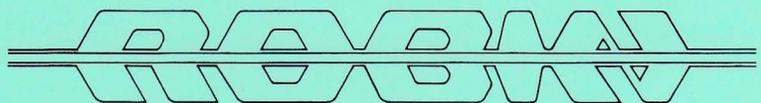
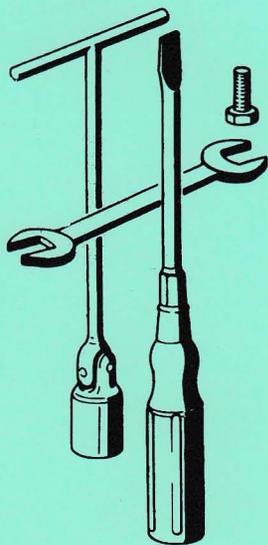




MANUALE DI OFFICINA

WORKSHOP MANUAL - MANUEL DE REPARATION - WERKSTATT HANDBUCH



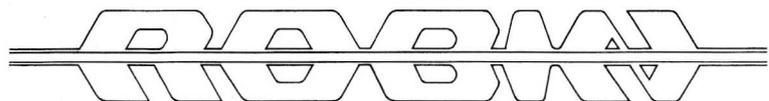
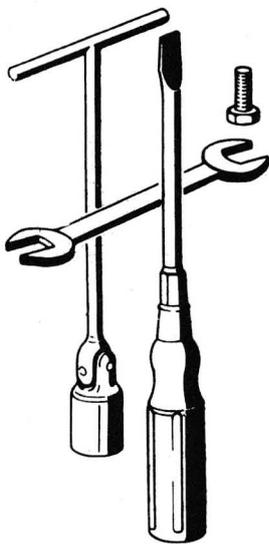
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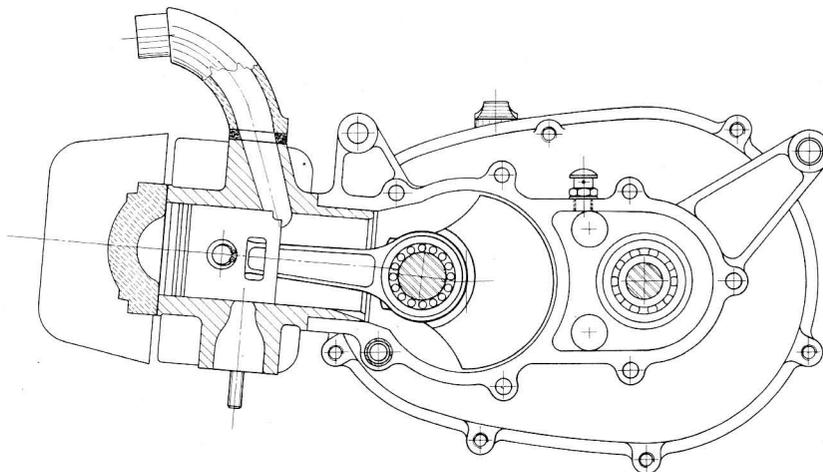
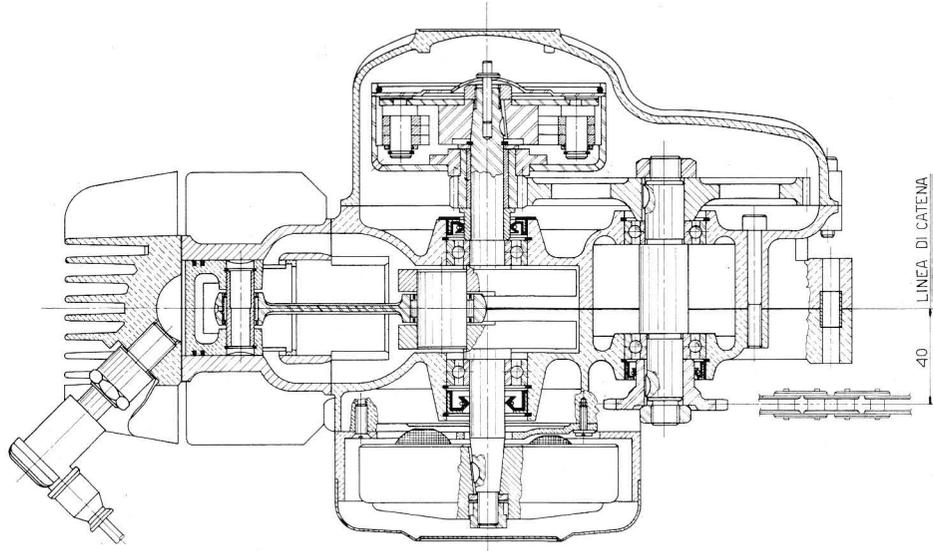
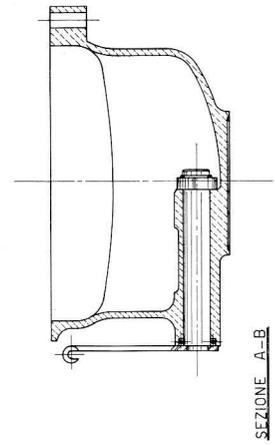
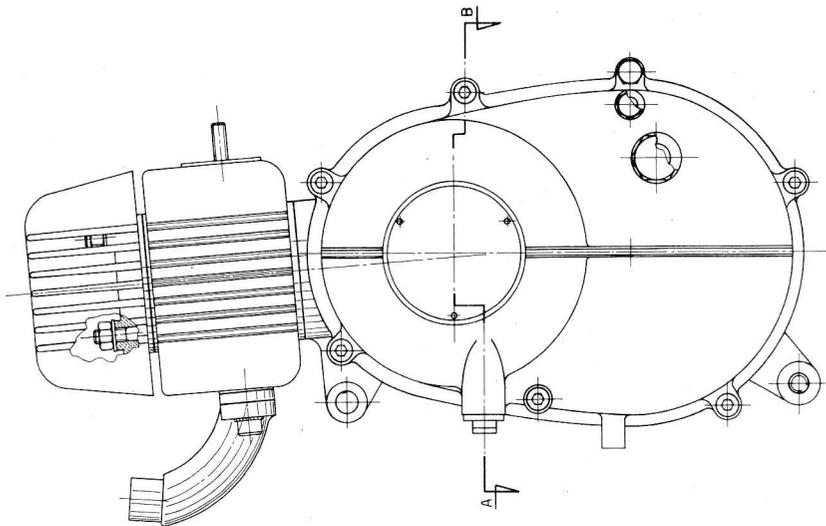


MANUALE DI OFFICINA

WORKSHOP MANUAL - MANUEL DE REPARATION - WERKSTATT HANDBUCH



ENGINE CUTAWAY



MAIN FEATURES

Engine

1-cylinder, 2-stroke

Bore 40 mm
Stroke 39 mm
Displacement 49 cc
Horse power 1,5 HP at 4400 rpm
Compression ratio 8,5 : 1

Fuel 4% oil petrol mixture.

Carburettor «Dell'Orto», SHA 14,9 - Choke ϕ 9 mm - Main jet 45/100 - Collar ϕ 18 mm.

Ignition magneto-flywheel, alternator

Cooling air cooled.

Clutch centrifugat, automatic clutch, in oil bath.

Gearbox single-speed.

Starting kick starter.

Primary drive by gears.

Secondary drive by chain.

Oil sump capacity 0,160 lt (5½ ounces approx.)
«Agip F.1 Motoroil HD SAE 20 W/30» or equivalent.

Cycle

Frame stamped sheet metal.

Suspensions telescopic front fork, rear shock absorbers.

Wheels front and rear rims WM 1,35 - 16".

Tyres front and rear 2¼ - 16".

Brakes expansion type, front and rear hand controlled.

Electrical equipment 6V - 18 W.

Fuel tank capacity: approx. ¾ gallon.

Performances

Speed under 25 mph.

Fuel consumption approx. 175 mpg.

Dry weight approx. 100 lbs.

LUBRICATION AND MAINTENANCE CHART

PART	MAINTENANCE	TIME INT.	LUBRIFICANT
FUEL	4% Mixture (5% during the engine breaking in).		Agip F.1 - 2 T
TYRES	Pressure: = front 21 p.s.i.; = rear 25 p.s.i.	Periodically	
TRANSMISSION	Change gearbox oil, warm engine.	Ev. 3000 mi	Agip F.1 Motoroil HD SAE 20W/30
	Check oil level.	Ev. 3300 mi	
SPARK PLUG	Check point gap .019".	Ev. 1200 mi	
AIR FILTER	Clean in petrol bath.	Ev. 1200 mi	
FUEL FILTERS	Clean fuel filters and tap, and carburettor.	Ev. 1200 mi	
CHAIN	Wash with petrol, dry and lubricate.	Periodically	Agip F.1 Grease 30
MAGNETO-FLYWHEEL	Check contact breaker points gap .016".	Ev. 3000 mi	
ENGINE	Clean cylinder head, piston top, exhaust tube on cylinder, exhaust pipe and silencer.	Ev. 3000 mi	
FUEL TANK	Clean inside.	Ev. 3000 mi	
CARBURETTOR.	Dismantle for overhauling and cleaning.	Ev. 3000 mi	
STEERING CAPS AND WHEEL HUBS	Clean caps and balls, if damaged, replace them. Fill the caps with grease and plunge the balls into them.	Ev. 6000 mi	Agip F.1 Grease 30

SPECIFIC WORKSHOP TOOLS (See fig. 1)

FIG. N°	PART N°	DESCRIPTION
1	43906300	Puller, flywheel magneto
2	48902770	Tool, holdfast; flywheel and driving pinion
3	48906170	Tool, holdfast, drive gear and plate
4	48912670	Puller, pinion

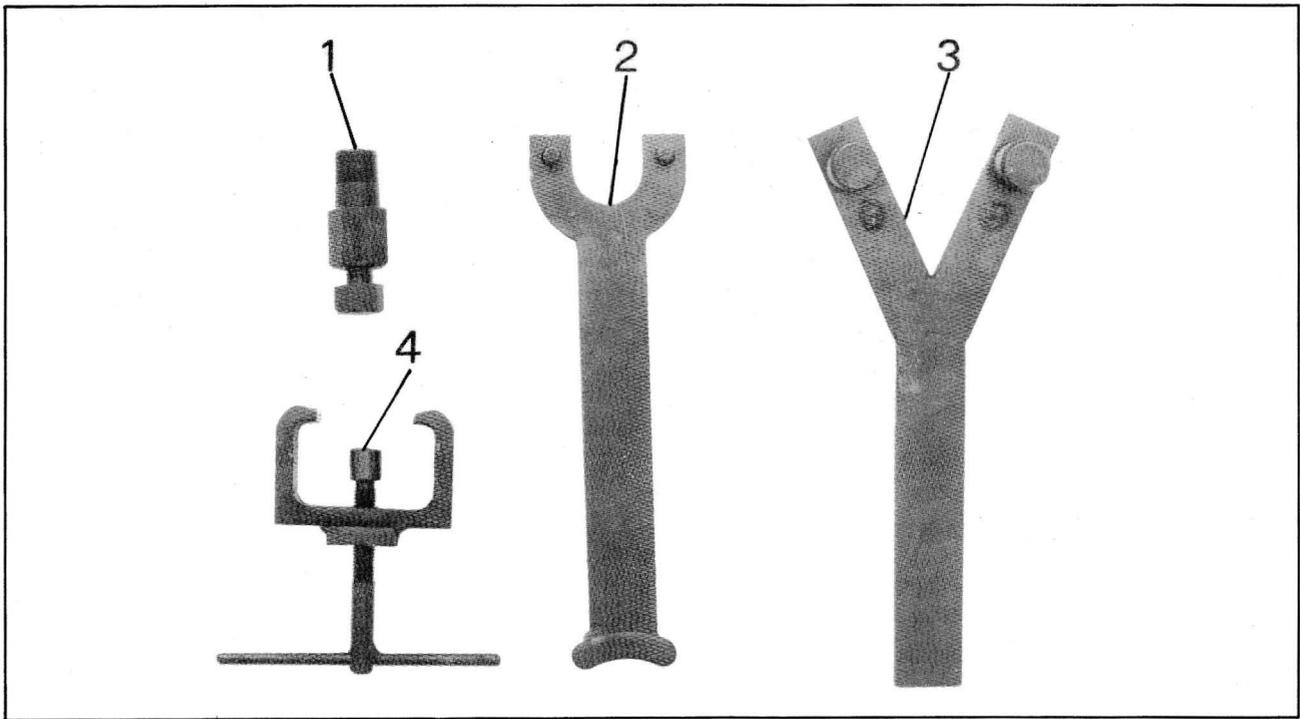


Fig. 1

LAYOUT OF CONTROLS (fig. 2)

- 1 Front brake control lever.
- 2 Throttle control twist griP.
- 3 Light switch, horn button.
- 4 Front brake adjuster.
- 5 Fuel tank filler cap.
- 6 Rear brake control lever.
- 7 Starting control lever.
- 8 Spark plug.
- 9 Fuel tap.
- 10 Pedals, kick starting and foot-rest.
- 11 Prop stand.
- 12 Rear brake adjuster.
- 13 Chain tensioner.
- 14 Identification data plate.
- 15 Engine starting and stopping button.
- 16 Electric horn.

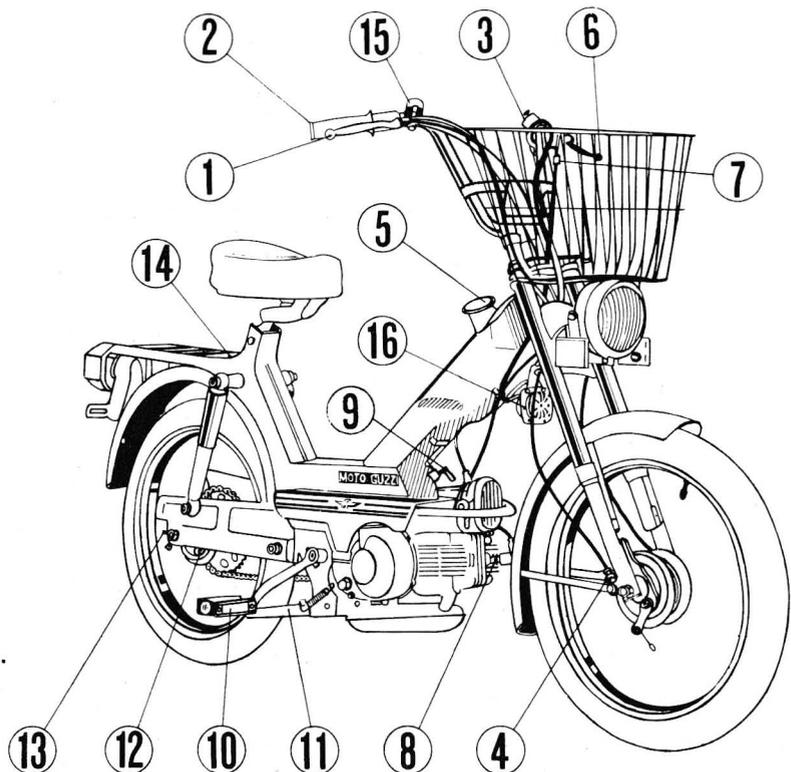


Fig. 2

LUBRICATION AND MAINTENANCE

Lubrication of the gear box

Level checking (Pict. 3)

Every 300 miles ensure that the oil level is correct if necessary add oil of same quality and density.

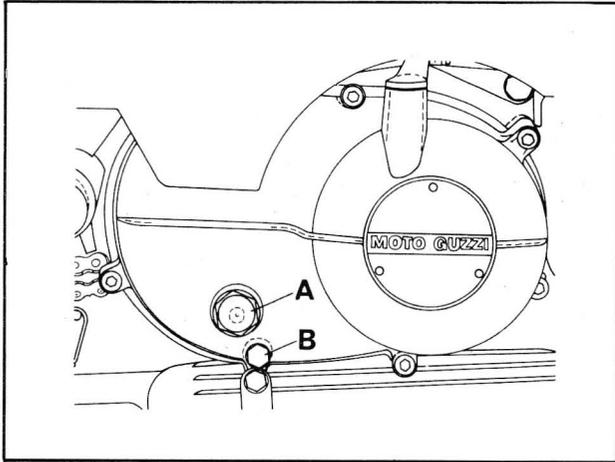


Fig. 3

Oil changing (Fig. 3)

To be done on a **warm engine**, after the first 900 miles and thereafter every 3000 miles. Drain the crankcase very well before adding fresh oil. «A» filling cap; «B» draining plug.

Necessary quantity: approx. 5% ounces oil «Agip F.1 Motor-oil HD SAE 20 W/30» or equivalent.

Chains lubrication

Should be done whenever the chains show up dry. Normal lubrication is done using the specially prepared bottles of AGIP Rocol Chain Lube Spray, every 500 km. (300 miles).

A thorough cleaning of the chains should be done every 5000 km or so (about 3000 miles) or more frequently if the moped is driven often in the rain or on very dusty roads. Take off the chains and wash them in petrol, dry them thoroughly, and smear them with the specified grease.

Sundry lubrications

Any time the vehicle is overhauled (after 20.000 km = 12.000 miles) the steering unit should be dismantled and the caps and balls checked.

To do so, wash them in a petrol bath to ensure they are in good state.

Then pack the caps with grease and plunge the balls into them.

Remove the wheels and after cleaning them thoroughly refit them ensuring of their proper adjustment, leaving a sufficient amount of play to allow free rotation.

Lubricate all connections and cable terminals using AGIP F.1 Grease 30.

Carburation

This model fits a Dell'Orto carburettor type SHA 14.9 incorporating an air filter and silencer at the air intake.

Carburettor control (fig. 4)

The throttle valve in the carburettor is controlled by a twist grip on the R/H side of the handlebar through a flexible cable connection.

The air intake is lever controlled on the L/H of the carburettor.

Lever positions:

- A : for cold startings
- B : riding position

Carburettor setting

- Mixture inlet	100
- Choke	9 mm. diameter
- Max air input	130
- Idling jet	70
- Air valve	50
- Main jet	45
- Floater	3,5 gr. (.13 oz.)

Idling speed adjustment

It is done on a warm engine, with grip at minimum opening, and with the vehicle off the stand (wheels touching the ground).

Start the engine and screw in adjusting screw «C» till the engine reaches the highest possible revolutions before the machine starts moving.

Intake silencer incorporating air filter (fig. 4)

This should be cleaned every 2000 km (1200 miles) or more often if the vehicle is used on very dusty roads.

To clean it:

- Remove inlet silencer «D» from the carburettor after undoing the clip securing screw (E).
- Take out filter «F»
- Wash the silencer and filter in a petrol bath and dry off with compressed air.
- Re-fit reversing the dismantling operations.

Cleaning the tap and carburettor filters

When cleaning filter «B» (fig. 5) and inlet silencer «D» (Fig. 4), it is well to clean also tap filter «A» and carburettor filter «C» (Fig. 5), operating as follows:

- Close the tap and disconnect the fuel line from the tap on the tank.
- Unscrew the tap from the tank.
- Undo the screw and remove the banjo union from the carburettor then remove filter «C», tap filter «A», and carburettor filter «C» wash in pure petrol and dry off with compressed air, blowing also through the line to the carburettor.

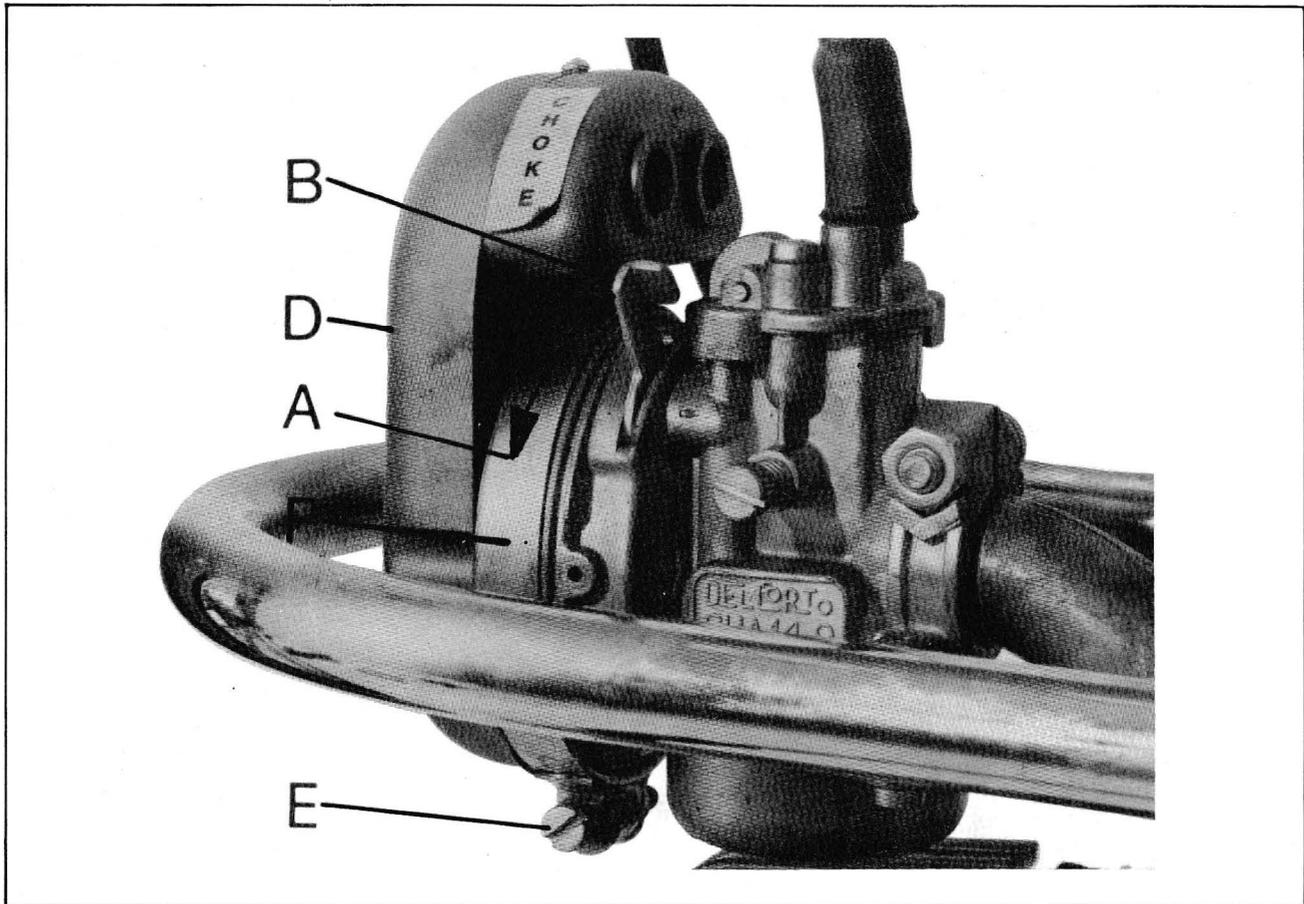


Fig. 4

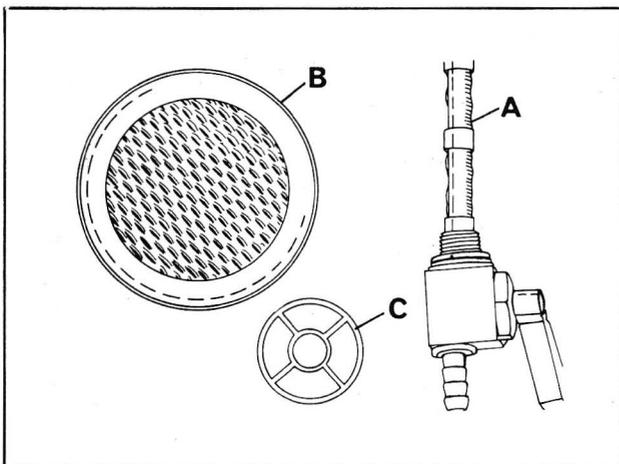


Fig. 5

Adjustment and lubrication of the contact breaker (Fig. 6)

Every 5000 km (about 3000 miles) lubricate the cam felt pad with a few drops of oil. Correct points gap is 0.40 mm. (.059").

If more or less, adjust as follows:

- loosen half a turn screw «C» which secures the fixed contact plate and using a screwdriver in the point indicated by the arrow (D), move the plate to the position which will give the correct gap. Then tighten screw «C».

Note

1. - Dirty or damaged contact points cause faulty ignition. Ensure the contacts are

quite clean and flat. If dirty, clean them with a petrol soaked rag. If uneven, flatten them out using a very fine cut file.

2. - A greasy contact will cause:

- A - Blackening and rapid wear of the points
- B - Rapid densening of the oil causing defective ignition
- C - Contact gap can be adjusted through the adjusting screw

Adjusting ignition timing

Adjustment of the exact firing point is done as follows:

- Turn the flywheel cover anticlockwise and remove the cover.
- Turn the flywheel clockwise till mark «A» on the rotor is in line with mark «B» on the crankcase cover (See fig. 7). At this point the piston is at TDC.
- Connect the cables of tester «C»: cable «A» to the flywheel cable, cable «B» to the earth on the engine (see fig. 8).
- Turn the flywheel anticlockwise till mark «C» on the rotor is in line with mark «B» on the crankcase (See fig. 7). At this stage, if all is well, the pointer of tester «D» (fig. 8) should start moving in a clockwise direction. This means the ignition occurs exactly at the specified point (29° 25.5 mm (1") as measured on the rim of the flywheel rotor).
- If the mark of rotor «C» is not on line with mark «B» on the crankcase (fig. 7), it is ne-

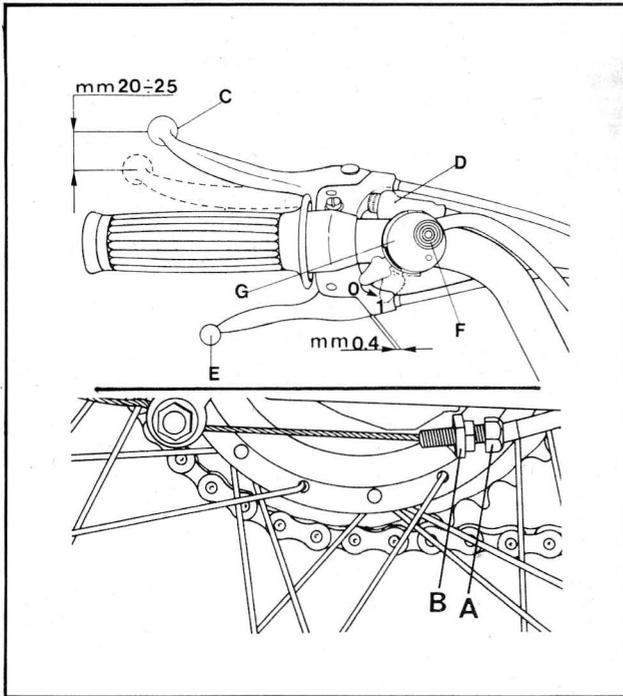


Fig. 10

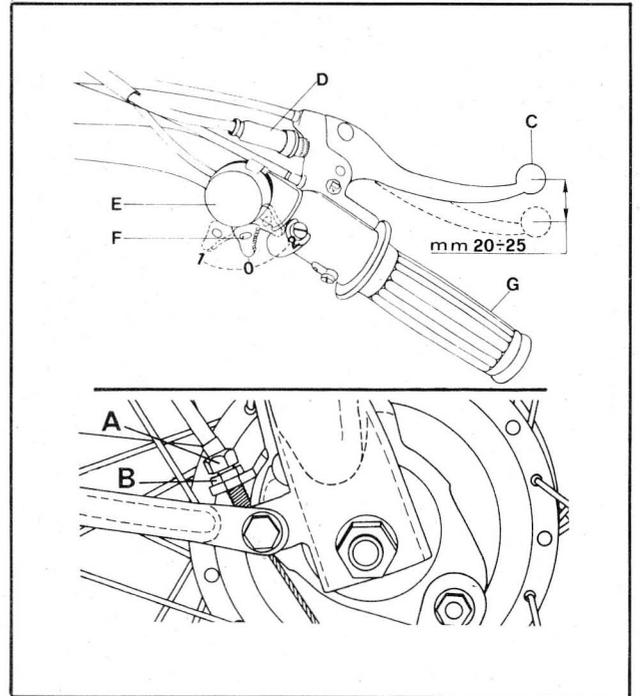


Fig. 11

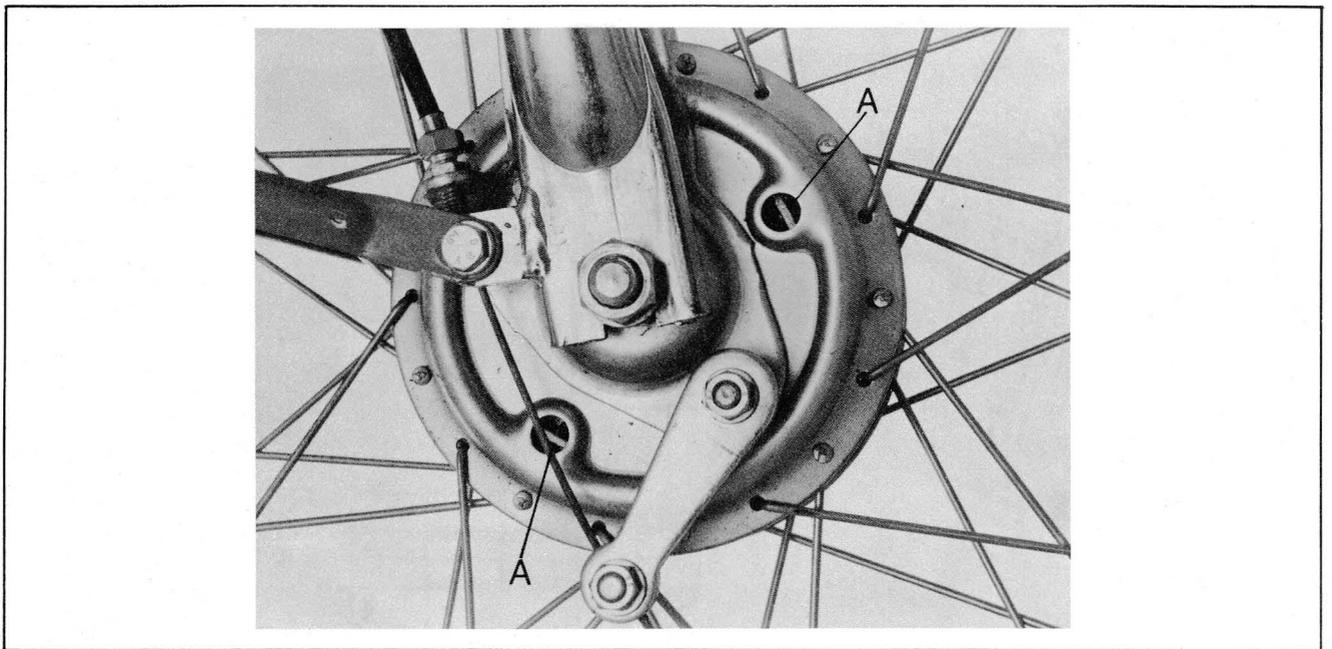


Fig. 12

must be 20-25 mm. The lever «C» actuates the stoplight cutout (D) and the tail light bulb «D» Fig. 15 lights on;

■ inspect the shoe «A» linings for front and rear brakes (Fig. 12).

Thickness of a new lining: mm 4 (.157)

Thickness of a limit worn lining: mm 2 (.079);

■ adjust the chain tension. Loosen first the nuts «A» on the rear wheel spindle, then screw in or out the nuts on the chain tensioners «B» (shake play in the middle of the chain is mm 25-30 - bike not on stand). Then true the wheel (Fig. 13).

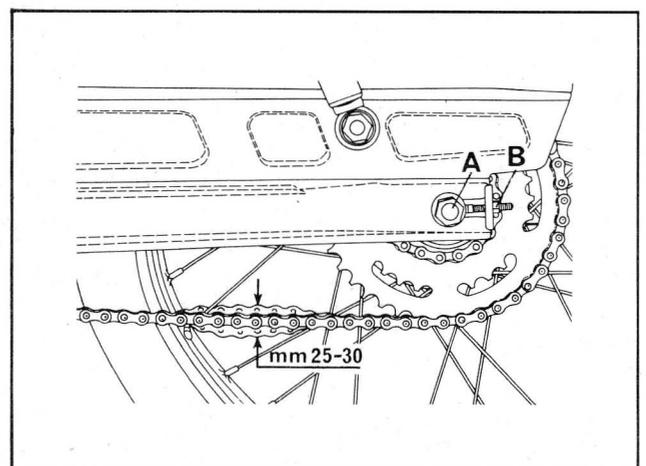


Fig. 13

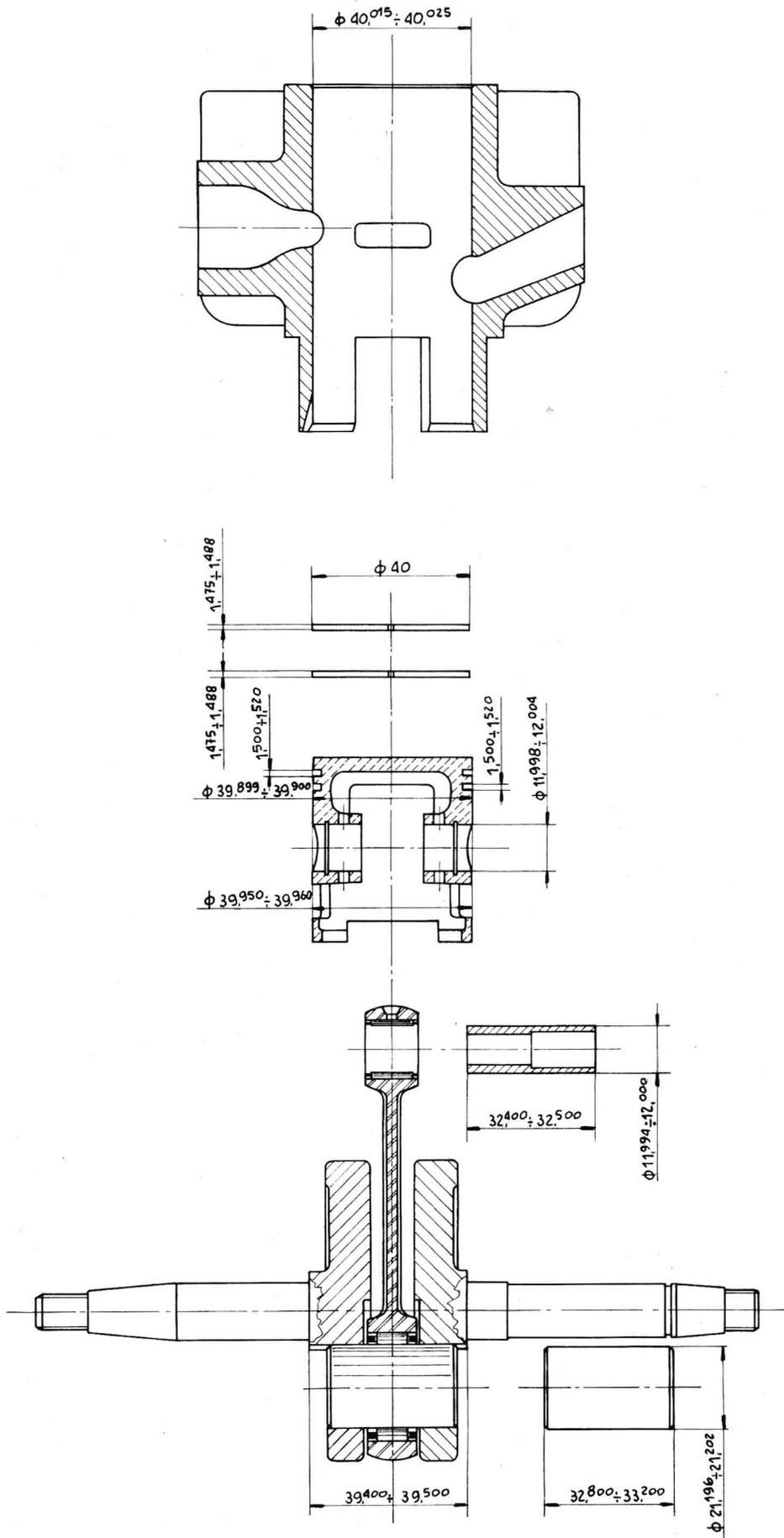


Fig. 14

ENGINE OVERHAUL

Removing the flywheel cover from the crankcase

Proceed as follows: Turn the cover anticlockwise until the peg on it snaps when the cover can be removed.

Removing the rotor from the flywheel

Introduce the holding section of tool 48902770 (2 in fig. 1) in one of the rotor webs so as to undo the retaining nut on the crankshaft.

Screw puller 43906300 (1 in fig. 1) on the rotor and screw in the puller center bolt until the rotor is heard to come away from the crankshaft key.

Removing the chain sprocket from the driving shaft

Take off the chain and fit the 2 prongs of hold-fast tool part n. 48902770 (2 in fig. 1) on the gear teeth and by the aid of a suitable wrench undo the nut securing it to the driving shaft.

Remove the above tool and using puller 48912670 (4 in fig. 1) pull out the gear from the shaft.

Removing the driving gear from the shaft

Use tool 48906170 (3 in fig. 1). Insert the tool prongs in the 2 drillings in the gear and by the aid of a suitable wrench undo its securing nut and remove the gear.

Removing the automatic clutch carrying plate

Detach it from the main shaft as follows:

- Remove circlip retaining the starting disc
- Introduce the prongs of tool 48906170 (3 in fig. 1) in the plate holes
- Using a suitable wrench undo the nut retaining the plate to the crankshaft.

INSPECTION

Cylinder barrel (See fig. 14)

Ensure it is not deeply scored or seized. If so, it will have to be re-ground in accordance with the data contained in the following table

Original production diameter mm.	0/s 2/ 10 mm.	0/s 4/ 10 mm.	0/s 6/ 10 mm.
40.015 - 40.025 (1.575 - 1.581")	40.215 - 40.225 (1.5832 - 1.15836")	40.415 - 40.425 (1.5911 - 1.5915")	40.615 - 40.625 (1.5991 - 1.5994")

Piston (See fig. 14)

Check if scored or ovalized, also that the piston ring grooves have no carbon deposit.

If the cylinder is re-ground, the piston and rings have to be changed. 0/s are shown in the following table.

Original production diameter mm.	0/s 2/ 10 mm.	0/s 4/ 10 mm.	0/s 6/ 10 mm.
Top part under the groove for 2nd ring			
39.890 - 39.900 (1.5704 - 1.5708")	40.090 - 40.100 (1.5783 - 1.5787")	40.290 - 40.300 (1.5862 - 1.5866")	40.490 - 40.500 (1.5940 - 1.5944")
Piston base over the intake ports:			
39.950 - 39.960 (1.5728 - 1.5732")	40.150 - 40.160 (1.5807 - 1.5811")	40.350 - 40.360 (1.5844 - 1.5848")	40.550 - 40.560 (1.5964 - 1.5968")

Piston rings (See fig. 14)

If the cylinder is re-ground, the piston and rings have also to be changed. The piston rings to be

used on a re-ground cylinder are indicated in the following table

Original production diameter mm.	0/s 2/ 10 mm.	0/s 4/ 10 mm.	0/s 6/ 10 mm.
40.000 (1.5748")	40:200 (1.5826")	40.400 (1.5905")	40.600 (1.5984")

Check groove-ring clearance. Max. permissible: 0.012-0.045 mm. (.00047-.0017")

Gudgeon pin (See fig. 14)

To fit the pin it is necessary to heat up the piston up to about 60°C (140°F) in order to lightly expand the piston pin hole for easier introduction.

Maximum allowable piston-pin clearance: 0.010 mm. (.00039")

Interference 0.008 mm (.00031")

Crankshaft (See Fig. 14)

With the crankpin fitted on the two crankshaft halves, the pin-conrod clearance (including the rollers tolerance) should be 0.014-0.018 mm. (.00055-.0007") Distance between shims with crankpin and flywheel magneto clamped: 39.400 - 39.500 mm (1.551 - 1.572").

Cylinder barrel assembly on head

When fitting a cylinder the head and base gaskets should always be changed.

To more easily assemble the piston into the barrel it is recommended to lightly moisten the barrel and piston with a few drops of oil.

The 4 cylinder head hold down nuts have to be tightened in a diagonal sequence with a torque wrench set a 1 kgm (7 ft/ lbs).

ELECTRICAL SYSTEM

Controls:

Light control switch and horn button (see Fig. 10).

It is located on the L/H side of handlebar.

«F» horn button.

«G» lights switch

«0» lights off.

«1» lights on.

Engine starting and stopping button (See fig. 11).

It is located on the R/H side of the handlebar. «E» switch.

«F» switch «E» control lever:

«1» (RUN) starting position;

(the lever «F» set in this position, operates the starting pedals);

«2» (OFF) engine stopping position;

(to start the engine turn the lever «F» to position «1» (RUN).

Bulb replacement procedure

Headlight (Fig. 15)

Loosen screws «A» and replace the bulb.

Tail light (Fig. 15)

Loosen screws «C» securing the reflex reflector, push bulb «D» inside, at the same time turn and take it off the holder.

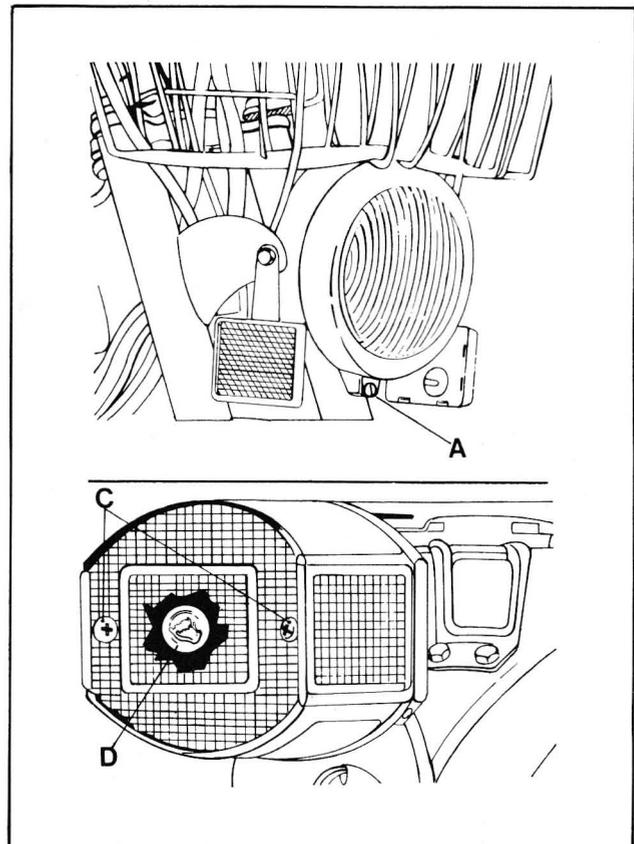


Fig. 15

WIRING DIAGRAM (Fig. 16)

- 1 Headlight
- 2 Bulb 6 V - 20 W
- 3 Engine stopping
- 4 Lighting
- 5 I.S.P.
- 6 I.S.A.
- 7 Horn
- 8 Flywheel
- 9 Equipment connections
- 10 Spark plug
- 11 Coli
- 12 F.P. Connections
- 13 Bulb 6 V - 5/ 18 W
- 14 F.P.P.T.

