WORKSHOP MANUAL

Additions to the Workshop manual for the models V1000 G 5 and 1000 SP - Code 17920161
The illustrations and descriptions in this booklet are indicative only and the manufacturer reserves itself the right to introduce any modification it may deem necessary for better performance or for constructive or commercial reasons without prior notice.
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### MAIN FEATURES

**ENGINE**
- cylinder disposition: «V» 90°
- bore: 88 mm
- stroke: 78 mm
- displacement: 948.8 cc
- compression ratio: 9.2 to 1
- max torque: 7.7 kgm at 5200 rpm

**VALVE GEARING**
O.H.V., push rod operated

**CARBURATION**
n. 2 carburators «Dell’Orto» type VHB 30 CD (right) VHB 30 CS (left)

**LUBRICATION**
wire gauze and cartridge filters in oil sump
normal lubrication pressure 3.8 to 4.2 kg/sq cm
(pressure relief control valve in the sump)

**GENERATOR ALTERNATOR**
fitted in the front part of the crankshaft (14V - 20A)

**IGNITION**
coil-battery ignition with double contact breaker and automatic advance with centrifugal masses
- ignition data
  - ignition advance (fixed) 2° ± 1°
  - automatic advance 33° ± 1°
- contact breaker points gap 0.37 ± 0.43 mm
- spark plugs Bosch W 225 T 2; Marelli CW 7 LP; AC-AA XL; Lodge HLNY; Champion N 9 Y
- plug points gap 0.6 mm
- ignition coils n. 2 fitted on the frame

**STARTING**
electric starter (12V - 0.7 KW) with electromagnetic ratchet control ring gear bolted on the flywheel starter button (START) fitted on the R/H side of handlebar

**TRANSMISSIONS**

**CLUTCH**
twin driven plates, dry type
fitted on the flywheel side
hand controlled by lever on left handlebar

**PRIMARY DRIVE**
by gears, ratio 1 to 1.235 \( (Z = 17/21) \)

**GEARBOX**
5 speeds, frontal engagement, constant mesh gears.
Cush drive incorporated
pedal operated on the L/H side of the bike
- gear ratios:
  - Low gear 1 to 2 \( (Z = 14/28) \)
  - 2nd gear 1 to 1.388 \( (Z = 18/25) \)
  - 3rd gear 1 to 1.047 \( (Z = 21/22) \)
  - 4th gear 1 to 0.869 \( (Z = 23/20) \)
  - 5th gear 1 to 0.750 \( (Z = 28/21) \)

**SECONDARY DRIVE**
by cardan shaft, bevel gear set
- ratio
  - overall gear ratios (engine-wheel)
    - Low gear 1 to 11.643
    - 2nd gear 1 to 8.080
    - 3rd gear 1 to 6.095
    - 4th gear 1 to 5.059
    - 5th gear 1 to 4.366
FRAME
duplex cradle, tubular structure

SUSPENSIONS
- front
telescopic fork "MOTO GUZZI patent"
with oil pneumatic shock absorbers
- rear
swinging fork and rear dampers with adjustable external
springs concentric to the oil pneumatic shock absorbers

WHEELS
- front
light alloy castings with rims:
WM 3/2.15 x 18" CP2
- rear
WM 3/2.15 x 18" CP2

TIRES
- front
120/90 H 18
- rear
120/90 H 18

BRAKES
- front
disc type with caliper having 2 cylinders, controlled
by hand lever on the R/H side of the handlebar
hydraulic transmission independent from the rear brake:
disc dia. 300 mm
braking cylinder dia. 38 mm
master cylinder dia 12.7 mm
- rear
disc type with fixed caliper with two cylinders
foot controlled with pedal on the R/H side of the bike:
disc dia. 242 mm
braking cylinder dia. 38 mm
master cylinder dia. 15.875 mm
the rear brake is connected by an hydraulic
transmission to a second brake on the front wheel
having the same features and size as the hand
controlled front brake

DIMENSIONS AND WEIGHTS
- wheel base (loaded) 1.565 m
- max length 2.370 m
- max width 0.890 m
- max height 1.570 m
- min. ground clearance 0.175 m
- dry weight abt 250 kg

PERFORMANCES
- top speed 190 km/h (118 mph), solo
- fuel consumption 5.8 l x 100 km

FUEL AND OIL CAPACITIES
- fuel tank
(reserve 3 l about) (3.1/4 quarts)
25 l (6.15 US gals) supergrade petrol (98/100 NO-RM)
- oil sump
3 l (3.1/4 quarts) oil "Agip SINT 2000 SAE 10 W/50"
- gear box
0.750 l (1.3/4 pints) oil "Agip F.1 Ratra MP SAE 90"
- rear drive box
0.250 l (9 oz abt) oil of which: 0.230 l (8.1/4 oz abt)
"Agip F.1 Ratra MP SAE 90" and 0.020 l (3/4 oz)
"Agip Rocol ASO/R" or Molikote "A" type
- front fork (each leg)
0.060 l (2 oz abt) fluid "Agip F.1 ATF Dexron"
- braking circuits
(fluid "Agip F.1 Brake fluid - SAE J 1703 B"
(front and rear)
### SERVICE SCHEDULE

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>MILEAGE COVERED</th>
<th>900 mi. 1500 km</th>
<th>1800 mi. 3000 km</th>
<th>3700 mi. 6000 km</th>
<th>5600 mi. 9000 km</th>
<th>7500 mi. 12,000 km</th>
<th>9400 mi. 15,000 km</th>
<th>11,300 mi. 18,000 km</th>
<th>13,200 mi. 21,000 km</th>
<th>15,100 mi. 24,000 km</th>
<th>17,000 mi. 27,000 km</th>
<th>18,900 mi. 30,000 km</th>
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<td>Wire gauze oil filter</td>
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<td>Fuel tank, filters and pipes</td>
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<td>Rear drive box oil</td>
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<td>Wheel and steering bearings</td>
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<td>Fork legs oil</td>
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<td>Starter motor and generator</td>
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<td>Brake systems fluid</td>
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<td>Brake pads</td>
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</tbody>
</table>

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

Operation required for maintaining the vehicle according to emission regulations (USA).

Occasionally, check the electrolyte level in battery, lubricate joints and cables; every 500 km (300 miles) check the engine oil level.

In any case, renew this oil at least once a year.
CYLINDERS

SELECTION OF CYLINDER DIAMETER

<table>
<thead>
<tr>
<th>GRADING A</th>
<th>GRADING B</th>
<th>GRADING C</th>
</tr>
</thead>
<tbody>
<tr>
<td>88.000 ± 88.006 mm</td>
<td>88.006 ± 88.012 mm</td>
<td>88.012 ± 88.018 mm</td>
</tr>
<tr>
<td>3.4645 ± 3.4648&quot;</td>
<td>3.4648 ± 3.4655&quot;</td>
<td>3.4655 ± 3.4652&quot;</td>
</tr>
</tbody>
</table>

PISTONS

SELECTION OF PISTON DIAMETER

<table>
<thead>
<tr>
<th>GRADING A</th>
<th>GRADING B</th>
<th>GRADING C</th>
</tr>
</thead>
<tbody>
<tr>
<td>87.968 ± 87.974 mm</td>
<td>87.974 ± 87.980 mm</td>
<td>87.980 ± 87.986 mm</td>
</tr>
<tr>
<td>3.4633 ± 3.4635&quot;</td>
<td>3.4635 ± 3.4637&quot;</td>
<td>3.4637 ± 3.4640&quot;</td>
</tr>
</tbody>
</table>

The pistons of an engine must be balanced; a weight difference between them of 1.5 gr is allowed.

When fitting a piston check that the word «SCA» (exhaust) are facing the exhaust hole in the cylinder.

CHECKING CRANKSHAFT BALANCING

To balance statically the crankshaft it is necessary to add a weight of 1.650 ± 1.652 kg.
REPLACING THE AIR FILTER

Every 6000 km (3700 miles) check conditions of air filter; if necessary clean it using compressed air; it is advisable to replace it every 9000 km (5600 miles).

To replace the air filter lift the saddle, remove fuel tank and side covers. Take out R/H carburettor and undo the screws fixing the air intake to the bike frame: remove the two side screws and take out from the R/H side the container «A» complete with the air filter.
FRONT FORK SPRINGS
For the values of the springs refer to mod. V1000 G 5 (see page 102).

FRONT FORK LUBRICATION
To replace the oil in the front fork legs, proceed as follows:
- with the bike on the central stand, loosen the side screw «C» locking the steering head to the fork arm; disconnect compensating pipe and completely unscrew the hexagonal screw plug «B»; then undo drain plug «A»;
- slightly press the front part of the bike to force out the plug «B» which is solidal to the shock absorber. Do this paying attention not to damage the instruments panel;
- refill plug «A» and introduce the quantity of fluid necessary (60 cc Agip F.1 ATF Dexron) through the space existing between the inner diameter of the fork and the shock absorber body;
- release the front part of the bike refill plug «B» and lock the side screw. Repeat the same operation for the other fork leg;
- reconnect compensating pipe and check the pressures keeping to the given values.

OIL PNEUMATIC SHOCK ABSORBERS
The operating load pressures of these shock absorbers are the following:
- front: 2 + 3 kg/sqcm
- rear: 3 + 5 kg/sqcm
To check the pressure it is advisable to use a pressure gauge having a very short pipe (better if any), as the capacity of the pipe may affect the pressure existing inside the shock absorbers. To ascertain to which extent your pressure gauge reduces, when taking the measurement, the pressure inside the shock absorber it is sufficient to carry out two consecutive measurements; the difference between the two readings gives approximately the pressure reduction occurring whenever a measurement is taken.
The measurement must be taken with the bike on the central stand and with cold shock absorbers; to charge the shock absorbers only use moistureless air.
N.B. — Pressures gauges as above, are found on the market; however it can be necessary to place a supplementary gasket in the gauge head, in order that the valve stem inside the shock absorber will be pressed only when the gasket has made a perfect tightening.
POSIZIONE COMMUTATORE D'ACCENSIONE

Posiz. 1: Nessun contatto
Posiz. 2: Contatto su tutti i morsetti
Posiz. 3: Contatto sui morsetti 16/30

Bl = Bianco
N = Nero
G = Giello
V = Verde
R = Rosso
B = Blu
VI = Viola
RO = Rosa
A = Arancio
M = Marrone
BI-N = Bianco-Nero
BI = Bianco
GR = Grigio
AZ = Azzurro
B-N = Blu-Nero
V-N = Verde-Nero
R-N = Rosso-Nero
AZ-N = Azzurro-Nero
R-V = Rosso-Verde
R-R = Rosso-Blu
V-GR = Verde-Grigio
GR-N = Grigio-Nero
1 Headlight
2 High and low beam bulb 60/55 W
3 Parking light 4 W
4 4-way connector Molex
5 Electromagnetic horns
6 Turn flasher, front right 21 W
7 Turn flasher, front left 21 W
8 Coils device
9 Engine starting and stop button
10 4-way connector Molex
11 Instrument panel
12 Warning light, right turn signal 1.2 W
13 Speedometer light 3 W
14 Voltmeter light 3 W
15 Warning light, left turn signal 1.2 W
16 Rev-counter light 3 W
17 Warning light, oil pressure 1.2 W
18 Warning light, generator 1.2 W
19 Warning light, neutral position 1.2 W
20 Warning light parking position 1.2 W
21 Warning light, high beam 1.2 W
22 Ignition key 1.2 W
23 12-way connector for device posit. 24
24 Flashing light - horn - turn signals - lights
25 Generator
26 Cables connector
27 Rectifier
28 Regulator
29 Horn relay
30 15-Way connector for panel cables
31 Flashing light switch
32 Spark plugs
33 H.T. coils
34 Alternator
35 Oil pressure solenoid
36 Neutral position solenoid
37 Rear brake switch
38 Front brake switch
39 Flashing light relay
40 Terminal block with fuses
41 Battery 12 V 24 Ah
42 Starter motor relay
43 Starter motor
44 Flasher box
45 Turn flasher, rear left 21 W
46 Tail light
47 Cable connector, tail light
48 Number plate, rear parking light and stop 5/21 W
49 Turn flasher, rear right 21 W