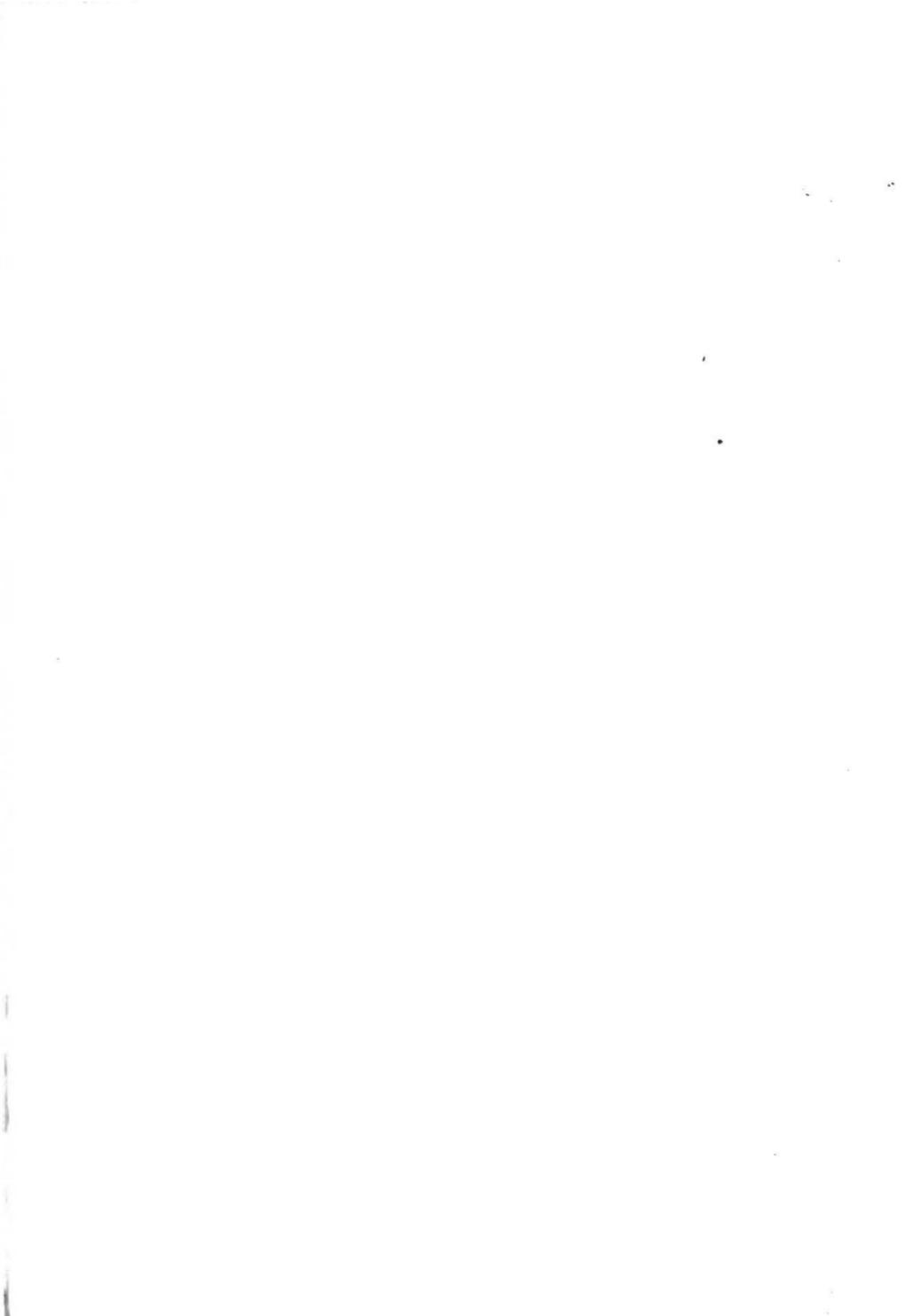




MOTO GUZZI

**V7
SPORT**

RIDER'S HANDBOOK



SEIMM

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**MOTO GUZZI**

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**V7
SPORT****1st edition****RIDER'S HANDBOOK**



INTRODUCTION

This booklet is intended to provide owners with the necessary information on operating and maintaining their machines for maximum efficiency.

The manual should be read very carefully as most troubles and failures arising from neglect or poor maintenance will be avoided if the instructions herein contained are strictly followed.

Don't forget that all major overhaul jobs and repairs are best carried out by officially appointed Moto Guzzi dealers who have the necessary facilities to quickly and competently repair your Moto Guzzi.

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RUNNING IN During the first 1600 kms. (1000 miles), a new or overhauled machine should be used with some intelligence as the efficiency, performance and life of the engine are largely dependant on how it is run in.

The engine should never be allowed to reach a high number of revolutions before it has had a chance to warm up sufficiently. Never ride the machine at the highest permissible speeds in each gear before the machine has been well broken in.

Should the engine speed drop off considerably on an uphill grade, a lower gear should be immediately engaged. In case of overheating, it is best to stop and allow the engine to cool down.

Under no circumstances whatever should the following speeds be exceeded in the running in period.

Distance	Maximum permissible speeds				
	Low gear	2nd gear	3rd gear	4th gear	Top gear
Up to 800 kms. (500 miles)	50 31	70 44	95 59	110 69	130 kms. 81 m.p.h.
From 800 to 1600 kms. (500 to 1000 miles)	60 37.5	85 53	115 72	130 81	155 kms. 97 m.p.h.
From 1600 to 3000 kms. (1000 to 1800 miles)	The speed can be gradually increased up to the maximum permissible limits.				

**After the first
500 kms.
(300 miles)**

Change the engine oil.
Tighten all nuts and bolts.
Check valve clearance.
Check contact breaker points.

**Every 500 kms.
(300 miles)**

Check oil level. Correct level is in between the minimum and maximum mark on the filler cap dipstick.



CONTROLS AND ACCESSORIES

(See fig. 1)

1. - Front brake lever
2. - Throttle control grip
3. - Starter button
4. - Filler cap
5. - Gearshift lever
6. - Pillion footrest
7. - Headlight
8. - Speedometer
9. - Rev-counter
10. - Clutch lever
11. - Light switch and horn button
12. - Steering damper knob
13. - Ignition key
14. - Rear brake pedal
15. - Footrests
16. - Tail light

N.B. - The terms « right » and « left » in the text are used in the sense they would appear to one sitting in the saddle.

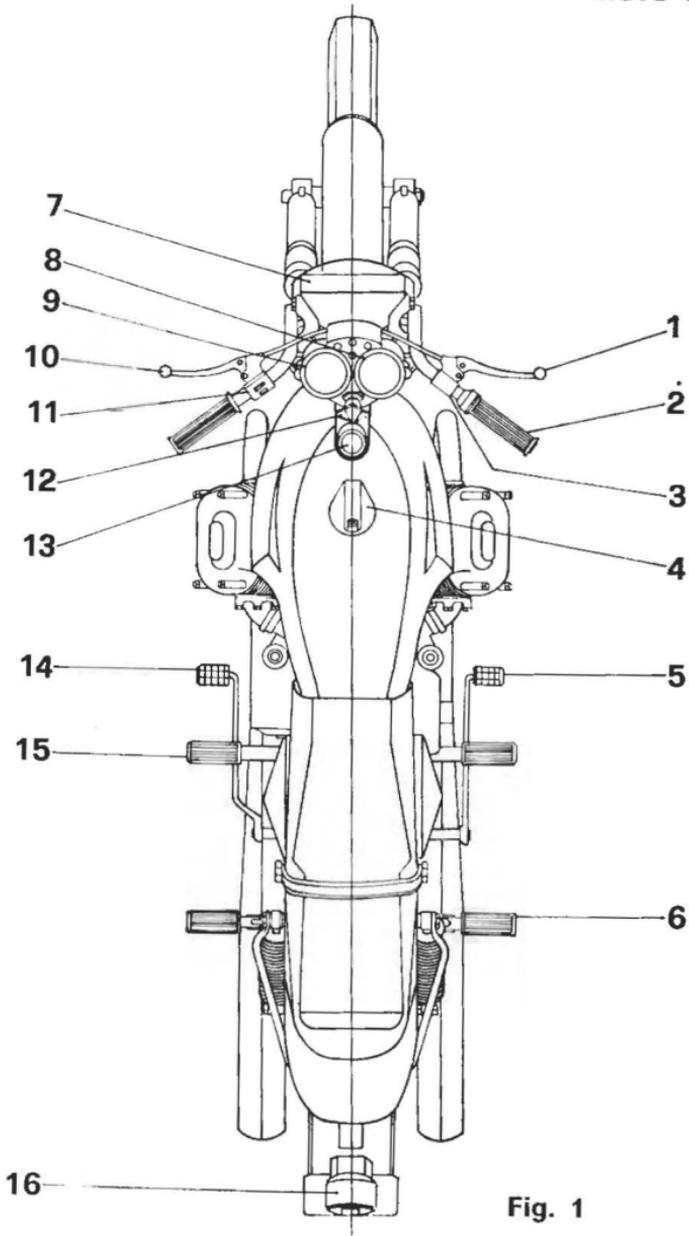


Fig. 1

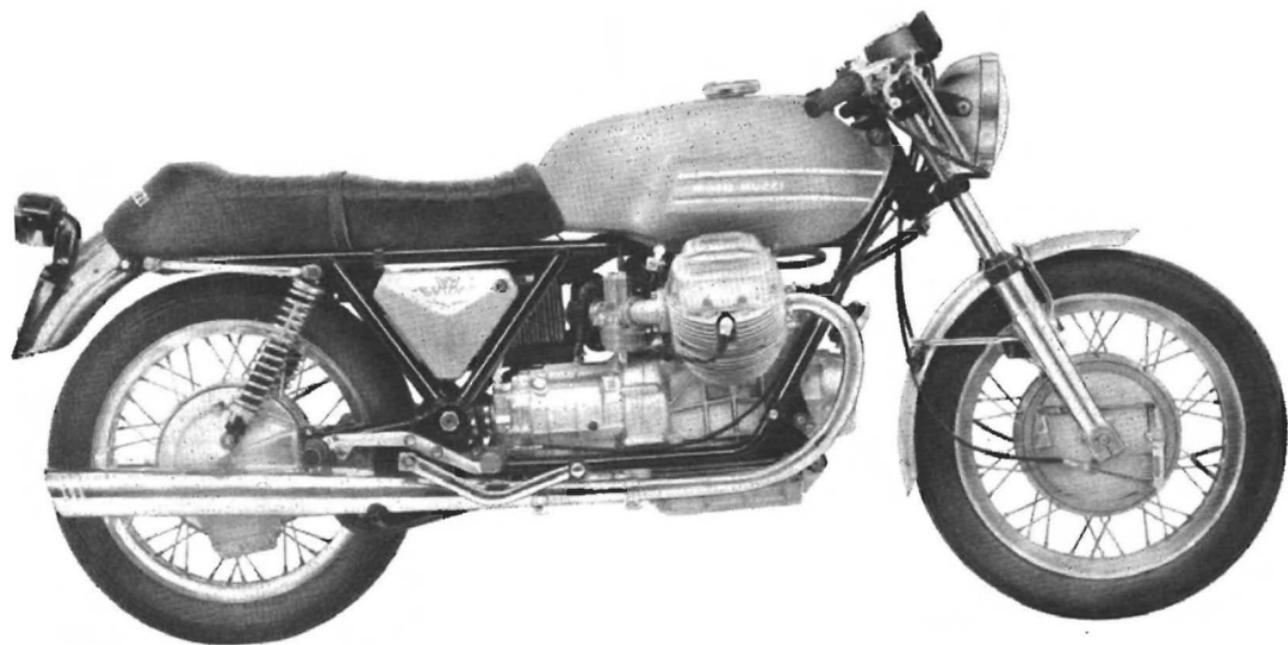


Fig. 2



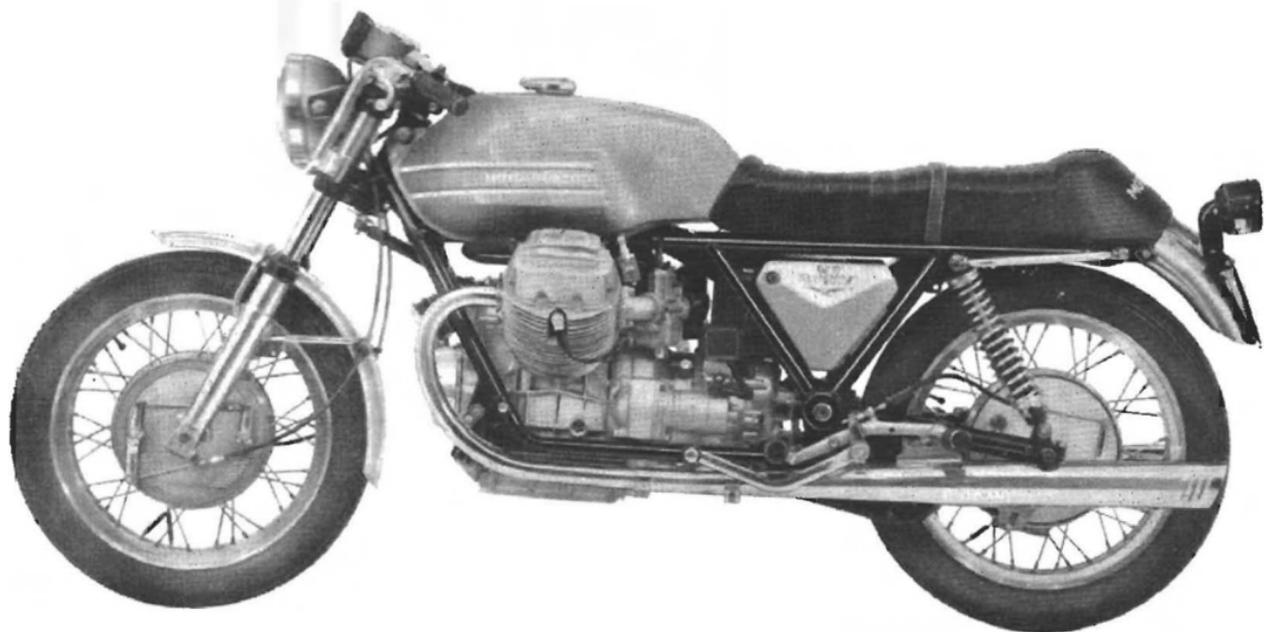


Fig. 3

MOTO GUZZI

Identification data

(See fig. 4)

Every machine is identified with a serial number which is stamped on the frame down-tube and on the left hand crankcase cover.

This number appears also in the certificate of conformity and it is the only one valid for all legal purposes for the identification of the machine.

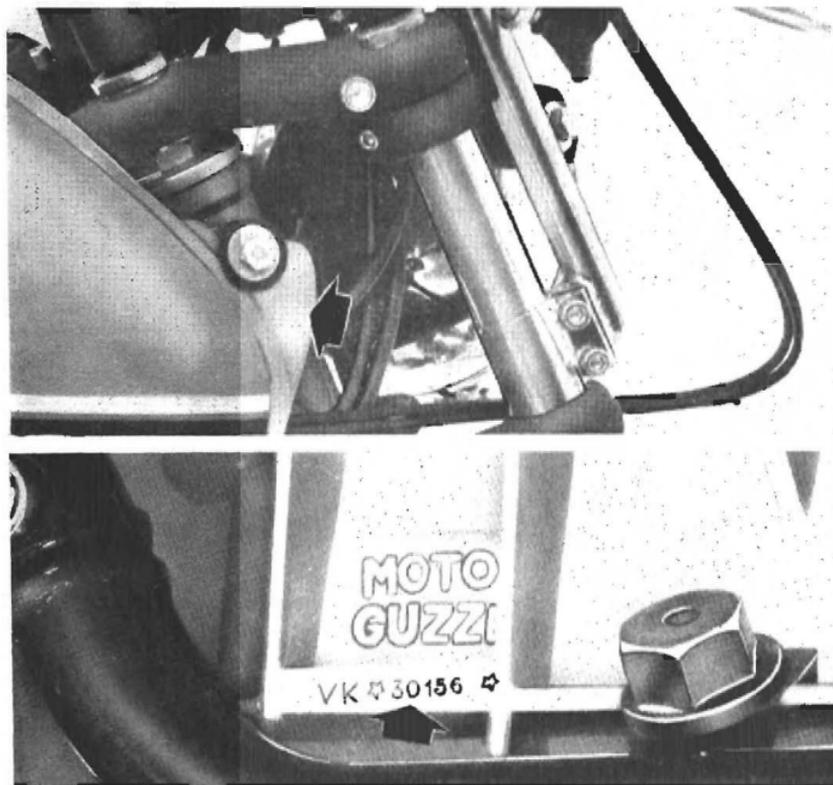


Fig. 4

TOOL KIT

(See fig. 5)

1. - Allen key, 5 hex
2. - Allen key, 6 hex
3. - Allen key, 8 hex
4. - Wrench, ring, 22-24 mm.
5. - Wrench, open ended, 10-11 mm.
6. - Wrench, open ended, 13-14 mm.
7. - Wrench, open ended, 17-19 mm.
8. - Wrench, socket, 7-8-9 mm.
9. - Wrench, socket, 19-21-22 mm.
10. - Wrench, tappet adjusting
11. - Wrench, adjustable
12. - Pliers, universal
13. - Screwdriver
14. - Feeler gauge
15. - Shock absorbers adjusting wrench
16. - Spark plug (275)
17. - Tool bag
18. - Instruction booklet

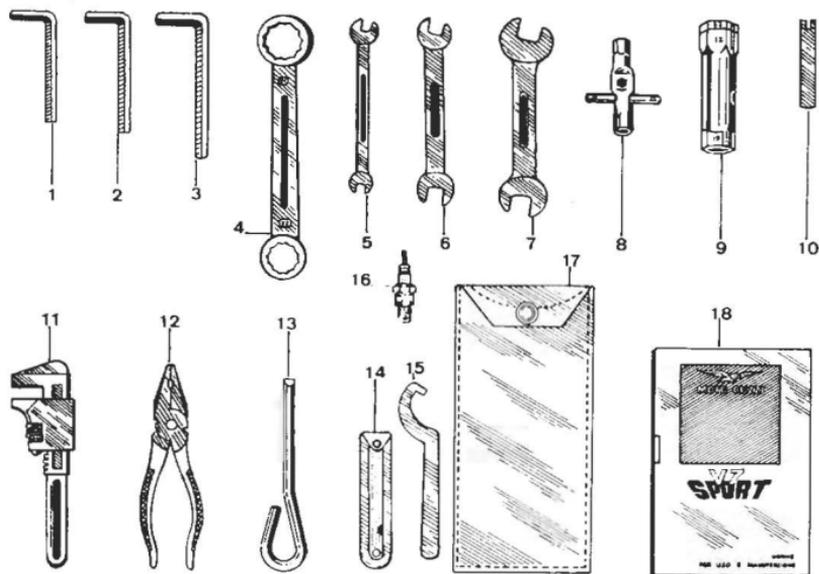


Fig. 5



MOTO GUZZI

Spare parts

In case of replacements, ensure that genuine Moto Guzzi parts are ordered and used. The use of non-genuine parts implies the loss of all warranty claims.

Warranty

All new Moto Guzzi motorcycles are supplied with a guarantee card. The free service coupon entitles the owner to the free service therein indicated to be carried out within the stated period.

Failure to do so implies the loss to warranty claims.

Each motorcycle is guaranteed for a period of 6 months or 10.000 kms. whichever occurs first from the selling date.

MAIN FEATURES

ENGINE	Cycle	: 4-stroke
	Number of cylinders:	2
	Cylinder disposition:	"V" 90°
	Bore	: 82.5 mm.
	Stroke	: 70 mm.
	Displacement	: 748,4 cc. (45.66 cu.in.)
	Compression ratio	: 9.8 to 1
	Revs at maximum engine speed	: 7000 r.p.m.
	Output at maximum engine speed	: 72 HP SAE
	Crankcase	: in light alloy
	Cylinders	: in light alloy with hard chromed barrels
	Cylinder heads	: in light alloy, hemispherical, with special cast iron inserted seats
	Crankshaft	: steel construction
	Crankshaft journals:	in AL-TIN alloy, pressed in suitable housing in the crankcase
	Connecting rods	: steel construction with AL-TIN alloy thin wall bearings
Pistons	: in light alloy	

Valve gear

O.H.V., push rod operated via the camshaft in the crankcase and gear driven by the crankshaft.

Inlet:

- opens 40° before TDC
- closes 70° after BDC



Exhaust:

- opens 63° before BDC
- closes 29° after TDC

Rocker clearance for valve timing:

- 0.6 mm. (.023")

Normal rocker clearance (cold engine)

- inlet 0.25 mm. (.0098")
- exhaust 0.25 mm. (.0098")

Carburation

2 Dell'Orto carburetors type VHB 30 CD (right) and VHB 30 CS (left) both gravity fed from the tank through an electrovalve located under the tank or from a reserve tap on the right in case of an emergency.

Standard carburetor settings

Choke	30 mm.
Throttle slide	40
Atomizer	265
Main jet	142
Idling jet	50
Easy start atomizer	80
Needle jet	V 9 (2nd notch from top)
Float	10 grams

Idling screw open 2 to 2½ turns for the left carburetor. Open 2¼ to 2¾ turns for the right carburetor.

Lubrication

Pressure, by gear pump driven by the crankshaft.

Oil strainer in crankcase.

Normal lubricating pressure 3.8-4.2 kgs/sq.cm. (54-60 lbs/sq.in.) controlled by relief valve.

Electrically controlled oil pressure gauge.

- Cooling** By air. Cylinder and cylinder head deeply finned.
- Ignition** By battery with double contact breaker and automatic advance.
- Initial advance: 13°
 - Automatic advance: 26°
 - Full advance: 39° ± 1°
- Contact breaker gap. 0,37 ÷ 0,43 mm.
(.014 ÷ .017").
- Spark plug**
- MARELLI CW240 L or equivalent;
plugs point gap: 0,6 mm. (.023").
 - MARELLI CW275 L - LODGE 4 HLN Y -
CHAMPION N 3 or equivalent;
plugs point gap: 0,5 mm. (.019").
- 2 ignition coils
- Starting** Electric starter with electromagnetic ratchet control.
Ring gear bolted on flywheel. Operated by starter button or ignition key.
- Exhaust system** Dual exhaust pipes and silencers.
- TRANSMISSION** Twin driven plates, dry type, flywheel driven.
Clutch Controlled by lever on the left handlebar.
- Gear box** Five speeds, frontal engagement. Constant mesh gears. Cush drive incorporated.
Separate box bolted on crankcase, positive operation from the R/H side of the machine.



Engine-gearbox ratio: 1 to 1,235 (17-21).

Internal gear ratios:

- low gear 1 to 2 (14-18)
- 2nd gear 1 to 1.388 (18-25)
- 3rd gear 1 to 1.047 (21-22)
- 4th gear 1 to 0.869 (23-20)
- high gear 1 to 0.750 (24-18)

Secondary drive

By constant speed double joint cardan shaft. Layshaft-bevel gears ratio: 1 to 4,375 (8-35)

Overall gear ratios:

- low gear 1 to 10.806
- 2nd gear 1 to 7.499
- 3rd gear 1 to 5.657
- 4th gear 1 to 4.695
- high gear 1 to 4.052

FRAME

Duplex cradle, tubular structure. Bottom member removable.

Suspension

Telescopic front fork incorporating hydraulic dampers.

Rear swinging fork with externally adjustable springs.

Wheels

WM 2/1.85x18", front
WM 3/2.15x18", rear

Tires

MICHELIN.

Front: 3.25 H 18, ribbed

Rear: 3.50 H 10, studded

Tire pressure:

Front:

solo } 2.00 kgs/sq.cm. = 28.5 lbs. s.i.
with pillion }

Rear:

solo } 2.30 kgs/sq.cm. = 32.7 lbs. s.i.
with pillion } 2.50 kgs/sq.cm. = 35.5 lbs. s.i.

N.B. - The above recommendation is for normal riding (cruising speed). If using the machine at constant high speed or on motorways, the above pressure should be increased by 0.2 kgs/sq.cm. (2.8 p.s.i.).

Brakes

Expanding type.

220 x 25 mm. (8.6 x .98") diameter twin drum front brake with 4 leading shoes, lever operated from the R/H handlebar.

220 x 25 mm. (8.6 x .98") diameter twin leading shoe rear brake foot operated from the L/H side of the machine.

Overall dimensions and weight

Wheelbase	1.470 mts. (57.8")
Length	2.165 mts. (85.2")
Width	0.700 mts. (40.7")
Height (dry)	1.035 mts. (40.7")
Minimum ground clearance	0.150 mts. (5.9")
Curb weight	225 kgs. (495 lbs)

Performances

Gear	Speed	Gradient
Low	76 kms. (47.5 m.p.h.)	88.44%
2nd	110 kms. (68.4 m.p.h.)	46.6 %
3rd	146 kms. (90.7 m.p.h.)	28 %
4th	179 kms. (111.3 m.p.h.)	16.5 %
high	208 kms. (129.2 m.p.h.)	6.8 %

Fuel consumption: 8.58 l. x 100 kms. = 32.8 m.p.g. imp.; 27.3 m.p.g. US)

Fuel and oil capacities

Group or part	Quantity	Recommendation
Fuel tank Reserve	19 lts. (4.17 gl.imp.- 5 gl. USA) 2 lts. (3½ pintsimp. 4.2 pints USA)	Petrol 98/100 NO « RM »
Sump	3.5 lts. (6 pints imp. 7.3 pints USA)	Shell Super 100 multigrade or equi- valent
Gear box	0.750 lts. (1,1/3 pints imp. 1.3/4 pints USA)	Shell Spirax HD 90 or equivalent
Rear drive box (Bevel gears)	0,360 litres (12 oz.)	Shell Spirax HD 90 or equivalent
Front fork dampers (each leg)	0.050 lts. (1.8 oz.)	Shell Tellux 33 or equivalent

INSTRUMENTS AND CONTROLS

Instrument panel
(Fig. 6)

- 1 - Speedometer.
- 2 - Rev-counter.
- 3 - Red warning light indicating insufficient flow of current from generator for battery charge. Should go out when the engine has reached a certain number of revolutions.
- 4 - Orange neutral indicator. When this is lit it means that the gearbox is in proximity of the neutral position between 1st and 2nd gear. It may be well to make sure that no gear is engaged before start-

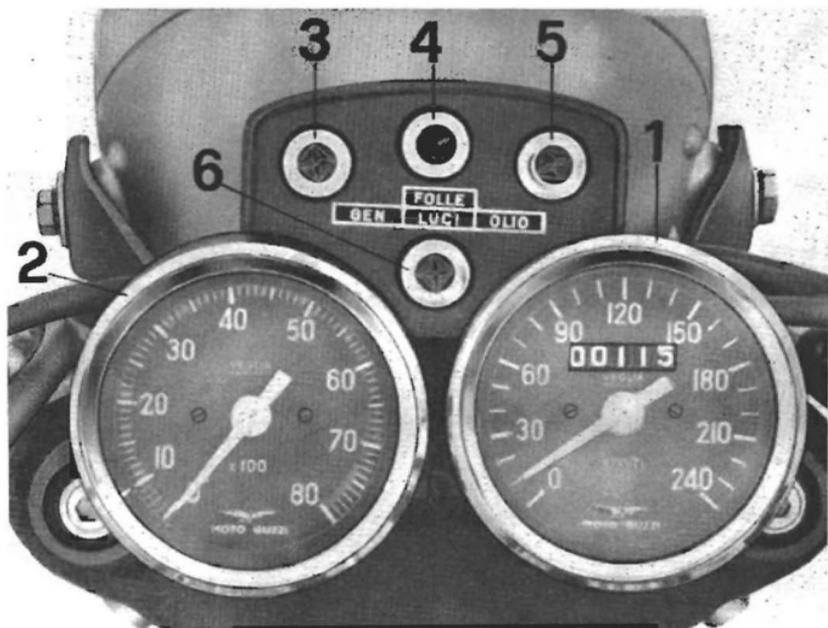


Fig. 6

ing the engine and in any case it is a good practice to start with the clutch pulled.

- 5 - Red warning light. Oil pressure gauge. Will go out when oil pressure for normal engine operation is sufficient.
- 6 - Green light indicating lights are on.

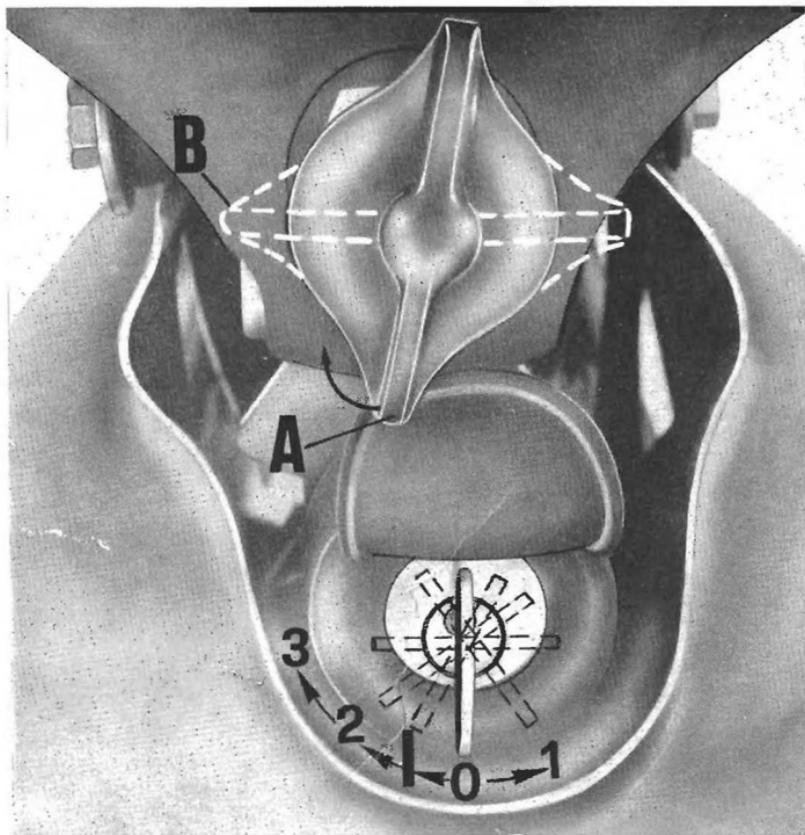


Fig. 7

Ignition key
(Fig. 7)

This key has 5 positions:

- « 0 » machine at standstill, key not removable.
- « 1 » (Key turned anticlockwise): machine at standstill, key removable. Steering locked on removal of key.
- « 1 » **Intermediate** position (key turned clockwise) between position « 0 » and position « 2 »: key removable. In this position the key can be removed without locking the steering.
- « 2 » Running position or machine ready to set out. For daylight driving no other position necessary. For night driving, the left hand handlebar switch must be actuated (Fig. 9).

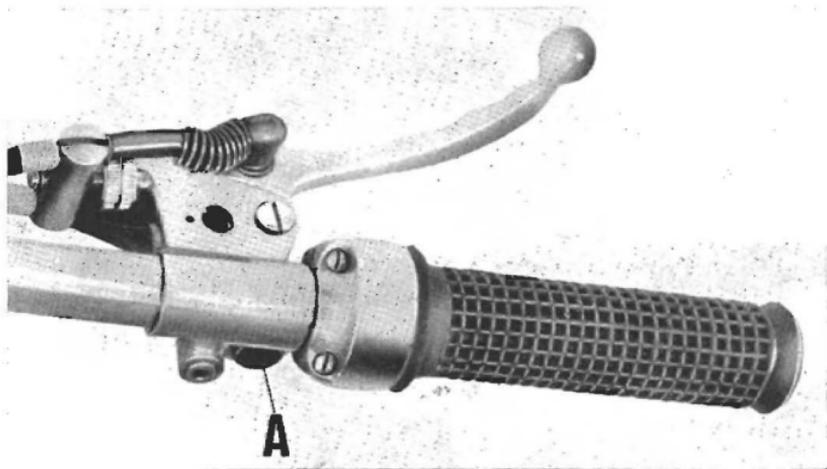


Fig. 8

« 3 » For engine starting only (key turned clockwise. When the engine starts this key returns automatically to position « 2 ».

Starting button
(Fig. 8)

It is located on the right handlebar. With the ignition key in position « 2 » the machine is ready to be started. Push button « A » to start.

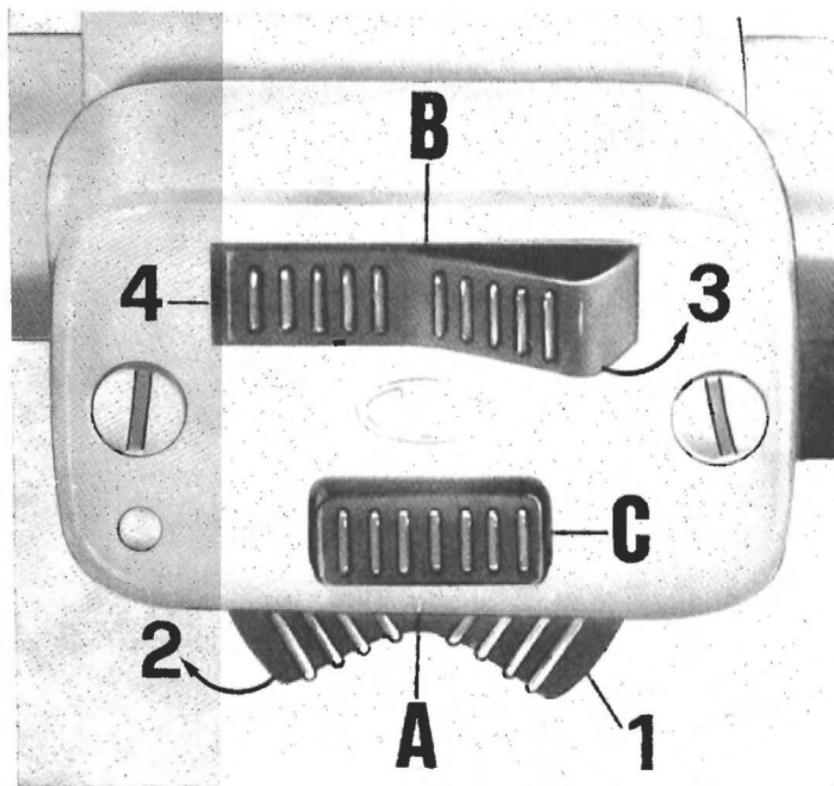


Fig. 9

Dimmer switch and horn button
(Fig. 9)

It is located on the left handlebar.

A) **Light switch**

- position « 1 » = parking light (town driving light)
- position « 2 » = low beam

B) **Dimmer switch**

- position « 3 » = Low beam
- position « 4 » = high beam

C) **Horn button**

Steering damper control knob
(Fig. 7)

It is located on top of the steering column.

- Position « A » = damper not operating.
- Position « B » = damper operating.

Hydraulic steering damper

It is anchored to the steering plate and to the front frame cross member.

Carburetor easy start control
(Fig. 16)

It is located to the left on the left carburetor and to the right on the other carburetor.

- « A » is the starting position
- « B » is the riding position

Clutch lever

It is located on the left handlebar and should be used only for starting and gearshifting.

Twist grip control

It is on the right handlebar. Throttle is opened by turning towards the rider.

Front brake lever

It is on the right hand side of the handlebar.

Gearshift lever

It is on the right hand side of the machine.

Rear brake pedal

It is on the left hand side of the machine.



RIDING INSTRUCTIONS

Engine starting

Before starting the engine ensure that:

- there is sufficient fuel in the tank;
- the oil is at correct level;
- the ignition key is on position «2» (Fig. 7);
- the red warning lights (oil pressure and generator charge), also the orange neutral indicator are lit;
- the easy start lever (cold starts) is in the open position (« A » in fig. 16).

After checking the above, turn the twist grip $\frac{1}{4}$ turn and push the start button on the R/H side of the handlebar or turn the ignition key on the starting position « 3 ».

After the engine has started and before returning the easy start lever to the normal riding position (« B » fig. 16), let the engine idle a short while in the hot and a few minutes in the cold seasons to allow the oil to reach all lubricating points and the cylinders to get warm.

N.B. - Do not forget that the easy starting lever must be returned to the normal riding position. If left open when riding, there will be irregular carburation and increased fuel consumption. In such cases there may also be the possibility of seizures due to too much petrol going into the cylinders.

Caution

Do not forget that starting the engine in gear (orange indicator light off) can be very dangerous unless the clutch is kept fully disengaged as with the firing of the engine the machine itself may start off.

Even at low temperatures, the machine should always start easily if everything is in good order and there is sufficient thrust from the starter motor.

If the engine does not start easily, do not persist in many attempts but check carburation, ignition, battery charge and if the oil in the sump is of correct gradation.

Starting a hot engine

When starting a hot engine there is no need to open the starter lever as this would richen the mixture and make starting difficult. If starting a hot engine gives some difficulty, it is well to open the throttle completely before pushing the starter button or turning the ignition key on the starting position (3 in fig. 7).

Starting the machine (fig. 10)

Pull the clutch completely, engage low gear by upward toe pressure, release the clutch slowly, and at the same time turn the gas on. As soon as the engine has picked up some speed, close the gas, pull the clutch and by downward toe pressure engage 2nd gear (See II, fig. 10). Then release the clutch rapidly (but not with a jerk) and turn on the gas once more. Third, fourth, and high gear are likewise engaged.



On the way

In normal riding conditions, all the tell-tale lights should be off, except the green light when night driving. If anyone of the lights lits up, this means there is some fault in the system or oil pressure is insufficient. In such cases, it is necessary to stop immediately and to trace and cure the trouble. Do not forget that by downward toe pressure you pass to a higher gear and by upward pressure to a lower gear. The free position (neutral) is in between first and second gear. To locate this position it is necessary to first shift to low gear and then by slight toe pressure (half stroke) to feel for the neutral position. Before any gear is engaged, ensure that the clutch is completely disengaged. When changing up it is necessary to fully close the gas but it can only be closed partially when changing down.

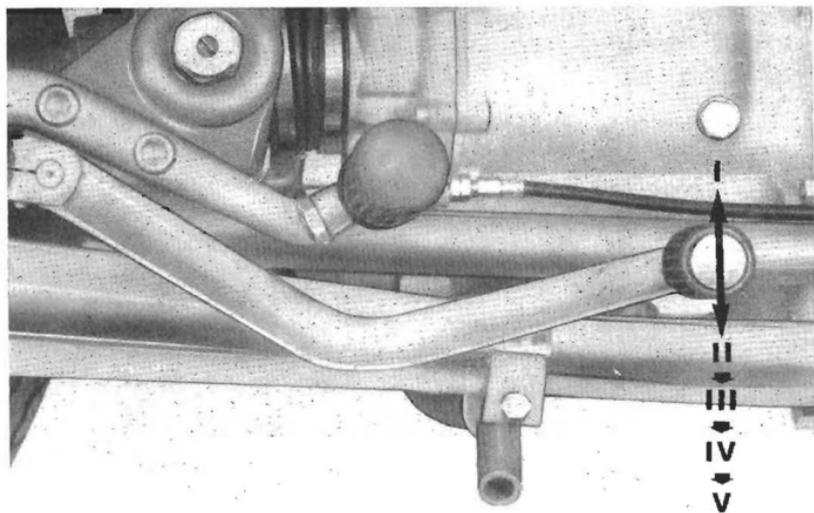


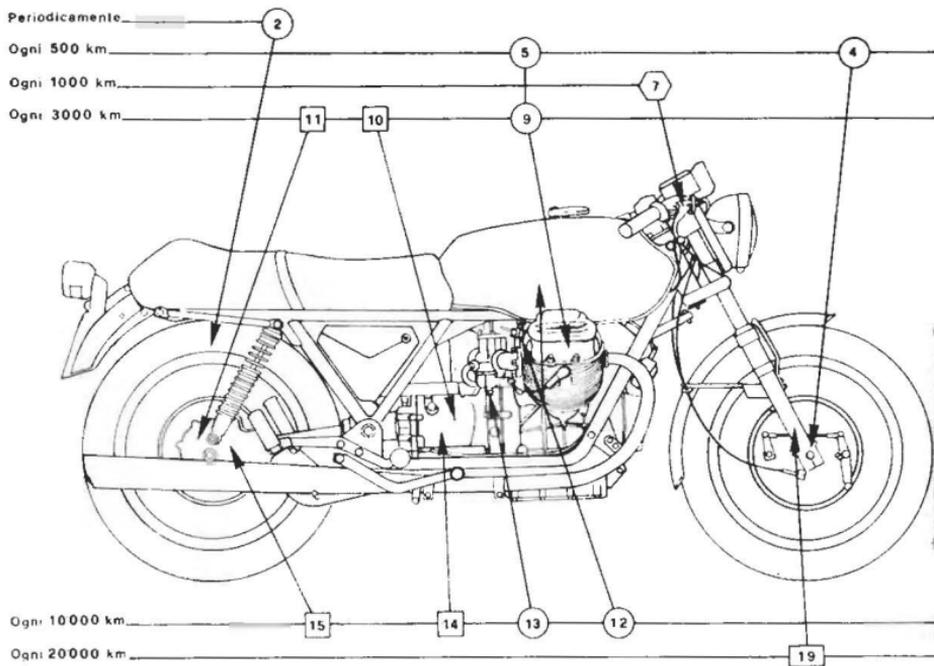
Fig. 10

To obtain fast and effortless gearshifts the pedal should be actuated firmly but gently. The maximum allowed speeds in each gear should never be exceeded, not even on steep downhill grades.

See fig. 10 for the different gear positions. With the machine standing still and the engine running, the gear box should always be kept in neutral. Do not keep the clutch lever depressed, even during the briefest stops. Always change to a higher gear rather than letting the engine race.

Stopping the machine

As soon as the machine stops, close the throttle, shift to neutral, turn the key on position « 1 » and remove it (fig. 7).



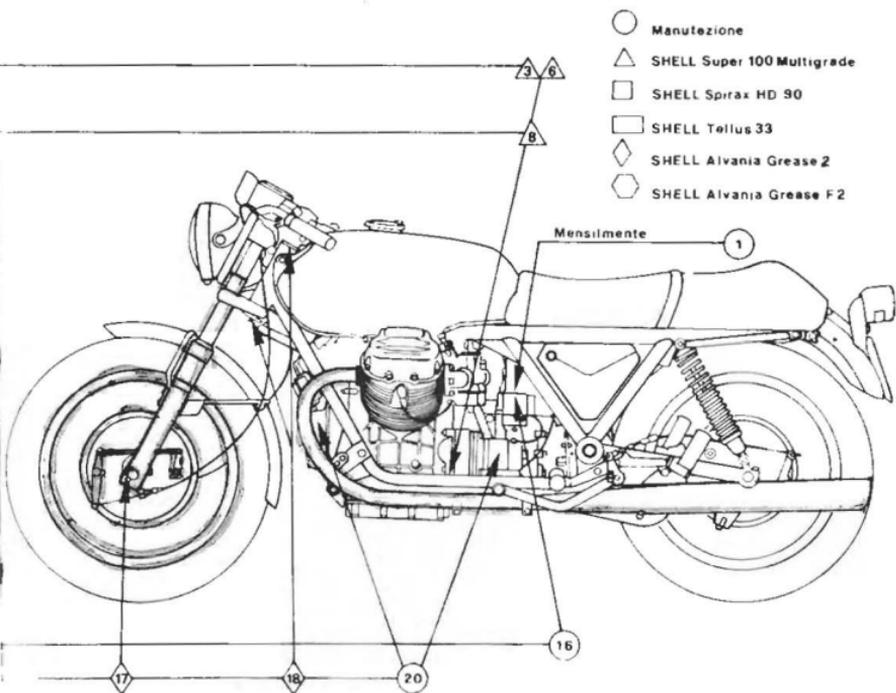


Fig. 11



LUBRICATION AND GENERAL MAINTENANCE CHART

(See fig. 11)

Monthly

- 1) Check electrolyte level in battery. Consult section « Battery » before doing so.

Periodically

- 2) Check tire pressure using a gauge.
Front tire:
 - solo: 2.00 kgs/sq.cm. (28.5 p.s.i.)
 - with pillion: 2.00 kgs/sq.cm. (28.5 p.s.i.).Rear tire:
 - solo: 2.30 kgs/sq.cm. (32.7 p.s.i.);
 - with pillion: 2.50 kgs/sq.cm. (35.5 p.s.i.).

After the first 500 km. (300 miles)

- 3) Replace the crankcase oil. See «Engine lubrication».
- 4) Tighten all nuts and bolts.
- 5) Check and adjust tappet play, if necessary. See « Tappet adjustment ».
- 6) Check and if necessary top up oil level in crankcase. Correct oil level is in between the minimum and maximum marks on the dipstick. See « Engine lubrication ».

Every 1000 kms. (600 miles)

- 7) Lubricate cable ends. See « Lubrication of control cables ».

Every 300 kms. (1800 miles)

- 8) Replace oil in crankcase. See « Engine lubrication ».
- 9) Check tappet clearance. See « Tappet clearance ».

- 10) Check oil level in gear box and top up, if necessary.
- 11) Check oil level in drive box for bevel gears lubrication. If necessary, top up.

**Every
10.000 kms.
(6000 miles)**

- 12) Clean petrol tank, tap and filters, carburetor filters, and fuel line to carburetors. See « Carburation ».
- 13) Strip carburetors and check all parts. Clean out all ducts with an air jet. See « Carburation ».
- 14) Change gear box oil. « Lubrication of gear box ».
- 15) Change rear drive box oil. See « Lubrication of rear drive ».
- 16) Check cleanliness and tightness of all battery connections and smear them with vaseline. See « Battery ».

**After the first
20.000 kms.
(12.000 miles)**

- 17) Check condition of wheel bearings and pack with grease, if necessary. See « Lubrication of wheel bearings ».
- 18) Check condition of steering bearings and pack with grease or replace the bearings if worn.
- 19) Replace oil in the inner fork tubes. See « Lubrication of fork ».
- 20) Clean starter motor commutator using a clean rag slightly moistened with petrol.

SERVICING INSTRUCTIONS

Lubrication of engine (See fig. 12)

Using the oil filler dipstick (A), check the sump level every 500 kms. (300 miles). Correct oil level is in between the minimum and maximum marks. Make this check on a warm engine with the filler cap screwed on one turn.

Every 3000 kms. (1800 miles) change the engine oil (on a new or overhauled machine

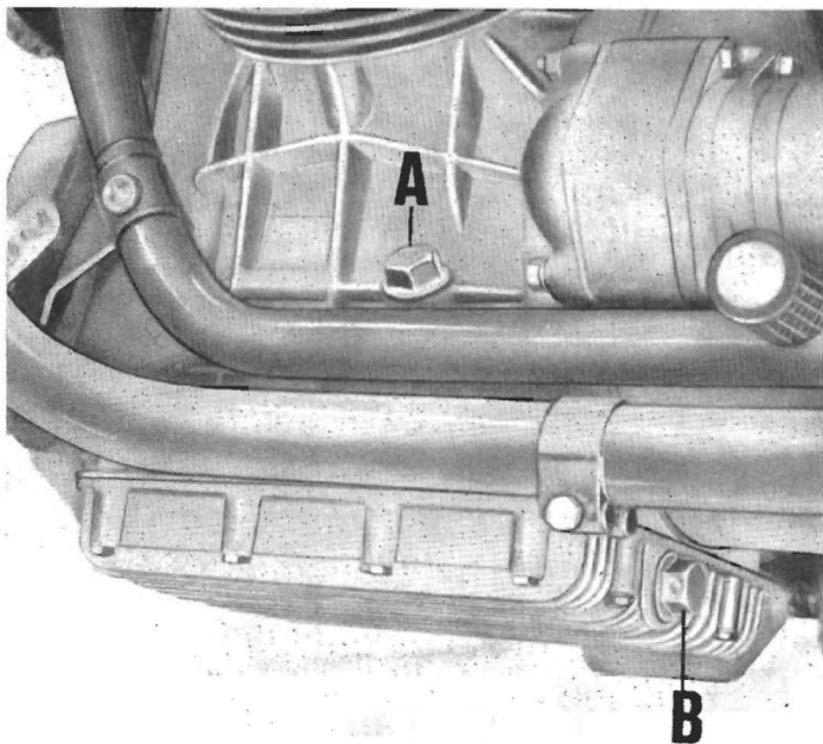


Fig. 12

this change should be made after the first 500 kms. (300 miles). The oil should be replaced when the engine is warm by unscrewing filler cap (A) and drain plug (B). Allow all the old oil to drain, re-fit plug (B) and introduce fresh oil. Quantity required: about 3.5 litres (6 pints imp. - 7 pints USA).

Oil recommendation: Shell Super 100 Multi-grade or an equivalent.

Oil pressure relief valve

Under no circumstances should this valve be tampered with as it has already been calibrated at the factory for a pressure operation of 3.8-4.2 kgs/sq.cm. (54-60 p.s.i.)

Oil pressure gauge

The indicator light goes out when the pressure is sufficient to open the contact of the pressure operated solenoid.

If this light stays lit, then oil pressure is incorrect and in such cases, the engine should be accurately checked in order to determine the cause for the failure and correct it before re-starting.

Lubrication of gear box (See fig. 13)

The oil in this box must be checked every 3000 kms (1800 miles). The level is correct when the oil is flush with inspection hole B. Change the oil every 10.000 kms. (6000 miles). This operation should be carried out a short time after a ride when the oil is still warm and easily drained.

To change the oil proceed as follows: unscrew filler cap A, level plug B, and drain plug C at the bottom of the box. When all the old oil has drained and plug and washer C re-fitted, introduce fresh oil through A until it

starts to leak out from level hole B. Oil quantity required: about 0.750 litres (1 $\frac{3}{4}$ pints USA).

Oil recommendation: Shell Spirax 90 HD or an equivalent.

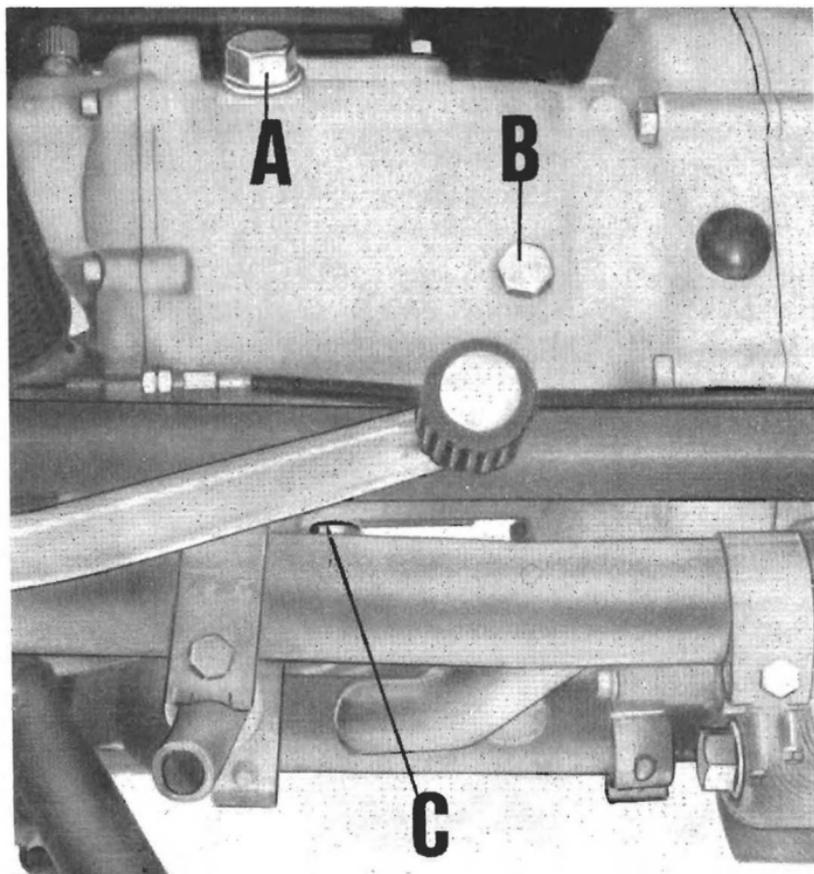


Fig. 13

**Lubrication
of rear
wheel drive**
(See fig. 14)

The oil level of this box should be checked every 3000 kms. (1800 miles). The oil should just skim hole A. Change this oil every 10.000 kms. (6000 miles) and do this operation on a hot engine.

Unscrew filler plug B, level plug A and the screws which retain the bottom cover to the box C.

When the old oil has drained, re-fit the cover and introduce fresh oil until it starts seeping through hole A, finally screwing on plugs A and B.

Quantity required: about 0,360 (12 oz.).

Oil recommendation: Shell Spirax 90 HD or an equivalent.

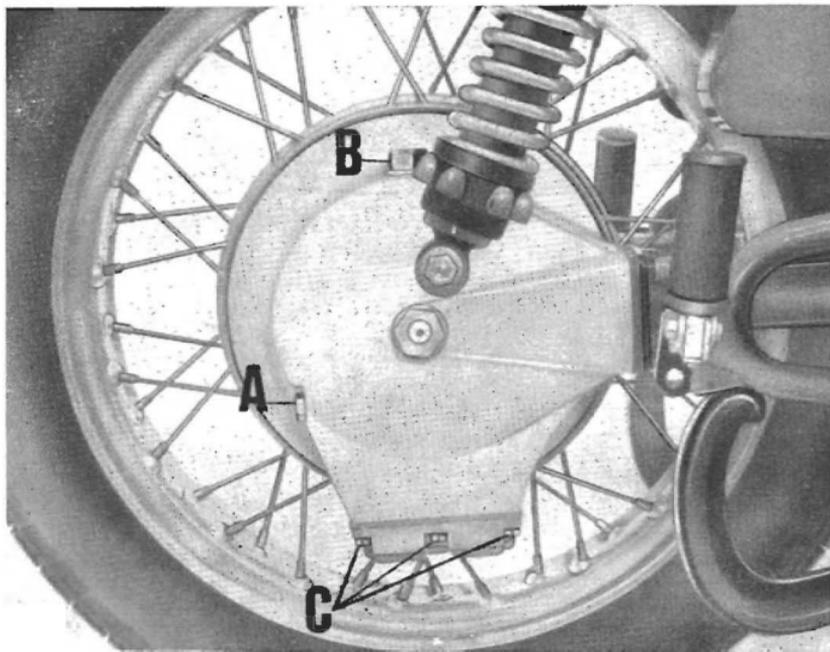


Fig. 14



MOTO GUZZI

Lubrication of front fork and hydraulic dampers

(See fig. 15)

The front fork of this model fits oil tight dampers and accordingly the only purpose of the oil is to lubricate the sliding tubes.

Eventual oil seepages are generally due to too much oil in the forks and these will in no way influence good fork operation.

Every 20.000 kms. (12.000 miles) or earlier, if necessary, change the oil in the fork tubes. This operation is done as follows: remove drain plugs and washer (A) and plugs (B). When the oil has drained and drain plugs A re-fitted, introduce fresh oil through B.

Quantity of oil required for each fork leg: 0.050 litres (1 $\frac{3}{4}$ oz.).

Oil recommendation: Shell Tellux 33 or equivalents.

Lubrication of bevels in the steering

Every 20.000 kms. (12.000 miles) check condition of these bearings and pack them with Shell Alvania grease 2 or an equivalent.

Lubrication of wheel bearings

Every 20.000 kms. (12.000 miles) check the condition of these bearings and if still good pack them with Shell Alvania Grease 2 or an equivalent.

Lubrication of control cables

Every 1000 kms. (600 miles) clean the cable ends and lubricate with Shell Alvania grease F 2 or an equivalent.

Actuate the levers several times to allow some of the grease to enter into the casings.

Lubrication of rear fork bearings

Inspect these bearings every 20.000 kms. (12.000 miles) and if necessary, pack them with grease, using Shell Alvania grease 2 or an equivalent.

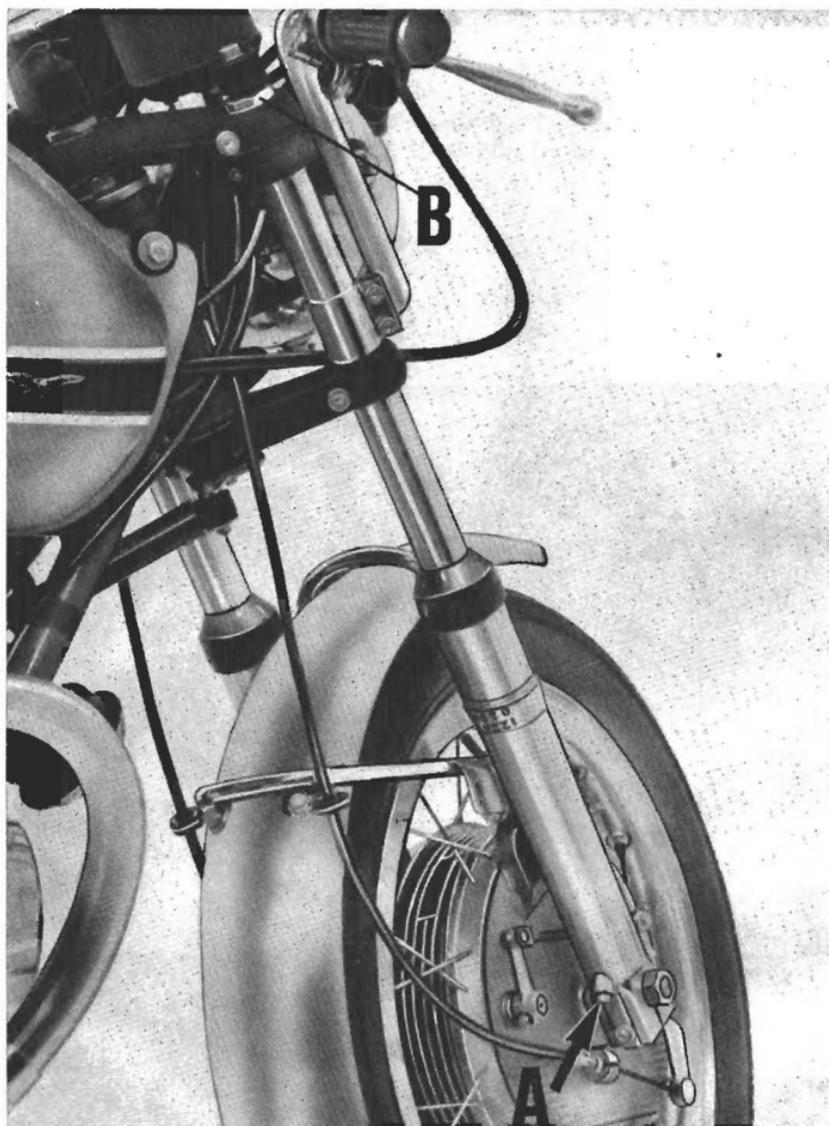


Fig. 15

CARBURATION

CARBURETOR (See fig. 16)

This model is fitted with 2 dual control Dell'Orto carburetors type VHB 30 CD on the right and VHB 30 CS on the left.

The twist grip control lever is on the R/H side of the handlebar and the easy start lever is on each carburetor (See fig. 16).

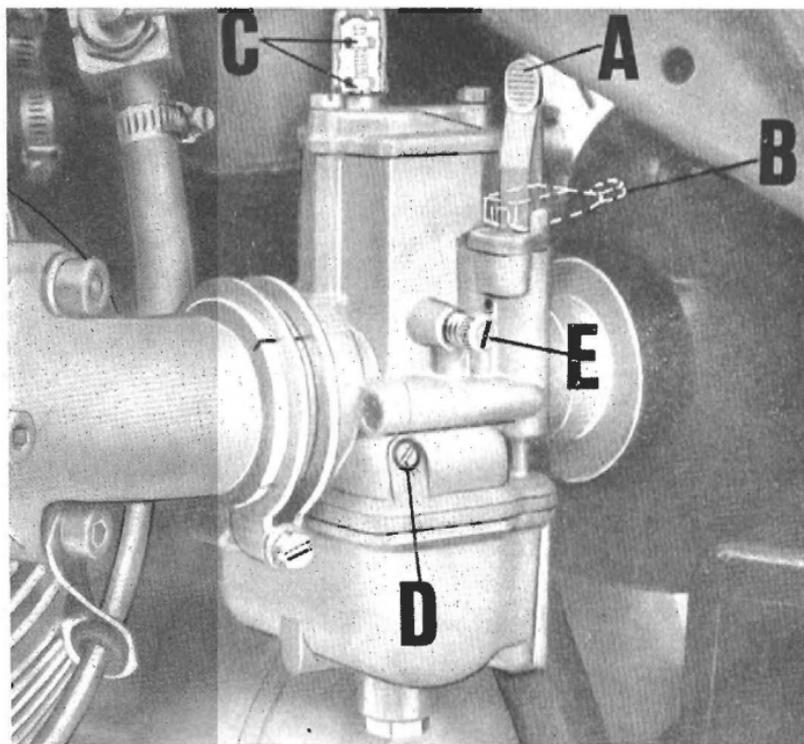


Fig. 16

When starting a cold engine the easy start lever should be raised in vertical position A and returned to the normal riding position B (horizontal) after a few seconds in the hot season and a few minutes in the cold season.

Standard carburetor settings

Choke	30 mm.
Throttle slide	40
Atomizer	265
Main jet	142
Idling jet	50
Easy start atomizer	80
Needle jet	V 9 (2nd notch from top)
Float	10 grams

Idling screw open 2 to 2 $\frac{1}{2}$ turns for the left carburetor and 2 $\frac{1}{4}$ to 2 $\frac{3}{4}$ turns for the right carburetor.

Adjusting the carburation (See fig. 16)

The carburation is adjusted on a hot engine after the inlet and exhaust tappets have been set at correct distance.

Proceed as follows:

- 1) With the filter box and rubber inlet manifold removed, check that both gas valves open at the same time. This is done by turning the throttle grip and at the same time feeling with your fingers on the carburetor slides if these open simultaneously by the same amount. Should one valve open before the other, correct by setting screw C (fig. 16) in the position where by turning the throttle both valves open simultaneously.
- 2) Adjust the idling speed by acting on screw D (fig. 16). Screwing this in reduces the fuel flow and viceversa increases it. To

adjust, tighten the screw and then undo it 2 to 2½ turns for the left cylinder carburetor and 2¼ to 2¾ turns for the right cylinder carburetor. With the engine revolving at about 1000-1200 r.p.m., disconnect the plug lead of any one of the cylinders and lightly turn screw C of the opposite carburetor on to the position which will give the best idling speed, i.e. until the engine revs increase slightly.

The same operation should be repeated on the carburator of the opposite cylinder. This will give a correct idling speed and prevent engine popping.

Engine speed: Due to the constructive characteristics of this engine, the idling speed adjustment should never be made with the engine running at less than 1000-1100 r.p.m.

A good idling speed is obtained as follows:

- 3) Disconnect the R/H cylinder plug lead, start the engine, and ensure that it stops after firing 4-5 strokes. If it dies out earlier or later, it is necessary to adjust idling screw E to the point where the engine will stop after firing 4 or 5 times.

Repeat the same operation on the L/H cylinder with the L/H cylinder plug disconnected.

If the R/H cylinder is normal, the engine should stop after firing 4-5 strokes. If not, screw E should be similarly adjusted to the position where it does so. The L/H cylinder plug is then reconnected.

- 4) Re-connect the rubber inlet manifold.

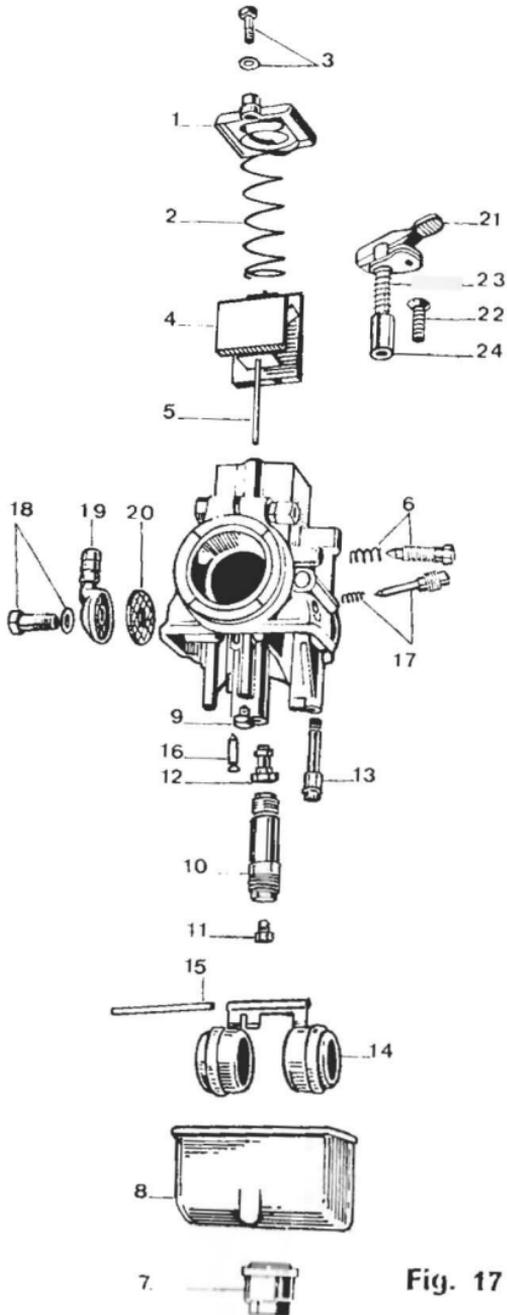


Fig. 17



Stripping of carburetor

(See fig. 17)

Remove:

- Mixture chamber cover (1) complete with cable adjusting nut and spring (2), after loosening screws (3).
- Throttle slide (4) with taper needle (5).
- Throttle slide stop screw and spring (6).
- Plug and washer (7).
- Bowl (8).
- Pilot jet (9).
- Accelerator pump (10) with main jet (11) and atomizer (12).
- Easy start jet (13).
- Float (14) with securing pin (15).
- Needle (16).
- Pilot air screw (17) with spring.
- Adaptor screw (18) with washer.
- Adaptor (19).
- Adaptor filter (20).
- Easy start device plug (21) with screw (22), spring (23) and starter stop valve (24).
- Carburetor body (25).

Air intake

Consists of a rubber connection sleeve to the carburetor inlet.

VALVE GEARING

Tappet clearance (See fig. 18)

Every 3000 kms (1800 miles) or any time valve operation is too noisy, tappet clearance should be checked.

This adjustment is made on a cold engine with the piston at TDC and both valves closed and the piston on its compression stroke.

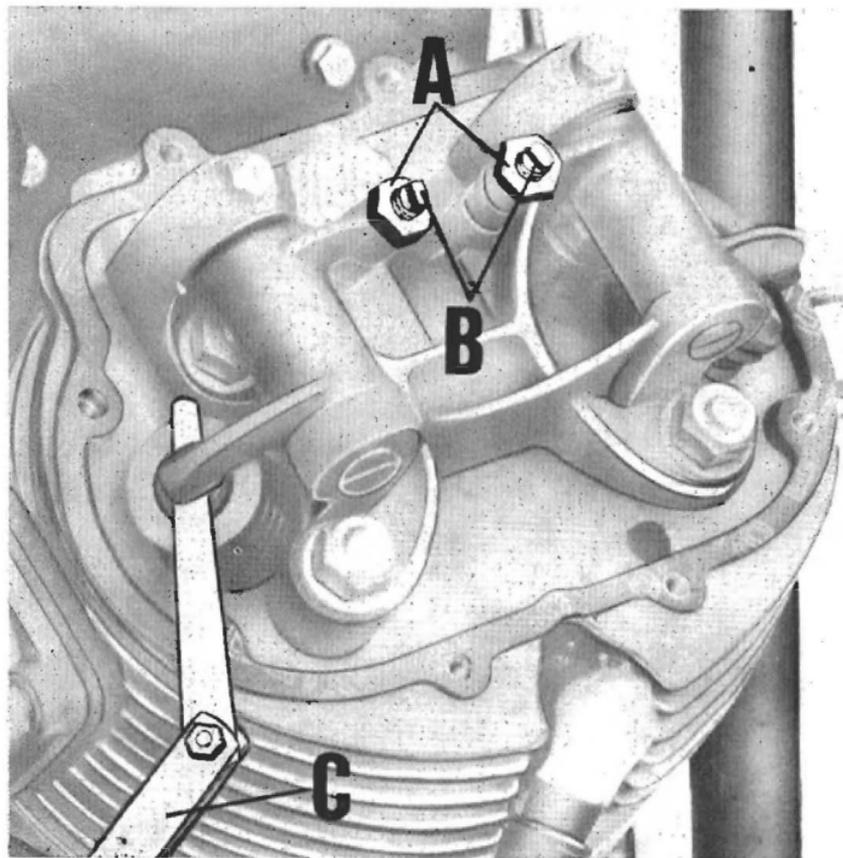


Fig. 18



Using the special wrench supplied in the tool kit, undo nut A and screw in or out screw B.

Corect clearance is:

- inlet valve 0.25 mm. (.0098")
- exhaust valve 0.25 mm. (.0098").

Use a feeler gauge (C) to check this clearance. When this is excessive, there will be noisy valve operation.

If it is less, the valves may not close fully causing compression loss, overheating of the engine etc.

On a new engine, this adjustment must be made after the first 500 kms. (300 miles).

Checking valve timing

A job of this kind is best done by officially appointed Moto Guzzi dealers who have the necessary knowledge and facilities to carry out an efficient work.

IGNITION

**Maintenance,
inspection,
and adjustment
of the double
contact breaker
(Fig. 19)**

Maintenance Lightly lubricate the cam felt pad every 3000 kms (1800 miles).

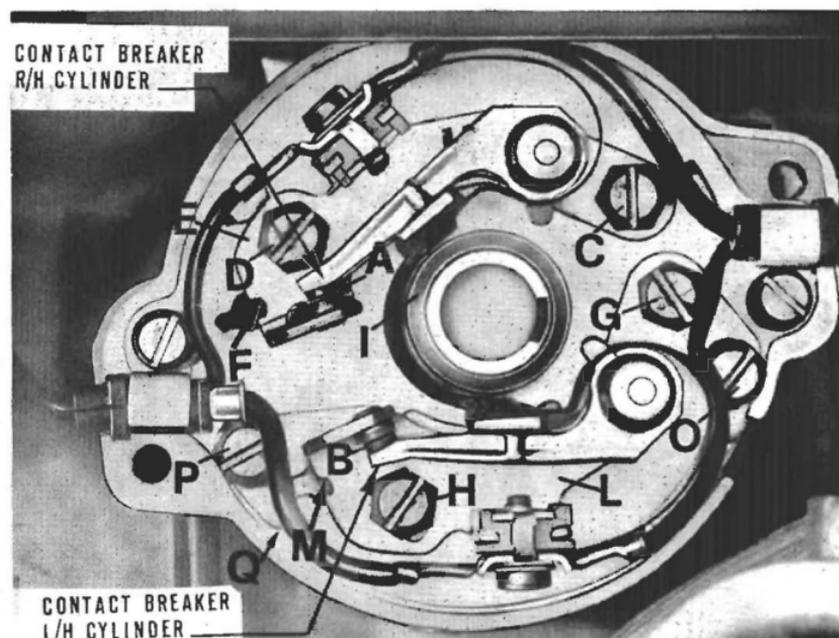


Fig. 19



Inspection

- Remove the contact breaker cover by undoing the securing screws.
- If contacts « A » and « B » are dirty or greasy, clean them with a petrol soaked rag. If in any way damaged, replace them.
- Check points gap of breaker « A » (R/H cylinder - red cable) and breaker « B » (L/H cylinder - green cable) which should be 0.37 - 0.43 mm. (.014 - .017").

If this distance is not correct, the breakers have to be adjusted.

Adjustment of contact points

Contact points « A » - R/H cylinder

- bring cam (1) to maximum lift, slacken screws C and D and acting on notch F move plate E to the position which will give the correct distance, re-locking then screws C and D.

Contact points « B » - L/H cylinder

- bring cam (1) to maximum lift, loosen screws G and H and acting on notch M move plate L to the position which will give the correct distance, re-tightening then screws G and H.

N.B. - When adjusting the contact points ignition timing should be checked as well (See « Checking of ignition timing »).

Checking and adjustment of ignition timing (fixed advance fig. 19 and 20)

- Remove the rubber which seals the control opening on the R/H side of the gear-box.
- To find the exact moment when the points of breakers A and B (fig. 19) start separating it is best to use a suitable timing light device mounted in between the clamp terminal and the ground of the breaker which is being tested.

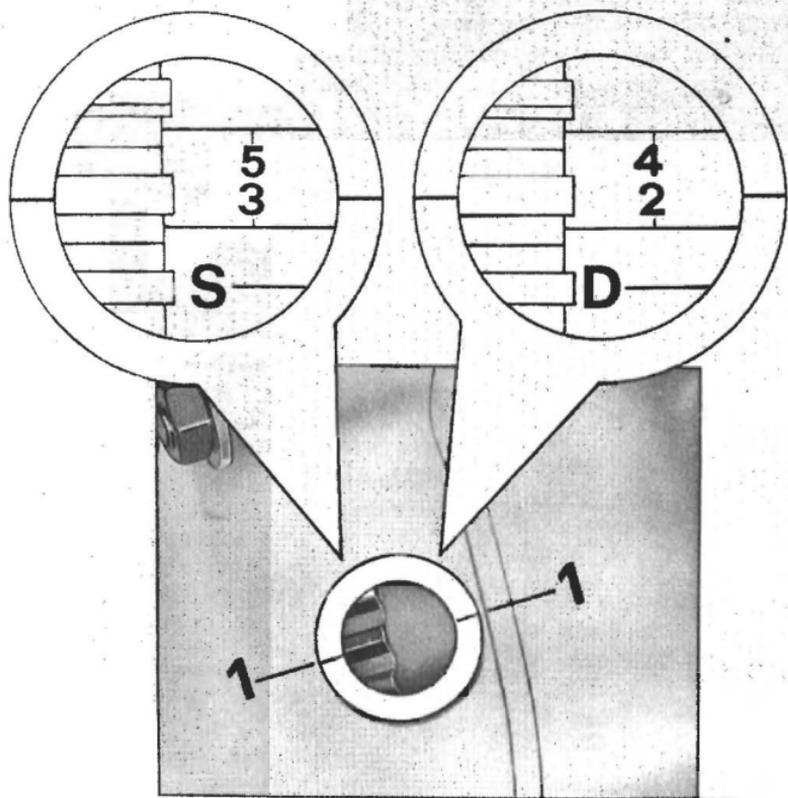


Fig. 20

Timing the R/H cylinder (See fig. 20)

- Rotate the flywheel anticlockwise until the piston is at the end of the compression stroke (both valves closed). In this position, mark « D » on the flywheel (TDC of R/H cylinder) should coincide with mark 1 on the rim of the check hole
- Rotate now the flywheel clockwise to a point about 15 mm (.59") in a forward position to flywheel mark 2 (fig. 20) and then rotate back the flywheel very slowly to bring mark 2 in coincidence with mark 1 on the check hole rim. Purpose of this operation is to recover any backlash of the gears. In this position, fixed advance mark 2 is 13° from TDC (D) and so at the commencement of the points separation (« A » in fig. 19).

Timing of the L/H cylinder (See fig. 20)

- Rotate the flywheel anticlockwise until the piston is at the end of the compression stroke (with both valves closed). In this position, mark « S » on the flywheel (TDC of L/H cylinder) should coincide with the mark (1) on the check hole rim.
- Rotate now the flywheel clockwise to a point 15 mm (.59") in forward position to the flywheel fixed advance mark (3) in fig. 20 and slowly rotate the flywheel backwards on to the position where fixed advance mark 3 is in coincidence with mark 1 on the check hole rim. Scope of this operation is to recover and backlash of the gears. In this position, fixed advance mark 3 is 13° from TDC (mark « S ») and so at the point where the contact points start separating. (« B » in fig. 19).

N.B. - If the points (« A » and « B » in fig. 19) do not start opening in the above positions, the ignition timing needs adjustment.

Adjustment of ignition timing

R/H cylinder (Contact breaker « A » - red cable)

- Set points of contact breaker A at correct distance.
- Loosen contact breaker screws which secure it to the crankcase and move the breaker to the right or left to find the position where the points start opening when mark 2 in fig. 20 (fixed advance mark) on the flywheel coincides with mark 1 on the rim of the check hole, proceeding as described in « Checking and adjustment of « ignition timing ».
- Finally, re-tighten the contact breaker securing screws.

L/H cylinder (contact breaker « B » - green cable)

- Set contact points of breaker « B » as described in « Maintenance, inspection, and adjustment of the double contact breaker.
- Proceeding as described in « Checking and adjusting ignition timing for the left hand cylinder (contact breaker « B » fig. 19) set flywheel mark 3 in fig. 20 in coincidence with mark 1.
- Loosen arrow « O » and « P » (Fig. 19) which secure the contact breaker plate « B » and by acting on notch « Q » move the plate to the position where the points of breaker « B » start opening.
- Finally tighten screw « O » and « P ».

Checking the ignition advance (fixed and automatic) by means of a stroboscope lamp

(See fig. 20 and diagram 21)

Marks « D » and « S » are impressed on the flywheel on which are also traced the marks shown in fig. 20 (3-4-5-6).

Ignition timing is determined when the above marks are in coincidence with mark « 1 » on the rim of the gearbox check hole.

The reference marks on the flywheel can be defined as follows:

- Mark « D » = TDC of R/H cylinder.
- Mark « S » = TDC of L/H cylinder.

- Mark « 2 » = fixed advance position of the R/H cylinder (13° to mark « D »).
- Mark « 3 » = fixed advance position of the L/H cylinder (13° to mark « S »).
- Mark « 4 » = total advance (fixed plus automatic) of the R/H cylinder (39° to mark « D »).
- Mark « 5 » = total advance (fixed plus automatic) of the L/H cylinder (39° to mark « S »).

With the engine assembled on the machine, this control is made as follows:

- Remove the rubber seal on the gearbox check hole.
- Connect the timing device cable to the R/H cylinder plug (as seen sitting in the saddle).
- Connect the 2 stroboscope cables with clamps to a battery. Ensure that clamp (+) is connected to battery pole (+) and the other to pole (—).

After these connection to the plug and battery have been made, start the engine and direct the stroboscope beam on marks « 1 » traced on the rim of the gearbox check hole and check ignition advance of the R/H cylinder.

Ignition advance of the L/H cylinder is similarly checked except that the stroboscope cable is connected to the L/H cylinder plug. Ensure that mark « 1 » corresponds with marks « 2 » and « 4 » for the R/H cylinder and « 3 » and « 5 » for the L/H cylinder on the flywheel at the following engine speeds:

- Marks « 2 and 3 » at 1500 r.p.m. (± 100).
- Mark « 4 and 5 » at 4400 r.p.m. (± 100).

If this check shows that mark « 1 » is in correspondence with the flywheel marks 2-3-4-5 at the above engine speeds, then the ignition advance (fixed + automatic) of the right and left cylinders is quite correct.

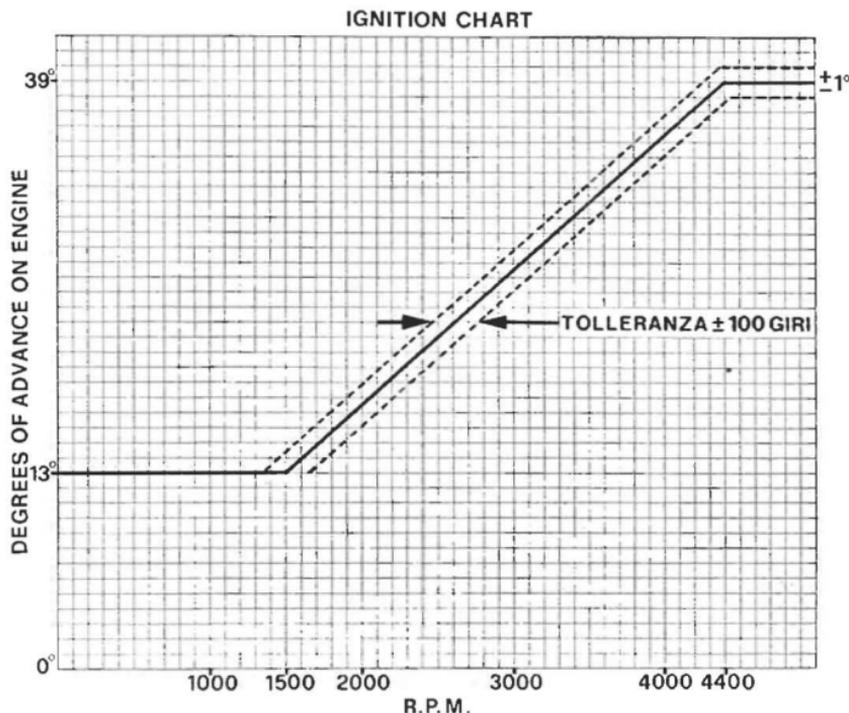


Fig. 21

**Connection
of the contact
breaker cables
to ignition
coils**

Do not forget that red cable (C) of the R/H cylinder breaker has to be connected to coil A in fig. 22 and that the green cable (D) for the L/H cylinder breaker has to be connected to coil B in fig. 22.

Spark plugs

This model fits spark plugs n. 240 (points gap 0.6 mm. = .023") and the tool kit includes 2 further plugs n. 275 (points gap 0.5 mm. = .019").

The 240 thermal degree plugs are recommended for normal use.

The 275 thermal degree plugs are recommended for continued use of the motorcycle at high speed.

The spark plugs are best cleaned with petrol and a wire brush, using a needle for the inner part.

In re-fitting the plugs ensure they are properly started by hand for a few turns, completing the operation by means of the plug wrench in the tool kit. If not properly started the cylinder head thread may get stripped. If overtightened the thread may get strained. For all events, the plugs should be replaced every 10.000 kms. (6000 miles) even if they still appear to be in good condition.

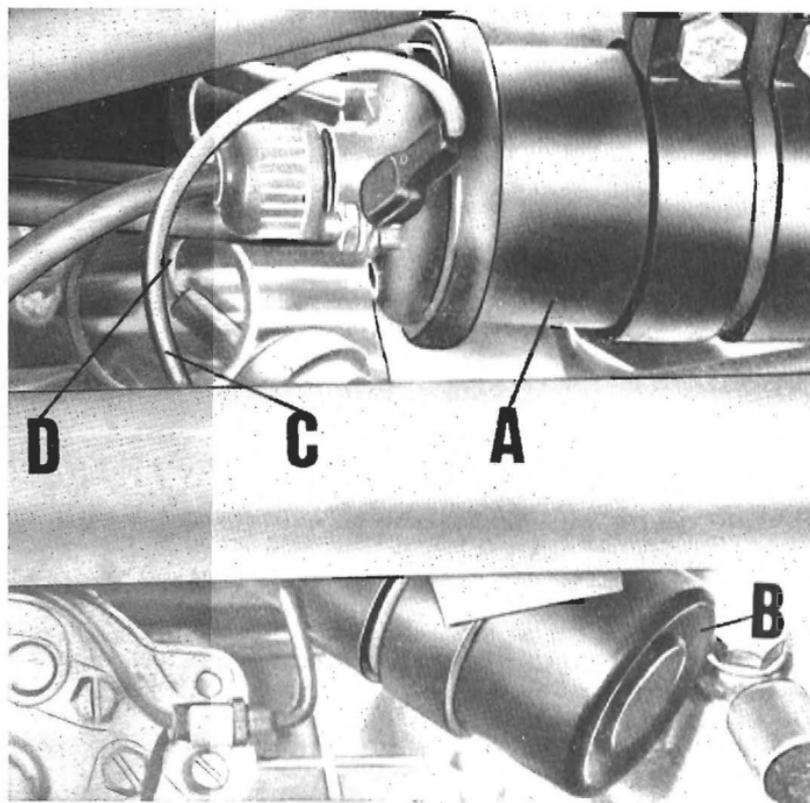


Fig. 22

CLEANING OPERATIONS

Filters and fuel lines

Every 10.000 kms. or so (6000 miles) or any time fuel flow to the carburetors is not regular, it is necessary to check the filter on the tap, on the electrovalve and on the carburetors.

If the filters are obstructed, clean them in petrol and dry off with compressed air. The fuel lines should likewise be blown through.

Fuel tank

When overhauling the carburetors, it is well to clean out the fuel tank as well.

The tank is best cleaned detached from the machine. Pour some petrol in it and shake vigorously. Then drain it from the filler cap opening to carry away any sludge or scaling which may have deposited at the bottom of the tank.

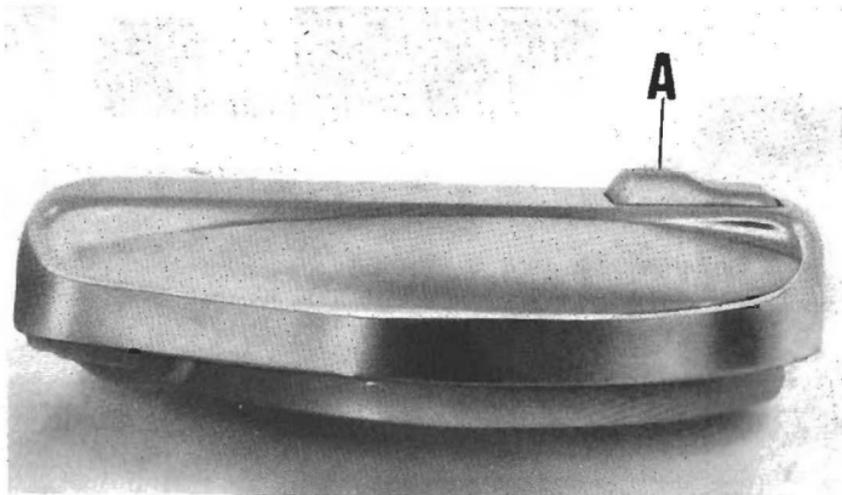


Fig. 23

Filler cap
(See fig. 23)

This is opened by pressing button « A ».

Fuel tap
(Fig. 24)

It is located at the R/H side under the fuel tank.

It is only used as a reserve or in an emergency in case of failure of the electrovalve fitted under the tank on the L/H side.

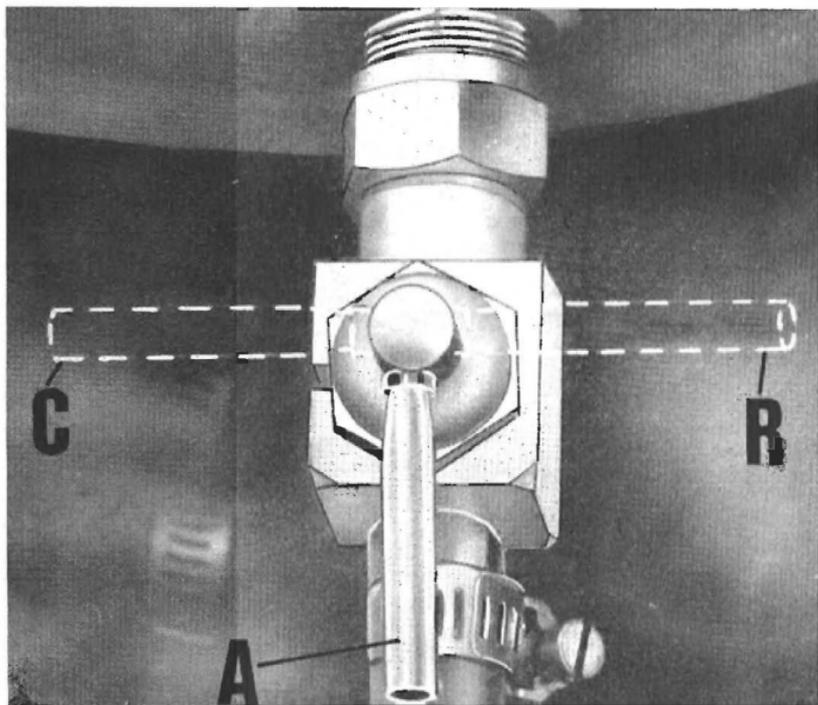


Fig. 24

The tap has 3 positions:

A - open (vertical).

R - reserve (horizontal, towards front wheel).

C - closed (horizontal, towards, rear wheel).

This tap should be kept closed and opened only in case of an emergency when no more petrol is fed by the electrovalve.

Oil breather unit

If the motorcycle is left unused for any considerable length of time there is the possibility that foreign matter eventually present in the oil may deposit on the diaphragm inside the breather causing this to get stuck and consequent oil leakages.

Under the circumstances, we recommend to inspect this unit before using the machine again.

Ensure that the valve inside the breather can move freely and this can easily be done by introducing a rod in the central tube of the breather.

If the valve is stuck, free it with the rod and wash the tube out first with petrol and then with an oil-petrol mixture. Finally, dry with compressed air to prevent the valve from oxidizing and sticking again to the tube end from the engine.

Cylinder heads, Pistons and Valves

Every 10.000 kms. (6000 miles) the cylinder head should be removed for decarbonizing. The combustion chamber and piston top are

best cleaned using a blunt scraper and a wire brush and washed off with petrol.

Check that the valve seats are properly sealed by pouring some petrol through the inlet and exhaust ducts and observing if any seeps through between seats and valves.

If so, the valves should be dismantled and the seats ground in with emery paste.

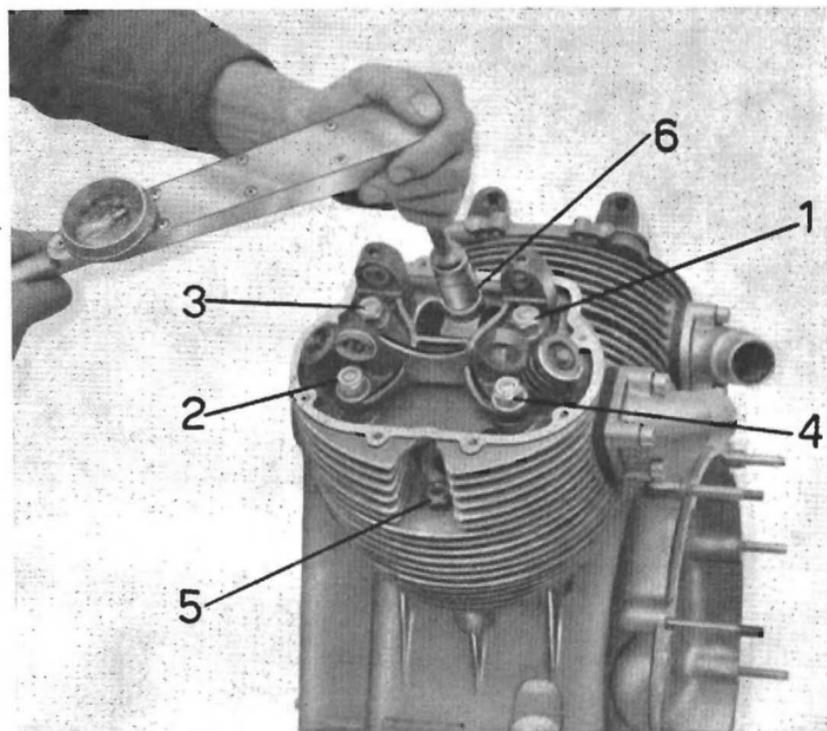


Fig. 25

At the end of this operation the head and valves should be thoroughly cleaned with petrol and compressed air to remove all traces of the abrasive.

When re-assembling the heads, the nuts and hold-down studs should be tightened in a crossed sequence using a torque wrench set at $4 \div 4,5$ Kg/m. ($29 \div 32$ ft. lbs.).
(See 1-2-3-4-5-6 in fig. 25).

Silencers

Clean these internally by filling them with a solution of boiling water and caustic soda and leaving them to stay for about 1 hour. The silencers are then emptied and rinsed out again with boiling water while shaking vigorously.

ADJUSTMENTS

Clutch lever (Fig. 26)

This lever should be adjusted when the free play at the handlebar is more or less than 4 mm. ($1/8''$). Slacken thumb screw A and screw in or out adjuster B to obtain the

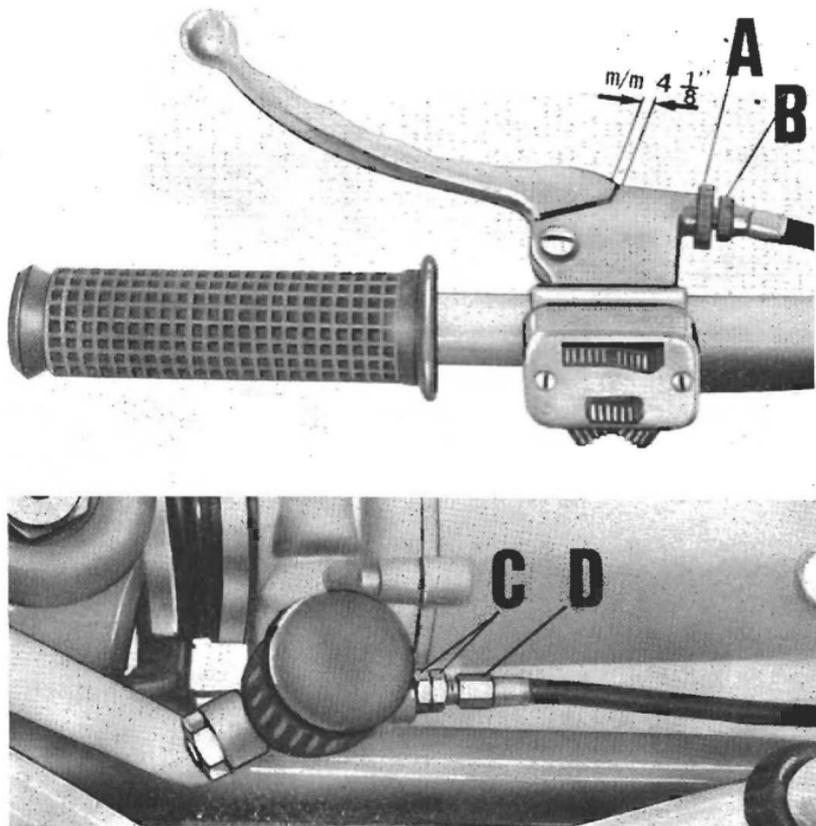


Fig. 26

correct distance. Don't forget to relock thumb screw A.

if the distance is less, the clutch may slip causing the plates to wear out. If it is more, there may be incomplete disengagement of the clutch and consequent noisy gearshifting. This adjustment can also be carried out by slackening nuts C and acting on adjuster D in fig. 26.

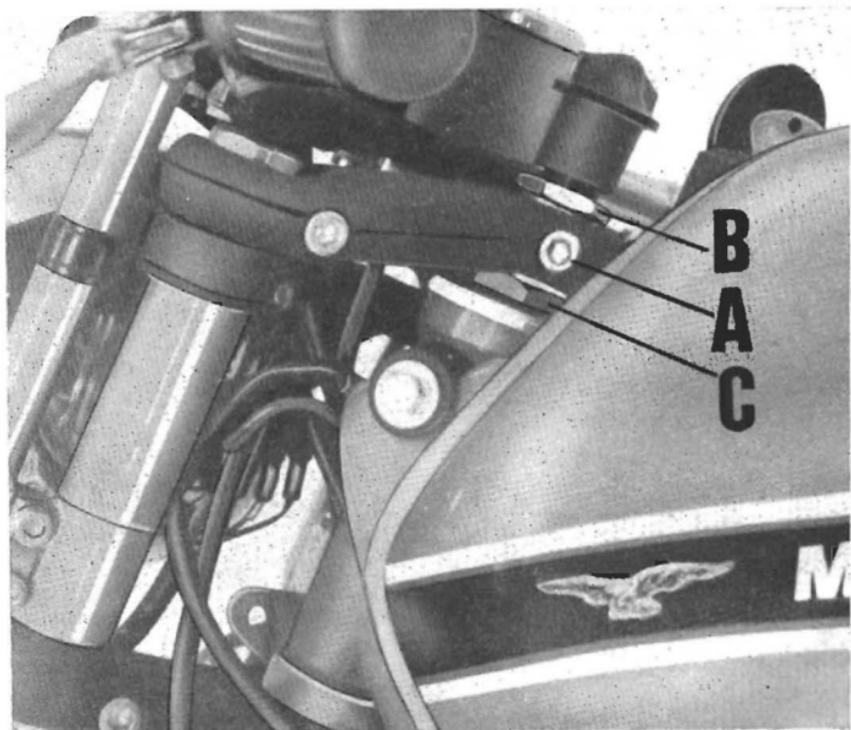


Fig. 27



Steering (Fig. 27)

A loose steering is remedied as follows:

Slacken the steering head fixing bolt (A) and nut B. Screw in or out adjusting nut C just sufficiently to take up excessive play. When this adjustment has been made, lock nut B and the steering head retaining screw. Do not forget that loose steering may cause movements which are harmful to the taper bearings and cause them to wear out rapidly.

Front brake lever (Fig. 28)

Play at the handlebar lever should be checked periodically. The lever is adjusted when there is about 20-25 mm. ($\frac{3}{4}$ to 1") play at the handlebar before the linings contact the drums.

Excessive play is corrected by acting on thumb screw A and adjuster B.

In order to ensure that all 4 shoes contact the drums simultaneously proceed as follows:

- Disconnect the control cable from the operating lever on the R/H drum brake block;
- Loosen locknut C on the L/H brake block and act on adjuster D until the play at the lever end is 20-25 mm. ($\frac{3}{4}$ to 1") as above specified;
- Connect the cable to the operating lever on the R/H drum brake block;
- Pull the handlebar lever completely and after loosening locknut C, act on adjuster D on the brake block of the R/H drum until the linings contact the drums.

After making this adjustment, ensure by thumb pressure on the operating levers that these start operating at the same time when pulling the handlebar lever.

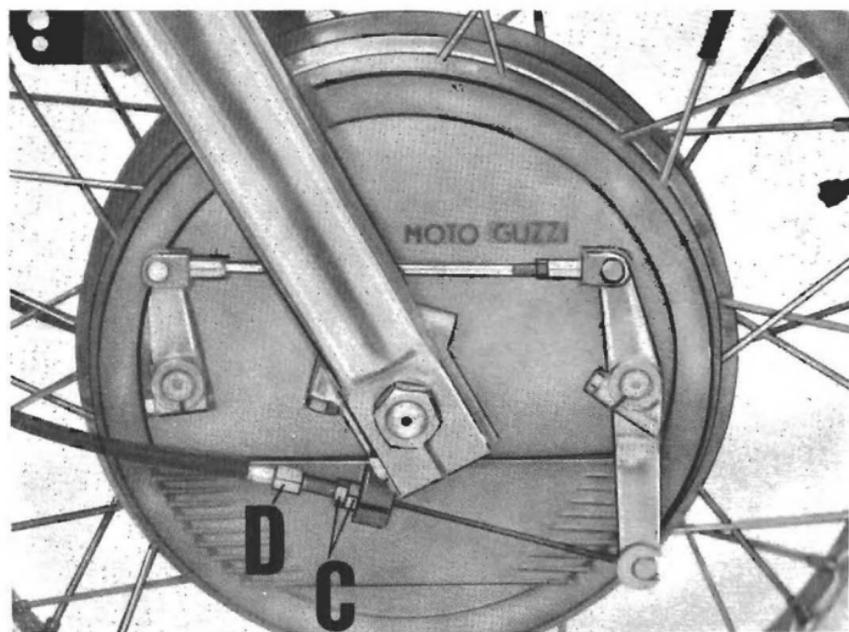
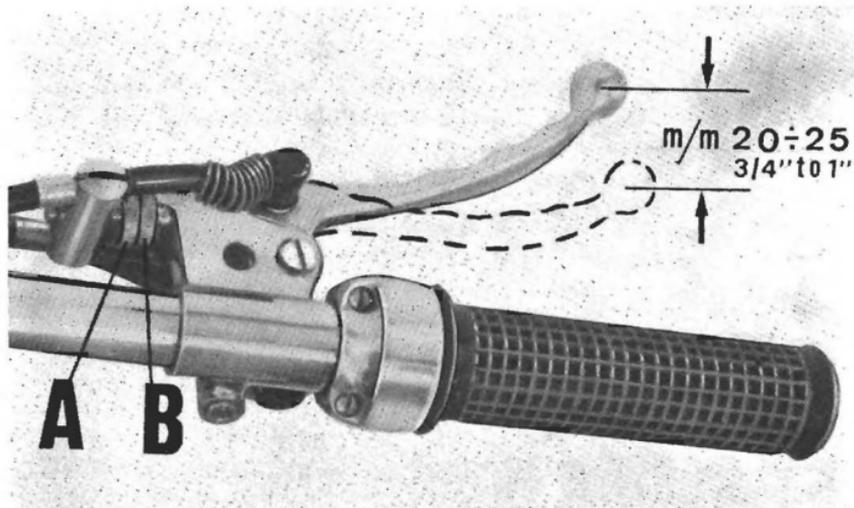


Fig. 28

Rear brake pedal pedal (Fig. 29)

Play at the operating lever end « C » should be checked periodically. The lever is correctly adjusted when there is 20-25 mm. (3/4 to 1") play before the linings contact the drum.

Excessive play is corrected by slackening locknuts B and acting on adjuster A.

Pedal position can be adjusted to suit any individual rider through locknut E and tensioner D.

After adjustment, tighten locknut E on forked bracket keeping a fast hold on tensioner D.

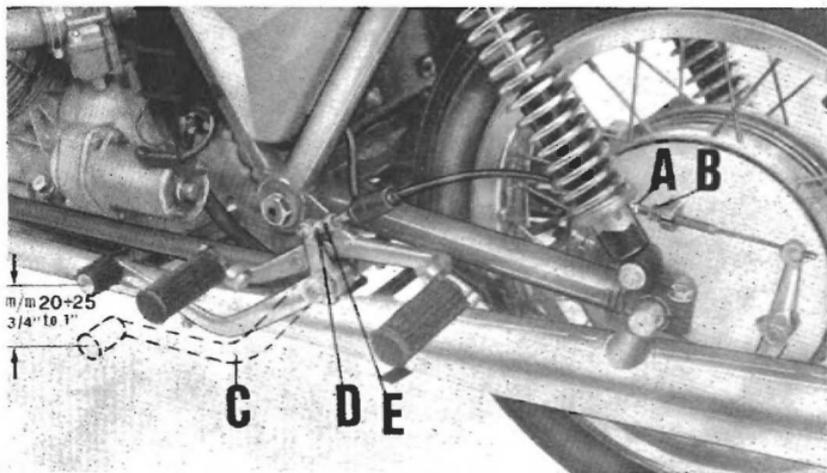


Fig. 29

**Rear
suspension
unit**
(Fig. 30)

In addition to the normal riding position, the external springs can be adjusted on 2 other positions using special tool (A) to turn the sleeve in the direction of the arrow to compress and viceversa to slacken.

In case of faulty damper operation, it is best to have these checked by a Moto Guzzi dealer or in a specialised shop.

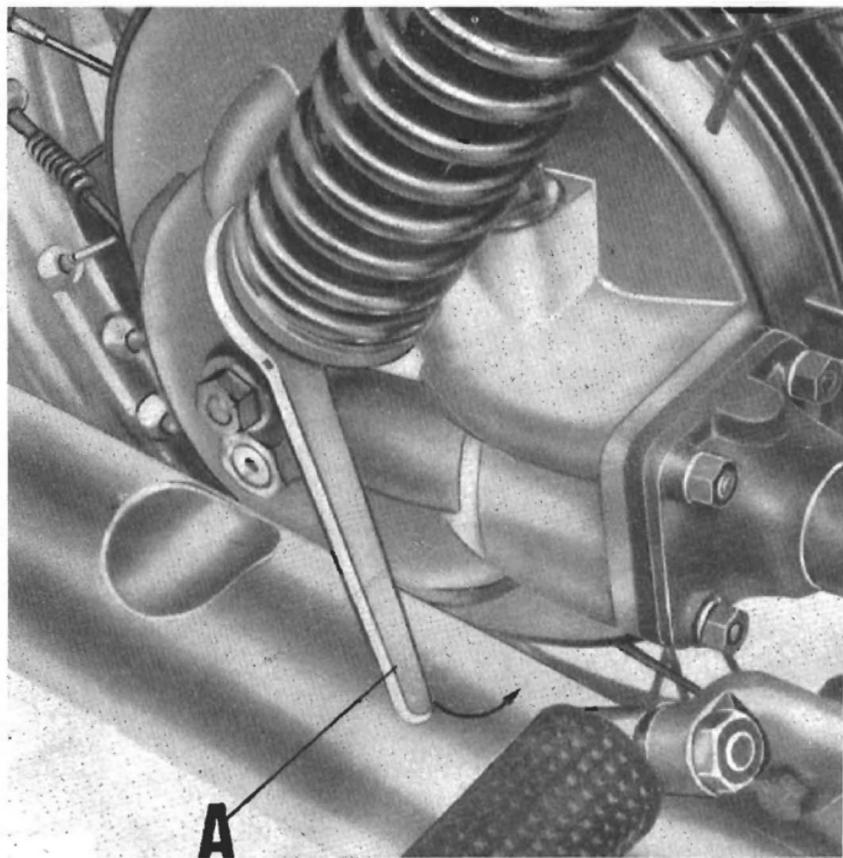


Fig. 30

**Checking the
gear operating
mechanism**
(Fig. 31)

In case of noisy gearshift, the operating quadrant which drives the selector drum should be checked and adjusted.

This operation is done by loosening locknut B and screwing in or out eccentric B to find the position where by changing up and down it is felt that all gears engage smoothly and the free position is easily selected.

Locknut B is then re-tightened keeping a fast hold on screw A.

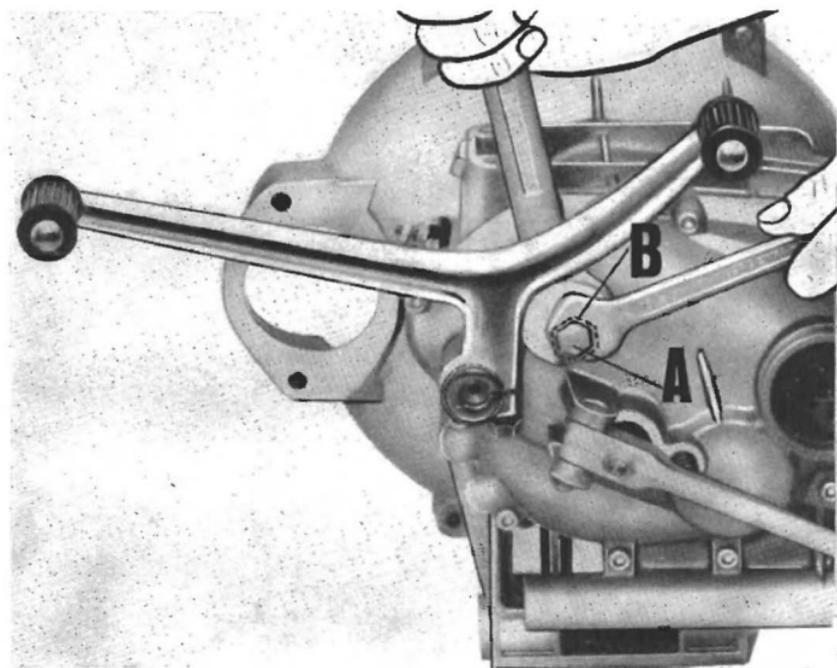


Fig. 31

REMOVAL OF WHEELS

Front wheel (Fig. 32)

The front wheel is removed as follows:

- Disconnect the brake cable from its brake block levers.
- Loosen locknuts C and unscrew tensioners D from the brake blocks.
- Unscrew the wheel spindle nut (A) at the R/H side of the machine.
- Slacken the screws which secure the bottom fork cover to the wheel spindle (B) and slide out the wheel spindle.
- Push the wheel downwards until it can be freed from the anchoring lugs welded on the bottom fork members.
- Slip the wheel out from the bottom fork members (E).

N.B. - When re-assembling don't forget to insert the brake blocks in the anchoring lugs on the fork.

Removal of rear wheel (Fig. 33)

Proceed as follows:

- Disconnect the cable from the operating lever on the block.
- Slacken the locknut and unscrew tensioner E from the brake block.
- Unscrew nut B which secures the wheel spindle to the drive box.
- Unscrew nut A which secures the anchoring brace to the brake block.
- Unscrew nut C which secures the swinging arm to the wheel spindle and withdraw the latter from the hub.

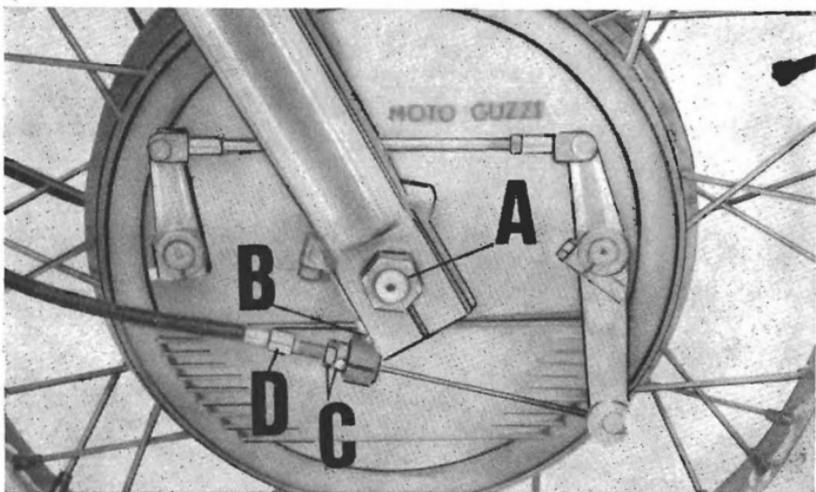
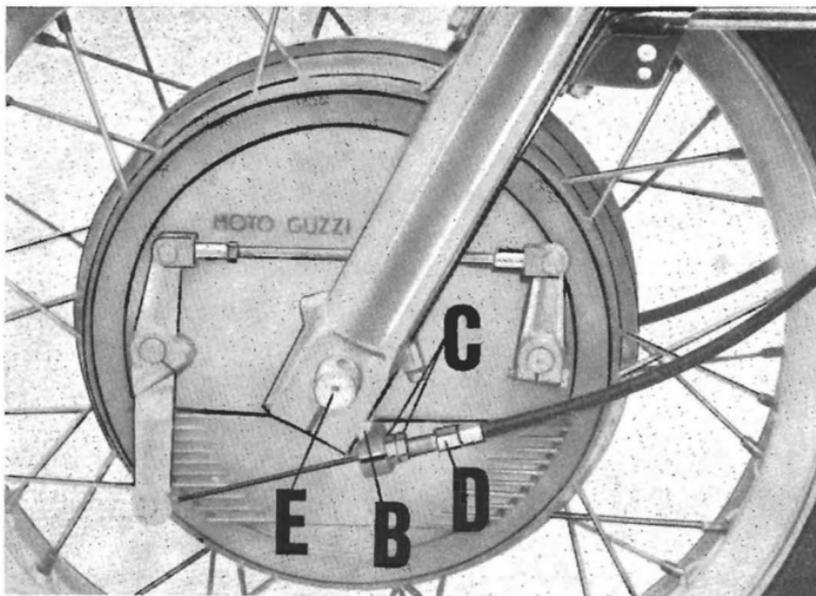


Fig. 32

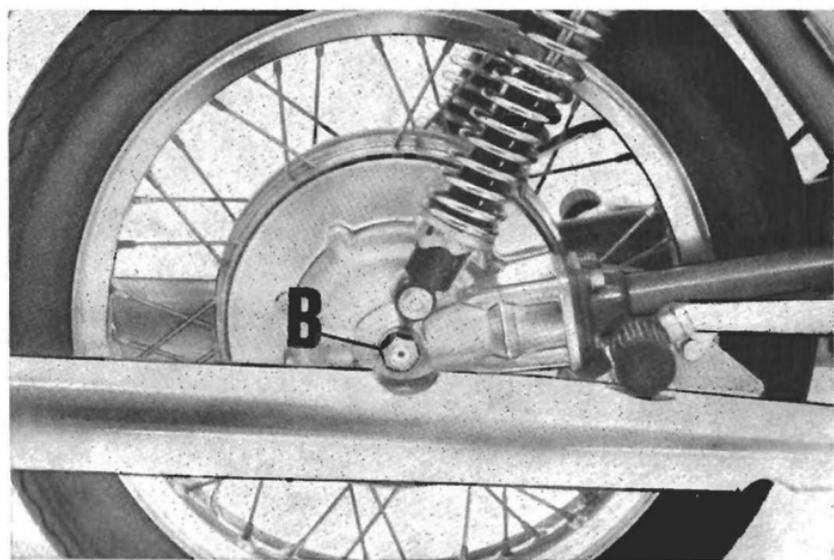
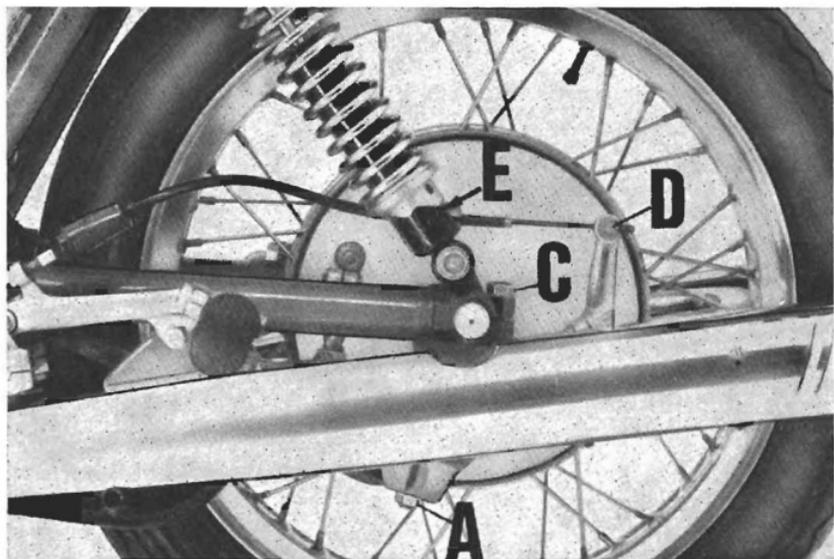


Fig. 33

- Loosen both knobs (A in fig. 34) and lift up the rear mudguard end.
- Shift the wheel to the left to free the driving gear from the sleeve in the drive box.
- Remove the wheel.

N.B. - When re-assembling ensure that the anchoring brace is secured to the brake block.

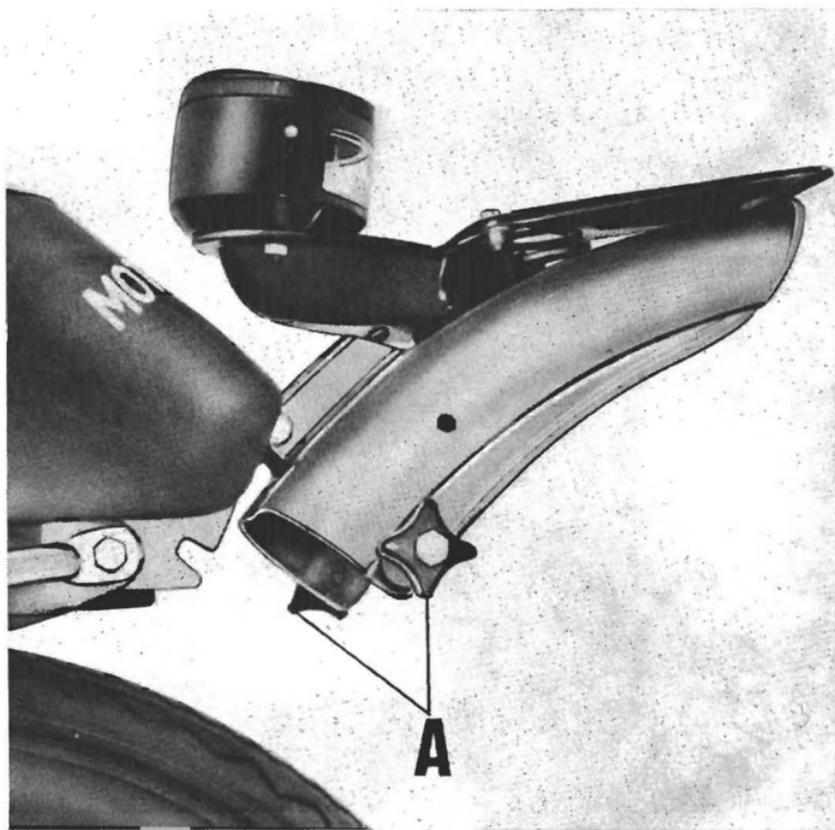


Fig. 34

ELECTRICAL EQUIPMENT

(See diagram fig. 35)

Battery

The 12 V battery is centrally mounted and has a capacity of 32 Ah.

It is charged directly by the generator.

Every month or after every 3000 kms. (1800 miles) check the electrolyte level in each cell and if necessary top up with distilled water, using a glass or a plastic funnel. The level is correct when the acid tops the plate separator by about 6 mm. (1/4"). Always top up with distilled water and never with sulphuric acid.

Distilled water should be added to a cold battery after it has not been in use for at least 6 hours.

Make sure that no electrolyte flows over the top of the battery which must always be in a perfectly dry condition. If the level in any one cell is lower than in others, this may be due to cracks or other faults and in such cases the battery should be replaced.

Every 10.000 kms. (6000 miles), check that all battery connections are well tight and in a perfectly clean condition. Smear them with vaseline to prevent oxidation.

The battery is charged when the hydrometer reading shows about 1.28 sp.g. and an almost discharged battery shows a reading of about 1.16 sp.g.



MOTO GUZZI

Putting the dry charged battery in service

1. Break off the seal and unscrew the plug.
2. Introduce pure sulphuric acid of 1275 sp.g. - temperature 15°C (31° Baumé).
This operation has to be carried out very carefully and particular attention should be paid to the specific gravity of the recommended liquid.
The correct electrolyte level is at least 6 mm. (1/4") over the top of the plate separators.
3. Let the battery at rest for about 2 hours and then top up with electrolyte to the recommended level.
The battery can now be charged for 8-15 hours at a current intensity equal to 1/10th of its normal amperage (in 10 hours discharge).
4. The battery is now ready to be put in service.

Varta type battery

This type battery is put in service as at 1 and 2 above but point 3 should read as follows:

3. Let the battery at rest for 15 minutes and then shake it lightly. Check the electrolyte again and top up as necessary. Tighten strongly the 6 cell plugs and the battery is ready to be put in service.

Maintenance instructions

During the period the battery is left at rest before use, ensure the electrolyte is maintained at 6 mm. (1/4") over the plate separators with the addition of distilled water. Never add sulphuric acid.

If the battery is not used immediately, it is best to have it charged for a short period every month or every time before it is used.

Successive charges

Before re-charging make absolutely certain that the battery is perfectly clean.

Connect the charging medium and use preferably an amperage equal to but not exceeding 1/10th of the rated battery capacity over a period of 10 hours.

If during the charge the electrolyte temperature (measured with a thermometer immersed in the electrolyte) should get up to 50° (122°F), it will be necessary to reduce or interrupt the charge until the temperature has dropped to under 40°C (104 F). -

Never add sulphuric acid but top up with chemically pure distilled water.

Generator

Every 10.000 kms. (6000 miles), the commutator should be cleaned with a clean cloth slightly moistened in petrol.

Copper or carbon dust which may have deposited in between the rotor blades can be removed by compressed air.

When cleaning the commutator check also the condition of the brushes and if chipped or worn, replace them ensuring that they make good contact and are flush with the commutator or else this may get damaged.

N.B. - Replacement of brushes must be made with original parts and preferably by fully qualified electricians.

Regulator unit

The regulator is sealed to prevent it from being tampered with. In case of failure or incorrect operation, it should be sent for inspection to the makers or their agents. Replacements must be made with original parts bearing the same number.



Starter motor

Clean its commutator every 20.000 kms. or so (12.000 miles). To clean it use a petrol moistened cloth.

Carbon or copper dust between the rotor blades can easily be removed by compressed air. Check condition of the brushes and if any are worn or chipped, replace them. To avoid damage to the commutator, the brushes should be in perfect even contact with it. Use only original parts and have this job done preferably by qualified electricians.

Horn

The 12 V horns do not require any maintenance. In case of irregular operation have them seen to by competent electricians or replace them.

Terminal block with fuses

It is centrally mounted under the seat. It includes 9 fuses of which the main of 30A and all others 15A.

Courtesy light

This light will lit up to illuminate the fuse box when the seat is lifted.

Starting button

Does not require any maintenance and in case of irregularities check if all connections make proper contact and all wires are tightly screwed down.

Headlight

It is perfectly watertight which makes internal inspection practically unnecessary. In case of replacements be sure to use bulbs of same size and power as originally assembled.

Bulbs (12 V)

For headlight:

- main: two-filament (high and low beam)
45/40 W, round;
- parking: 5 W, elongated;
- tail lamp: two-filament (parking and stop)
2/20 W, round;
- courtesy: 3 W, round.

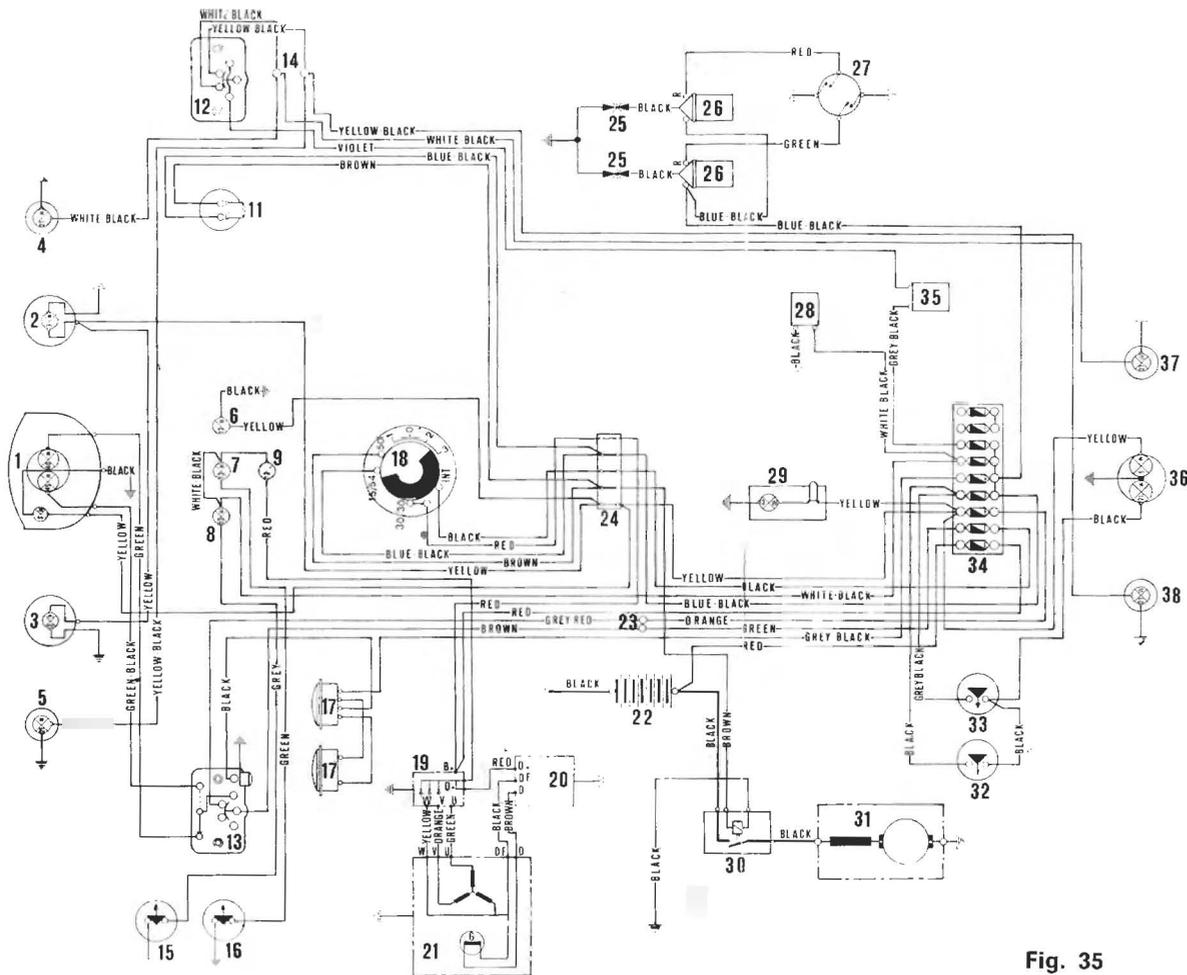
Instrument panel:

- rev-counter: 3W, round
- speedometer: 3W, round
- lights indicator: 1.2W, round
- neutral indicator: 1.2, round
- oil pressure indicator: 1.2W, round
- battery charge: 1.2W, round.

Cables

Check these over periodically to ensure they are in good condition. Replace, as necessary.

N.B. - If any extra accessories are added, it should be ensured that these are connected to terminals which can stand the extra load without going beyond the capacity of the terminal itself or the H.T. leads, thus avoiding possible damage to the electric system.

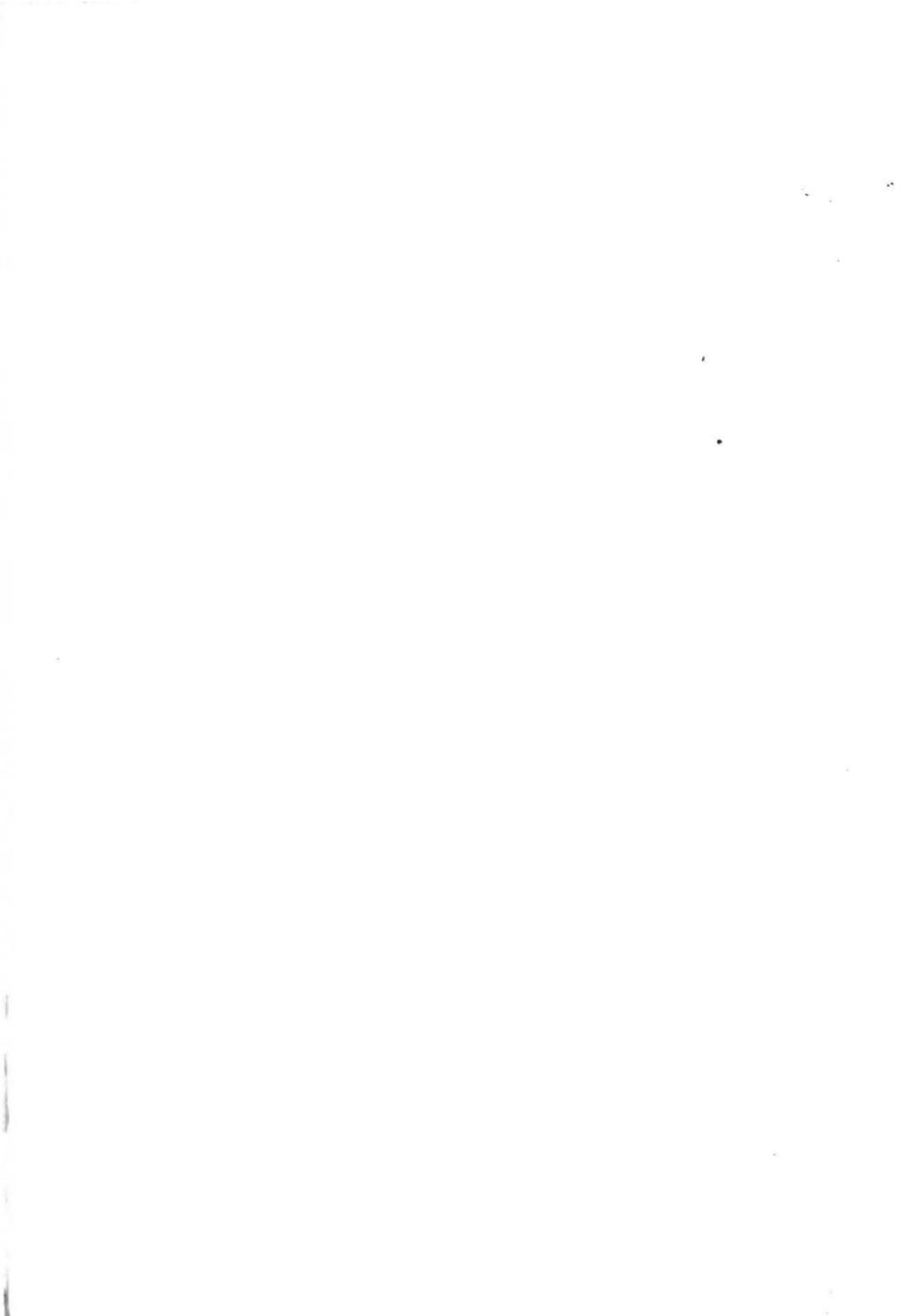


- 1-HEADLIGHT (LAMP - 40/45W-12V- AND 4W 12V)
- 2-SPEEDOMETER (3W-12V)
- 3-TACHOMETER (3W-12V)
- 4-8/8 FRONT TURN LIGHT INDICATOR (21W-12V BULB)
- 5-1/8 FRONT TURN LIGHT INDICATOR (21W-12V BULB)
- 6-GREEN WARNING LIGHT (12W-12V BULB)
- 7-ORANGE WARNING LIGHT, NEUTRAL INDICATOR (12W-12V BULB)
- 8-RED WARNING LIGHT, OIL PRESSURE (12W-12V)
- 9-RED WARNING LIGHT, GENERATOR CHARGE (12W-12V BULB)
- 11-START BUTTON
- 12-TURN LIGHTS SWITCH
- 13-LIGHT SWITCH AND HORN BUTTON
- 14-3 WAY FASTON
- 15-OIL PRESSURE INDICATOR CUTOUT
- 16-NEUTRAL INDICATOR CUTOUT
- 17-HORN
- 18-IGNITION SWITCH
- 19-RECTIFIER
- 20-VOLTAGE REGULATOR
- 21-GENERATOR
- 22-BATTERIES
- 23-CONNECTORS
- 24-DISTRIBUTING BLOCK
- 25-SPARK PLUG
- 26-HT COIL
- 27-DOUBLE CONTACT BREAKER
- 28-ELECTROVALVE
- 29-COURTESY LAMP (3W-12V BULB)
- 30-STARTER MOTOR RELAY
- 31-STARTER MOTOR
- 32-FRONT STOP LIGHT CUTOUT
- 33-REAR STOP LIGHT CUTOUT
- 34-TERMINAL BLOCK WITH FUSES
- 35-FLASHER UNIT
- 36-NUMBER PLATE AND STOP LIGHT (21/5W-12V BULB)
- 37-8/8 REAR TURN LIGHT INDICATOR (21W-12V BULB)
- 38-1/8 REAR TURN LIGHT INDICATOR (21W-12V BULB)

IGNITION SWITCH POSITION

- 0 - -
- 1-30/30 INT.
- 2-30/30 INT. · 15/54 ·
- 3-30/30 INT. · 15/54 · 50 ·

Fig. 35





MOTO GUZZI