

V75



OWNER'S MANUAL

The illustrations and descriptions in this booklet are indicative only and the manufacturer reserves itself the right to introduce any modification it may deem necessary for better performance or for constructive or commercial reasons without prior notice.

Dear rider

First of all we wish to thank you for choosing this motorcycle of our production.

By following the instructions outlined in this manual you will ensure your bike a long and troublefree life.

Before riding, please read thoroughly this manual in order to know your motorcycle's features and how to operate it safely.

All major checking and overhaul jobs are best carried out by our dealers who have the necessary facilities to quickly and competently repair your Moto Guzzi.

Repairs or adjustments by any other than a Guzzi dealer during the warranty period could invalidate the warranty right.



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4 MAIN FEATURES

Engine

Cycle	four stroke
Cylinder	2
Cylinder disposition	«V» 90°.
Bore	mm 88
Stroke	mm 74
Total displacement	cc 743.9
Compression ratio	10.2:1
Fiscal horsepower	CV-11

Valve gearing

4 O.H.V., push rod operated.

Timing data

Inlet:

- opens 18° before T.D.C.
- closes 50° after B.D.C.

Exhaust:

- opens 53° before B.D.C.
- closes 15° after T.D.C.

Valve clearance for timing adjustment check 1 mm.

- inlet: 0.10 mm.
- exhaust: 0.13 mm

Lubrication

forced lubrication with lobe pump and insufficient pressure warn, light on panel board.

Oil filters: wire gauze inside oil pump and replaceable cartridge outside.

Ignition	Electronic type. Initial (fixed) advance 7° Automatic advance (electronic) 30° about Total advance (fixed+automatic) 38°±2° Rotor to pick-up gap 0.2±0.4 mm. Ignition spark plugs Champion Z6, NGK C9H Electrode gap 0.6 mm.
Carburation	no. 2 Dell'Orto PHBH 30 BD (right) PHBS BS left type.
Exhaust	no. 2 pipes, no. 1 central silencer and no. 2 terminal silencer.
Generator/alternator	Front, on crankshaft (14V - 20A).
Starting	Electric starter (12V - 0.7KW) with electromagnetic ratchet control.
Transmission	
Clutch	Single driven disc, dry type, with diaphragm spring; hand controlled by lever on left handlebar.
Primary drive	By gears, ratio 1:1.4666 (Z = 15/22)

Gearbox

Five speeds, frontal engagement, constant mesh gears. Pedal operated on the central L/H side of motorcycle.

Gear ratios:

Low gear = 1:2.3636 (Z=11/26)

2nd gear = 1:1.36428 (Z=14/23)

3rd gear = 1:1.2777 (Z=18/23)

4th gear = 1:1.0555 (Z=18/19)

High gear = 1:0.9000 (Z=20/18)

Secondary drive

By cardan shaft, bevel gear set. Ratio: 1:3,875 (Z=8/31).

Overall gear ratios (engine/wheel)

Low gear = 1:13.4333

2nd gear = 1:9.3369

3rd gear = 1:7.2650

4th gear = 1:5.9990

5th gear = 1:5.1150

Frame

Decomposable cradle with tubular structure.

Suspensions

Front: telescopic fork with oleo-pneumatic shock absorbers. Rear: swinging fork and rear dampers with adjustable external springs concentric to the oil pneumatic shock absorbers.

Wheels

Front and rear in light alloy rims of following sizes:

- front: MT H2 - 2.50x16"
- rear: MT H2 - 2.75x18"

Tires

Front: 110/90 H16

Rear: 120/80 H18

Brakes

Front: disc type with caliper having twin braking cylinders. Control by hand lever on the R/H side of handlebar.

- Ø disc: 270 mm;
- Ø braking cylinder: 32 mm;
- Ø master cylinder 12.7 mm.

Rear: Disc type with caliper having twin braking cylinders. Pedal controlled from the central R/H side of the bike.

- Ø disc: 235 mm;
- Ø braking cylinder: 32 mm;
- Ø master cylinder: 15.875 mm.

Dimensions and weights

wheelbase (loaded)	m 1.470
overall length	m 2.120
overall width	m 0.760
max. height	m. 1.270
dry weight	kos. 175

Performances

Top speed, solo riding: 200 Km/h. Fuel consumption: 5.6 l x 100 Km.

Refuelings

Group of part	Quantity	Recommendation
Fuel tank (reserve about 3 l)	17 l	Supergrade petrol (97 NO RM min.)
Oil sump	2 l	«Agip Sint 2000 SAE 10 W/50» oil
Gear box	0.900	«Agip Rotra MP SAE 85 W/140» oil
Rear drive box	0.170 of which: 0.160 0.010	«Agip Rotra MP SAE 85 W/140» oil «Agip Rocol ASO/R» oil or Molykote Tipo «A» oil
Telescopic fork (each leg)	0.100	«Agip F.1 ATF Dexron» fluid
Braking circuits (front and rear)		«Agip F.1 Brake Fluid SAE J 1703»

IDENTIFICATION DATA

(fig. 2)

Each motorcycle is identified by an identification number on the frame downtube and on the engine crankcase.

The identification number on the frame is mentioned in the motorcycle log-book and identifies the vehicle to all legal effects.

Spare parts

In case of part replacements, ensure that «**original Moto Guzzi spare parts**» only are used.

The use of non-genuine parts invalidates every warranty right.

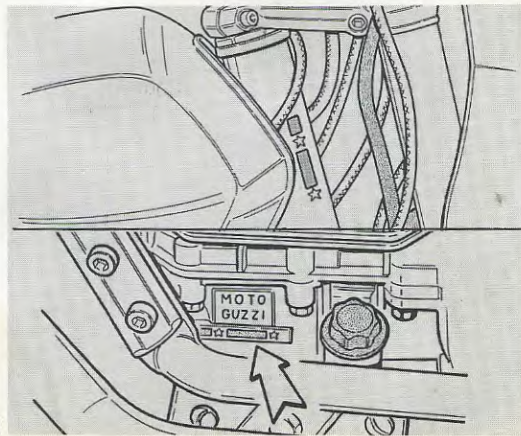
Warranty

The warranty is valid for a period of six months with a limitation to 10.000 km from the selling date and expires in case of modifications to the motorcycle, participation to racing events or use of not original accessories, or original accessories which are fitted not following SEIMM - MOTO GUZZI directions.

Tires, accessories, or parts not manufactured in the «Seimm - Moto Guzzi» factories are ex-

cluded from this guarantee.

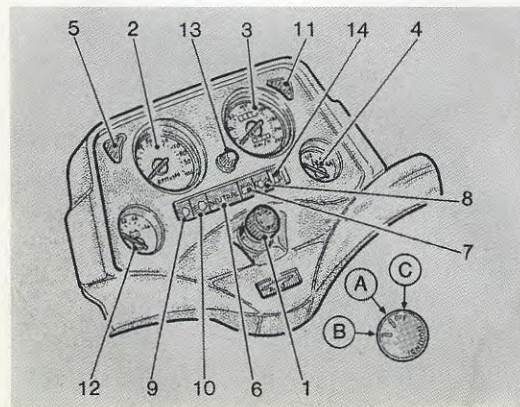
Each new motorcycle is supplied with a «voucher book» which has to be kept carefully with all other circulation papers as it is the only document entitling the owner to request warranty service from the Seimm - Moto Guzzi dealers, according to the general conditions of sale.



10 INSTRUMENTS AND CONTROLS

Instrument panel (fig. 3)

- 1 Ignition key;
«OFF» in line with «C» mark: machine stationary.
Key removable (no contacts).
«A» in line with «C» mark: (turned clockwise)



- 2 Rev-counter.
3 Speedometer, Km. or miles.
4 Warning light for fuel level.
5 Warning light (green) for left turn signal.
6 Warning light (green «Neutral») Lights up only when the gearbox in neutral.
7 Warning (red) indicating current delivery from generator. Should go out when engine has reached a certain number of revs.
8 Warning light (red) oil pressure gauge. Goes out when oil pressure is sufficient for normal engine lubrication. If it does not, this means oil pressure is not correct and in such an event the engine should be immediately stopped and all circuits checked over.
9 Warning light (bleu) indicating high beam on.
10 Warning light (green) indicating parking lights on.
11 Warning light (green) for right turn signal.
12 Voltmeter.
13 Zero reset for odometer.
14 Warning light (red) for fuel reserve.
- «B» in line with «C» mark: (turned clockwise) machine at standstill. With switch «A» (fig. 4) in «PARK» position, parking light ON. Key removable.

Light switches - Horn button and turn signal controls (fig. 4)

They are installed on the L.S. of handlebar:

«A» Switch

«PARK» parking lights.

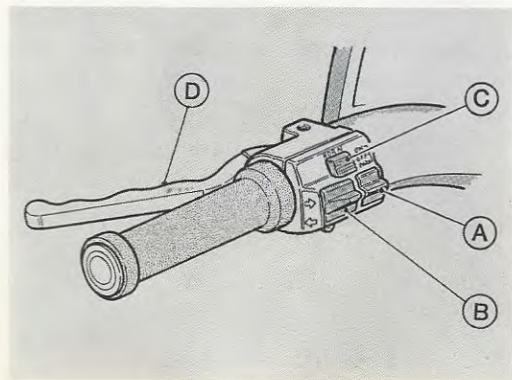
«ON» ignition dual beam lamp.

«OFF» lights off.

«B» Switch

Position \blacktriangleright R.H. indicator control.

Position \blacktriangleleft L.H. indicator control.



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«C» Button

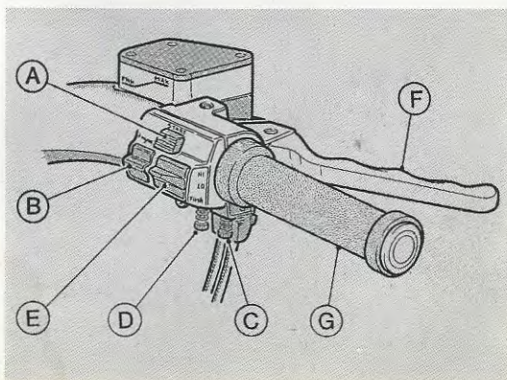
Horn control.

Engine starting button, engine stop switch and turn signals control (fig. 5)

Located on the right side handlebar.

With key mark «A» in line with mark «C» (fig. 3) the vehicle is ready to be started. To start the engine proceed as follows:

- ensure switch «B» is in central position;



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- 12
- pull the clutch lever completely;
 - on a cold engine, adjust starter lever to position «A» (see fig. 28);
 - Press start button «A».

To stop the engine operate on the ignition switch on the panel.

To stop the engine is an emergency:

- move switch «B» up or down.

As soon as the engine stops, turn ignition key (fig. 3) counterclockwise till mark «OFF» is in line with mark «C» and take out the key from the lockset.

«E» Switch

«E» switch with «A» switch in position «ON» (see fig. 4):

- «LO» low beam.
- «HI» high beam.
- «Flash» flashing light control

Throttle twist grip control («G» in fig. 5)

It is located on the right hand side of the handlebar: turning it inwards opens the gas and viceversa closes it.

To adjust the stroke of the throttle grip act on screw «D».

To harden the return of the throttle grip act on screw «C».

Clutch control lever («D» in fig. 4)

It is on the left hand side of the handlebar and it should be pulled only for starting and gearshifting.

Control lever for R.H. front brake

(«F» in fig. 5)

It is on the R/H handlebar and controls the master cylinder for the hydraulic front brake through a suitable circuit.

Starter lever (fig. 28)

This lever for cold startings is located on the left side of the vehicle.

- «A» Start position.
- «B» Riding position.

Left front and rear brake control pedal («B» in fig. 18)

It is centrally located on the R/H side of the vehicle and it is link connected to the master cylinder. It controls the left front brake and rear brake simultaneously.

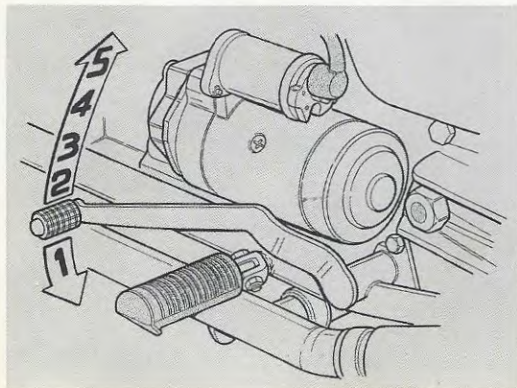
Gearbox control pedal (fig. 6)

This pedal is centrally located on the L/H side of the byke.

Positions:

- low gear, level end towards the ground;
- 2nd, 3rd, 4th and high gear lever end upward;
- neutral between low and 2nd gear.

Before actuating this pedal, be sure the clutch lever is pulled completely.

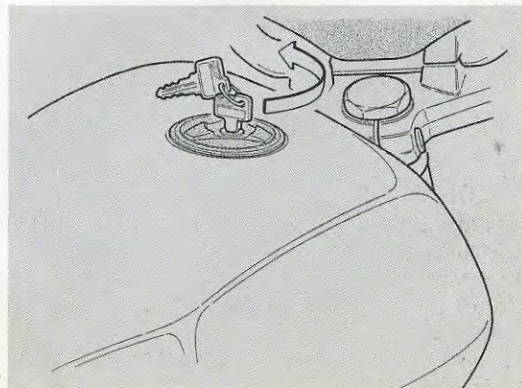


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Fuel filler cap (fig. 7)

To open the fuel tank cap, the key has to be rotated in anticlockwise direction.

N.B. - Fuel overflows during fuel filling have to be eliminated at once to avoid damages to the tank paint.



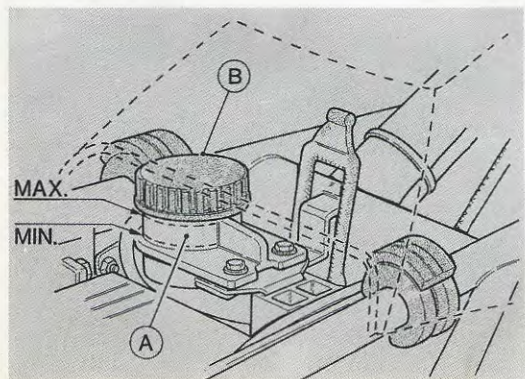
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14 L.H. front and rear brake master cylinder fuel reservoir (fig. 8)

To access to this reservoir it is necessary to remove the saddle and the fuel tank.

Min. and Max. levels of fluid are indicated on the transparent body of reservoir «A».

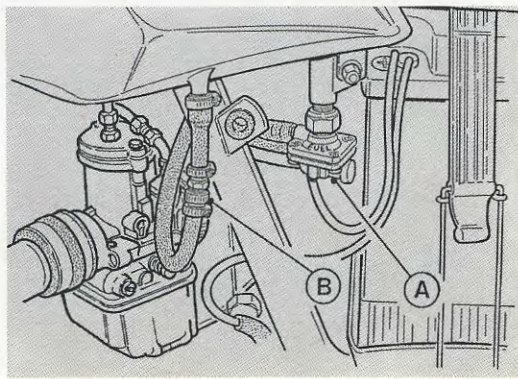
For eventual fluid filling up, remove cap «B» and the rubber diaphragm.



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Fuel cock (fig. 9)

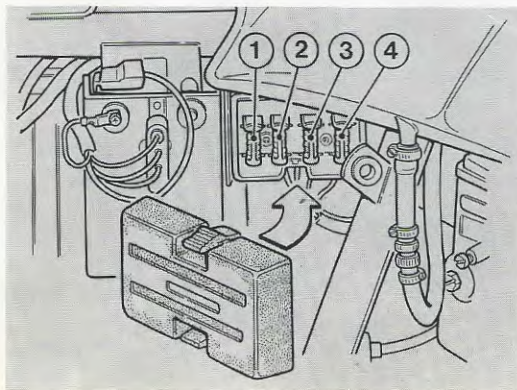
This vehicle is equipped with fuel cock with automatic operation (A in fig. 9): the depression created inside the inlet duct causes the cock opening. In case of fuel drainage of carburetors for prolonged inactivities, a repeated starting control operation can be necessary, having the throttle control grip idling; this action is required in order to allow a prompt filling up of carburetors. Moreover, if the fuel tank removal is necessary, before disconnecting fuel pipes, you have to tighten fuel cocks (B in fig. 9) situated in the rear side under the fuel tank.



9

Terminal block with fuses (fig. 10)

It is located centrally on the motorcycle; to access it remove the saddle and right side cover. In this block no. 4 fuses of 16 A are installed. Before replacing one fuse or some fuses it is necessary to cure the problem causing their blowing up (see «Legend of Electric Scheme»).



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Steering lock (fig. 11)

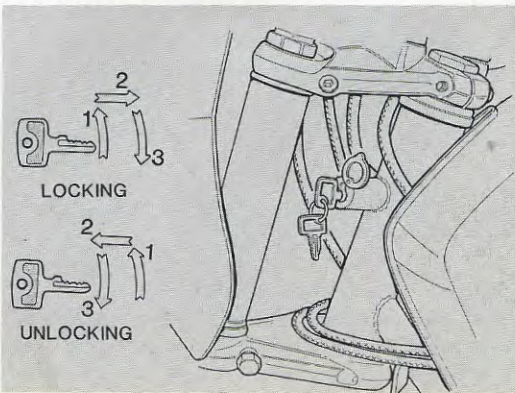
To lock or unlock the steering locking device, operate as follows:

Locking

- turn the handlebar to the right, completely;
- insert the key into the lock set, turn it anti-clockwise, push it right in, rotate again in the clockwise direction, then release it and have same slipping out.

Unlocking

- insert the key into the lock set, turn it in anti-clockwise direction, then release it and have it slipping out of the lock set.



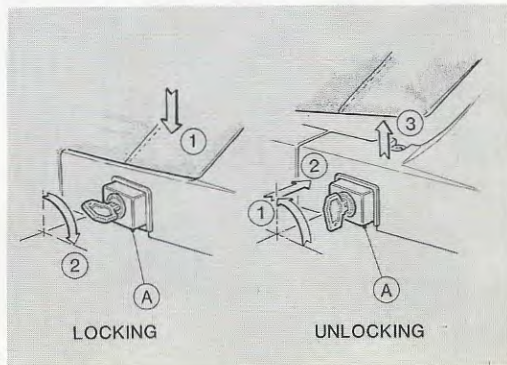
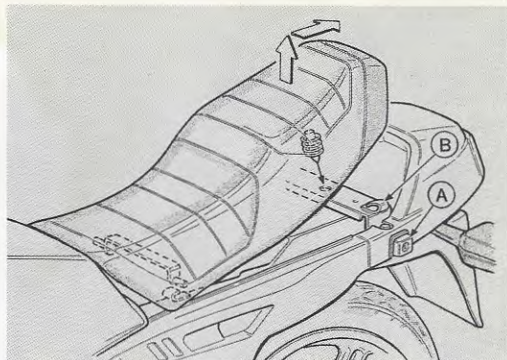
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16 Saddle locking device (fig. 12)

The saddle is locked by a special device «A» located L.H. in the rear side of the bike.

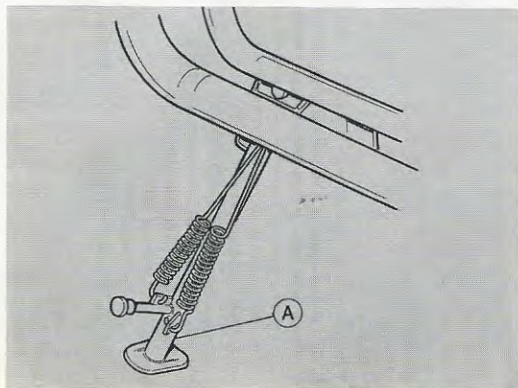
To unlock the saddle it is necessary to make a quarter of a turn in the anticlockwise direction with the key, at the same time pressing on the lock set. Saddle will be so lifted and eventually removed.

To lock the saddle insert it in its seat on the frame and press on it.



Side stand («A» in fig. 13)

The bike is equipped with a side stand to be used for brief stops. Since it is automatically retractable, for long stops it is advisable to always use the centre stand which guarantees better stability.



18 RIDING INSTRUCTIONS

Controls before starting

Ensure that:

- the fuel tank contains enough fuel;
- the oil in the sump is at the correct level;
- the ignition key is in the start position (see fig. 3);
- the following warn, lights are lit:
 - **red**: insufficient oil pressure, insufficient generator tension;
 - **green**: NEUTRAL warn, light, indicating neutral position of gearbox;
- starter control lever for **cold starting** is in position «A» (see fig. 28).

Starting a cold engine

After checking the above, rotate the twist grip 1/4 turn, pull the clutch lever fully, ensure that the switch «B» of fig. 5 is on the central position and press start button «A» (fig. 5).

As soon as the engine has started and before returning starter lever to position «B» (fig. 28), *allow the engine to idle a few minutes in the cold season or a few seconds in the hot season.*

If the starter lever is left in starting position

«A», fig. 28 whilst riding, there would be irregular carburation and increased fuel consumption and in the worst cases the cylinders might seize because of too much petrol going into them.

Caution - If the green light «Neutral» on the panel does not light up when mark «A» on the ignition key is lined up with mark «C» (see fig. 3), this means a gear is engaged and the pedal has to be moved to the neutral position.

Starting a hot engine

Proceed as for a cold engine, except that in this case the starter lever has not to be adjusted to start position «A», fig. 28 as this would richen the carburation too much.

On the way

To change up or down, pull the clutch lever completely and engage the next gear. Release the clutch lever slowly, accelerating at the same time. The pedal (fig. 6) has to be actuated firmly and accompanied with the foot.

When shifting down to lower gears, operate gra-

dually on the brakes and the throttle grip to avoid **overrevving the engine** when the clutch lever is released.

Then remove the key and lock the steering. (see paragraph «steering lock» and fig. 11).

Stopping the motorcycle

Close the throttle, actuate the brakes gently, and pull the clutch lever only when the byke is almost to a standstill. This operation has to be done with much coordination in order to keep the vehicle under control.

To reduce the speed gradually by properly using the gearbox with a view to utilize the engine braking power, do this very carefully in order not to cause **the engine to overrev**.

On wet or slippery roads, the brakes - especially the front one on the right - should be used with great caution.

To stop the engine, turn the ignition key mark «OFF» to line it up with mark «C» (fig. 3).

Parking

When parking at night on insufficiently lighted roads, switch on the parking lights by turning the key (fig. 3) till mark «B» on it is in line with mark «C» and light switch in fig. 4 is in position «PARK».

20 RUNNING IN

During the running in period follow strictly these recommendations:

- Before starting allow the engine to warm up at idling speed for a more or less period of time, according to the external temperature.
- Avoid exceeding the maximum permissible speeds in each gear. Avoid running at the same number of revolutions for long periods but change gear frequently.
- Before stopping reduce the speed gradually to prevent the various engine groups from undergoing abrupt changes of temperature.
- Ensure all operations specified in the service voucher have been carried out at the stated mileages.

MAX. RUNNING-IN SPEEDS

Distance covered	Max. permissible speeds				
	Low gear	2nd gear	3rd gear	4th gear	5th gear
Up to 1000 Km (600 Miles)	35	55	75	95	115
1000 (600 Miles) to 2000 Km (1200 Miles)	50	75	100	115	130
2000 (1200 Miles) to 4000 Km (2400 Miles)	Gradually increase the above limits up to the maximum admissible speed.				

■ Don't forget that proper bedding down of all components will only occur after several thousands of miles have been covered.

This will allow you to obtain excellent performance from your motorcycle for a long period of time.

After the first 500 km÷1500 km

- Change the crankcase oil.

Should the level fall under the minimum mark before the engine has covered 500÷1500 km it will be necessary to change the oil instead of topping up.

Recommended oil: Agip Sint 2000 SAE 10W/50.

- Check tightness of all nuts and bolts.
- Adjust tappet clearance.
- Check the tyre pressure.

DIRECTIONS FOR CLEANING OF WIND-SHIELD

The wind-shield can be cleaned using most of the soaps, deteratives, waxes and polishes used for plastics and glasses.

However the following precautions must be observed:

- **Do not wash or clean the wind-shield when air temperature is too high and when sun exposure is excessive.**

- By no reason use solvents, lye-washes or equivalent products.

- Do not use fluids containing abrasives, emery papers, erasers etc.

- Polishes may be used only after dust or dirt removal with a careful washing. Superficial damages may be abraded with soft polish.

- Fresh paint and sealant materials are easily removed, before they dry off, gently cleaning with solvent kerosene, isopropyl alcohol or butyl cello-solve (never use metyl alcohol).

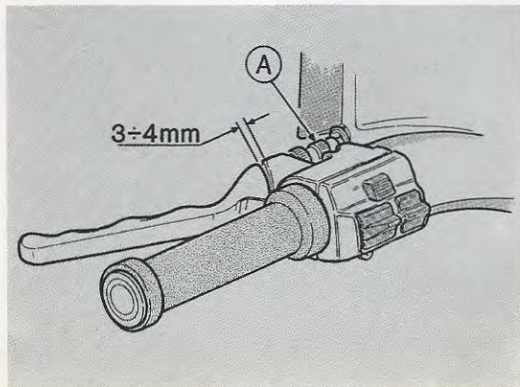
- Always use soft clothes, sponges, chamois leather and hydrofil cotton acting gently. Never use paper salviets or synthetic clothes since they may mark your wind-shield.

Deep marks or scratches cannot be removed strongly abrading or using solvents.

2 MAINTENANCE AND ADJUSTMENTS

Adjusting the clutch control lever (fig. 14)

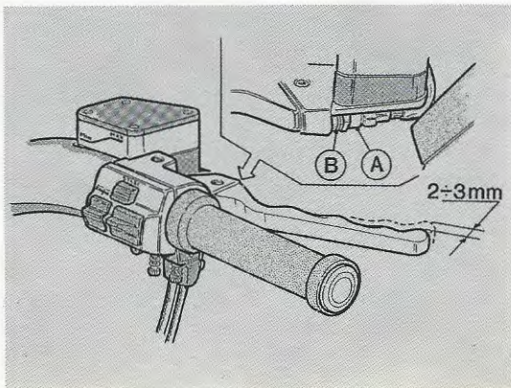
If the free play at the handlebar is more or less than 3 to 4 mm proceed as follows:
move rubber bellow back and act on adjuster «A»
to restore the correct play.



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Adjusting the right front brake control lever (fig. 15)

A free play is foreseen between master cylinder floater and control lever end. It is possible to adjust this play by changing washers «B» number that are located on STOP button «A» which is positioned under the transparent master cylinder reservoir.



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Checking wear of the brake pads

Every 3000 Km. check thickness of the brake pads:

- wear limit: 1.5 mm.

If the pad is worn down to more than this limit, it is necessary to change the pads.

After this operation has been carried out, there is no need to drain the air from the braking circuits: it is sufficient to operate the control lever several times until the caliper pistons reach their normal position.

When replacing the pads, check also the condition of the fluid line and replace them immediately if damaged.

N.B. – When replacing the pads it is advisable, for the first 100 km, to act on the brakes carefully to allow a correct setting of the same pads.

Checking the braking discs

(«I» figg. 16 and 17)

The brake discs are manufactured with material having a high friction coefficient, specially studied in order to be matched to the specific brake pads. The efficacy of this has been confirmed after researches and by numbers of tests.

During brakes operation, grooves are formed on the disc which contribute to further increase braking efficiency. This is clearly perceived by the lower effort required to operate the brake controls for the same deceleration results.

In case of brake pads replacement, it is advisable, for the first 100 km, to carefully operate the controls to allow the pads settling on the disc: the disc profile in fact has to form the matching groove on the new pads surface.

Braking discs must be perfectly clean, without oil, dirt or grease traces.

When a disc is replaced or overhauled, it is necessary to check the «floating». This control is done by the aid of a suitable gauge and the reading should in no case exceed 0.2 mm.

If this «floating» is higher, it is well to ensure that the discs are properly assembled on the hubs, check also the hub bearings play.

The disc securing screws are tightened with a torque wrench set to 2.8÷3 kgm.

24 Controlling the fluid level and replacing the brake fluid in the reservoirs (master cylinders) (fig. 16 and 17)

For proper braking operation, these instructions should be followed strictly:

Front R/H brake circuit (fig. 16)

1 Periodically check the fluid level in the reservoirs. This level should always be over transparent section «C» of the reservoir (master cylinder «A»).

This level must never fall under the transparent part.

2 Periodically check and, if necessary, top up the fluid in the reservoir «A», after undoing screw «D» of plug «E» and removing the diaphragm.

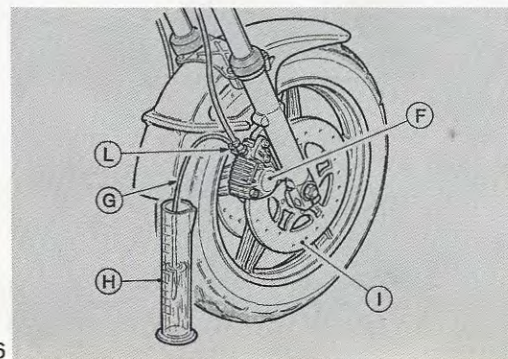
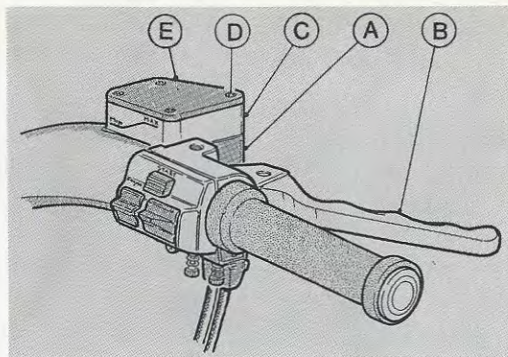
Use only fluid taken from original containers, opened just before pouring in.

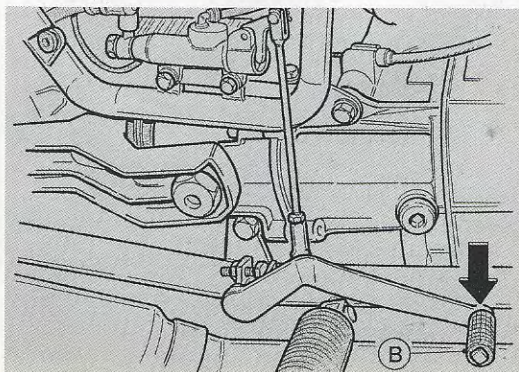
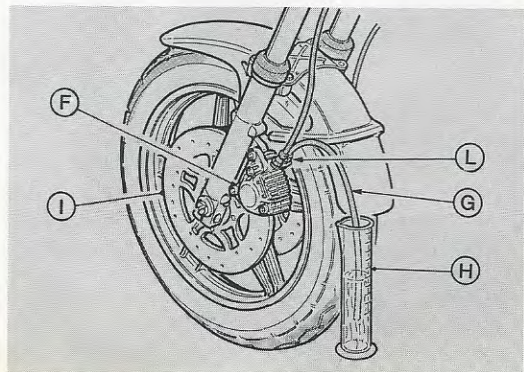
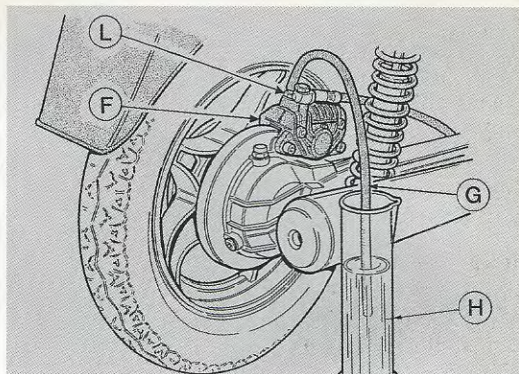
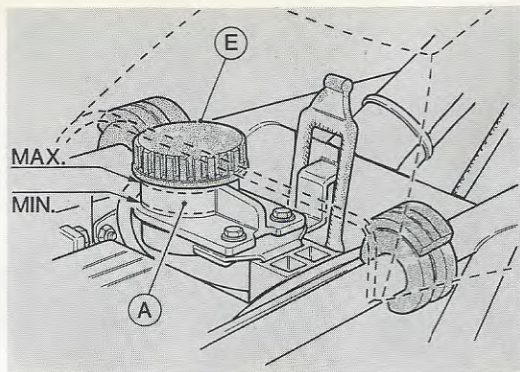
3 Every 15.000 km or at least once a year, change the braking fluid.

For good operation of the circuits, it is necessary for the ducts to be always full with airless fluid.

A long and elastic movement of the control lever «B» indicates the presence of air bubbles in the ducts.

To wash the circuits, use only fresh fluid.





26 Never use alcohol for washing or compressed air for drying. For metal parts, the use of trichloroethylene is recommended.

For eventual lubrication never use mineral oils or greases.

Not having suitable lubricants available, we suggest to lubricate the rubber particulars and metal with the same brake fluid contained in the system. Fluid to be used: Agip F.1 Brake Fluid SAE J 1703.

Rear brake and L/H front brake circuit (fig. 17)
Same as for front R/H brake, except for points 1 and 2:

- 1 Periodically check the fluid level in the reservoir «A»; this level should always be between MIN. and MAX. reference marks on the transparent part.
- 2 Periodically or whenever necessary top up the fluid in reservoir, after removing plug «E» and the diaphragm.

Bleeding the air from the braking circuits (figg. 16 and 17)

This operation is required when the movement of the control lever on the handlebar or the pedal is long and elastic, due to the presence of air in the braking circuits.

For bleeding or air bubbles act as follows:

Right front brake circuit (fig. 16)

- 1 Set the vehicle up on the center stand;
- 2 Turn the handlebar till the reservoir («A») is in the horizontal position.
- 3 If necessary, fill up reservoir «A». Ensure that during the bleeding operation the fluid does not drop below the minimum level.
- 4 Bleed by acting on caliper «F»;
- 5 Remove rubber covers and fit flexible pipe «G» on drain plug «L» with the other end of the pipe plunged in a transparent container «H» partially filled up with liquid of the same type.
- 6 Loosen drain plug «L».
- 7 Completely pull brake lever «B» several times, releasing it slowly and waiting a few minutes before pulling it again.

Repeat this operation until the pipe end «G» in the transparent container «H» emits airless fluid.

- 8 Keep control lever «B» fully pulled and lock up plug «L». Remove plastic duct «G», and re-fit rubber cover on the drain plug.

If the air bleeding operation has been carried out correctly, a direct and efficient working of the fluid will be perceived immediately after the initial idle movement of control lever «B».

If not, repeat the operation until the above result is achieved.

Front left and rear brake circuit (figg. 17 and 18)

Proceed as per «Right front brake circuit» except for points 2, 7 and 8:

7 Strongly actuate control pedal «B» etc. ...

8 Maintain strongly actuated control pedal «B» etc. ...

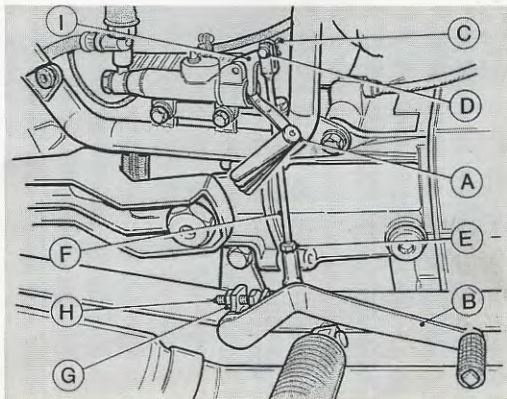
Adjusting the front left and rear brake pedal position (fig. 18)

Check clearance between floater and control lever «I», proceeding as follows:

- Fit feeler gauge «A» between the master cylinder floater and control lever end:
- Correct play must be $0.05 \div 0.15$ mm.
- If the clearance is not correct, act as follows:
 - Slacken counter nut «G» and screw in or out screw «H» until the correct play is obtained.

In case control pedal «B» position is to be modified, act as follows:

- Take out the split pin «C», remove the pin «D», slacken the counter nut «E» and screw in or out the tie-rod «F» until control pedal comes to the desired position;
- Refit pin «D» with its split pin «C»;
- Then adjust screw «H» until the correct play between control lever «I» and master cylinder float is obtained.

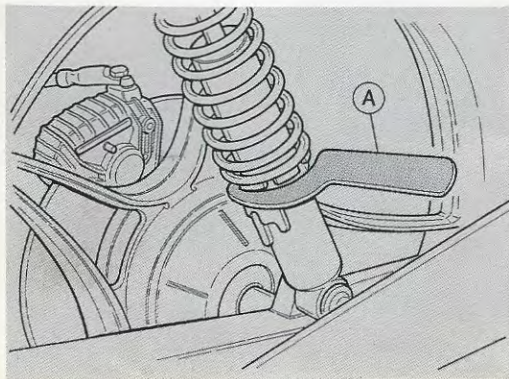


28 Adjusting the rear suspension with hydraulic shock-absorbers (fig. 19)

The springs of the rear dampers can be adjusted to five different positions by means of «A» special wrench.

Should an irregular operation of the dampers be noticed, it is advisable to have them checked in one of our dealers workshops.

Note – Do not forget that both suspensions have to be adjusted to the same position to assure good stability to the motorcycle.



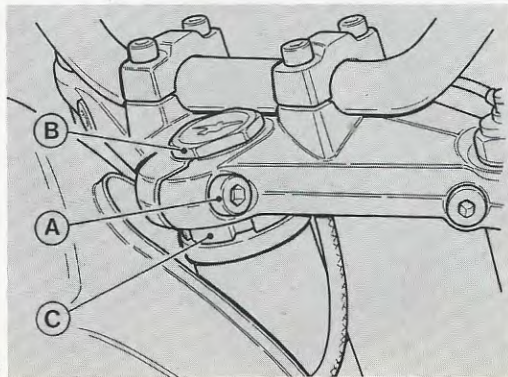
19

Adjusting the steering column (fig. 20)

For safe riding, the steering has to be adjusted so as to allow free movement to the handlebar but without play. To correctly adjust, proceed as follows:

- loosen steering head fixing bolt «A».
- undo steering head nut «B».
- screw in or out adjuster screw «C» to take up the play.

This done, tighten nut «B» and steering head fixing bolt «A».



20

We suggest the above operation is carried out at our Dealers' workshops.

Oil-pneumatic shock-absorbers

The operating load pressure of these front shock-absorbers is 1 Kg/sq. cm.

To check the pressure it is advisable to use a pressure gauge having a very short pipe (better if any), as the capacity of the pipe may affect the pressure existing inside the shock absorbers.

To ascertain to which extent your pressure gauge reduces, when taking the measurement, the pressure inside the shock absorber it is sufficient to carry out two consecutive measurements: the difference between the two readings gives approximately the pressure reduction occurring whenever a measurement is taken.

The measurement must be taken with the bike on the central stand and with cold shock absorbers; to charge the shock absorbers only use moistureless air.

N.B. – Our dealers have available a special pressure gauge for this checking.

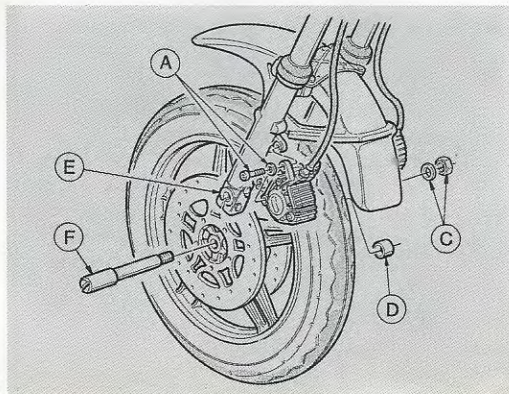
30 REMOVAL OF WHEELS

Front wheel (fig. 21)

To remove the front wheel, proceed as follows:

- Set the vehicle up on the center stand and place a stand under the engine crankcase to keep the wheel up from the ground.
- Undo screws «A» securing the caliper to the right fork cover and from this remove caliper «B» complete with its piping.
- Undo the spindle wheel securing nut «C».
- Undo the screws «E» securing the fork covers to wheel spindle.
- Withdraw spindle «F» paying attention to the mounting position of spacer «D» remove the wheel.
- The reassembly operation is a reversal of the dismantling one. Pay attention to the correct position of the spacer: operate different times brake controls to re-set caliper pistons in their normal position.

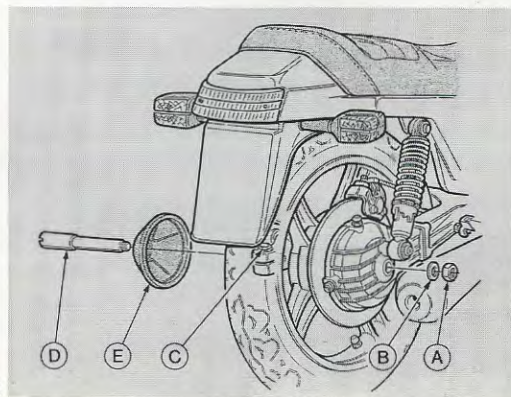
NB - According to the tyre type installed, it is necessary or not to deflate in order to remove wheel.



Rear wheel (fig. 22)

To remove the rear wheel from the swing arm and the drive box, proceed as follows:

- set up the bike on the center stand;
 - undo nut «A» with washer «B» on the spindle, rear drive box side;
 - loosen spindle bolt «C» on fork arm;
 - withdraw spindle «D» from the drive box, the hub, and the swing arm. If necessary, slightly lift the L.H. silencer, after having loosened the retaining nut of rear foot-rest;
 - take out disc «E»;
 - lean the vehicle to the right just sufficiently to allow the wheel to be withdrawn from the rear fork arm and the rear drive box.
- To re-assemble, reverse the dismantling sequence.



32 Wheel balancing

To improve the vehicle stability and reduce vibrations at high speed, the wheels have to be kept in a perfectly balanced condition.

To balance a wheel, proceed as follows:

- remove the wheel and set it up on a forked stand;
- spin the wheel slowly several times and watch if it always stops in different positions, thus indicating a correct balance;
- if one point of the wheel always stops at the bottom, put a balancing weight opposite this point.
- repeat the operation till the wheel is correctly balanced.

Tires

These are included in the motorcycle components that have to be kept under control very carefully as the vehicle stability, riding comfort, and sometimes even the rider's safety are dependent on them.

Therefore it is inadvisable to use tire having less than 2 mm (1/16") thickness tread.

An incorrect tire pressure may also affect the vehicle stability and cause rapid wear of the tire.

Recommended pressures are:

Front wheel:

solo riding or with pillion; 2.3 kg/sq. cm;

Rear wheel:

solo riding: 2.4 kg/sq. cm;

with pillion: 2.6 kg/sq. cm.

The above figures are for normal riding (cruising speed). If using the motorcycle at constant high speed or on highways, it is recommended to increase the pressure by 0.2 kg/sq.cm.

Removing and re-fitting tires on the rims

This model fits light alloy cast rims which offer quite high mechanical resistance but are liable to get damaged from an aesthetic and functional aspect when improper tooling is used for the removing and re-fitting operations.

Under these circumstances, never use tools that have ribbings or sharp edges on the sides contacting the rims.

The contacting surface of such rims has to be very wide, smooth, and with rounded edges. The use of any of the lubricants available on the market for these purposes will greatly facilitate tire sliding and settling of tire on the rim, preventing also overloads on the tools.

It is also very important for the tire beads to be properly entered into the center rim groove.

Tires that have an arrow on their sides have to be fitted in the following way:

- front wheel: with arrow turned against the riding direction;
- rear wheel: with the arrow turned in the riding direction.

34 MAINTENANCE OPERATIONS AND LUBRICATIONS

ITEMS	MILEAGE COVERED ▶	900 mi. (1500 km)	1800 mi. (3000 km)	3700 mi. (6000 km)	5600 mi. (9000 km)
Engine oil		R	R	R	R
Oil filter cartridge		R		R	
Wire gauze oil filter		C			
Air filter				C	R
Ignition timing		A			
Spark plugs		A	A	A	R
Rocker clearance		A	A	A	A
Carburetion		A	A	A	A
Nuts and bolts		A			
Fuel tank, filters and pipes					C
Gear box oil		A	A	A	R
Rear drive box oil		A	A	A	R
Wheel and steering bearings					
Fork legs oil					
Starter motor and generator					
Brake systems fluid		A	A	A	A
Brake pads		A	A	A	A

A = Inspections - Adjustments - Possible replacements - Servicing. / C = Cleanings. / R = Replacements.

Occasionally, check the electrolyte level in battery, lubricate joints and cables; every 500 km (300 miles) check the engine oil level. In any case, renew this oil at least once a year.

7500 mi. (12.000 km)	9400 mi. (15.000 km)	11.300 mi. (18.000 km)	13.200 mi. (21.000 km)	15.100 mi. (24.000 km)	17.000 mi. (27.000 km)	18.900 mi. (30.000 km)
R	R	R	R	R	R	R
R		R		R		R
	C					C
	C	R		C	R	
A	A	R	A	A	R	A
A	A	A	A	A	A	A
A	A	A	A	A	A	A
	A					A
		C			C	
A	A	R	A	A	R	A
A	A	R	A	A	R	A
			A			
			R			
			A			
A	R	A	A	A	A	R
A	A	A	A	A	A	A

36 LUBRICATIONS

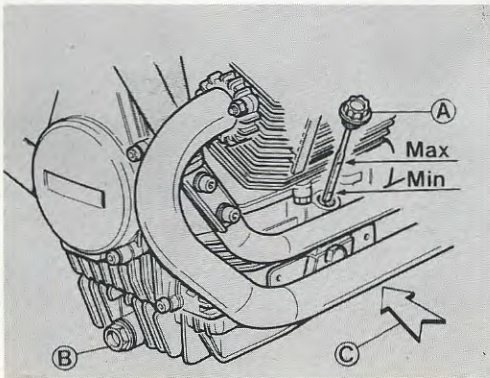
Engine lubrication (fig. 23)

Checking the oil level

Every 500 km check level of oil in crankcase. Correct level is in proximity of the top mark in dipstick «A».

If lower, top up with oil of same quality and density.

This control has to be made after the engine has run for a few minutes and with the capdipstick «A» fully screwed in.



Replacing the oil

After the first 500-1000 km and later on every 3000 km or so, replace the oil in the crankcase. This operation is done on a **warm engine**, allowing the old oil to drain completely before introducing fresh one.

«A» Oil filler cap and dipstick.

«B» Oil drain cap (front side).

«C» Oil drain cap (rear side).

Quantity required: 2 l of Agip Sint 2000 SAE 10W/50 oil.

Replacing the oil filter cartridge (fig. 24)

After the first 500-1500 Km (first oil replacement) and further every 6000 Km about, replace filter cartridge proceeding as follows:

- undo «A» and «B» drain caps from crankcase «C» and oil filler cap «A» in fig. 23;
- let the oil drain fully from crankcase «C»;
- undo the cartridge securing screw «D» and remove from crankcase «C» the assembly including cover «E», gasket «F», spring «G» and filter cartridge «H»;

23 ■ replace filter cartridge «H» and eventually the

seal ring «F».

At the end of this operation re-fit in a reversed sequence, filling with the suggested oil quantity, before screwing in fully the oil filler cap.

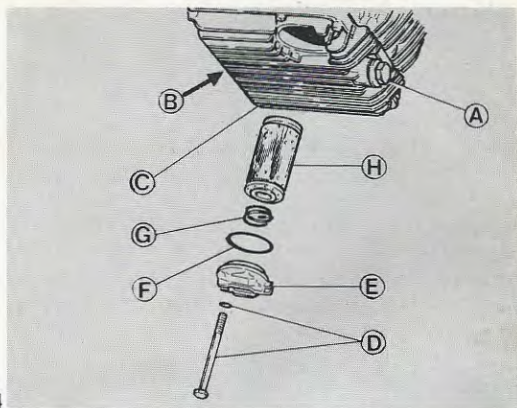
It is advisable to have this operation carried out by our dealers.

Cleaning the wire gauze filter and crankcase sump

It is advisable, after the first 500-1500 Km (first oil change and cartridge replacement) and further every 15000 Km, removing the oil sump from crankcase, removing the wire gauze filter, washing them in a petrol bath; they dry with a compressed air jet both filter and sump channels.

In re-fitting the sump on the crankcase, don't forget to replace the sump gasket.

It is advisable to have this operation carried out by our dealers.



24

Lubrication of the gearbox (fig. 25)

Checking the oil level

Every 3000 km check that the level is as shown in figure; if lower top up with oil of the same quantity and density.

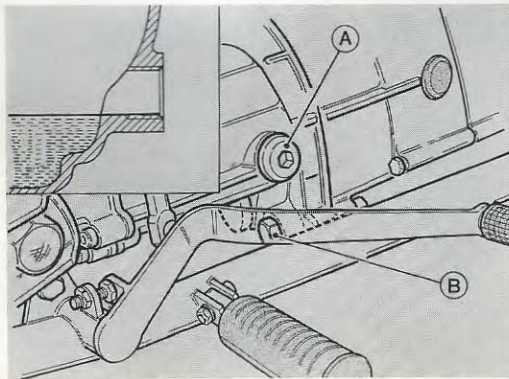
38 Replacing the oil

Every 9000 km, replace the oil in the gearbox. This operation has to be done on a warm engine when the oil is more fluid and easier to drain. Do not forget to allow all the old oil to drain completely, before adding fresh one.

«A» Filler cap.

«B» Oil drain plug.

Quantity required 0.900 l of «Agip Rotra MP SAE 85 W/140» oil.



25

Lubrication of the rear drive box (fig. 26)

Checking the oil level

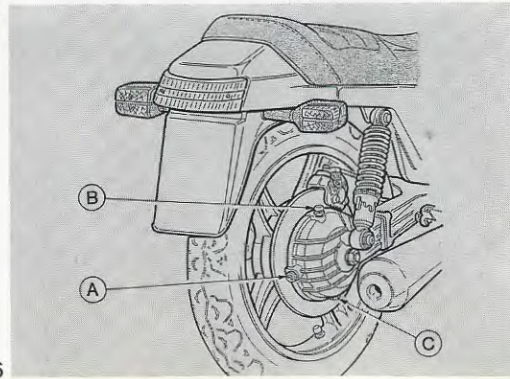
Every 3000 km check that the oil level is nearly skimming top level cap «A». If lower, top up with oil of same quality and density.

Oil change

Every 9000 km or so, change the oil in the rear drive box.

Do this on a warm engine as the oil is more easily drained.

Let the old oil drain completely before adding



26

fresh one.

«A» Dipstick and filler plug.

«B» Breather plug.

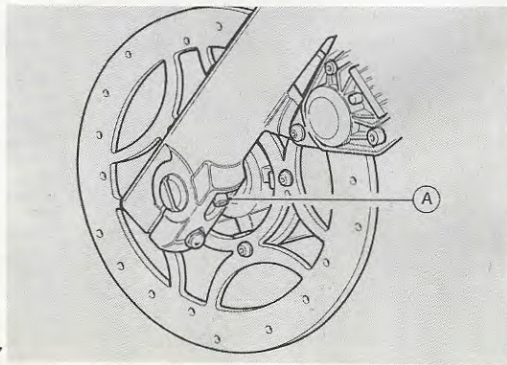
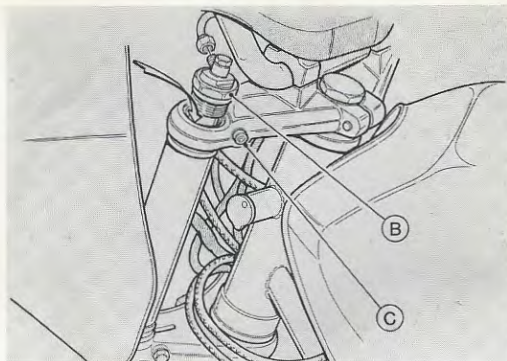
«C» Drain plug.

Quantity required: 0.160 l of «Agip Rotra MP SAE 85 W/140» oil and 0.010 l of «Agip Rocol ASO/R» or «Molykote type A» oil.

Front fork lubrication (fig. 27)

To replace the oil in the front fork legs, proceed as follows:

- remove the direction indicators and extract the front halfairing, at the same time disengaging it from the instrument panel;
- unscrew the ignition switch and zero reset knob ring nuts of trip odometer; extract the instrument panel;
- the vehicle standing on the central stand, loosen the side screw «C» locking the steering head to the fork arm; disconnect compensating pipe and contemporary unscrew the hexagonal screw plug «B» then undo drain plug «A»;
- slightly press the front part of the bike to force out the plug «B» which is solidal to the shock absorber;
- refit plug «A» and introduce the quantity of fluid necessary (100 cc of Agip F.1 ATF Dextron) 27



40 through the space existing between the inner diameter of the fork arm and the shock absorber body;

- release the front part of the bike, refit plug «B» and lock the side screw. Repeat the same operation for the other fork leg;
- reconnect compensating pipe and check the pressures keeping to the given values.

Various lubrications

In order to lubricate:

- steering column bearings;
- rear swinging fork bearings;
- control transmissions;
- Km./Mile speedometer drive;
- Stand articulations.

Use «Agip F.1 Grease 30» lubricant.

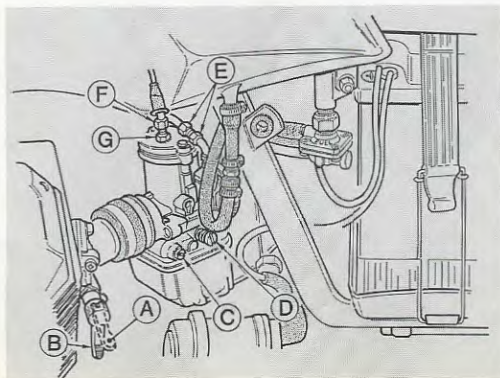
FUEL FEEDING

Carburettors (fig. 28)

No. 2 Dell'Orto carbs., type «PHBH 30 BD» (R.H.) and «PHBH 30 BS» (L.H.).

Carburation controls

- Throttle control grip on the R.H. side of the handlebar.
 - Easy starter level for **cold engine** starts located on L.H. side of vehicle.
- Starter lever positions:



«A» starting position with **cold engine**.

«B» riding position.

NB - Ensure that with starter lever in riding position «B» there is a play of about 3 mm, between the cable terminals and adjuster screws «E» for both carburetors.

Standard carbs. settings

Choke	30
Throttle valve	40
Atomizer	268 T
Main jet	105
Idle jet	38
Starter jet	60
Needle	X8 (2nd notch)
Float	11
Idling screw adjustment: open	1 1/2 turn

Adjustment of carburation and idling speed (fig. 28) (without vacuumeter)

For the above adjustments, proceed as follows:

28 1 With the throttle grip fully closed, ensure that

42 between the cable terminals and thumb screws «F» there is a play of 1÷1.5 mm for both carburetors, otherwise loosen nuts «G» and screw in or out thumb screw «F». At the end of this operation tighten nuts «G».

2 Warm up the engine to its normal running temperature.

3 Screw in fully idling adjusting screw «C» and then screw then out 1/2 turn.

4 Using both your hands, check if the exhaust pipe pressures are equal. If any difference is noticed, operate on screw «D» of one carburettor until the exhaust pressure of both carbs, is the same (idling speed should be kept at no more than 1200÷1300 rpm and consequently it may be necessary to screw in the screw of the carburettor for the cylinder giving a lower exhaust pressure, or screw out the screw of the carburettor for the cylinder giving a higher exhaust pressure).

5 Acting on screw «C» get the best carburation for each cylinder (this is perceived by an increase of rpm), and then adjust idling speed according to point 4.

6 Disconnect one spark plug lead at a time and check that in both cases the engine stops after firing the same number of revolutions. If it does not, screw out screw «D» of the carburettor making the engine fire more strokes or screw in for the carbu-

rettor making the engine fire less strokes.

7 Adjust idling speed at 1200-1300 rpm by screwing in or out screws «D» (both) by the same amount.

8 Ensure that the throttle valves open simultaneously by proceeding as follows: gradually turn the throttle control grip and check that the exhaust pipe pressures increase in sychronization using both your hands (an assistant is necessary for this operation).

If the pressure increase of one cylinder is advanced, act on its carburettor by gradually screwing in cable adjuster «F» by gradually screwing in cable adjuster «F» after having loosened counter-nut «G», until the synchronization of both exhaust until the synchronization of both exhaust pipe pressure is reached.

Adjustment of carburation using a «VACUOMETER»

In order to obtain a correct adjustment of the carburation, it is necessary *to apply to anyone of our Dealers who can carry out this operation by means of a «vacuometer».*

seal ring «F».

At the end of this operation re-fit in a reversed sequence, filling with the suggested oil quantity, before screwing in fully the oil filler cap.

It is advisable to have this operation carried out by our dealers.

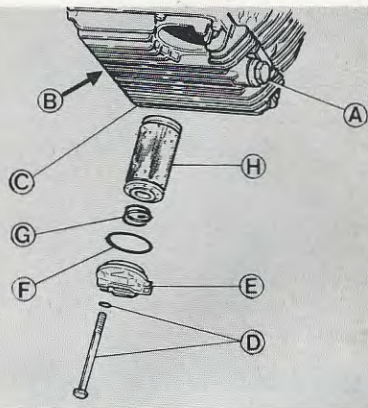
Cleaning the wire gauze filter and crankcase sump

It is advisable, after the first 500-1500 Km (first oil change and cartridge replacement) and further every 15000 Km, removing the oil sump from crankcase, removing the wire gauze filter, washing them in a petrol bath; they dry with a compressed air jet both filter and sump channels.

In re-fitting the sump on the crankcase, don't forget to replace the sump gasket.

It is advisable to have this operation carried out by our dealers.

24



Lubrication of the gearbox (fig. 25)

Checking the oil level

Every 3000 km check that the level is as shown in figure; if lower top up with oil of the same quantity and density.

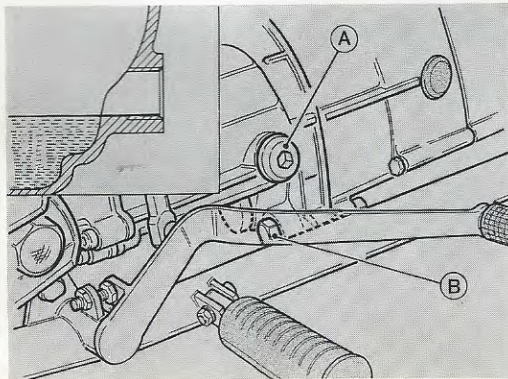
38 Replacing the oil

Every 9000 km, replace the oil in the gearbox. This operation has to be done on a warm engine when the oil is more fluid and easier to drain. Do not forget to allow all the old oil to drain completely, before adding fresh one.

«A» Filler cap.

«B» Oil drain plug.

Quantity required 0.900 l of «Agip Rotra MP SAE 85 W/140» oil.



25

Lubrication of the rear drive box (fig. 26)

Checking the oil level

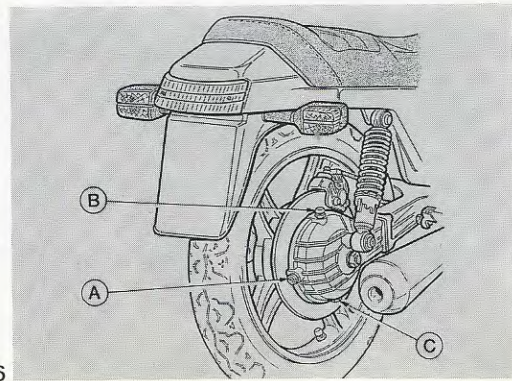
Every 3000 km check that the oil level is nearly skimming top level cap «A». If lower, top up with oil of same quality and density.

Oil change

Every 9000 km or so, change the oil in the rear drive box.

Do this on a warm engine as the oil is more easily drained.

Let the old oil drain completely before adding



26

Replacing the air cartridge

(fig. 29)

Every 9000 Km about or more frequently when riding in very dusty areas, it is suggested to replace the cartridge filter.

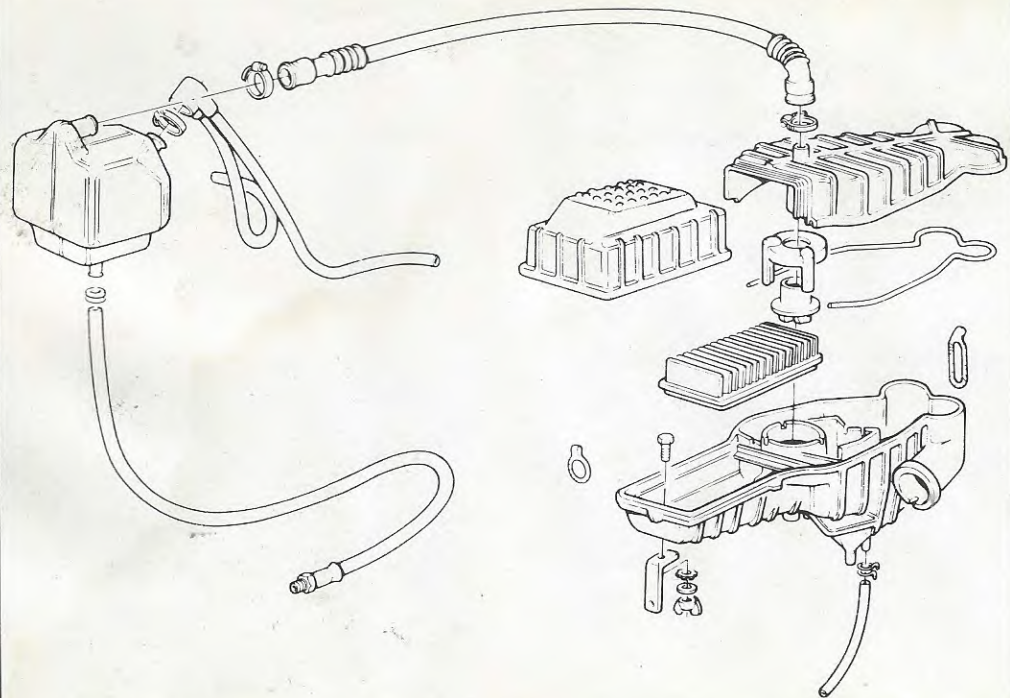
This filter is installed in a special box together with the oil breather assembly above engine unit.

For air cartridge replacement, we suggest to apply to our authorized Dealers.

Fuel tank, cocks, filters and pipes cleanings

Every 9000 Km about, or when an irregular fuel feeding to carburetors is noticed, it is advisable to have fuel tank, cocks, cocks filters, and carbs. filters as well as pipes cleaning.

Filters, pipes and cocks channels after petrol washing, have to be dried with compressed air jet.



Tappet clearance (fig. 30)

After the first 500-1500 Km and later on after about 3000 Km or so, or any time valve operation is too noisy, check tappet clearance.

This adjustment is done with a **cold engine** with the piston at TDC, at the end of the compression stroke (valves fully closed).

After removing the rocker cover, proceed as follows:

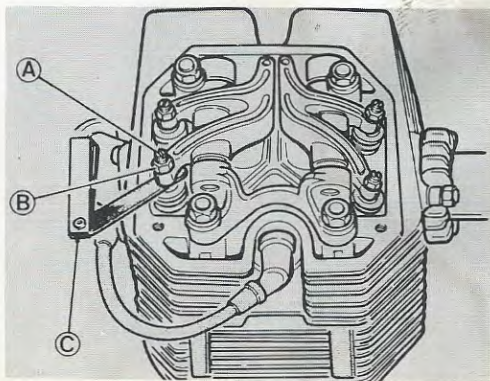
- 1 slacken nuts «B»;
- 2 screw in or out adjusters «A» till there are the following clearances:

- inlet valves 0.10 mm
- exhaust valves 0.13 mm

This check is made using feeler gauge «C».

In case of higher clearance, there will be noisy valve operation while if the valves do not close fully there will be inconveniences such as:

- compression loss;
- overheating of the engine;
- burning of valves, etc.



46 IGNITION

Ignition advance specifications

Electronic ignition system; advance modification is made electronically.

- Initial advance (fixed) 7°
- Automatic advance (electronic) about 30°
- Full advance (fixed+automatic) 38°±2°

Rotor to pick-up gap 0.2±0.4 mm

Electronic ignition system does not require any maintenance, in practice.

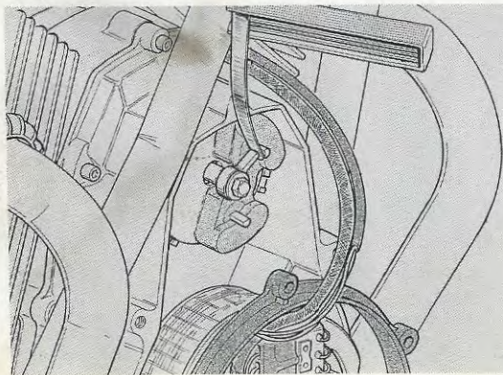
Engine is correctly set when printing stated on the

drawing (in fig. 32) is in line with the reference mark on the crankcase.

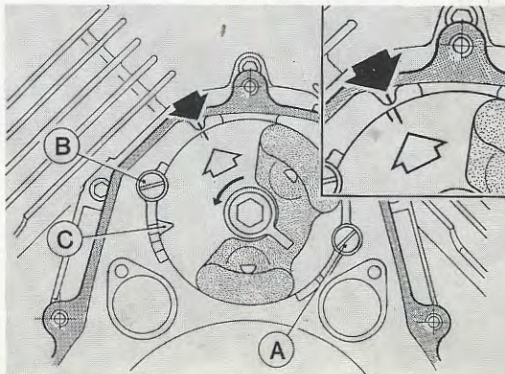
To have the PICK-UP plate rotated, loosen screws «A» and «B» (fig. 32) and operate with a screwdriver on groove «C».

For a more precise checking of fixed advance, always use a strobo light.

With engine at a lower r.p.m. than 1000 revs., notch «1» (fixed advance) printed on engine flywheel must be in line with the reference mark on the edge of the checking hole «2» (fig. 33), refe-



31



32

rence «0» on the flywheel means the «T.D.C.» (fig. 33).

For the maximum advance checking, always use a strobo light type with degree indicator, maintaining engine at 4500 r.p.m.

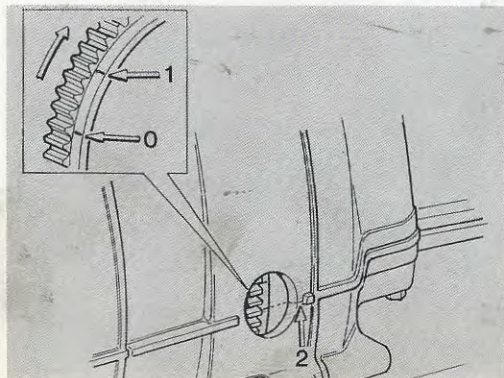
Spark plugs

The type of spark plugs to be used is:

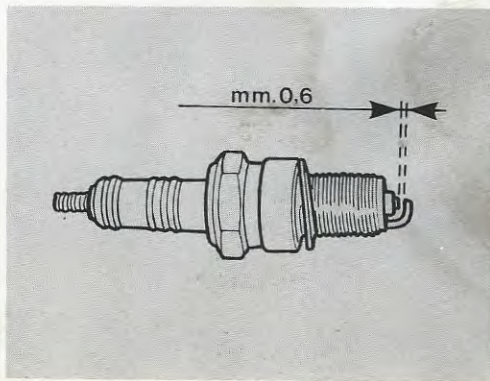
■ champion Z6, NGK C9 H.

Spark plug points gap: 0.6 mm.

In re-fitting the spark plugs, ensure that they are started by hand for a few turns, completing the operation with **cold engine**. If not properly started, the cylinder head thread may get stripped. For all events, the plugs have to be replaced every 9000 km even if they appear to be still in good condition.



33



34

ELECTRICAL EQUIPMENT

The electric system consists of:

- battery;
- starter motor;
- alternator-generator;
- ignition coils;
- rectifier;
- regulator;
- terminal block with fuses (no. 4 fuses 16A);
- flashing light relay;
- starter relay;
- headlight;
- tail light;
- turn signal indicators;
- light switch;
- lights control devices;
- turn lights, horn and flashing control devices;
- engine start device;
- electric trumpets;
- instrument panel warn. lights: neutral indicator (green) - parking light on (green) - oil pressure check (red) - high beam (bleu) - insufficient generator tension (red) - fuel reserve (red).

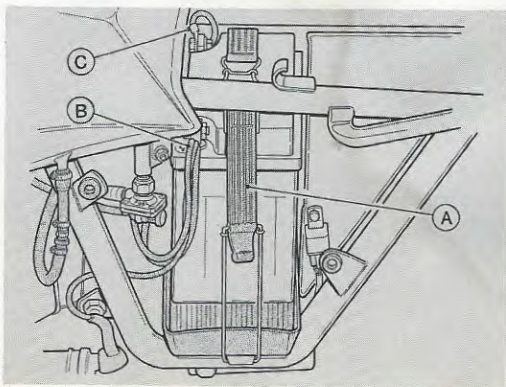
Battery (fig. 35)

49

The battery is a 12 V type with 20 Ah capacity and is charged directly by the generator.

Access to the battery is obtained by:

- lifting the saddle and removing the side covers;
- unhooking the securing rubber band «A» and disconnecting the electrical cables «B» and «C» (fig. 35) from the battery;
- removing the battery from its support.



50 Instructions on how to put a new dry battery in service

Dry type batteries stay charged for quite a long time, provided they are stored in a cool place (20-30°C = 60-86°F) and with their plugs well tightened down.

When putting them in service, activate them as follows:

1 Introduce pure sulphuric acid in the cells with a specific gravity of 1.27 kg/l at temperature of 25°C (77°F) till the level tops the plate separators by 5 mm or up to the level mark.

2 Let the battery at rest for about 1 hour and renew the level with the same type of acid.

At this stage the battery is ready to be used. For longer life, it is well to check the acid intensity in each cell. In case of readings lower than 1.26 kg/l, it is necessary to give the battery a refreshing charge to an intensity equal to 1/10th of its capacity. 5 hours charge is normally sufficient. Temperature should never exceed 45°C (113°F) but should it go up higher, reduce the current intensity and lengthen the charging time. Stop charging when the specific gravity has gone up again to 1.27-1.28 sp. gravity at 25°C and such a rate has remained constant for at least 3 readings at half hour intervals.

Instructions for maintaining acid full batteries

Activated dry type batteries or batteries that have been received already full with acid, should be

serviced as follows:

1 Add **distilled water** (never add sulphuric acid) ensuring that the acid level always tops the plate separators by 5 mm (.19").

2 Always keep the battery terminals in a spotlessly clean condition and smeared with jelly.

3 Always keep the top battery cover completely dry, avoiding overflows the electrolyte which will reduce insulation and corrode the battery bracket.

4 Make sure the charging equipment does not give excessive or insufficient charging intensity, bearing in mind that the acid gravity should always be in between 1.24÷1.27 kg/l. If not it will be necessary to check over the insulation and the efficiency of the charging and engine starting equipment.

5 All acid full batteries that have been stored should be periodically charged at an intensity equal to 1/10th of the capacity and at correct acid level and correct gravity of 1.27 kg/l at 25°C (77°F).

6 All batteries should be installed on the machine with all retaining devices well tight and with all antivibratory devices properly adjusted.

Note - If the battery is due to be used in tropical climates (average temperature over 33°C) (92°F) it is recommended to reduce the acid gravity to 1.23 kg/l.

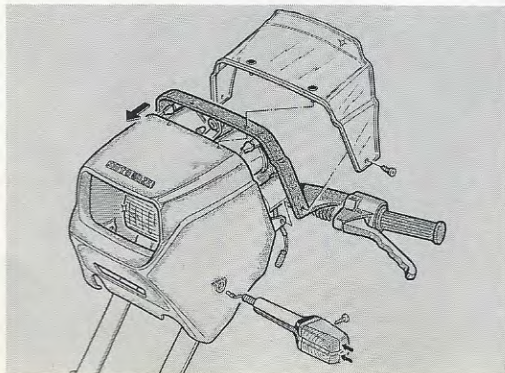
Light bulbs replacement

To replace the headlight bulbs and the instruments bulbs it is advisable to extract the half-fairing from the instrument holding plate after removal of turn signal indicators (fig. 36).

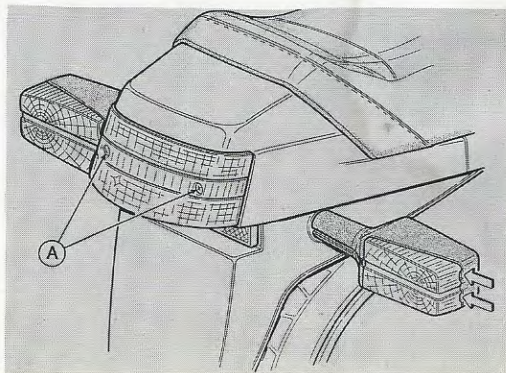
Headlight (fig. 38)

Detach electric connections from the headlight rear side; remove rubber protection cup «G» and disengage bulb «D» by rotating spring «E».

Once reassembly is completed check that no connections have been inadvertently disconnected (especially the position light one).



36



37

Bulb holder complete with position light «F» is pressure fitted.

Tail light (fig. 37)

Undo screws «A» securing the reflector to the lamp; push the bulbs inwards, turning them at the same time to free them from their bulb holders.

Front and rear turn indicators (figg. 36-37)

Undo screws «A» securing the indicator cups from the front half-fairing. Once they have been removed, bulbs can be replaced by removing them from bulb holders.

- 52 Panel warn lights, speedo and rev-counter**
 Remove the bulb-holder from speedo, rev-counter and instrument panel, then replace bulbs.

Bulbs

Headlight:

- High and low beam 45/40 W
- Parking light 4 W

Tail light:

- Parking and stop, plate ill. 5/21 W

Turn signals 21 W

Speedo and rev-counter 3 W

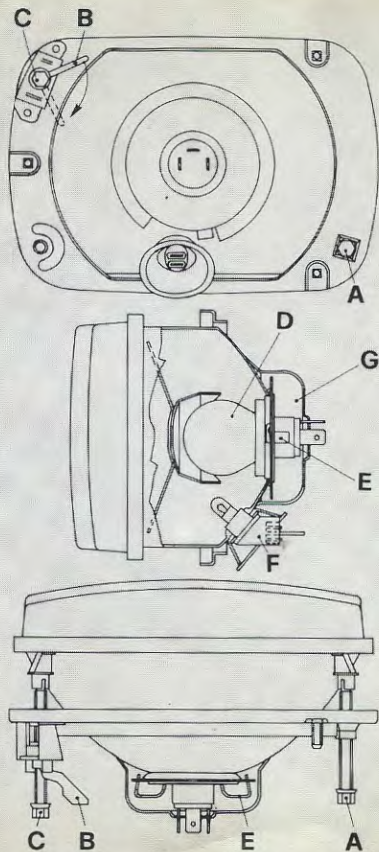
Panel warning lights 1.2 W

Voltmeter and fuel level indicator warn. lights 3 W

Headlight beam adjustment (fig. 38)

For safe riding and not to trouble crossing riders, the headlight has always to be kept at correct height.

Horizontal setting is adjusted by screw «A» while vertical setting is adjusted by «C» until the correct height is reached.



At a distance of 3 m. the high beam center has not to be higher than 0,865 m. with vehicle on the ground and rider on the saddle.

Act on lever «B» for a rapid vertical setting according to the load condition (1 or 2 persons on the saddle).

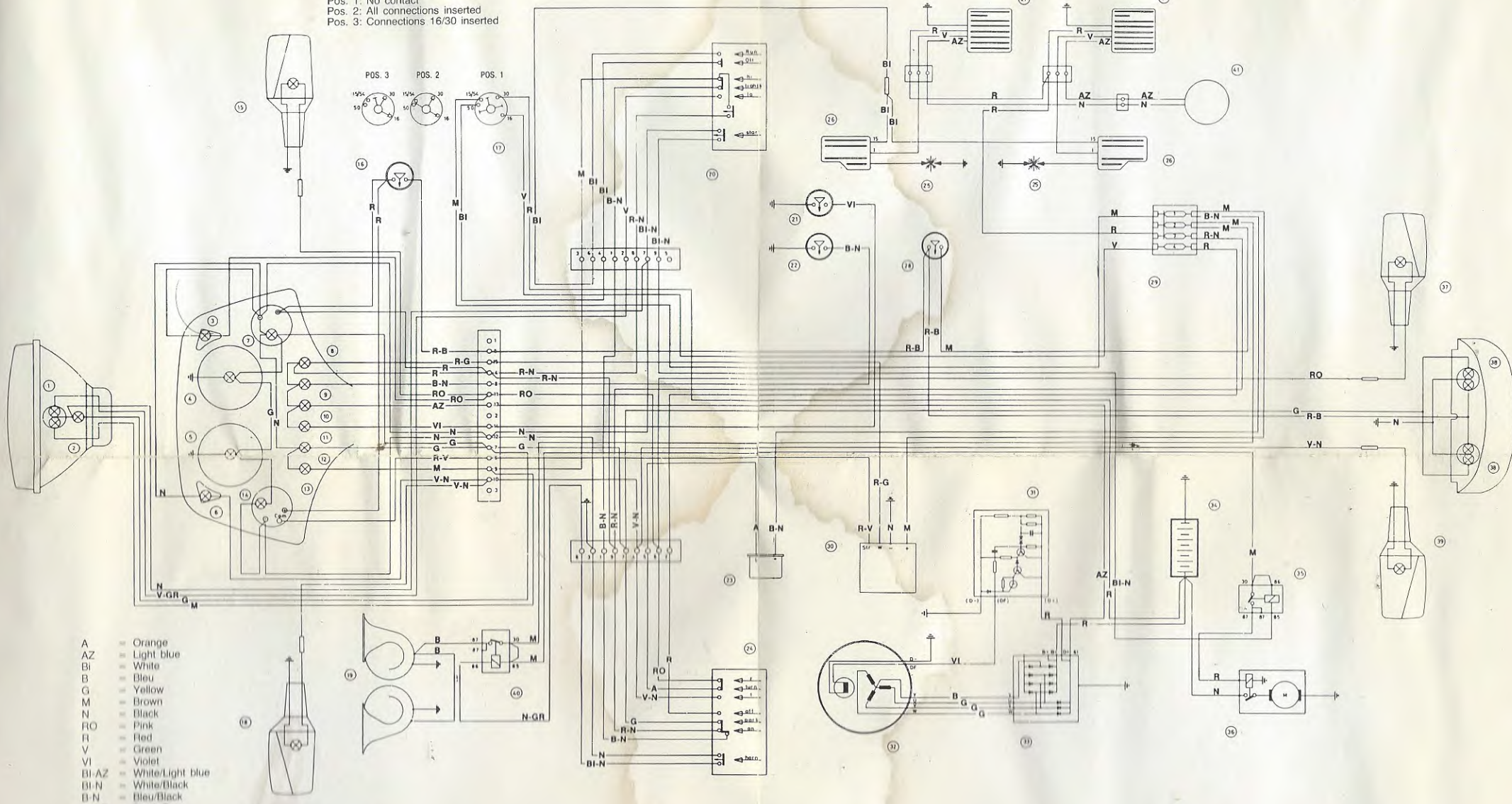
Wiring diagram

54 Electrical wiring diagram legend

- 1 High beam and low beam (45/40W bulb)
 - 2 Front parking light (4W bulb)
 - 3 R.H. turn indicators warn. light (1.2W bulb)
 - 4 Speedometer (3W bulb)
 - 5 Rev. counter (3W bulb)
 - 6 L.H. turn indicators warn. light (1.2W bulb)
 - 7 Voltmeter (3W bulb)
 - 8 Fuel level warn. light (1.2W bulb)
 - 9 Oil pressure warn. light (1.2W bulb)
 - 10 Generator warn. light (1.2W bulb)
 - 11 Neutral position warn. light (1.2W bulb)
 - 12 Parking light warn. light (1.2W bulb)
 - 13 High beam warn. light (1.2W bulb)
 - 14 Fuel level indicator (1.2W bulb)
 - 15 Front R.H. turn indicator (21W bulb)
 - 16 Front brake STOP switch
 - 17 Ignition switch
 - 18 Front L.H. turn indicator (21W bulb)
 - 19 Bi-tonal trumpets
 - 20 High and low beam - light flash - engine stop and on control device
 - 21 Neutral position indicator
 - 22 Oil pressure indicator
 - 23 Flashing device
 - 24 Horn - light control switch and turn indicators device
 - 25 Ignition spark plugs
 - 26 H.V. coils
 - 27 Electronic ignition
 - 28 Rear brake STOP switch
 - 29 Fuse box
 - 30 Fuel level manocontact
 - 31 Tension regulator
 - 32 Alternator (14V - 20A)
 - 33 Rectifier
 - 34 Battery (12V - 20Ah)
 - 35 Starter motor relay
 - 36 Starter motor
 - 37 Rear R.H. turn indicator (21W bulb)
 - 38 STOP and plate light (5/21W bulb)
 - 39 Rear L.H. turn indicator (21W bulb)
 - 40 Bi-tonal trumpets relay
 - 41 Pick-up
- Fuse no. 1:** flashers - fuel level manocontact.
- Fuse no. 2:** trumpets, starter relay, rear brake stop switch.
- Fuse no. 3:** high and low beam, front stop light switch, voltmeter, neutral pos. warn. light, generator, oil pressure, fuel level warn. light, fuel level indicator.
- Fuse no. 4:** parking lights, instrument lights, lights warn. light.

IGNITION SWITCH POSITIONS

Pos. 1: No contact
 Pos. 2: All connections inserted
 Pos. 3: Connections 16/30 inserted



- A = Orange
- AZ = Light blue
- Bi = White
- B = Bleu
- G = Yellow
- M = Brown
- N = Black
- RO = Pink
- R = Red
- V = Green
- VI = Violet
- BI-AZ = White/Light blue
- BI-N = White/Black
- B-N = Bleu/Black
- N-GR = Black/Grey
- R-BI = Red/White
- R-B = Red/Bleu
- R-G = Red/Yellow
- R-N = Red/Black
- R-V = Red/Green
- V-GR = Green/Grey
- V-N = Green/Black