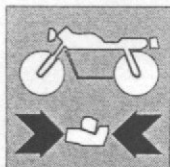
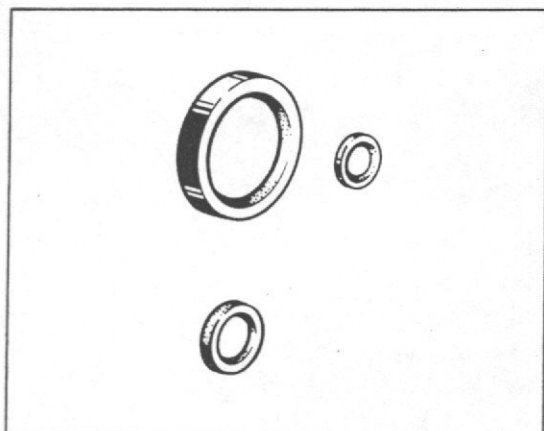
**Bearings.**

Thoroughly wash with petrol and dry with compressed air. Do not rotate the bearings. Lightly lubricate and slowly rotate the inner ring by hand. No rotation unevenness, hard spots or excessive clearance must be noticed. It is expedient to replace the bearings at any engine overhauling. The main bearings must always be replaced in pairs and must be installed with the **writing towards the outer side**. To replace the bearings it is necessary to heat the crankcase in oven at $194^{\circ}\text{F} \pm 212^{\circ}\text{F}$ temperature and remove the bearing by plug and hammer. Install the new bearing (while the crankcase is still very hot) perfectly in spare with the housing axis, using a tubular punch and exercising the pressure only on the outer ring of the bearing. Leave it cool and make sure that the bearing is tightly fixed to the half crankcase.



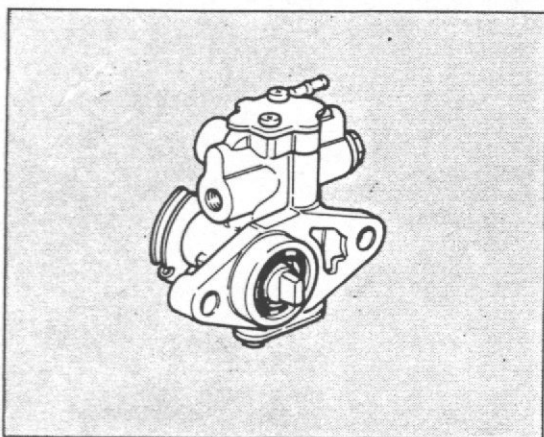
ENGINE OVERHAUL



Seal rings replacement.

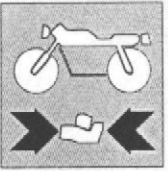
Replace seal rings at every engine overhauling. Install new seal rings by placing them in "square" inside their seats, using suitable beaters. After installation, lubricate with oil the ring lip.

Perform this operation with the greatest care and attention.

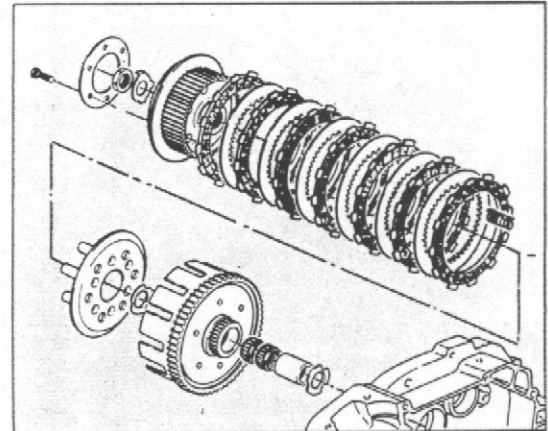


Lubricating oil pump.

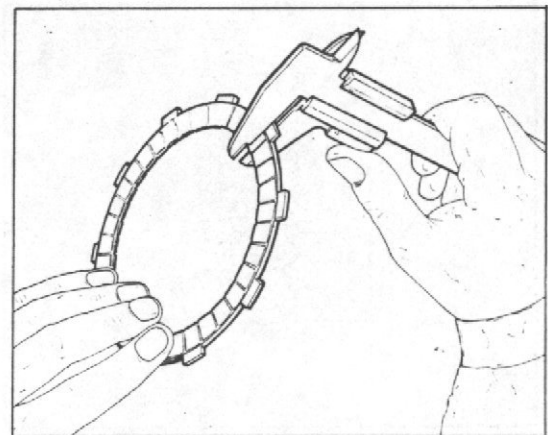
The lubricating oil pump does not require any special maintenance, therefore is hat not to be dismantled or checking of its components.

**Clutch assembly.**

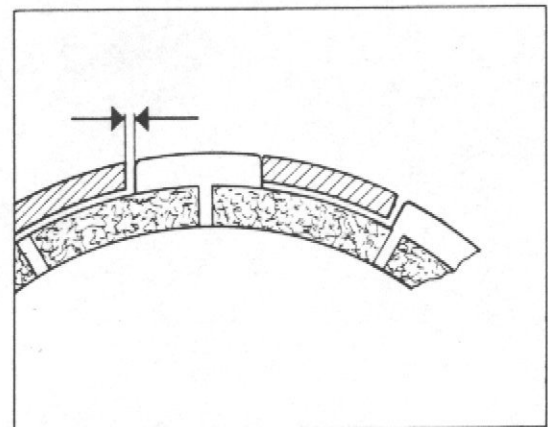
Check that all components of clutch assembly are in very good conditions.
Clutch discs must not present any trace of burning, scores, or distortion; discs presenting friction material must be of a thickness as stated in table hereunder.

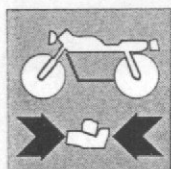
**Friction disc thickness.**

Standard	Max. wear limit
3,05±2,95 mm (0.120±0.116 in.)	2,8 mm (0.11 in.)

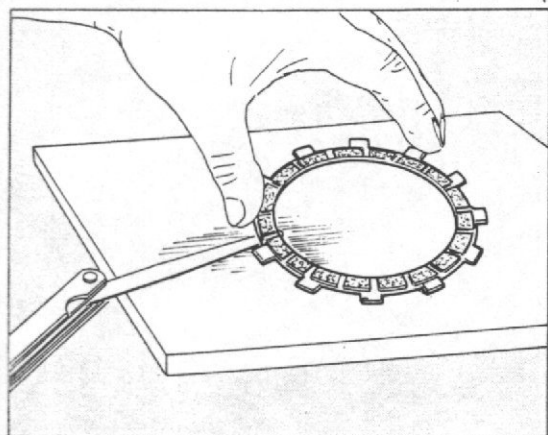
**Clutch housing-friction disc clearance.**

Standard	Max. wear limit
0,25±0,45 mm (0.0098±0.0177 in.)	0,8 mm (0.031 in.)



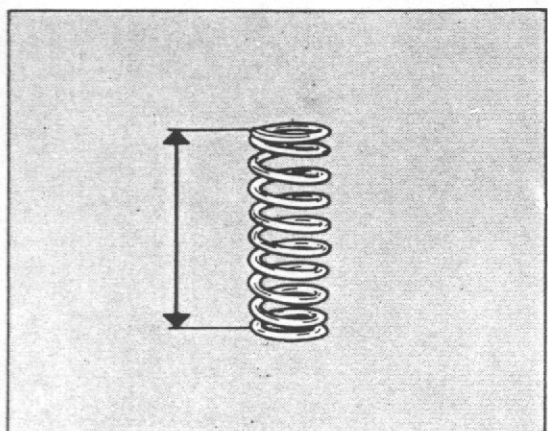


ENGINE OVERHAUL



Friction disc distortion.

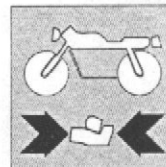
	Standard Standard	Max. wear limit
Disc with friction material	(within 0.0019 in.)	0,2 mm (0.0078 in.)
Disc without friction material	(within 0.0004 in.)	0,25 mm (0.0098 in.)



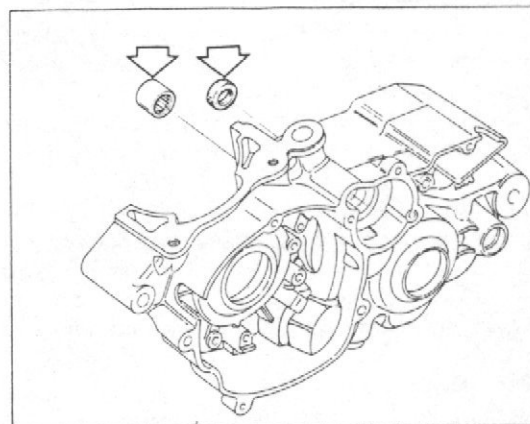
Clutch springs must have a free length not lower than 1,240 in.

Free check length	
Standard	Max. wear limit
33,8+32,2 mm (1.33+1.26 in.)	31,5 mm (1.240 in.)

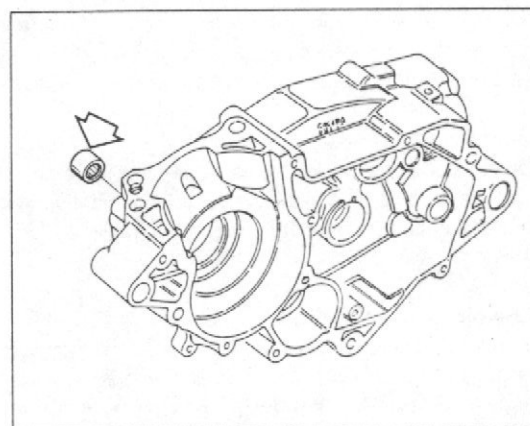


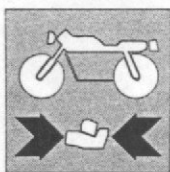


To remove the gear main shaft roller bush and the seal ring from the water pump shaft, use the suitable tool code **43823**.



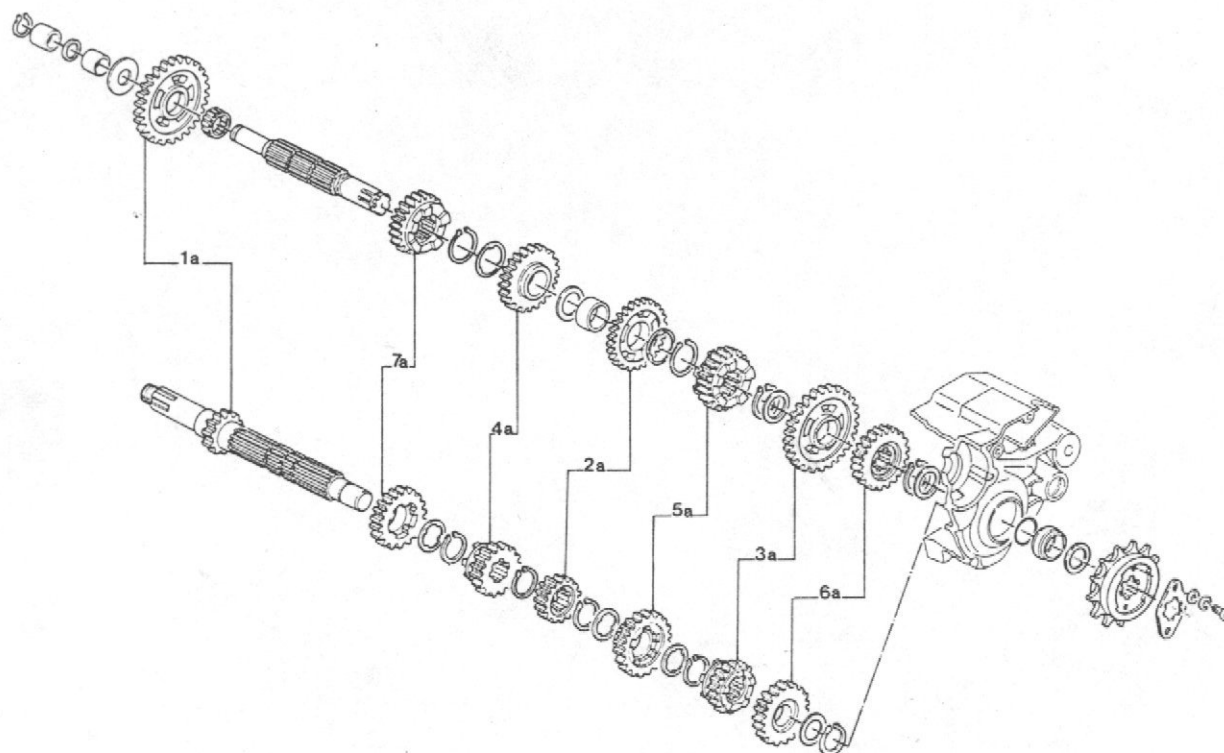
To extract the roller cage of oil pump control shaft, a special puller no. **33054** has been provided.

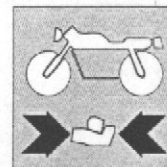




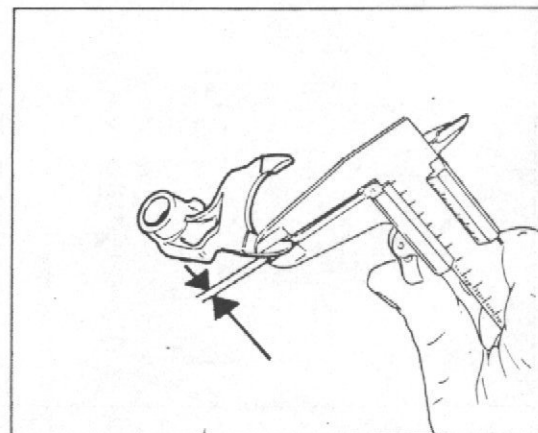
Gearbox.

Check the condition of frontal engaging dogs of gears, to be in a perfect state check that neutral gears are free to rotate on their shafts and at the same time have not a play higher than 0.0039 in. Shaft threads and grooves must be in perfect conditions. Check also the components of gearshifting mechanism, to be in very good conditions. Check that selector slot width is complying with tolerances prescribed.



**Gear selector fork.**

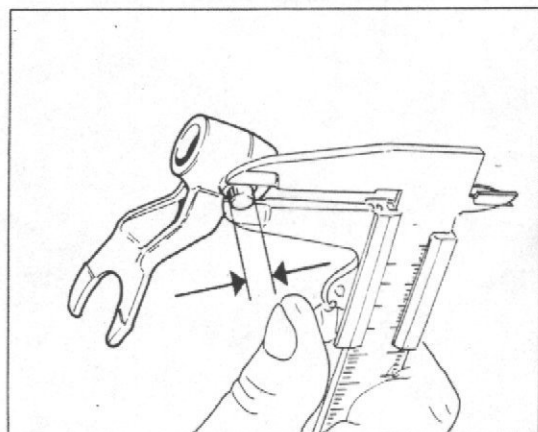
Visually inspect the selector forks and replace the distorted ones. A distorted fork causes difficulties in gear shifting or allows the quick disengagement under load.

**Fork sliding end thickness.**

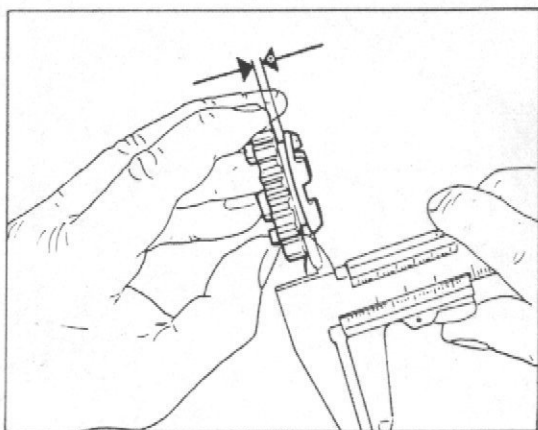
Standard	Max. wear limit
3,39÷3,49 mm (0.133÷0.137 in.)	3,35 mm (0.132 in.)

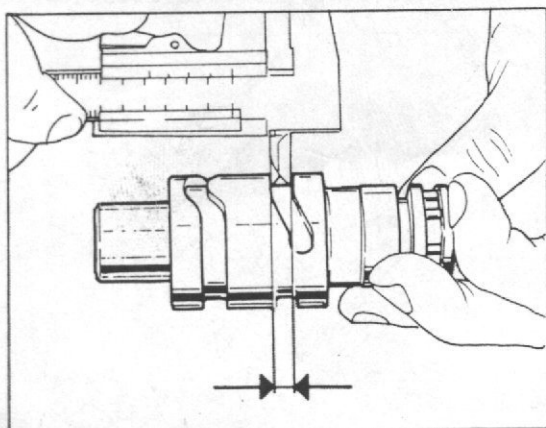
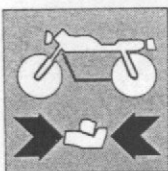
Fork driving pin diameter.

Standard	Max. wear limit
5,8÷5,9 mm (0.228÷0.232 in.)	5,75 mm (0.226 in.)

**Gear groove length.**

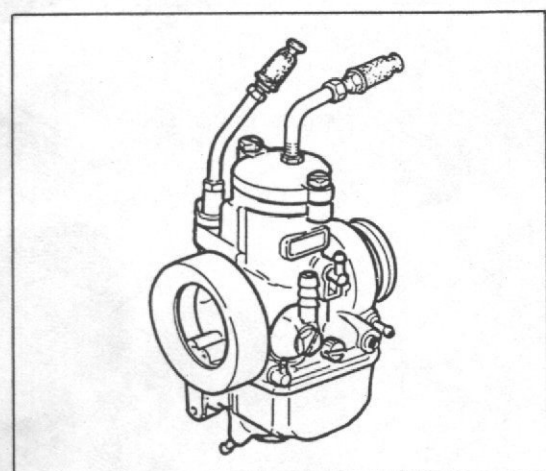
Standard	Max. wear limit
3,65÷3,72 mm (0.143÷0.146 in.)	3,8 mm (0.150 in.)





Control shaft groove width.

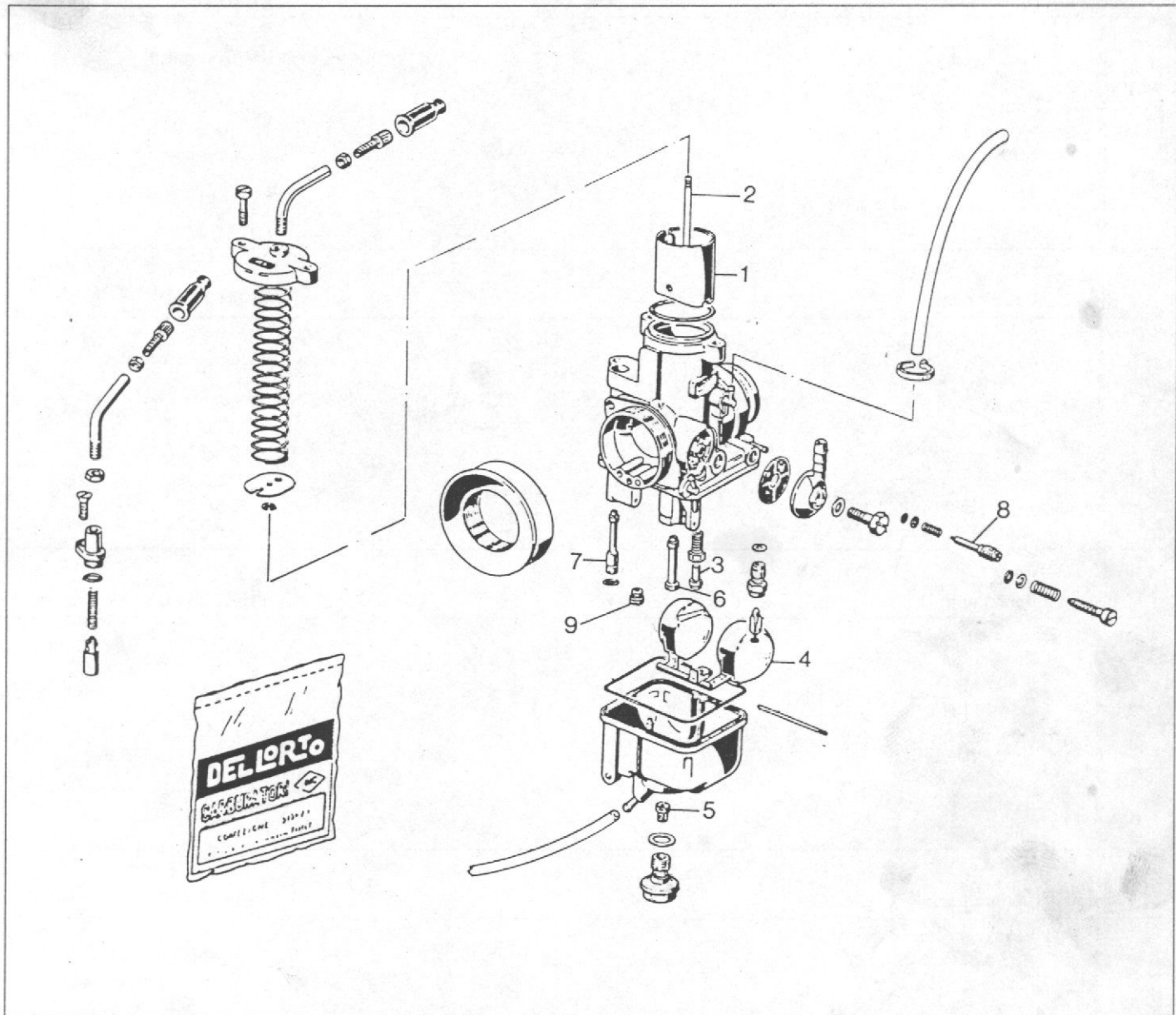
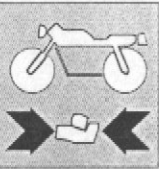
Standard	Max. wear limit
6,05÷6,15 mm (0.238÷0.242 in.)	6,20 mm (0.244 in.)



Carburettor overhauling.

Carefully wash with petrol and dry with compressed air components of the carburettor. Carefully clean all jets and ducts with compressed air only, never use needles or metallic wires.

Check that the gate valve is in good conditions and free to slide in its seat, without excessive play. Check that the needle jet and the sprayer are in good conditions and the needle valve is perfectly sealing.

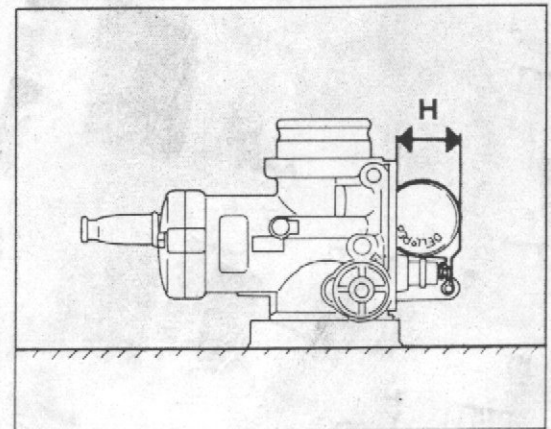
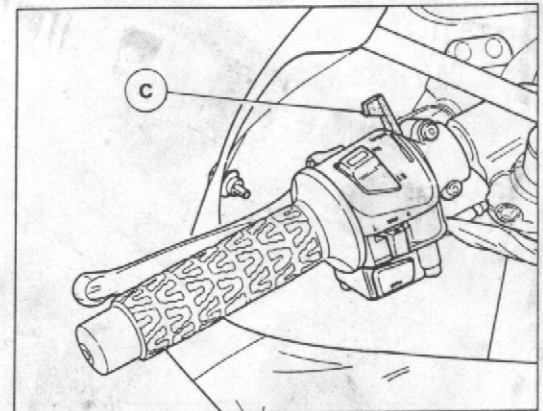
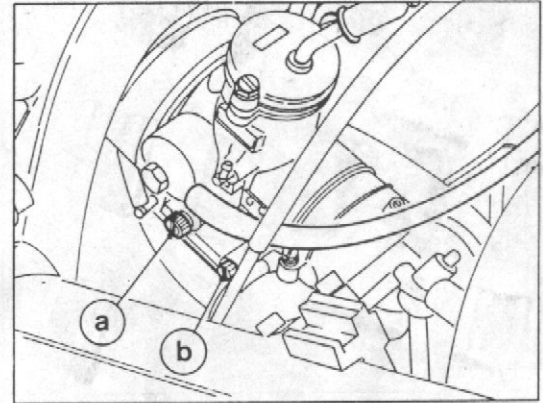
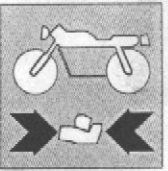


Ref.	Description
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1	Gas valve
2	Needle jet
3	Idle jet
4	Float
5	Main jet
6	Sprayer
7	Idling jet
8	Air screw opened of turns
9	Power jet

PHBH 28 RD

45
x 19 (2nd notch)
48
6,5 gr.
148
266 T
65
1
90



ADJUSTMENT

a) - Idling

The idling adjustment is to be carried out when engine is warmed up by loosening valve adjustment screw (a) until a quite high speed is reached. Tighten or unscrew the air adjustment screw (b) until the utmost regular engine rotation is achieved. Unscrew the screw (a) little by little until the idling revolutions numbers is attained.

b) - Intermediate operation

From the idling to 1/5 approx. of the throttle valve whenever the mixture strength is to be changed, a valve is to be fitted with a smaller front exhaust to enrich, resp. greater for a mixture leaning. From 1/5 to 4/5 of the throttle opening, the valve is mainly metered by the conical needle fitted on the valve and clamped in an intermediate groove. Were the mixture strength to be changed, then the conical needle is to be lowered for mixture leaning resp. lifted up for enrichment, while varying the fixing notch.

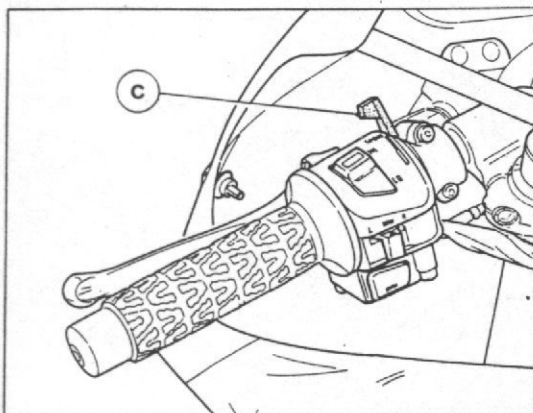
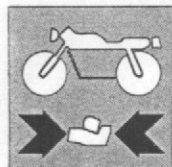
c) - Full-power

During full-power running, the fuel supply is generally metered by the full-power jet. Hence, if the adjustment is to be corrected, fit a greater full-power jet to enrich, a smaller one to get mixture strength leaning.

d) - Levelling

Make sure that the float has the proper weight as stated on it, is not warped and rotates freely on its pin. Hold the carburetor body in the indicated position so that the rocker arm gets in slight touch with the needle, and the needle with the seat. In this conditions, make sure that the two half-floats are at the required height as to the body level.

H 24,5+23,5 mm (0.96+0.92 in.)



USAGE

Start

The starting with cold engine is to be performed with throttle closed and opening the start valve by means of lever (c) to be positioned vertically.

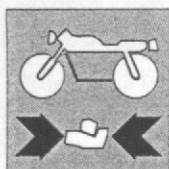
In case of remote control (cable) relevant control located on the motorcycle is to be fully opened. At a not too low ambient temperature, keep slightly open the throttle too.

As soon as the normal operating temperature of the engine is reached, the start valve is to be closed up, as the enriched mixture as obtained would trouble the regular engine running.

MAINTENANCE

To keep the carburetor in the best working conditions, keep strictly to the following rules:

- clean the carburetor after removing it, wash and blow air jets into all of its components and into the body too, with special care for the ducts or set up parts.
- Check for perfect efficiency all the carburetor components particularly the spray nozzle, the conical needle and the gasoline needle valve: no wear signs, are allowed. Check the float, which must weight as indicated thereon. Before fitting it again, be sure that the gasoline needle valve is perfectly tight in its seat.
- Refit carburetor and change the worn out parts with new original ones.

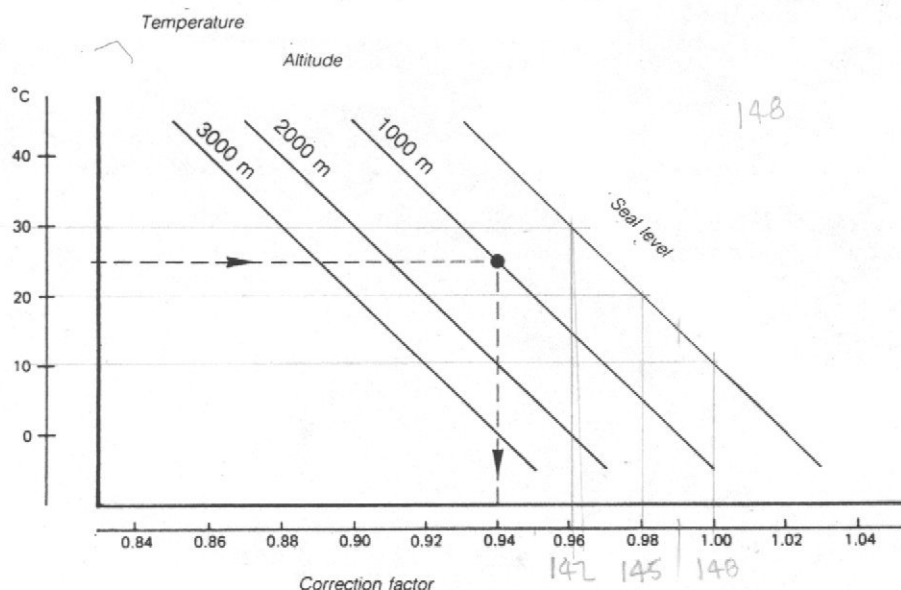


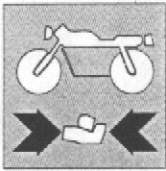
Correction factor of the main jet.

The main jet considerably affects carburetion, hence the general performance of the engine. Climatic factors, such as the outdoor temperature and the altitude, highly affect the behaviour of the air-gasoline mixture inside the carburettor. It is therefore necessary to change the size of the original jet according to the correction factor shown in the diagram on the left.

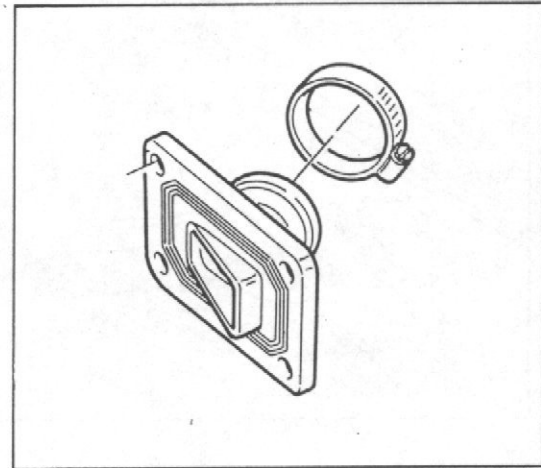
EXAMPLE:

With a 77°F outdoor temperature and 39,37 in. altitude, a correction factor of 0.94 is obtained. Therefore the main jet to be assembled in replacement of the original one (148) shall be: $148 \times 0.94 = 139$.



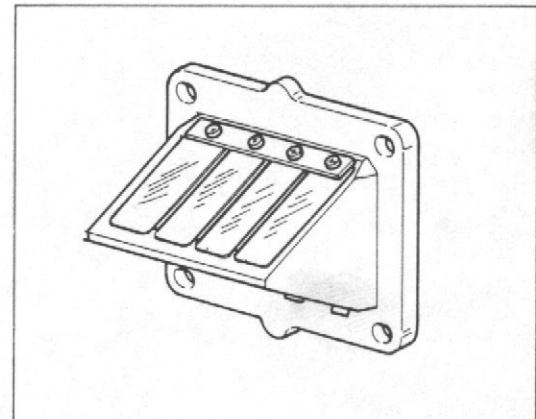
**Suction coupling.**

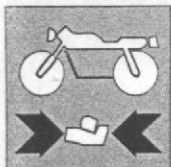
Check that the suction coupling is not worn out or damaged. If necessary, replace it.

**Blade valve.**

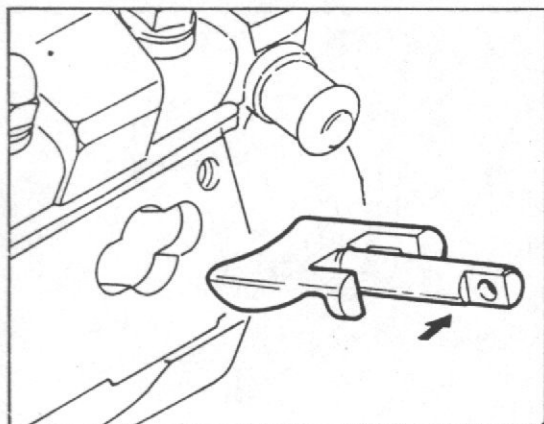
Check that the blades are not worn or broken.

If not, replace the blades and the blade stroke stop plates. During details reassembly, apply "Loctite" on the screws.





ENGINE OVERHAUL



Exhaust valve.

Every 3100 ml. clean the valve using a plug brush or a striker plate with sand paper to clean the flat surfaces. Replace the valve every 6,200 ml.

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