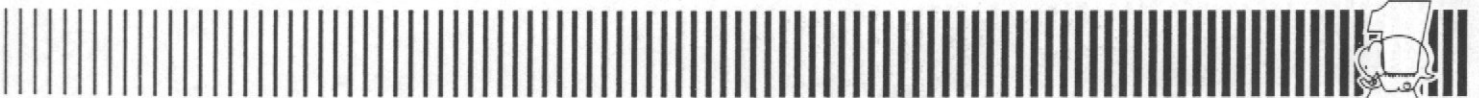
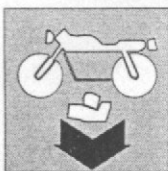


Section

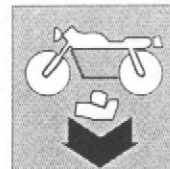
F



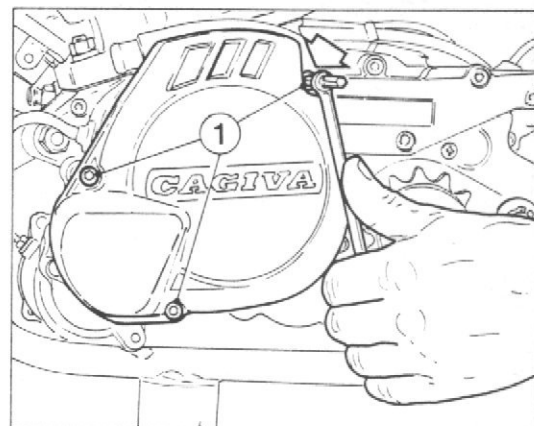


ENGINE DISASSEMBLY

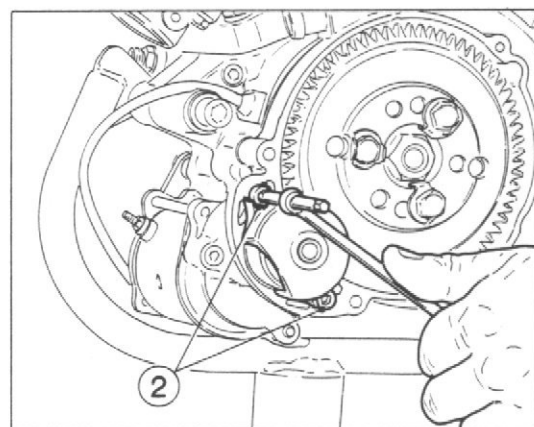
Disassembly of the flywheel and L.H. half-crankcase components	F.7
Clutch cover disassembly	F.10
Disassembly of the clutch and R.H. half-crankcase components	F.11
Disassembly of gear components	F.15
Thermal assembly removal	F.16
Exhaust valve disassembly	F.19
Separation of half-crankcases	F.21



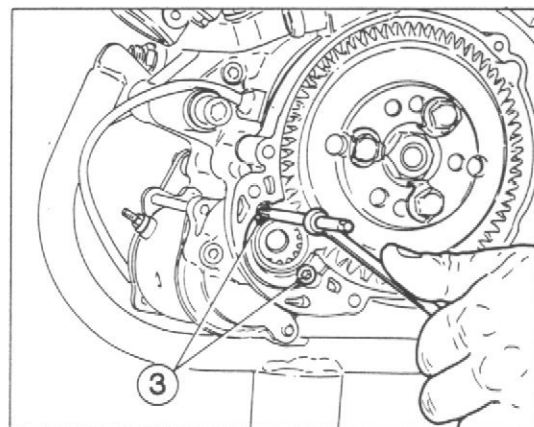
Remove the cover on the flywheel side after unloosing the three fastening screws (1).
The shorter screw is shown by an arrow, on the figure.
Remove the gasket which should be replaced when reassembling.



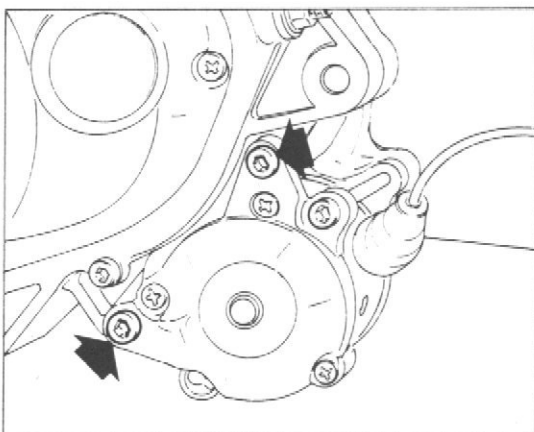
After unloosing the two fastening screws (2), remove the cover and the starting motor drive. Pull out the whole drive.

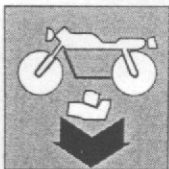


Unloose the two starting motor inside fastening screws (3).

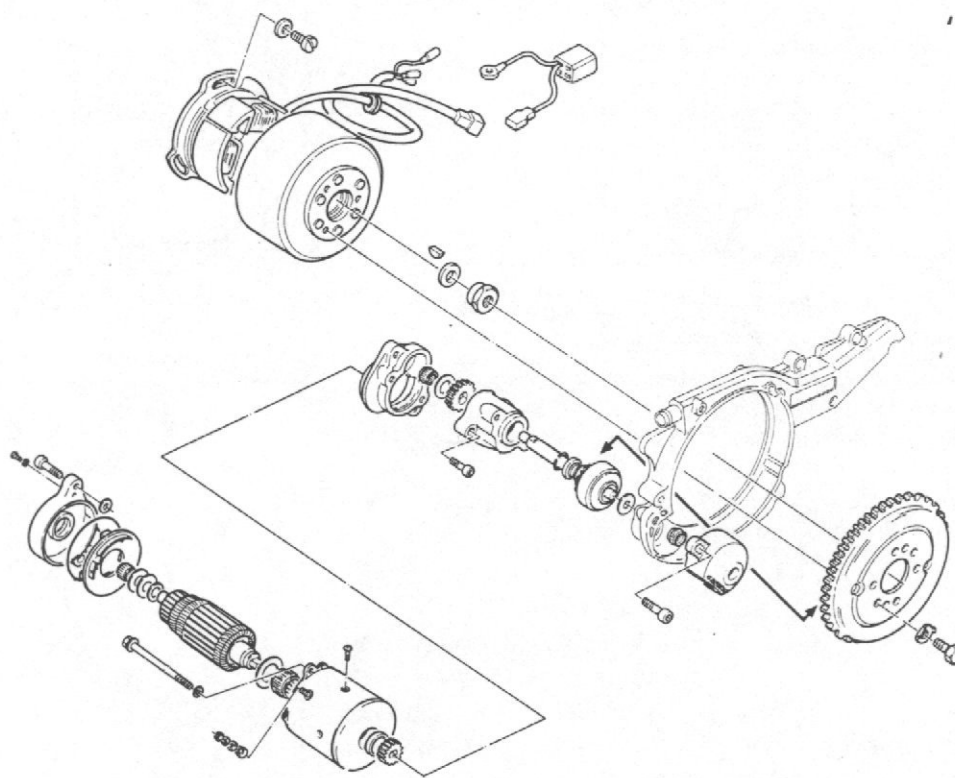


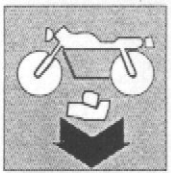
Unloose the two screws fastening the starting motor to the R.H. half-crankcase. Keep the washers, if any, between the starting motor bearing plate and the half-crankcases. Pull out the motor from the right side.





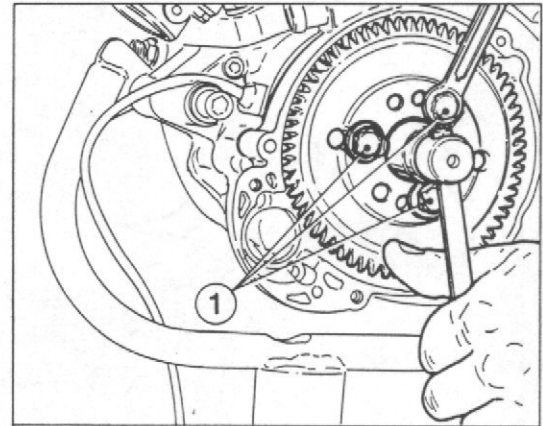
"EFEL"



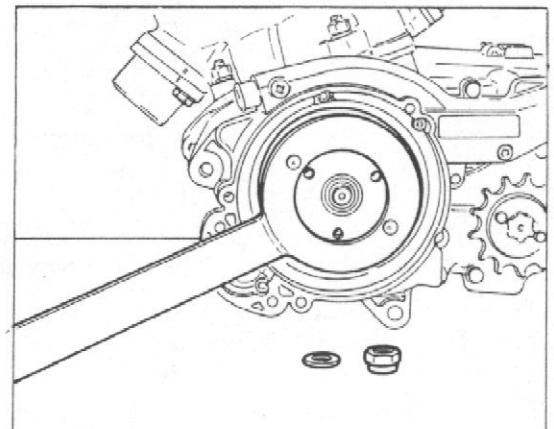


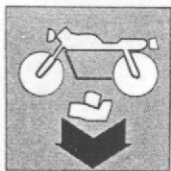
Disassembly of the flywheel and L.H. half-crankcase components.

Straighten the bent edge of the safety washers and unloose the three screws (1) fixing the starting crown on the rotor. During this operation it is necessary to prevent the flywheel from turning by locking the middle nut with a 22 mm. socket wrench. Remove the crown. During the reassembling arrange the crown so that the two peripheral holes, having a larger diameter, are coaxial to the corresponding holes placed on the rotor.

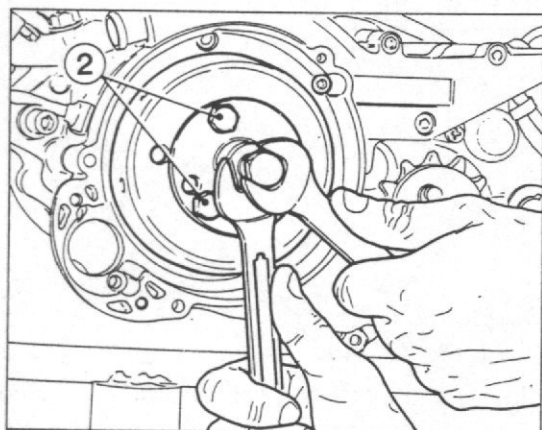


Prevent the rotor from turning by applying tool code **46614** on it. Unscrew the rotor lock nut with the help of a 22 mm. socket wrench, turning it anticlockwise. Remove the convex washer which shall be arranged, during reassembling, with its convex part turned towards the nut.

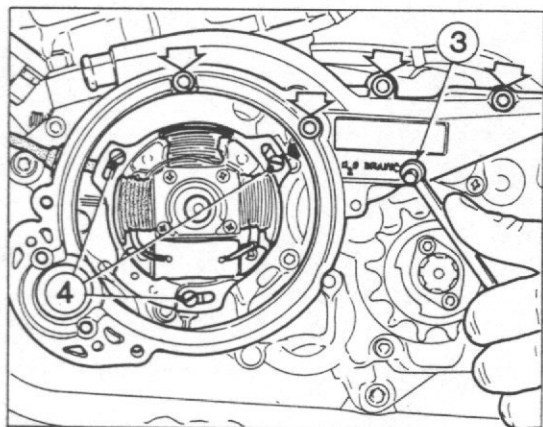




ENGINE DISASSEMBLY

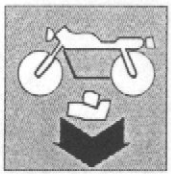


Use tool code **51614** and fix it to the rotor with three suitably sized screws (2). Holding the tool with a 19 mm. allen wrench and turning the middle screw clockwise, remove the rotor from the engine shaft with a 17 mm. Allen wrench.

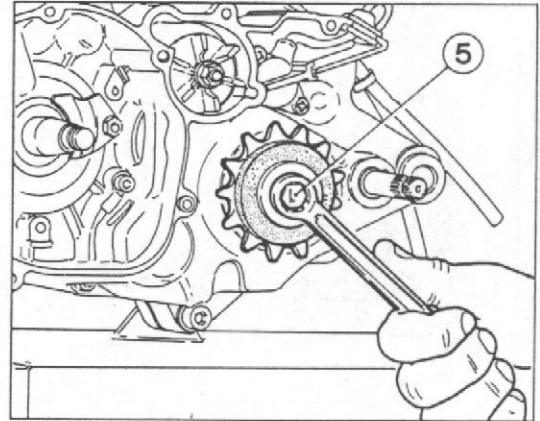


Unloose the five screws fastening the flange on the L.H. half-crankcase. Pay attention to screw (3) which is longer than the others and is provided with a gasket under its head. Remove the flange and the gasket.

Unloose the three screws (4) fastening the stator to the L.H. half-crankcase; release the fairlead rubber ring and take out the stator complete with harness. When the half-crankcases are reassembled, the notch on the stator shall be in correspondence of the upper R.H. fixing point.

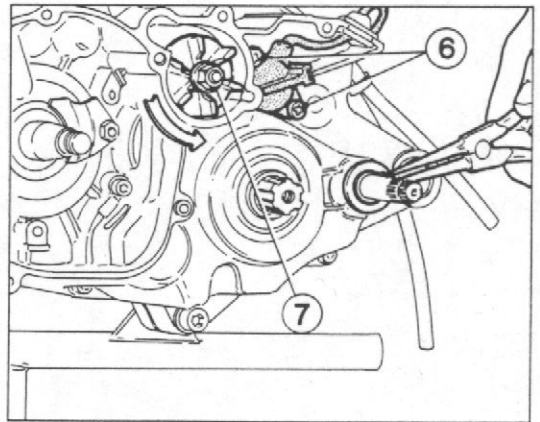


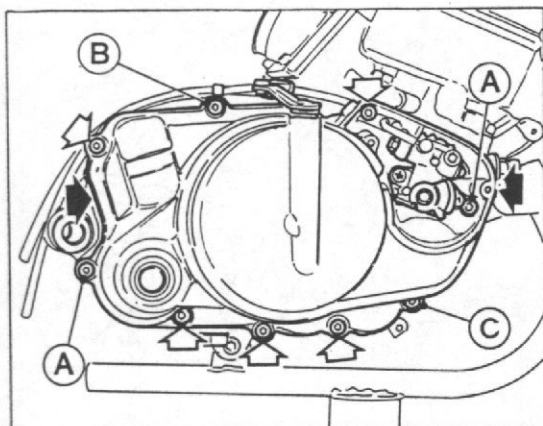
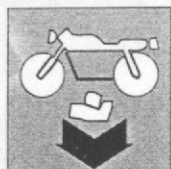
Unscrew the fastening screw (5) of the chain pinion. Remove the washer and the pinion.



Unscrew the fastening nut (7) of the water pump rotor and take the water pump out of the pump control shaft.

Remove the lock ring on the selector shaft, keeping the washers and the shims if any. Unloose the two screws (6) fastening the neutral gear position indicator and remove the latter. Pull out the peg and the spring from the positive shaft.

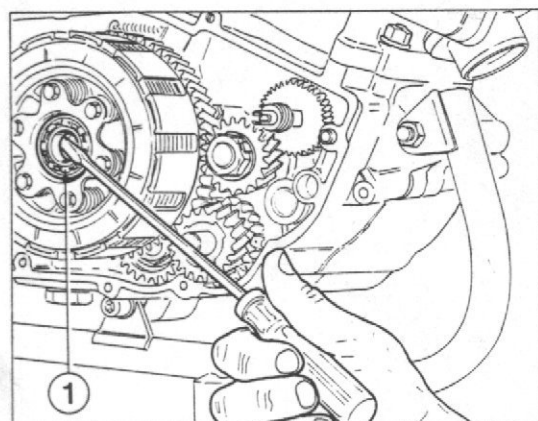




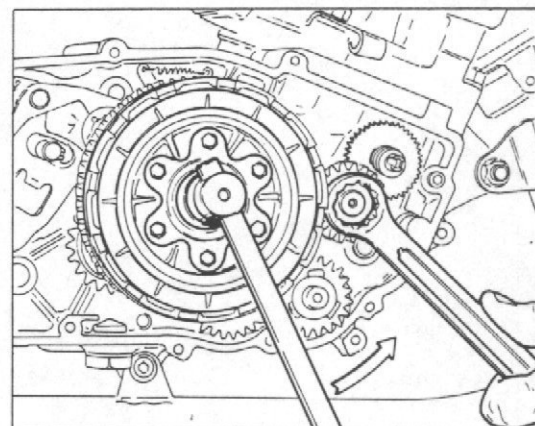
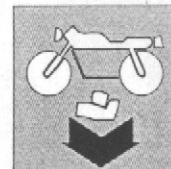
Clutch cover disassembly.

Unloose all the clutch cover fastening screws considering that, during reassembling, of the three longer screws (A) and (C), the two screws (A) are in correspondence of the two centering bushes, and that a spacing bush and a oil pump pipe fastening plate are mounted under screw (B).

Levering the points shown by the full arrows, take out the half-crankcase cover and remove it together with the packing and the oil pump.




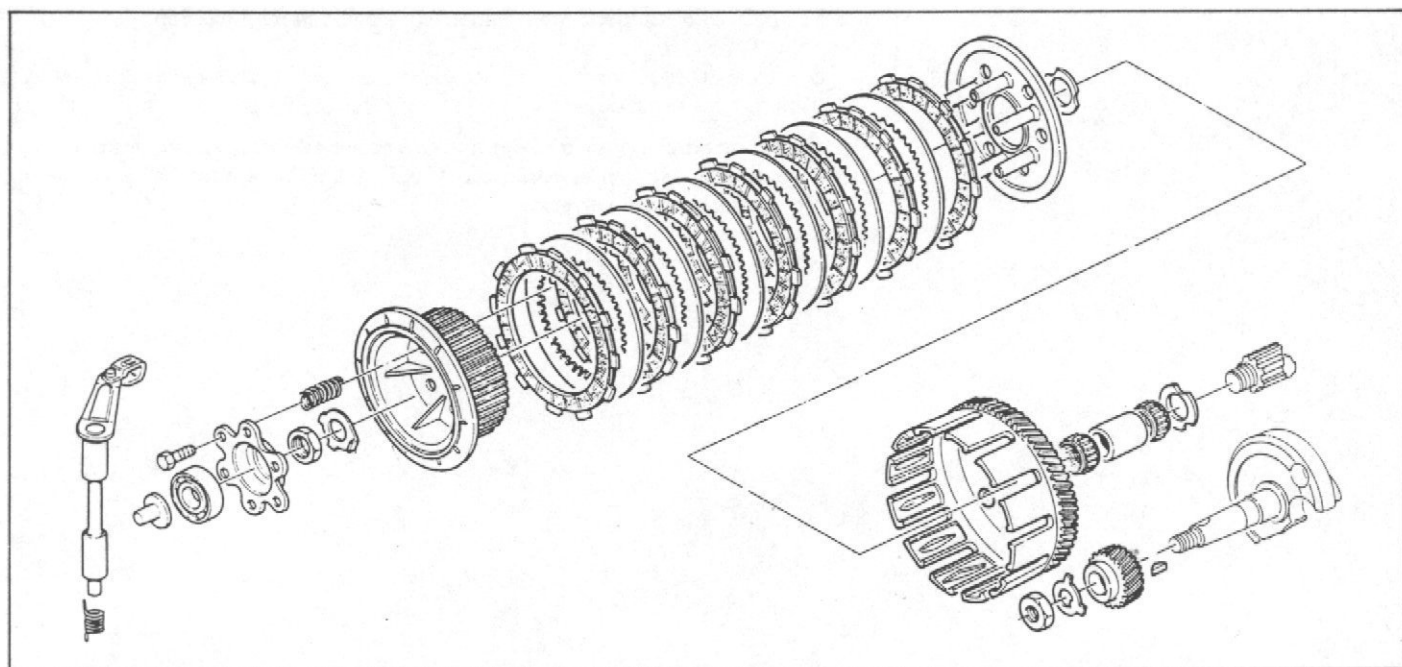
With the help of a screwdriver pull out bearing (1) from the inside of the clutch spring check disc.

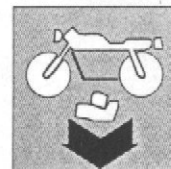


Disassembly of the clutch and R.H. half-crankcase components.

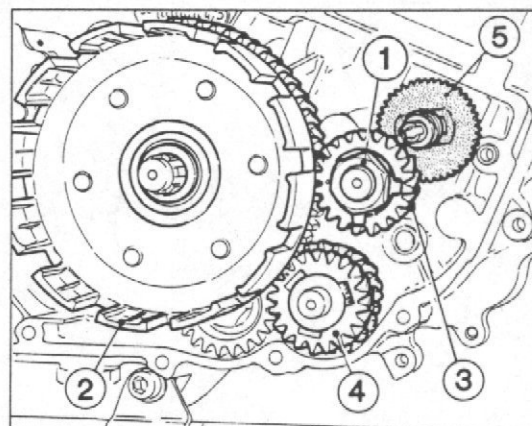
To unloose the plate-holding hub fastening middle nut, provisionally arrange the generator rotor on the drive shaft and lock it with the suitable tool code **51614**.

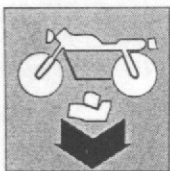
 In this occasion it is recommendable to straighten the bent part of the engine sprocket fastening nut washer and to unloose the nut itself which shall be taken out later on.



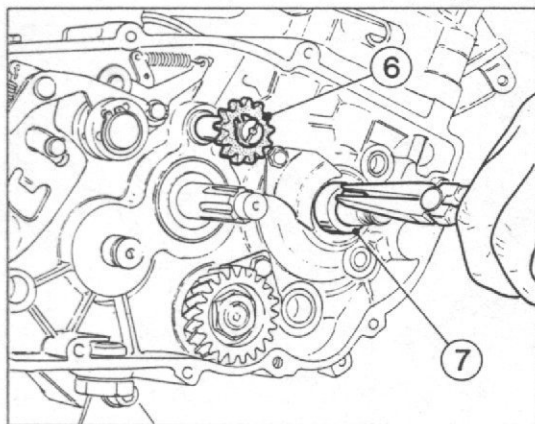


Pull out the three-point washer, clutch housing (2), the two roller cages, the inner spacer and the other three-point washer from the main shaft.
Remove nut (1) after unloosing it, the washer and gear (3) of the main drive.
Take out the couple of driving gears (4) of the countershaft and keep the washers.
Take out sprocket (5) controlling the oil pump, complete with transmission shaft. Pay attention, during reassembling, to the position of the washers.

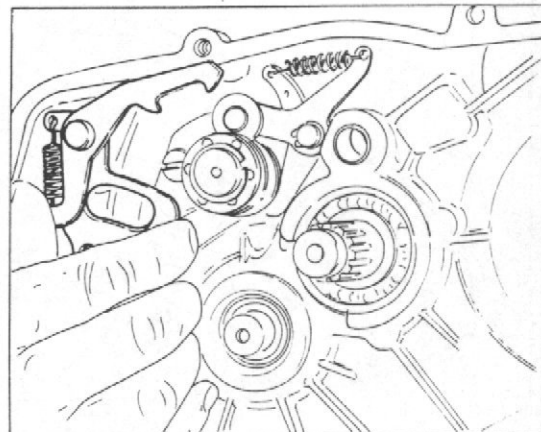
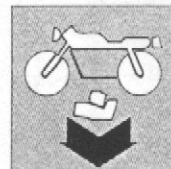




ENGINE DISASSEMBLY



Extract the shaft provided with water pump control gear (6).
Remove the crankshaft tongue, extract the spacer (7), the oil pump control gear and the revolution counter.
Remove the OR ring and the spacer.

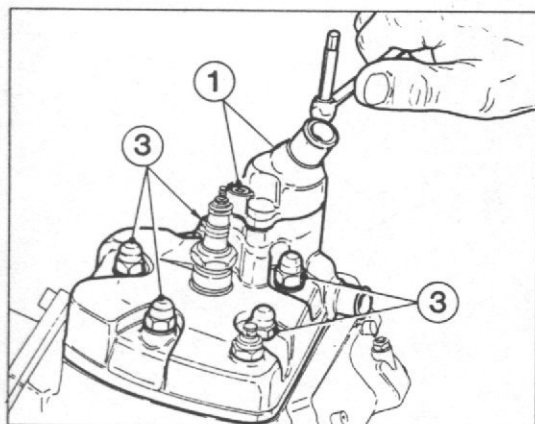
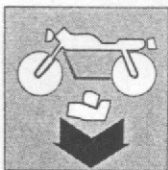
**Disassembly of gear components.**

Release the selector fork from the main shaft (as shown in the figure) and pull out the selector shaft.



REMARK! - If this intervention is made only for replacing the crankshaft, it is not necessary to remove the other particulars.

This will avoid the gearbox disassembly when half-crankcases are removed: gearbox components will remain installed in the R.H. half-crankcase.



Thermal assembly removal.

The disassembly of the head, cylinder and piston can be anticipated and it is independent of the disassembly operations carried out so far.

Now it is necessary to remove the head-cylinder assembly in order to disassemble the engine half-crankcases.

Unloose the two socket head screws (1) and hexagonal-head screw (2) fastening the thermostat cover.

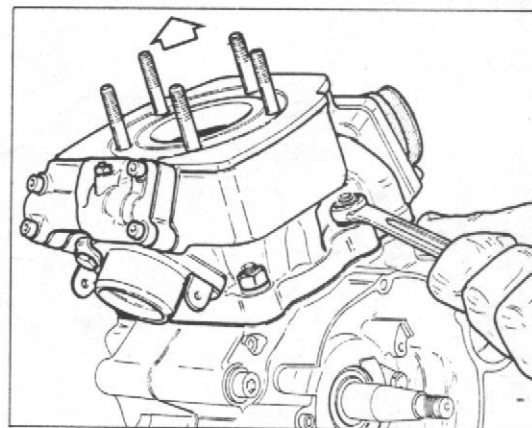
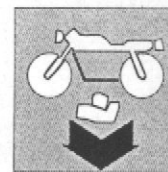
Remove this cover, the gasket and the thermostat.

Unscrew the five blind rings (3) fastening the head on the cylinder and keep the gasket placed under them.

Remove the two O-rings under the head.




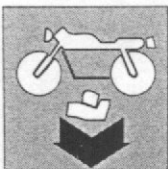
WARNING: The O-rings between the head and the cylinder should always be replaced at any reassembly.



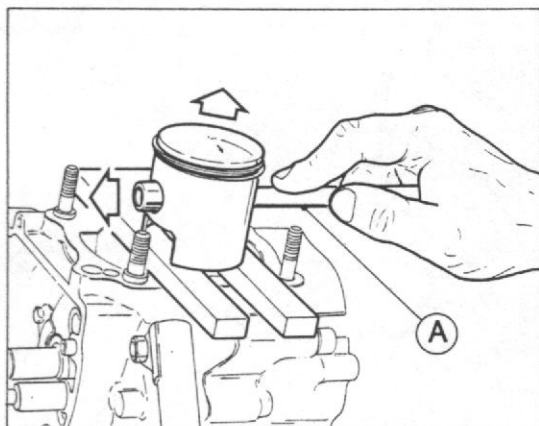
Unloose the four nuts fastening the cylinder on the crankcase. Consider that, when reassembling it, the clutch adjuster supporting plate should be arranged under the R.H. rear nut.

Take out the gasket between cylinder and crankcase.

 **WARNING** - When extracting the cylinder avoid to have it turned, since piston ring ends could enter the grooves preventing them from coming out and damaging the same rings. To avoid this risk it is also advisable that extraction is made with piston at B.D.C.



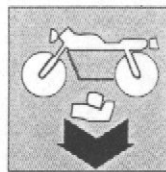
ENGINE DISASSEMBLY



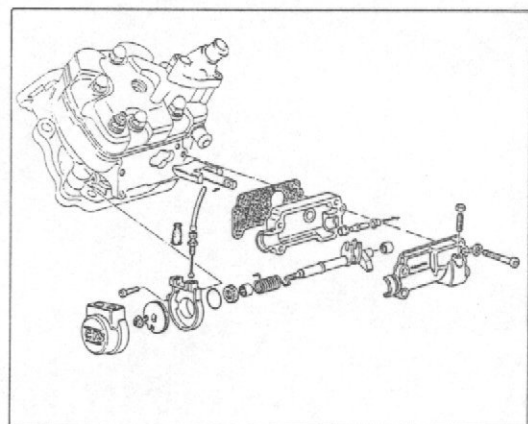
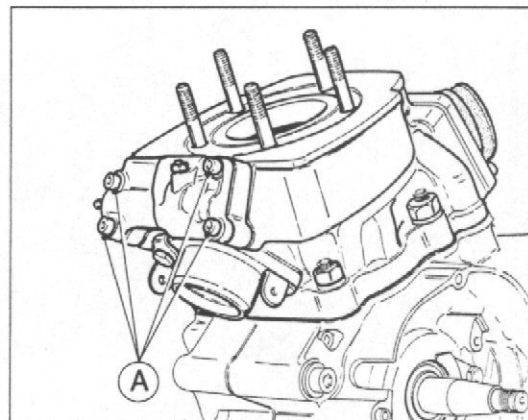
Take out a piston pin lock and by suitably supporting the piston, pull out the piston pin with the help of a parallel pin (A).
Remove the roller cage from the connecting rod.

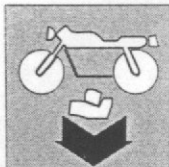


REMARK - Arrow printed on the piston must be directed towards the exhaust duct, when re-assembling.

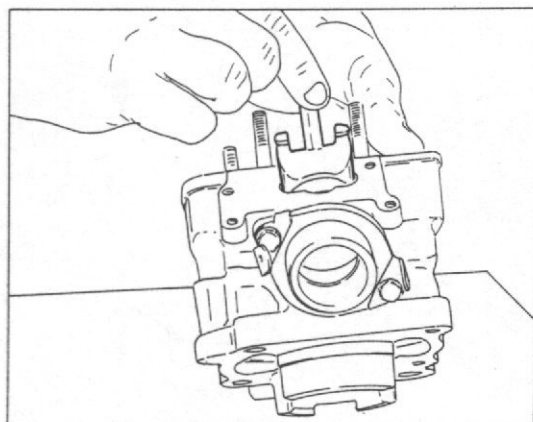
**Exhaust valve disassembly.**

– Unloose the four screws (A) and pull out the two shells complete with valve.
This operation is possible when the valve is new or clean, while if it is dirty this operation may be difficult and it is necessary to open the two half-covers containing the drive shaft. Strike it with a rubber mallet in order to divide them, as the two parts are joined with a sealer.



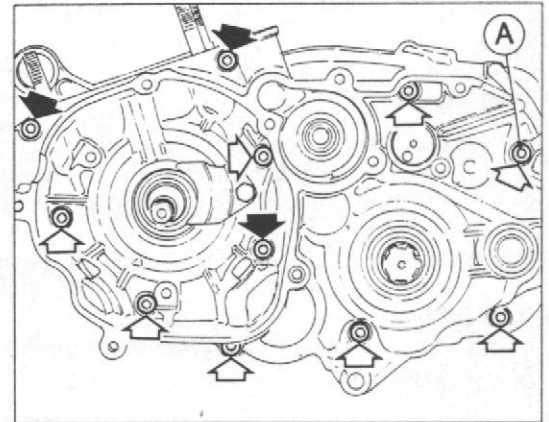
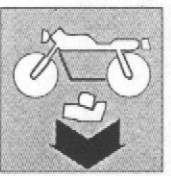


ENGINE DISASSEMBLY



- Take out the fork from the pin and pull the latter out from the valve. Now pull out the valve from the cylinder seat with the help of a pair of pliers, or, if this is not enough, push it with a drift pin from inside outwards, without damaging the surface of the valve itself. Clean the valve as described in chapter "OVERHAULING".





Separation of half-crankcases.

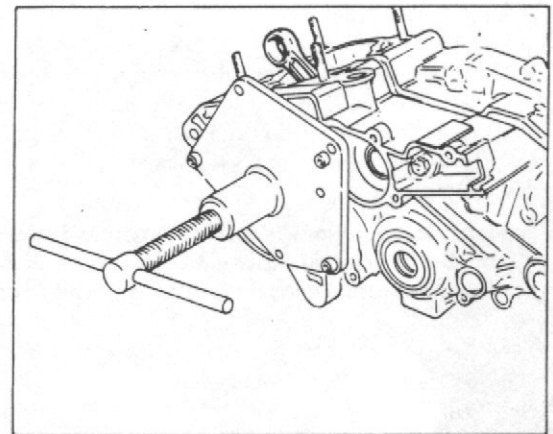
Now it is possible to divide the two half-crankcases.

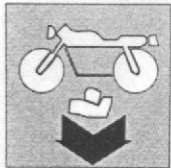
Unloose the eleven fastening screws on the L.H. half-crankcase.

When reassembling it, keep in mind that the three longer screws are those shown with the full arrows.

Furthermore screw (A) located on the motor right end, shall fix the fastening key of the crankcase breather pipe.

The gearbox being in neutral position, and after having applied tool no. **33048** on the L.H. crankcase (with 3 screws of proper size) act on the central pin and arrange crankcases splitting.





ENGINE DISASSEMBLY

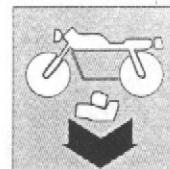
REMARK - This tool acts on the crankshaft; therefore it may occur that the rear side of engine - not being directly affected by its splitting action - tends to remain closed or to turn.

Therefore we suggest to beat with a plastic mallet on the secondary shaft, pinion side, at the same time of tool operation.

Gearbox components and the crankshaft will remain inside the R.H. crankcase.

Remove gasket.

During these operation requiring a continuous handling of the crankcase it may happen that the exhaust valve control shaft comes out from the crankcase and that the washer placed under it falls inside it. To avoid this risk it is enough to keep this shaft in its seat with the help of an adhesive tape.



In case that the components (as shafts, gears etc.) replacement is not required, it is advisable to remark the thrust washers position so that the original shimming is respected during reassembly.

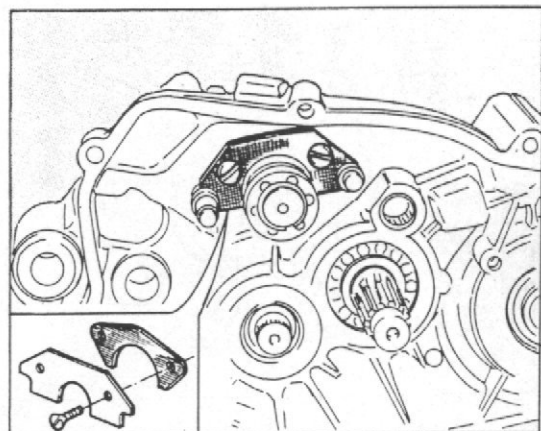
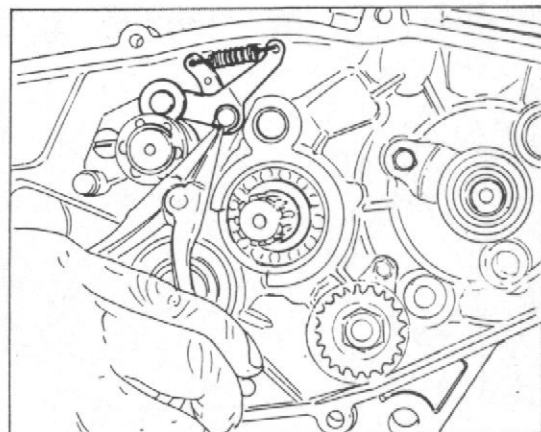


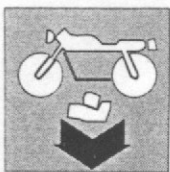
Also in case of components replacement comply with the original shimming, as starting point.

Operating on the outer side of R.H. crankcase, remove the seeger ring from the 5th and 6th gear fork pin end.

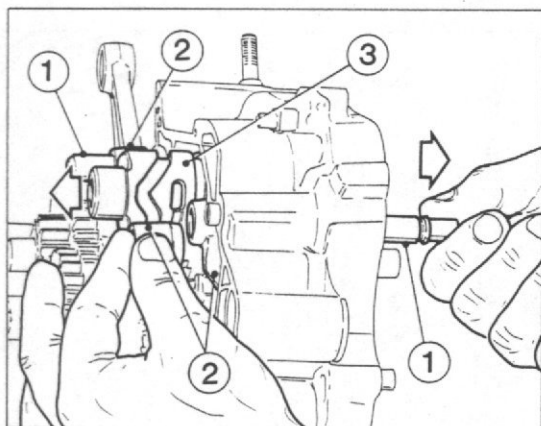
Extract the pawls from pin.

Remove the two screws fastening the retaining plate and extract the same plate together with the thrust plates.

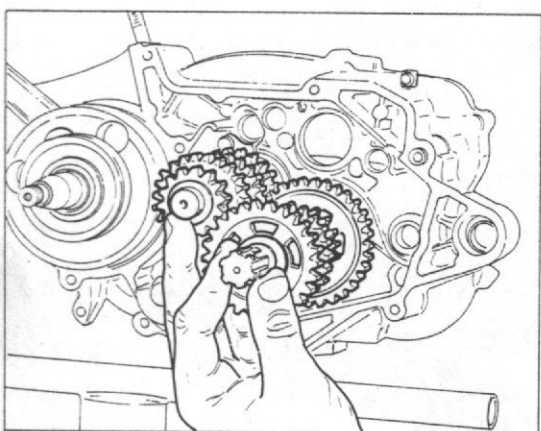




ENGINE DISASSEMBLY



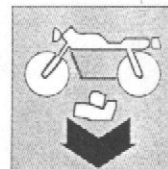
Pull out the two fork pins (1) from the outer part of the R.H. half-crankcase. Remove the four forks (2) and positive shaft (3) from the inner side.



Take out the two gear shafts complete with gears.
If it is necessary to remove the drive shaft from the R.H. half-crankcase, use the same tool code 33048 previously used for disassembling the half-crankcases.



REMARK - For crankshaft extraction absolutely avoid to beat on its end, even with plastic mallets.



In order to remove the bearing, which shall remain integral to the drive shaft, on its L.H. side, it is necessary to use tool code **YA 2271**. Pay attention, when reassembling it, to the washer which is to be fit between the shaft and the bearing.

To take out the countershaft, it should be put in a vice (provided with aluminium jaws) and the nut is to be loosened with a 22 mm. socket wrench. Pull out the gear, keep the key and pull out the shaft from the opposite site.

