the filler cap. Correct oil level is in between the minimum and maximum marks (fig. 11). This check should be made with the filler cap unscrewed.

Under no circumstances should hills be descended with the gear in neutral or the clutch disengaged. It is far better to utilize the braking effect of the engine with the throttle control at minimum opening. Steep hills should be descended in the lower gears, as this will save overheating of the drums and wear of the linings. On wet or slippery roads proceed with the utmost care, avoiding violent acceleration and/or fierce braking. In such conditions, it is well to consider decreasing slightly the tire pressure.

Hills should be climbed in the gear which allows the engine to run at normal revolutions. Under no circumstances whatever should hills be climbed by slipping the clutch. This would rapidly wear the plates out.

Particular care should be taken not to exceed the maximum speeds in the different gears (see « Performances », fig. 10).

Fuel taps

The left tap is the reserve tap and should be kept closed for use in an emergency only. However, it is a good rule to occasionally check its efficiency and to clean it out if obstructed by grit or other foreign matter.

Ignition key

Before the engine can be started or the electrical equipment used, it is necessary for the ignition key to be pushed right down in its « contact » position. To stop the engine,

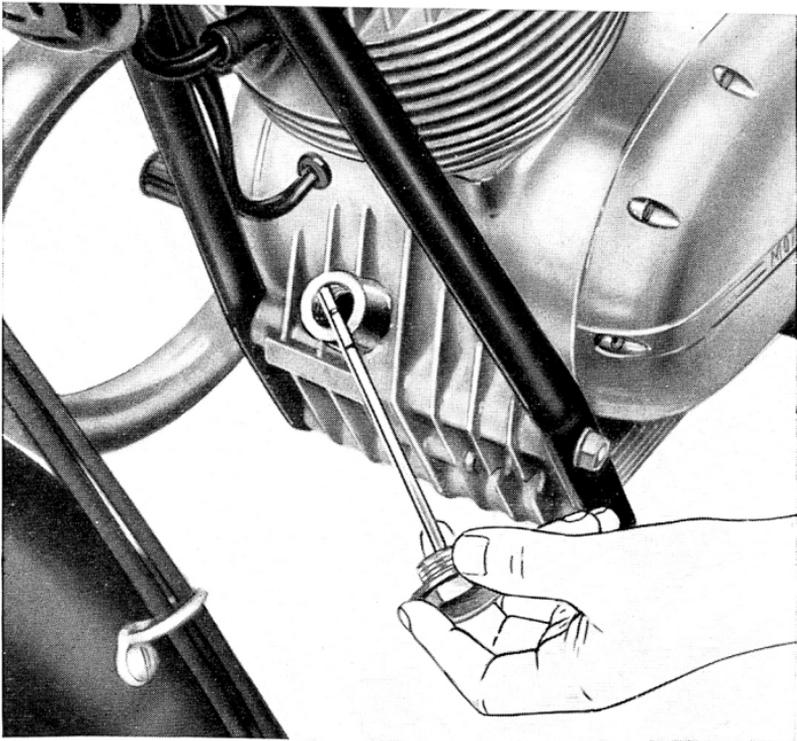
the key should always be withdrawn from contact.

Starting the engine

To start the engine from cold: open right hand fuel tap, check if the gearshift pedal is in neutral, push ignition key down in its contact position, turn twist grip slightly, push down carburetor air lever (fig. 18) and depress the kickstarter sharply. One or two kicks are generally sufficient to start the engine.

When starting from cold, and especially in the cold season, it is convenient to slightly flood the carburetor, taking care not to

Fig. 11



overdo this as it may then make starting rather difficult. This is unnecessary when starting a hot engine.

In cold weather, it is well to let the engine run idle for a short while to allow the oil to warm up before taking off. Be sure to restore the air lever on the carburettor to its original position.

N.B. - This engine can also be started with an engaged gear by depressing the kickstarter with the clutch withdrawn.

Racing the engine

Under no circumstances whatever should the engine be allowed to run at high revolutions before taking off.

Starting the motorcycle

After the engine is started, withdraw fully the clutch lever, engage bottom gear, and slowly release the clutch accelerating the engine at the same time as the clutch starts to « bite ».

Use of gear box (see fig. 12)

To change to a higher gear, the throttle should be shut and the clutch simultaneously withdrawn, shifting the pedal in the next position. The clutch should then be released slowly and the throttle gradually re-opened.

To change down, the procedure is reversed except that the throttle should not be completely closed.

Change up rather than let the engine race. Change down rather than let it slog.

Stopping the machine

To come to a standstill, close the throttle and apply both brakes evenly. Just before the machine stops, pull the clutch and select neutral.

In case of an emergency stop whilst going in a straight line, it is advisable to use both brakes simultaneously to avoid wheel locking which might lead to the danger of a fall.

Stopping the engine

To stop the engine, disconnect the ignition key from its « contact » position and turn off the fuel tap.

Inspection

After a wet ride or one over particularly bad roads, the machine should always be checked over externally and dried.

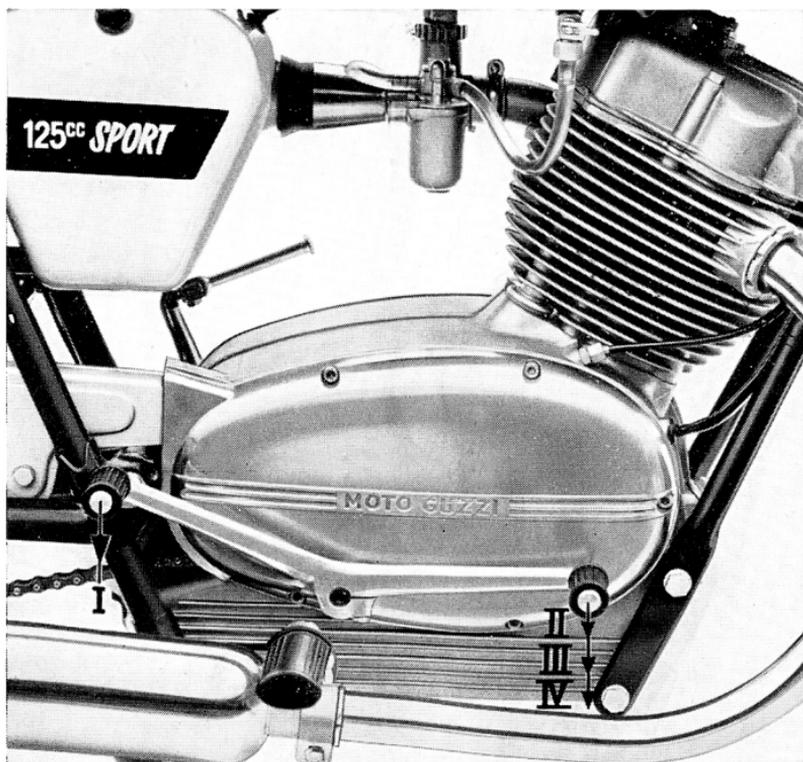
Storing the machine

If the machine is being put away for a fairly long period:

— Clean it over thoroughly (See « Periodical Maintenance »).

— Introduce a little oil into the cylinder through the plug hole and revolve the engine

Fig. 12



a few times to evenly distribute the oil over the cylinder walls.

— Raise the machine from the ground so that the tyres are clear of the floor, especially if this is slippery or greasy.

— Cover with vaseline or antirust compound all metal parts not enamelled.

Carburation faults and cures

If the engine will not start or stops suddenly, the cause may be one of the following:

— Lack of fuel. Check if there is fuel in the tank, also if the tap is open.

— Obstruction of the fuel line and/or filters. Clean and blow through to clear the obstruction.

— Carburetor jets obstructed. Clean with air jet.

Ignition faults and cures

If the engine will not start and the carburation is in order, suspect the fault in the ignition.

Check if there is any spark at the plug by holding its body against the cylinder and revolving the engine with the kickstarter.

If there is no spark this may be due to:

— Damp plug. Allow it to dry.

— Oiled or fouled plug. Clean with petrol and a wire brush.

— Cracked or chipped insulator. Change the plug.

— Incorrect gap setting. Re-set to 0.6 mm. (.023").

— High tension lead. Ensure it is not perished or disconnected at the coil end.

In the event that even a new plug will give no spark, check the contact breaker gap which should be 0.40 mm. (.0158") and clean if necessary.

— Loose or disconnected coil leads. Check

whether all leads are properly connected to the terminal board on the coil.

— Ignition too advanced or retarded. Check ignition timing.

Loss of compression

This may be caused by:

— Loose cylinder head bolts.

— Loose plug or plug with no washer.

— Worn or broken piston rings.

— Cylinder worn oval.

— Leaking valve seats.

— Incorrect tappet adjustment.

Overheating

If the engine gets too hot the cause may be:

— Oil pump not working, use of bad or too old oil, centrifugal filter obstructed.

— Ignition too retarded.

— Mixture too weak.

Proper use of machine

Do not abuse your machine by violent acceleration or braking. If possible, ride at fairly constant speed. Harsh riding leads to increased oil and fuel consumption and generally shortens the life of all machine components.

Running in (Fig. 13)

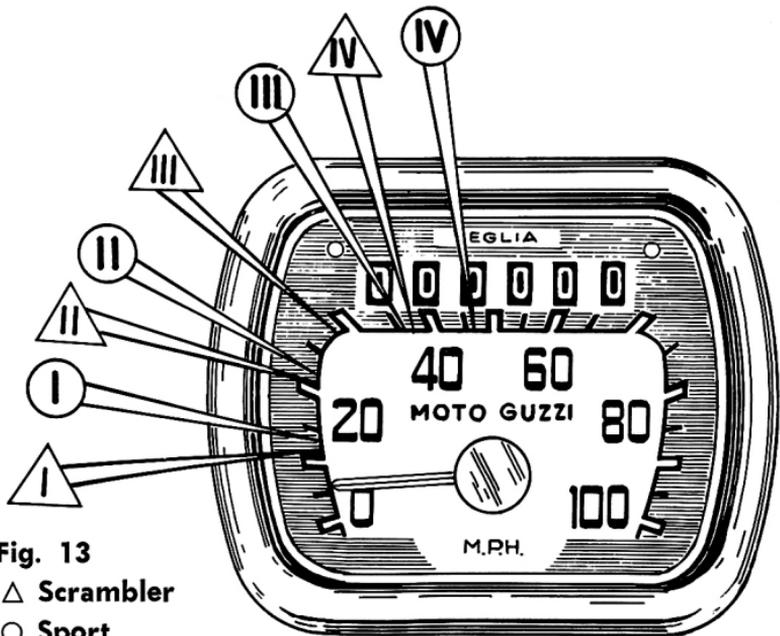
For the first 1000 kms. (600 miles), a new or overhauled machine should be used intelligently as the efficiency, performance, and life of the engine are largely dependant on how the machine is run-in. During this period the engine should never be allowed to run under load, even for very brief periods.

Running in should be carried out progressively, maintaining the engine at fairly brisk revolutions but never under load. Should the engine speed drop off considerably on uphill riding, one should change to a lower gear and proceed at very moderate speed. In case the engine overheats, it is best to stop and let it cool down.

For the first 1000 kms. (600 miles) the speed should never exceed 2/3 of the permissible speeds in each gear.

The oil should be changed after the first 500 kms. (300 miles) and the tappets adjusted, if necessary. After covering this distance it is well also to check the contact breaker gap, to adjust the chain, and to check **tightness of all nuts and bolts.**

When the first 1000 kms. (600 miles) have been covered, the speed can be progressively increased but the maximum should not be reached until 1500 kms. (900 miles) are on the clock.



PERIODICAL MAINTENANCE CHART

(See page 30-31)

Monthly

1) Check level of the electrolyte in the battery. This should be done every 15 days or so in summer and at least once a month in winter.

Every 300 kms. (200 miles or so)

2) Check tire pressure using a gage. Recommended tire pressure is indicated in section « tires ».

3) Check oil level in crankcase, topping up as necessary. Correct oil level is in between the minimum and maximum marks on the dipstick.

After 500 kms. (300 miles)

4) Check and adjust tappets (See « Tappet Adjustment »).

5) Ensure that all nuts and screws are tight.

6) Renew engine oil and clean filter (See « Lubrication of engine - gearbox unit »).

Every 2000 kms. (1200 miles)

7) Speedo drive. Inject grease through the nipple on the front brake block.

8) Renew engine oil and clean filter.

9) Rear chain. Wash with petrol and smear lightly with grease.

10) Carburetor. Clean filter in banjo union.

Every 3000 kms. (2000 miles)

11) Sparking plug. Clean and check points gap. 0,6 mm (.023").

Every 5000 kms. (3000 miles)

12) Flywheel alternator. Clean, lubricate, and check contact points. Correct gap: 0.40 mm = .016".

Every 10.000 kms. (6000 miles)

13) Cylinder head. Remove all carbon deposits. (See « Cylinder head and valves »).

14) Clean centrifugal oil filter.

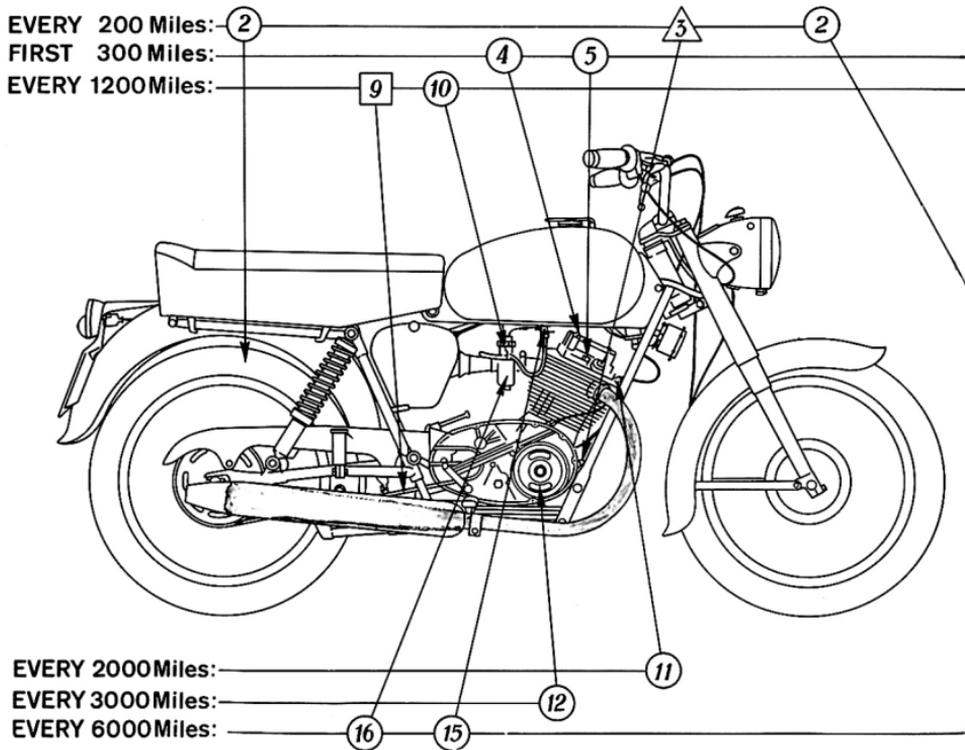
15) Petrol lines and taps. Clean out thoroughly, especially the filters just above the taps.

16) Carburetor. Strip, check, and clean.

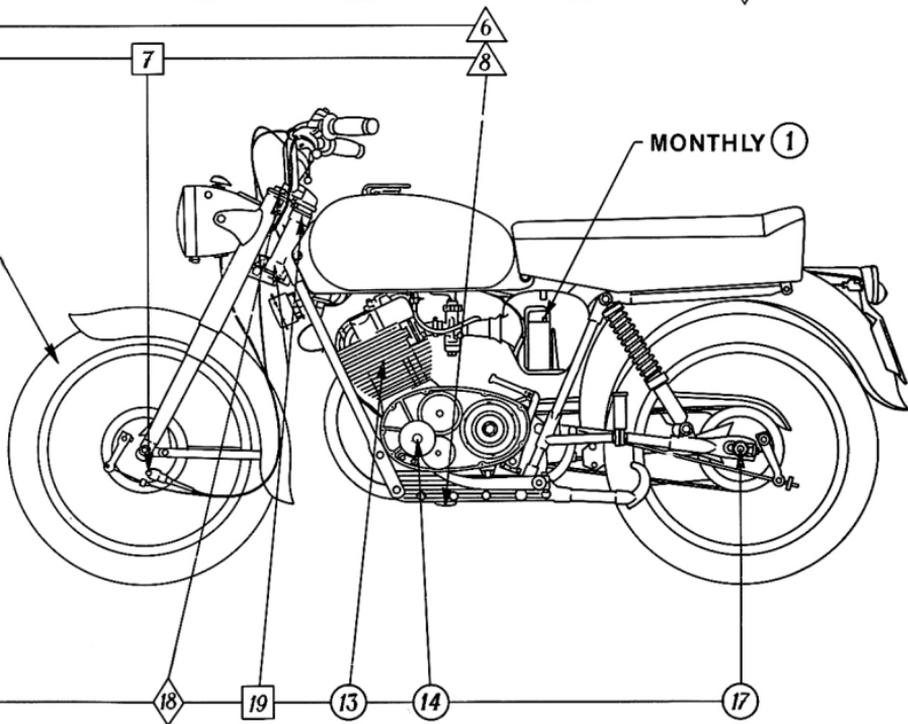
17) Nuts and bolts. Check tightness.

18) Telescopic fork. Check fluid level.

19) Steering head cups. Pack with grease.



○ MAINTENANCE △ SHELL X 100 SAE 30÷40 □ SHELL RETINAX A ◇ SHELL X 100 SAE 20



MAINTENANCE CHART

GENERAL MAINTENANCE

Lubrication of engine gearbox unit

All engine components, clutch and gear box are automatically lubricated by a gear pump which draws the oil from the crankcase sump and feeds it to the crankshaft after being cleaned by the centrifugal filter fitted on the crankshaft itself. The oil emerges then from suitable drillings under the big end which it lubricates and is flung then by centrifugal force on the gudgeon pin, piston, cylinder walls and the gears in the gear box which it cools and lubricates.

Surplus oil falls down in the bottom of the crankcase where it collects in the sump.

The valves-rocker assembly is lubricated by oil fed by the pump through a passage drilled in one of the cylinder head hold down studs. This hollow stud has the function of an oil pipe to the rocker arm shaft from where through suitable holes it lubricates the rocker arm bushes and all cylinder head components. On the rocker box cover an oil breather maintains the crankcase pressure at a constant level, thus avoiding possible oil leaks through the union faces.

Important notice

As engine lubricant we recommend the following oil :

— below 10° C: Shell X 100 - SAE 30

— above 10° C: Shell X 100 - SAE 40

Oil should be renewed after the first 500 kms (300 miles) then every 2000 kms (1200 miles). This operation should be made with the engine warm. Quantity: about 1.9 litres (0.439 Imp. gall. - 0.501 US gall.).

The oil is drained by unscrewing the hex plug under the crankcase and filter (fig. 15). Always clean this filter as well and in re-

assembly make sure it fits snugly in its crankcase housing. Oil renewal is effected through the filler on top of the crankcase (fig. 11).

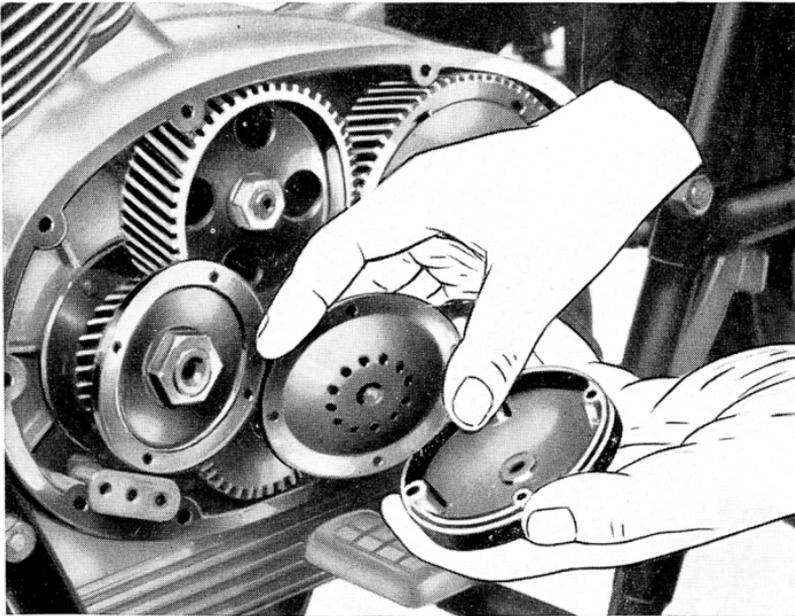
Centrifugal filter

It is a good practice to clean this thoroughly every 10,000 kms. (6000 miles) to safeguard the efficiency of all engine parts. To get access to this filter, remove the left crankcase cover and disconnect the oil pipe from the pump when the filter assembly can be removed (See fig. 14).

Chain lubrication

Every time the chain looks dry, which is often the case after a long wet ride, it should be smeared lightly with Shell Retinax A grease. However, every 2000 miles of so it is advisable to wash the chain with petrol

Fig. 14



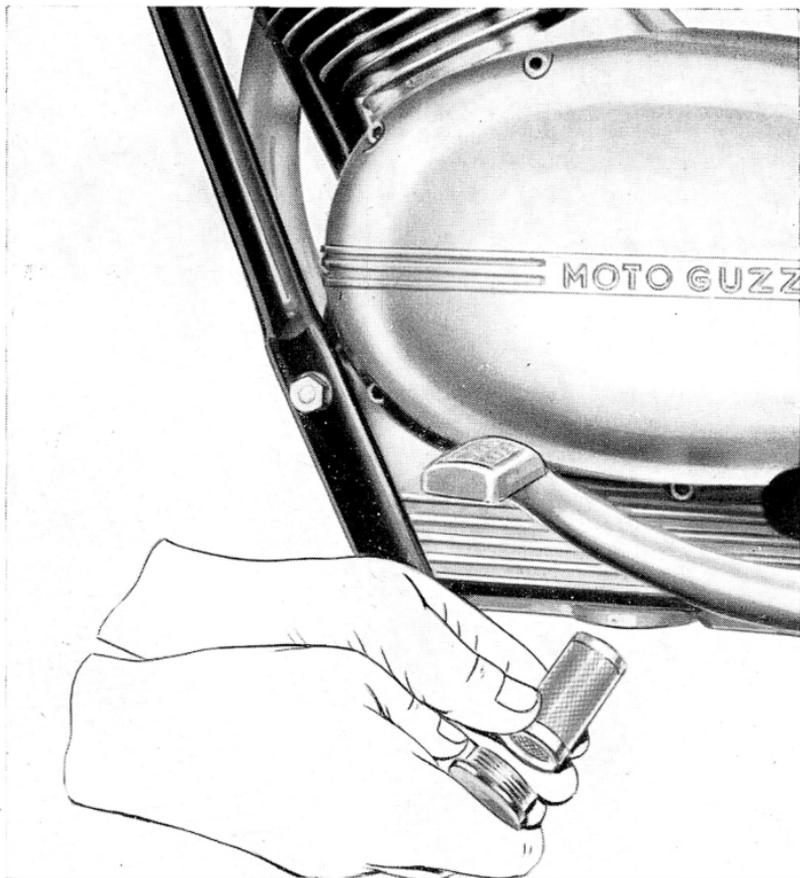
and when dry to smear it with grease of the above mentioned brand.

**Telescopic
front fork**
(See fig 16)

Normally, the front fork does not require any lubrication but every 10.000 kms. (6000 miles) or any time it appears to be necessary, it is well to top it up with fresh oil. This is done as follows:

Fig. 15

1) Set the machine on the stand, ensuring



that the fork is not under load (in full stretched out position).

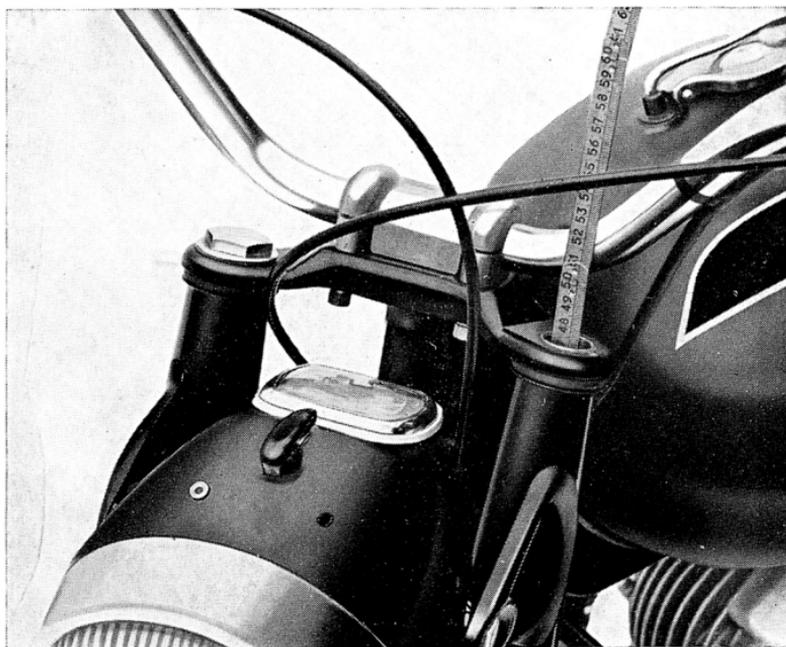
2) Loosen top fork caps.

3) Check level of oil by introducing a ruler in the fork leg down to a depth of 47.5 cms. (19"). Correct oil level is 11 cms. (4.4") which is equal to 125 cms.³ (7.62 cu. ins.) of oil in each leg. Our oil recommendation is Shell X SAE 20.

Carburetor

This machine fits a two-control carburetor, the throttle control being by twist grip and the air control a small lever (See C in fig. 18). This lever should always be pushed down to start a cold engine (rich mixture) and lifted up as soon as the engine is warm (normal mixture). Every 2000 kms. (1200 miles) it

Fig. 16

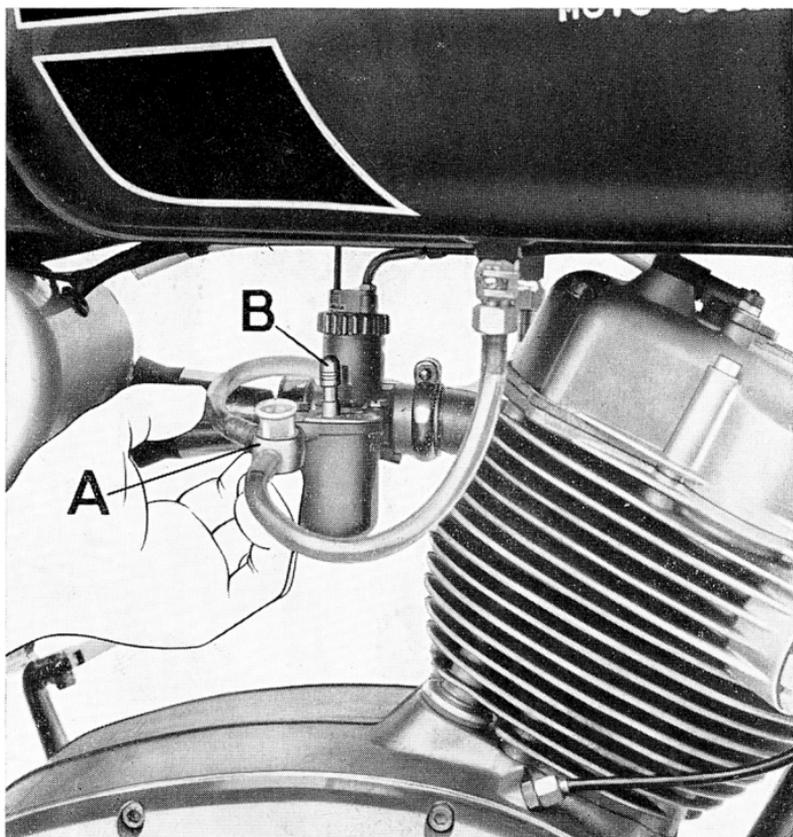


is recommended to clean the filter in the banjo union (A in fig. 17) with petrol or an air jet. Access to this filter is obtained by unscrewing the top nut.

Normal setting

Air choke	20 mm.
Atomizer	260/B
Main jet	90/100
Idling jet	40/100
Throttle slide	n. 50

Fig. 17

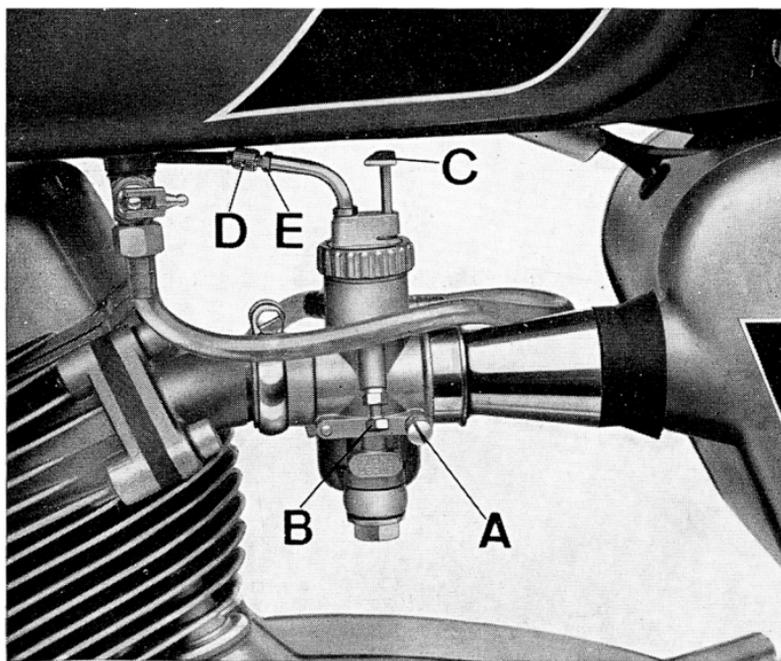


Needle B 10, second notch from top.
In very cold weather, it is advisable to raise the needle one notch.

Setting of needle and main jet

The mixture is richened or weakened by changing the size of the jet or lowering the needle. Raising the number of the jet or the needle richens the mixture and viceversa. Indications of too rich a mixture are: excessive fuel consumption, blackened points internally, blackish smoke from the exhaust. Indications of too poor a mixture are: whiteness of the points internally, porous plug points, poor engine performance, backfiring, or abnormal overheating of the engine. The throttle is adjusted by means of screw D and nut E (fig. 18).

Fig. 18



Setting for idling speed

(Fig. 18)

This operation should always be carried out on a warm engine. Adjust the horizontal knurled screw « A » which is the slow running screw. Screwing it in richens the mixture and viceversa. Just besides screw « A » there is screw « B » which is the throttle adjusting screw. Adjust first screw « B » so that with the throttle fully closed the engine can still run at low revolutions. Then screw in or out screw « A » till the best mixture strength is obtained. Finally adjust screw « B » to a point where the required idling is obtained.

Stripping of carburetor

(Fig. 19)

After about 10.000 kms. (6000 miles) it is advisable to strip the carburetor and to check and clean all its component parts.

Remove :

— Air intake pipe (1) unscrewing it from the carburetor block (18).

— Mixing chamber cover (2) with air plunger. Unscrew retaining ring to free.

— Throttle slide (3), taper needle (4) with locating peg and throttle slide spring (5).

— Slow running screw (6) and throttle adjusting screw (7).

— Atomizer (8), main jet (9), and pilot jet (10).

— Bolt and washer (11) and float chamber (12).

— Float (13) and float chamber cover with washer (14).

— Banjo union fixing nut (15), union (16), and filter (17).

When stripping the carburetor clean also all fuel lines and the filters on top of the fuel taps.

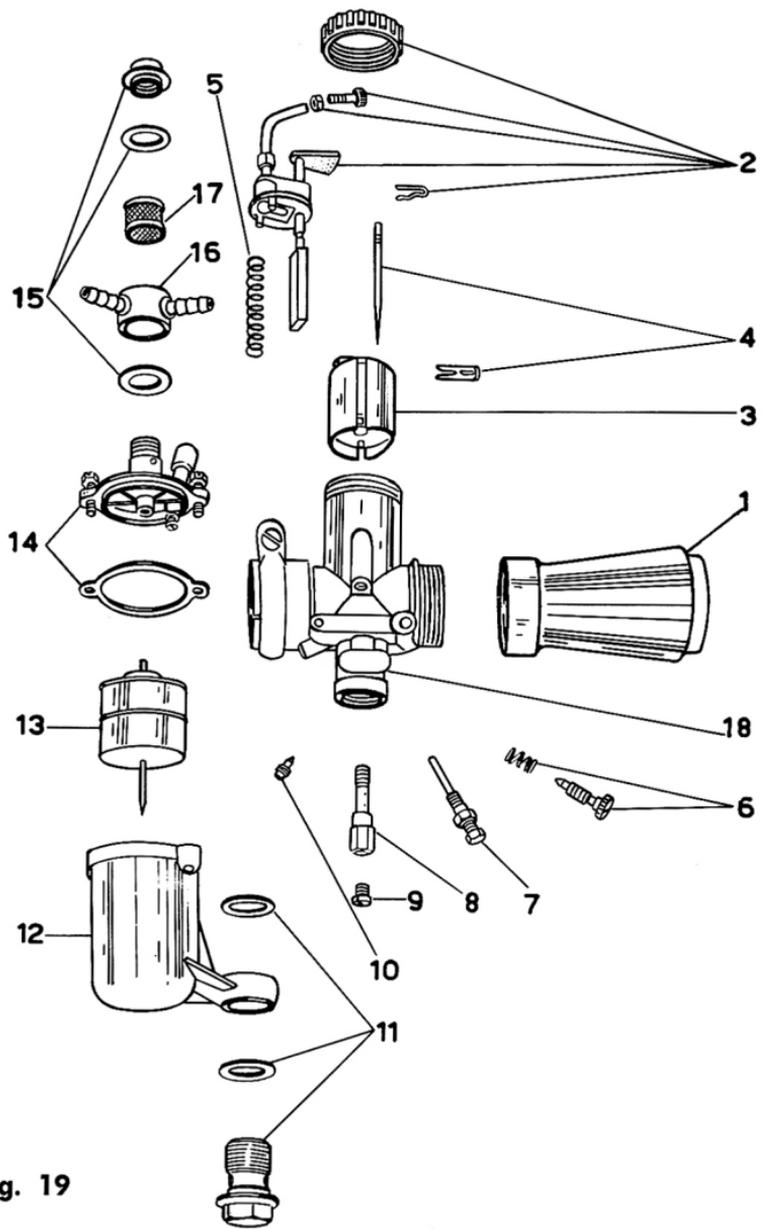


Fig. 19

Cleaning of silencer

To clean the silencer, proceed as follows. Remove the complete exhaust pipe and muffler unit from the frame and fill it up with a solution of boiling water and caustic soda (20 %), leaving it to stay for about an hour when it can be emptied and rinsed out again with fresh boiling water, shaking vigourously to remove all scaling.

Valve timing

Dismantle the gear shift pedal, right cover plate, rocker box cover, and proceed as follows.

Allow 0.5 mm. (0.019") play to the exhaust valve with piston at TDC and both valves closed (i.e. at the end of the compression stroke).

In this position the arrow on the crankcase cover and the arrow on the flywheel should be opposite each other (see fig. 20). Then, holding the flywheel in this position mark off anticlockwise a distance of 118-122 mm. (4.6 - 4.8") on the flywheel rim as shown in fig. 20. Turn now the flywheel clockwise till new mark is in front of the arrow traced on the crankcase cover when the exhaust valve should start to open. With the setting of the exhaust, timing of induction follows automatically.

When this adjustment has been made, it is necessary to re-set tappets, as described in « Tappet Adjustment ».

If the timing gears have been dismantled, in re-assembly do not forget to insert the woodruff key in the engine pinion slot which is an arrest to the marked tooth and to place the marked tooth on the gear in between the two marked teeth of the cam wheel, as shown in fig. 21.

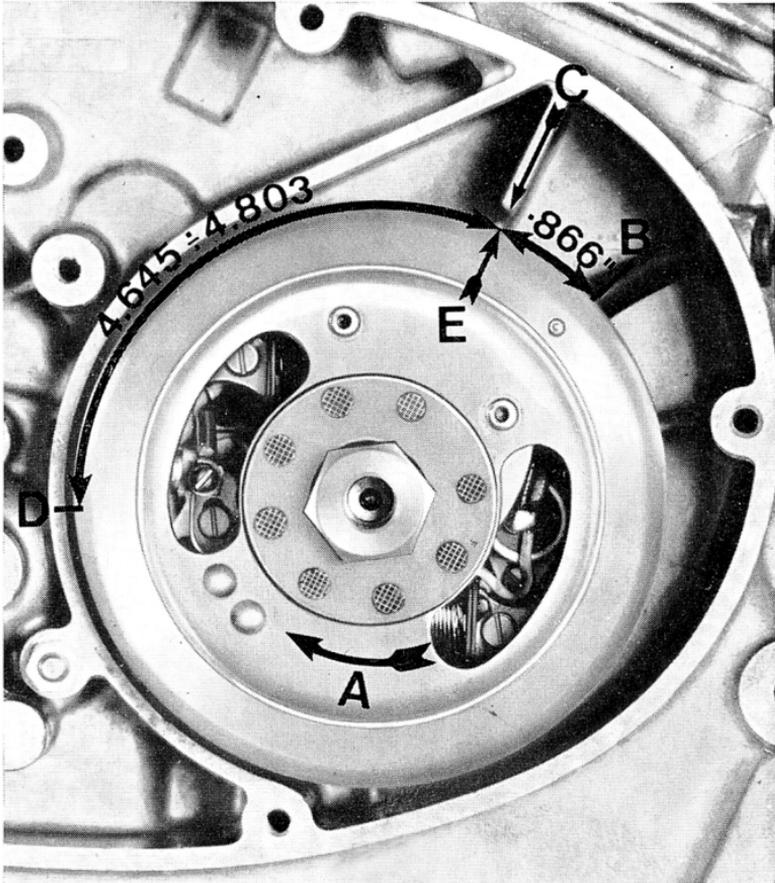
Ignition timing

First of all remove gearshift pedal and the right hand cover plate and ensure that the

flywheel mark at 22 mm. (.866") is quite visible. Bring then the flywheel mark opposite the arrow on the crankcase cover (see fig. 20). With the flywheel in this position

- A - Sense of rotation of flywheel.
- B - Contact breaker distance.
- C - Mark on crankcase.
- D - Exhaust valve distance.
- E - Mark on flywheel.

Fig. 20

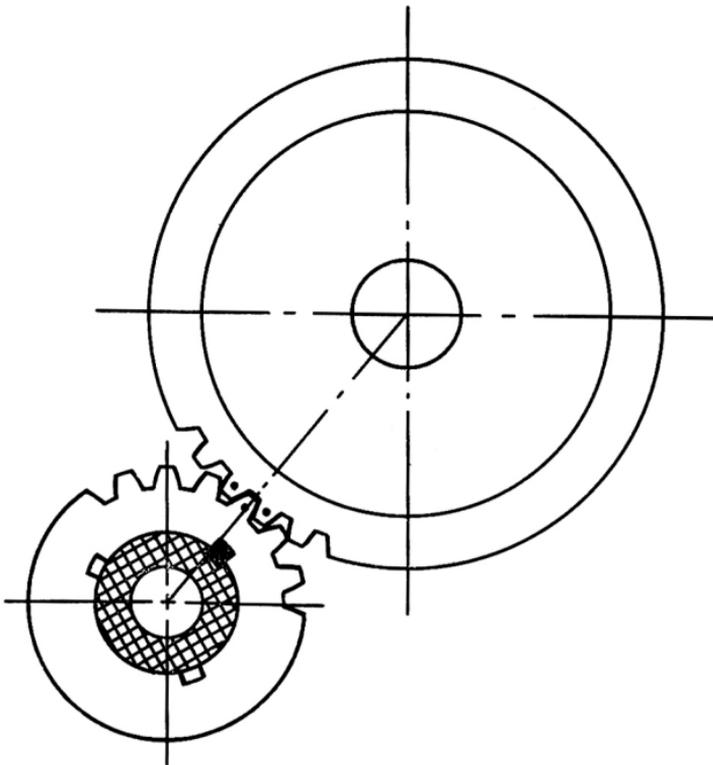


check whether the contact breaker points are correctly set at 0.4 mm. (.0157"). Place now a piece of tissue paper between the points and turn the flywheel anticlockwise till the paper is firmly gripped.

Now turn the flywheel in a clockwise direction to a position where the paper can be released with a slight pull and check now whether the 22 mm. mark is in front of the arrow on the crankcase cover.

Fig. 21

If the points do not open at this stage, it



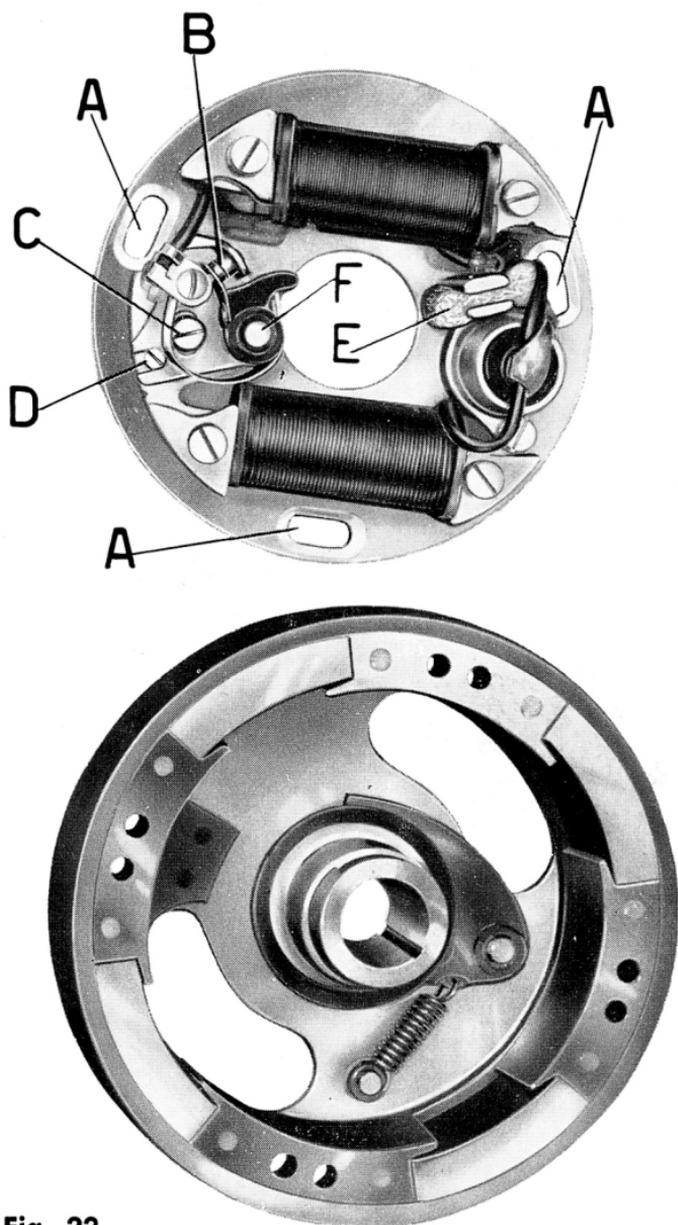


Fig. 22

will be necessary to remove the flywheel rotor and to shift the stator to a position where the points start opening correctly. Slacken the 3 screws which hold down the stator. To do this see A in fig. 22.

Finally re-lock the screws.

Ignition (Fig. 22)

To set and lubricate the alternator, it is necessary to remove first the gearshift pedal and the right crankcase cover to expose the flywheel.

After 5000 kms. (3000 miles or so) it is well to check if the breaker gap (B) is at 0.40 mm. (.0157"). If not, proceed as follows.

Slacken screw C half a turn which will free the fixed point carrier and move eccentric D to a position which will give the correct gap. Finally, relock screw C.

Examine the contact breaker points which should be free from oxidation and quite smooth. If necessary, dress them with a dead smooth file.

When carrying out the above operation, take the opportunity of re-oiling the cam felt pad (E), also the cam follower pin (F).

A few drops of oil will suffice as too much may get on to the contacts. There is no necessity of removing the flywheel as this operation can easily be carried out through the webs.

N.B. - This setting must be made with the breaker cam in its fully open position.

Spark plug

Every 3000 kms. (2000 miles) it is a good rule to check the plug points which should be 0.6 mm. (.0236") apart. If the insulator is cracked or broken, replace the plug. To clean, use petrol and a wire brush. When

fitting the plug, ensure it is started by hand for a few turns to avoid possible stripping of the thread.

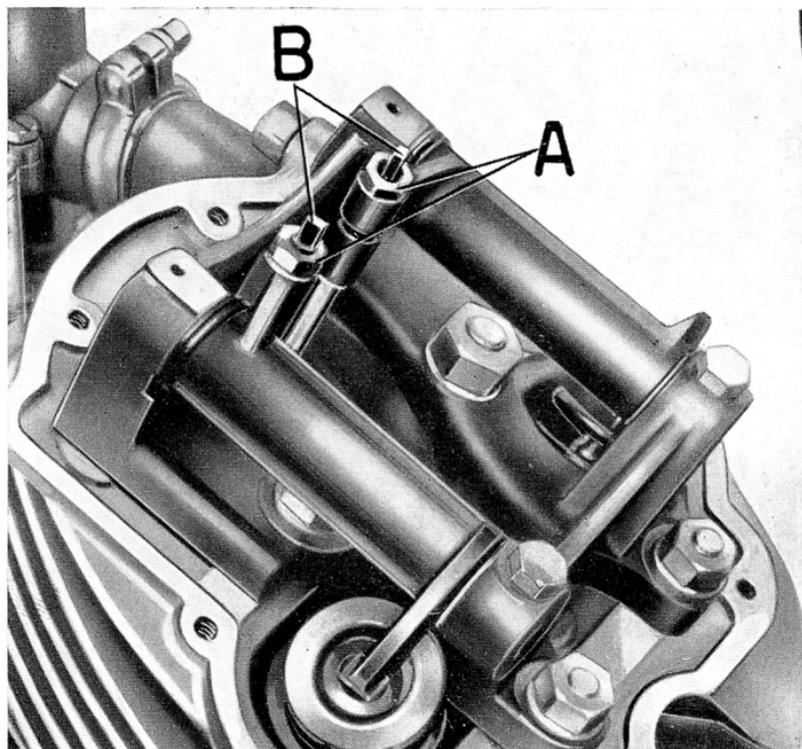
Complete this operation using the plug spanner but be careful not to overtighten as the thread may get strained.

Examine the condition of the H.T. cable from the coil to the plug.

Cylinder head and valves

Fig. 23

Every 10.000 kms. (6000 miles) the engine should be decarbonized and if necessary the valves ground in. To remove the cylinder head raise the fuel tank just sufficiently to

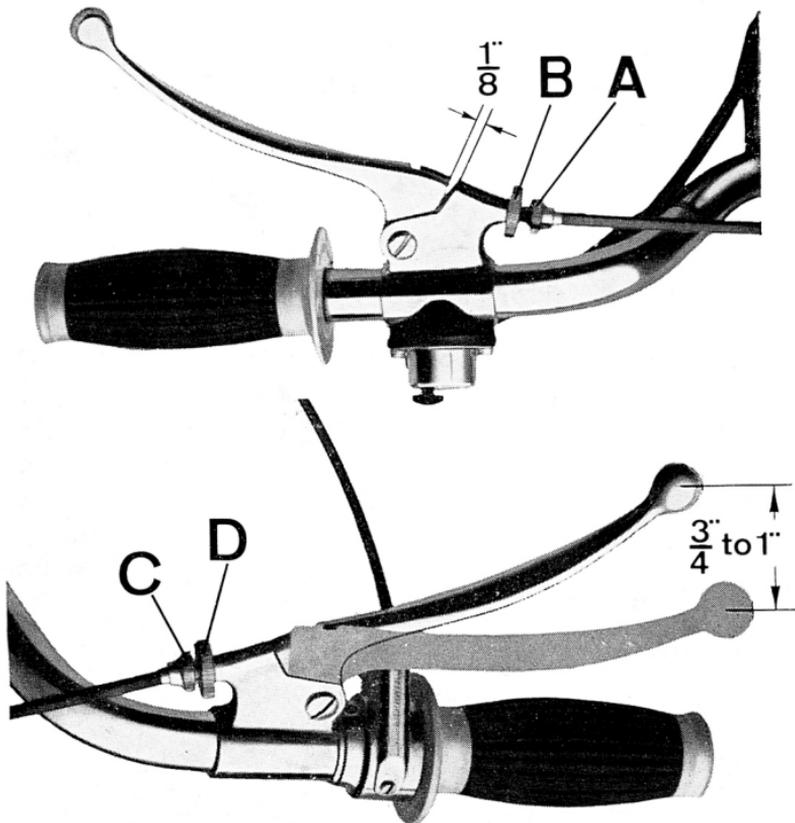


allow the cylinder head to be withdrawn, take off the carburetor, exhaust pipe, rocker box, rockers and the 4 hold down nuts.

When carrying out this operation, particular care should be taken that the 4 rubber washers in their cylinder head housings are not damaged.

Ensure that there are no valve leakages by setting up the head on a bench and pouring some petrol into each port to see if any seeps through into the combustion chamber.

Fig. 24



If the seats are defective, it will be necessary to dismantle the valves from the head and to grind them in into each seat.

To clean the cylinder head and passages, use a scraper and a wire brush. To grind in the valves use fine paste only, ensuring that every trace of abrasive is cleaned off before re-assembly.

If the cylinder is removed, take care not to disturb the position of the piston rings which, if removed should be put back in their original position.

Tappet adjustment

Should be made on a cold engine after the first 500 kms. (300 miles) and then periodically, as recommended. Remove rocker box and acting on locknuts A and adjusting screws B (fig. 21) allow 0.15 mm. (.0059") play to the exhaust valve and 0.1 mm. (.003937") to the inlet.

Then, holding the screws tight, relock locknuts, ensuring that the adjustment has not varied.

This adjustment must be made with the piston at TDC with both valves closed (end of compression stroke).

Clutch adjustment

This becomes necessary when the free movement at the end of the handlebar lever is more or less than about 4 mm. (.157"). If there is less than this amount, the clutch may slip causing the plates to wear out or distort and an abnormal engine performance. If the play is more, there may be incomplete disengagement of the clutch, with consequent difficulty in changing gear.

This adjustment is made by turning screw A and knurled adjuster B in fig. 24.

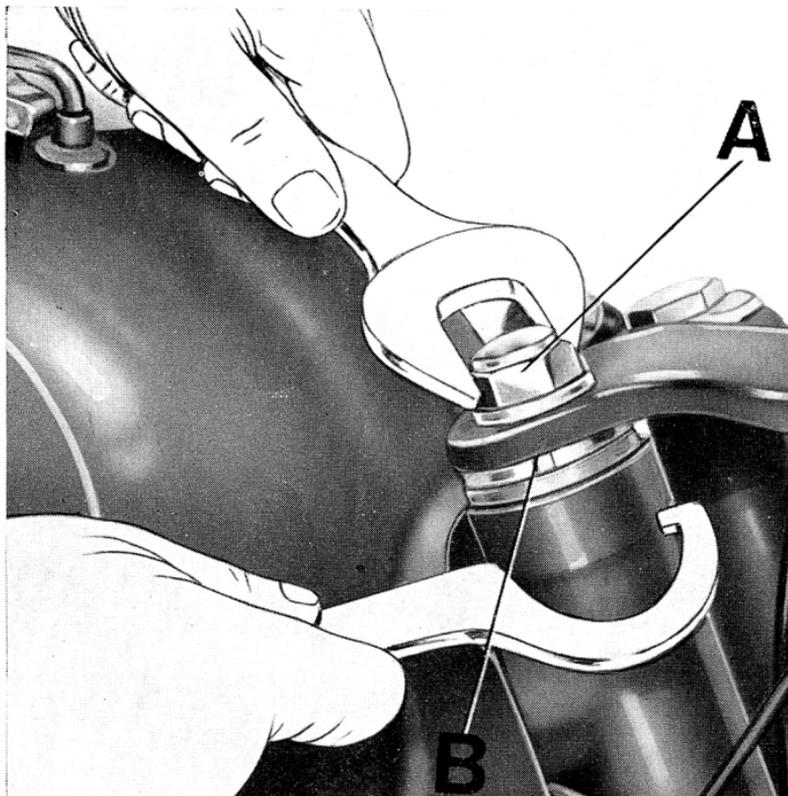
Steering head

(Fig. 25)

If the steering head is too loose there may be movements which are harmful to the ball and races.

To adjust: slacken nut A on the steering column and using a spanner or a drift on the notches of the adjusting lock ring B, remove all play but ensuring that the fork is allowed the necessary free movement. Re-lock nut A keeping a tight hold on the lockring so as not to remove the clearance required for a good operation. Every 10.000

Fig. 25



kms. (6000 miles) or so it is recommended to pack the steering cups with grease.

Chain adjustment

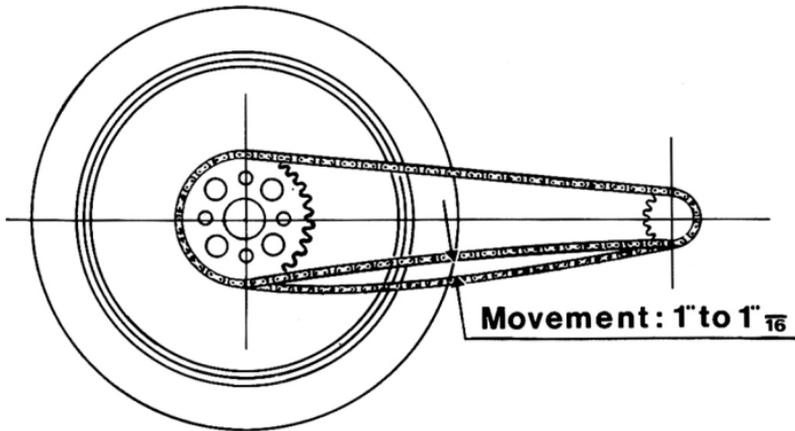
With the machine on the stand, there should be about 25-30 mm. (1 to $1\frac{3}{16}$ "") up and down movement which is necessary to ensure that the chain is not too tight when the rear frame is in the middle position of its travel (see fig. 26).

To adjust, slacken off the nuts on the rear wheel spindle when the two tensioners on the wheel spindle can be screwed in or out to tighten or slacken the chain. Make sure both tensioners are turned by an equal amount to avoid offsetting the wheel. When this is done it is well to check the rear brake adjustment as well.

Front brake adjustment

Should be carried out periodically. The brake is adjusted when there is about 20-25 mm. ($\frac{3}{4}$ to 1 "") play at the handlebar lever before the linings contact the drums. This play is adjusted by means of the knurled adjuster D and screw C in fig. 24).

Fig. 26



Rear brake adjustment

This brake should also be checked periodically. The brake is adjusted when there is about 25-30 mm. (1 to $1\frac{3}{16}$ ") play at the pedal lever before the linings start contacting the drums. This adjustment is carried out by means of the knurled knob on the threaded part of the brake rod (fig. 27).

Removal of front wheel (Fig. 28)

Proceed as follows:

1. Disconnect the cable from the cam lever and unscrew the speedo cable from the drive.
2. Unscrew the left wheel spindle nut.
3. Loosen hub retaining spindle nut (A) on the right fork leg, and remove the spindle from the fork and hub when the wheel can be withdrawn.

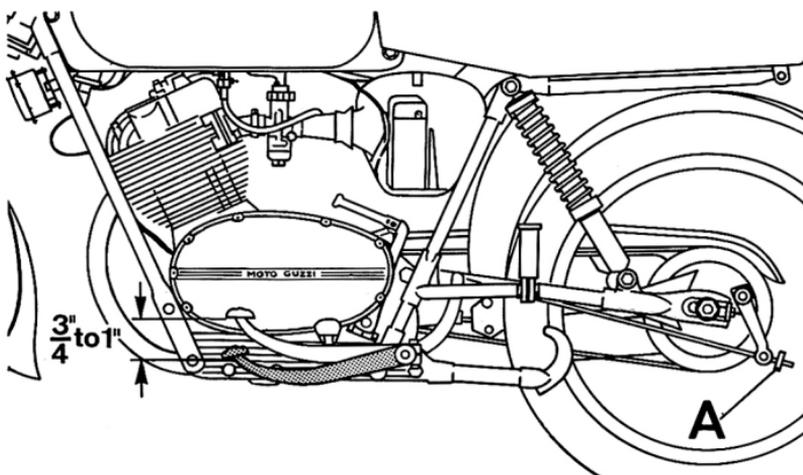
In re-fitting do not forget to insert the brake block in its anchorage on the fork.

Removal of rear wheel

Proceed as follow:

1. Unscrew the brake adjusting knob from the rod and disconnect the rod from the cam lever on the block.

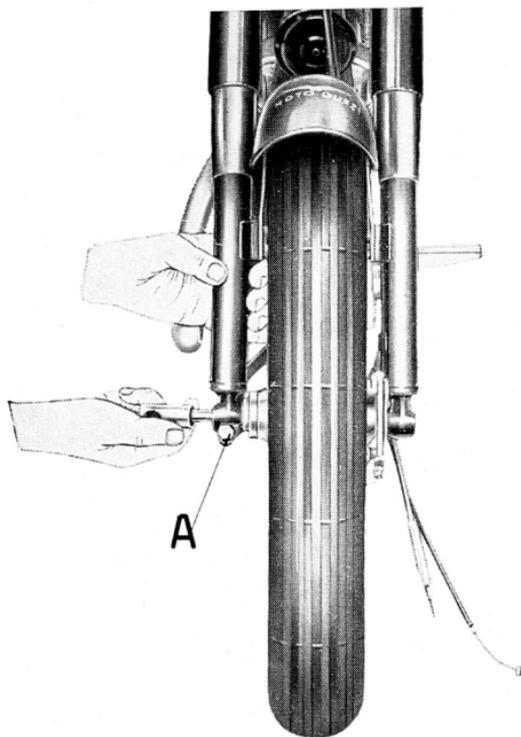
Fig. 27



2. Slacken both hub nuts, disconnect both chain tensioners, and push the wheel inwards just enough to allow the chain to be removed.
3. Slip off the chain from the sprocket.
4. Take off the wheel from the swinging arm.

When re-assembling, do not forget to insert the brake block in its anchorage on the swinging arm, to adjust chain tension, to true the wheel, and to tightly lock the nuts on the hub spindle. Finally, to adjust the rear brake by acting on the knob at the end of the brake rod.

Fig. 28



ELECTRICAL EQUIPMENT

(See « Wiring diagram » fig. 29)

Current for all electrical appliances is supplied by the flywheel alternator either directly or indirectly through the battery which is itself charged by the alternator through a diode in the headlight.

This model fits an Aprilia headlight type 130 RCU 035910, (130 mm. - 5.118"). The engine is started and the system switched on by an ignition key which is used also as a switch for the main driving light and/or the parking light.

In case any filament burns out the complete headlamp insert has to be replaced but in such case use only same power filaments (25/25 W 6 V), no others being tolerated.

On the outside of the headlamp insert, a 6 V 3 W parking light bulb is fitted. The headlamp body incorporates also two warning lights: a green one to indicate that the parking light is on and a red one that the dazzling light is on (6 V 0.6 W).

A 15 A fuse protects all the parts fed by the battery (Stop light, plate light, parking light, and electric horn).

The speedometer dial is illuminated by a 6 V 1.5 W bulb for night driving.

Battery

The 7 A 6 V battery is housed under the seat (L.H. side) and is charged by the flywheel alternator.

To maintain the battery in good condition: Check periodically the level of the electrolyte and, if necessary, add distilled water until the drilled surface of the splash guard is submerged by about 1 mm. (0.39"). This

check should be made every 2000 kms or so (1200 miles) or oftener in the summer. The terminals should be kept free from oxidation and this can be assisted by keeping them smeared with vaseline, avoiding the use of other lubricants.

When the battery gives less than 5.4 V under load and the density of the electrolyte is under 12.00 - 12.10 S.P.G., it should be re-charged at the rate of .6 - .8 Amp. until 12.80 - 13.00 S.P.G. are reached.

If the machine is going to be kept out of use for a long time it is well to re-charge the battery every 40 days or so in order to safeguard its efficiency.

Horn and dipper switch

Do not generally require any adjustment but in case of failures, remove the switch cover and ensure that all wires are tightly screwed down.

It may be possible for the horn to lose its tone after some time. This may be due to the wear of some parts or to the bedding down of others and in such cases it needs adjusting. After making sure that the battery is not discharged, regulate the adjusting screw with a screwdriver until the correct sound intensity is obtained.

Cables

Occasionally check over all the electric wires, paying special attention to places where they may rub on metal parts. If there are any dangers of shorts, renew the cables.

General maintenance

To keep the machine in good condition, attention should be paid to the following points.

The engine is best cleaned with petrol and a brush and dried off with rags.

The enamelled parts should never be cleaned

dry or the enamel will get scratched. Thoroughly wet with a sponge and wash off with a hose and sponge, ensuring that all traces of dust are removed before finally drying off with a chamois leather.

To keep the enamel in good condition, it should be rubbed off lightly with a soft cotton cloth and a good car polish. Do not use petrol or paraffin on the enamel as it will render it opaque and ultimately destroy it. Also, do not let any alcohol or caustic soda solutions contact it. If you want your machine always bright and shiny, avoid leaving it standing for long periods under the scorching sun or in the open on frosty nights.

Re-touching paint work

The paint used is synthetic enamel dried off in infra red ovens. In the case of small parts, it is best to re-enamel the part completely.

Transfers

The transfers with the wording « Moto Guzzi » are affixed on both sides of the tank and on the fenders. To affix a transfer: wet it with flattening varnish and let it stand for about 5 minutes when it can be applied in the required position. Peel off the paper back with a wet sponge and finally polish off the transfer with soft cotton and some suitable paste to give it a good lustre.

cable supplied with speedometer

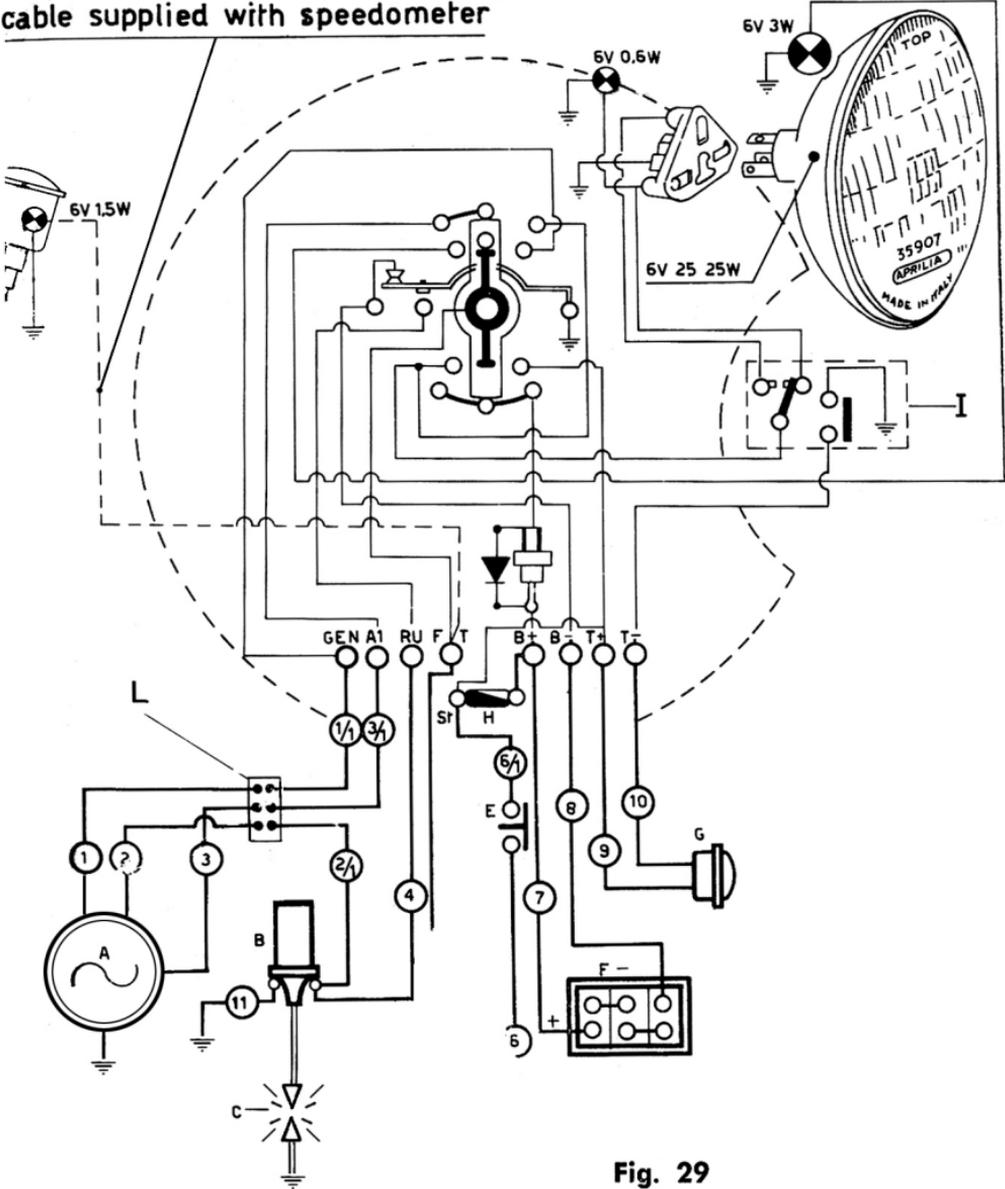


Fig. 29

KEY TO ELECTRICAL PARTS	
A	A.C. GENERATOR
	H.T. COIL
C	SPARK PLUG
D	PARKING AND STOP LIGHT
E	STOP LIGHT CUTOUT
F	BATTERY 6V
G	HORN
H	FUSE
I	LIGHT SWITCH AND HORN BUTTON
L	TERMINAL BOARD

CABLE COLOR	
1	1/1 RED
2	2/1 GREY
3	3/1 GREEN
4	Grey
5	YELLOW
6	6/1 BLACK
7	BLUE
8	WHITE
9	BLACK
10	BLACK
11	BLACK

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