

**DUCATI**

**900 SD**

**SPORT DESMO**

**"DARMAH"**

**instructions for use  
and maintenance**

*1211 415*

Every Motorcycle receives one copy of the present booklet.

The contents of this booklet are not binding and though the main specifications of the motorcycle described and illustrated in this booklet remain unchanged, the DUCATI MECCANICA S.p.A. will be free to introduce modifications of some details, or of some accessories, if these modifications will be judged necessary or if they can improve the motorcycle, or finally for some technical-economical exigencies, but without being obliged to bring this booklet up-to-date.

*Dear Sir,*

*We are very glad to welcome you among our clients, and feel sure that you will not fail to appreciate the magnificent performances of the DUCATI Motorcycles.*

*The magnificent performances and reliability of our machines reflect the experience gained throughout many years of successful racing both on track and road.*

*In order to obtain the fine service that the Ducati machine is capable of giving, it is essential that the instructions contained in this book be religiously adhered to.*

*If these instructions are followed closely, particularly during the running-in period of the machine, then you will be assured of many years trouble-free enjoyable riding.*

*We thank you and congratulate you on your wise choice of such a fine machine with unequalled performances.*

**DUCATI MECCANICA S.p.A.**

# DUCATI

## 900 SD

SPORT DESMO

### "DARMAH"

MOTORCYCLE



SPECIFICATIONS - USE - MAINTENANCE



**DUCATI 900/SD «DARMAH» MOTORCYCLE**



**DUCATI 900/SD «DARMAH» MOTORCYCLE  
1979-80 MODEL**

## A FOREWORD

*The main goal of the present instruction booklet is to enable the owner of a DUCATI Motorcycle to use his vehicle in the best possible way.*

*The following notices are therefore only simple recommendations, suggestions, advices, and terms of reference, sufficient to enable anyone, having no experience or ignoring any special technical knowledge, to use his vehicle and to maintain it for a long time in perfect working condition.*

*In this booklet you will find the specifications of this new model of the precious series of motorcycles produced by DUCATI.*

## **DUCATI SERVICING GARAGES**

It is advisable, when taking the machine to a garage for repairs, to be sure that the garage is a Ducati agent as the staff will have been specially trained and the garage will have been equipped with the necessary tools to carry out any repair required (see pictures at page 60 and following).

This way you will be sure that the possible replacement of groups or parts will be made with genuine Ducati spares, in order to avoid unforeseeable troubles and to ensure interchangeability, good operation and long life.

## **ORDERS FOR SPARE PARTS**

It is absolutely necessary that each order for spare parts clearly states the following data:

- 1) The catalogue code of the spare part obtained from the Spare Part Catalogue;
- 2) Serial number of the engine (when ordering spare parts of the engine);
- 3) Serial number of the frame (when ordering spare parts of the frame).

For the requests of spare parts under the warranty, the Dealer has to fill in the special application form (in 4 copies) and send it together with the defective parts to the Ducati Distributor, for technical examination and the eventual replacement free of charge.

## IDENTIFICATION NUMBERS

Every DUCATI 900/SD can be identified by its frame and engine serial numbers (see Fig. 1).

For the frame, the number is printed on the L.H. rear engine holding plate; for the engine the number is printed on the crankcase.

For the countries where required, these identification numbers are stamped also on a special plate put on the motorcycle.

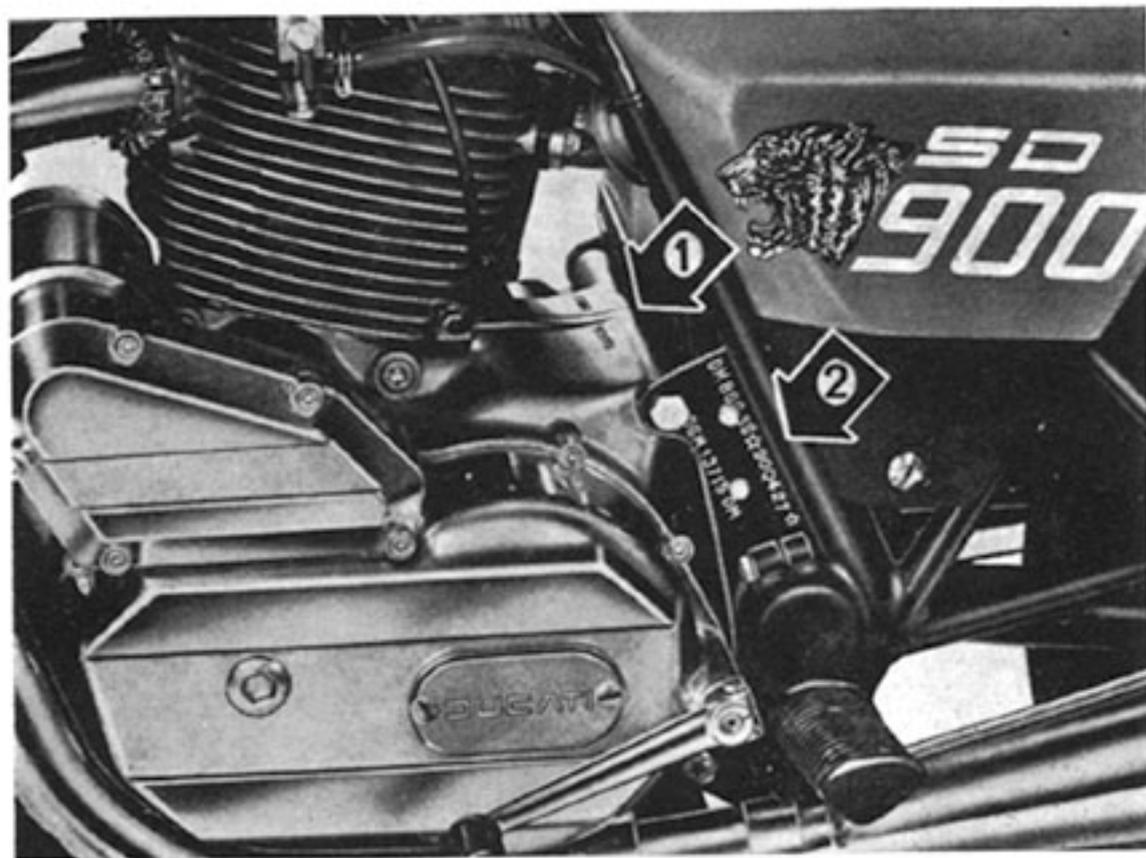


Fig. 1

- 1 - Engine serial number
- 2 - Frame serial number

## PRECAUTIONS

TO BE FOLLOWED DURING THE INITIAL RUNNING-IN PERIOD

During the first 500 Km. (310 Miles).

During the first 500 Km. (310 Miles), the rev. counter must not exceed  $5000 \div 5500$  r.p.m. (see Fig. 2).

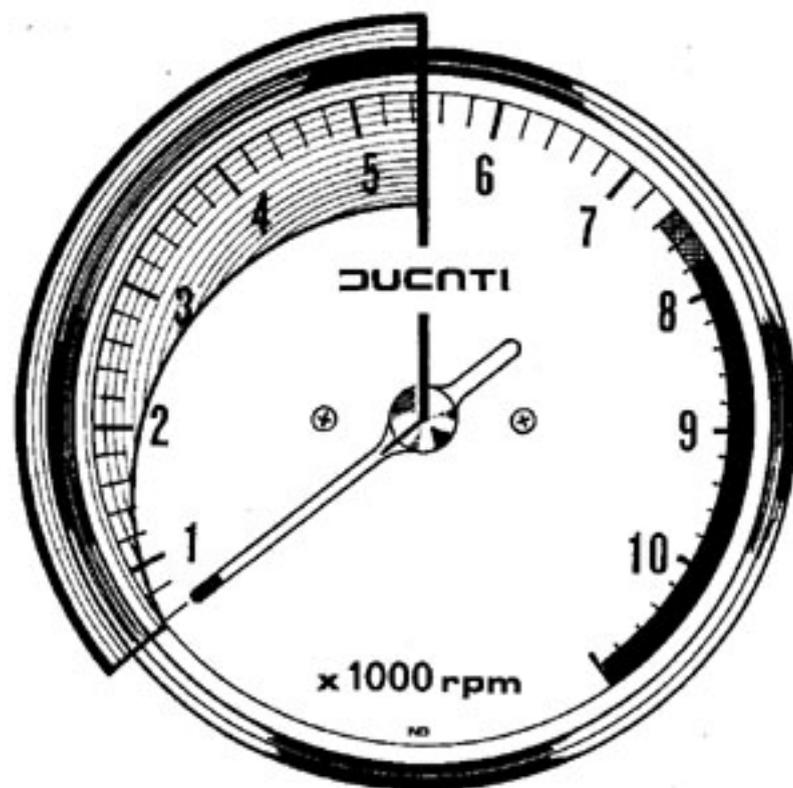


Fig. 2

During first running hours, we suggest to continuously change load and number of revolutions, remaining within the above limits.

To this purpose, tortuous and hilly streets and roads are the most suitable for a proper running-in of engine, brakes and suspensions.

With the purpose to allow a right mutual adaptation of all mechanical parts of the vehicle, especially for avoiding damages to the main engine mechanisms, during the first period of use **do not force the engine, keeping it for a long time at a high number of revolutions, particularly while going uphill.**

We advise to:

- **frequently check the oil level** in the crankcase;
- **keep the chain well lubricated** and in the correct tension;
- check for the correct tyre pressure;
- check the cylinder-head tie rods tightening (see Locking torques at page 52).

**At 1000 Km. (620 Miles)**

- **Fully replace the oil in the engine crankcase** and the correspondent filter cartridge (see « Lubrication » at pages 14-17).
- Check chain tension and eventually lubricate it.
- Check and eventually adjust the valve clearances (see « Maintenance » at page 48).
- Inspect carburetors and their emissions (see « Maintenance »).

**From 1500 to 3000 Km (930 Miles to 1860 Miles)**

The owner can expect better performances from his machine if he does not exceed 6500 r.p.m. for the first 3000 Km (1860 Miles).

**At 3000 Km. the running-in can be considered accomplished**, however it is better to follow our recommendations, especially not exceeding the max. r.p.m. (see « Engine Specifications »).

The more strictly and accurately you follow the aforesaid recommendations, the longer the engine life and the less the need for overhauling and tune-up.

## ENGINE MAIN SPECIFICATIONS

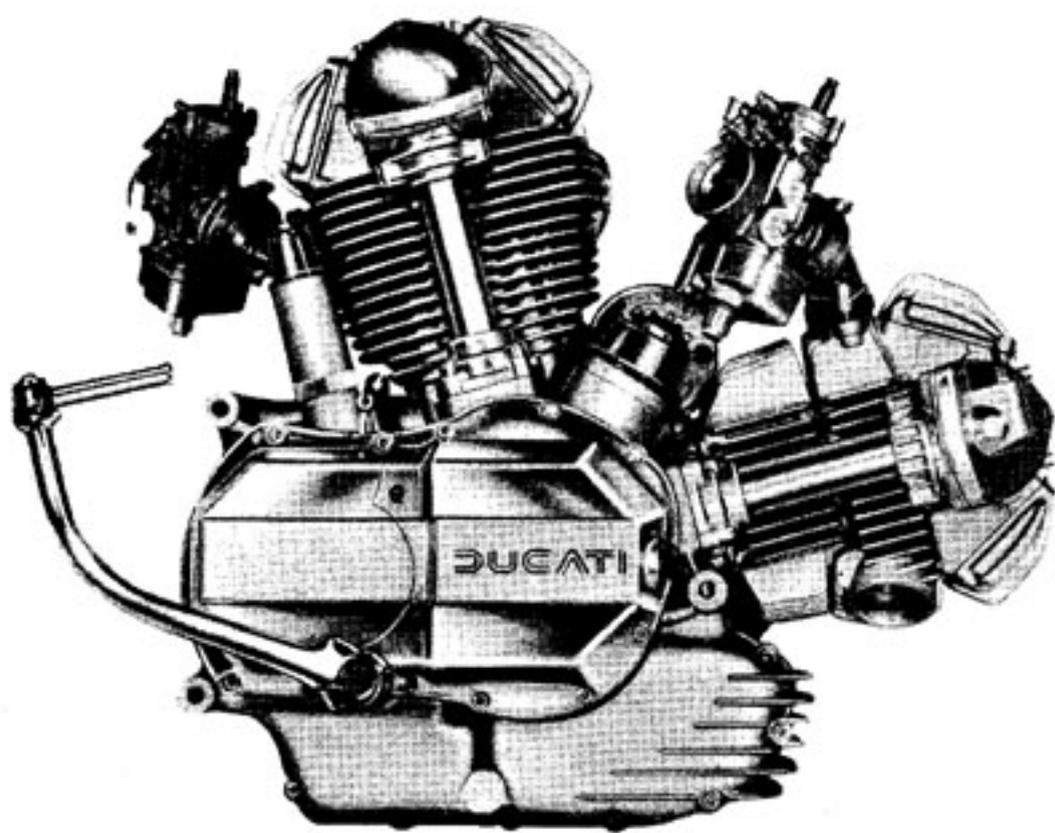


Fig. 3

### ENGINE (see Fig. 3).

- two cylinders, 4 strokes, « L » longitudinal-type of 90° - supported by a cradle formed frame;
- Bore . . . . . 86 mm. (3,386 in)
- Stroke . . . . . 74,4 mm. (2,929 in)
- Cubic capacity . . . . . 863,9 cc. (52,72 cu.in)
- Compression ratio . . . . . 1/9,3
- Max. engine r.p.m. . . . . 7800/1'

- combustion chamber with hemispherical ceiling.
- deeply finned cylinders in light alloy, with special cast iron liners inserted;
- connecting rods in special steel, with roller cage at the big end (crank pin) and little end bushed to take the gudgeon pin;
- pistons in light alloy, pressforged with « H » skirt and 3 piston rings, 1 of which is a slotted oil scraper;
- cylinder heads cast in light alloy and closely finned, with inserted valve seats;
- standard electric starter with freewheel device.

## AIR COOLING

The close finning of both cylinders and heads facilitates the natural loss of heat, by air.

## TIMING (see Fig. 4).

It is a DESMODROMIC S.O.H.C. system, timed by four rockers (2 inlet and 2 exhaust ones) and by an overhead camshaft with four lobes, as follows:

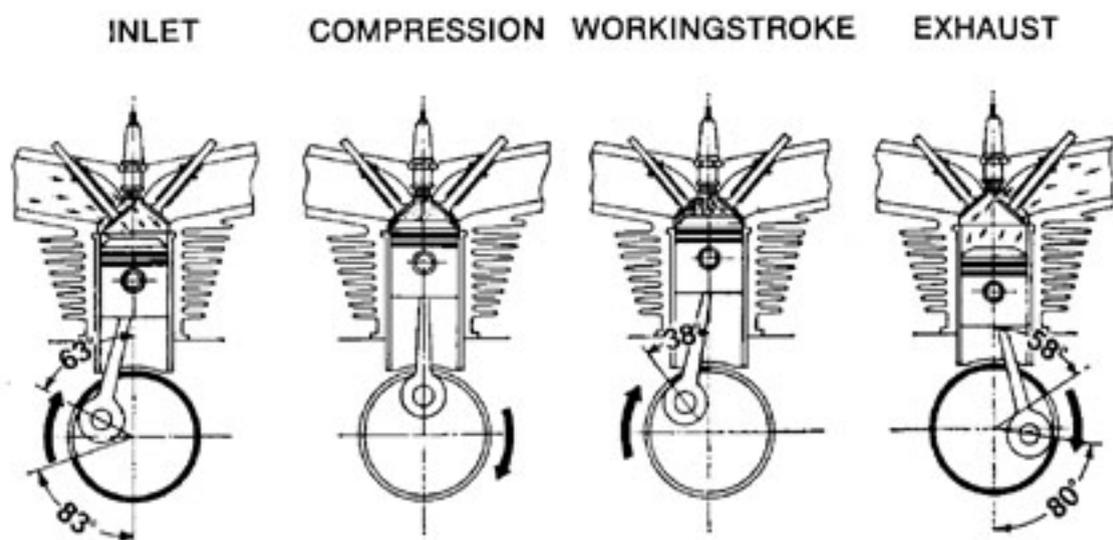


Fig. 4

The distribution data, with the control play of 0,2 mm. for inlet and exhaust between valve and rocker, are as follows:

Valve	Opening $\pm 5^\circ$	Closing $\pm 5^\circ$
Inlet	63° before TDC	83° after BDC
Exhaust	80° before BDC	58° after TDC

Also **special racing camshafts** are available and can be ordered under code numbers: 0775.29.013 and 0775.29.023. The distribution data for these new camshafts, with control play of 0,2 mm. for inlet and exhaust between valve and rocker, are as follows:

Valve	Opening $\pm 5^\circ$	Closing $\pm 5^\circ$
Inlet	65° before TDC	95° after BDC
Exhaust	95° before BDC	55° after TDC

These camshafts can be fitted also on 750/900/SS 1975, 76 and 77 model engines.

### Timing adjustment

The timing gears are controlled by the driving shaft by means of three cylindrical gears and four couples of bevel gears, which drive the two heads.

All these gears must be carefully timed, in compliance with the reference marks engraved on the toothed periphery.

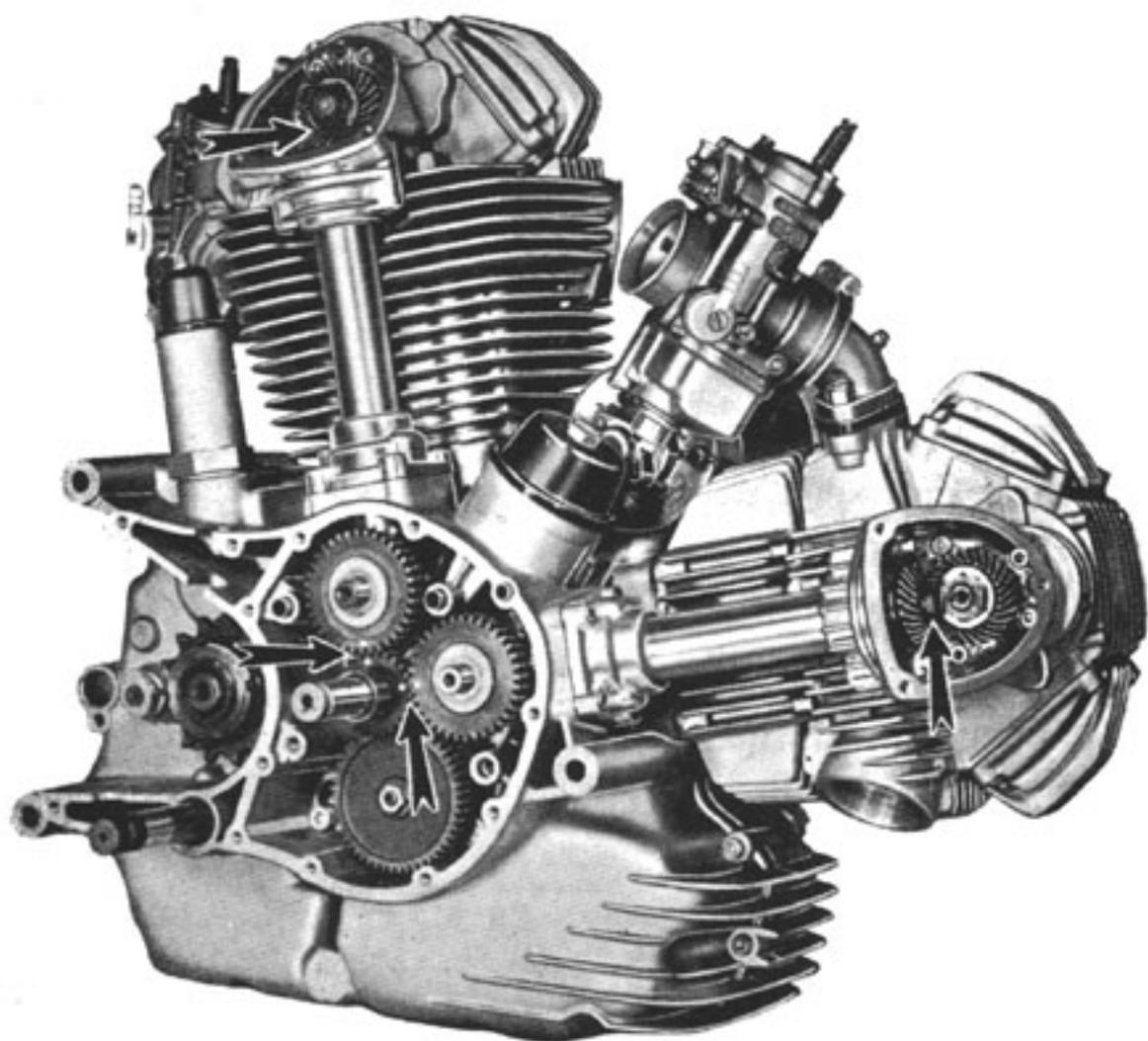


Fig. 5

The engine is timed when the above mentioned marks are disposed as indicated by the arrows in the illustration (see Fig. 5).

**IMPORTANT!** For valve tapped adjustment and concerned working plays see « Maintenance » at page 48.

## PETROL FEED

The petrol feed of the engine is by gravity, by means of 2 Dellorto carburetors, with air filter.

Model	Carburat.	Atomizer	Diffuser	Main Jet	Idling Jet	Pin Position
FRONT	PHF32CD	AB 265	32	122	55	K 16 2nd notch
REAR	PHF32CS	AB 265	32	122	55	K 16 2nd notch

For Idling adjustment see the « Maintenance » at pages 49-50.

## LUBRICATION (see Fig. 8)

### Engine

The engine is pressure lubricated, by means of a gear pump driven by the shaft; this pump takes the oil through a first filter, from the lowest point of the crankcase which acts as an oil sump, and forces it through proper oil-ways, to all parts of the engine which have to be lubricated. The oil returns by gravity.

The sump capacity is about 4,5 Kg. (10 lbs.) = lt. 5 (1.10 Imp. gal. = 1,32 U.S. gal.).

The lubricating system of the DUCATI 900 Sport Desmo motorcycles is quite simple and requires no special maintenance except the renewal and eventual filling of the oil level every 1000 Km. (about 620 miles) and the total change of the oil, every 3000 Km. (about 1860 miles).

### Oil level measurement

Oil level is measured as follows:

- 1) Unscrew the filler plug and clean the stick.
- 2) Place the stick inside the filler until the plug rests on the edge.

- 3) Extract the stick and verify the oil level which must be within the «Min.» and «Max.» notches (see Fig. 6).

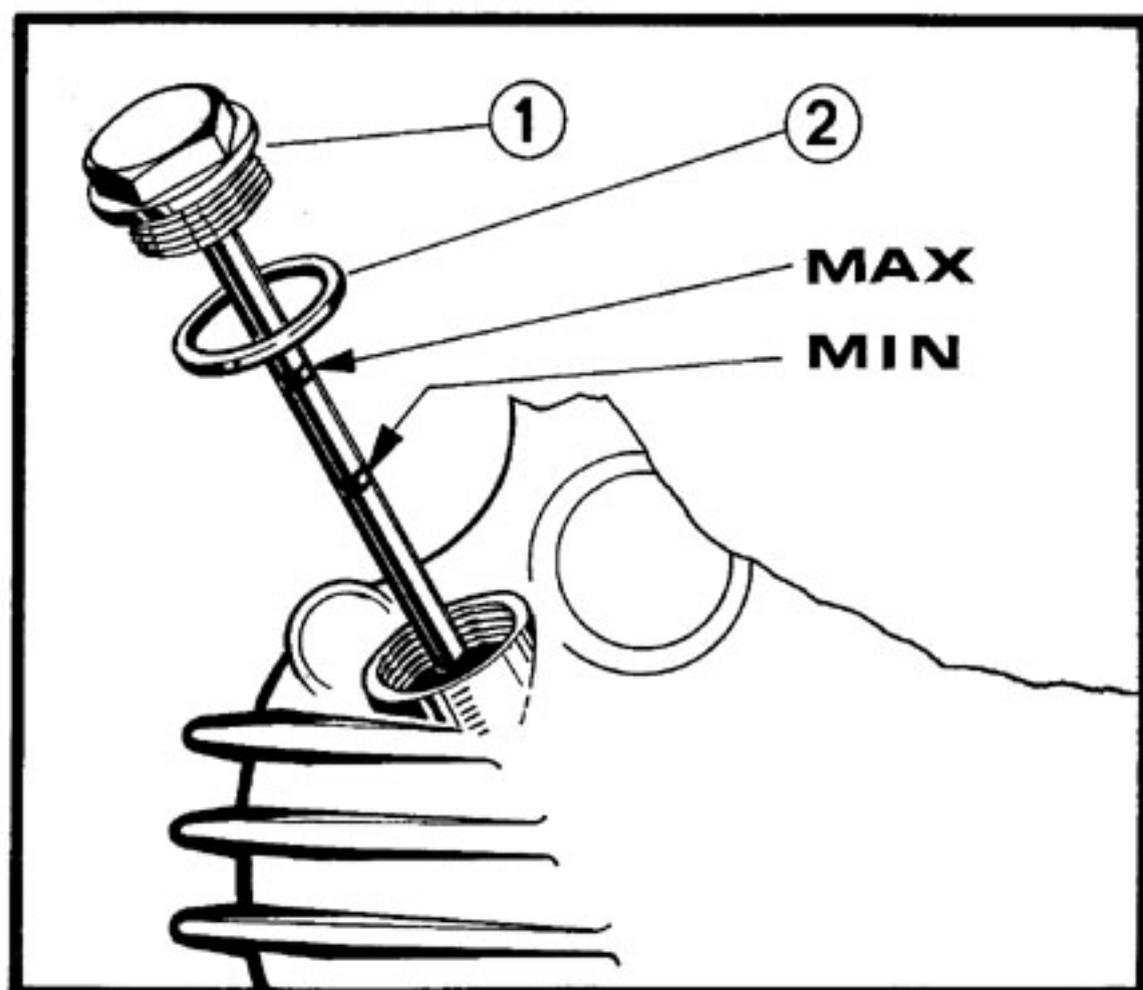


Fig. 6

### Suggested lubricants

Position	Lubricants or equivalents	Quantity
Engine	AGIP SINT/2000-SAE 10W50	4,5 Kg
Front fork	AGIP F1 ATF Dexron	185 cc. each leg
Disc brakes	AGIP F1 Brake fluid Super HD.	—
Chain	AGIP-Rocol Chain Lube Spray.	—
Rear fork	AGIP F1 Grease 30.	—
Speedo and Rev. counter	AGIP F1 Grease 30	—

## Centrifugal oil filter (inserted in the main shaft)

### How it works

The oil which is to be filtered, is brought to the filter through the pipe A; from here, the centrifugal force eliminates all the impurities (heavier than the oil), which accumulate all around the threaded plug B of the main shaft.

The filtered oil goes through the tube C to lubricate the con.rod big end (see Fig. 7).

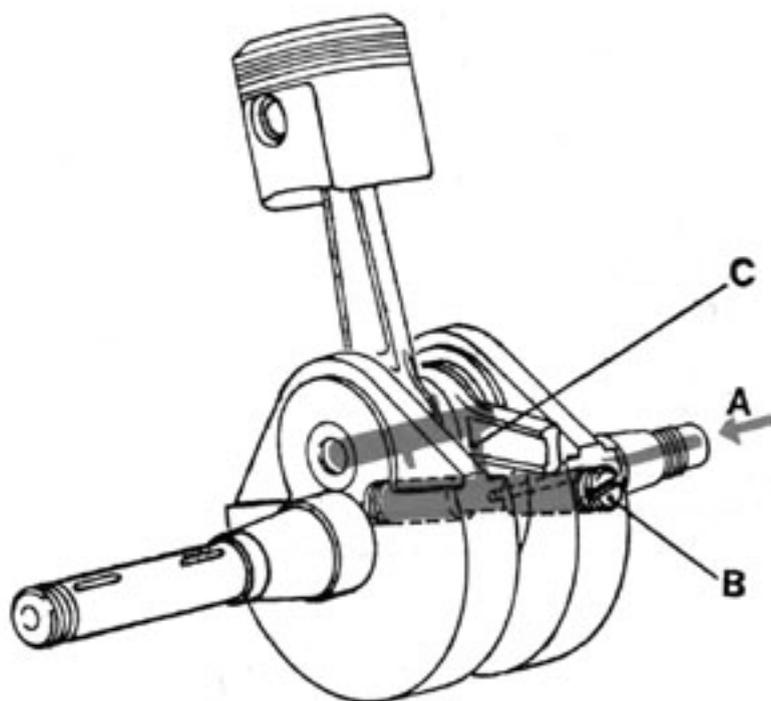


Fig. 7

### Filter cartridge (see Fig. 8)

The «C» oil filter cartridge is placed in the center of the engine between the twin cylinders and it is necessary to replace it with the first oil replacement at 1000 Kms. (620 Miles) and at 3000 Kms. (1860 Miles); after that mileage it is sufficient to replace it only every two oil changes.

## Lubrication system

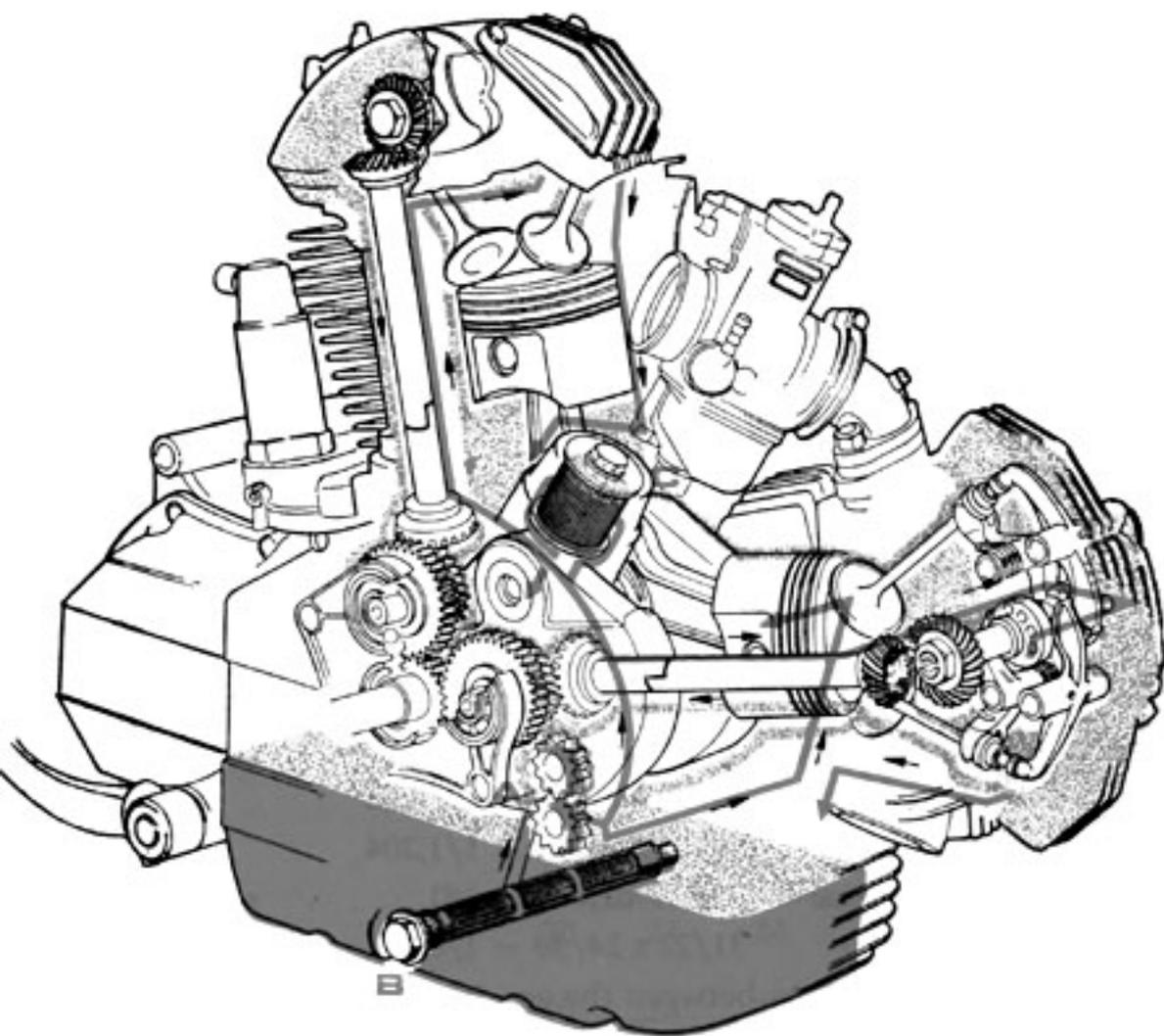


Fig. 8

- A) Oil pump.
- B) Filter cap.
- C) Filter cartridge.

To drain the oil from the engine crankcase, remove the filter cap « B » (see Fig. 8).

## TRANSMISSION

The transmission consists of the primary transmission, the clutch, gearbox and secondary transmission. The clutch is of the multiple plate type with steel discs and friction material. It turns in an oil bath and is mounted on the primary shaft of the gear box.

The clutch housing, made of special wear resisting steel, rotates on two inner bearings which are set at an adequate distance.

It is conveniently lubricated together with the engine gear.

The clutch is operated by a handlever placed on the left side of the handlebar.

The transmission between engine and primary shaft of the gearbox, is obtained by means of helical gears and the reduction ratio is  $32/70 = 1/2,187$  (900/SD/STANDARD-900/SD/U.S.A.).

The gearbox is in the crankcase; the gears for the 5 speeds are constantly meshed and operated by a foot pedal.

The transmission ratios of the gears are the following:

- bottom gear  $19/34 \times 24/30 = 1/2,237$
- second gear  $24/30 \times 24/30 = 1/1,562$
- third gear  $27/26 \times 24/30 = 1/1,204$
- fourth gear direct drive = 1/1
- top gear  $31/22 \times 24/30 = 1/0,887$

The transmission between the gearbox and the rear wheel is obtained by a chain Reinold BS —  $5/8 \times 3/8$  and its speed ratio is:  $15/38 = 1/2,533$ .

The engine/wheel total ratio is:  $1/4,916$ .

N.B. - In the 900 SD motorcycle we advise to fit, specially for highway use, a smaller sprocket than the standard assembled, allowing the same speed at lower r.p.m.

The following rear sprockets: Z = 35,37,39,40,41,42,43,44 and 45 teeth are available on Customers' demand.

## EXAMPLE: HOW TO CALCULATE THE MOTORCYCLE THEORETIC SPEED

The theoretical calculation of the motorcycle speed is made as follows:

$$V = \frac{N \times 60 \times C}{1,000 \times R} \text{ of which:}$$

V = speed in Km. per hour.

N = Engine max. r.p.m.

C = Rear tyre rolling circumference in metres.

R = Engine/rear wheel total ratio.

To obtain the speed attainable with the motorcycle you have first to calculate the « R » value of the different gears:

$$\text{1st gear . . . } R = \frac{70}{32} \times \frac{34}{19} \times \frac{30}{24} \times \frac{38}{15} = 12,396$$

$$\text{2nd gear . . . } R = \frac{70}{32} \times \frac{30}{24} \times \frac{30}{24} \times \frac{38}{15} = 8,659$$

$$\text{3rd gear . . . } R = \frac{70}{32} \times \frac{26}{27} \times \frac{30}{24} \times \frac{38}{15} = 6,670$$

$$\text{4th gear . . . } R = \frac{70}{32} \times \frac{1}{1} \times \frac{38}{15} = 5,542$$

$$\text{5th gear . . . } R = \frac{70}{32} \times \frac{22}{31} \times \frac{30}{24} \times \frac{38}{15} = 4,916$$

Considering the « rolling circumference » of the rear tyre  $C = 2,050$  metres, the speeds referred to 1,000 r.p.m. are as follows:

$$\text{1st speed } V = \frac{1,000 \times 60 \times C}{1,000 \times R} = \frac{60 \times 2,05}{12,396} = 9,92 \text{ Km/h}$$

$$\text{2nd speed } V = \frac{1,000 \times 60 \times C}{1,000 \times R} = \frac{60 \times 2,05}{8,659} = 14,20 \text{ Km/h}$$

$$\text{3rd speed } V = \frac{1,000 \times 60 \times C}{1,000 \times R} = \frac{60 \times 2,05}{6,670} = 18,44 \text{ Km/h}$$

$$\text{4th speed } V = \frac{1,000 \times 60 \times C}{1,000 \times R} = \frac{60 \times 2,05}{5,542} = 22,19 \text{ Km/h}$$

$$\text{5th speed } V = \frac{1,000 \times 60 \times C}{1,000 \times R} = \frac{60 \times 2,05}{4,916} = 25,02 \text{ Km/h}$$

To calculate the motorcycle speed it is necessary to multiply the above values by the engine max. r.p.m.

## ELECTRIC SYSTEM - ELECTRONIC IGNITION

The ignition system is Bosch trade-mark, fed by the motorcycle battery. Its components are as follows:

- Vertical (32) and horizontal (36) cylinder electronic device boxes.
- Vertical (33) and horizontal (37) cylinder H.T. coils.
- Pick-ups (31).
- Vertical (35) and horizontal (39) cylinder spark plugs.
- Resistors for vertical (34) and horizontal (38) cylinder coils.

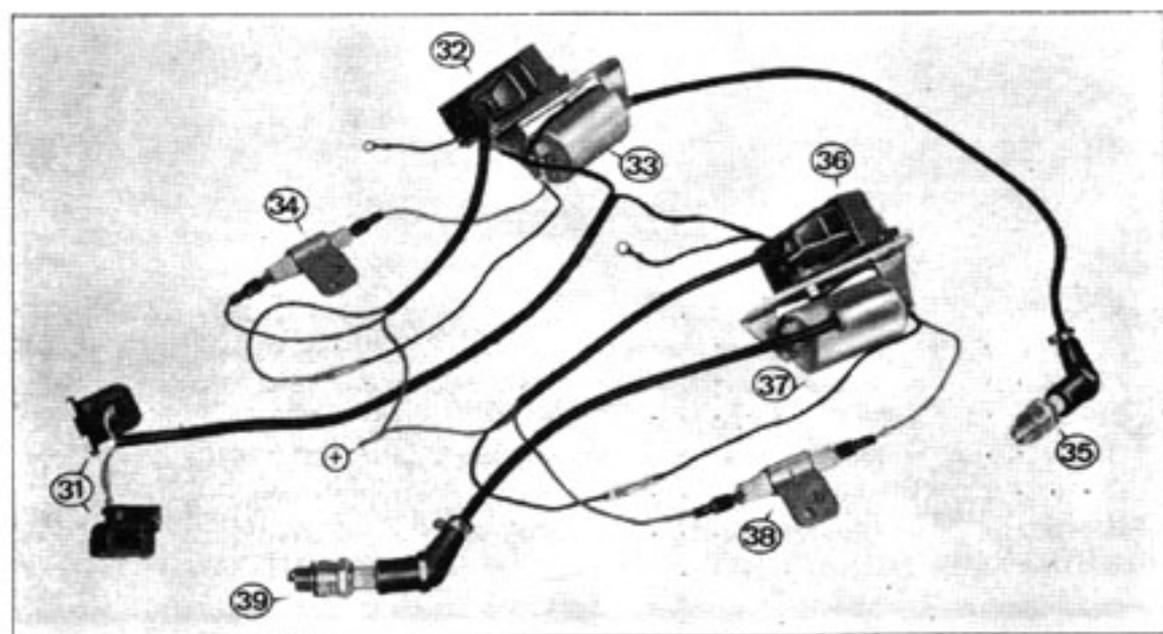


Fig. 9

The two devices, H.T. coils and resistors are fitted under the fuel tank, while pick-ups are placed inside the engine crankcase cover, clutch side.

Figures 9 and 10 show the ignition system components and the involved wiring system respectively.

## Electronic ignition system - Wiring diagram

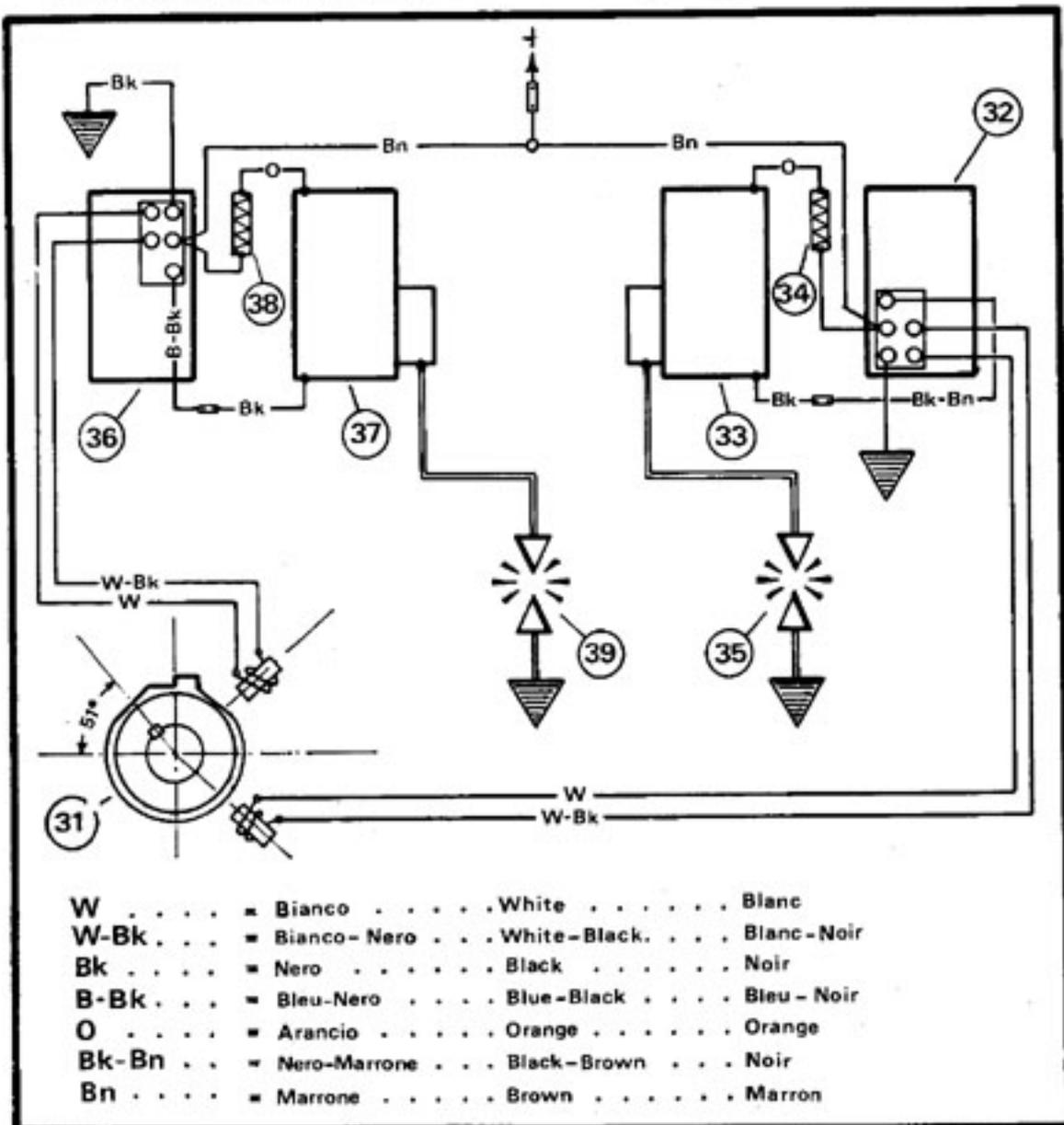


Fig. 10

### Spark plugs

The spark plugs are « Bosch W7B » (W175T35) of the normal type or a similar one, and are located left side of the cylinder heads top.

**The clearance between the electrodes must be 0.6 mm.**

## Pick-ups

The two pick-ups, as already mentioned, are fitted inside the engine crankcase cover, clutch side, at a  $270^\circ$  angle one another (see Fig. 11).

Practically it is a small generator, the rotor of which rotates inside two coils producing two electric signals timed with the engine.

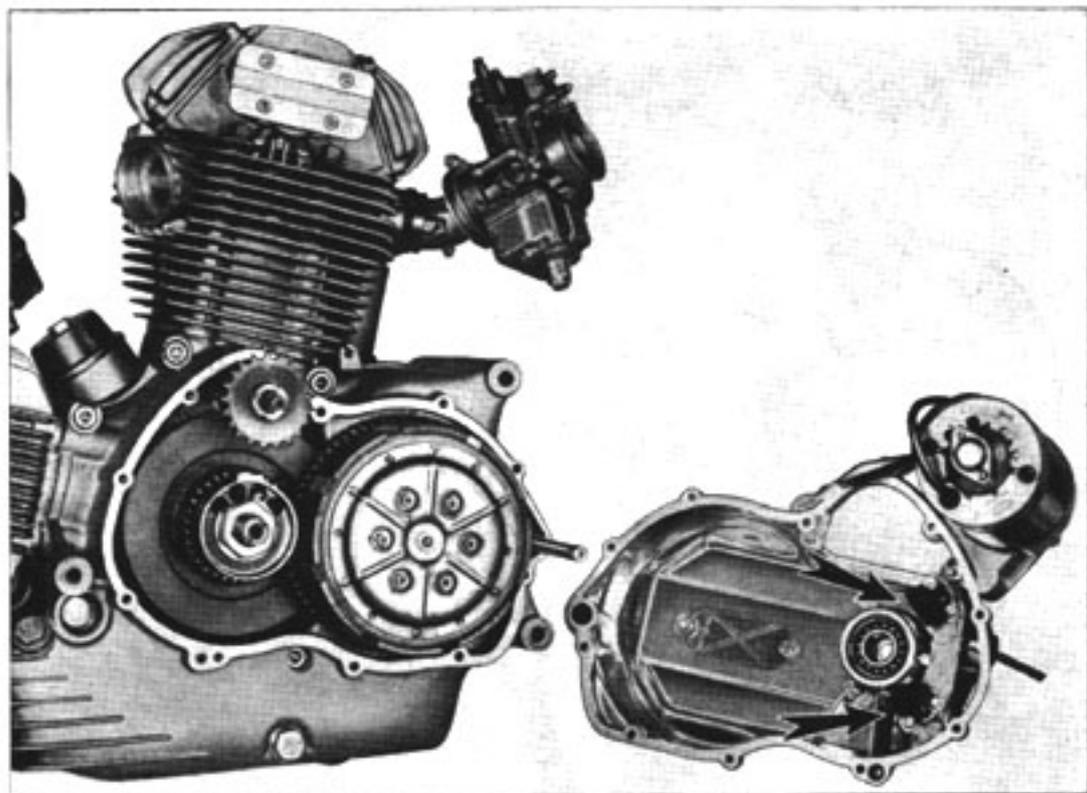


Fig. 11

These electric signals are sent to the electronic devices controlling in turn the H.T. coils, then the spark plugs. This generator rotor is expressly shaped to automatically modify the advance according with the engine revolutions, viz: at 900 r.p.m. is  $6^\circ$ , at 1800 r.p.m. goes to  $16^\circ$ , at 2800 r.p.m. goes to  $28^\circ$ , then progressively increases up to the maximum of  $32^\circ$  when engine reaches 4000 r.p.m.

### Beware!

For fitting the two pick-ups, tool no. 88713.0131 is required.

**Advance checking through stroboscopic light (see Fig. 12).**

To carry out this operation, act as follows:

- 1) Fit tool no. 88713.0132 on the crankshaft center line, clutch side, after removing the plug.
- 2) Bring the cylinder piston under checking to TDC.

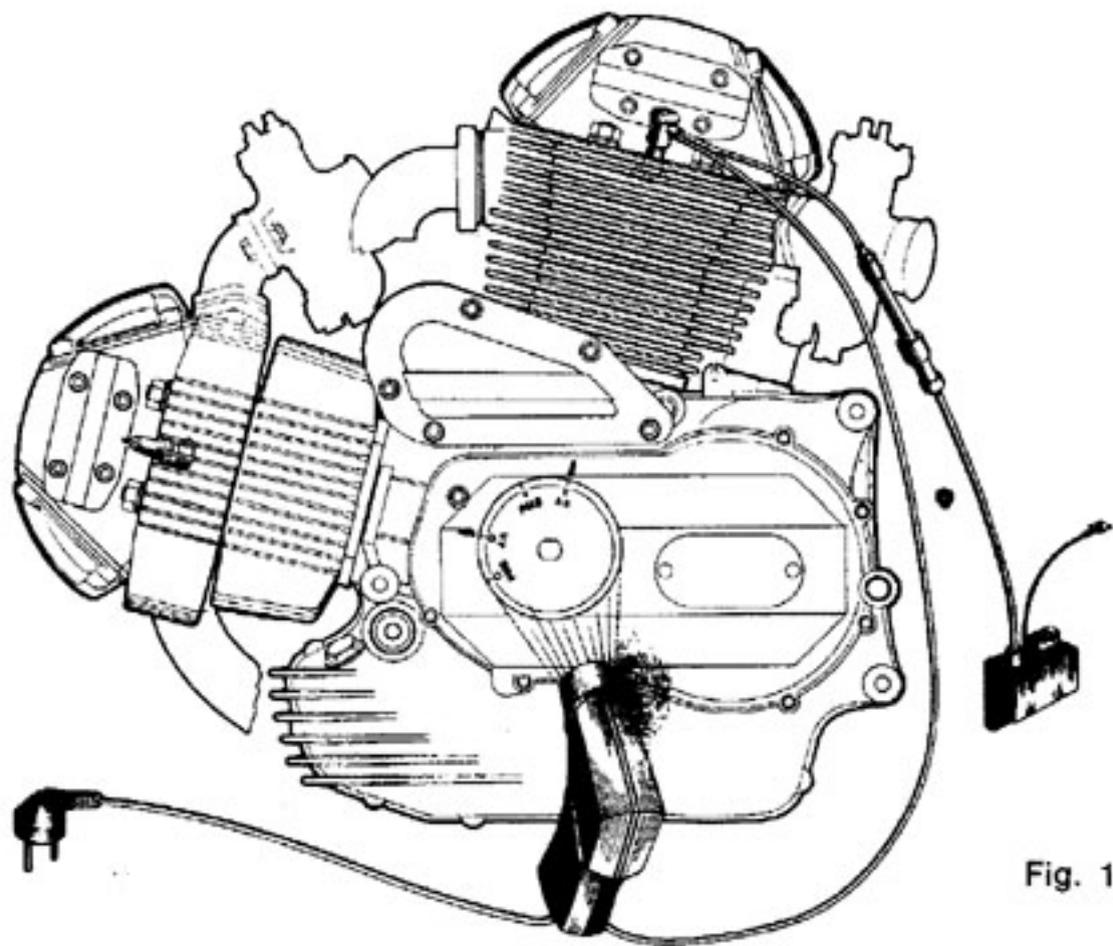


Fig. 12

- 3) Connect the stroboscopic light cable to the spark plug.
- 4) With a color pencil, make a reference mark on the engine cover, near the TDC position of tool.
- 5) Start the engine and direct the stroboscopic light on the above reference mark; you must see:
  - a) with idling engine (900 r.p.m.) a first stage of about 6°;
  - b) a stage up to 16-18° with engine at 1800 r.p.m.
  - c) another stage up to 28° with engine at 2800 r.p.m.
  - d) an additional and gradual stage up to the maximum of 32° (AA position of the tool), when the engine reaches 4000 r.p.m.

## VEHICLE MAIN SPECIFICATIONS

### FRAME

The frame of the DUCATI 900/SD is of the open cradle type, made of high tensile steel and very sturdy structure.

### REAR SUSPENSION

The rear suspension consists of a swinging fork with double action, oleo-pneumatic shock-absorbers, with concentric springs adjustable by means of a special key, for five different loads (see Fig. 13).

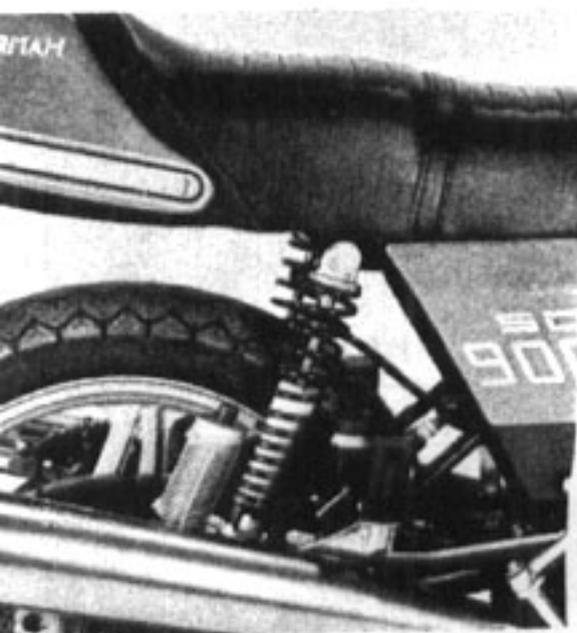


Fig. 13



Fig. 14

### STEERING DAMPER

With the purpose to improve steadiness at high speed a steering damper adjustable for seven different positions was fitted (see Fig. 14).

## FRONT SUSPENSION

The front suspension consists of the telescopic-hydraulic long-stroke, double action fork.

Each fork leg contains 185 cc. (11.3 cu.in.) of oil AGIP FIATF Dexron or equivalent.

## WHEELS

The wheels are of the magnesium spoke type with dimensions as follows:

Front: 18" x 2,15

Rear: 18" x 2,5

The wheels are with detachable spindle.

The rear wheel has a special cushion drive and can be dismantled removing the chain.

## TYRES

Tyres and pressures are as follows:

Type	Front wheel		Rear wheel		Passengers no.
	Tyre size	Pressure Kg/cm <sup>2</sup> (lb/sq.in.)	Tyre size	Pressure Kg/cm <sup>2</sup> (lb/sq.in.)	
Michelin or Pirelli	3,50 H 18"	2 ÷ 2,3 (28,5 ÷ 32,7)	120/90 V 18	2,5 ÷ 2,7 (35,6 ÷ 38,4)	1 ÷ 2

The lower values of pressure are referred to one person; the higher ones are referred to pilot plus passenger.

## BRAKES

— **Front:** double disc Ø 280 mm.

Hydraulically controlled by handlever on the R.S. of handlebar.

— **Rear:** disc Ø 280 mm.

Hydraulically controlled by pedal on the R.S. of motorcycle.

Front braking surface . . . . . 75 cm.<sup>2</sup>

Rear braking surface . . . . . 37,5 cm.<sup>2</sup>

## SADDLE

Two-seat type, with movable rear part for entering into the tool box (see Fig. 15). Lifting the rear part, the tool box chamber will be opened.

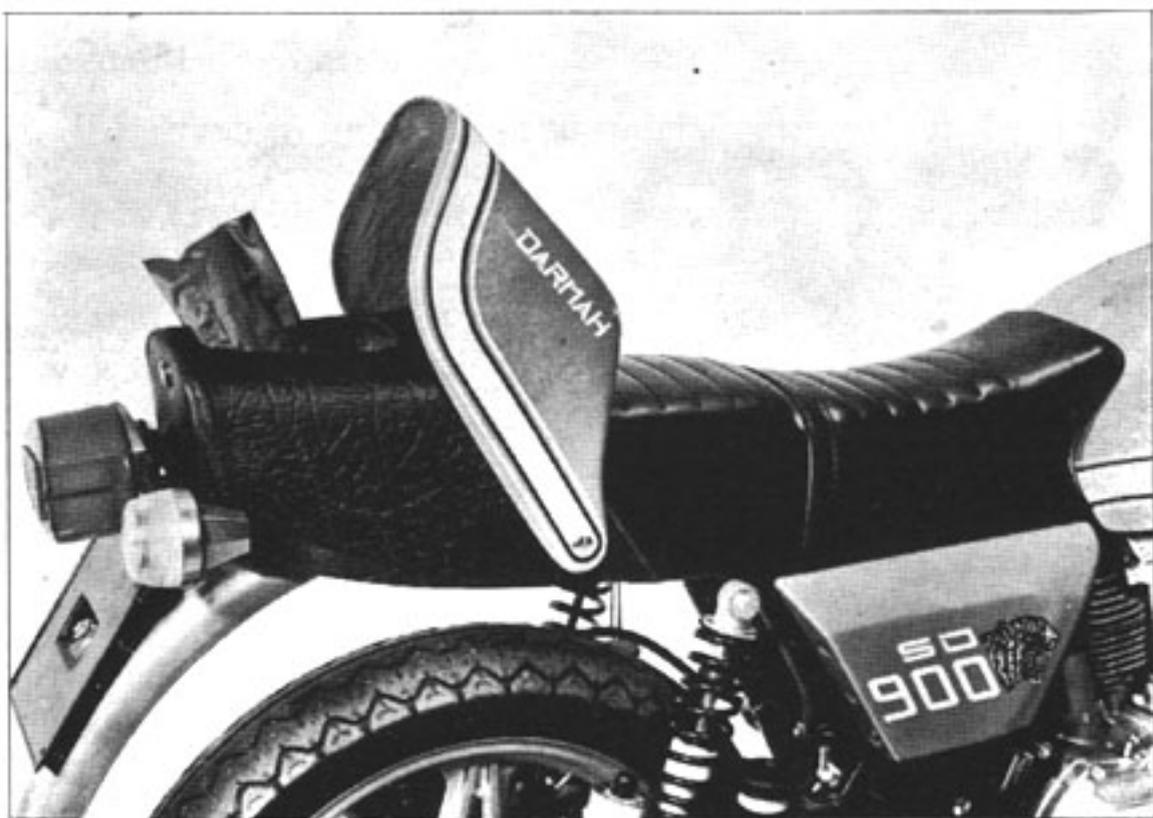


Fig. 15

## FUEL TANK

Fuel tank is made of steel, with a capacity of 15 lt, (3,3 Imp. Gall.; 3,96 U.S. Gall.). It has two cocks with three positions: Off-On-Reserve. Reserve is about 2 lt.

## AIR FILTERS

To have access to the air filters, remove carburetor rubber pipes and their filter box covers. Filters must be replaced every 10,000 Km. distance. To avoid difficulties and problems, always fit original filters code no. 0608.27.275.

## SILENCER HOMOLOGATION

R.H. near the rear fork fulcrum, you will find a small plate with printed the European homologation numbers of silencers «E3 9R 13716» (Lafranconi type) or «E3 9R 35869» (Silentium type) (see Figg. 16/a - 16/b).



Fig. 16/a



Fig. 16/b

## FORK FULCRUM-SPINDLE

In this motorcycle the fork fulcrum-spindle is fixed to the frame, while the fork provided with bronze bushes rotates on it.

This system gives the machine greater sturdiness.

Spindle is fitted on a special «out-of-center» device allowing the chain adjustment (see «Maintenance» at pages 51-52).

## General Information

In this system most of the parts can be removed by means of special connectors, which allow the widest accessibility for repairs and replacements of damaged parts.

The electrical system consists of the following main parts:

- 1) Headlamp
- 2) Dashboard
- 3) Horn
- 4) Stop switches
- 5) Key switch
- 6) Fuse box
- 7) Battery
- 8) Electronic regulator
- 9) Voltimeter
- 10) Alternator
- 11) Plate holder
- 12) Electric controls on the handlebar
- 13) Direction indicators (trafficators)
- 14) Electric starter

### 1) Headlamp

The headlamp has a large diameter ( $\varnothing$  180 mm.) and supplies a powerful light beam by means of a twin-light, 12 Volt 55/60 W - H 4, iodine bulb. The headlamp is also provided with a 12 V - 3 Watt parking light.

The U.S. motorcycles have the same headlamp, without parking light.

### 2) Dashboard (see Fig. 17)

Of fully new design, it is fitted in the middle of handlebar and contains:

- 1) Speedometer
- 2) Rev. counter
- 3) « Stand » warn. light (stand) Red color
- 4) « Light » warn. light (lights) Green color
- 5) « High Beam » warn. light Bleu color
- 6) « Left » warn. light (L. flasher) Orange color
- 7) « Right » warn. light (R. flasher) Orange color
- 8) « Gen » warn. light (battery recharge) Red color
- 9) « Neutral » warn. light (neutral gear) Green color
- 10) Key switch



Fig. 17

### 3) Horn

The 12 Volt horn is placed under the fuel tank in an adequate position to have the highest efficiency and is controlled by « D » pushbutton placed L.H. on the handlebar (see Fig. 19).

### 4) Stop switches

Fitted to the hydraulic brake pump pipe unions, independently control the same device, lighting the stop red light when braking.

## 5) Key switch (see Fig. 18)

Placed in the center of the dashboard, it works on three positions:

« A » Parking lights

« B » Stop

« C » Run

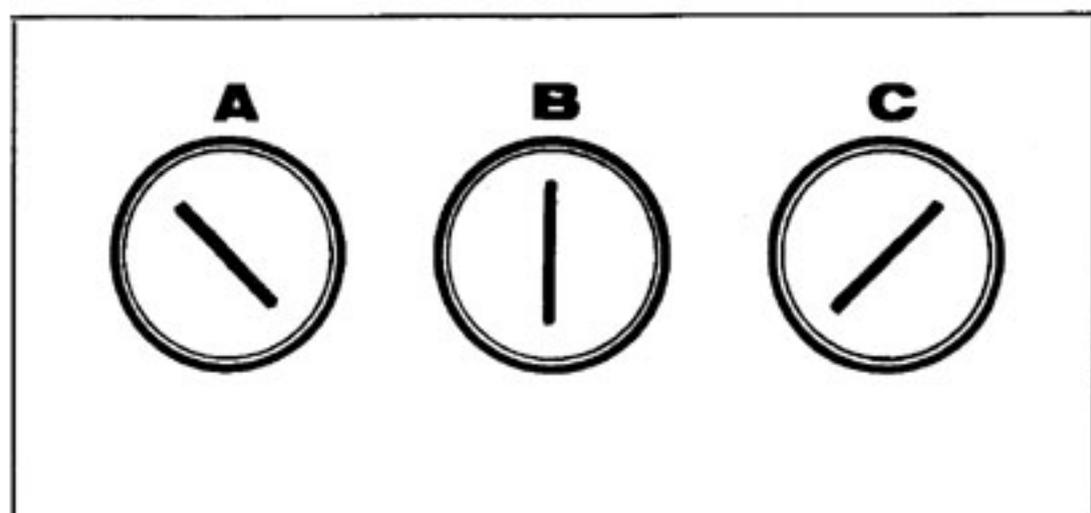


Fig. 18

## 6) Fuse box

It is placed L.H. under the fuel tank and to have access to it, remove the cover.

Fuses are three, to protect the following:

F<sub>1</sub> of 25 Amp. (for the full system)

F<sub>2</sub> of 8 Amp. (for lights and horn)

F<sub>3</sub> of 8 Amp. (direct. signal lamps, stop, etc.)

The box contains an additional 8 Amp. fuse (not connected) as spare fuse.

**Attention!** While replacing a fuse, load the contact springs to allow to fit the fuse well tight.

If a fuse blew out, check to find the cause of the blowout before replacing it, otherwise the fuse will continue to blow.

## 7) **Battery**

The battery is a YUASA B68 of 12 Volts - 36 Ah. It is provided with a transparent case allowing to check the level of the electrolyte, and is placed under the R.H. side cover, in a special rubber box; it is elastically fixed.

### **Important:**

**To check the recharge current, always insert the ammeter with still engine.**

## 8) **Electronic regulator**

The regulator consists of a light alloy box placed forehead under the fuel tank, containing the diodes to rectify the alternator current converting it into direct current for the recharge of the battery. Moreover it contains a special electronic set working in connection with the battery tension: if the battery is down (low tension) the recharge current will be high; if the battery is charged (normal tension 12 to 14 Volt), the current will be 4 to 2 Amp.

During the long runs on highways, especially with switched out headlamp, the battery tension could reach 14 Volts; in this case the regulator will stop the recharge current.

**It is very important that the regulator be clamped on the frame. Besides its box must be electrically connected to the negative pole of the battery.**

## 9) Voltimeter

It is an electronic instrument, Red color, placed forehead under the fuel tank.

It automatically controls switching-off and on of the « GEN » warning light, viz: when battery tension is higher than 12.35 Volt, it switches off; when this tension is lower, it switches on.

The battery tension is lower than 12.35 Volt when engine is idling with headlamp lighted on, in this case the GEN warn. light advises the driver that battery recharge current is not sufficient.

The electronic regulator stops the recharge when battery tension goes to  $14 \div 14,2$  Volts. However, in case in the regulator the electronic box breaks down, the recharge will continue to work and battery tension may reach a dangerous voltage. So the voltimeter operates again and when the battery tension reaches 15,7 Volts the GEN warn. light is lit advising the driver of boiling risks.

## 10) Alternator

Placed inside the engine under the distribution side cover, it has 200W. at 12 Volts. From the alternator two Yellow wires come out, to be connected directly to the regulator, paying attention to the colors.

**Beware!** When removing the distribution side cover, take care not to damage the alternator windings.

## 11) Plate-holder

It is placed together with the tail light, on the rear mudguard and contains a 12 Volts - 5/21 Watt twin-light bulb.

## 12) Controls on the handlebar

New model controls have been adopted which meet all the requirements of the Traffic Regulations.

### Left side (see Fig. 19)

« A » switch: Off, Parking, Lights.

« B » switch: Low beam, Main beam and headlamp flashing.

« C » switch: Direction signal lamps.

« D » push button: Horn.

### Right side (see Fig. 20)

« A » push button: Electric starter, « START »

« B » switch: Emergency kill switch: OFF e RUN pos.

**Attention!** The emergency switch cuts off the engine, quickly, in case of emergency and acts cutting-out the two electronic devices; **after the engine stop, displace it in position « RUN ».**

For normal use, employ the key switch which takes the current out of the entire equipment.

It after several attempts the engine does not start, check if the emergency switch is still on the « OFF » position.

## 13) Direction indicators (flashers)

They are already fitted on the standard produced motorcycle and are controlled by the « C » switch on the L.H. of the handlebar. In any device there is a 21 W - 12 V bulb.

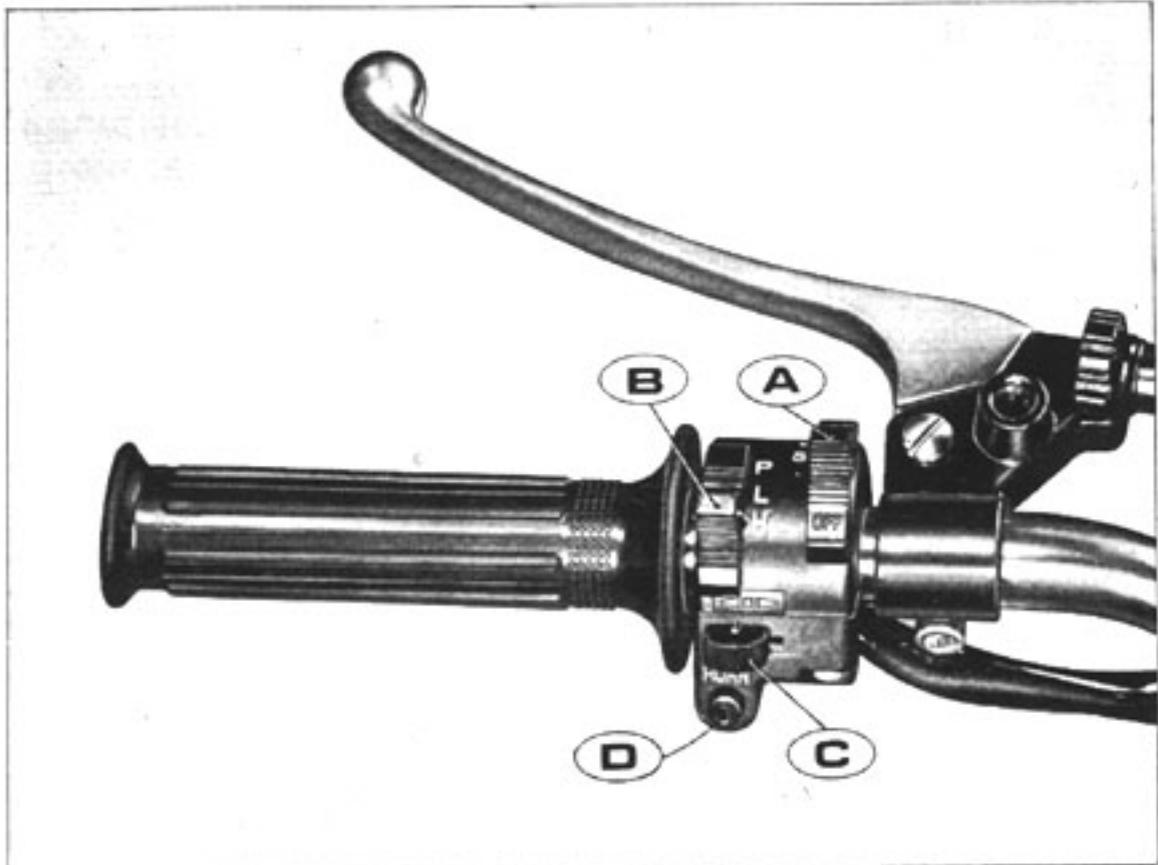


Fig. 19

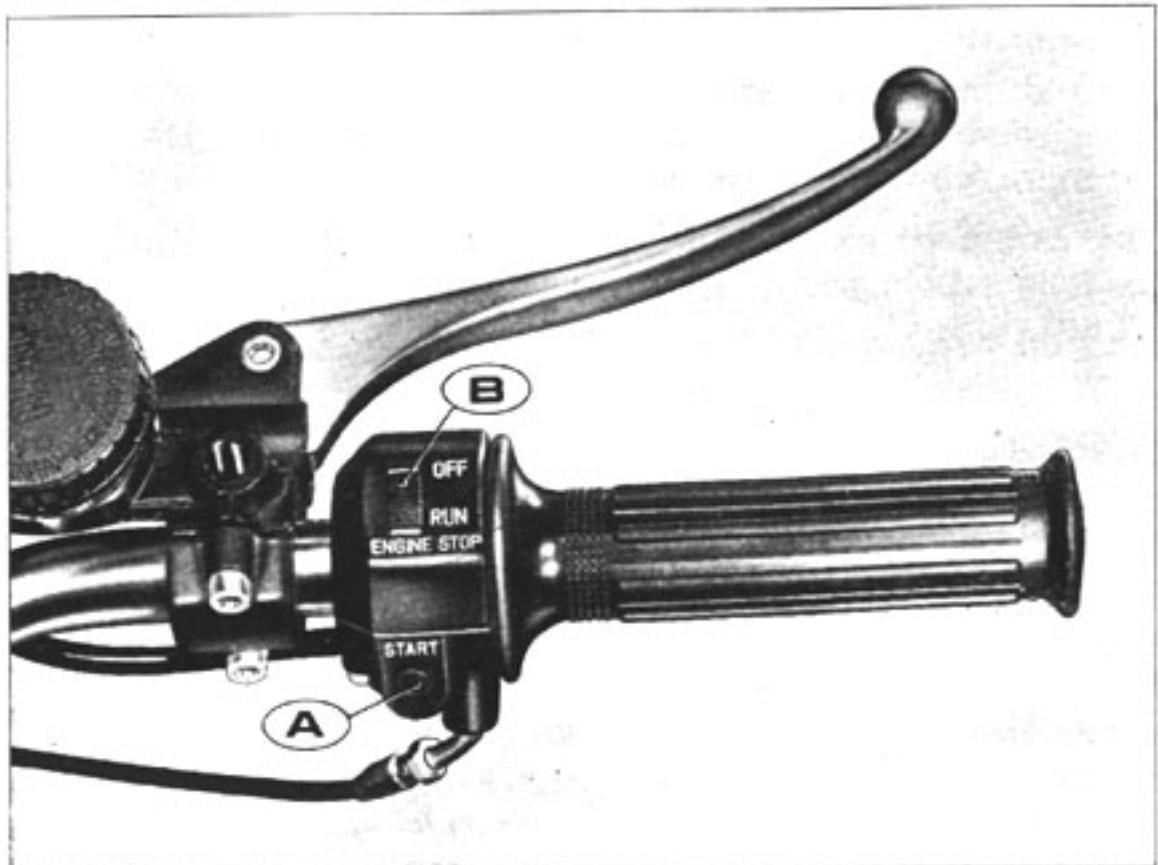


Fig. 20

#### 14) **Electric starter**

The electric starter is by means of a small motor transmitting movement to the engine by means of a chain and a free-wheel device.

The necessary current is supplied by a large YUASA B68 12 Volt, 36 Ah battery.

To carry out the starting, press the « A » black button at the right side of the handlebar: the engine will start to regularly rotate.

### **SOME ADVANTAGES OF THE ELECTRIC EQUIPMENT WITH ELECTRONIC REGULATOR AND VOLTIMETER**

The electric system with electronic regulation of current offers real advantages in comparison with the recharge installation adopted on the other motorcycles.

The advantages can be summarized as follows:

- 1) Adjustment of the automatic charge.
- 2) No electrical contacts in the regulator and consequently, greater safety in the working.
- 3) Instant information of fault or unevenness to the battery recharge system, by means of the GEN warn. light controlled by the voltmeter.

Anyway great care should be taken not to disconnect the battery cables when engine is running, because regulator would surely remain damaged.

### **WIRING SYSTEM OPERATION (see Fig. 18).**

#### 1) **Key in A position means « PARKING »**

- The parking lights are lit and the LIGHT signal too.
- It is impossible to let the engine start.
- The key can be removed, if so desired.

N.B. - The U.S. model motorcycles have the same headlamp, without parking light.

## 2) Key in B position means « STOP »

The warning lights are switched out.

- It is impossible to let the engine start because the system is fully insulated and the lights cannot be switched on, as well as the other electric parts.
- The key can be removed, if so desired.

## 3) Key in C position means « RUN »

- The GEN, NEUTRAL and STAND warn. lights are lit, with still engine (the last one with positioned stand, only).
- It is possible to let the engine start, the GEN warn. light is switched out and the battery is conveniently recharged. The NEUTRAL is also switched out with engaged gear.
- By means of the controls placed on the handlebar, Left and Right hands, it is possible to switch on the electric starter, the lights, the headlamp flashing, the flashers, horn, etc.

During working of all these electrical parts the battery is recharged all the same and the number of revs. for a balanced charge-rate will of course, rise:

Revs. for balanced charge-rate with switched out headlights = 1,000 r.p.m.

Revs. for balanced charge-rate with switched on headlights = 2,200 r.p.m.

By revs. for balanced charge-rate, we mean the engine revs. at which the battery begins to be recharged. Of course, if we fit on the motorcycle additional lights and horns the number of revs. for a balanced charge-rate will overload the alternator windings too.

The alternator can, of course, stand a certain additional load at condition however it will not exceed 35 to 40 Watts of absorption. Under these conditions, however, there is the risk to be compelled to sometimes recharge the battery, unless the engine revs. have been kept beyond 3.000 r.p.m.

The recharge current intensity is rectified (according to the battery condition) by the electronic rectifier, which automatically stops the recharge when the tension exceeds 14 to 14,2 Volts (see point 8 - Regulator).

## CONTROLS (see Fig. 22).

As already seen in the previous paragraph, on the Left Side of the handlebar, near the fixed handgrip, is placed the electric control and clutch lever.

On the Right Side, there is the throttle handgrip and in front of it, the front brake pump and lever, and the electric control.

The starter lever is placed L.H. near the speedometer (see Fig. 21).



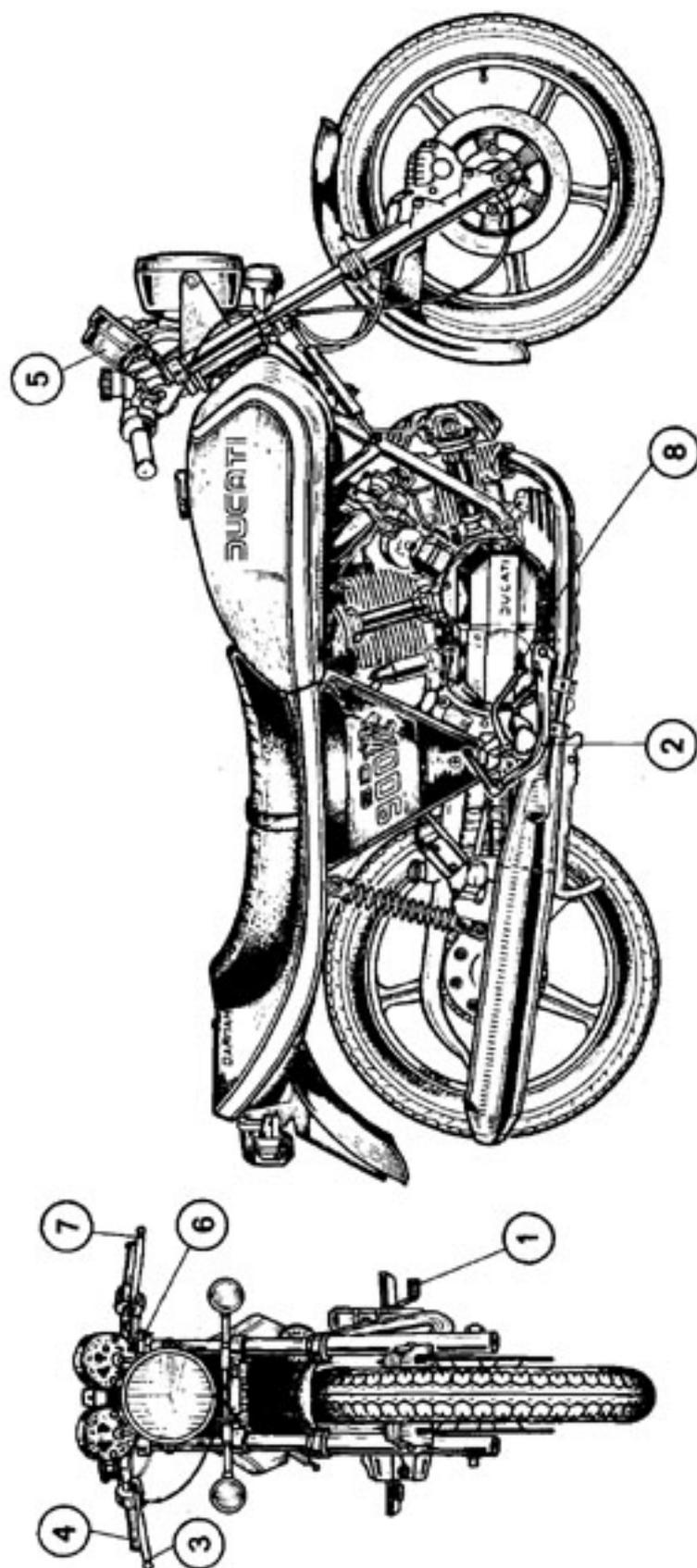
Fig. 21

At the Left side of the motorcycle, near the footrest, there is the 5 speed gear lever.

At the Right side there is the rear brake pedal and the kick-starter.

**Note!** The Stop light is controlled by both brakes, by means of two separate switches connected with the pumps of their corresponding hydraulic systems.

## CONTROLS



## LEGEND

- 1 - Gearchange
- 2 - Starting articulated lever
- 3 - Front brake control lever
- 4 - Accelerator hand grip
- 5 - Dashboard
- 6 - Starter lever
- 7 - Clutch lever
- 8 - Rear brake lever

# OVERALL DIMENSIONS AND WEIGHTS

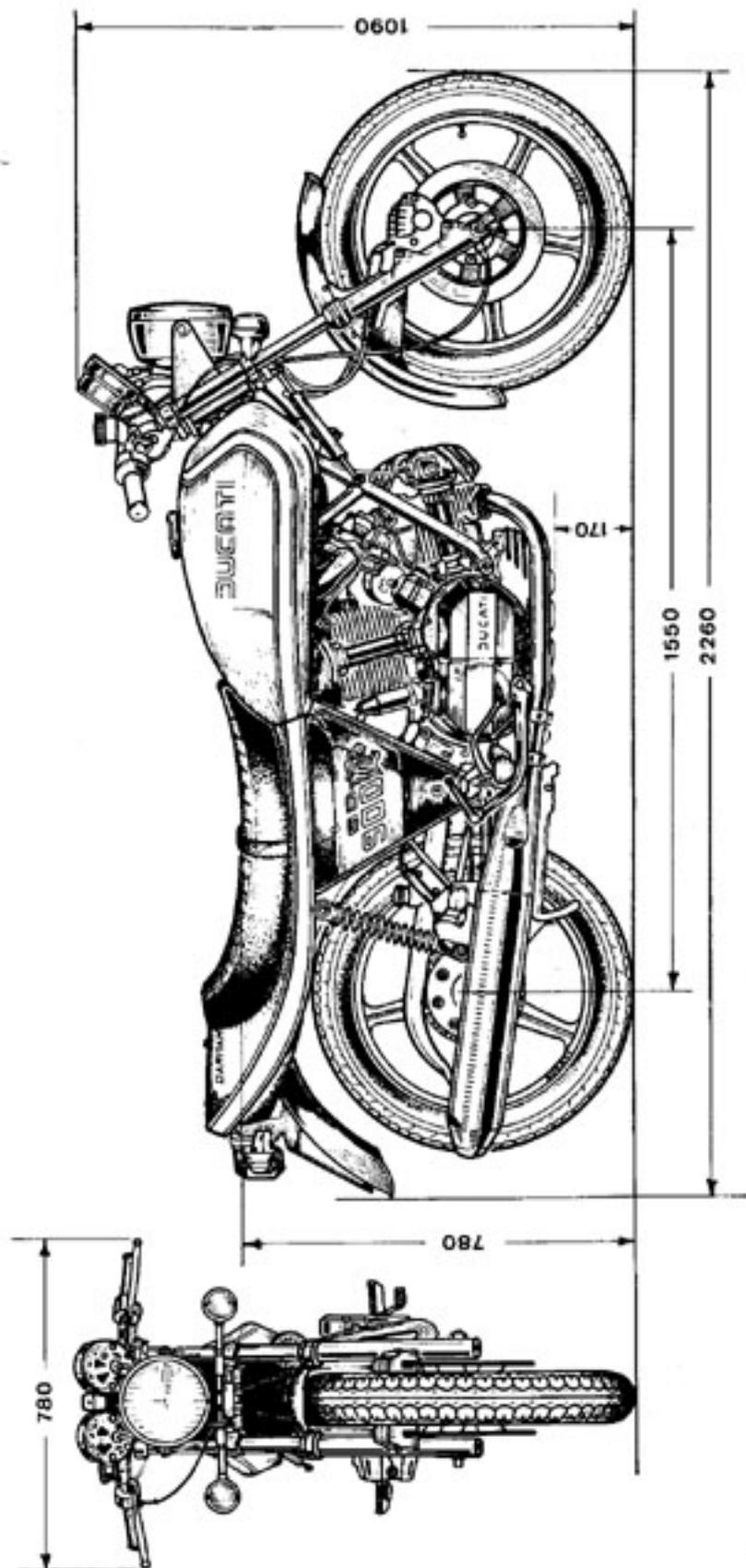


Fig. 23

- empty . . . . .	Kg. 216
- empty (but with petrol and oil) . . . . .	" 230
- with pilot . . . . .	" 300
- full load . . . . .	" 370

## WEIGHTS:

## TOOL-KIT

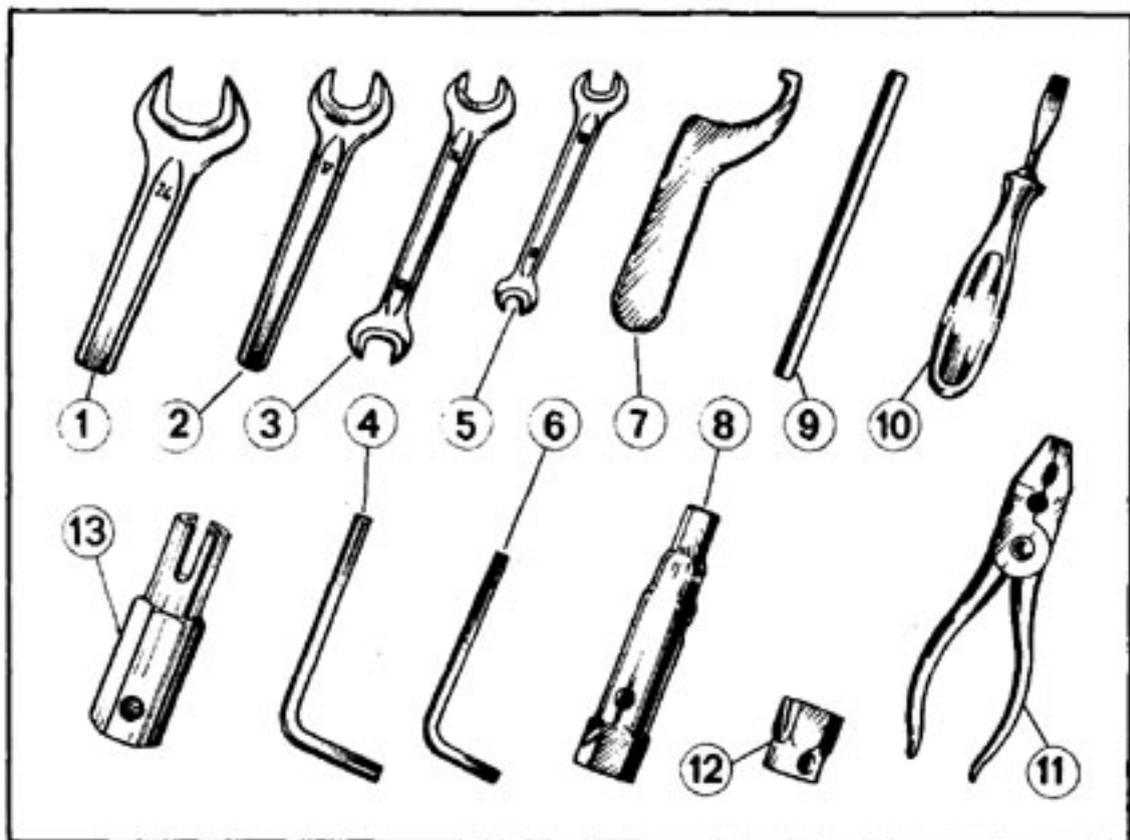


Fig. 24

### Toolbox

A toolbox of ample capacity is placed in the rear part of the saddle and contains the spanners and tools needed for normal inspections or repairs that the rider himself can carry out (see Fig. 15).

- 1 - Normal spanner of 24 mm.
- 2 - Double spanner of 17 mm.
- 3 - Double spanner of 13-14 mm.
- 4 - Inner hexagon spanner of 8 mm.
- 5 - Double spanner of 8-10 mm.
- 6 - Inner hexagon spanner of 6 mm.

- 7 - Spanner for shock-absorber adjustment
- 8 - Hexagon spanner for spark plugs and cover plug.
- 9 - Pin for box spanner
- 10 - Screwdriver
- 11 - Universal pliers
- 12 - Box spanner of 21 mm. for oil plug.
- 13 - Chain adjusting spanner.

## PERFORMANCES

The max. speed can be obtained only by scrupulously following the running-in rules described at the pages 8 and 9, and periodically executing the maintenance operations listed at the pages 46-47.

Tank capacity: 15 lts (about) = Imp. Gall. 3,3 = U.S. Gall. 3,96.

PERFORMANCES				
Fuel	Consumption (CUNA rules)	Fuel dist. per tank	Max. speed	Max. r.p.m.
AGIP Super or equivalent	5,5 lt/100 Km. 51,27 M/Imp. G 42,72 M/U.S. G	270 Km. 167 Miles	190 Km/h 118 M/h	7800

**Important.** At any speed, do not exceed the max. r.p.m. of the engine, that is 7800/1'.

Failure to comply with the above recommendations absolves the manufacturer from all liability as to possible troubles occurring in the engine.

## HOW TO USE THE MOTORCYCLE

### FILLING UP AND STARTING OF THE COLD ENGINE

Before starting the engine, make sure that in the tank there is sufficient fuel for the distance you wish to travel, that the fuel taps are open and that the engine lubricating oil is at the right level (see « Lubrication » at page 17). To start the engine, follow these instructions:

- 1) Engage neutral gear.
- 2) Bring the choke lever in « B » starting position (see Fig. 21 at page 38).
- 3) Insert the key in « C » Running position (see Fig. 18).
- 4) Press the electric « Start » push button on the handlebar, Right Hand.

If the engine does not start, repeat this operation, varying at the same time more or less the opening of the throttle by means of the handlebar grip. **Once the engine is started bring the air control lever to the « A » running position, do not race immediately, especially when the engine is cold, but before accelerating the engine let the lubricating oil warm up to facilitate its circulation throughout the engine, so as to reach all moving parts.**

### RIDING AWAY AND RUNNING OF THE MOTORCYCLE

With the engine running, disengage the clutch and, using your toe (see Fig. 25), push down the arm of the gear-change lever. When this lever is left to itself, it returns to the original position. With this move the bottom gear is

now engaged. Now turn the throttle hand grip little by little and release gradually your hold on the clutch lever; the motorcycle begins slowly to go under way. With the clutch lever completely released, let the motorcycle increase its speed. To pass now from bottom gear into second gear, turn back throttle hand grip fully and quickly; and after having disengaged the clutch press upwards the gearchange lever. Now turn forward the throttle hand grip again, releasing at the same time the clutch lever. Similar operations are carried out in order to change from second gear into third gear, from third gear into fourth gear and from the fourth to the top gear.

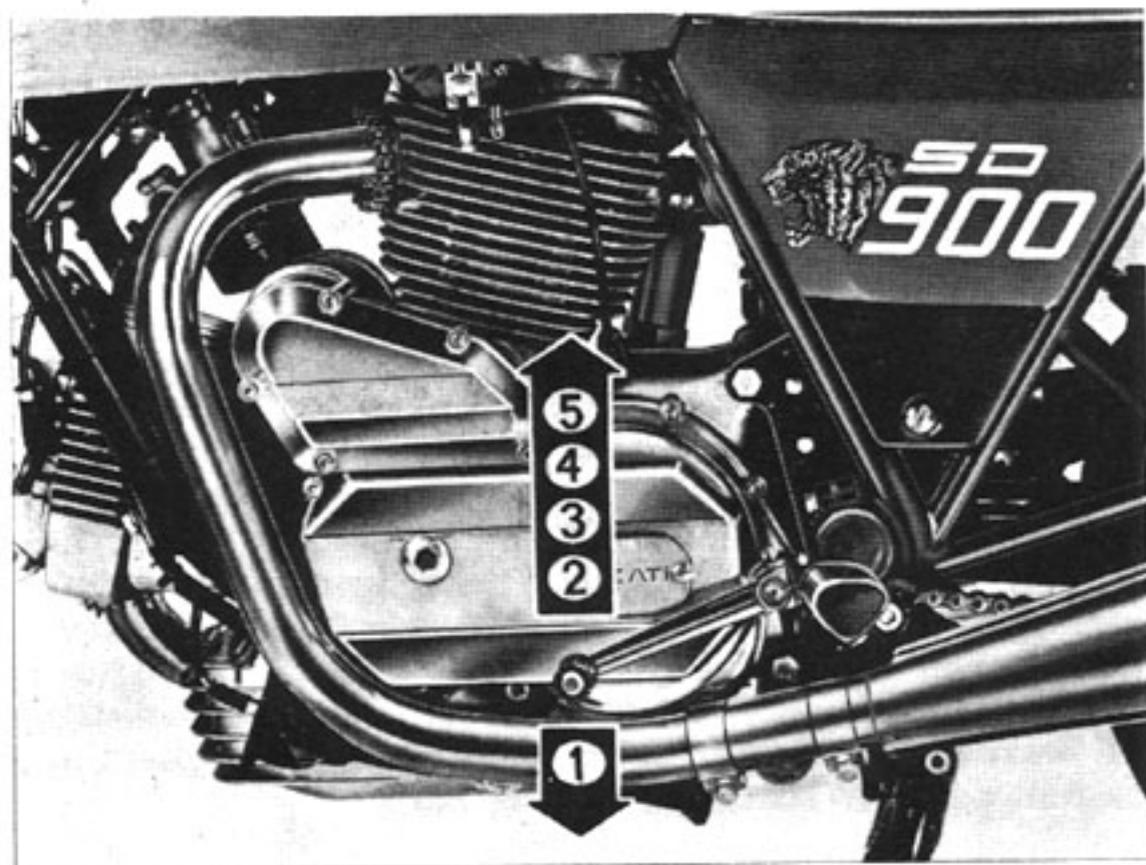


Fig. 25

To change down from a high gear to a lower one, operate as follows: close the throttle, pull the clutch lever, accelerate the engine momentarily, thus synchronizing the gears about to be engaged, engage the lower gear and then let go off the clutch lever.

A good motorcyclist will make use of the controls intelligently and at the right time. When riding uphill and the engine tends to slow down, change to a lower gear at once; do not « hang on » to a higher gear when the effort required from the engine advises to use a lower gear.

**When the engine turns at a low number of revolutions, do not accelerate too quickly: thus you avoid any over supply of fuel and too harsh drive to the transmission.**

**The clutch should not be held long disengaged with a gear engaged, because the clutch plates will become overheated, causing rapid wear by friction.**

Except in case of emergency, never use the brakes brutally when you are already near behind the obstacle, but throttle down the engine in right time and then make use of the brakes.

**Bear in mind that insufficiently inflated tyres are detrimental to the roadholding qualities of the motorcycle, and cause a greater tyre wear and lower efficiency.**

## **STOPPING THE MOTORCYCLE**

To stop the vehicle, close the throttle completely (the engine will then act as a gentle brake), disengage the clutch and put the gear pedal in neutral. A slight use of the brakes will then stop the motorcycle.

To stop the engine, turn the contact key on the position « OFF ». The emergency switch cuts off the engine quickly, in case of emergency and acts cutting-out the two electronic devices; **after the engine stop, displace it in position RUN.** If after several attempts the engine does not start, check if the emergency switch is still on the OFF position.

On good maintenance depends the good condition of the motorcycle.

By following these fundamental rules you can avoid serious troubles and obtain an excellent performance from your motorcycle.

The operations to be carried out are subdivided in accordance with the mileage run by the motorcycle. The recommendations which follow are, of course, merely indicative, because lubricating, checking and adjustments depend also on the nature of the road, the seasonal temperature, the length of the intervening period, etc.

### **At first 500 Km. (about 310 Miles), at a Ducati Service-Station**

- Restore oil-level in the crankcase;
- Tighten the cylinder head holding down bolts (see locking torques at page 52).
- Check the clearance between valves and rockers for its correct value (see at page 48);
- Adjust the chain and lubricate it (see at page 51).

### **At first 1000 Km. (about 620 Miles)**

- **Totally replace oil contained in the engine crankcase and the filter cartridge;** (see « Lubrication » at pages 14 to 17).
- Check the correct tension of the chain and lubricate it.

### **Every 1000 Km. (about 620 Miles)**

- Check the level of the oil contained in the engine crankcase;
- Check the correct tension of the chain and lubricate it.

### **Every 3000 Km. (about 1860 Miles)**

- Change the oil in the crankcase draining it while the engine is hot, make sure that the oil drains off completely; every two oil changes, replace also the filter cartridge (see «Lubrication»);
- Check the clearance between valves and rockers as already explained (at a Ducati Service Station).

### **Every 5000 Km. (about 3100 Miles), at a Ducati Service-Station**

- Remove carburetor air filters and wash them by a blast of compressed air, in order to remove all impurities from cloth.
- Clean out the carburetor float chamber, the main jet and the idle jet, if necessary;
- Readjust the clutch because wear on its linings might otherwise cause slip;
- Lubricate the hinge of the rear fork;
- Verify the brake pads wear (see at page 58) and the pump fluid level;
- Check the cylinder head holding down bolts and all nuts and bolts in general.

### **Every 10,000 Km. (about 6200 Miles)**

- Replace the air filter cartridge.

### **Every 20,000 Km. (about 12,400 Miles), at a Ducati Service-Station**

- Totally replace the oil contained in the front fork legs (see «Lubrication»).
- Totally replace the oil contained in the brake lubrication system (see «Lubrication» and «Periodical maintenance of the disc brakes»).

## TAPPET ADJUSTMENT

The tappet adjustment, opening rockers, is made fitting a rocker shim of proper thickness on the valve stem end. Closing rocker adjustment, on the contrary, is made fitting a ring of proper thickness on the rocker, fixed by means of two half-rings which establish its position too.

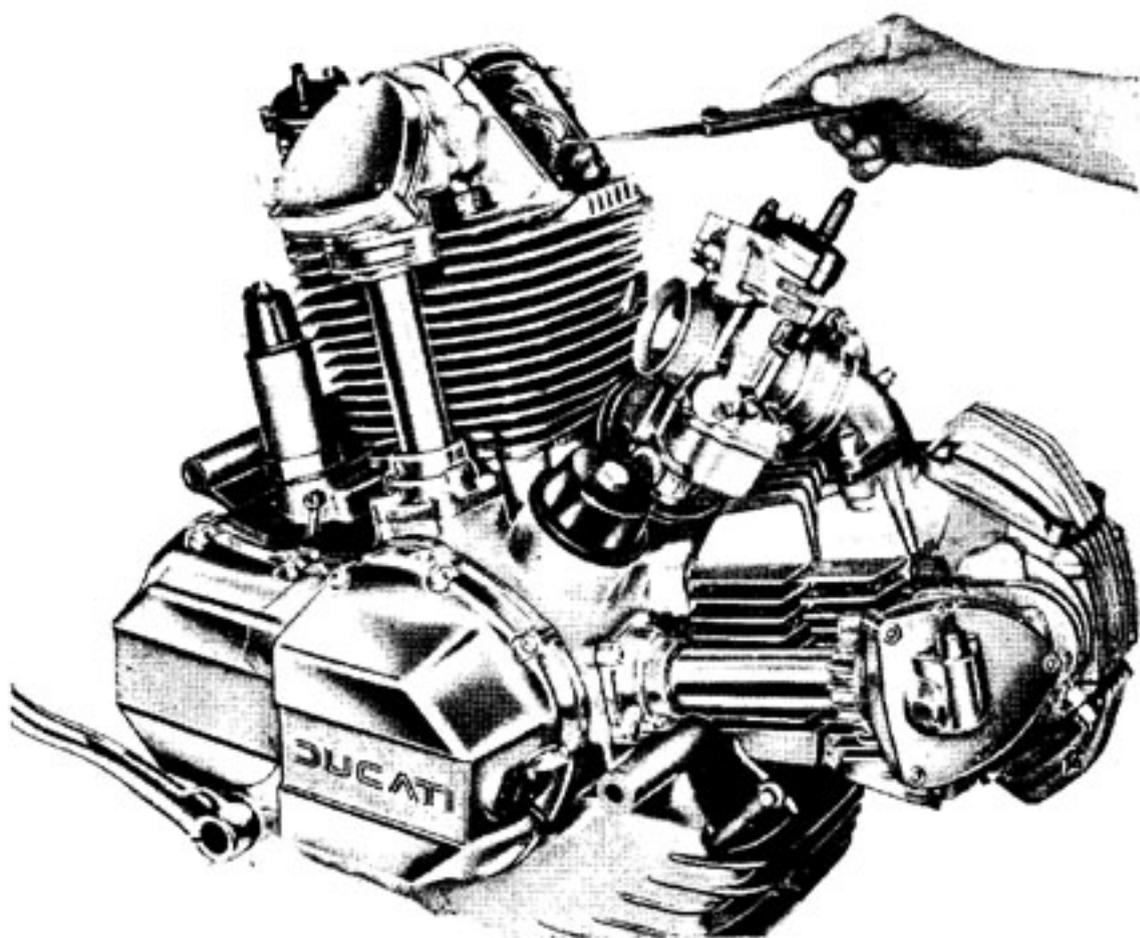


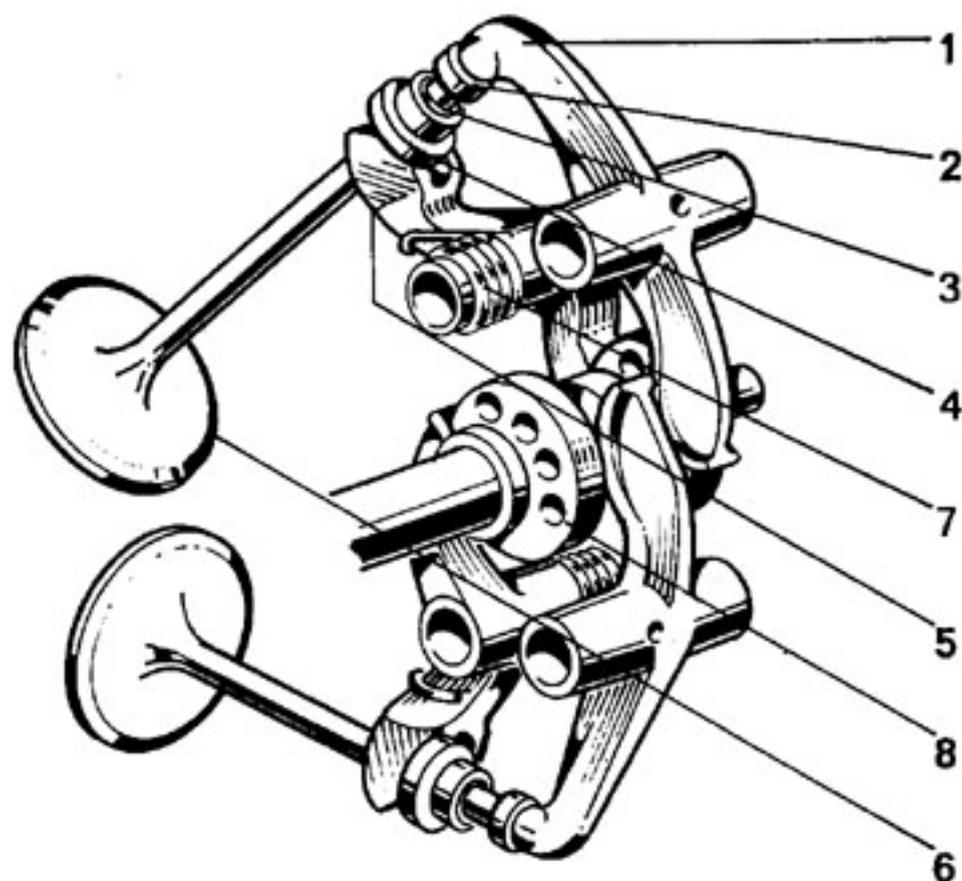
Fig. 26

The working play between valves and rockers (cold engine) is as follows:

Opening rockers: Inlet = 0,08 (0,0031")  
Exhaust = 0,12 (0,0047")

Closing rockers: Inlet = 0,00  
Exhaust = 0,00

The play control is made by means of a feeler gauge (see Fig. 26).



- 1 - Opening (or upper) rocker
- 2 - Upper rocker adjuster
- 3 - Half-rings
- 4 - Closing rocker adjuster
- 5 - Closing (or lower) rocker
- 6 - Valve
- 7 - Closing rocker return spring
- 8 - Camshaft

Fig. 27

## CARBURETOR ADJUSTMENTS

A good and satisfactory operation of your engine is mainly depending upon a well adjusted carburation as originally made by the DUCATI factory. Therefore we cannot suggest to alter or modify same.

At 1000 Km. (about 600 Miles), then every 5000 Km. (3100 Miles) check — with warmed up engine — that idle

## NOTE

These settings must be arranged with warmed up engine, taking into account that same can be reached in Summer after 15 minutes of operation and in Winter after 25 minutes of operation.

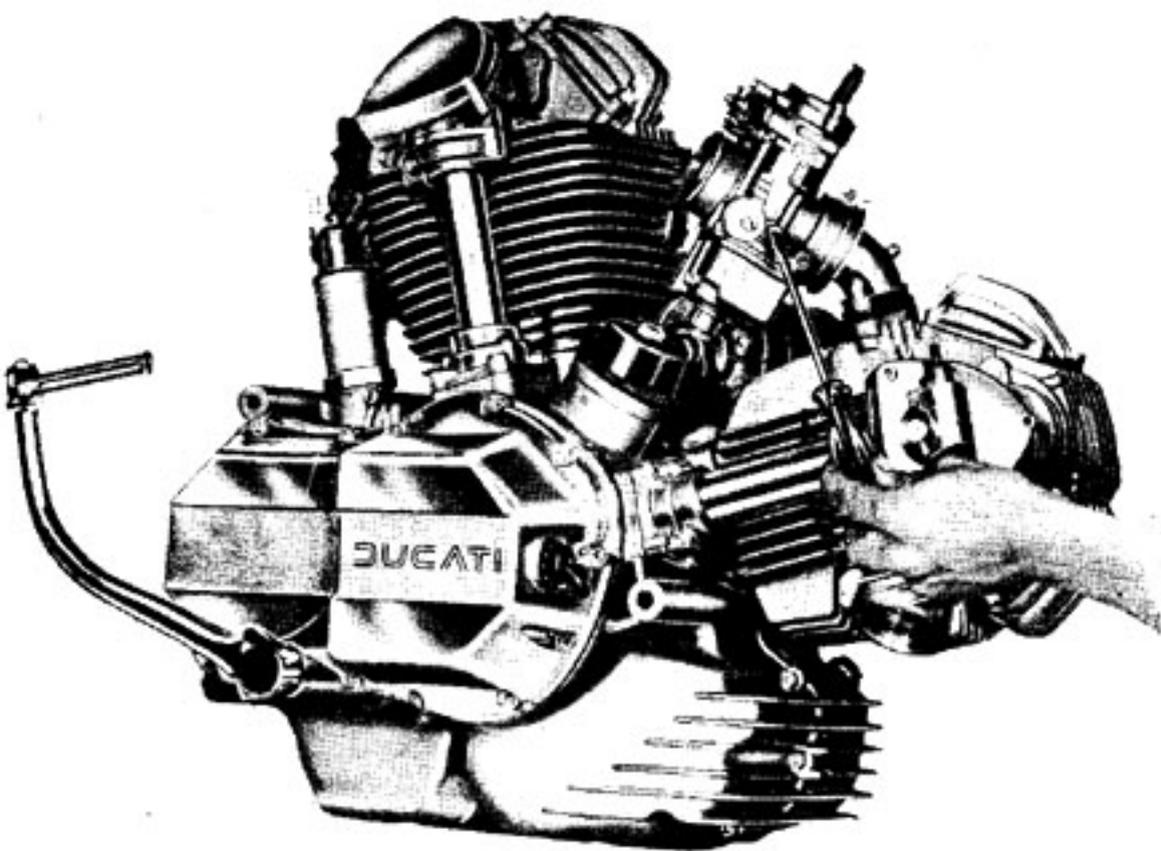


Fig. 28

## CHAIN TENSION ADJUSTMENT

For the correct chain adjustment, up and down movements should be no more  $15 \div 20$  mm. ( $0.59'' \div 0.79''$ ), with grounded machine and one person sitting on the rear part of the saddle, or with rear suspensions at half-stroke (see Fig. 30).

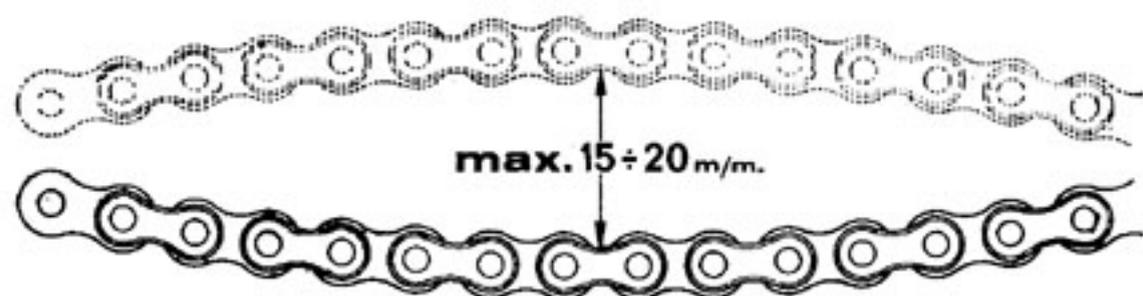


Fig. 29

To increase the chain tension, follow the instructions hereunder (see Fig. 31):

- 1) Remove the plastic covers protecting the rear fork spindle.
- 2) With the appropriate wrench loosen bolt A on both sides of the motorcycle.
- 3) With the help of a special wrench C coupled with the eccentric pin B, rotate till obtaining the chain correct tension.
- 4) Tighten the two bolts A.
- 5) Refit the plastic protection covers.

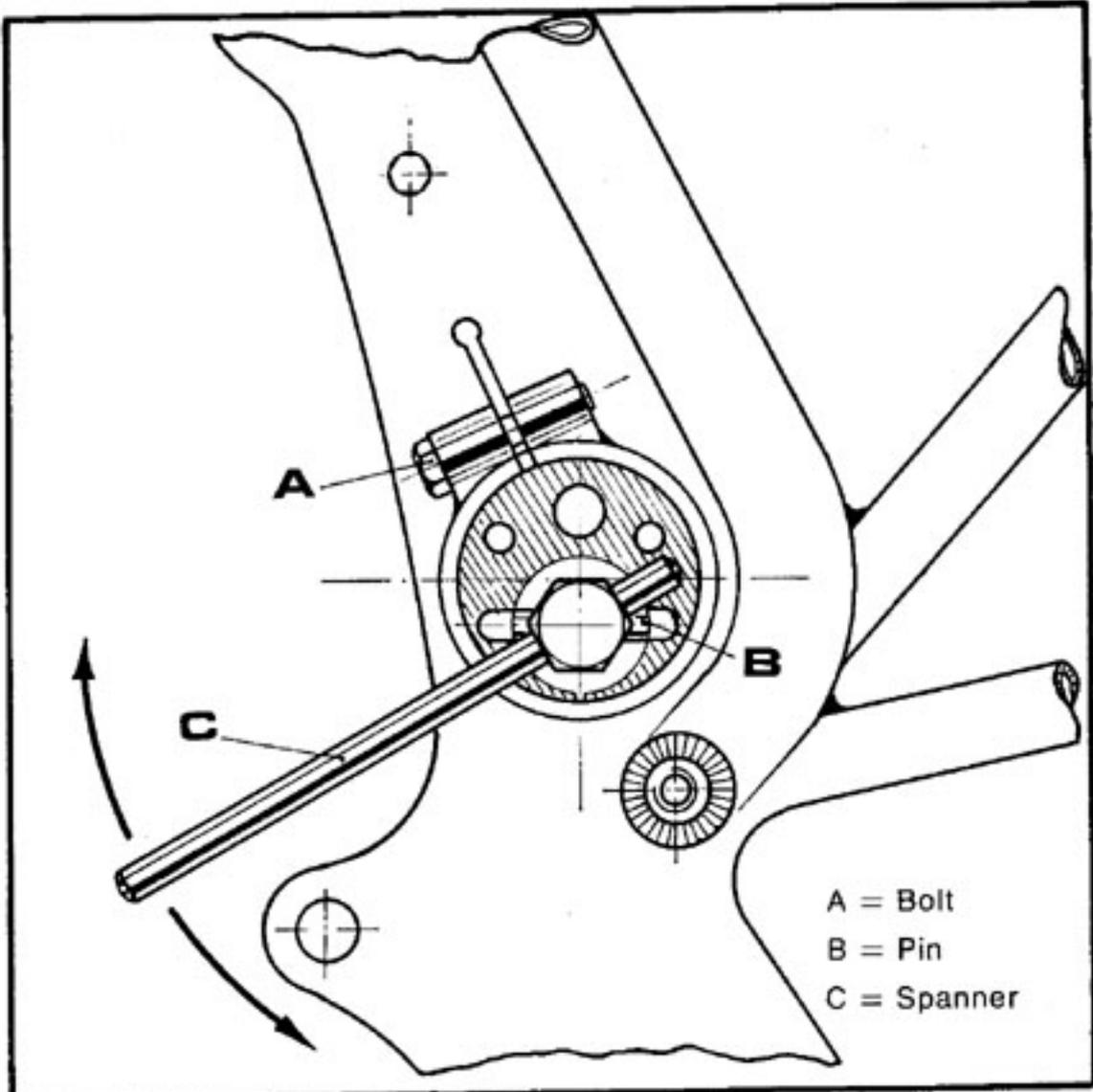


Fig. 30

### BOLT AND NUT LOCKING TORQUES

Head bolts . . . . .	3,4 ÷ 4,3	Kgm	(24,6 ÷ 31,1 ft/lb)
Flywheel nut . . . . .	4 ÷ 5	Kgm	(28,9 ÷ 36,2 ft/lb)
Engine gear nut . . . . .	7 ÷ 8	Kgm	(50,7 ÷ 57,9 ft/lb)
Chain pinion nut . . . . .	7 ÷ 8	Kgm	(50,7 ÷ 57,9 ft/lb)
Clutch drum nut . . . . .	4 ÷ 5	Kgm	(28,9 ÷ 36,2 ft/lb)
Engine cover screws (6M) . . . . .	0,8 ÷ 1	Kgm	( 5,8 ÷ 7,2 ft/lb)
Engine cover screws (8M) . . . . .	1,5 ÷ 2	Kgm	(10,9 ÷ 14,5 ft/lb)
Engine crankcase bolts (10M) . . . . .	2 ÷ 2,5	Kgm	(14,5 ÷ 18,1 ft/lb)
Spark plugs . . . . .	1,9 ÷ 2	Kgm	(13,8 ÷ 14,5 ft/lb)

## HEADLAMP ALIGNMENT

It is advisable to check periodically the alignment of the headlight as follows:

- place the motorcycle at a distance of 5 metres (ft. 16.404) from a bright wall;
- make sure that the ground be even and that the optic axis of the headlamp be perpendicular to the wall;
- the motorcycle with its rider must rest on the wheels, not on the central stand (see Fig. 32).

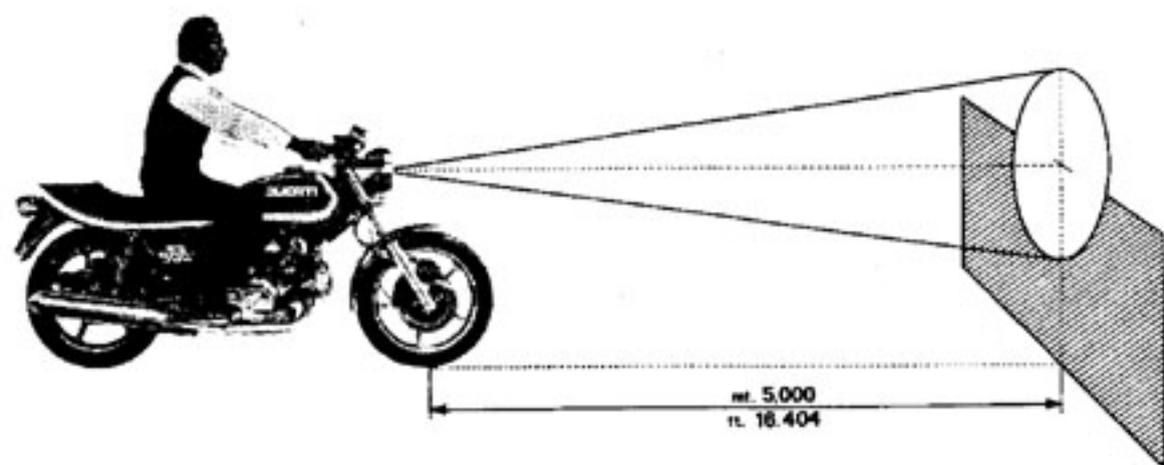


Fig. 31

- measure the height of the headlamp from the ground and trace a cross on the wall at the same height;
- when the depthlight is switched on the cross must be in the center of the circular light-beam hitting the wall;
- to rectify the alignment of the headlamp, operate by means of the two fixing screws of the headlamp on the front support.

## **OVERALL CLEANING**

The motorcycle should be washed and cleaned periodically, according to the length of time it has been used and the state of the roads.

- Clean the engine with kerosene and wipe it dry with a clean rag;
- wash down the painted parts of the frame with water, using a sponge for washing and a shammy leather for drying;
- never use solvents, petrol, spirit or kerosene, otherwise the paint will look flat;
- grease the chromium plated parts with vaseline and polish with shammy leather;
- be careful not to wet the electric system and particularly the electronic boxes and their coils placed under the fuel tank.

## **PROLONGED REST OF THE MOTORCYCLE**

If the motorcycle has to be put at rest for several months, it is advisable to proceed as follows:

- clean the motorcycle thoroughly;
- empty the petrol tank;
- take out the battery and keep it charged and efficient, as per instructions at pages 56;
- squirt through the holes of the sparking plugs several drops of oil into the cylinder and turn the engine by hand for several revolutions, distributing a thin oil film on the walls;
- put the motor upon a piece of wood, lifting the machine from the ground and empty the air out of the inner tubes;
- cover the machine with a canvas or water-proof cover.

## **INSTRUCTIONS FOR FITTING THE BATTERY ON THE MOTORCYCLE**

- **How to prepare the battery for the filling up:**  
Remove the gummed tape and the outlet plugs before filling up with electrolyte.
-

If the battery is provided with a long drain pipe, cut the sealed terminal at about 3 cm (1.18") from the end. If the battery has a short sealed tube and is provided with a long separate pipe, replace the short tube by the long one.

#### — Filling up with electrolyte

Fill up the battery; the electrolyte (diluted sulphuric acid) must have a density of 1.240 for tropical climates where the average temperature exceeds 25°C (77°F) and of 1.260 for mild climates.

Fill up to the UPPER LEVEL (level of the antispash gauze) as it is indicated on the battery.

The electrolyte should have a temperature lower than 30°C (86°F) before the filling.

Leave the battery at rest for half an hour after having filled it up.

During this period, a part of the electrolyte can be absorbed: therefore it will be necessary to restore the level by adding more diluted sulphuric acid of the above specified densities.

#### — Charge

We recommend to charge the battery for the first time before making it operating, if time and installation make it possible. Charge the battery with the current described in the Table, in a continuous manner, for 10 to 11 hours. If the level of the electrolyte is lower after the charge, pour DISTILLED WATER until restoring it, that is up to the UPPER LEVEL.

At the end of the charge, firmly secure the outlet plugs, eliminate the acid and water that may have overflowed, and dry the battery.

#### — Battery fitting

— Firmly secure the battery on the vehicle.

— Make sure that there is no error in the terminal connections (positive or negative) of the battery.

— Do not bend or compress the drain tube of the battery. If the tube is compressed, there is the risk of an explosion.

## BATTERY MAINTENANCE INSTRUCTIONS

— Check the level of the electrolyte once a month. If it is lower than the average between the **UPPER LEVEL** and the **LOWER LEVEL**, pour **distilled water** until restoring the level.

**Never fill to the brim with sulphuric acid.**

— Always keep the battery clean. Protect terminals with vaseline grease to avoid their corrosion.

— Avoid bending and obstructing the drain tube.

### — Recharge

Recharge is necessary when lights and horn grow faint, and when the battery has been inactivated for more than one month.

If the vehicle is regularly used, the battery should never remain discharged for no reason whatsoever. If this occurs, check the regulator, alternator and in case the complete installation, including of course, the battery which could be in bad condition.

To recharge the battery, follow the hereunder Table.

Charge until the battery starts boiling and the specific weight of the electrolyte exceeds 1.240 in tropical climates and 1.260 in the mild ones.

Type of battery	Tension (Volt.)	Capacity in 10h (Ah)	Recharge current (A)	Recharge hours
B 68	12	36	3,5	10-11

## **INSTRUCTIONS FOR THE MAINTENANCE OF THE RECHARGE ELECTRIC SYSTEM**

In case of inspections or repairs, it is extremely important to know the working of the electrical system and to follow with care the scheme. To avoid demagnetizing the generator, be careful to never send electrical current (direct or alternate) in the opposite direction.

**Do not connect the battery with inverted poles.**

Every inspection should be made with convenient Ohmmeters and Voltmeters.

If battery discharges frequently check the recharge current connecting — with still engine — an amperemeter with the battery. If no current is found, arrange checking of the recharge circuit and its components as: regulator, alternator, etc.

## **PERIODICAL MAINTENANCE OF THE DISC BRAKES.**

To have the hydraulic brakes efficient, follow scrupulously these recommendations:

- frequently check the fluid level in the reservoirs: it must never be more than 8 mm. (0.315") below the maximum level;
- periodically check (for instance every 5,000 Km. = 3,100 Miles) the fluid overflow; exclusively use the brake fluid (SAE J 1073 c) AGIP F1 BRAKE FLUID SUPER HD or equivalent taken from the original tin;
- every 20,000 Km. (12,400 Miles) it is advisable to completely replace the fluid;
- take care that the brake fluid does not get in touch with the motorcycle paint because it would be damaged;
- for a good working of the brakes, take care that the tubes be always full with the fluid, and without air bubbles. The presence of air causes spongy and long travel in the hand lever.

### **Attention!**

For a good maintenance of the disc brake assemblies apply to a DUCATI Service Station.

## REPLACEMENT OF THE FRICTION PADS

Every 5000 Km. (3100 Miles) it is advisable to check if the pads are worn out.

For this operation apply to a DUCATI Service Station.

Proceed in the following manner:

- take out the cover closing the pad slit, using a screwdriver as a lever;
- take out the central pin and its flat spring;
- pull out the pads.

The thickness must be:

with new pad: mm. 7 (0.275")  
at the wear limit mm. 4 (0.157").

If the thickness is lower than the wear limit, the pads have to be replaced. The friction material must not be utilized till the metal plate appears, as this would heavily damage the disc and moreover the minimum coat of friction material assuring the thermic insulation between pads and brake fluid would be missing.

To replace the pads, act as follows:

- push the small pistons inside the half-calipers, avoiding damage to the dust covers;
- fit the new pads in the caliper;
- fit the stop pins, the peg and position spring.

Acting as explained hereupon, it is not necessary, after the pads have been replaced, to drain the system, but only to press several times the brake lever till the small pistons revert to their normal position (pads at about 0,2 mm. (0.0079") from the disc).

**ATTENTION!** During the replacement of the pads, it is advisable to take some fluid out of the reservoir, because

the piston backing in the cylinders, could let the fluid overflow from the reservoir.

**IMPORTANT:** for about 100 Km. (60 Miles) it is advisable to cautiously act on the new pads, allowing the friction material to correctly and entirely bed in.

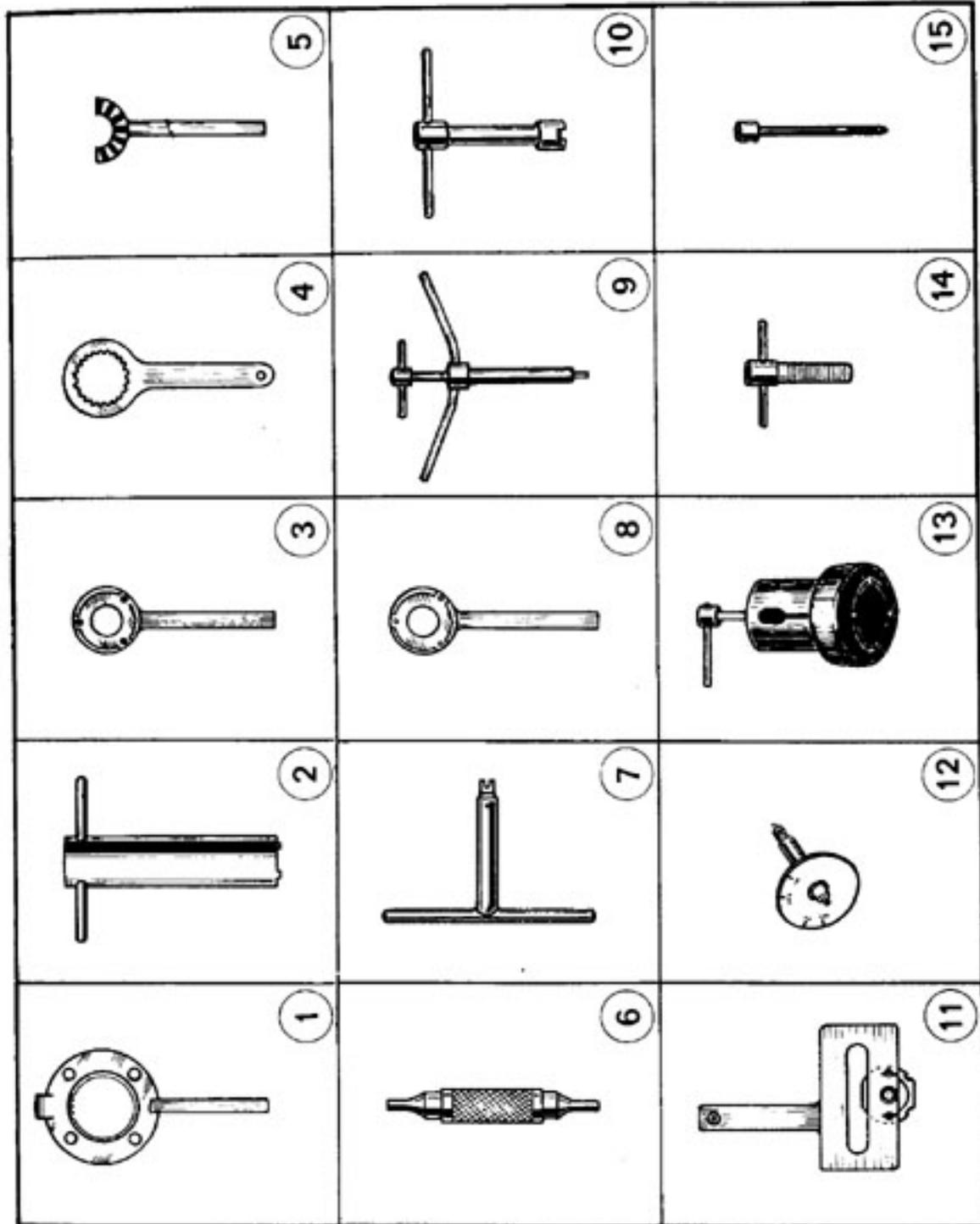
### **WORKSHOP MANUAL**

Our DUCATI After-Sale Service realized a book: «WORKSHOP MANUAL FOR 900 DARMAH» which can be supplied on demand addressed to our Spare Parts Dept. under code number:

98522.0013 in Italian/English version.

This manual will be of high assistance for those who want to dismantle and repair their own motorcycle.

# **SPECIAL TOOLS FOR SERVICING GARAGES**



# LEGEND

- 1) 88713.0101 Clutch housing and drum locking wrench.
- 2) 88713.0104 Tubular wrench for chain pinion locking ring.
- 3) 88713.0107 Pinion retaining wrench for ring locking (for pinion Z = 16)
- 4) 88713.0108 Alternator retaining wrench for nut locking.
- 5) 88713.0113 Spanner for removing exhaust pipe ring.
- 6) 88713.0114 Tool for removal of connector pins.
- 7) 88713.0115 Spanner for chain tension.
- 8) 88713.0118 Pinion retaining wrench for ring locking (for pinion Z = 15).
- 9) 88713.0120 Rocker pin extractor.
- 10) 88713.0130 Desmo and standard timing shaft removing wrench.
- 11) 88713.0131 Pick-up assembling tool (\*).
- 12) 88713.0132 Advance checking indicator with stroboscopic light (\*).
- 13) 88713.0133 Flywheel-gear set extractor (\*).
- 14) 88713.0258 Clutch cover extractor.
- 15) 88713.0262 Rocker assembling pin.  
88713.0270 Bearing extractor.

(\*) New tools expressly designed for 900 S/D engine.

## LOCATING AND REMEDYING FAULTS

The following list contains several of the most frequent faults which may arise and advice on remedying them.

### ENGINE DOES NOT START EASILY

First of all, ascertain that there is enough petrol in the fuel tank and that the cock is turned on (A=open; R=reserve). If these are in order, the fault may be one or more of the following.

CAUSE	REMEDY
Petrol pipes are clogged.	Blow through them until the obstacle is removed.
Carburetor petrol filters are dirty.	Dismantle filters and clean gauzes by an air blast.
Petrol cock filters are dirty.	Dismantle filters and clean them by a blast of air through gauzes.
One carburetor float is stuck.	Remove the float and clean out the float chamber (this should be done by a DUCATI Servicing Garage).
One carburetor float is leaking.	Change the float (at a DUCATI Servicing Garage).
One jet is clogged.	Remove the obstacle by a strong blast of air.
The cables from the coils to the spark plugs are broken or sparking externally.	Inspect the cable insulation for faults and if necessary change the cable at a DUCATI Servicing Garage.

**CAUSE****REMEDY**

**Defective sparking plugs.**

Change or clean the plug, making sure that the insulating core is not damaged, that there are no carbon deposits on the electrodes and that the spark gap does not exceed 0.6 mm. (0.024 in.).

**Compression lacking.**

Check if the sparking plug has been tightly screwed in, check the valves for gas-tightness and the tightness of the piston rings (at a Ducati Servicing Garage).

**A valve spring is broken.**

Change the broken spring (at a Ducati Servicing Garage).

**No sparks in the sparking plugs.**

Check that the emergency switch is not defective or placed in OFF position.

Check the battery charge.

Check that the key switch and the emergency switch is not defective.

Check that the cables connecting the ignition are well connected and there is no damp between them and no incorrect earthings.

Check that all F1 general fuse is not loose or burnt.

Check connection of cable coming from the pick-up fitted inside the clutch side cover.

CAUSE	REMEDY
<p><b>One spark plug has no sparks.</b></p>	<p>Check the condition of the involved spark plug.</p> <p>Check that all ignition system cables are well connected without earthings and damp.</p> <p>Using the Ohmmeter, check the resistor going to the involved coil.</p> <p>If no faults will be found, try to replace the high tension coil, or the electronic device or the two pick-ups (Bear in mind that to fit them special tool no. 88713. 0131 is required).</p>

## LIGHTS ARE NOT WORKING REGULARLY

CAUSE	REMEDY
<p><b>The battery is discharged or discharges frequently.</b></p>	<p>Check the condition of the battery and the recharge circuit.</p> <p>Check the regulator (at a Ducati Service Garage) and if defective, it must be replaced, being impossible to repair it.</p> <p>Once the fault has been found, let recharge the battery.</p>

**CAUSE**

**REMEDY**

To check the recharge current, act as follows:  
Disjoin the wire from the + terminal block of the battery.

— Insert an Amperemeter in direct current between the terminal clamp and the wire (possibly with central « 0 »).

— Let the engine turn, till attaining 5,000 r.p.m.

The Amperemeter should show:

a) maximum current about ~ 10 A, with completely discharged battery.

b) minimum current about ~ 1 A, with almost completely charged battery.

According to the battery load condition, you will obtain intermediate figures.

These tests must be carried out with switched out headlight.

*Attention! The Amperemeter must be always inserted with still engine.*

**Checking the Electrical System.**

Make sure that all the bulbs are efficient.

1) With lights switched out (during the day), the Amperemeter should read 0 at 1,000 r.p.m. approx.

2) With town lights switched on (during the night) the Amperemeter should read 0 at 1,200 r.p.m. approx.

3) With antidazzle lights switched on (during the night) the Amperemeter should read 0 at 2,200 r.p.m. approx. (in a Ducati Service Garage).

Check if there are earthed contacts in the system.

With key not inserted, battery discharges quickly.

## INEFFICIENT ENGINE

CAUSE	REMEDY
Irregular feed of petrol to one carburetor.	Clean the carburetor filter, the petrol cock filter and the petrol pipe.
One main jet partly clogged.	Clean the main jet by means of an air blast.
Carburetor butterfly valve does not open completely.	Readjust the valve travel by means of the adjustment screw of the carburetor Bowden cable (at a Ducati Servicing Garage).
The float needle does not close properly.	Clean out the carburetor and especially the needle seat (at a Ducati Servicing Garage).
Petrol of bad quality.	Empty the petrol tank and refill at a reliable garage.
Spark plugs are not of the right type.	If the sparking plug overheats, you will have preignition, knocking and misses, especially at high revs. If the sparking plug remains too cold, you will have no ignition, because the electrodes will short-circuit. Use the right type of sparking plug; we advise the use of spark plugs Bosch W7B type (W175T35) or equivalents.
The plug is loose in its adaptor.	Tighten the plug down well. A washer should always be placed between the sparking plug and its seating in the cylinder head.
One sparking plug cable sparks externally.	Change the cable or repair the insulation (at a Ducati Servicing Garage).

**CAUSE****REMEDY**

The gap between the electrodes of the sparking plug is too wide.

Adjust the gap to the proper width of about 0.6 mm. (0.024 in.).

The spark plug electrodes are dirty.

Clean the electrodes with a wire brush.

One electronic device is defective.

Replace it at a Ducati Service Station.

The H.T. coil is defective.

Replace it at a Ducati Service Station.

One pick-up is defective.

Fully replace the two pick-up assembly.

## THE GEN. WARNING LIGHT DOES NOT WORK REGULARLY

**CAUSE****REMEDY**

With key in RUN position, the GEN warn. light is not lit.

Check the battery, which could be discharged, or the F1 fuse if burnt or loose, or the same GEN bulb if burnt-out.

The GEN. warn. light is not switched out after engine starting, or is lit during running.

Warn. light lighting may be caused by:

1) battery tension lower than 12,35 Volt.

This low tension could be due to a prolonged rest of motorcycle; or to an insufficient recharge for defective regulator or alternator; or too many lamps and horns added.

**CAUSE****REMEDY**

- 2) Battery is at the boiling point due to the tension higher than 15.7 Volt. This high tension may be due to a defective regulator, not stopping recharge at 14.2 Volt, to be replaced.
- 3) Voltimeter is defective, to be replaced.

### **PROBLEMS AND FAULTS INVOLVING EMISSION CONTROL SYSTEM OPERATION**

**CAUSE****REMEDY**

**Non-starting or faulty starting**

- defective electronic ignition
- low compression
- not adjusted idle speed
- defective choke operation
- faulty spark plugs

**Irregular idle**

- defective electronic ignition
- low compression
- incorrect carburetor synchronization
- faulty spark plugs
- not adjusted idle speed

**Misfiring and backfiring**

- defective electronic ignition
- worn-out valves
- faulty spark plugs

**Poor performances and high consumption**

- defective electronic ignition
- low compression
- not adjusted carburetors
- dirty air filters
- clogged fuel system

## MAINTENANCE RECORDS

to be always filled up by whoever performs maintenance operations.

Miles/Km	Name	Speedometer	Date
620 Miles 1.000 Km			
3.100 Miles 5.000 Km			
6.200 Miles 10.000 Km			
9.300 Miles 15.000 Km			
12.400 Miles 20.000 Km			
15.000 Miles 25.000 Km			
18.600 Miles 30.000 Km			

These records, together with all receipts demonstrating performance of required maintenance operations should be held and passed on to the eventual successive motorcycle owners.

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# SUMMARY OF GENERAL DATA AND MAINTENANCE SETTING

## Dimensions and weights

Overall length . . . . .	2.260 mm (88,98 in)
Overall width . . . . .	780 mm (30,7 in)
Overall height . . . . .	1.090 mm (42,9 in)
Wheelbase . . . . .	1.550 mm (61,0 in)
Dry weight . . . . .	216 Kg (476,2 lb)
Weight with 2 persons . . . . .	370 Kg (815,7 lb)

## Engine

Bore and stroke . . . . .	86 x 74,4 mm (3,386 x 2,929 in)
Cubic capacity . . . . .	863,9 cc (52,72 cu. in)
Compression ratio . . . . .	9,3/1
Max r.p.m. . . . .	7.800/1'

## Recommended lubricants and fluids (or equivalents)

Engine crankcase . . . . .	AGIP SINT 2000-SAE 10W50 = 4,5 Kg
Front fork . . . . .	AGIP F1 ATF Dexron each leg = 185 cc
Hydraulic disc brakes . . . . .	AGIP F1 Brake Fluid Super HD

## Ignition system

Type . . . . .	Electronic BOSCH
Automatic advance range . . . . .	6° ./ 32°
Spark plugs type . . . . .	Bosch W7B (W175T35)
Spark plugs gap . . . . .	0,6 mm (0,024 in)

## Carburetors

Type . . . . .	Dell'ORTO PHF 32 CD/CS
Main jet . . . . .	horizontal cylinder ... 122
Main jet . . . . .	vertical cylinder ... 122
Idling jet . . . . .	55
Air filters . . . . .	DUCATI 0608.27.275

## Tyres and pressures

Front size . . . . .	Pirelli or Michelin 3,50 H 18
Rear size . . . . .	Pirelli or Michelin 120/90 V 18
Front pressure . . . . .	1 pers.=2 Kg/cm <sup>2</sup> (28,5 lb/sq.in)
	2 pers.=2,3 Kg/cm <sup>2</sup> (32,7 lb/sq.in)
Rear pressure . . . . .	1 pers.=2,5 Kg/cm <sup>2</sup> (35,6 lb/sq.in)
	2 pers.=2,7 Kg/cm <sup>2</sup> (38,4 lb/sq.in)

**900 S/D « Darmah »**

- 1 - Faro anteriore Ø 170
- 2 - Lampada H4 - 12 - 55/60W
- 3 - Lampada di posizione 12V - 3W
- 4 - Connettore per faro a 6 vie
- 5 - Indicatore di direzione ant. destro 12V - 21W
- 6 - Indicatore di direzione ant. sinistro 12V - 21W
- 7 - Connettore per cruscotto a 12 vie
- 8 - Contachilometri o contagiglia
- 9 - Contagiri
- 10 - Interruttore di sicurezza a chiave
- 11 - Connettore a tre vie per comando destro
- 12 - Comando destro: avviam. elettrico - Int. emerg.
- 13 - Connettore a 9 vie per comando sinistro
- 14 - Comando sinistro: luci - lampeggio - indicatori - claxon
- 15 - Voltmetro Motoplat
- 16 - Claxon
- 17 - Scatola fusibili (F1 = 25A; F2 = 8A; F3 = 8A)
- 18 - Alternatore 12V - 200W
- 19 - Regolatore elettronico 12V a ponte
- 20 - Batteria YUASA B68 - 12V - 36Ah
- 21 - Interruttore stop anteriore
- 22 - Interruttore stop posteriore
- 23 - Interruttore per spia cavalletto lat.
- 24 - Interruttore per spia folle (Neutral)
- 25 - Intermitenza 12V - 40W
- 26 - Interruttore per motore avviam. elettr.
- 27 - Motore per avviamento elettrico
- 28 - Luce di pos. post. - arresto - targa 12V - 5/21W
- 29 - Indicatore di direzione post./destro 12V - 21W
- 30 - Indicatore di direzione post./sinistro 12V - 21W
- 31 - Pick-up (visto dall'interno del coperchio)
- 32 - Centralina elettronica cil. verticale
- 33 - Bobina A.T. cilindro verticale
- 34 - Resistenza cilindro verticale
- 35 - Candela cilindro verticale
- 36 - Centralina elettronica cil. orizzontale
- 37 - Bobina A.T. cilindro orizzontale
- 38 - Resistenza cilindro orizzontale
- 39 - Candela cilindro orizzontale

**COLORE DEI CAVI E RELATIVI CODICI**

- B = Bleu  
 Bk = Nero  
 P = Rosa  
 R = Rosso  
 W = Bianco  
 Y = Giallo  
 G = Verde  
 O = Arancio  
 Gr = Grigio  
 R-Bk = Rosso-Nero  
 R-W = Rosso-Bianco  
 W-Bk = Bianco-Nero  
 W-O = Bianco-Arancio  
 G-Bk = Verde-Nero  
 Y-Bk = Giallo-Nero  
 B-Bk = Bleu-Nero  
 P-Bk = Rosa-Nero  
 Gr-Bk = Grigio-Nero  
 Bn = Marrone  
 L-G = Verde chiaro  
 Bk-Bn = Nero-Marrone

**900 S/D « Darmah »**

- 1 - Headlight Ø 170
- 2 - H4 - 12 - 55/60W bulb
- 3 - 12V - 3W parking light
- 4 - 6 - pos. headlight connector
- 5 - 12V - 21W R.H. front flasher
- 6 - 12V - 21W L.H. front flasher
- 7 - 12 - pos. dashboard connector
- 8 - Miles or Km. speedometer
- 9 - Rev. counter
- 10 - Safety key switch
- 11 - 3 - pos. connector for R.H. control
- 12 - R.H. control: electric start - emergency switch
- 13 - 9 - pos. connector for L.H. control
- 14 - L.H. control: lights - flashing - flashers - horn
- 15 - Motoplat Voltmeter
- 16 - Horn
- 17 - Fuse box (F1 = 25A; F2 = 8A; F3 = 8A)
- 18 - 12V - 200W Alternator
- 19 - 12V electronic bridge regulator
- 20 - YUASA B68 battery - 12V - 36Ah
- 21 - Front stop switch
- 22 - Rear stop switch
- 23 - Side stand warn. light switch
- 24 - Neutral gear - light switch
- 25 - 12V - 40W Flash device
- 26 - Electric start motor solenoid
- 27 - Electric start motor
- 28 - 12V - 5/21W tail light - stop - plate
- 29 - 12V - 21W R.H. rear flasher
- 30 - 12V - 21W L.H. rear flasher
- 31 - Pick-up (seen from the cover inside)
- 32 - Vertical cylinder electronic device
- 33 - Vertical cylinder H.T. coil
- 34 - Vertical cylinder resistance
- 35 - Vertical cylinder spark plug
- 36 - Horizontal cylinder electronic device
- 37 - Horizontal cylinder H.T. coil
- 38 - Horizontal cylinder resistance
- 39 - Horizontal cylinder spark plug

**CABLE CODES and COLORS**

- Bleu  
 Black  
 Pink  
 Red  
 White  
 Yellow  
 Green  
 Orange  
 Grey  
 Red-Black  
 Red-White  
 White-Black  
 White-Orange  
 Green-Black  
 Yellow-Black  
 Blue-Black  
 Pink-Black  
 Grey-Black  
 Brown  
 Light green  
 Black-Brown

**900 S/D « Darmah »**

- 1 - Phare Ø 170
- 2 - Ampoule H4 - 12 - 55/60W
- 3 - Feu de position 12V - 3W
- 4 - Connecteur pour phare 6 - pos.
- 5 - Indicateur direct. avant droit 12V - 21W
- 6 - Indicateur direct. avant gauche 12V - 21W
- 7 - Connecteur pour tableau de bord 12 - pos.
- 8 - Copieur-Km. ou Miles
- 9 - Compte-tours
- 10 - Interrupteur de sureté à clé
- 11 - Connecteur pour commande droite 3 - pos.
- 12 - Commande dr.: démarr. électrique - Interr. d'urg.
- 13 - Connecteur pour commande gauche 9 - pos.
- 14 - Commande gau.: lumières - avertisseur opt. - clignotants - avertisseur ac.
- 15 - Voltmètre Motoplat
- 16 - Avertisseur acoustique
- 17 - Boîte à fusibles (F1 = 25A; F2 = 8A; F3 = 8A)
- 18 - Alternateur 12V - 200W
- 19 - Régulateur électronique à pont 12V
- 20 - Batterie YUASA B68 - 12V - 36Ah
- 21 - Interrupteur stop avant
- 22 - Interrupteur stop arrière
- 23 - Interrupteur témoin béquille latérale
- 24 - Interrupteur témoin - sélecteur au point mort -
- 25 - Intermitence 12V - 40W
- 26 - Solénoïde pour moteur démarr. électrique
- 27 - Moteur pour démarrage électrique
- 28 - Feu de position arrière - stop - plaque 12V - 5/21W
- 29 - Indicateur direct. arrière droit 12V - 21W
- 30 - Indicateur direct. arrière gauche 12V - 21W
- 31 - Pick-up (vu du côté intérieur du couvercle)
- 32 - Dispositif électronique du cylindre vertical
- 33 - Bobine H.T. cylindre vertical
- 34 - Résistance cylindre vertical
- 35 - Bougie cylindre vertical
- 36 - Dispositif électronique du cylindre horizontal
- 37 - Bobine H.T. cylindre horizontal
- 38 - Résistance cylindre horizontal
- 39 - Bougie cylindre horizontal

**COULEURS et CODES DES CABLES**

- Bleu  
 Noir  
 Rose  
 Rouge  
 Blanc  
 Jaune  
 Vert  
 Orange  
 Gris  
 Rouge-Noir  
 Rouge-Blanc  
 Blanc-Noir  
 Blanc-Orange  
 Vert-Noir  
 Jaune-Noir  
 Bleu-Noir  
 Rose-Noir  
 Gris-Noir  
 Marron  
 Vert clair  
 Noir-Marron

## Modello U.S.A. 900 S/D « Darmah »

- 1 - Faro anteriore  $\varnothing$  170
- 2 - Lampada Sealed Beam 12V
- 3 - Connettore per fari a 6 vie
- 4 - Indicatore di direzione ant. destro 12V - 21W
- 5 - Indicatore di direzione ant. sinistro 12V - 21W
- 6 - Connettore per cruscotto a 12 vie
- 7 - Contachilometri o contamiglia
- 8 - Contagiri
- 9 - Interruttore di sicurezza a chiave
- 10 - Interruttore a tre vie per comando destro
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- 22 - Interruttore per spia cavalletto lat.
- 23 - Interruttore per spia folle (Neutral)
- 24 - Intermittenza 12V - 40W
- 25 - Teleruttore per motore avviam. elettr.
- 26 - Motore per avviamento elettrico
- 27 - Luce di pos. post. - arresto - targa 12V - 5/21W
- 28 - Indicatore di direzione post./destro 12V - 21W
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G-Bk = Verde-Nero  
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B-Bk = Bleu-Nero  
P-Bk = Rosa-Nero  
Gr-Bk = Grigio-Nero  
Bn = Marrone  
L-G = Verde chiaro  
Bk-Bn = Nero-Marrone

## U.S.A. Model 900 S/D « Darmah »

- 1 - Headlight  $\varnothing$  170
- 2 - Sealed Beam 12V
- 3 - 6 - pos. headlight connector
- 4 - 12 V - 21W R.H. front flasher
- 5 - 12V - 21W L.H. front flasher
- 6 - 12 - pos. dashboard connector
- 7 - Miles or Km. speedometer
- 8 - Rev. counter
- 9 - Safety key switch
- 10 - 3 - pos. connector for R.H. control
- 11 - R.H. control electric start - emergency switch
- 12 - 9 - pos. connector for L.H. control
- 13 - L.H. control: lights - flashing - flashers - horn
- 14 - Motoplat Voltmeter
- 15 - Horn
- 16 - Fuse box (F1 = 25A; F2 = 8A; F3 = 8A)
- 17 - 12V - 200W Alternator
- 18 - 12V electronic regulator
- 19 - YUASA B68 - 12V - 36Ah battery
- 20 - Front stop switch
- 21 - Rear stop switch
- 22 - Side stand warn. light switch
- 23 - Neutral gear - light switch
- 24 - 12V - 40W Flash device
- 25 - Electric start motor solenoid
- 26 - Electric start motor
- 27 - 12V - 5/21W tail light - stop - plate
- 28 - 12 V - 21W R.H. rear flasher
- 29 - 12V L.H. rear flasher
- 30 - Pick-up (seen from the cover inside)
- 31 - Vertical cylinder electronic device
- 32 - Vertical cylinder H.T. coil
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### CABLE CODES and COLORS

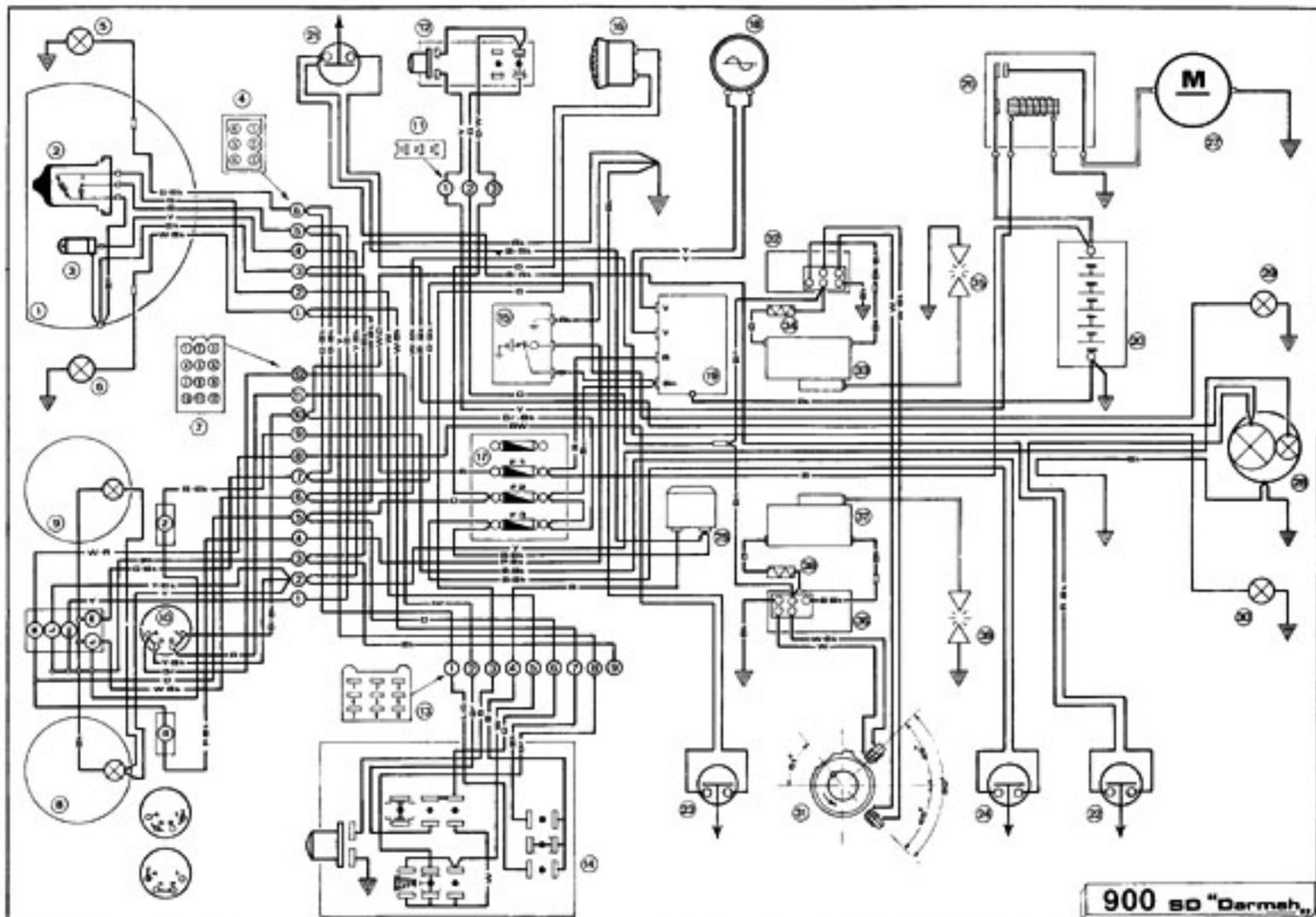
- Blue  
Black  
Pink  
Red  
White  
Yellow  
Green  
Orange  
Grey  
Red-Black  
Red-White  
White-Black  
White-Orange  
Green-Black  
Yellow-Black  
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Pink-Black  
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Brown  
Light green  
Black-Brown

## U.S.A. Model 900 S/D « Darmah »

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- 7 - Cpteur-Km. ou Miles
- 8 - Compte-tours
- 9 - Interrupteur de sureté a clé
- 10 - Connecteur pour commande droite 3 - pos.
- 11 - Commande dr.: démarr. électrique - interrupteur d'urgence
- 12 - Connecteur pour commande gauche 9 - pos.
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- 35 - Dispositif électronique du cylindre horizontal
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- 38 - Bougie cylindre horizontal

### COULEURS et CODES DES CABLES

- Bleu  
Noir  
Rose  
Rouge  
Blanc  
Jaune  
Vert  
Orange  
Gris  
Rouge-Noir  
Rouge-Blanc  
Blanc-Noir  
Blanc-Orange  
Vert-Noir  
Jaune-Noir  
Bleu-Noir  
Rose-Noir  
Gris-Noir  
Marron  
Vert clair  
Noir-Marron



900 SO "Darmeh"