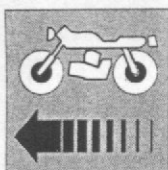


Section

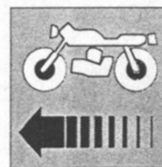
L





BRAKES

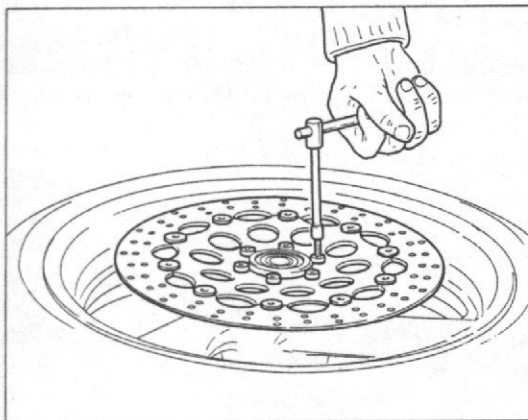
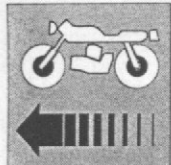
Braking system	L.5
Brake discs	L.6
Wear check and replacement of brake pads	L.8
Brake calipers overhauling	L.12
Brake pump overhauling	L.16
Braking system bleeding	L.18

**Braking system.**

The braking system is made up of two fully independent circuits. Each circuit is provided with a caliper connected to a hydraulic-control pump with separated tank containing the fluid. The front caliper and disc are floating, whilst the rear ones are fixed. Both the discs are made up of steel.

- | | |
|--------------------------|-----------------------|
| 1 - Front brake oil tank | 6 - Rear piping |
| 2 - Front piping | 7 - Rear caliper |
| 3 - Front caliper | 8 - Rear disc |
| 4 - Front disc | 9 - Rear brake pump |
| 5 - Rear brake oil tank | 10 - Front brake pump |





Brake discs.

Control of the disc is important; it must be perfectly clean, i.e. without rust, oil, grease or any other dirt and no deep scorings must be noticed.

Diameter of front brake disc: 12.59 in.

Thickness of front disc (new): 0.157 in.

Thickness of front disc at max wear limit: 0.13 in.

Diameter of rear brake disc: 9.05 in.

Thickness of rear disc (new): 0.157 in.

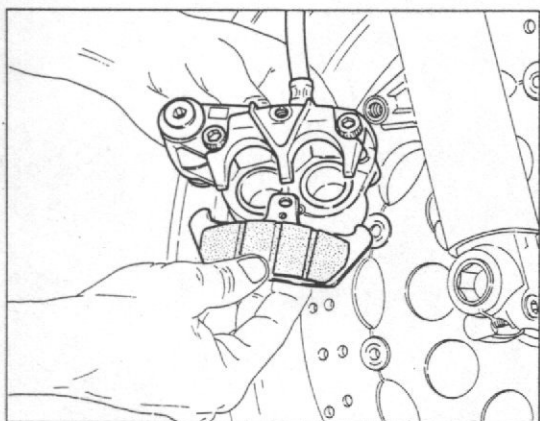
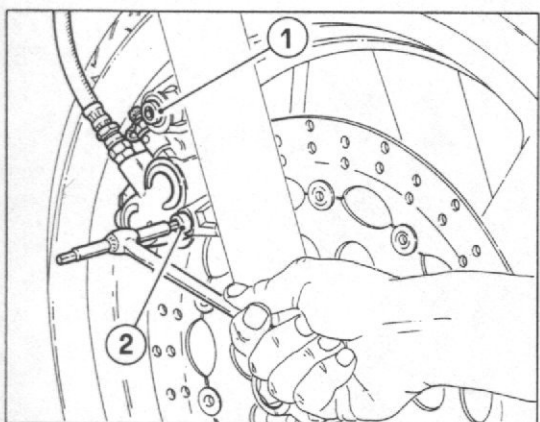
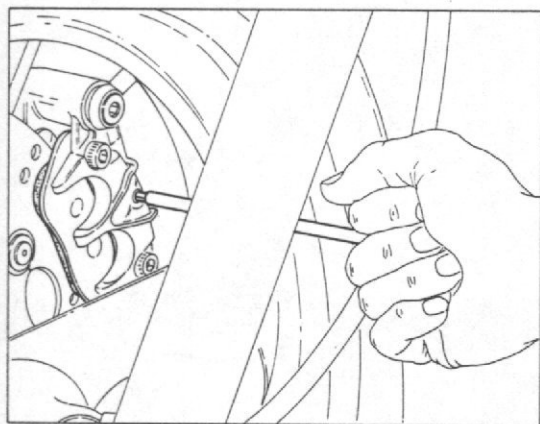
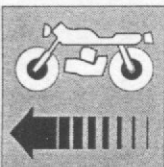
Thickness of rear disc at max wear limit: 0.13 in.

The front disc of this motorcycle is floating, i.e. it consists of a part integral to the wheel rim, and a braking band that, by means of special bushings where the disc can slide freely, is able to get the proper position under the effect of the brake caliper.

Should the disc be replaced, both the components are to be replaced.

For the rear disc, the distortion shall not exceed 0.011 in. (this measure is to be taken with a comparator and with the disc mounted on the rim).

To remove the disc from the wheel rim, it is necessary to unscrew the six fastening screws. Upon reassembly, perfectly clean the bearing surfaces and screw down the screws according to the required driving torque.



Wear check and replacement of brake pads.

Check the wear state of the brake pads every 1860 ml. The pad is worn when the grooves got on the friction material are no more visible (in the rear caliper it is necessary to remove the pad inspection cover). In this case replace the pad pair as follows:

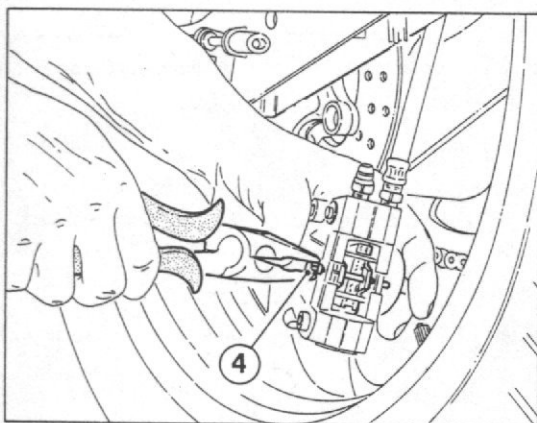
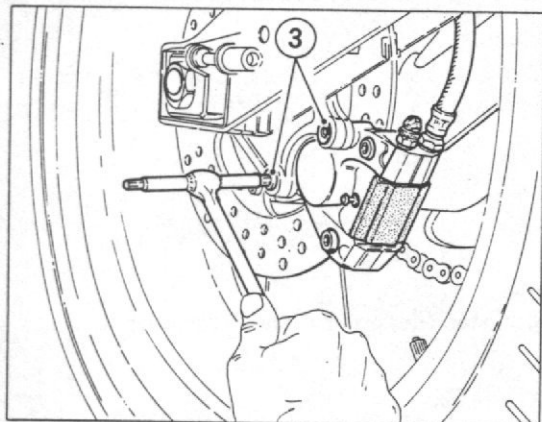
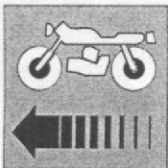
FRONT BRAKE

- by means of a setscrew wrench,unloose the central peg on the inner side of the caliper;
- remove the caliper from the fork sleeve by unscrewing the two fastening screws (1) and (2), by means of a 7 mm setscrew wrench for the screw (1) and a 6 mm wrench for the screw (2);
- extract the worn pads;

When replacing the pads, it is advisable to remove some fluid, because the fluid could overflow from the tank owing to the backing of the plungers in the cylinders.


- with the help of a lever push the plungers inward, then fit the new pads;
- fit the central peg and tighten it without locking;
- fasten the caliper to the sleeve by means of the suitable screws (1) and (2);
- lock the central peg.

IMPORTANT - For about a hundred km, it is advisable to act cautiously on the new pads, in order to allow a proper and complete settling of friction materials.



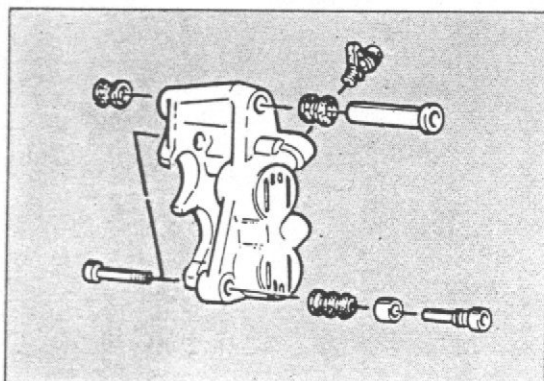
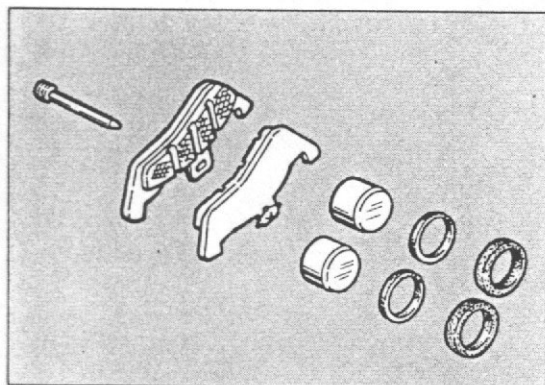
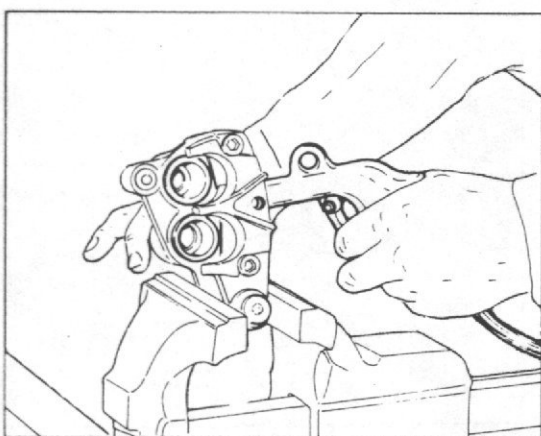
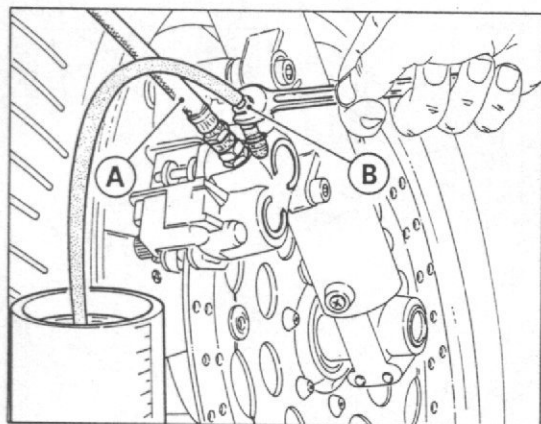
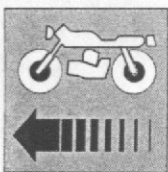
REAR BRAKE

- unscrew the two screws (3) fastening the caliper to the support plate;
- extract the central peg (4);
- extract the flat spring and the relevant pins;
- extract the pads (with the help of a suitable peg, if necessary);

 **When replacing the pads, it is advisable to remove some fluid, because the fluid could overflow from the tank owing to the backing of the plungers in the cylinders.**

- push the plungers into the half-calipers, paying attention not to damage the dust covers;
- fit the new pads in the caliper;
- reassemble the pad retaining pins with the spring and the central peg;

By operating as described above, after replacing the pads in both the calipers, the system need not be bled, it is enough to actuate the control lever repeatedly until the plungers reach their standard position.



Brake calipers overhauling.

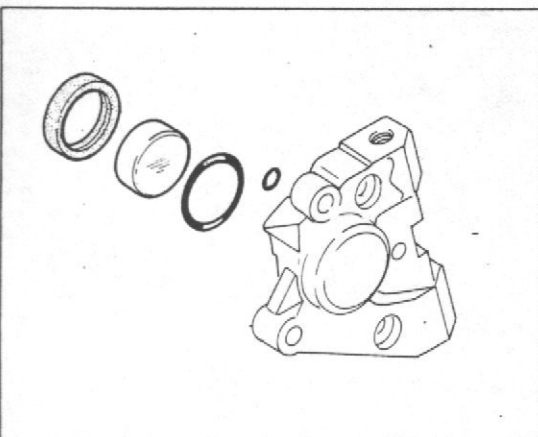
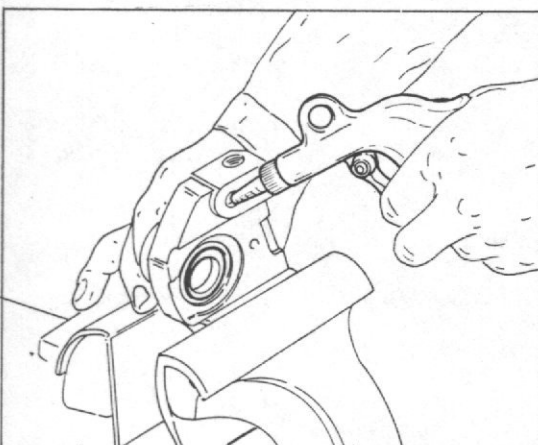
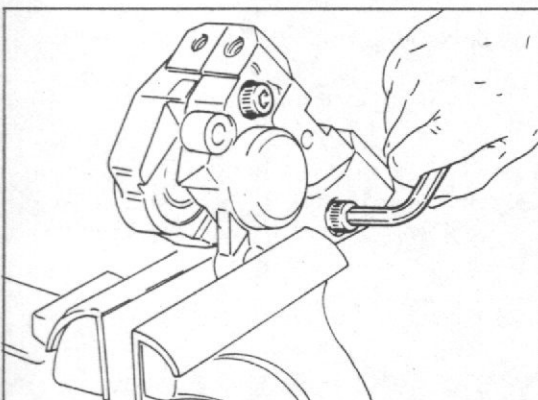
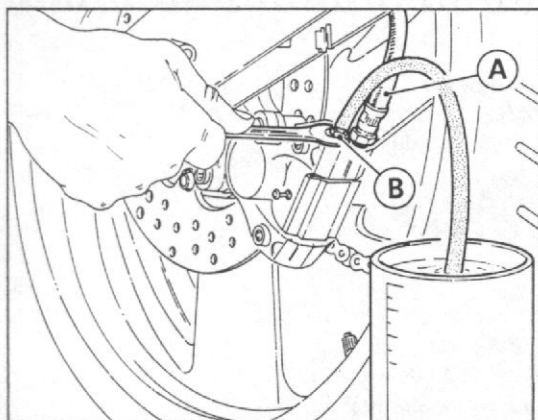
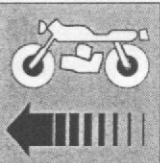
The gaskets are to be replaced when any fluid leakages occur through the cylinders; any fluid traces will be noticed on the disc and on the caliper, also the fluid level will lower continuously in the tank. The fluid leakages are joined to a decrease in the braking effect and an elastic reaction of the control lever.

Operate as follows to replace the gaskets:

FRONT CALIPER

- empty the circuit by removing the tank cap and connecting a tube on the breather union;
- actuate the lever and rotate the breather union (B) as described in the paragraph "Braking system bleeding" until the circuit is fully empty;
- disconnect the piping (A) from the caliper;
- remove the caliper and pads as described in the paragraph "Wear check and replacement of brake pads";
- locate the caliper on a vice (see figure) and make the plungers come out by blowing compressed air in the fluid inlet hole;
- remove the defective gasket from its seat with the help of a bit, paying attention not to score its seat;
- carefully clean the seat and the plungers, check whether these ones are damaged: in this case replace them;
- reassemble a new gasket in the cylinder groove;
- assemble the plunger in the relevant seat by pressing with your fingers only;
- reassemble the dust-tight gasket (it must be well fastened to both the plunger seat and the half caliper seat);
- reassemble the pads and the caliper on the sleeve; connect the piping (A).

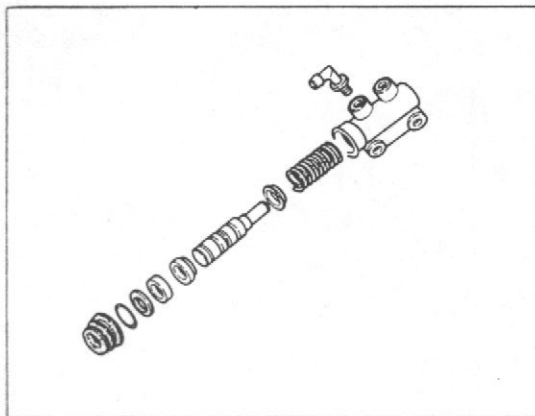
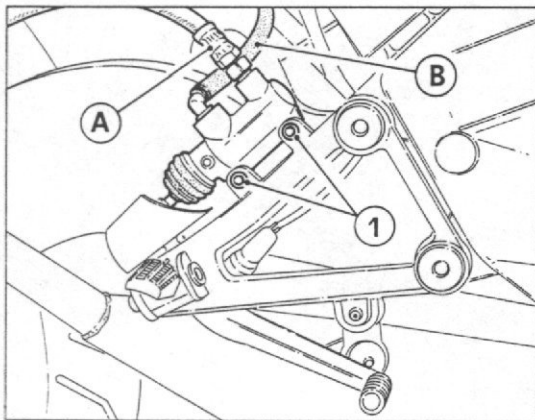
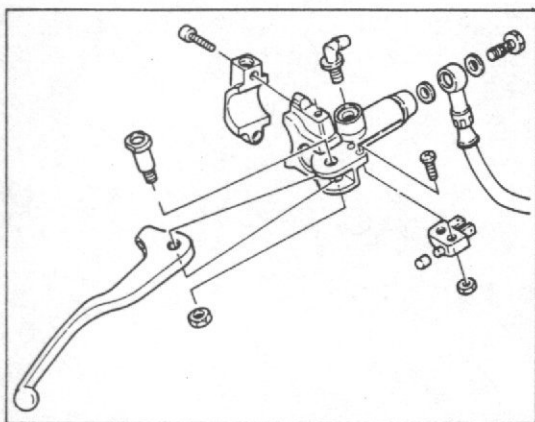
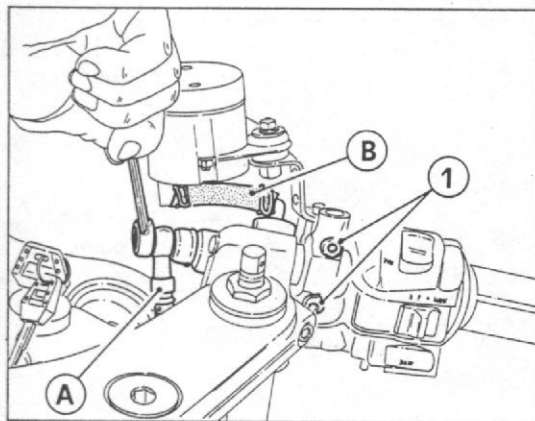
Fill the circuit by pouring new oil through the tank and carry out the bleeding as described in the chapter "Braking system bleeding".



REAR CALIPER

- empty the circuit by removing the tank cap and connecting a tube on the breather union;
- disconnect the piping (A) from the caliper;
- actuate the lever and rotate the breather union (B) as described in the paragraph "Braking system bleeding" until the circuit is fully empty;
- remove the caliper and pads as described in the paragraph "Wear check and replacement of brake pads";
- with the help of a vice, split up the caliper in two half-calipers by unscrewing the two fastening screws;
- replace the gaskets by operating in the same way as for the front caliper;
- join the two half-calipers, making sure that the joining gasket is located in its seat; tighten the two fastening screws according to the required torque;
- reassemble the pads and the caliper on the supporting plate and connect the piping (A).

Fill the circuit by pouring new oil through the tank and carry out the bleeding as described in the chapter "Braking system bleeding".

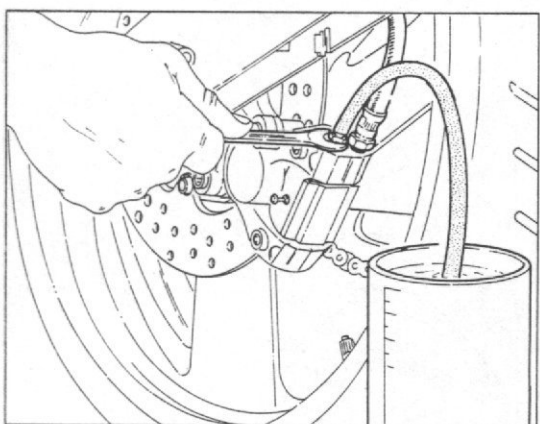
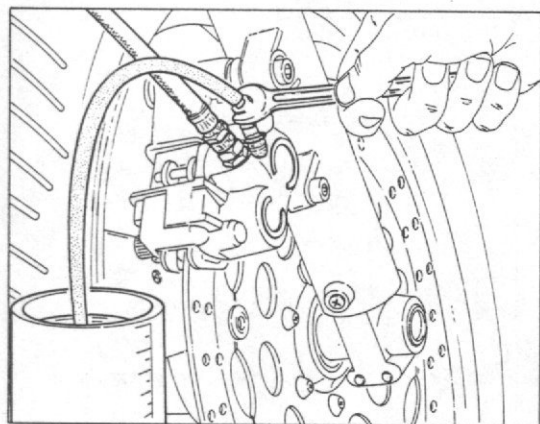
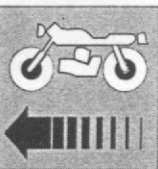
**Brake pump overhauling.**

In case of defective operation or fluid leakage from the plunger gasket, the gaskets are to be replaced as follows:

- empty the circuit through the breather union;
- disconnect the piping (A) connecting the pump to the caliper;
- disconnect the piping (B) connecting the pump to the tank;
- unscrew the two screws (1) and remove the pump-lever assembly from its fastening to the half-handlebar;
- unscrew the fulcrum pin of the front lever (in the rear pump it is enough to extract the control pin and the relevant cover);
- extract the pump elements;
- carry out all the necessary replacements by operating as described for the brake caliper;
- reassemble the pump and the relevant control lever;
- connect the removed pipings;
- fill the circuit by pouring new oil through the tank and carry out the bleeding.



Before reassembly, wet the metal parts with the required fluid or the suitable grease. Do not use any mineral oils and greases.

**Braking system bleeding.**

The braking system is to be bled whenever the lever stroke is long and elastic owing to any air in the circuit, or when the fluid is to be replaced. For the bleeding proceed as follows:

- fill the tank with the required brake fluid; make sure that the fluid does not drop below the minimum level during the bleeding operation;
- repeatedly actuate the lever or the brake pedal in order to fill the braking circuit, at least partially;
- fit a transparent flexible pipe on the breather union (B) and plunge the pipe end in a basin containing exhausted brake oil;
- strongly pull the lever (or pedal) of the pump and hold it in this position;
- unloose the breather union, let the brake fluid come out (only air will come out first) and lock the union without forcing;
- release the lever (or pedal), wait some instants and repeat the cycle "d" and "e" until the fluid coming out of the pipe has no air bubbles;
- lock the breather union according to the required torque and restore the fluid level in the tank.



The brake fluid is highly corrosive: avoid all contact with skin; in case of accidental contact, carefully rinse with running water.



The brake fluid is corrosive to paints and plastic parts.

If bleeding has been properly made, you shall feel the direct action without elasticity of the fluid just after the initial idle stroke of the lever. If that is not the case, repeat the bleeding action.



Bleeding does not fully eliminate the air in the circuit; the little remaining quantities are automatically eliminated during a short period of use of the motorcycle; this entails less elasticity and a shorter stroke of the control lever.