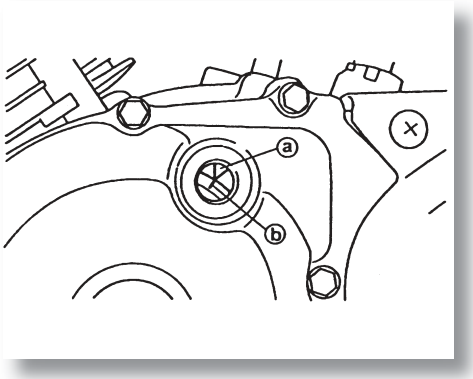
3) CHECK:
• Ignition Point.



Steps for checking:
• Get the engine started and let it warming up for some minutes. Leave it working in the specified rotation.

Idling speed:
1.300 - 1.400 rpm

• Check visually if the stationary point (a) is inside the band (b) in the magneto flywheel.

Outside the band = > **Check the ignition system.**

Remark:
• The ignition point is not adjustable.

4) INSTALL:
• Top of the point control (with the gasket).

2.5 COMPRESSION PRESSURE ADJUSTMENT

Remark:
• Insufficient compression pressure results in loss of power.

1)CHECK:
• Set of valves

Unspecified = > **Adjust.**

See section "**VALVES SET ADJUSTMENT**".

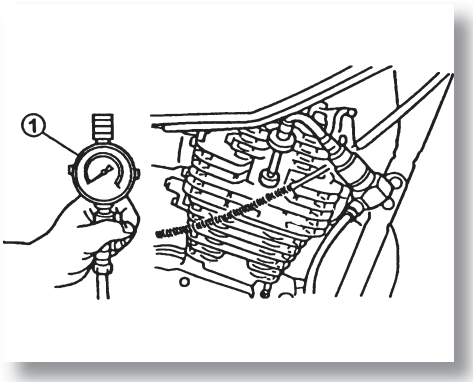
2) Get the engine started and let it warming up for some minutes.

3) Pull the engine up.

4) REMOVE
• Spark plug.

Before removing the spark plug, blow on the area with compressed air to eliminate any piece of dirt, in order to avoid it falls inside the engine.

5) INSTALL:
• Compressor gauge (1).



6) MEASURE:
• Compression Pressure

If it exceeds the permitted maximum pressure = > **the cylinder head, the valves surface and the piston head in relation to carbon.**

If it is under the minimum pressure =>**Inject some drops of oil into the cylinder and measure again.**

Follow the table below:

COMPRESSION PRESSURE (With oil injected into the cylinder)	
Higher measure than without oil	Worn or damaged piston
The same measure as without oil	Possible defect in rings, valves, cylinder head gasket or piston => **REPAIR**

Compression pressure (at the sea level):
Standard:
1.200 KPa (12 Kg/cm^2)
Minimum:
1.040 KPa (10.4 Kg/cm^2)

Steps for measuring:
• Get the engine started with the throttle totally opened, until the compression reading becomes stabilized.

Before getting the engine up, connect the cable from the spark plug to earth to avoid sparks.

7) INSTALL:
• Spark plug.

2.6 CHECKING OF THE MOTOR OIL LEVEL

1) Place the motorcycle in a flat surface.

Remark:
• Make sure that the motorcycle is in vertical line when checking the oil level.

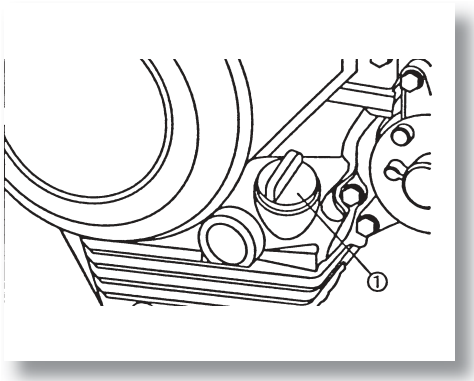
2) Get the engine started and let it warming up for some minutes.

3) Pull the engine up.

4) Move the oil level dipstick (1). Clean it with a cloth and place it in the orifice of oil supply without threading it. Immediately, move it again.

5) CHECK:
• Level of motor oil.
The level of oil should be between the maximum (1) and minimum (2) marks.

Oil underneath the minimum level = > **Add oil up to the appropriate level.**



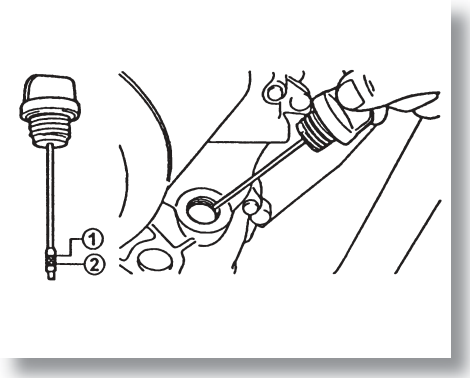
2.7 RECOMMENDED MOTOR OIL

Recommended motor oil:
YAMALUBE 4 or similar.

6) Get the engine started and let it warming up for some minutes.

7) Pull the engine up.

Remark:
Wait some minutes till the oil goes down, before checking the oil level.



2.8 MOTOR OIL CHANGE

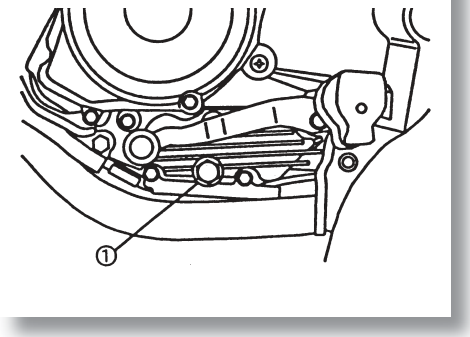
1) Get the engine started and let it warming up for some minutes.

2) Pull the engine up and place a tray under the motor.

3) REMOVE:
• Oil level dipstick.
• Drainage cap (1).
• Gasket.
Drain the oil in the sump.

4) INSTALL:
• Drainage cap (1).
• Oil level dipstick.

Drainage cap:
2,0 Kgf.m (20 N.m)



5) SUPPLY:
• Oil in the sump.

Quantity of oil:
1,0 L

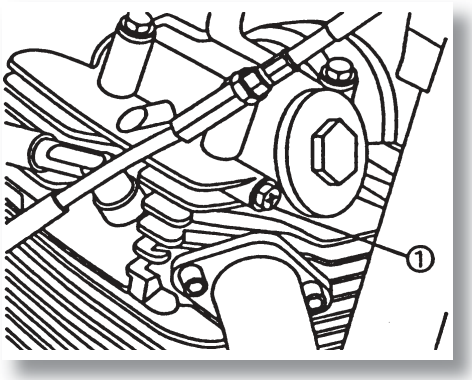
6) CHECK:
• Level of motor oil.

See section **"CHECKING THE LEVEL OF MOTOR OIL" "OIL FLOW CHECKING".**

2.9 OIL FLOW CHECKING

1) REMOVE:
• Control screw of the oil flow (1).

2) Get the engine started and keep it in the idling speed till the oil drips from the drain orifice.



Oil flows = > **Oil pressure is good.**

Oil doesn't flow => **Oil pressure isn't not good.**

If oil doesn't come out after some seconds, Pull the engine up immediately and Check the oil pump section.

3) TIGHTEN:
• Control screw of the oil flow.

Screw of the oil flow:
0,7 Kgf.m (7N.m)

2.10 EXHAUST SYSTEM CHECKING

1) CHECK:
• Screws (1) (exhaust pipe).

Loose / damages = > **Tighten / replace.**

• Gasket (exhaust pipe).

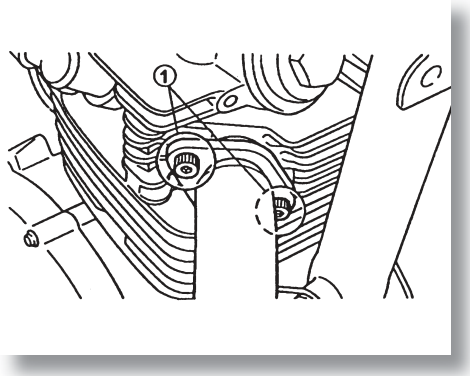
Leak of exhaust fumes = > **Tighten / replace.**

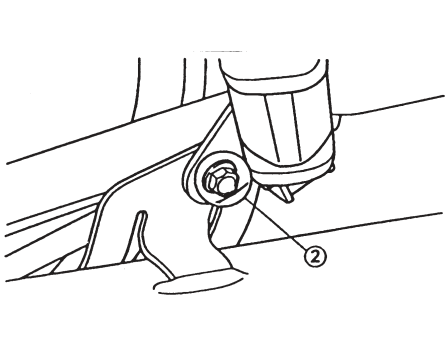
Screw:
0,7 Kgf.m (7N.m)

2) CHECK:
• Screws (2).

Loose / damages = > **Tighten / replace.**

Screw:
1,5 Kgf.m (15N.m)





Engine RIEJU

3.1 MOTOR DISASSEMBLY

CYLINDER HEAD, CYLINDER AND PISTON

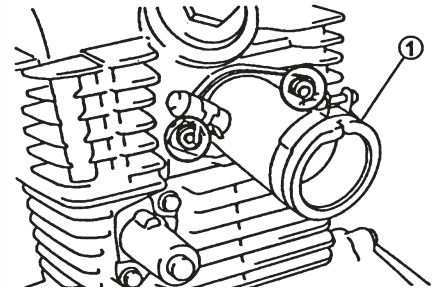
REMARK:
With the assembled motor in the frame, the cylinder head, camshaft and cylinder can be checked, replace the following parts:

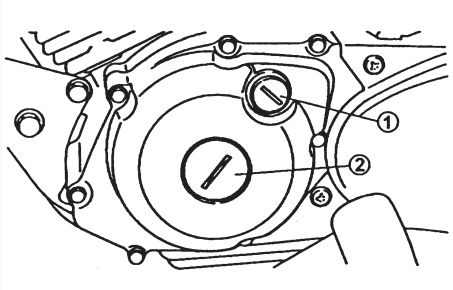
- *Seat*
- *Side cowling*
- *Fuel tank*
- *Exhaust pipe*
- *Carburettor*
- *Clutch cable*
- *Spark plug Cable*
- *Securing base of the engine*

1) REMOVE:
- Spark plug.
- Inlet manifold (1).

2) REMOVE:
- Top of the point control (with the gasket) (1).
- Central cap (with the gasket).

3) REMOVE:
- Valves lining (with the gasket).
- Side covers of the cylinder head (with the gasket).





4) ALIGN:

• Magneto mark (a) (with the stationery point (b) of the chassis cowling).

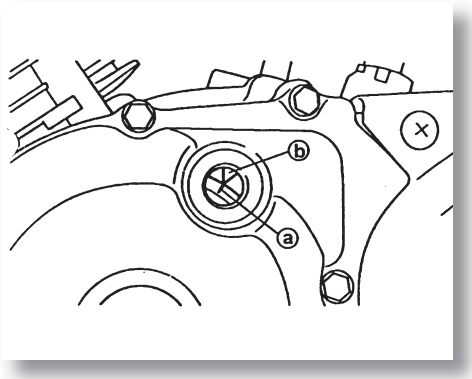
Remark:

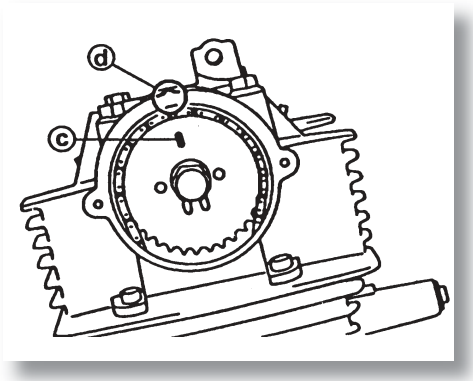
Rotate the crankshaft anticlockwise with a spanner.

Steps for alignment with TDC:

• Rotate the crankshaft anticlockwise aligning the mark (a) with the top dead centre (TDC) (b).

• Align the mark I (c) of the control gear with the stationary point (d) of the cylinder head. So, the piston will remain in top dead centre (TDC).

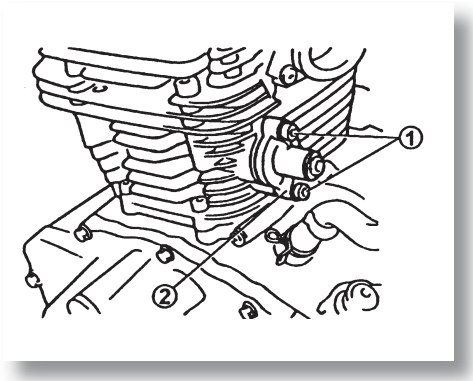


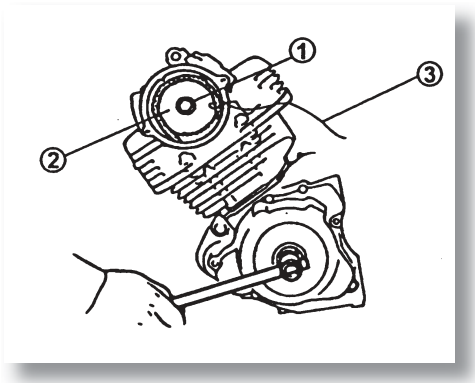


Remark:

• Check if the piston is in the TDC of the compression time.

• If it is not, rotate the crankshaft anticlockwise completely once again.





5) REMOVE:

• Screw (adjuster of the timing chain) (1).

• Adjuster unit of the timing chain (2).

6) REMOVE:

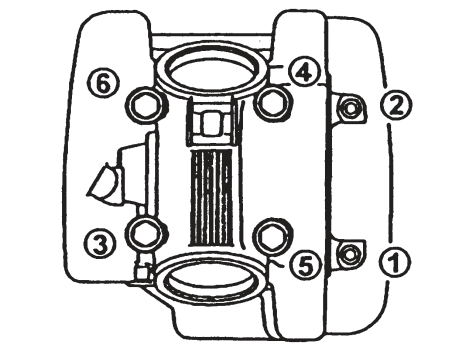
• Screw (control gear) (1).

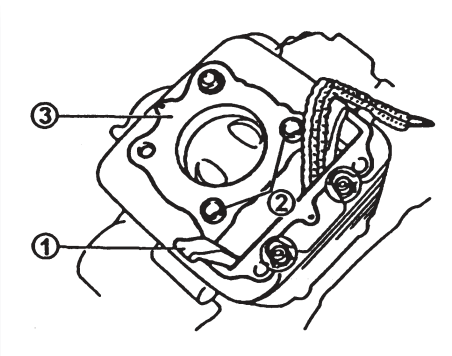
• Particular washer (control gear) (2).

7) REMOVE:
- Screws (cylinder head).
- Cylinder head.

Remark:
• Loosen each one of the screws 1/4 turn and remove them when they are completely loose.
• Loosen the screws, beginning with the smaller number.
• The stamped numbers on the cylinder head indicated the torque sequence.

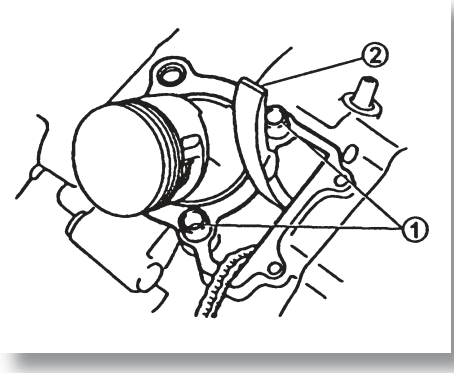
8) REMOVE:
- Guide of the timing chain (exhaust) (1).
- Tangs guide (2).
- Gasket (cylinder head) (3).
- Screws (cylinder head).
- Clutch cable hold.
- Cylinder.

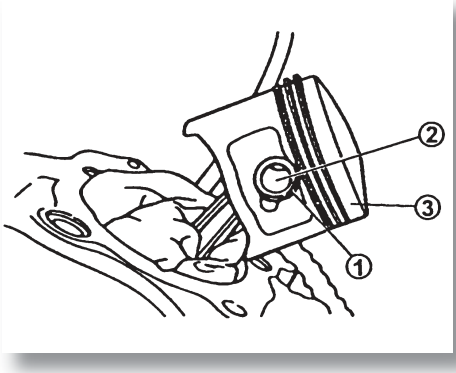




9) REMOVE:
- Tangs guide (1).
- Gasket (cylinder) (2).

10)REMOVE:
- Clamp rings of the bolt (1).
- Bolt (2).
- Piston (3).





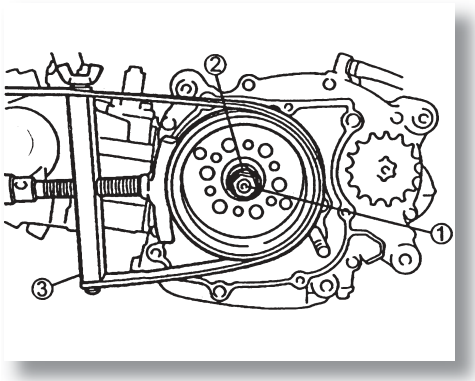
Remark:
• Before removing the clamp rings of the bolt, cover the cylinder with a clean cloth to avoid that something falls inside the engine.

• Before removing the bolt, take the slot flanges out of the clamp rings and the orifice rim. Once the flanges are removed, it there are still difficulties for getting the bolt out, use the corresponding tool.

3.2 MAGNETO FLYWHEEL

Remark:
The magneto flywheel can be removed while the engine is assembled in the frame, releasing the change pedal.

1) EXTRAER:
• Chassis cowling (LS).
• Drive of the neuter switch.
• Nut (magneto) (1).
• Flat Washer(2).



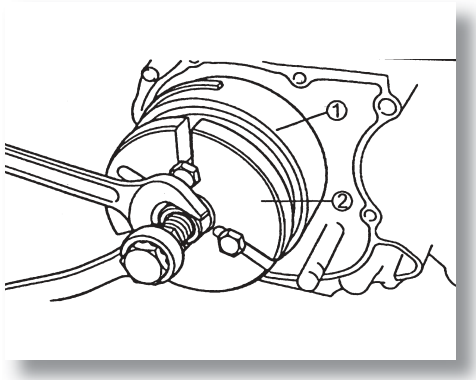
Remark:
Loosen the nut of the magneto while hold the magneto with the rotor support (magneto) (3).

Engine disassembly

2) REMOVE:
• Magneto flywheel (1).
• Cotter.

Remark:
• Remove the flywheel magneto with the rotor extractor (2).

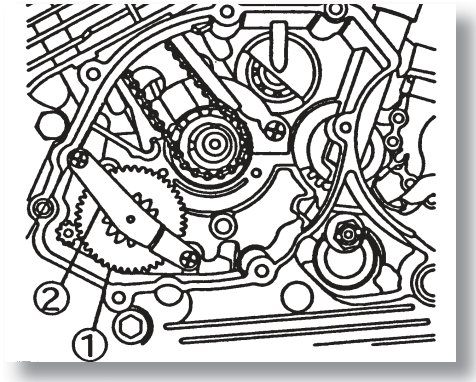
• Centre the rotor extractor of the magneto flywheel. Make sure that the play between the extractor and the flywheel is the same in all the points, after installing the securing screws. If it is necessary, loosen one of the screws lightly in order to tighten the extractor position.



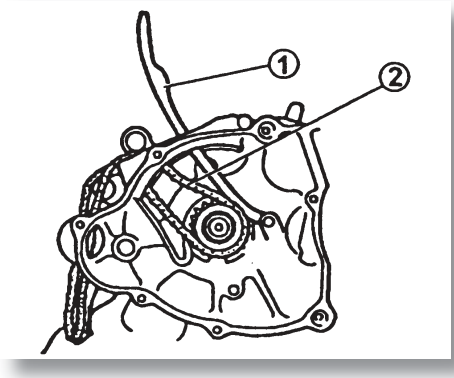
Cover the point of the crankshaft with the spanner to avoid damages.

3) REMOVE:
• Start gear.
• Washer.

4) REMOVE:
• Plate (2).
• Start gear (1).



5) REMOVE:
• Guides of the timing chain (1).
• Timing chain (2).



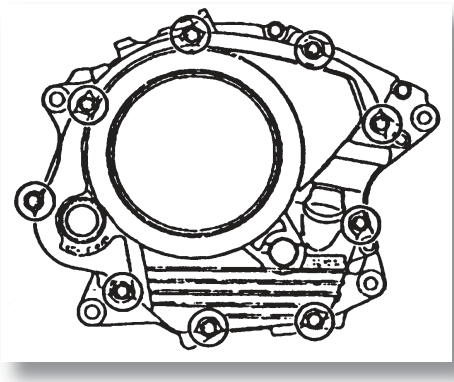
3.3 CLUTCH

Remark:
The clutch unit can be removed with the assembled motor in the frame. To be able to do it take the following parts out:

- *Exhaust*
- *Foot rest*
- *Brakes pedal*
- *Start Pedal*

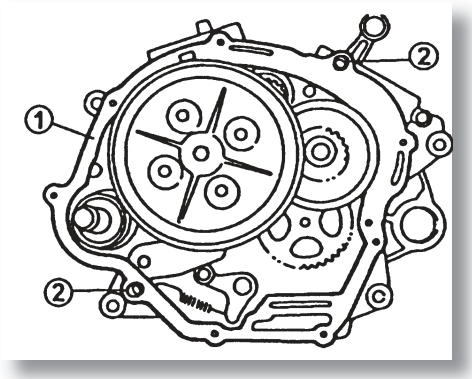
1) REMOVE:
• Chassis cowlings (RS).

Remark:
Loosen screws diagonally.



Engine disassembly

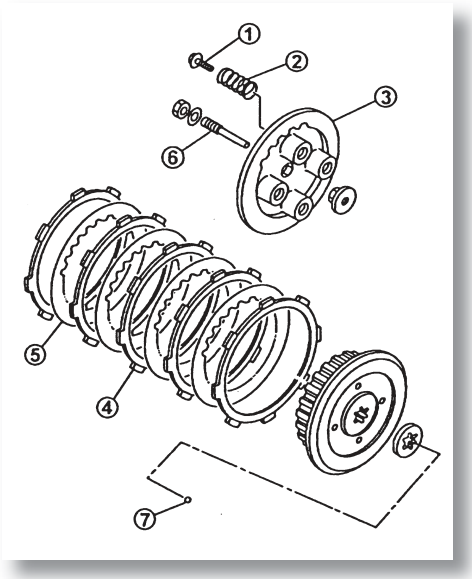
2) REMOVE:
• Gasket (1).
• Tangs guide (2).



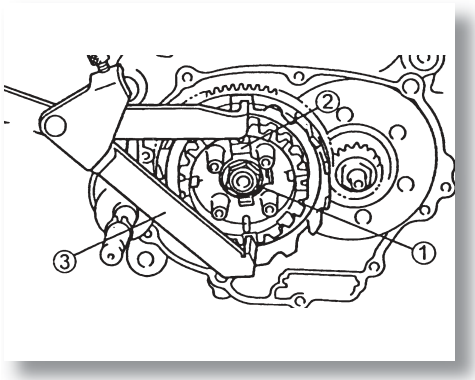
3) EXTRAER:
• Screws of the pressure plate (1).
• Clutch springs (2).
• Pressure plate (3).
• Friction plates (4).
• Separators (5)

Remark:
Loosen the screws of the pressure plate diagonally.

4) REMOVE:
• Operation rod N° 6.
• Ball (7).



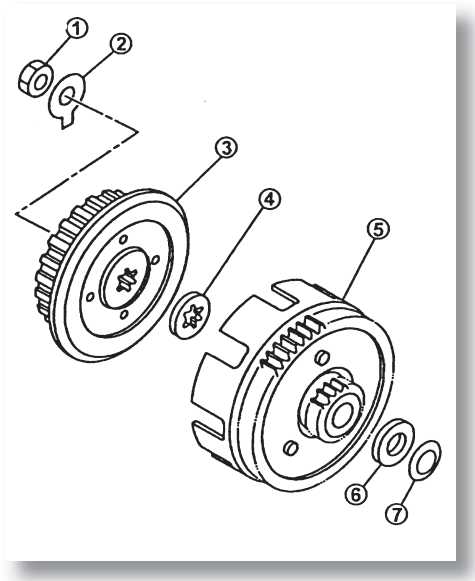
5) LOOSE:
• Nut (clutch drum) (1).



Remark:
• Smooth the rim of the clamp rings (2).

• Loosen the nut (1) from the clutch drum while the drum is hold with the universal clutch support (3).

6) REMOVE:
• Nut of the clutch drum (1).
• Clamp rings (2).
• Clutch drum (3).
• Pressure Washer (4).
• Clutch hood (5).
• Space washer (6).
• Washer (7).

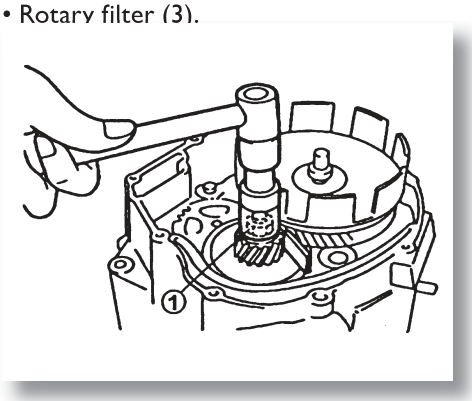


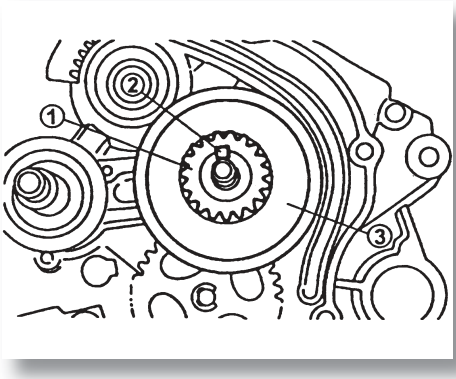
7) LOOSE:
• Nut (1).

Remark:
• Place a folded aluminium sheet between the teeth of the primary gear and those of the hood.

• Take care not to damage the gear teeth.

8) REMOVE:
• Nut.
• Particular washer.
• Primary gear (1).
• Cotter (2).
• Rotary filter (3).

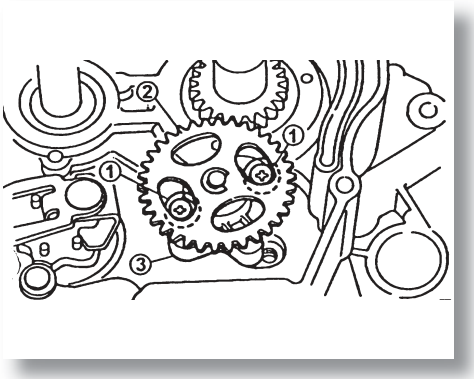




3.4 OIL PUMP

Remark:
• The oil pump can be removed with the assembled engine in the frame. To be able to do it take the following parts out:
• Clutch
• Rotary filter

1) REMOVE:
• Screw with washer (oil pump) (1).
• Oil pump unit (2).
• Oil impeller.

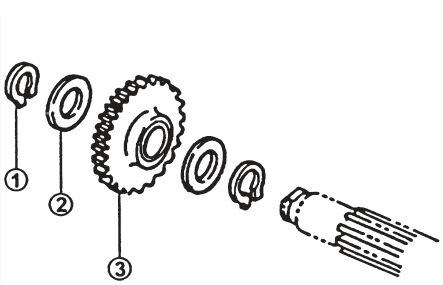


3.5 START PEDAL SHAFT

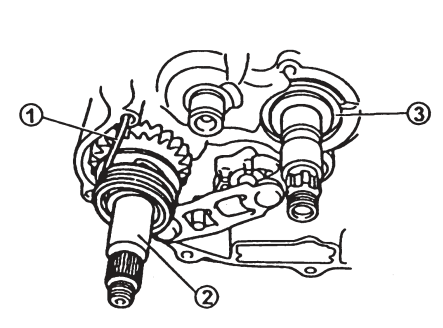
Remark:
• The start pedal can be removed with the assembled motor in the frame. To be able to do it, take the following parts out:

• Exhaust.
• Foot rest
• Brakes pedal
• Change pedal.
• Clutch.

1) REMOVE:
• Clamp ring (1).
• Particular washer (2).
• Star system gear (3).
• Particular washer.
• Clamp ring.

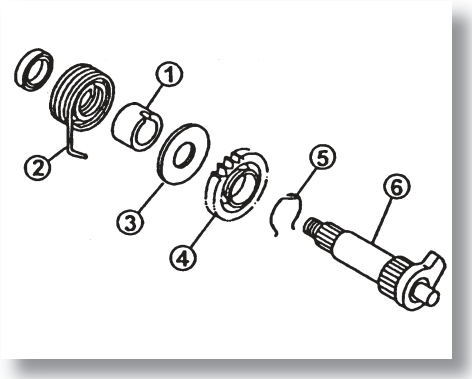


2) EXTRAER:
• Torque spring (1).
• Star shaft unit (2).
• Particular washer (3).
• Clamp ring.



3.6 DISASSEMBLY OF THE START SYSTEM SHAFT WITH PEDAL

1) REMOVE:
- Space washer (1).
- Torque spring (2).
- Washer (3).
- Start system gear (4).
- Clamp ring (5).
- Start system shaft (6).

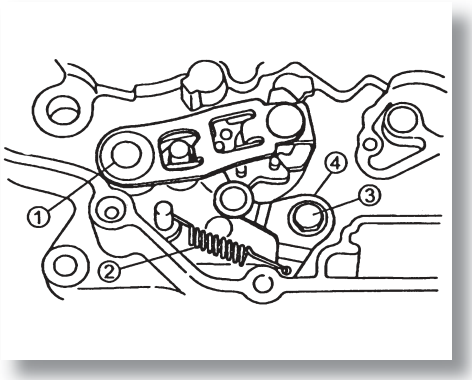


3.7 CHANGE SHAFT

Remark:

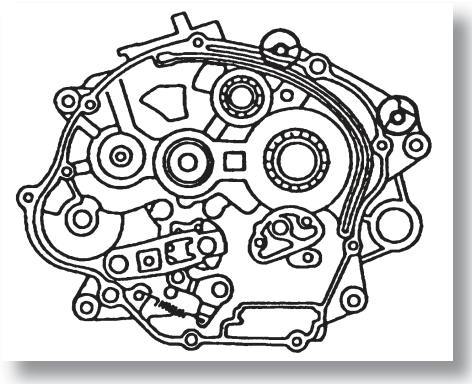
• The change shaft can be removed with the assembled motor in the frame. To be able to do it take the following parts out:
• Exhaust.
• Foot rest.
• Change pedal.
• Clutch.
• Start system with pedal unit

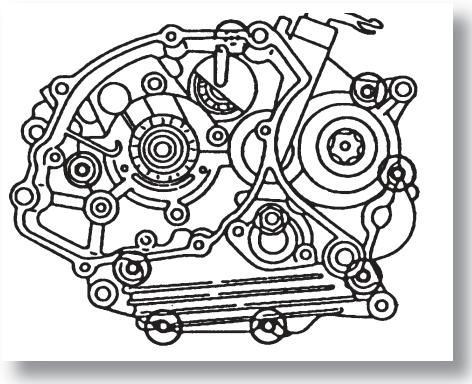
1) REMOVE:
- Change shaft (1).
- Torque spring (2).
- Screw (constrained rod) (3).
- Constrained rod (4).



3.8 CHASSIS

1) REMOVE:
• Screws (chassis).
• Battery cable supports.



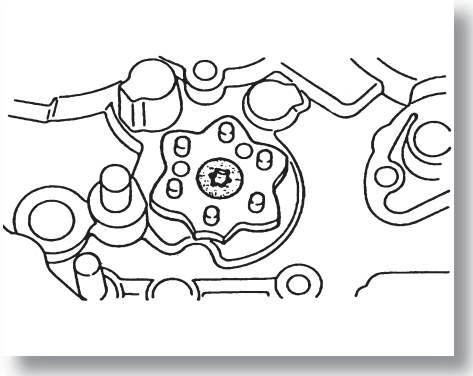


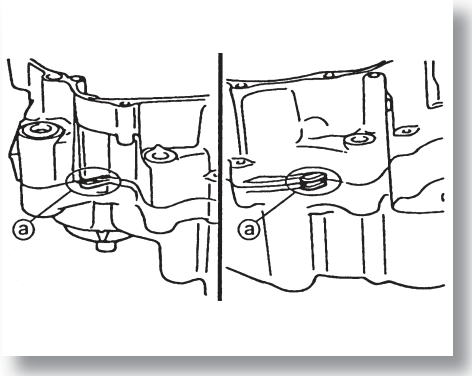
Remark:
• Loosen the screws diagonally.
• Loosen each one of the screws 1/4 turn and remove them when they are completely loose.

2) REMOVE:
• Screw of the change selector ring.

Use an Alien spanner of 4 mm.

3) REMOVE:
• Chassis (LD).

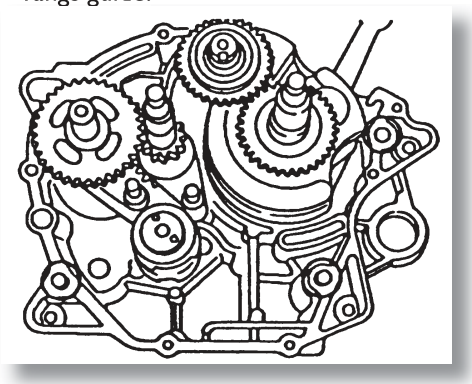




Remark:
• Place the motor with the chassis (LS) downwards and then put a screwdriver in the division slots (a) of the chassis.

- ***Use the screwdriver only in the indicated points.***
- ***The chassis (LS) should remain downwards.***
- ***Separate the chassis after checking if the change selector ring and the clamp ring shaft have been removed.***
- ***Do not damage the contact surfaces of the chassis.***

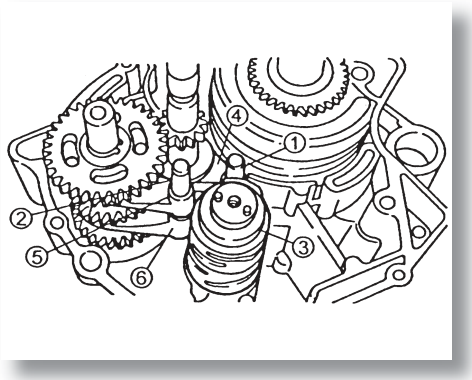
3) REMOVE:
• Tangs guide.

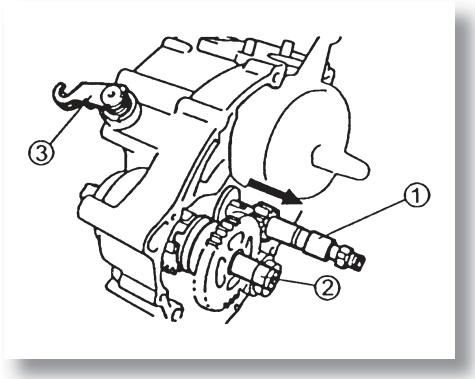


3.9 ROCKER ARM, TRANSMISSION AND CHANGE SELECTOR

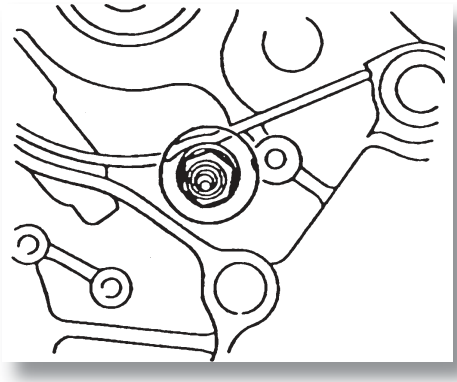
1) REMOVE:
• Guide bar of the change fork (1) (short).
• Guide bar of the change fork (2) (long).
• Change selector (3).
• Change fork (1) (4).
• Change fork (2) (5).
• Change fork (3) (6).

2) REMOVE:
• Drive shaft unit (1).
• Operation rod (n°2).
• Driven shaft unit (2).
• Washer.
• Operation lever unit (3).



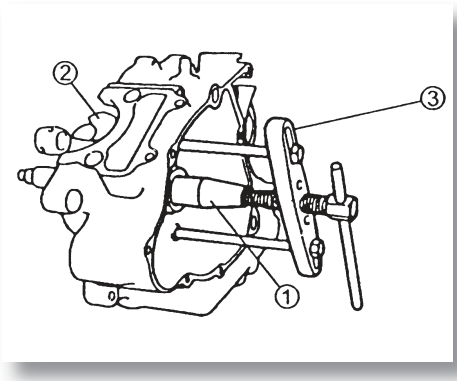


3) REMOVE:
• Neuter switch.



3.10 CRANKSHAFT

1) REMOVE:
• Crankshaft (1) with the rocker arm shaft. (2).



Remark:
• Remove the crankshaft with the crankshaft extractor (1).

• Tighten the screws of the crankshaft extractor till the end, but make sure that the body of the tool is in parallel with the chassis. If it is necessary, loosen one of the screws to adjust the position of the crankshaft extractor.

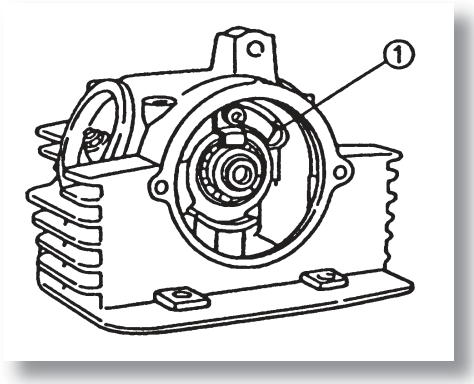
3.11 ROCKERS, CAMSHAFT AND VALVES

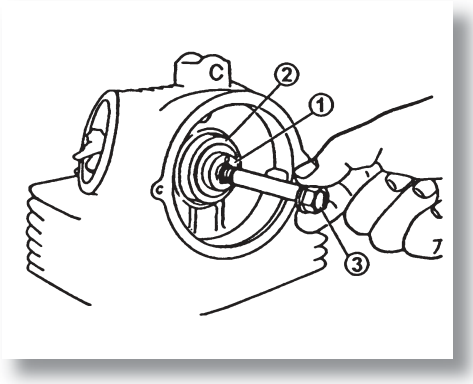
1) LOOSEN:
- Locknut of the valve adjusters.
- Valve adjusters.

2) REMOVE:
- Clamp plate (1).

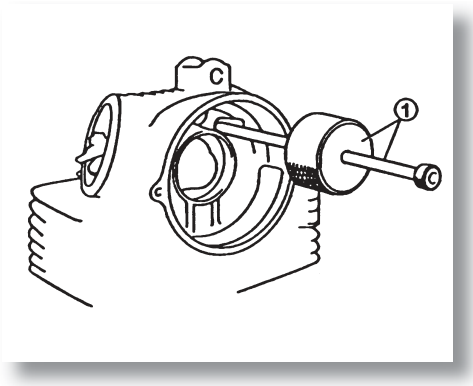
3) REMOVE:
- Camshaft (1).
- Space washer (2).

4) REMOVE:
- Rockers shafts.
- Rockers (intake and exhaust).





Remark:
• Install the special tool (1) in the rocker shaft to take it out.

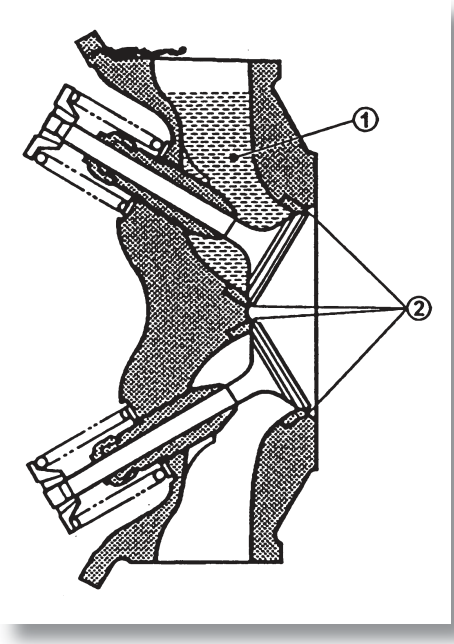


Remark:
• Before removing the internal parts (valves, springs, valve seating, etc) of the cylinder head, check the valves are closed.

5) CHECK:
• Valve closing.

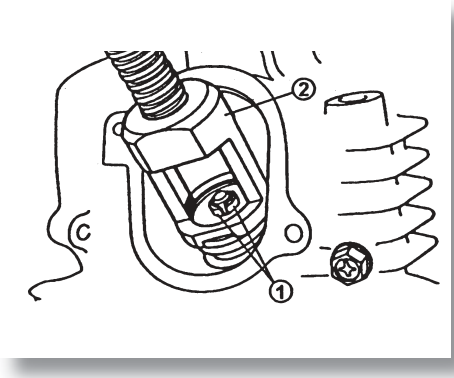
Leaks in the valve seating = > **Check the valve , valve seating and width of the valve seating.**
See section: "**CHECK AND REPAIR – VALVE SEATING**".

Steps for checking:
• Fill up the intake chamber and then the exhaust chamber with petrol (1).
• Check the closing of both valves. The valve seating (2) cannot have any leak.

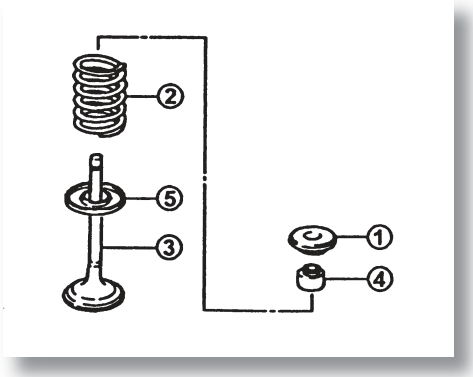


6) REMOVE:
• Valve clasp (1).

Remark:
• Install the valve spring compressor (2) between the seating of the clasp and the cylinder head, to loosen the valve clasp.



7) REMOVE:
• Clasp seating (1).
• Spring (2).
• Valve (3).
• Constraint ring (4).
• Spring seating (5).



Remark:
• Identify the position of each piece carefully, so that they can be reinstalled in their original positions.

3.12 CYLINDER HEAD CHECK AND REPAIR

1) ELIMINATE:
• Carbon sediment (of the compression chamber).
Use a rounded spatula.

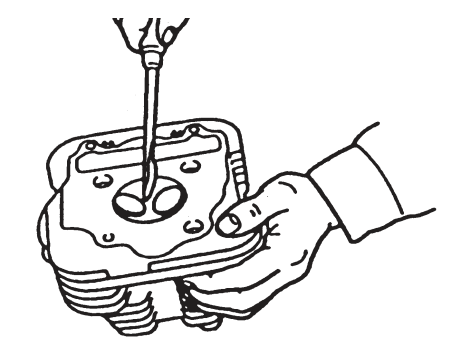
Remark:
• Do not use an instrument with sharp edges to avoid damages and scratches.
• In the thread of the spark plug.
• In the valve seating.

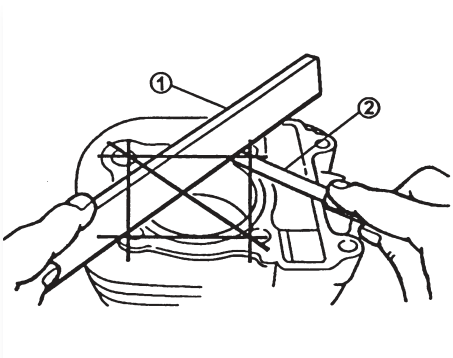
2) CHECK:
• Cylinder head.

Scratches / damages = > **Replace.**

3) MEASURE:
• Strain.

Unspecified = > **Rectify.**





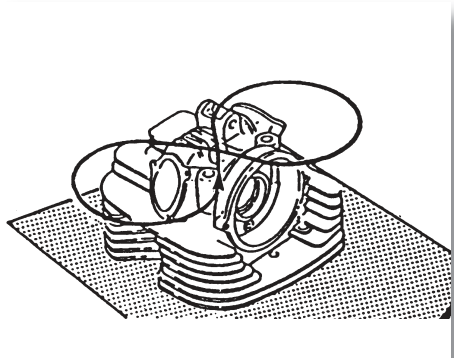
Strain of the cylinder head:
Below 0,03 mm

Steps for measuring the strain and correction:
• Place a rule (1) and a calibre of thickness (2) on the surface of the cylinder head as it is illustrated above.

• Measure the strain.

• If the strain is unspecified, correct the cylinder head.

• Put a sandpaper of 400 ~ 600 on a flat surface and correct the cylinder head surface with 8-shaped movements.



Remark:
• Rotate the cylinder head several times to avoid excessive removal of material only in one side.

3.13 VALVE SEATING

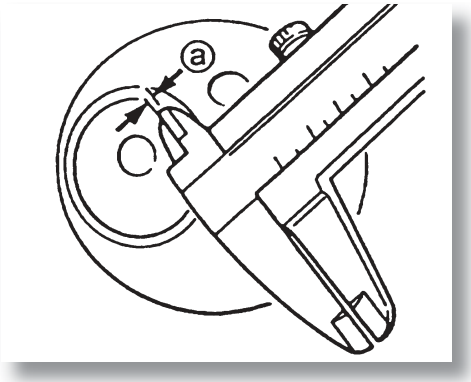
1) ELIMINATE:
• Carbon sediment..
(in the face and in the valve seating).

2) CHECK:
• Valve seating.

Groove / Wear = > **Polish the valve with emery.**

3) MEASURE:
• Width of the valve seating (a).

Unspecified = > **Polish the valve with emery.**



Width of the valve seating:

Inlet:
0,9 -1,1 mm
< Limit: 1,6 mm>

Exhaust:
0,9 -1,1 mm
< Limit: 1,6 mm>

Steps for measuring:
• Apply blue ink of mechanics (Dykem) (b) in the face of the valve.

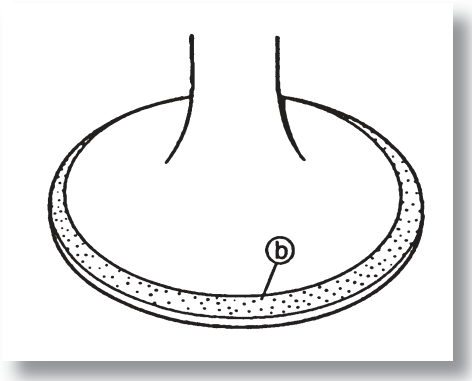
• Install the valve in the cylinder head.

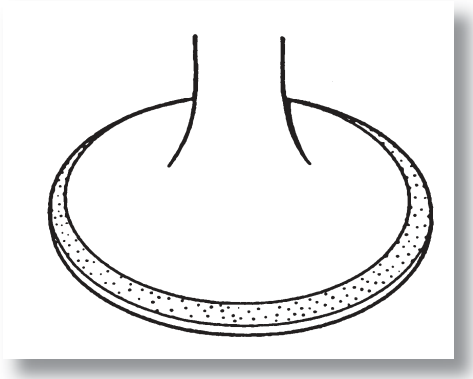
• Press the valve against the guide and against its seating to make a visible mark.

• Measure the width of the valve seating.

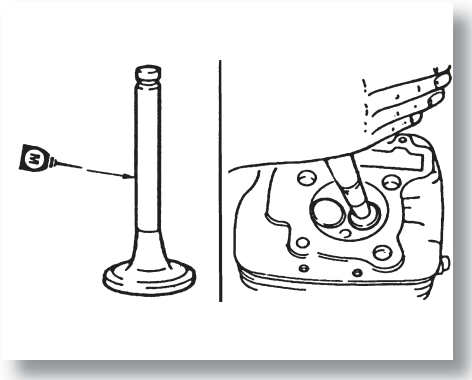
• Where there was a contact between the seating and the front of the valve, the ink will be removed.

• If the seating width of the valve is big, small or it is not centred, it has to be redone.





4) POLISH WITH EMERY:
• Front of the valve.
• Valve seating.



Remark:
• After correcting the valve seating or replacing the valve and its guide, the seating and the front should be polished with emery.

Steps for fixing the valves:
• Apply an abrasive thickness paste on the front of the valve.

Not to allow to enter the paste in the space between the rod and the valve guide.

•Apply oil with disulphide molybdenum in the valve rod.
•Install the valve in the cylinder head.
•Rotate the valve until its front and its seating are uniformly polished, at once eliminate the whole paste.

Remark:
• To obtain the best results in fixing the valves, flap smoothly in the valve seating while you turn it forwards and backwards by hand.

• Apply an abrasive thin paste on the front of the valve and repeat the steps aforementioned.

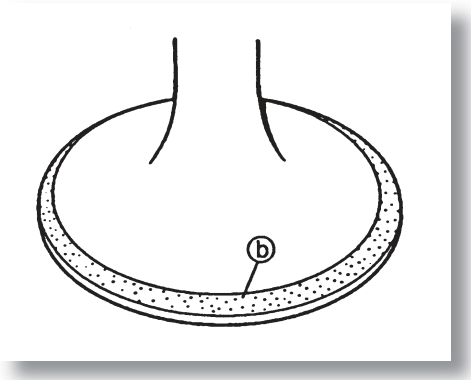
Remark:
• Make sure that the front and the seating are completely free from the abrasive paste after each fixing of valves.

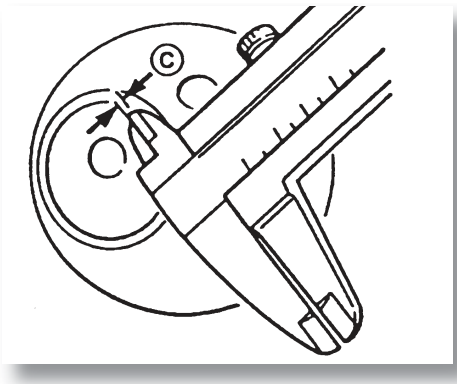
• Apply blue ink of mechanics (Dykem) on the front of the valve (b).

• Install the valve in the cylinder head.

• Press the valve through the valve guide and against its seating to get a good contact.

• Measure the width of the valve fixing (c) again. If it is unspecified, correct and polish the valve seating with emery.





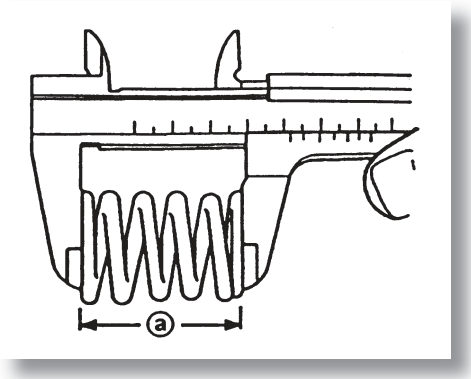
3.14 VALVES AND VALVE SPRINGS

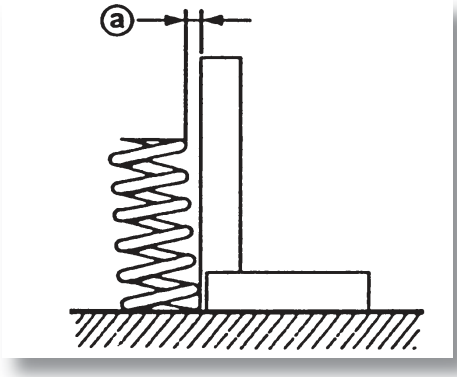
1) MEASURE:
• Free length(a) of the spring.
*Unspecified = > **Replace.***

Free length of the valve spring:
39,62 mm < Limit: 38,0 mm>

2) MEASURE:
• Inclination of the spring (a).
*Unspecified = > **Replace.***

Inclination limit of the spring:
1,7mm

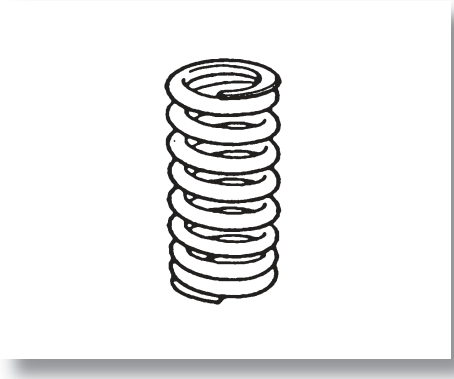


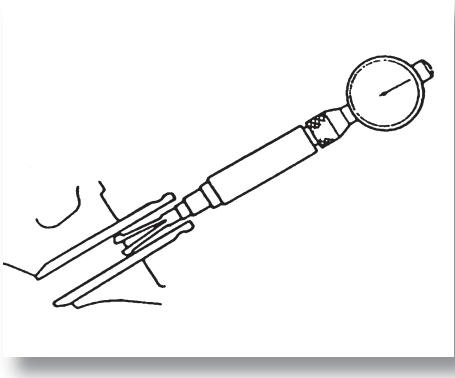


3) MEASURE:
• Contact front of the spring.
Wear / damages / scratches = > **Replace.**

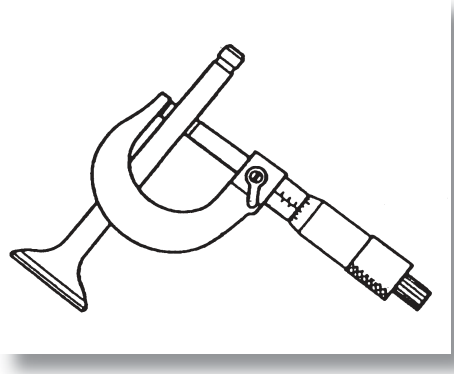
4) MEASURE:
• Internal Diameter of the valve guide.
Unspecified = > **Replace.**

Internal diameter of the valve guide:
Inlet:
5,000 - 5,012 mm
< Limit: 5,042 mm>
Exhaust:
5,000 - 5,012 mm
< Limit: 5,042 mm >





5) MEASURE:
Rod-guide set:
Internal diameter of the guide.
Diameter of the rod valve.

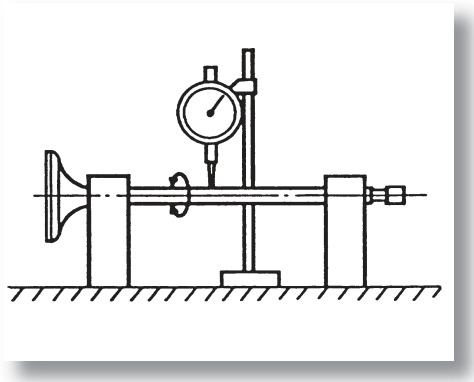


Limit of rod-guide set:
Inlet:
0,010 ~ 0,037 mm
< Limit: 0,08 mm>
Exhaust:
0.025 ~ 0,052 mm
< Limit: 0,10 mm>

Unspecified = > **Replace the valve guide.**

6) MEASURE:
• Warping (valve rod).
Unspecified = > **Replace.**

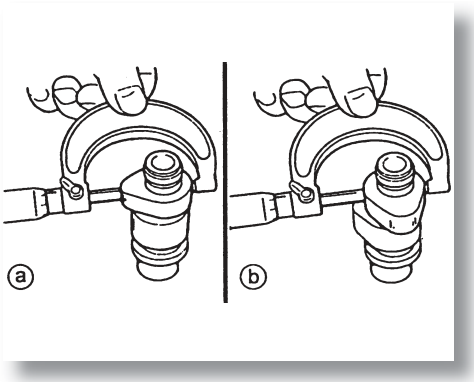
Warping limit:
0,01 mm



3.15 CAMSHAFT CHECKING

1) CHECK:
• Cam salient.
Groove / scratches / blue coloration = > ***Replace.***

2) MEASURE:
• Cam measurements (a) and (b).
Unspecified = > **Replace.**



Cam measurements:
Inlet:
(a) 25,881 ~ 25,981 mm
< Limit: 25,851 mm>
(b) 21.195 - 21,295 mm
< Limit: 21.165 mm >

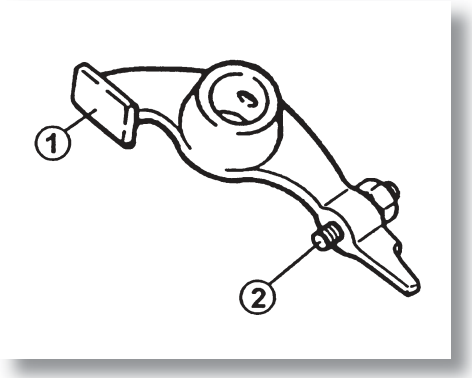
Exhaust:
(a) 25,841 - 25,941 mm
< Limit: 25,811 mm >
(b) 21.05 - 21,15 mm
< Limit: 21.02 mm >

3) CHECK:
• Oil leak in the camshaft.
Obstruction = > **Compressed air blowing.**

3.16 ROCKERS AND THEIR SHAFTS CHECKING

1) CHECK:
• Cam contact surface (1).
• Adjuster surface (2).

Wear / grooves / scratches / blue coloration = > **Replace.**



Steps for checking:
•Check if the two contact areas of the rockers have signs of abnormal wear.

• Orifice of the rocker shaft.

• Cam contact surface.

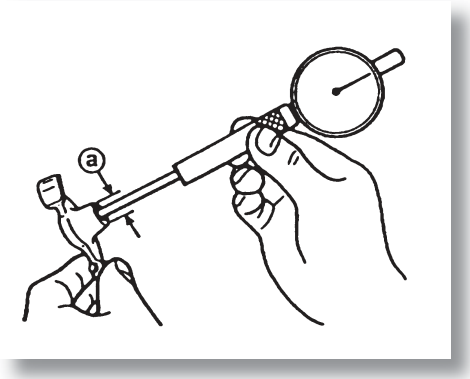
Excessive wear = > **Replace.**

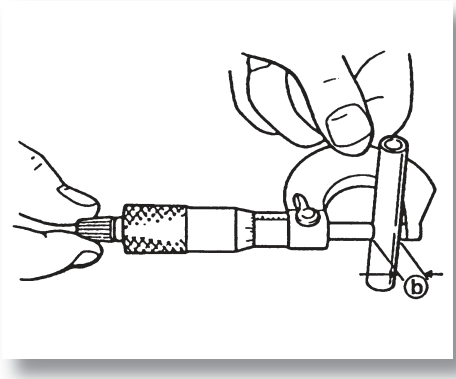
• Check the surface conditions of the rockers shaft.

Grooves / scratches / blue coloration = > **Replace or check the lubrication system.**

• Measure the internal diameter of the rockers orifice.

Unspecified = > **Replace.**





Internal diameter (rocker) :
10.000 ~ 10,015 mm
< Limit: 10,03 mm>

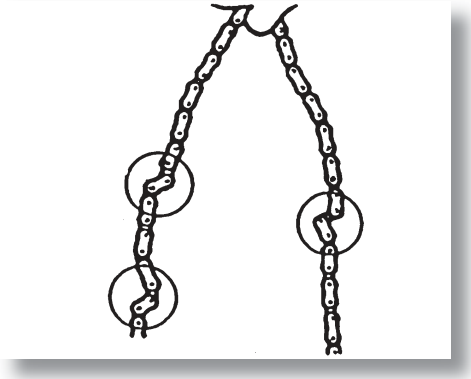
• Measure the external diameter (b) of the rockers.
Unspecified = > **Replace.**

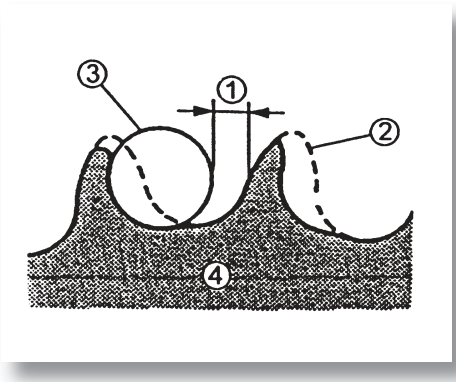
External diameter (rocker shaft):
9,981 ~ 9,991 mm
< Limit: 9.95 mm>

3.17 CAMSHAFT CHECKING

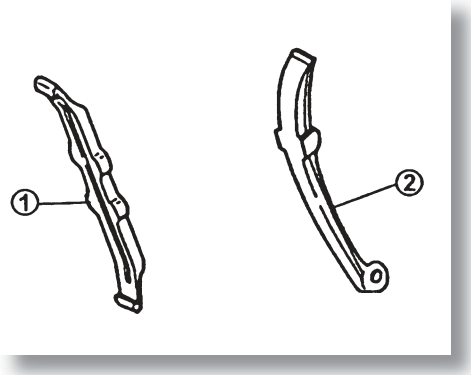
1) CHECK:
• Timing Chain.
Rigidity / damages = > **Replace the chain and the gear.**

2) CHECK:
• Control gear.
Damages / wear = > **Replace the gear and the timing chain.**
• 1/4 tooth (1).
• Correct (2)
• Roller (3).
• Gear (4).





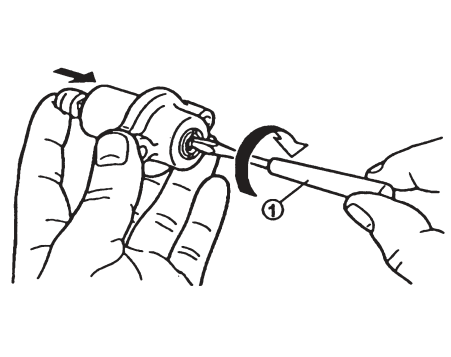
3) CHECK:
• Timing chain guides (exhaust) (1).
• Timing chain guides (intake) (2).
Damages / wear = > **Replace.**



3.18 TIMING CHAIN STRUT

1) CHECK:
• Ratchet brace operation.
Irregular operation = > **Replace.**

Steps for checking:
• While the adjuster rod is lightly pressed by hand, use a screwdriver to turn totally the adjuster rod clockwise.
• When get the screwdriver out, press lightly by hand, and make sure that the adjuster rod moves forwards smoothly.
• On the contrary, replace the adjuster chain unit.



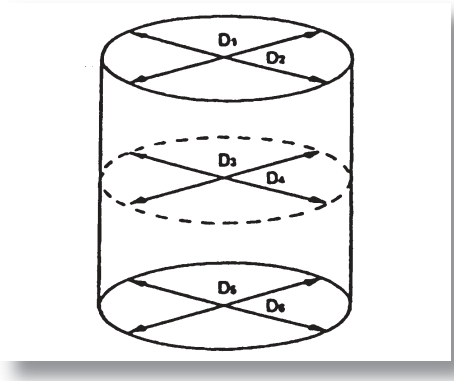
3.19 CYLINDER AND PISTON

1) CHECK:
• Cylinder and piston walls.
Vertical scratches = > **Rectify or replace the cylinder and the piston.**

2) MEASURE:
• Cylinder-piston play.

Steps for measuring:
1st Step:
• Measure the "C" diameter of the cylinder.

Remark:
• Measure the "C" diameter of the cylinder in a cross-shape and right-angled to the the crankshaft. Then, calculate the average of the measurements.



"c" Diameter of the cylinder	54,000 ~ 54,018mm
"T" conical limit	0,05mm
Ovalidad "R"	0,01mm

"C" = maximum D
"T" = (maximum D_1 or D_2) - (maximumD_5 or D_6)
"R" = (maximum D_1, or D_3 or D_5) - (maximum D_2, or D_4 or D_6)

• •If it is unspecified, rectify or replace the cylinder and replace the piston and the rings altogether.

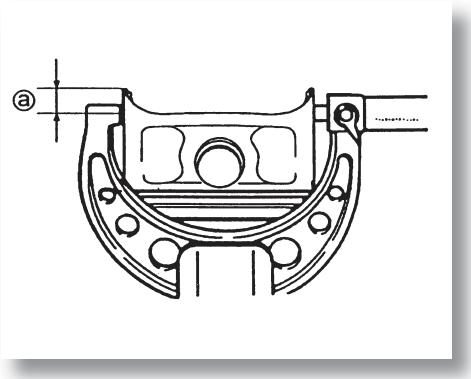
2nd Step:
• Measure the "brim" of the "P" piston with a micrometer.

(a) 4,5 mm from "brim" of the piston.

	"P" Piston diameter
Standard	53,977 ~ 53,996mm

Over measure	1°
	11°

• It is unspecified, replace the piston and the rings altogether.



3rd Step:
• Calculate the cylinder – piston play, using the following formula:
Cylinder – piston set:
Diameter of the "C" cylinder.
Diameter of the "P" piston brim.

Set (cylinder - piston):
0,020 - 0,028 mm
< Limit >: 0,15 mm

• If it is unspecified, rectify or replace the cylinder, the piston and its rings altogether.

3.20 RINGS CHECKING

1) MEASURE:
• Lateral play.
Unspecified = > **Replace the piston and its rings altogether.**

Remark:
• Eliminate the carbon sediments from the grooves of the piston rings before measuring the lateral play.

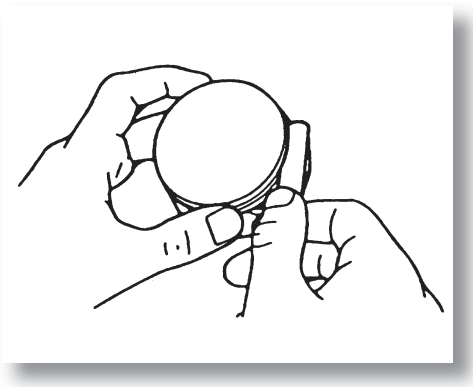
Lateral play (rings of the piston):
Top ring - Limit
0.03 ~ 0,07 <0,12 mm>

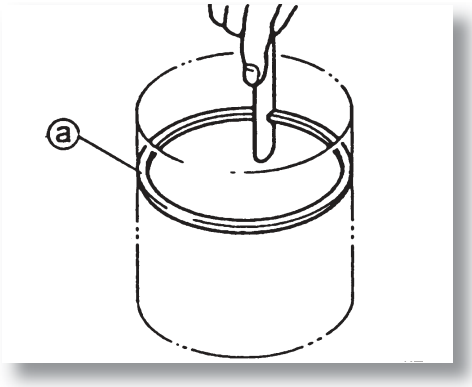
Secondary ring (scraper):
< Limit >
0.02 - 0,06 <0,1 2 mm >

2) PLACE:
• Piston rings (in the cylinder).

Remark:
• Push the ring with the piston top, in order that it is in parallel with the cylinder base.

(a) 5 mm





3) MEASURE:
•Play among tips
Unspecified = >Replace.

Remark:
• You cannot measure the play among tips in the extension ring of the oil ring. If the oil ring has a excessive play, replace the three rings.

Play among tips:
Top ring - Limit:
0,15 - 0,30 mm <0,40 mm>

Secondary ring (scraper) - Limit:
0,30 ~ 0,45 mm <0,55 mm>

Oil ring:
0,2 ~ 0,7 mm

3.21 BOLT CHECKING

1) CHECK:
• Bolt.
Blue coloration / grooves = > Replace and immediately control the lubrication system.

2) MEASURE:
• Play piston - bolt.

Steps for measuring:
• Measure the external diameter of the bolt (a).
Unspecified = > Replace the bolt.

External diameter (bolt):
14,991 - 15,000 mm
< Limit: 14,975 mm >

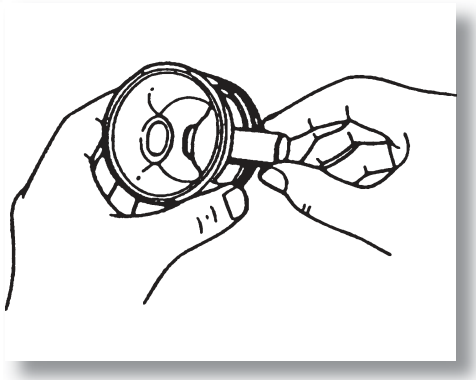
• Measure the diameter of the bolt place in the piston (b).

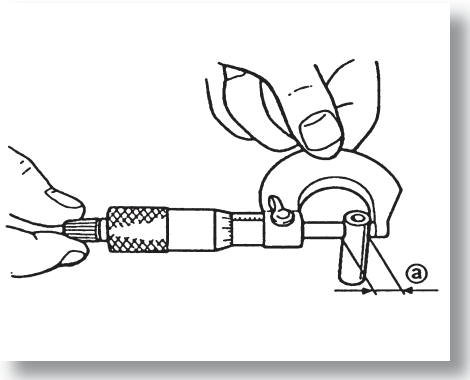
• Calculate the piston – bolt play, using the following formula:

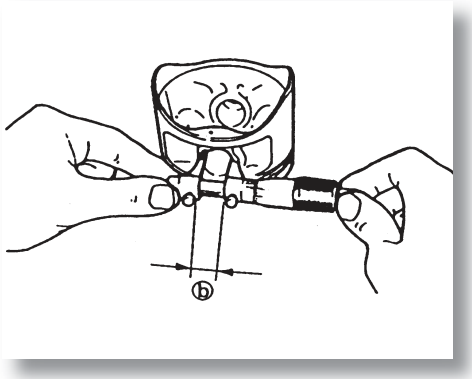
Piston – bolt play:
Internal diameter (bolt place) (b).
External diameter (bolt) (a).

• If it is unspecified, replace the piston.

Play (piston - bolt):
0,009 - 0,013 mm







3.22 CRANKSHAFT

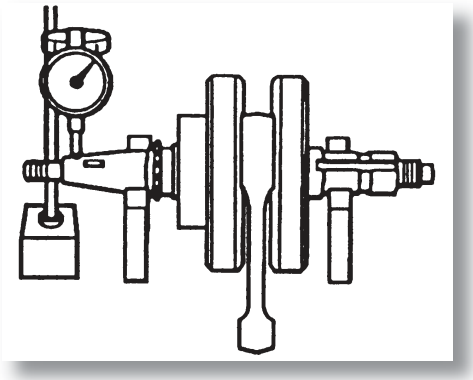
1) MEASURE:
• Non-alignment crankshaft.
Unspecified = > **Replace the crankshaft and/or ball bearings.**

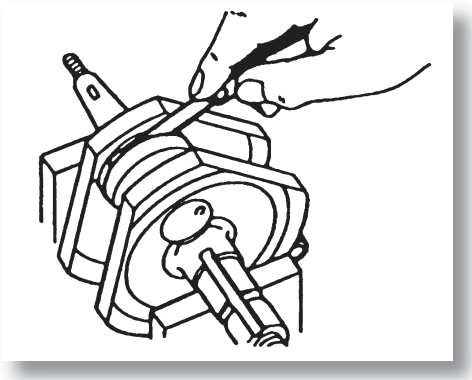
Remark:
• Measure the non-alignment crankshaft Rotate the crankshaft unit slowly.

Non-alignment limit:
0.03 mm

2) MEASURE:
• Lateral play of the connecting rod.
Unspecified = > **Replace the connecting rod ball bearing, the crankshaft elbow and/or the connecting rod.**

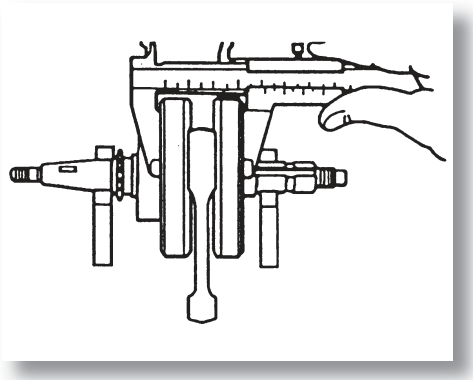
Lateral play of the connecting rod:
0,15 - 0.45 mm





3) MEASURE:
• Width of the crankshaft
Unspecified = > **Replace the crankshaft.**

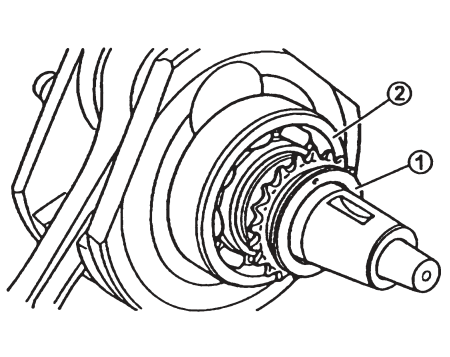
Width of the crankshaft:
46,95 - 47,00 mm

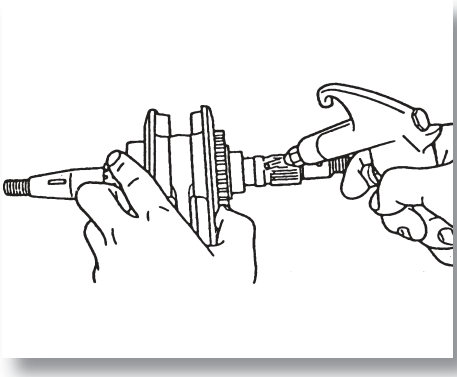


4) CHECK:
• Crankshaft gear (1).
Damages / wear = > **Replace the crankshaft.**

• Ball bearing (2).
Wear / fissures / damages = > **Replace the crankshaft.**

5) CONTROL:
• Oil leak in the crankshaft.
Obstruction = > **Compressed air blowing.**



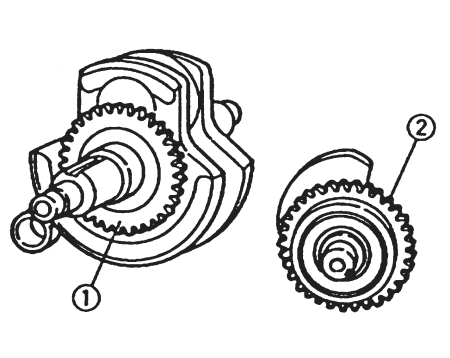


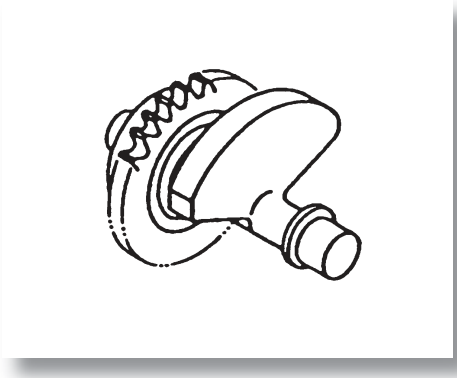
3.23 ROCKER ARM CHECKING

1) CHECK:
• Teeth of the rocker arm drive gear (1).
• Teeth of the rocker arm driven gear (2).

Wear / damages = > **Replace the unit.**

2) CHECK:
• Rocker arm shaft.
Wear / crack / damages = > **Replace.**

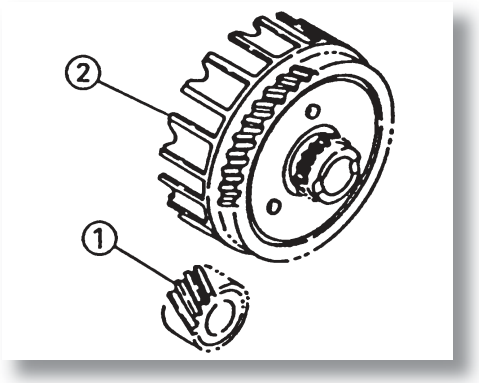




3.24 CLUTCH HOOD CHECKING

1) CHECK:
• Teeth of the primary gear (1).
• Teeth of the hood gear (2).

Wear / damages = > **Replace both gears.**
Excessive noise during the operation = > **Replace both gears.**



3.25 CLUTCH CHECKING

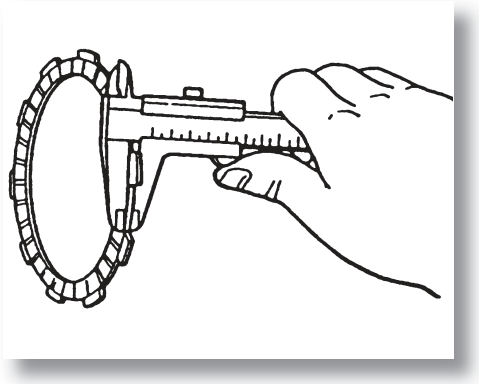
1) CHECK:
• Friction plates.

Wear / damages = > **Replace the friction plates unit.**

2) MEASURE:
• Thickness of the friction plates.

Unspecified = > **Replace the friction plates unit.**
Measure in 4 different positions.

Thickness (friction plates):
3,0 mm
< Limit: 2,8 mm>



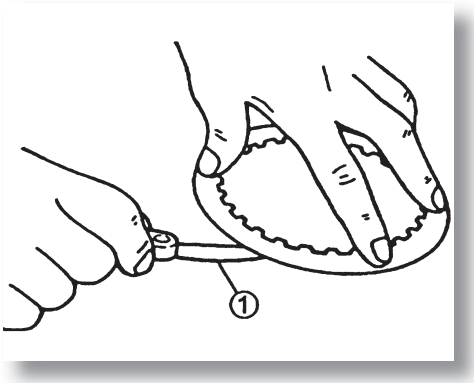
3) CHECK:
• Separators.

Damages = > **Replace the separators unit.**

4) MEASURE:
• Separators strain.

Unspecified = > **Replace the separators unit.**
Take the measurements on a plane table with the help of a thickness calibre (1).

Strain limit (separators):
Lower than 0,05 mm



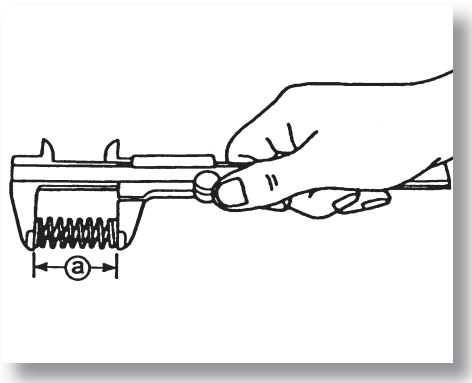
5) CHECK:
• Clutch springs.

Damages = > **Replace the springs units.**

6) MEASURE:
• Free length (springs) (a).

Unspecified => **Replace the springs unit.**

Free length (springs):
33.0 mm
< Limit: 31,0 mm >



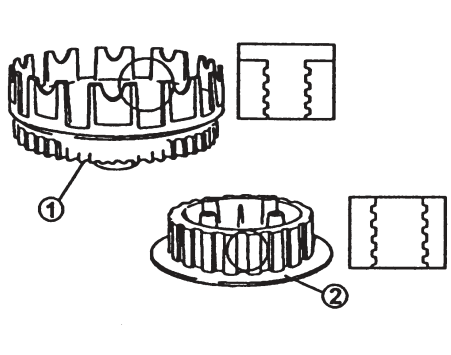
7) CHECK:
• Nails (of the hood) (1).

Rims / wear / damages => **Eliminate the rims or replace the hood.**

• Grooves in the clutch drum (2).

Rims / wear / damages = > **Replace the clutch drum.**

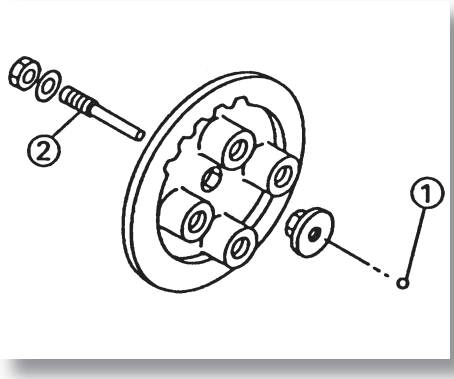
Remarks:
• Rims in the nails of the hood and in the grooves of the clutch drum results in an irregular operation.



3.26 ROD OPERATION CHECKING

1) CHECK:
• Ball bearing(1).
• Rod operation (2).

Wear / cracks / damages = > **Replace.**



3.27 FORKS AND CHANGE SELECTOR CHECKING

1) CHECK:
• Fork extension (1).
• Extremities of the change forks (2).

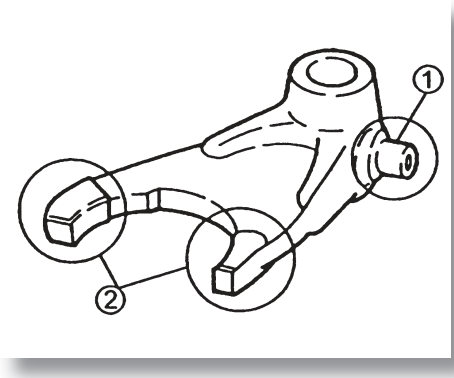
Scratches / warping / wear / damages => **Replace.**

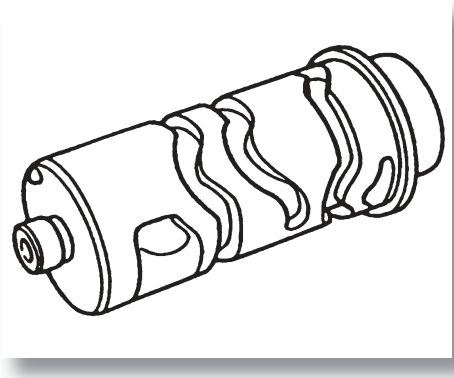
2) CHECK:
• Grooves in the change selector.

Wear / damages / scratches = > **Replace.**

• Extension of the change selector.

Wear / damages = > **Replace.**



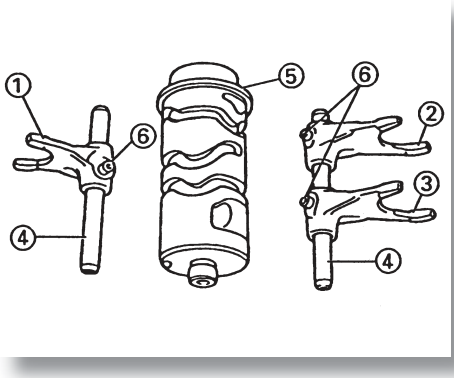


CHECK:
• Change fork 1 in the right centre (1).
• Change fork 2 in the top left (2).
• Change fork 3 in the bottom left (3).
• Guide bar (4).
• Change selector (5).
• Tang guide (6).

Roll the guide bar on a flat surface.

Warping = > **Replace.**

Do not try to straighten up a warping guide bar.



4) CHECK:
• Movement of the change forks (in the guide bar).

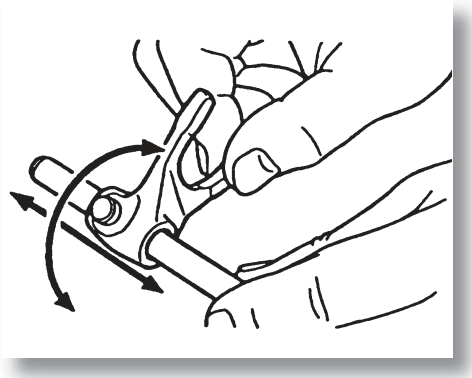
Irregular movement = > **Replace the fork and the bar.**

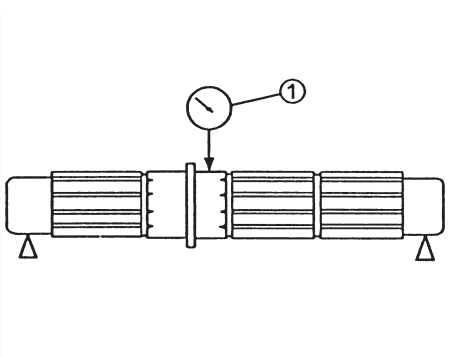
Remark:
• If the change fork and the transmission gear are damaged, replace the gears which are side by side of the unit.

5) MEASURE:
• Warping of the Shafts (driver and driven one).

Use a tip support and a clock to compare (1).

Unspecified = > **Replace the warped shaft.**





6) CHECK:
• Teeth of the gears.

Blue coloration / grooves / wear = > **Replace.**

• Nails of the gears.

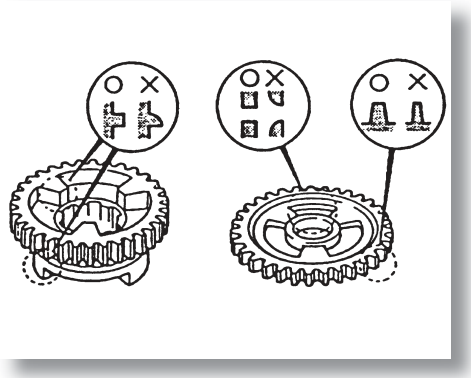
Rounded brim /cracks / missing parts = > **Replace.**

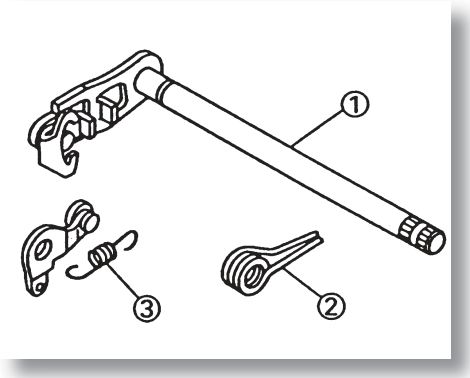
7) CHECK:
• Change shaft (1).

Damages / warping / wear = > **Replace.**

• Spring of return (change shaft) (2).
• Spring of return (constrained rod) (3).

• Wear / damages = > **Replace.**





3.28 START SYSTEM WITH PEDAL CHECKING

1) 3.28 START SYSTEM WITH PEDAL CHECKING

• Teeth of the gear (start gear) (1).
• Teeth of the gear (ratchet brace) (2).

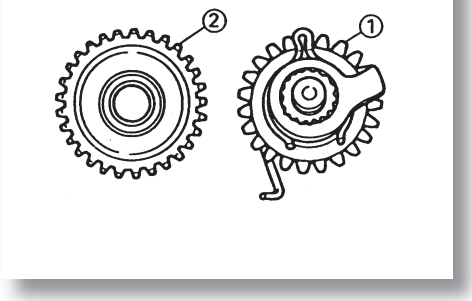
Damages / wear = > **Replace.**

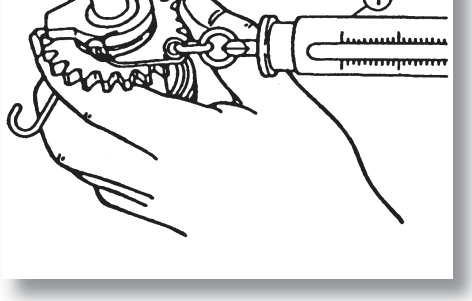
2) MEASURE:

• Friction force of the ring of the start gear (torque spring) (1).

Unspecified = > **Replace.**
Use a dynamometer.

Friction force of the ring of the start system:
0,8 - 1,2 Kgf





3.29 OIL PUMP CHECKING

1) MEASURE:

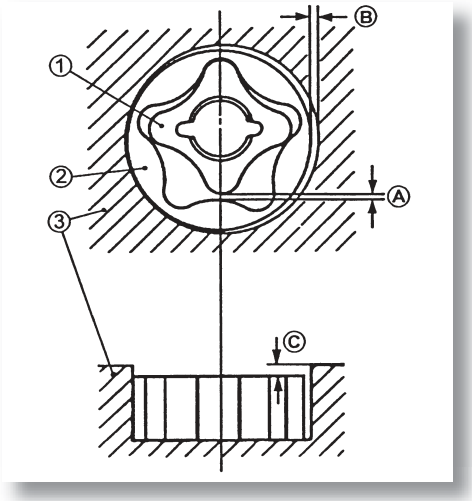
• Play among tips (TO).
(between internal rotor (1) and external rotor (2).

•Lateral play (B).
(between external rotor (2) and the pump casing (3).

Unspecified = > **Replace the oil pump unit.**

• Play between the casing and the rotor (C).
(between the pump casing (3) and the rotors (1) and (2).

Unspecified = > **Replace the pump oil unit.**



Play among tips (A):
0,15 mm <Limit: 0,20 mm>

Lateral play (B):
0,06 ~ 0,10 mm <Limit: 0,15 mm>

Play between the casing and the rotor (C):
0,06 ~ 0,10 mm <Limit: 0,15 mm>

2) CHECK:
• Rotary filter.

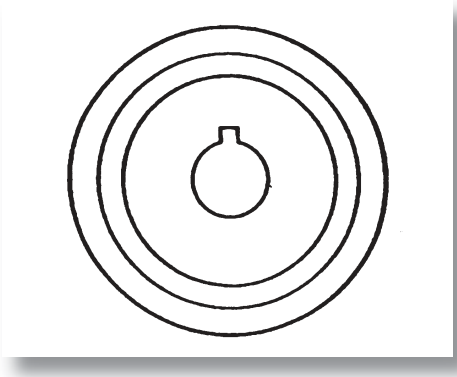
Cracks / damages = > **Replace.**

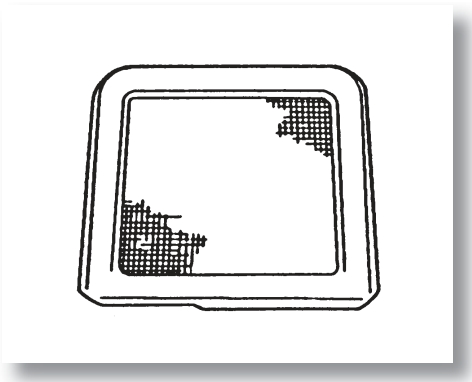
Contamination = > **Clean.**

3) CHECK:
• Oil impeller.

Cracks / damages = > **Replace.**

Contamination = > **Clean.**





3.30 OIL LEAKS CHECKING (COVER OF THE CASSING IN THE RIGHT SIDE)

1) CHECK:
• Oil leak.

Obstruction = > **Blow with compressed air.**

3.31 CHASSIS

1) Wash the chassis properly with kerosene.

2) Clean the surfaces which bear the gaskets and the surfaces in contact with the chassis properly.

1) CHECK:
• Chassis.

Cracks / damages = > **Replace.**

• Oil leaks.

Obstruction = > **Blow the leaks with compressed air.**

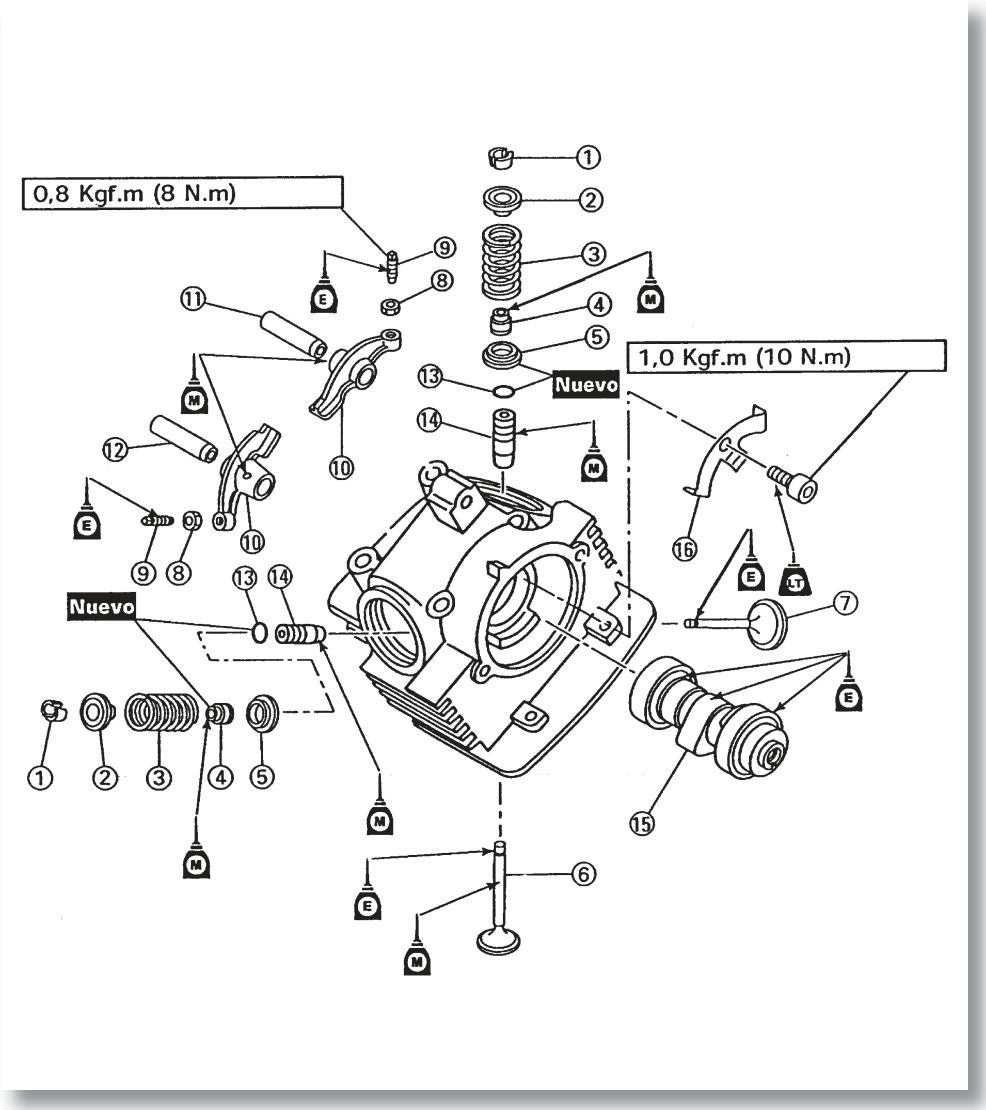
3.32 CLAMP RINGS AND WASHERS

1) CHECK:
• Clamp rings.
• Washers.

Damages / loose / deformed = > **Replace.**

3.33 MOTOR ASSEMBLY AND ADJUSTMENTS

1) VALVES, ROCKERS AND CAMSHAFT



1) Clamp valves
2) Clamp seating
3) Spring
4) Constrained ring
5) Spring seating
6) Valve (inlet)
7) Valve (exhaust)
8) Locknut
9) Adjuster
10) Rocker
11) Rocker shaft (intake)
12) Rocker shaft (exhaust)
13) Clamp ring
14) Valve guide
15) Camshaft
16) Clamp plate CD

To assemble the motor, replace the following parts with other new ones:

- ***Particular ring.***
- ***Gaskets.***
- ***Constrained rings.***
- ***Copper washers.***
- ***Clamp washers.***
- ***Clamp rings.***

3.34 VALVES AND VALVE SPRINGS CHECKING

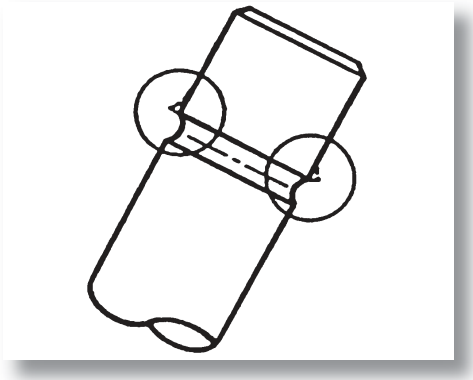
1) ELIMINATE THE RIMS:

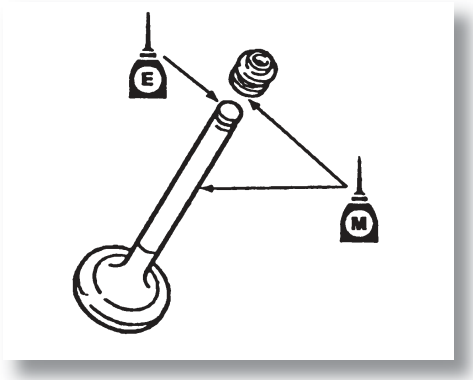
• From the extremity of the valve rod.
Use an emery stone to eliminate the rims.

2) APPLY:

• Oil of disulphide molybdenum.
(In the valve rod and in the constrained ring).

Oil of disulphide molybdenum.





3) INSTALL:

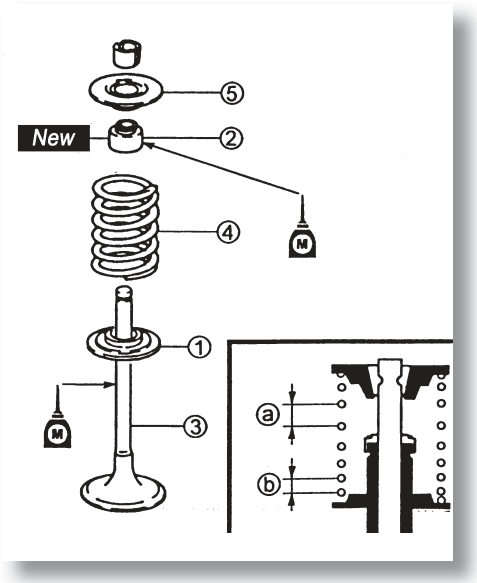
• Spring seating (1).
• New constrained ring (2).
• Valve (3) (In the cylinder head).
• Valve (4) Spring.
• Clamp seating (5).

Remark:
Install the valve springs with the biggest passage upwards (a).

• (b) smaller passage

Inlet:
Mark "IN"

Exhaust:
Mark "EX"



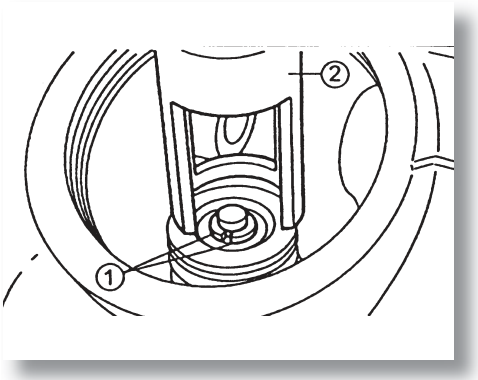
4) INSTALL:

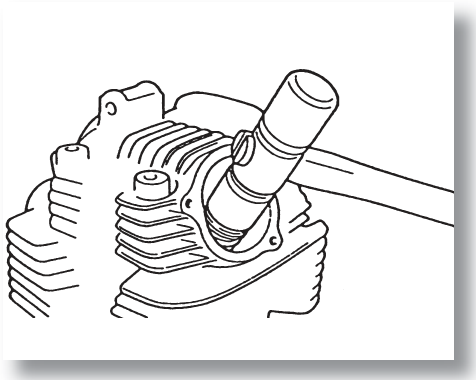
• Valve clamp (1).

Remark:
Install the valve clamp while the spring valve is compressed with the compressor of the valve spring (2).

5) Fix the clamp valves in the rod, pound lightly with a rubber hammer.

Do not hit, because valve can be damaged.





3.35 ROCKERS AND CAMSHAFT INSTALLATION

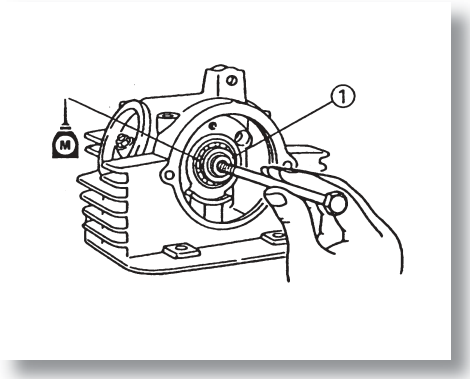
1) LUBRICATE:
• Camshaft (1).

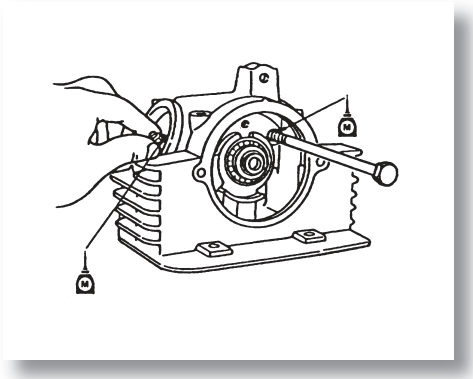
Camshaft:
Oil of disulphide molybdenum.

Ball bearing of the camshaft:
Motor oil.

2) APPLY:
• Oil of disulphide molybdenum (in the rocker and its shaft).

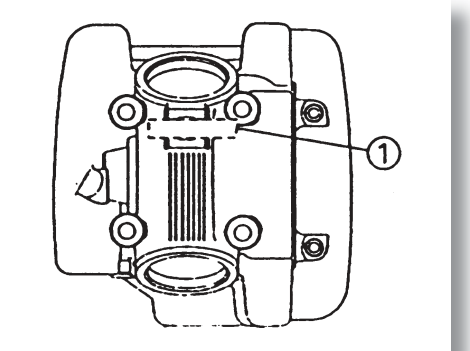
Oil of disulphide molybdenum.





3)INSTALL:
• Rocker.
• Rocker shaft (1).

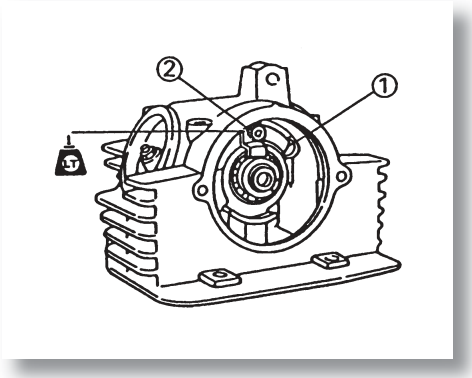
Remark:
Install completely the shaft of the rocker (exhaust).



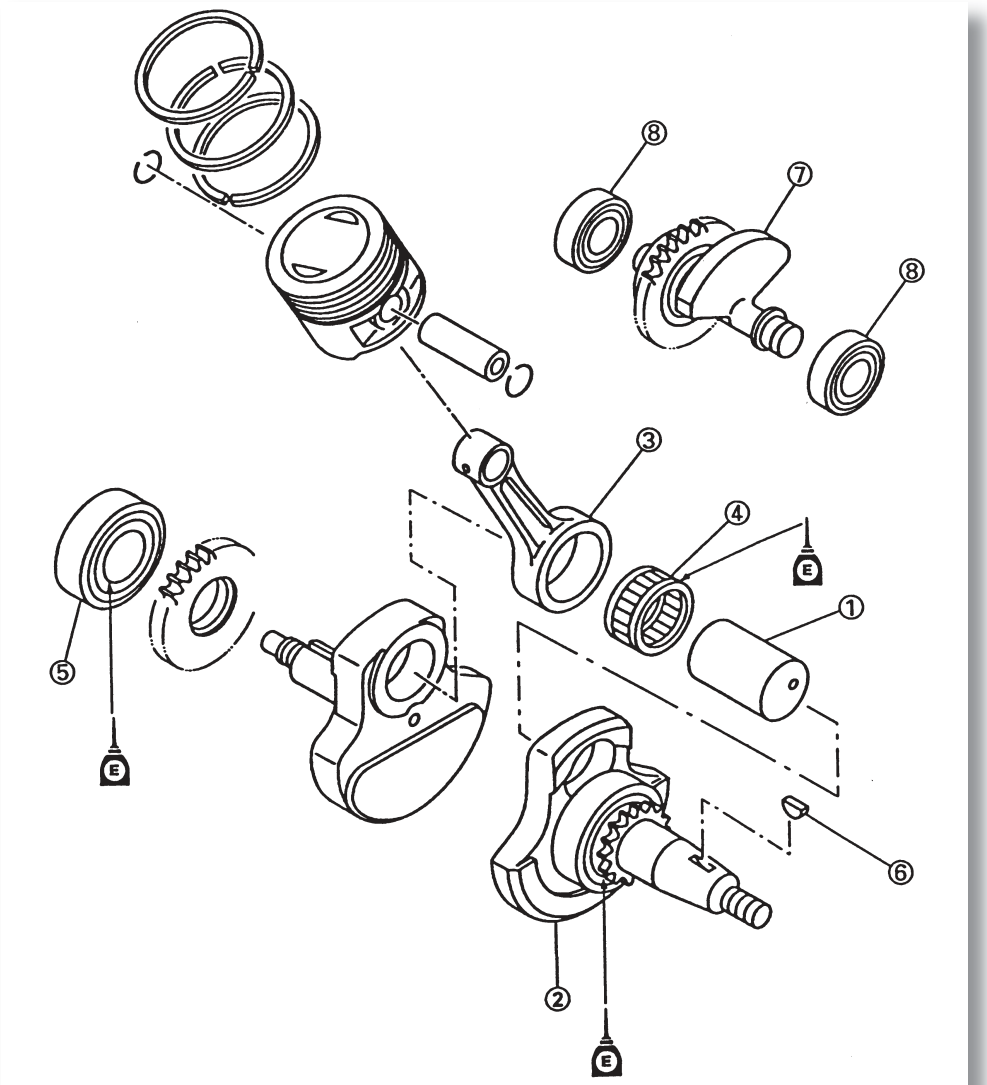
4) INSTALL:

- Clamp plate (1).
- Screw (2).

Screw (clamp plate):
1,0 Kgf.m (10 N.m.)



3.36 CRANKSHAFT AND ROCKER ARM SHAFT



1) Elbow of the crankshaft
2) Crankshaft
3) Connecting rod
4) Lower ball bearing of the connecting rod
5) Ball bearing of the crankshaft
6) Cotter
7) Rocker arm
8) Ball bearing

1) INSTALL:
• Extractor of the crankshaft

2) INSTALL:
• Crankshaft.

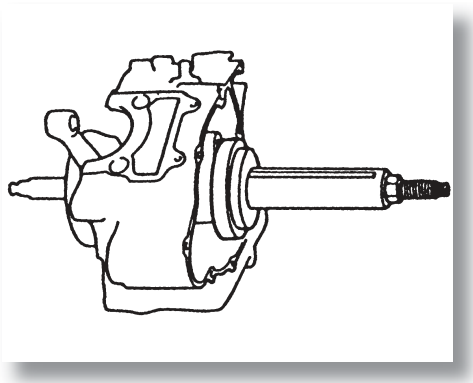
Remark:
Hold the connecting rod with one hand while the nut of the special tool turns with the other one. Use the tool until realizing that the crankshaft adjusts in the ball bearing.

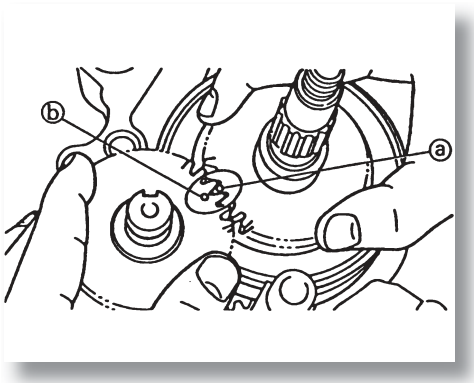
To avoid scratches in the crankshaft and to facilitate the installation, apply grease in the rims of the constrained ring and motor oil in the ball bearing.

3) INSTALL:
• Rocker arm shaft.

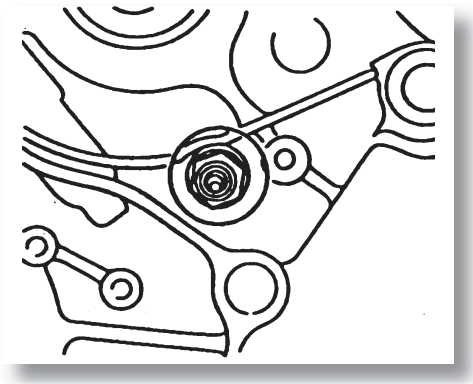
Always use rubber new rings.

Remark:
When installing the shaft of the rocker arm, align the puncture mark (a) of the crankshaft gear with the puncture mark (b) of the rocker arm gear.

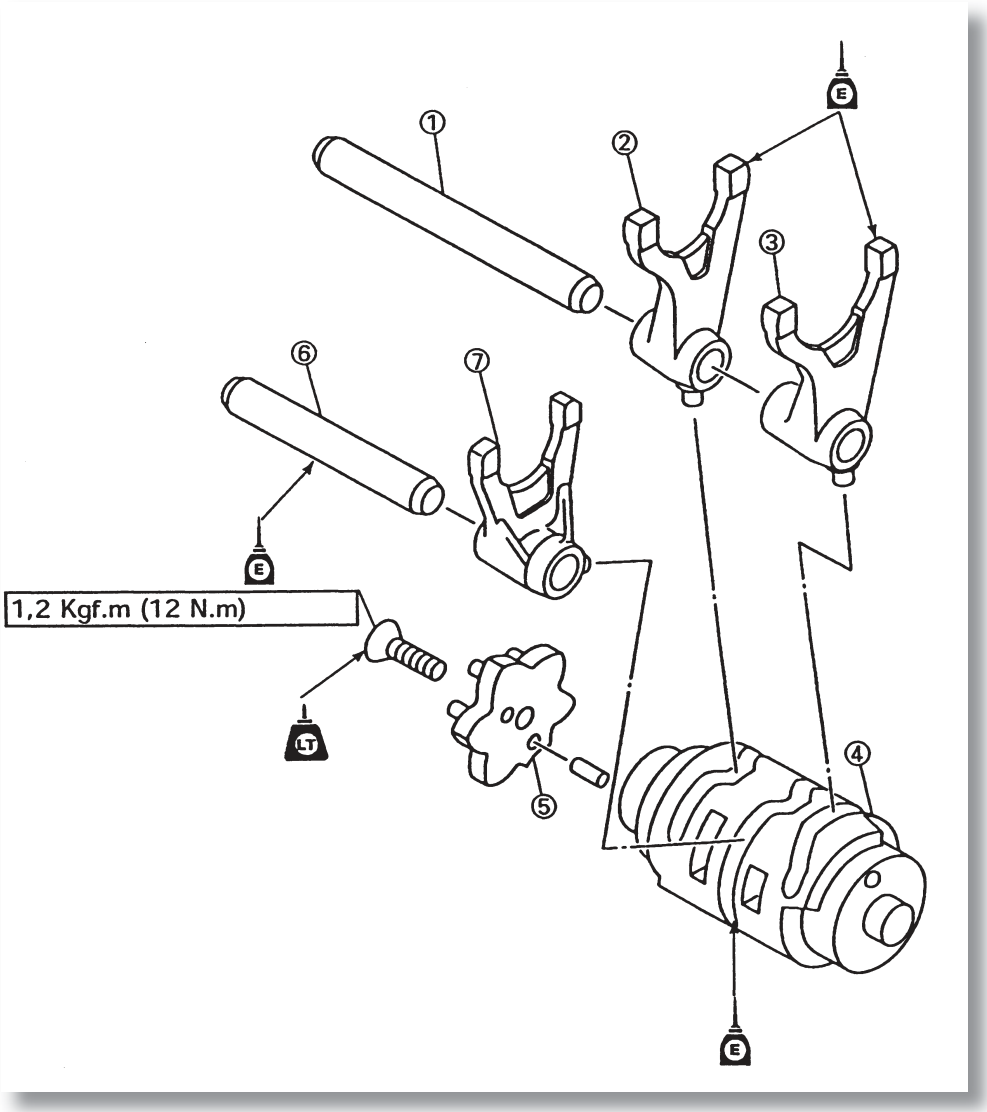




4) INSTALL:
•Neuter Switch.



3.37 CHANGE SELECTOR



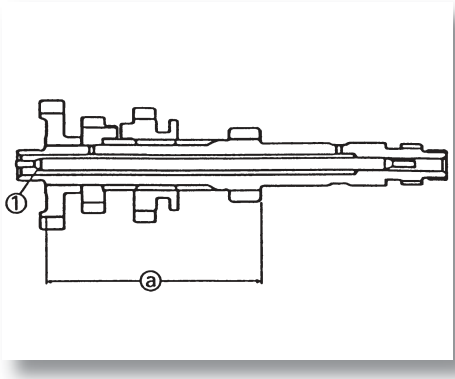
1) Guide bar (long).
2) Change fork n° 3
3) Change fork n° 1
4) Change selector
5) Segment
6) Guide bar (short)
7) Change fork n° 2

3.38 TRANSMISSION, FORKS AND CHANGE SELECTOR INSTALLATION

1) MEASURE:
• Length of the drive shaft (a).

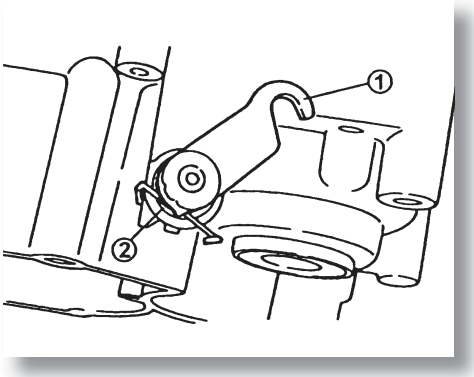
Length of the shaft (drive):
82,25 - 83,45 mm

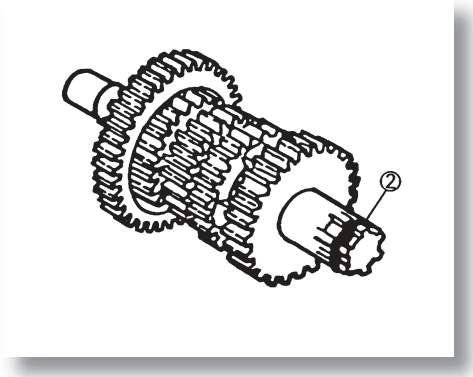
2) INSTALL:
• Operating rod n° 2 (1).
In the orifice of the drive shaft.



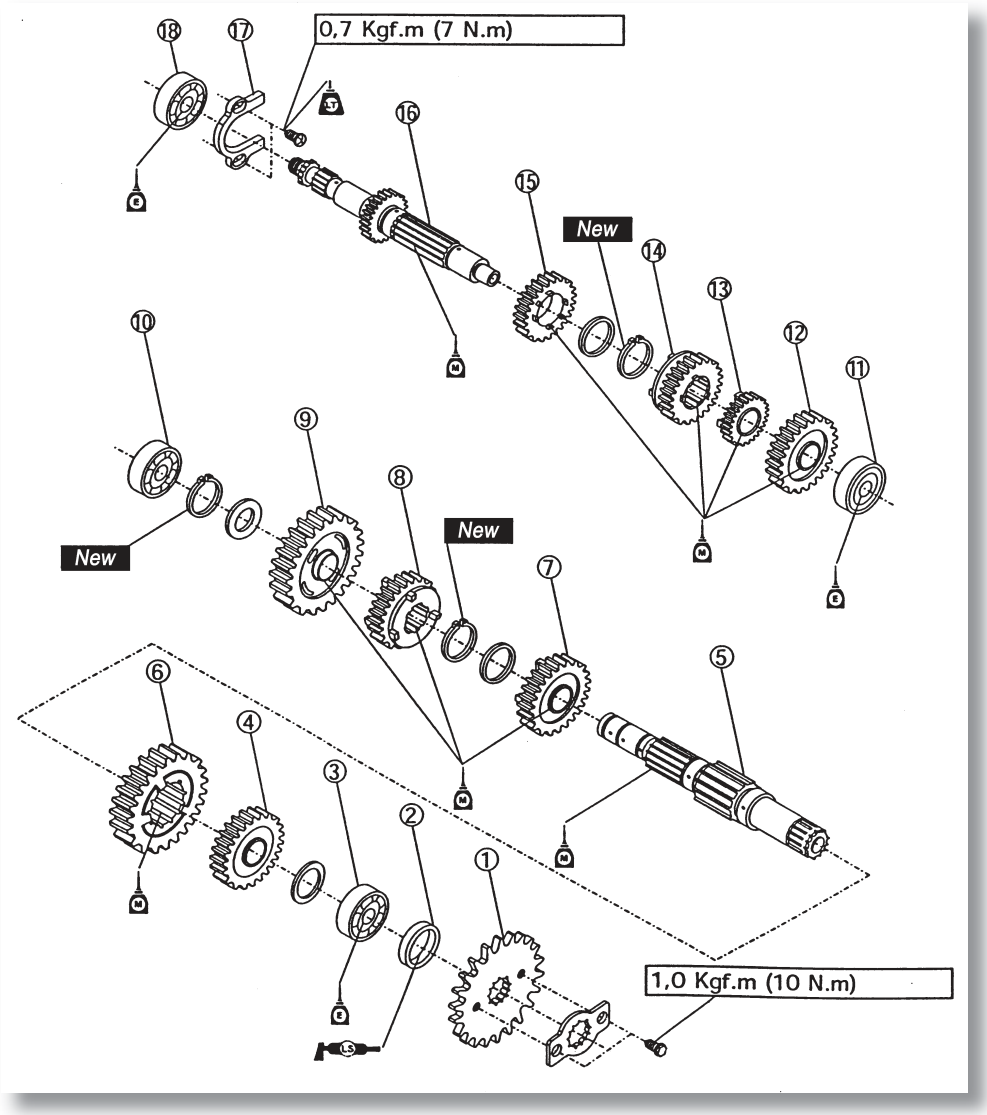
3) INSTALL:
• Shaft of the operation rod (1).
• New gasket (2).

4) INSTALL:
• Special gasket (2).
In the groove of the drive shaft.





3.39 TRANSMISSION



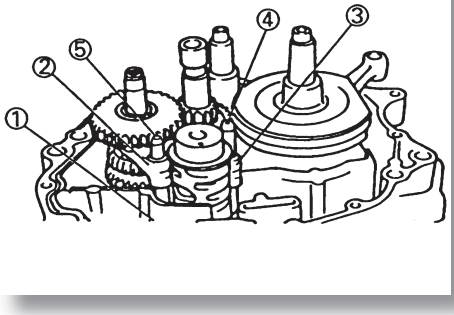
1) Pinion
2) Constrained ring
3) Ball bearing
4) Driven gear of the 5th
5) Drive shaft
6) Driven gear of the 2nd
7) Driven gear of the 3rd
8) Driven gear of the 4th
9) Driven gear of the 1st
10) Ball bearing
11) Ball bearing
12) Drive gear of the 5th
13) Drive gear of the 2nd
14) Drive gear of the 3rd
15) Drive gear of the 4th
16) Drive shaft
17) Clamp plate
18) Ball bearing

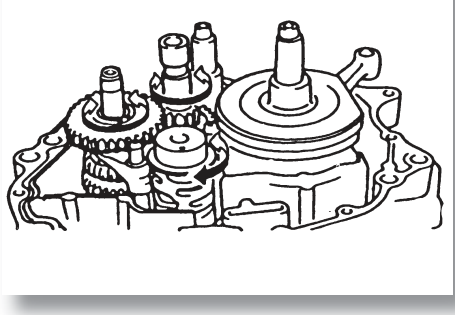
5) INSTALL:
• Bottom left fork of change (L) (1).
• Top left fork of change (R) (2).
• Right central fork of change (C) (3).
• Guide bar 1 (short) (4).
• Guide bar 2 (long) (5).

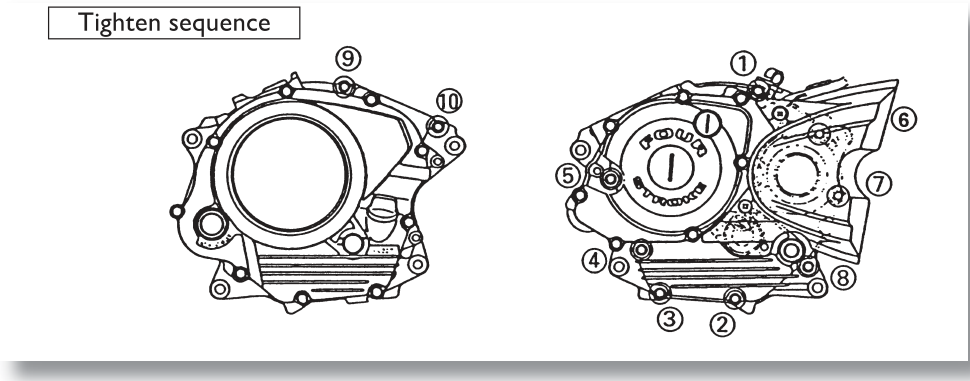
Remark:
Install the change forks with the stamping mark in the sequence (L, R, C), beginning with the right.

6) CHECK:
• Operation of the change selector.
Irregular operation = > **Adjust.**

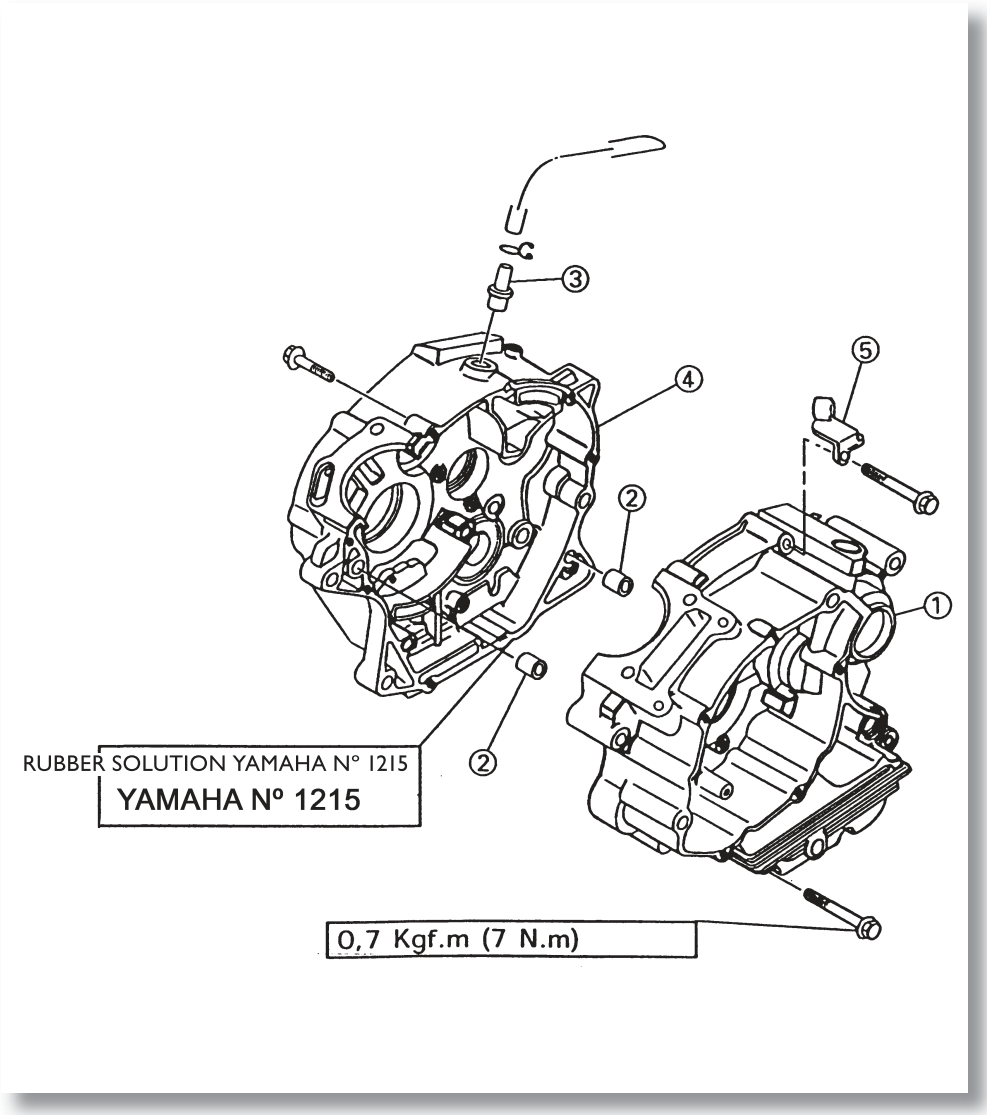
Remark:
Check if the operation of the transmission and the forks is normal, turning the change selector by hand.







2.40 CHASSIS



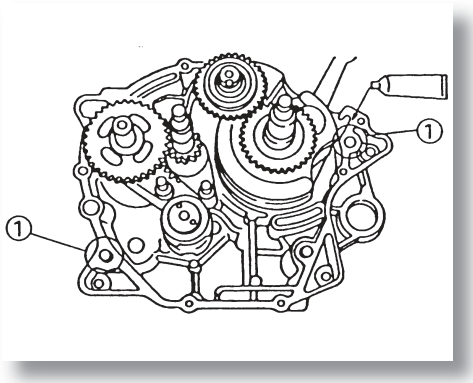
1) Chassis (RS)
2) Tang guide
3) Hose of the sump vent
4) Chassis (LS)
5) Securing part

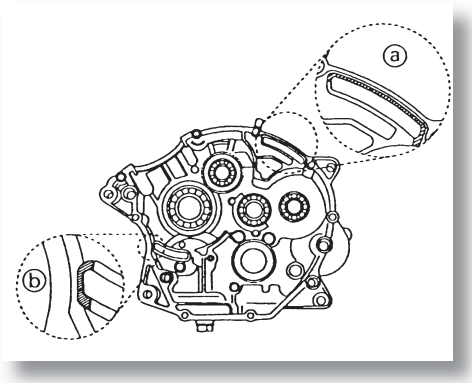
3.41 CHASSIS (RIGHT SIDE))

1) APPLY:
• Rubber solution.
(on the surfaces in contact with the chassis).

Remark:
Not ALLOW that the rubber solution come into contact with the oil leaks (a) and (B) as it is illustrated in the following figure.

2) INSTALL:
• Tang guide (1).





3) INSTALL:
• Chassis (LS).
(in the chassis (RS)).

Remark:
Pound lightly in the chassis with a rubber hammer.

4) PRESS:
• Screws (chassis).

Screws (chassis):
82,25 - 83,45 mm

Remark:
Press the screws in numerical decreasing order (see the numbers in the figure).

5) APPLY:

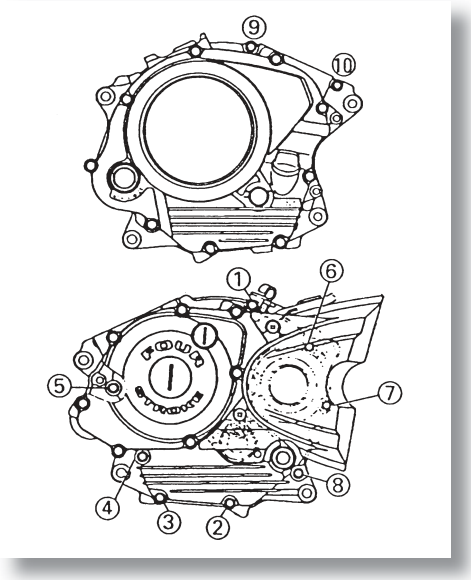
• Oil motor 4T.

(in the elbows of the crankshaft, ball bearings, orifices of oil supply).

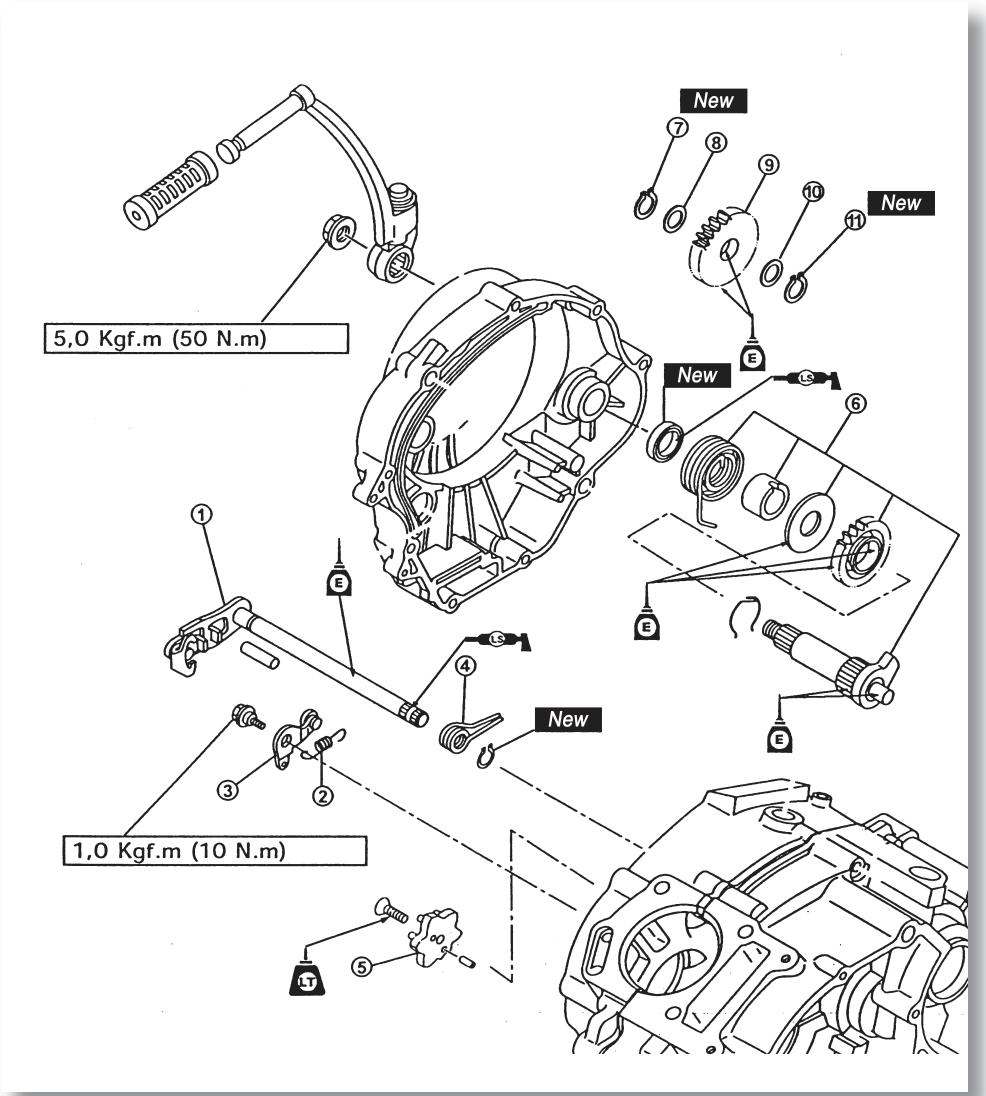
6) CHECK:

• Operation of the crankshaft and the transmission

Irregular operation = > **Repair.**



3.42 CHANGE SHAFT AND START SYSTEM WITH PEDAL



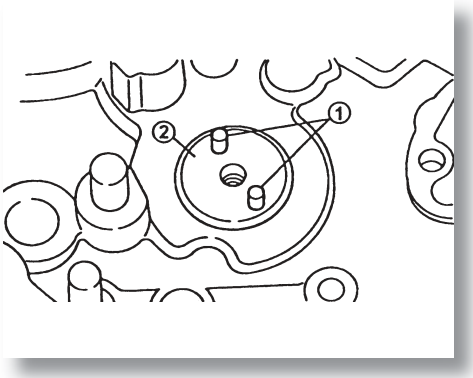
1) Change shaft
2) Torque spring
3) Constrained rod
4) Return spring
5) Segment
6) Start system unit
7) Clamp ring
8) Washer
9) Start gear
10) Washer
11) Clamp ring

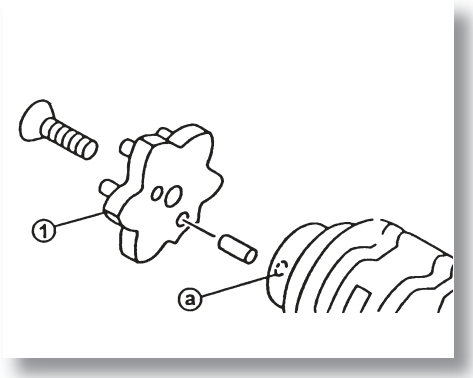
3.43 CHANGE SELECTOR SEGMENT AND CHANGE SHAFT

1) INSTALL:
• Tang guide (1).
(in the supporter (2)).

2)INSTALL:
• Segment (1).
Using an Allen spanner of 4 mm.

Remark:
Install the tang guide of the segment in the positioning orifice (a) of the change selector and install the segment.





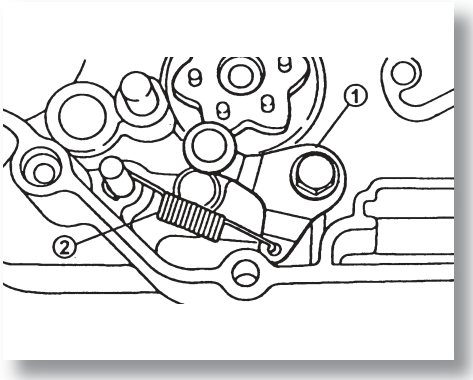
3) INSTALL:
• Rod limiter (1).
• Spring (2).

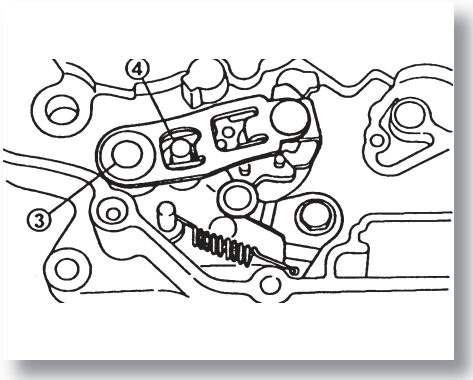
Remark:
Couple the spring on the rod limiter (1) and in chassis drum.
Couple the rod limiter (1) on the limiter of the change selector.

Screw (Rod limiter):
1,0 Kgf.m (10 N.m)

4) INSTALL:
• Change shaft unit (3).

Remark:
Apply grease on the tangs of the constrained rings. Fit the tips of the spring into the limiter (4).



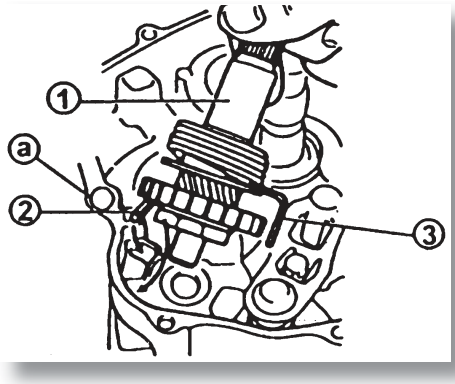


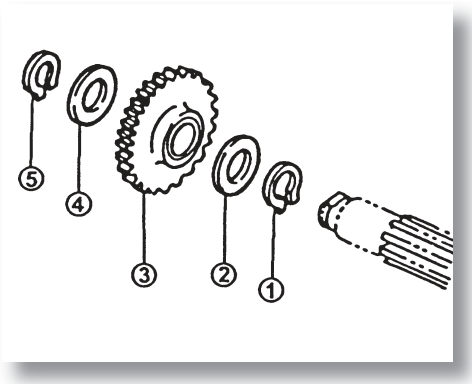
3.44 START SYSTEM WITH PEDAL INSTALLATION

1) INSTALL:
• Unit of the start system shaft (1).
• Clamp ring of the start gear (2).

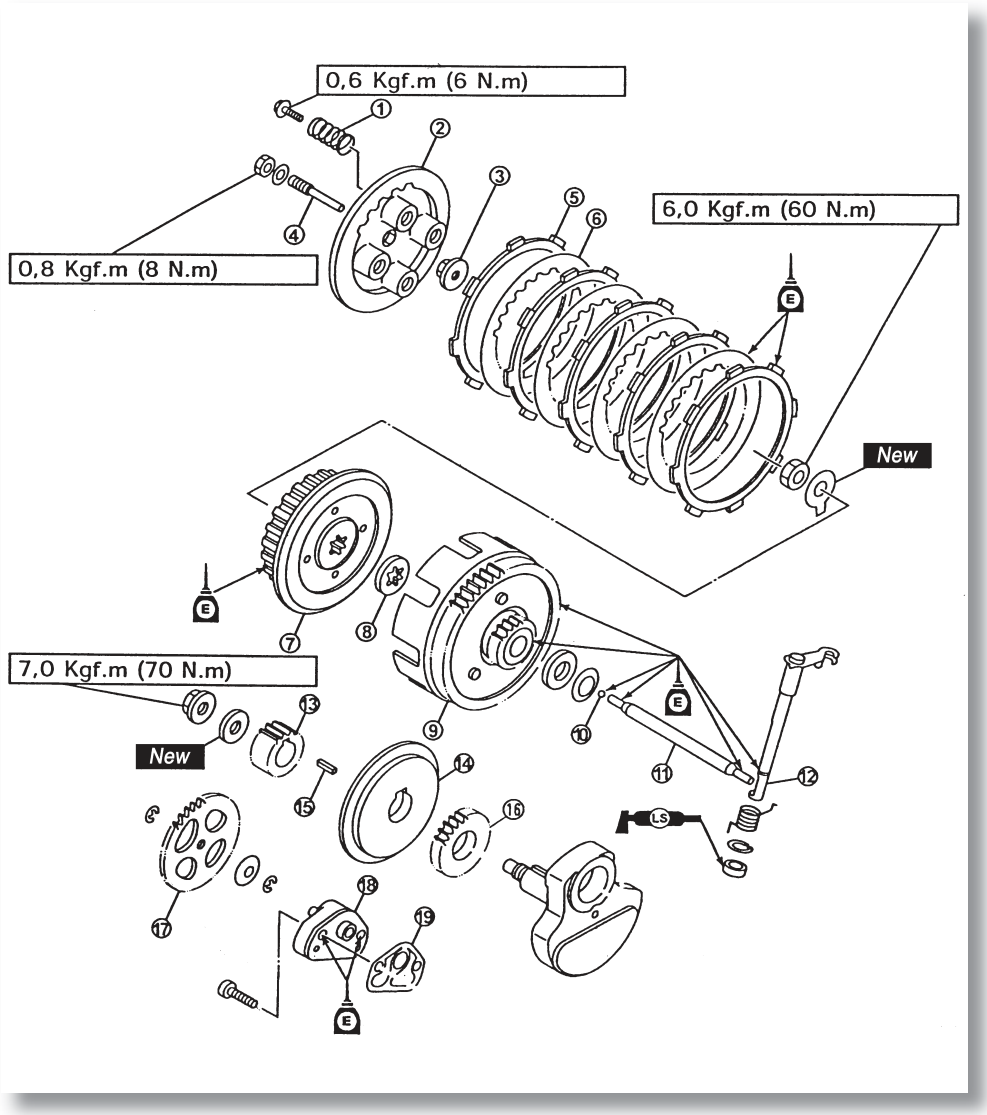
Remark:
Rotate the torque spring clockwise and couple it into the chassis orifice (a).

2) INSTALL:
• Clamp ring (1).
• Washer (2.
• Start gear (3).
• Washer (4).
• Clamp ring (5).





3.45 CLUTCH, HOOD AND OIL PUMP



1) Clutch spring
2) Pressure plate
3) Operation plate
4) Operation rod 1
5) Friction plate
6) Separator
7) Clutch drum
8) Pressure washer
9) Clutch hood
10) Ball
11) Operation rod 2
12) Shaft of the operation lever
13) Primary gear
14) Rotary filter
15) Cotter
16) Drive gear of the oil pump
17) Driven gear of the oil pump
18) Oil pump
19) Gasket

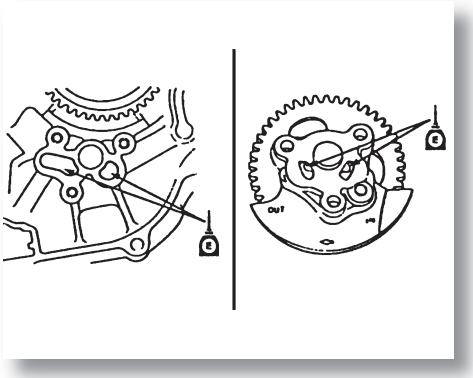
3.46 OIL PUMP INSTALLATION

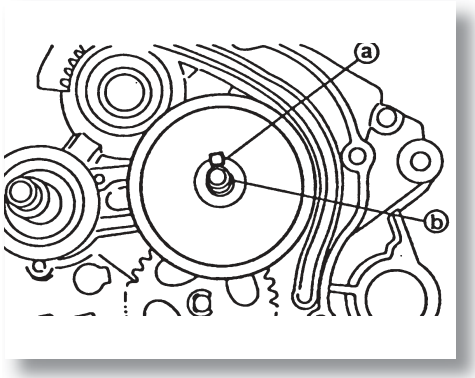
1) LUBRICATE:
- Leak of oil supply (chassis (RS)).
- Oil pump unit.

Recommended Lubricant:
Motor oil.

2) INSTALL:
- Drive gear of the oil pump.
- Cotter.

Remark:
1. Assemble the gear of the oil pump with the pipe towards inside.
2. Assemble the rotary filter with the side of the larger salient towards inside, fitting the fluke in the pipe of the crankshaft.

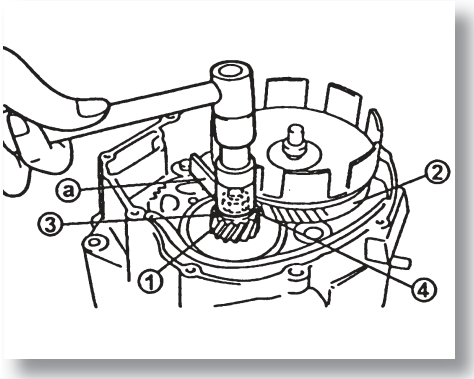




3.47 CLUTCH HOOD INSTALLATION

1) INSTALL:
- Primary gear (1).
- Clutch hood (2).
- Washer (3).
- Nut of the primary gear(4).

Remark:
Assemble the primary gear with the letter out.
Place a folded aluminium or copper sheet (a) among the teeth of the primary gear (1) and the teeth of the hood gear (2).



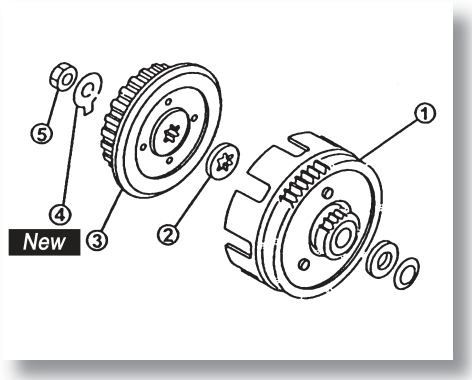
3.48 CLUTCH INSTALLATION

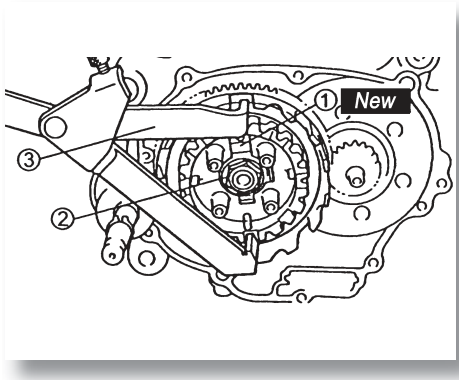
1) INSTALL:
- Clutch hood (1).
- Pressure washer (2).
- Clutch drum (3).
- Clamp washer (4).
- Nut of the clutch drum (5).

2) PRESS:
- Nut of the clutch drum.

Remark:
Press the nut of the clutch drum (2) while hold the clutch drum with the universal support of the clutch (3).

Nut of the clutch drum:
6,0 Kgf.m (60 N.m)

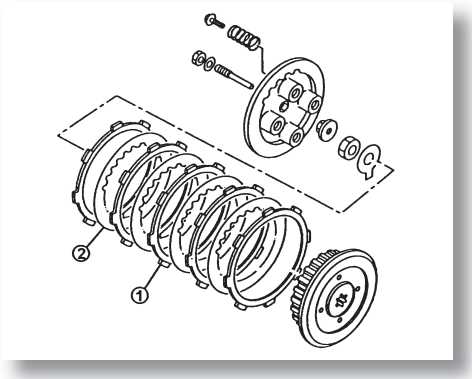




3) BEND:
- Rim of the clamp washer (1).

(on a top flat side of the nut).

4) INSTALL:
- Friction plate (1).
- Separators (2).



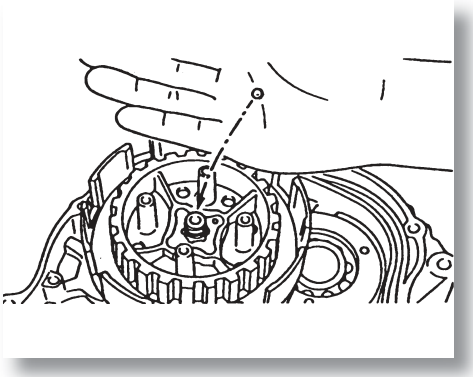
Remark:
• Install the plates and the separators alternately in the clutch drum, beginning and finishing with a friction plate.

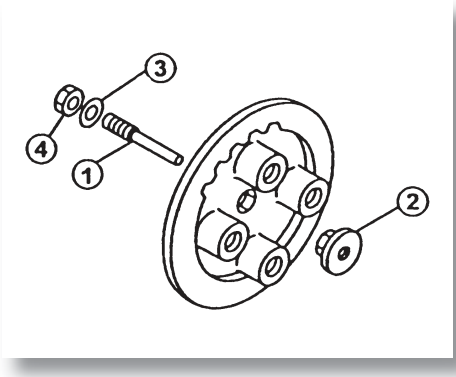
• Lubricate all the plates and separators with motor oil before the installation.

• Make sure that each separator with its 90 dislocated projections is installed with regard to the previous one. Continue with this procedure till all the separators have been installed.

5) INSTALL:
• Ball.

6) INSTALL:
• Operation rod N° 1 (1).
• Operation plate (2).
• Washer (3).
• Nut of the operation rod N° 1 (4).

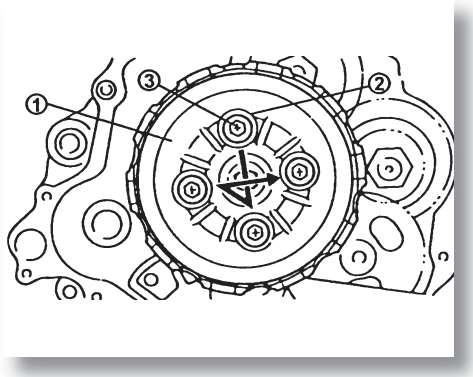




7) INSTALL:
• Pressure plate (1).
• Compression springs (2).
• Screws (3).

Screws (Clutch spring):
0.6 Kgf.m (6 N.m)

Remark:
Press the screws of the springs gradually and diagonally.

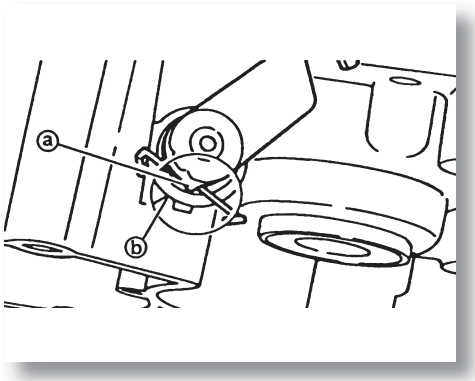


8) CHECK:
• Position of the operation lever.
Push the lever unit following the indicator and make sure that the alignment marks are aligned.

(a) Marks of the lever.
(b) Mark of the chassis.

9) ADJUST:
• Position of the operation lever.

Steps for the adjustment:
• Loose the locknut (1).
• Rotate the adjuster (2) clockwise or anticlockwise to align the marks.

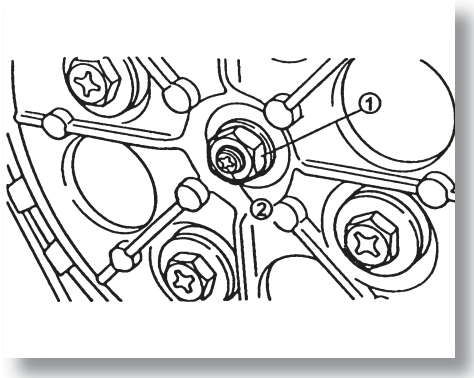


• Hold the adjuster to avoid its movement and press the locknut.

Be careful not to press the adjuster (2) excessively since the play between operation rods can be eliminated.

• Press the locknut (1):

Locknut:
0.8 Kgf.m (8 N.m)



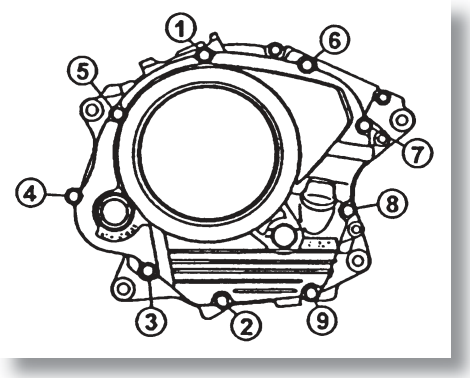
10) INSTALL:
- Tang guide.
- Gasket of the chassis - New
- Chassis cover (RS).

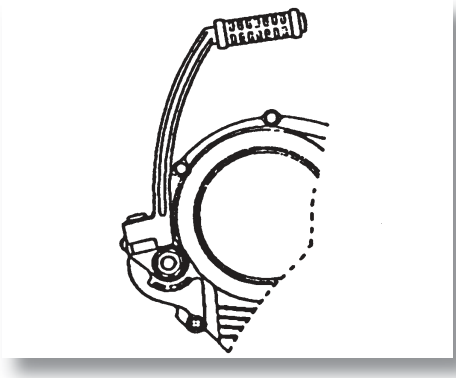
Screws of the chassis cover:
1,0 Kgf.m (10 N.m)

Remark:
Press the screws in decreasing numerical order (see the numbers in the figure).

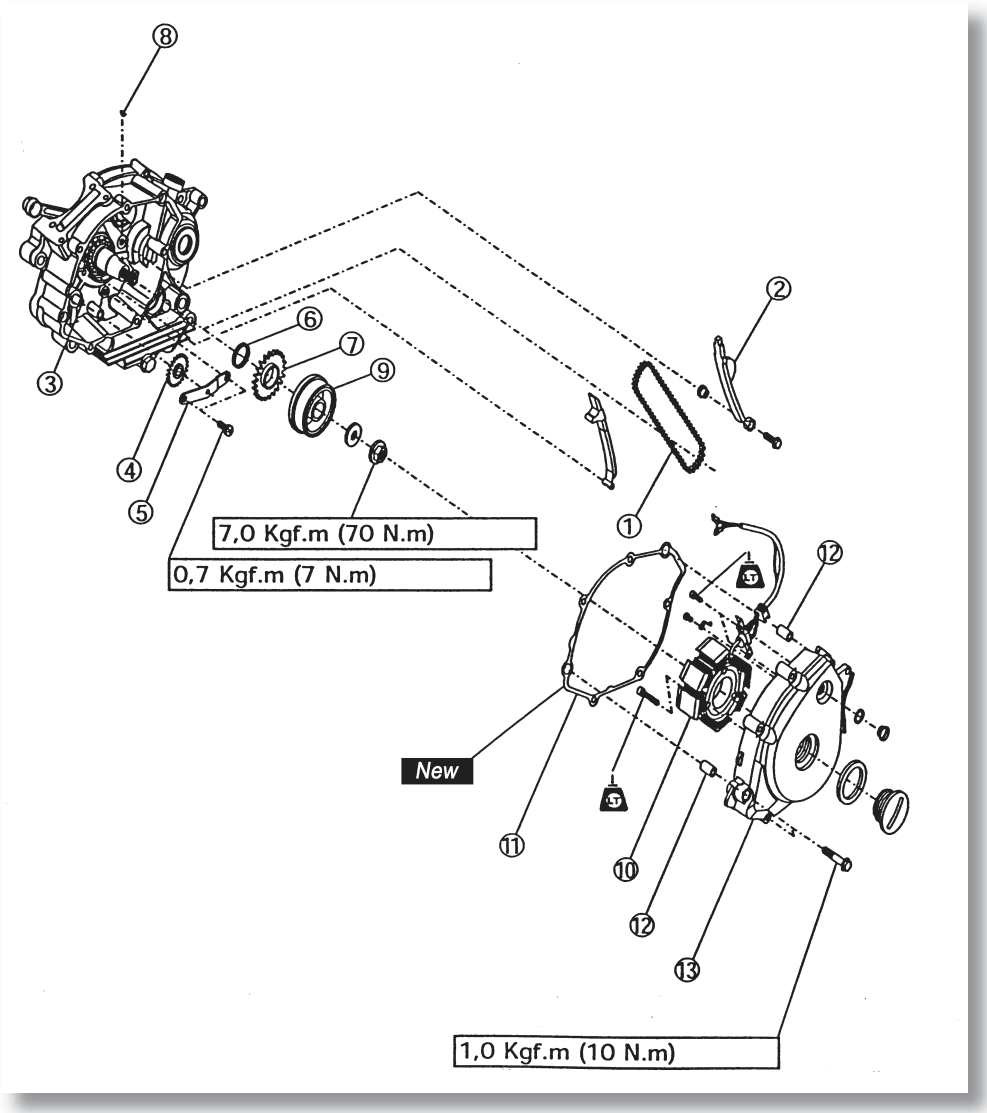
11) INSTALL:
- Start pedal.

Nut of the start pedal:
5,0 Kgf.m (50 N.m)





3.49 MAGNETO FLYWHEEL



1) Timing chain
2) Guide of the chain (intake)
3) Tang guide
4) Start gear 1
5) Plate
6) Washer
7) Start gear 2
8) Cotter
9) Magneto rotor
10) Stator
11) Gasket
12) Tang guide
13) Chassis cowling

3.50 START GEAR CHECKING

1) INSPECT:
• Teeth of the start gear system (a) (b) (c).

Rims / filings / roughness / wear = > **Replace.**

2) CHECK:
• Operation of the start clutch.
Push the tang guide following the indicator.

Stiff operation = > **Replace.**

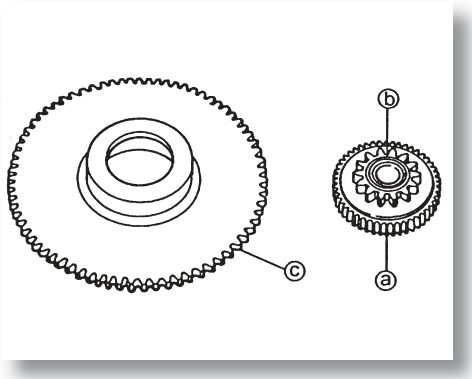
Steps for checking:
• Loose the start clutch.

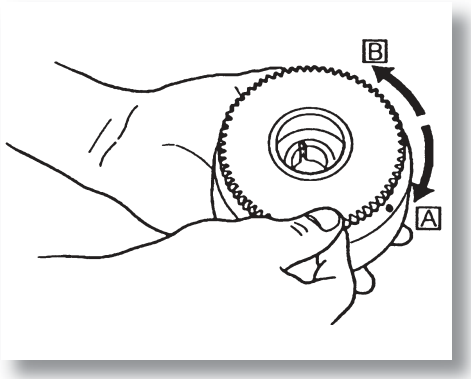
• When rotating the start gear (the big one) clockwise (A), the start clutch and the start gear should be coupled.

• On the contrary, the start clutch is damaged. Replace.

• When rotating the start gear anticlockwise (B), it should turn freely.

• On the contrary, the start clutch is damaged. Replace.





3.51 MAGNETO ROTOR AND STAR GEAR

1) INSTALL:
• Timing chain.
• Guide of the chain.

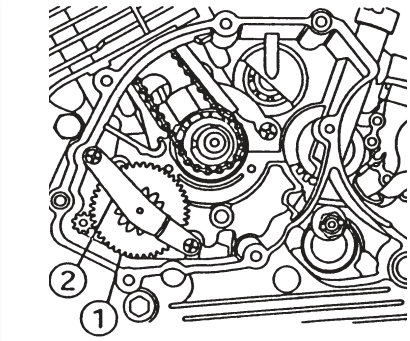
Screw (guide of the chain):
1.0 Kgf.m (10 N.m)

Remark:
Fasten a wire on the timing chain to avoid this falls inside the chassis.

2) INSTALL:
• Start gear (1).
• Plate (2).

Screw of the plate:
0,7 Kgf.m (7 N.m)

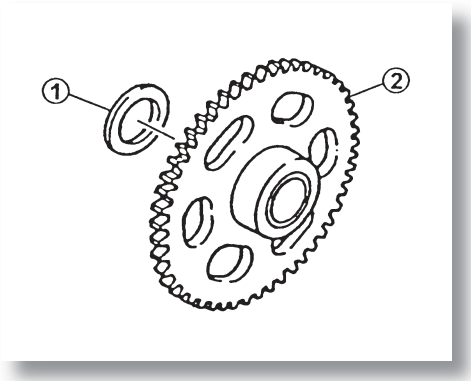
3) INSTALL:
• Motor Oil 4T.
(in the start gears).



4) INSTALL:
• Washer (1).
• Start gear (2).

5) INSTALL:
• Cotter.
• Magneto rotor.

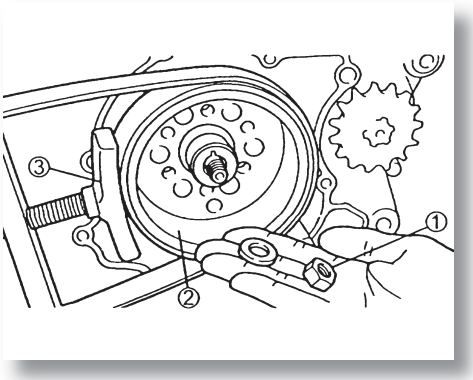
Remark:
Install the rotor provisionally, aligning the groove of the cotter with the cotter. Rotate the start gear clockwise and install the rotor in the start gear.



6) PRESS:
• Nut (magneto flywheel).

Nut of the magneto flywheel:
7,0 Kgf.m (70 N.m)

Remark:
Press the nut (1) while holding the steering wheel (2) with the supporter of the rotor (3).
Be careful not to let the supporter of the rotor touches the rotor salient.



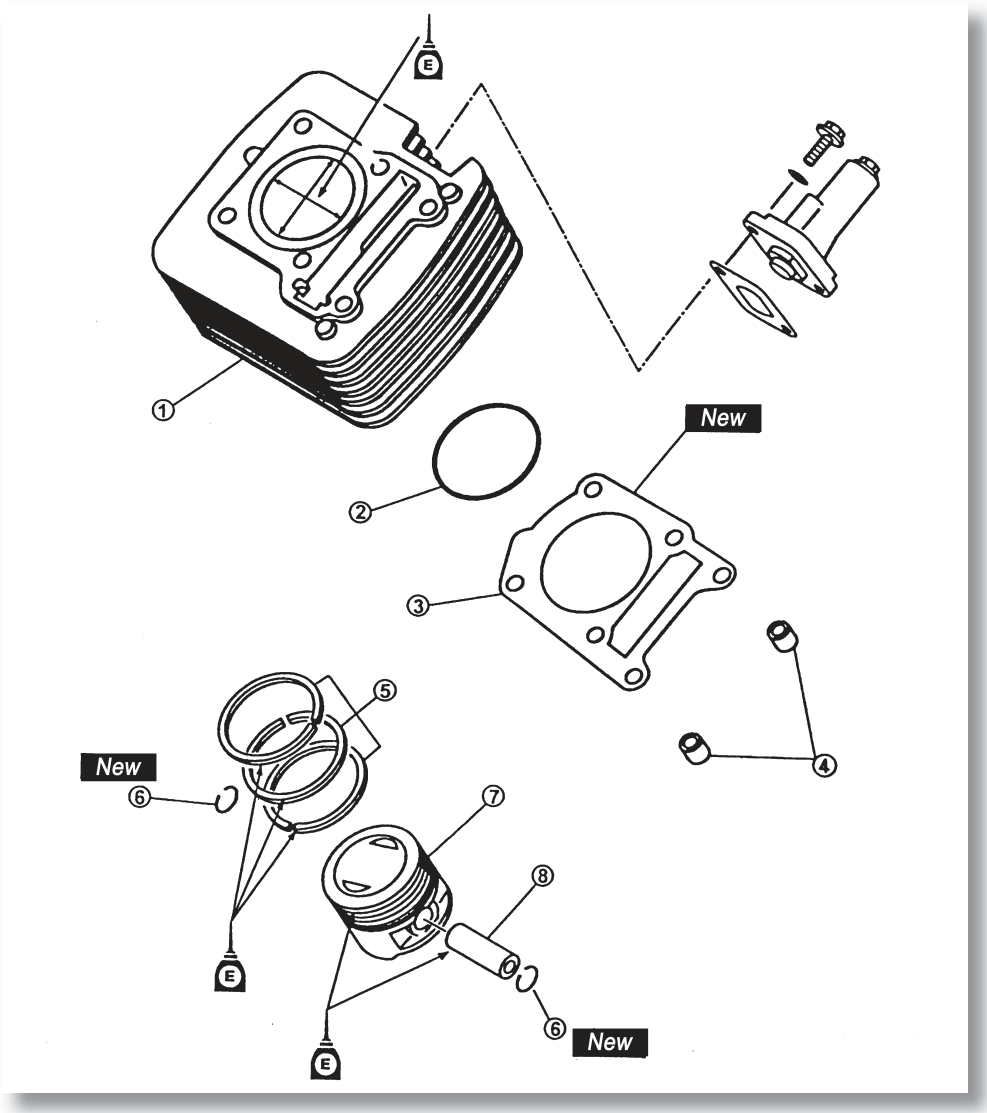
Rotor support:
90890-01701

7) INSTALL:
• Tang guide.
• Gasket of the chassis cover - New.
• Chassis cowling (LS).

Screws of the chassis cover:
1,0 Kgf.m (10 N.m)

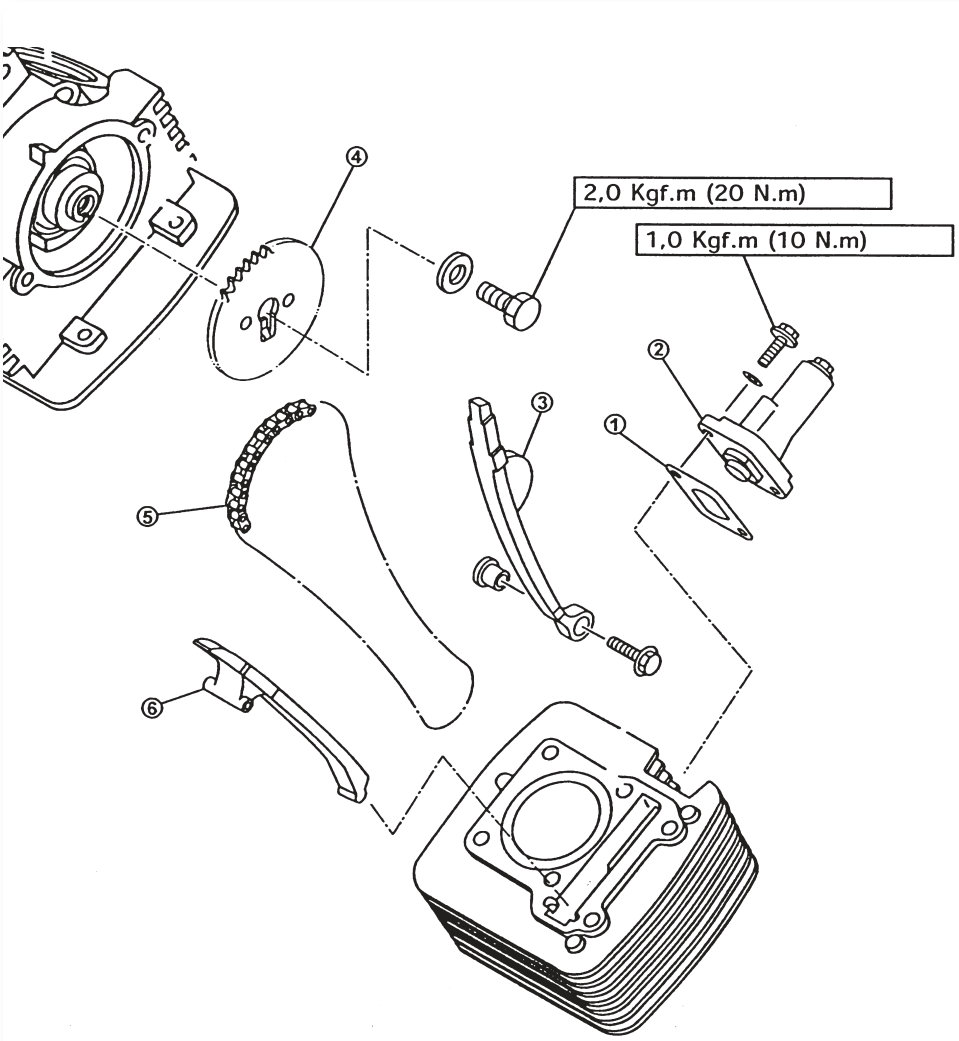
8) CONNECT:
• Drive of the neuter switch.

3.52 CYLINDER AND PISTON



1) Cylinder
2) Special gasket
3) Cylinder gasket
4) Greed tang
5) Group of rings
6) Clamp bolt
7) Piston
8) Bolt

3.53 CONTROL GEAR AND TIMING CHAIN



1) Gasket
2) Strut unit of the timing chain
3) Guide of the timing chain (intake)
4) Control gear
5) Timing chain
6) Guide of the timing chain (exhaust)

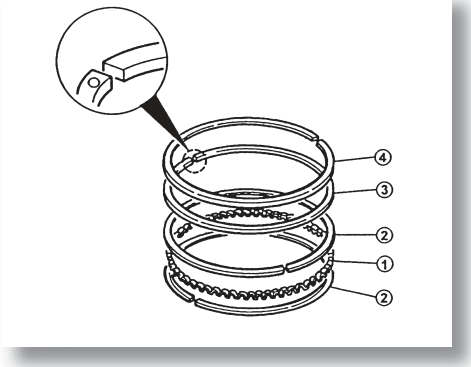
3.54 RINGS, PISTON AND CYLINDERS INSTALLATION

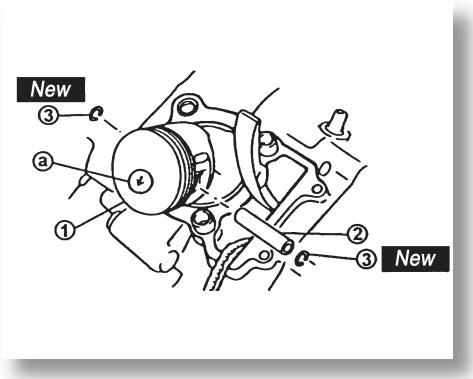
1) Install according to the following sequence:
- Expander (oil ring) (1).
- Separator rings (oil ring) (2).
- Secondary ring (scraper) (3).
- Top ring (compression) (4).

Remark:
- *Install the rings with the manufacturer trademark upwards.*
- *Lubricate the piston and the rings properly with motor oil.*

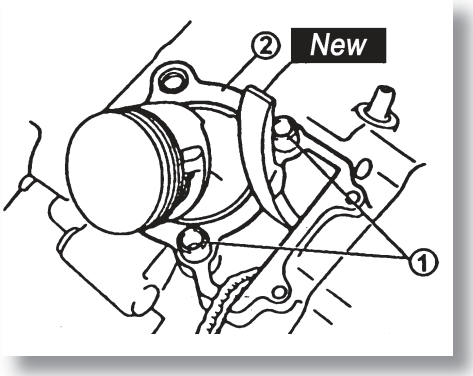
2) INSTALL:
- Piston (1).
- Bolt (2).
- Clamp bolt New (3).

Remark:
- *Apply motor oil on the bolt.*
- *This mark "=>" in the piston should be towards the exhaust side.*
- *Before installing the clamp bolt, cover the opening of the chassis with a clean cloth.*





3) TO INSTALL:
- Tan guide (1)
- Gasket of the cylinder - New (2).

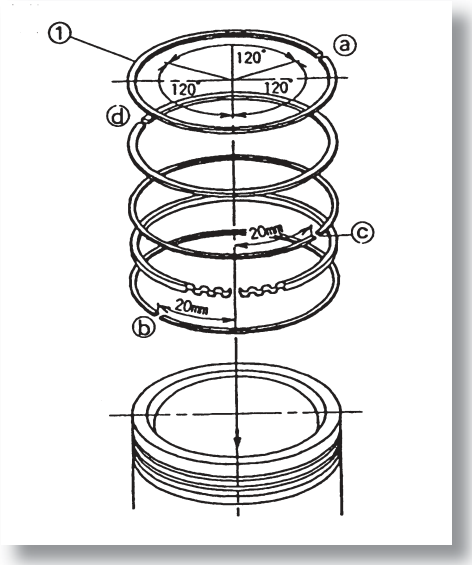


4) POSITION:
• Rings (1).

Remark:
• Position the tips of rings in accordance with the figure.

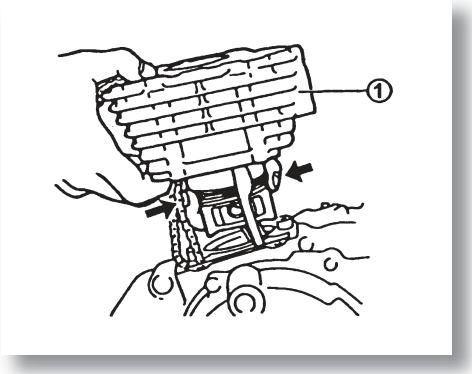
•(a) Top ring.
•(b) Oil ring (bottom).
•(c) Oil ring (top).
•(d) Secondary ring.

5) LUBRICATE:
• External surface of the piston.
• Rings.
• Internal Surface of the cylinder.



6) INSTALL:
• Special gasket New.
• Cylinder (1).

Remark:
• *Install the cylinder with one of the hands, while compressing the rings with the other one.*
Goes the guide of the timing chain (exhaust side) to the cavity of the timing chain.



3.55 CYLINDER HEAD INSTALLATION

1) INSTALL:
- Tang guide New (1).
- Cylinder head gasket New (2).
- Guides of the timing chain (exhaust) (3).

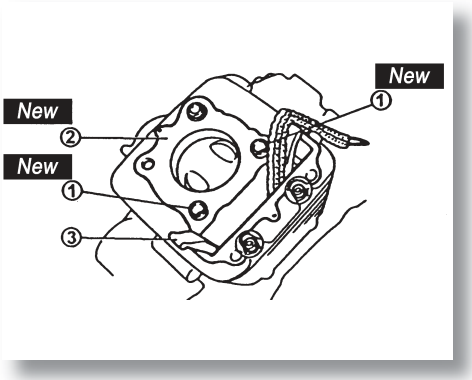
2) INSTALL:
- Cylinder head
- Screw with washer (cylinder head).

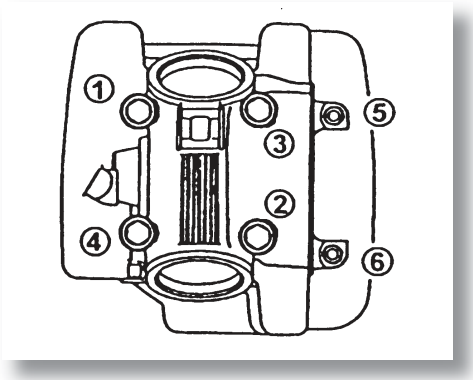
Screws (cylinder head):

M8 (1-4):
2,2Kgf.m (22 N.m)

M6 (5-6):
1.0 Kgf.m (10 N.m)

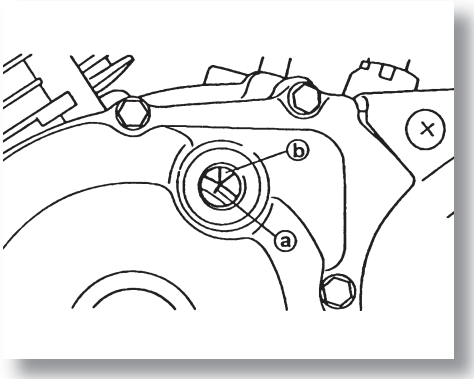
Remark:
- Apply motor oil on the threads of the screws.
- Press the screws in increasing order.





3) INSTALL:
- Control gear.
- Timing Chain.

Steps for the installation:
- Rotate the crankshaft anticlockwise till the mark (a) is aligned with the stationary point (b).
- Align the mark "I" (c) of the control gear with the stationary point (d) of the cylinder head.
- Install the timing (1) chain in the control gear (2) and install the gear in the camshaft.



Remark:
When installing the control gear, keep the timing chain as much tense as possible in the exhaust side.

Do not rotate the crankshaft during the installation of the camshaft. Damages can occur or the motor can be out of point.

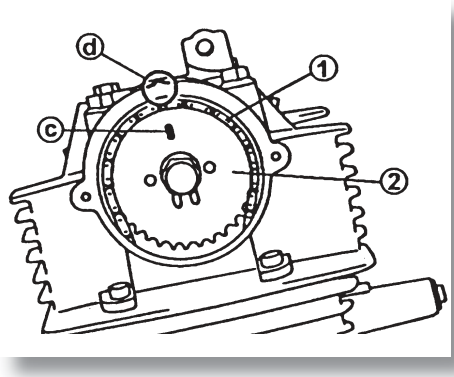
• Extract the cable from the timing chain.

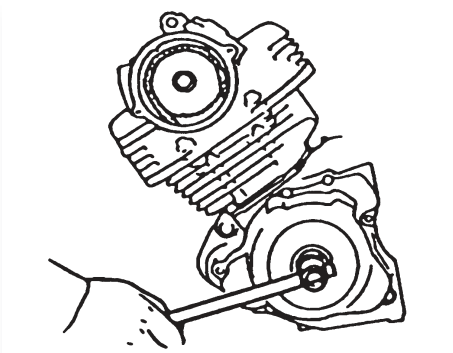
4) INSTALL:
• Clamp plate.

5) INSTALL:
• Screw (gear).

Screw (gear of the timing chain):
2.0 Kgf.m (20 N.m)

Remark:
Install the screw, while fastening the nut of the flywheel magneto with a spanner.

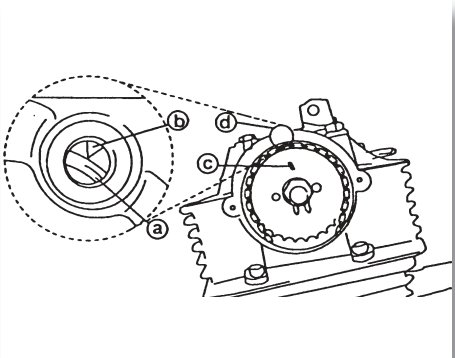




6) CONTROL:
• Marks of the flywheel (a).
Align the stationary point (b) with the cover of the chassis (LI).

• Marks of the control gear "I" (d).
Align the stationary point (c) with the cylinder head.

Non-aligned = > **Adjust.**



7) INSTALL:
• Strut of the timing chain.

Steps for the installation:
• Extract the screw from the cover of the strut.

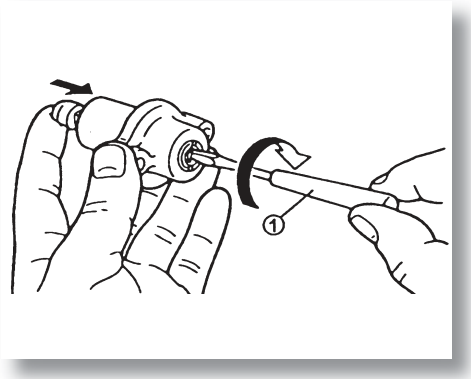
• While the bolt of the strut is pressed lightly with the hand, use a screwdriver to turn the bolt of the strut clockwise completely.

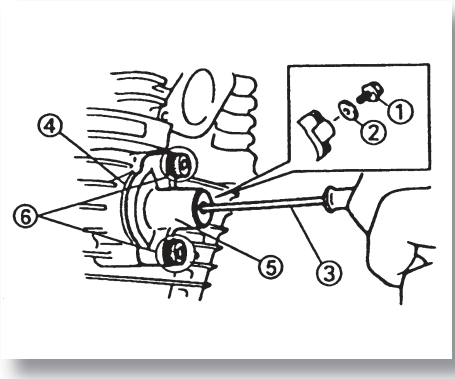
• With the bolt completely tight, install the gasket (4) and the strut of the chain (5) and press the screw (6) with the specified torque.

• Loose the screwdriver. If all is correct with the gasket, press the screw of the cover (1) with the specified torque.

Screws (strut of the timing chain):
1,0 Kgf.m (10 N.m)

Screw of the cover (strut of the timing chain):
0,75 Kgf.m (7,5 N.m)



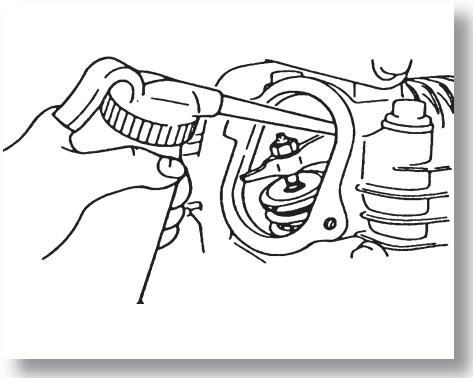


8) CHECK:
• Play of valves

Unspecified = > **Adjust.**

See section: "**ADJUSTMENT OF THE VALVES SET"** in the **CHAPTER 3**.

9) LUBRICATE:
• With motor oil.

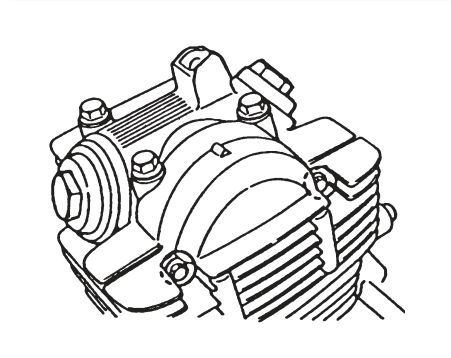


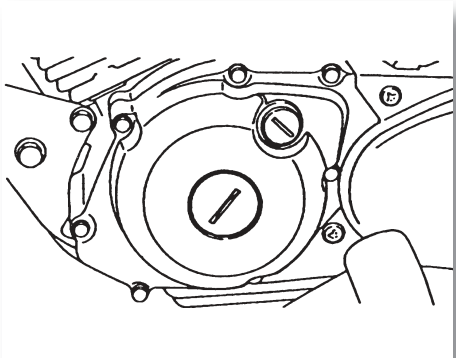
10) INSTALL:
• Valves cover (with the special gasket).
• Lateral cover of the cylinder head (with the special gasket).
• Screws (with washers).

Valve cover:
1,75 Kgf.m (17,5 N.m)

Screws (lateral cover of the cylinder head):
1,0 Kgf.m (10 N.m)

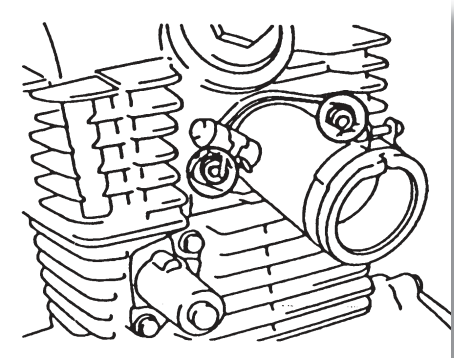
11) INSTALL:
• Cap of checking point (with the special gasket).
• Central cap (with 0-ring).



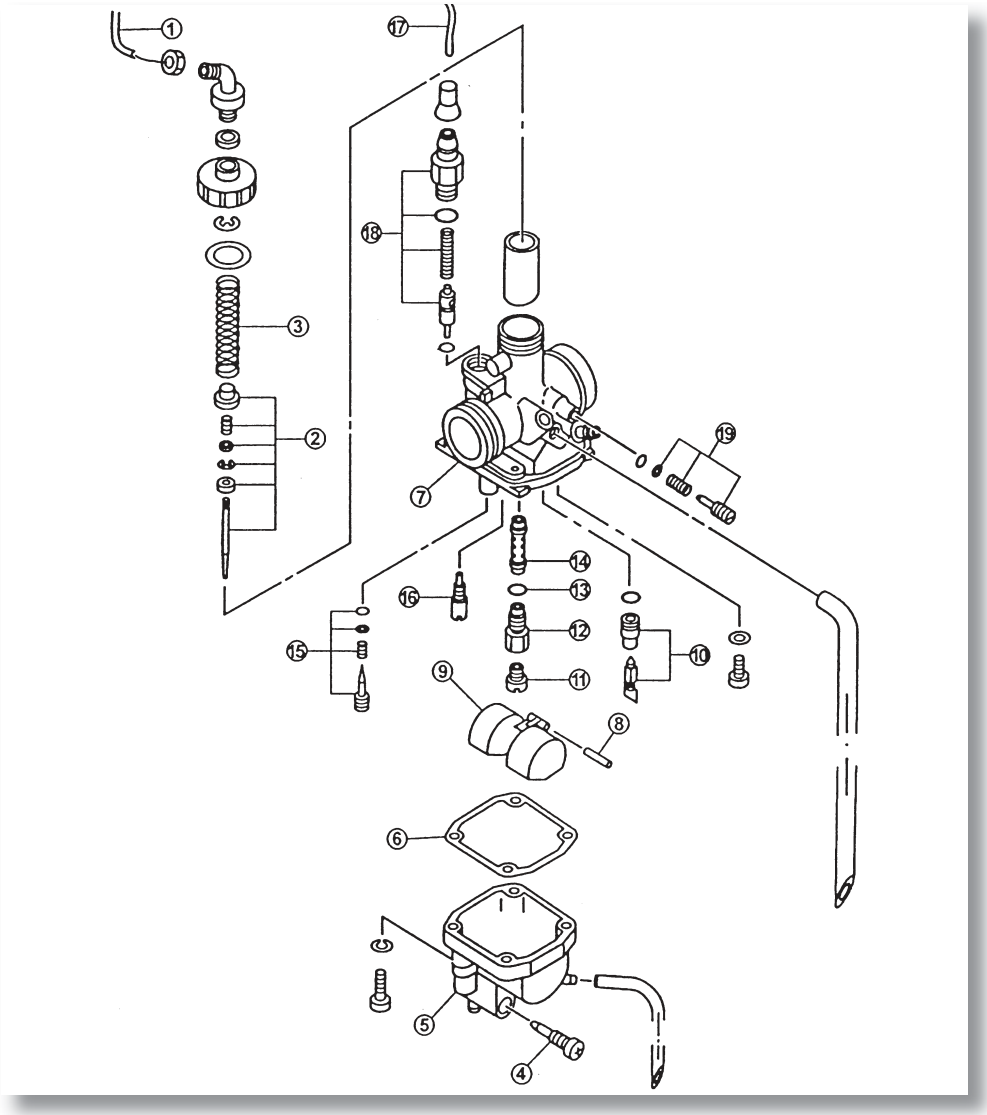


12) INSTALL:
• Gaskets (inlet collector).
• Inlet collector.

Screws (inlet collector):
1.0 Kgf.m (10 N.m)



3.56 CARBURETTOR



1) Cable of the accelerator
2) Lock valve unit
3) Spring of the lock valve
4) Drainage screw
5) Carburettor tank
6) Gasket of the tank
7) Body of the carburettor
8) Tang of the float
9) Float
10) Needle valve unit
11) High spout
12) Diffuser 1
13) Special gasket
14) Diffuser 2
15) Pilot screw unit (of air)
16) Low spout
17) Cable of the choke
18) Choke unit
19) Screw of the idling speed

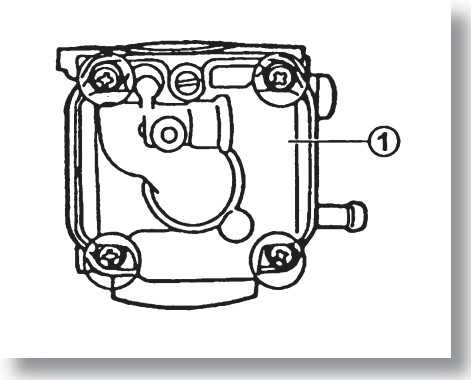
3.57 DISASSEMBLY

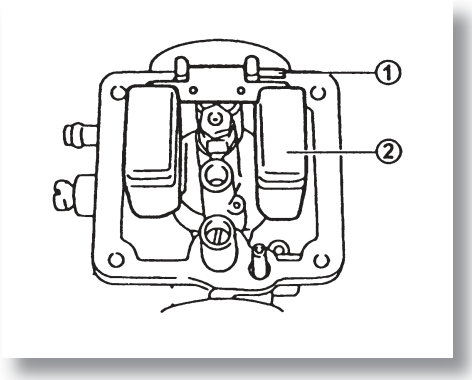
Remark:
• All the parts here below can be cleaned and inspected without disassembling the carburettor. (All the internal parts, excepting the choke).

• Lock valve
• Needle of the lock valve
• All the spouts
• Float
• Needle valve
• Seating of the needle valve
• Diffuser
• Needle of the lock valve

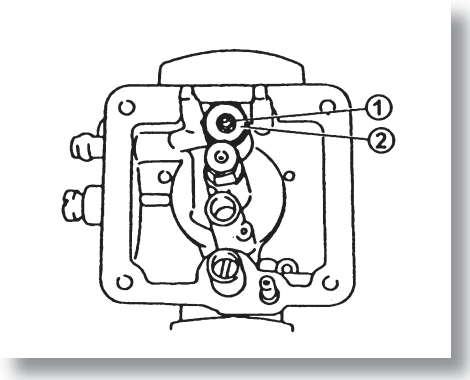
1) EXTRACT:
• Carburettor tank (1).
• Gasket of the tank.

2) EXTRACT:
• Tang of the float (1).
• Float (2).



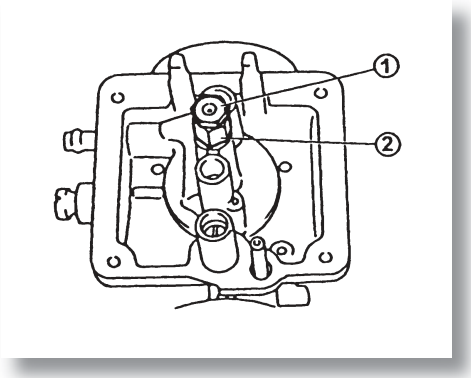


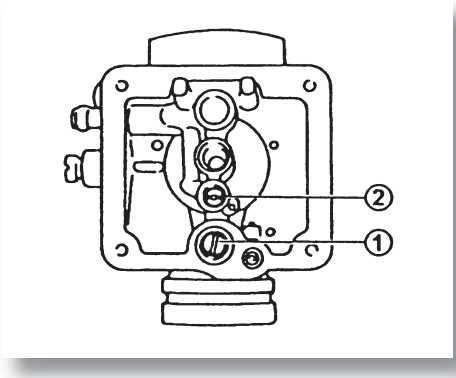
3) EXTRACT:
• Needle valve (1).
• Seating of the needle valve (2).



4) EXTRACT:
• High spout (1).
• Diffuser (2).
• Special gasket.

5) EXTRACT:
• Pilot screw unit (of air) (1).
• Low spout (2).





3.58 CHECKING

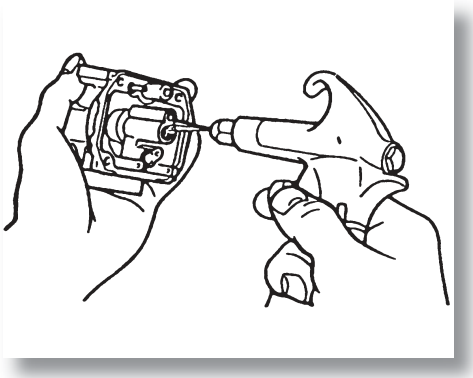
1) CHECK:
• Body of the carburettor

• Carburettor tank

• Place of the spouts
Cracks / damages = > **Replace.**

• Fuel leaks
Obstruction = > **Clean as mentioned before.**.

• Body of the carburettor tank
• Contamination = > **Clean.**



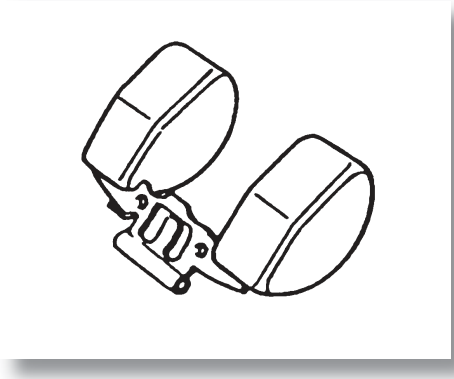
Steps for the cleaning:

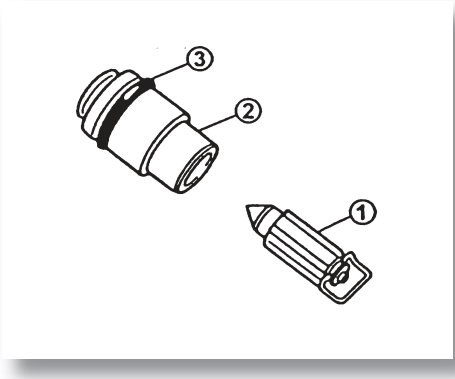
• Wash the whole carburettor with kerosene or petrol. (Do not use solutions with a chemical products base for cleaning the carburettor).

• Blow all the leaks and spouts with compressed air.

2) INSPECT:
• Float
Damages = > **Replace.**

3) INSPECT:
• Needle valve (1).
• Seating of the needle valve (2).
• Special gasket (3).
Damages / wear / obstruction = > **Replace the unit.**

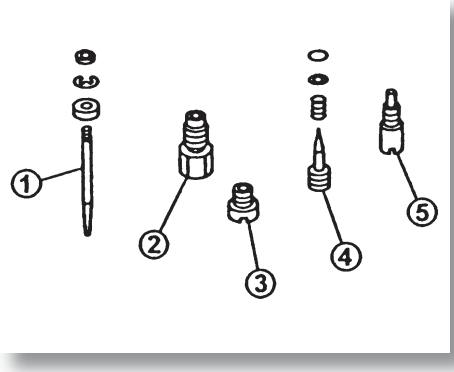




4) INSPECT:
• Needle of the lock valve (1).
• Diffuser 1 (2).
• High spout (3).
• Low spout (4).
• Pilot screw (of air) (5).

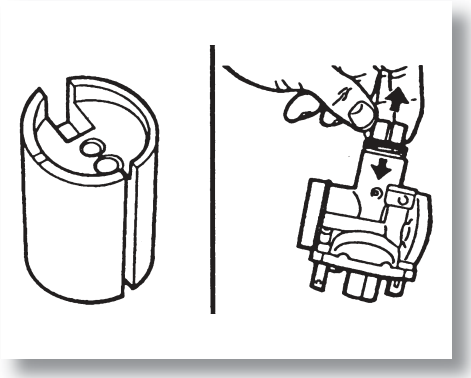
• Warping / wear / damages = > **Replace.**

Obstruction = > **Blow the spouts with compressed air.**



5) CONTROL:
• Free movement
Place the lock valve in the body of the carburettor and control if this moves freely.

Obstruction = > **Replace.**



3.59 ASSEMBLY

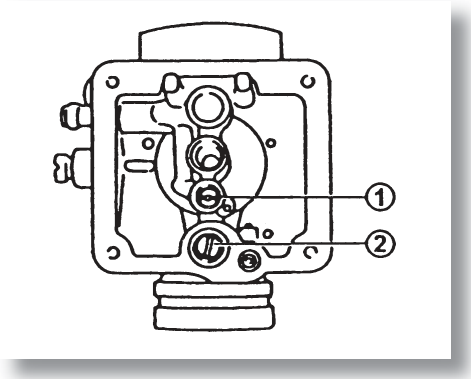
Invert the procedure of **"DISASSEMBLY".**

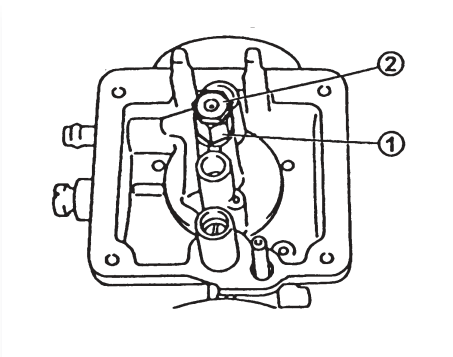
Pay attention to the following points:

- **Before the assembly, wash all the parts with kerosene.**
- **Always use new gaskets.**

1) INSTALL:
• Low spout (1).
• Pilot screw unit (of air) (2).

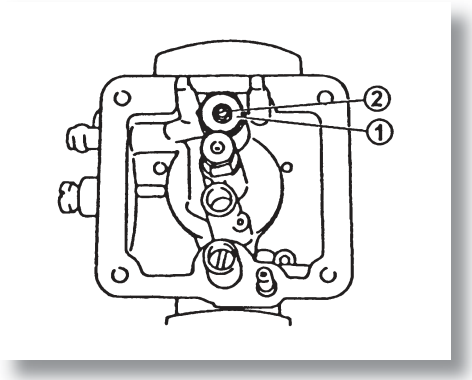
2) INSTALL:
• Special gasket New
• Diffuser (1).
• High spout (2).

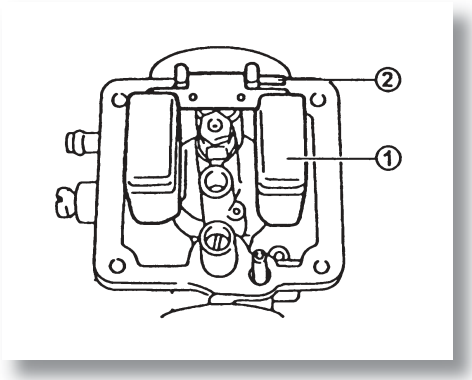




3) INSTALL:
• Seating of the needle valve (1).
• Needle valve (2).

4) INSTALL:
• Float (1).
• Tang of float (2).



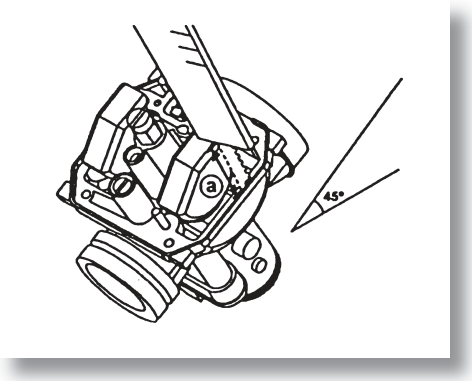


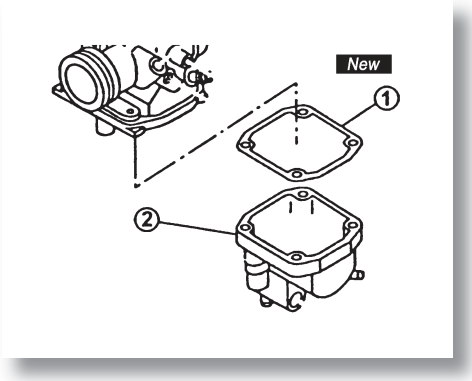
5) MEASURE:
• Height of the float (a) without the gasket.

Incorrect = > **Adjust.**

Height of the float:
18,9 mm

6) INSTALL:
• Gasket of the carburettor tank (1) - New
• Carburettor tank (2).





3.60 FUEL LEVEL ADJUSTMENT

1) MEASURE:

• Level of fuel (a).

Unspecified = > **Adjust.**

Level of fuel:

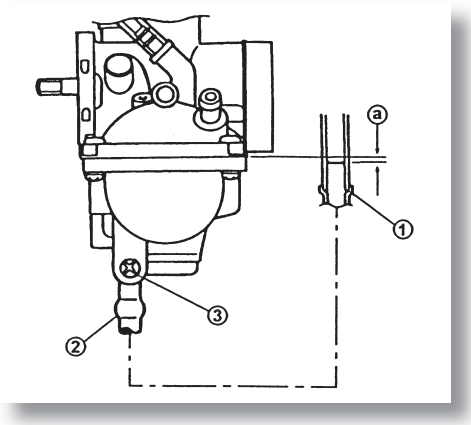
6—7 mm under the line of the tank.

Steps for adjustment:

• Place the motorcycle in a flat surface.

• Place a jack or a support under the engine to guarantee the carburettor in the vertical position.

• Connect the gauge of fuel level (1) in the drainage pipe (2).



• Loosen the drainage screw (3).

• Hold the gauge vertically near the line of the carburettor tank.

• Measure the level of fuel (a) with the gauge.

• If the level is incorrect, adjust it.

• Extract the carburettor.

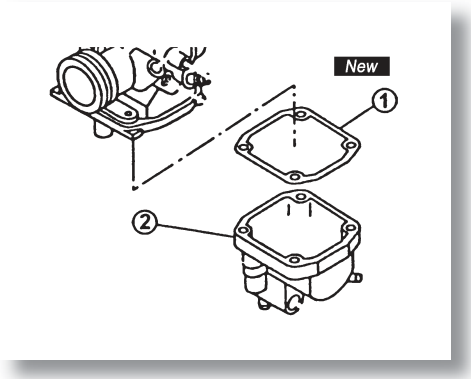
• Inspect the valve seating and the needle valve.

• If those pieces are worn, replace both.

• If they are normal, adjust the float level by bending the needle support on the float slightly.

• Install the carburettor.

• Control the level of fuel again.



RIEJU

Start the rocket.

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RIEJU, S.A. c/.Borrassà, 41 E-17600 FIGUERES, GIRONA (SPAIN)

Telf. +34 / 972500850 Fax +34 / 972506950 www.riejumoto.com / e-mail rieju@riejumoto.com