

# ***SERVICE MANUAL***

## ***S6-C COMPETITION***

***50cc – 2 stroke - liquid cooled***



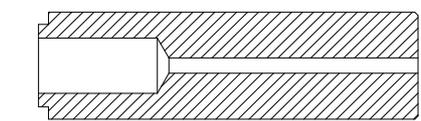
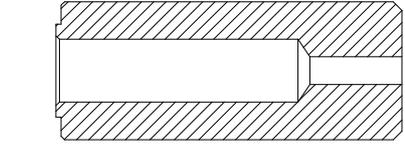
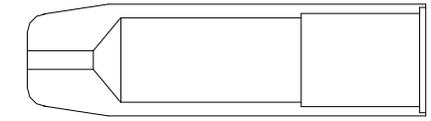
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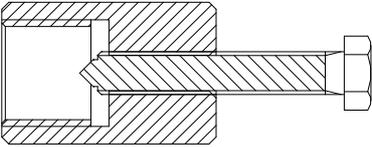
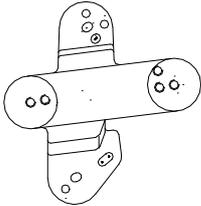
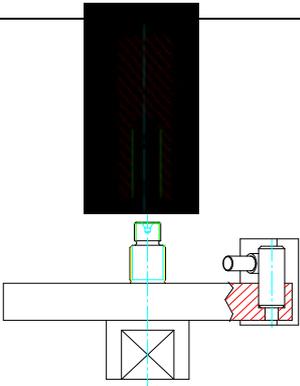
**TECNICAL SPECIFICATIONS****SPECIFICATIONS**

<b>CYCLE</b> .....	- 2 stroke
<b>Nr. of CYLINDERS</b> .....	- 1
<b>DISPLACEMENT</b> .....	- 49.908 cc.
<b>BORE AND STROKE</b> <b>mm.</b> .....	- 39 X 41.8
<b>CYLINDER MATERIAL</b> .....	- Aluminium with Ni / Si carbide coating
<b>COMPRESSION RATIO</b> .....	- (15.5 ±0.3) : 1
<b>SPARK PLUG</b> .....	- CHAMPION C53
<b>TIMING SYSTEM</b> .....	- Reed valve with 4 carbon fibre flaps
<b>MAX. R.P.M.</b> .....	- 14500 (rpm) MAX
<b>CARBURETOR</b> .....	- 12/14/19 mm diameter
<b>INTAKE MANIFOLD</b> .....	- Adjustable
<b>FUEL</b> .....	- <b>EURO UNLEADED NC 623/02 - R.O.N. 95</b>
<b>LUBRICATION OIL MIXER TYPE</b> .....	- 2% AGIP 2T CITY
<b>LUBRICATION WITH OIL PUMP</b> .....	- On request
<b>IGNITION</b> .....	- Electronic with microchip
<b>PRIMARY DRIVE GEAR</b> .....	- Straight-tooth gears Z 14/59
.....	with safety coupling
.....	Ratio 1:4,21
<b>SECONDARY DRIVE GEAR</b> .....	- Sprocket Z 10 or Z11
.....	Chain type 1/2 x 3/16 roller 7.75
<b>CLUTCH</b> .....	- Automatic centrifugal clutch in oil bath
.....	Adjustable
<b>TRANSMISSION GEAR OIL</b> .....	- SAE 20 W quantity 250 cc
<b>STARTER</b> .....	- Kick starter
<b>COOLING</b> .....	- With liquid pump

## SPECIAL TOOLS

Figure	Code	Description
	143176	BEARING INSTALLER output shaft
	143154	BEARING INSTALLER crankshaft
	143156	BEARING INSTALLER output shaft
	143179	OIL SEAL INSTALLER output shaft
	143180	OIL SEAL INSTALLER crankshaft (flywheel + clutch)
	143181	OIL SEAL MOUNTING PROTECTION crankshaft (flywheel + clutch)

**SPECIAL TOOLS**

Figure	Code	Description
	143155	OIL PUMP SHAFT INSTALLER (pre-assembled)
	140558	FLYWHEEL REMOVER
	143162	CRANKCASE PULLER
	143294	SPECIAL CLUTCH ADJUSTMENT TOOL

## PERIODIC MAINTENANCE

### **RUNNING-IN RECOMMENDATIONS:**

During the running-in period, i.e. for approx. the first 500 km on the road, please note as follows:

- Do never run the engine at maximum revolutions.
- Do never keep the vehicle at maximum speed.
- Do not keep the engine at idle speed for longer time.

### **FIRST MAINTENANCE SERVICE:**

to be carried out after **500 - 600 km**.

- Replace the engine oil
- Check the carburation and adjust if necessary
- Check the tightness of nuts and bolts.

(See table "tightening torques" pag. 15)

**LUBRICANTS****N.B.**

Use original MORINI FRANCO MOTORI spare parts only

RECOMMENDED LUBRICANTS / ADHESIVES	
DESCRIPTION	CHARACTERISTICS
Transmission oil	AGIP RADULA 68 SAE 20W
Assembly of various parts	GR/SM2 GREASE
Special assembly	GRAPHITISED MOLYCOTE type GREASE
Thread-locking glue	LOXEAL 82-21
Clamping glue	LOXEAL 83-54

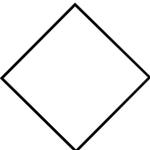
**N.B. TRANSMISSION OIL LEVEL CHECK**

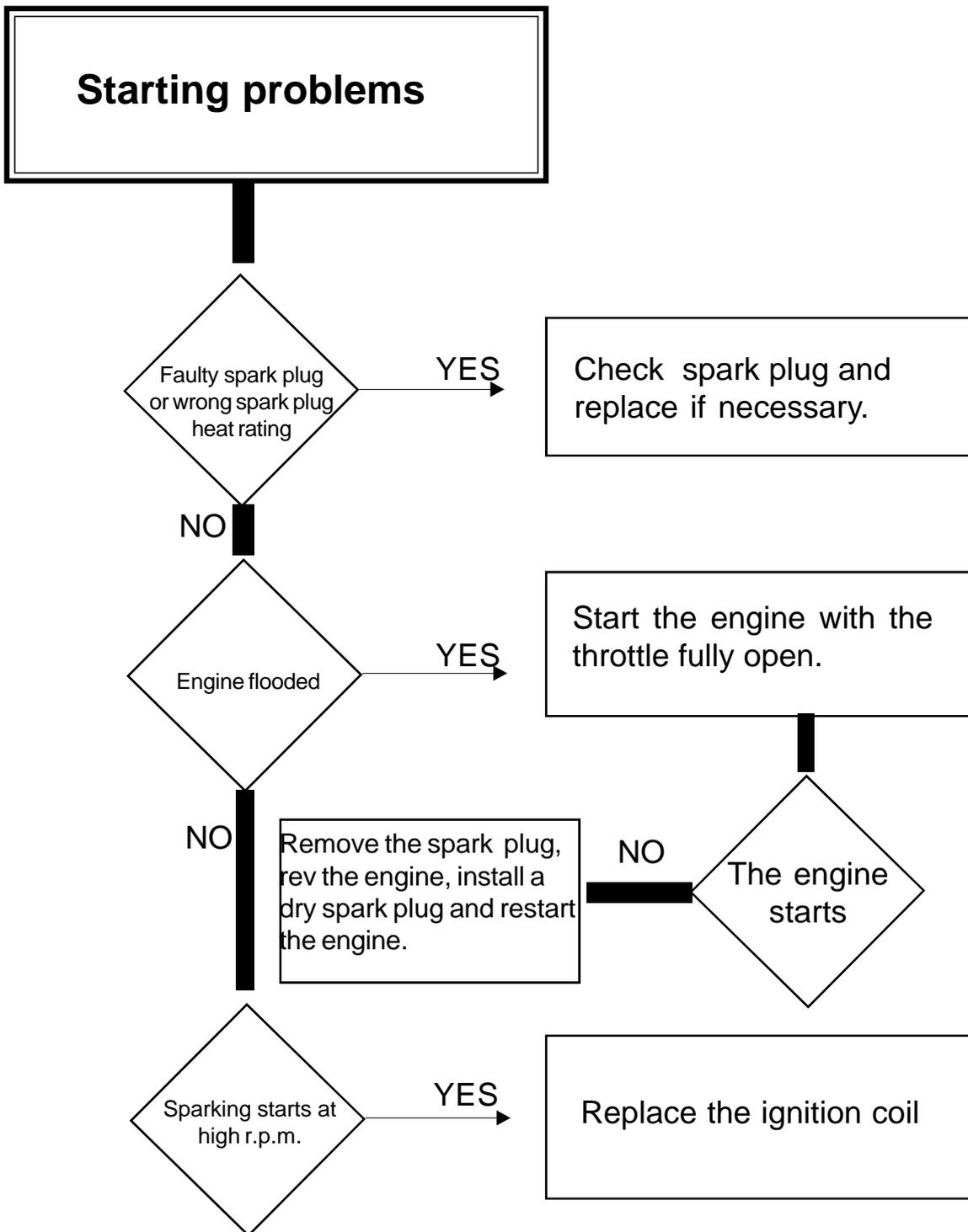
Remove the oil filler cap on the clutch cover and check the transmission oil level through window.

## TROUBLESHOOTING

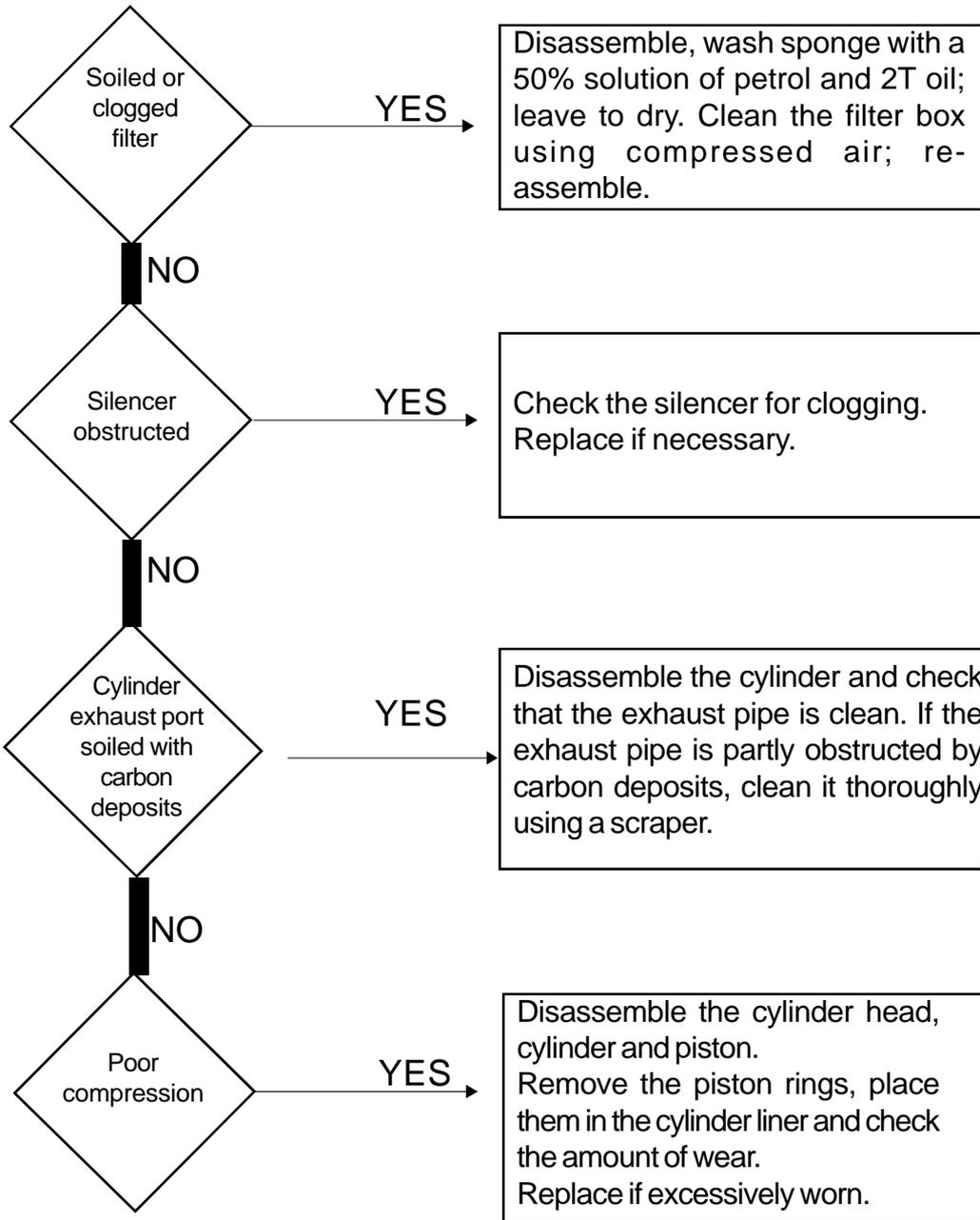
The following flow charts give a general outline of the causes and effects when the engine is not running correctly.

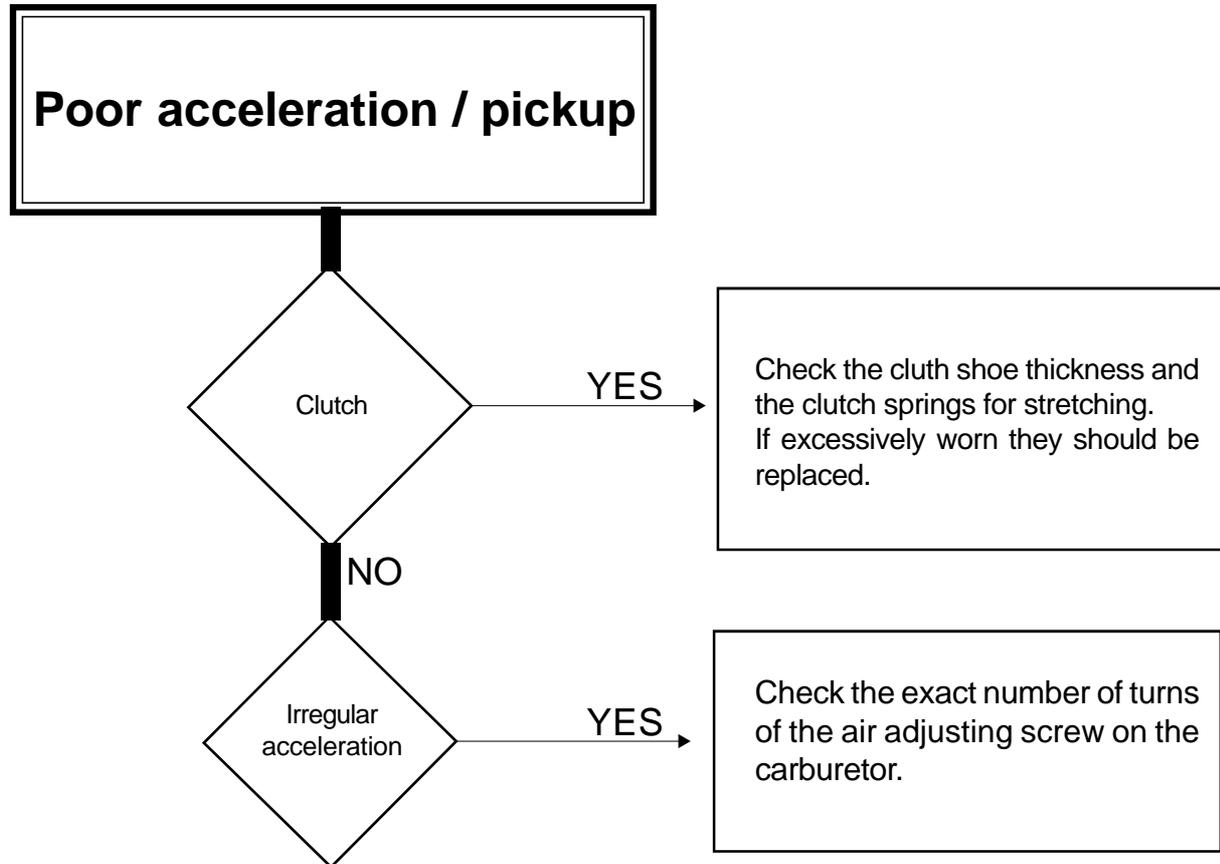
Descriptions of solutions for a specific cause are general; for more details the reader should consult the disassembly-reassembly manual.

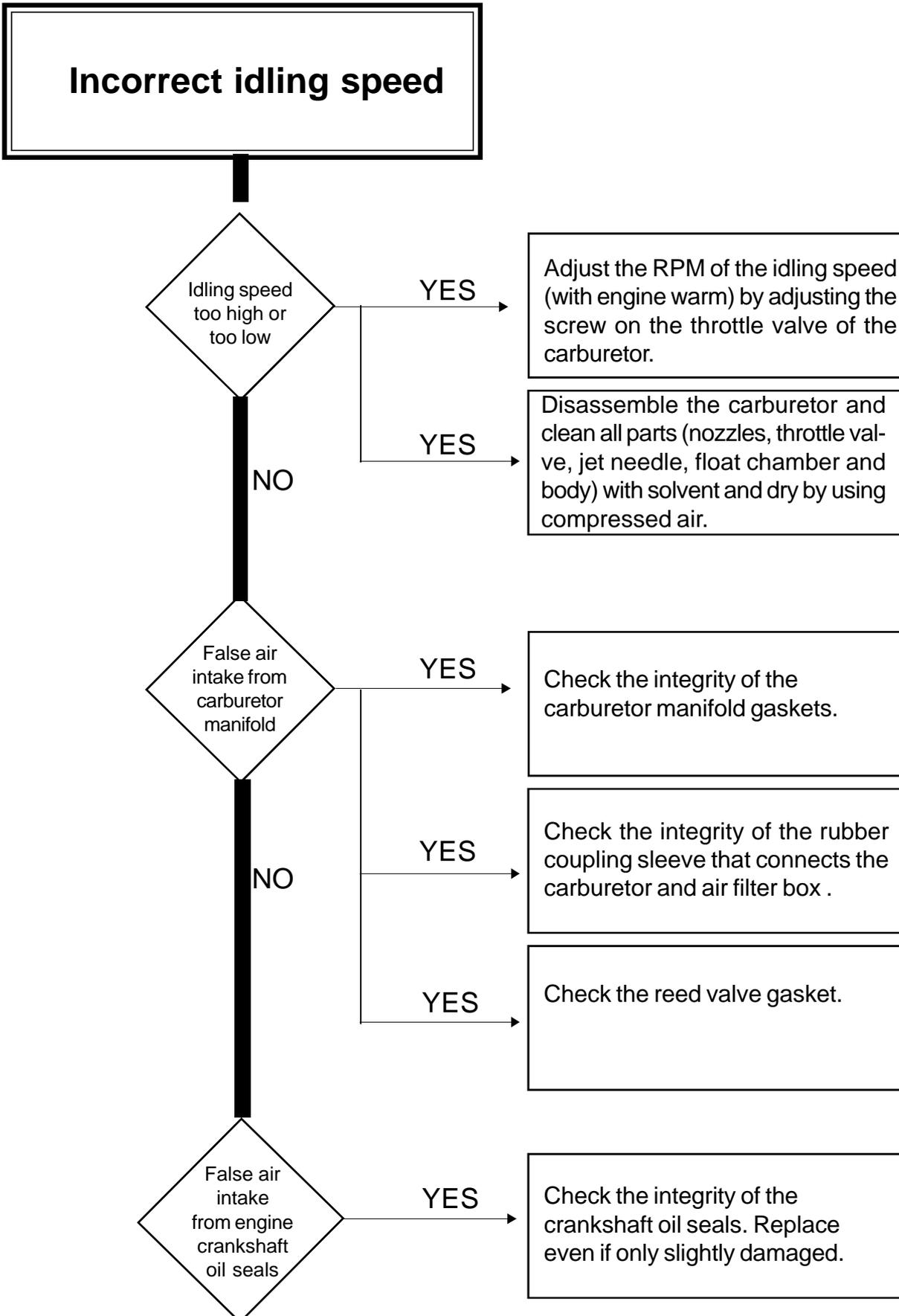
LEGEND OF SYMBOLS	
	<b>EFFECT</b> (fault noticed by the user)
	Possible <b>CAUSE</b> of the fault
	Possible general <b>SOLUTION</b> to the fault

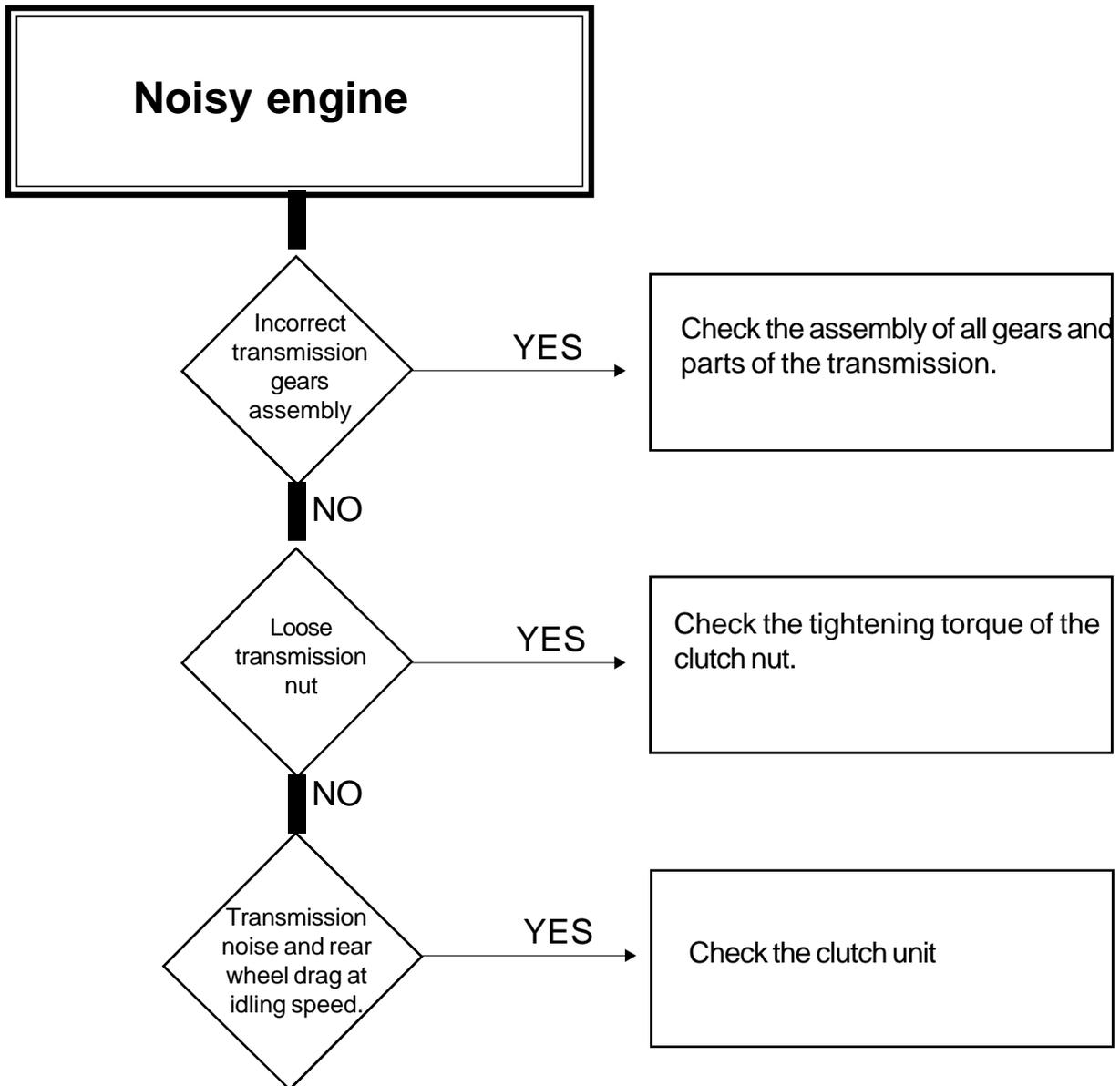


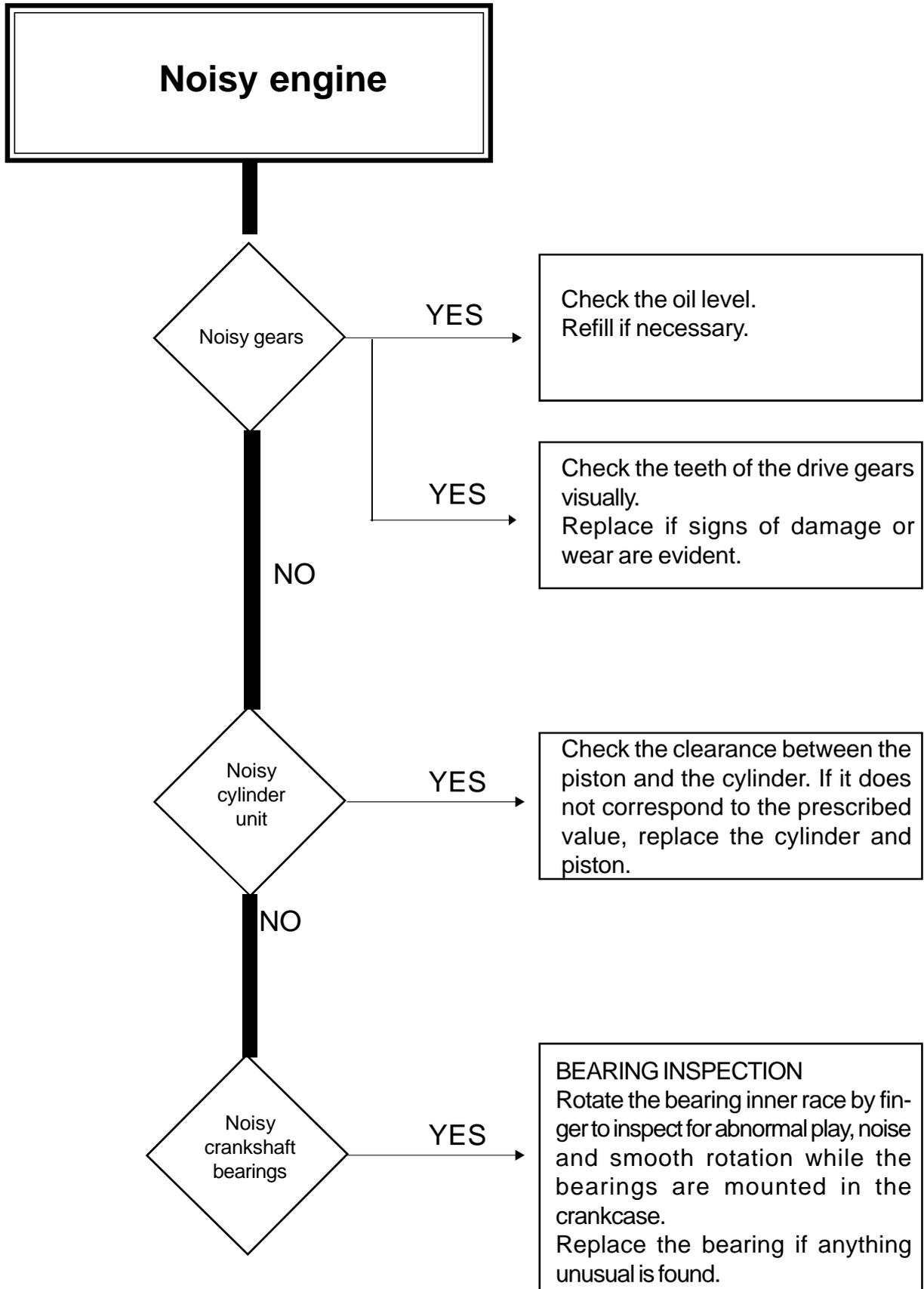
**Maximum indicated running speed cannot be reached**

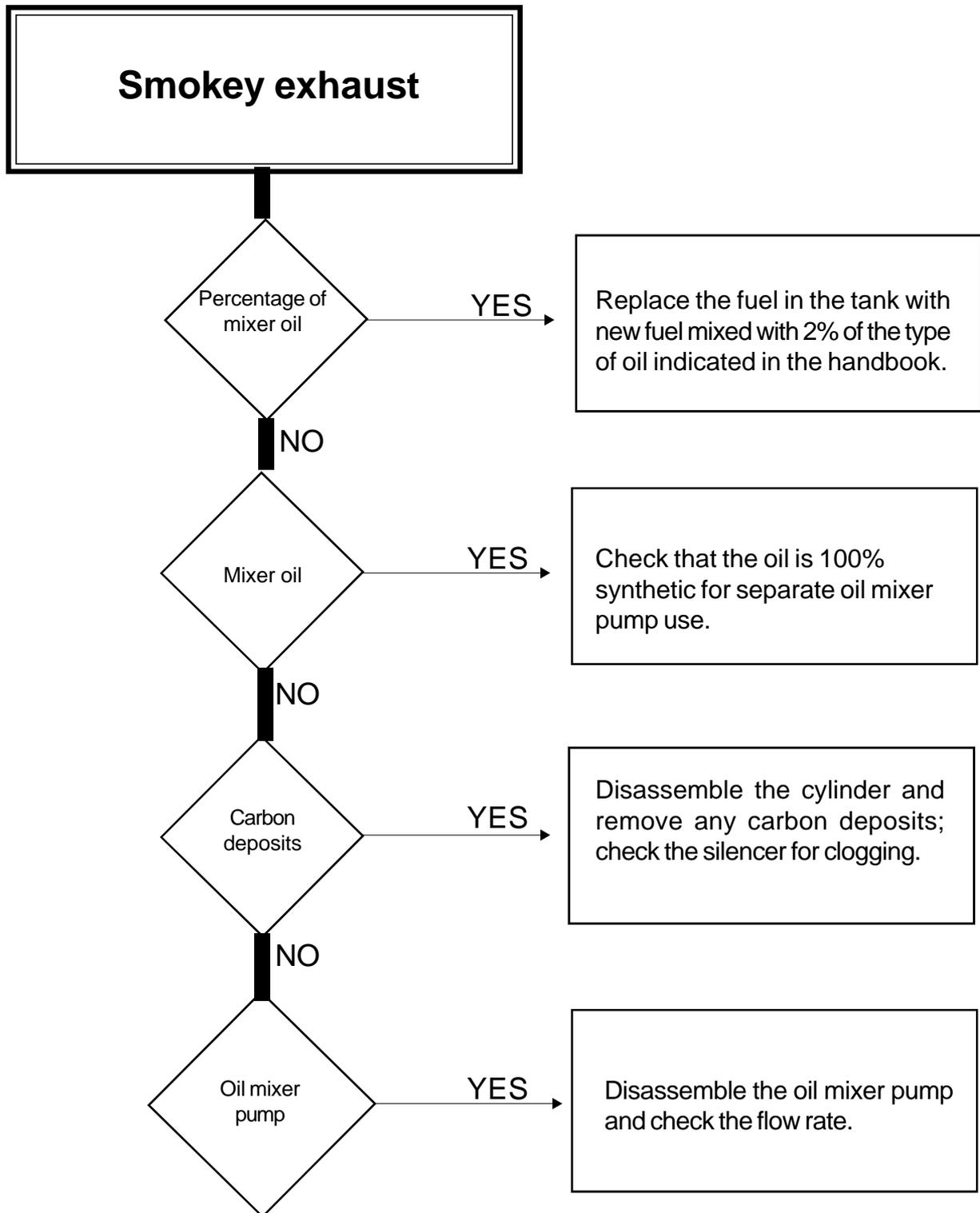












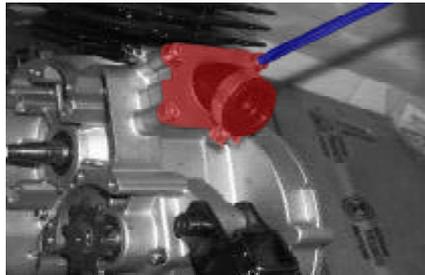
## TIGHTENING TORQUES

DENOMINATION	TORQUE (Nm)
Crankcase bolts	10 - 12
Clutch cover bolts	10 - 12
Flywheel cover bolts	3 - 4
Carburetor manifold bolts	9 - 10
Stator clamping bolts	3 - 4
Oil pump clamping bolts	5 - 6
Carburetor clamping screw	3 - 4
Kick starter lever bolt	8 - 10
Oil drain plug	8 - 10
Clutch nut	50 - 55 + Loxeal 83-54
Flywheel nut	8 - 10 + Loxeal 83-54
Head nuts	12 - 14
Head clamping bolts	10 - 12
Pulley clamping bolts	3 - 4 + Loxeal 83-54
Water pump rotor	5 - 6 + Loxeal 83-54
Spark plug	20 - 25



## ENGINE DISASSEMBLY

### CARBURETOR UNIT

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Disassemble the <b>CARBURETOR</b>		
	Loosen the <b>SCREWS</b> and remove the <b>CARBURETOR MANIFOLD</b>		<b>BEFORE LOOSEN THE SCREWS CHECK ACTUAL MANIFOLD ANGLE POSITION</b>  <b>THE MANIFOLD IS COMPOSED BY 4 ELEMENTS.</b>
	Remove the <b>CARBURETOR MANIFOLD BASE</b> including the <b>REED VALVE</b>		

**CYLINDER HEAD - CYLINDER - PISTON**

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Remove the <b>SPARK PLUG</b>		
	Remove the <b>4 CYLINDER HEAD BOLTS</b>		
	Remove the <b>4 CYLINDER HEAD NUTS</b>		
	Remove the <b>CYLINDER HEAD</b>		<b>PAY ATTENTION TO THE DOWEL PINS</b>
	Check the condition of the <b>O-RING (HEAD GASKET)</b> . <b><u>Replace if excessively worn.</u></b>		

<b>DIAGRAM</b>	<b>DESCRIPTION</b>	<b>TOOL CODE</b>	<b>NOTES</b>
	Disassemble the <b>CYLINDER</b> and remove the <b>CYLINDER BASE GASKET</b>		

**FLYWHEEL SIDE**

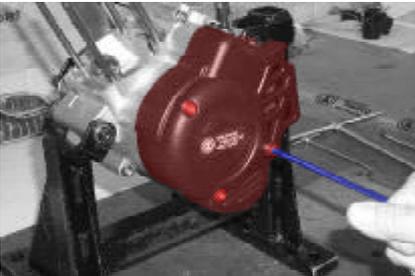
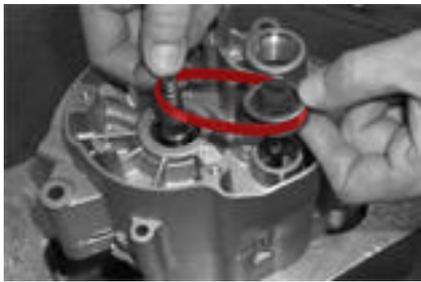
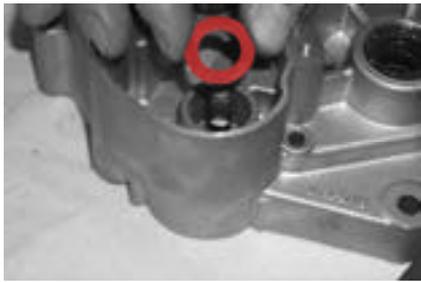
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Loosen the clamping <b>BOLTS</b> and remove the <b>FLYWHEEL COVER</b>		<b>MIND THE BRACKET INSIDE THE COVER</b>
	Disassemble the <b>FLYWHEEL STATOR</b>		
	Disassemble the <b>FLYWHEEL ROTOR</b>	<b>143151</b>	<b>ROTOR LOCK NUT CLAMPED WITH LOXEAL</b>
	Remove the <b>PULLEY CLAMPING BOLT</b>		
	Remove the <b>DRIVEN PULLEY</b>		

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Remove the <b>PUMP DRIVE BELT</b>		
	Remove the <b>SPECIAL SNAP RING</b>		
	Remove the <b>SPACER RING</b>		

**The following operations can only be carried out after opening the crankcase**

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Unscrew the <b>WATER PUMP ROTOR</b>		<b>BLOCK THE PUMP SHAFT</b>
	Remove the <b>PUMP SHAFT UNIT</b> including the bearings. <i>The pump shaft seal ring must be replaced by every disassembly. The 2 bearing snap rings on the water pump must be replaced by every disassembly.</i>		<b>PAY ATTENTION TO THE SPACERS BETWEEN THE BEARINGS</b>

**CLUTCH SIDE**

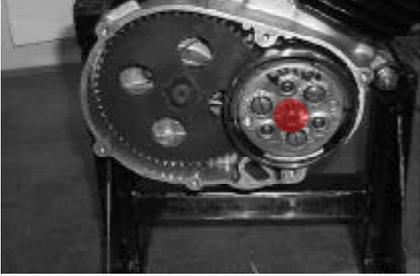
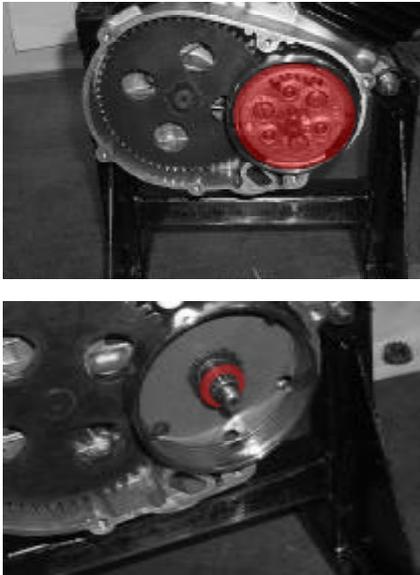
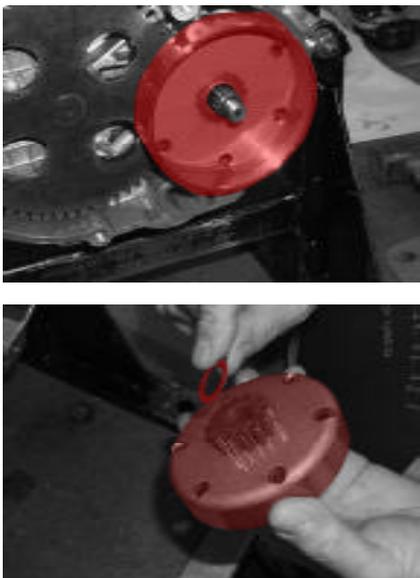
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Disassemble the <b>CLUTCH ADJUSTING PLUG</b>		<b>ONLY IF CLUTCH NEEDS TO BE ADJUSTED</b>
	Remove the <b>OIL DRAIN PLUG</b> (cross head)		<b>MAKE SURE TO DRAIN THE ENGINE COMPLETELY</b>
	Loosen the clamping <b>BOLTS</b> on the cover and remove the <b>CLUTCH COVER</b>		
 	Remove the <b>SPECIAL FRONT CLUTCH NUT</b> and the <b>BELLEVILLE WASHER</b>	Compass tool	<b>CLAMPED WITH LOXEAL.</b>

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Disassemble the <b>SPECIAL CLUTCH</b> and the 2.5mm <b>SPACER RING</b></p>		
	<p>Remove the <b>CLUTCH BELL</b> and the 0.8mm <b>SPACER RING</b></p>		

**CRANKCASE "OPENING"**

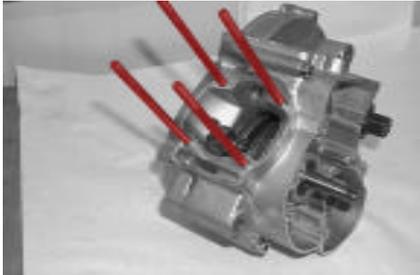
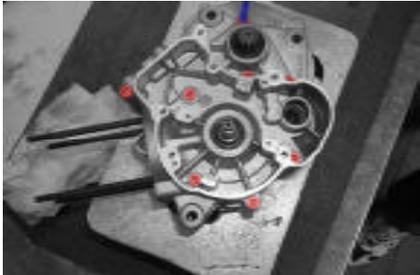
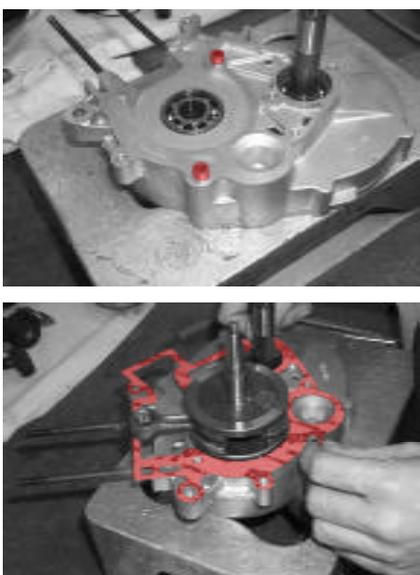
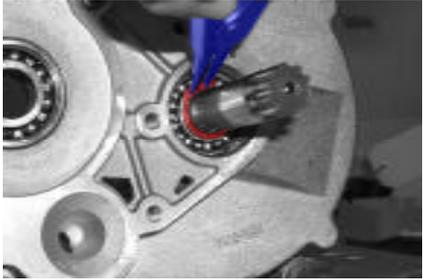
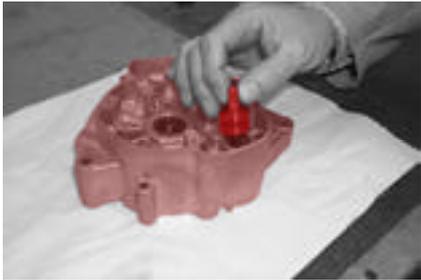
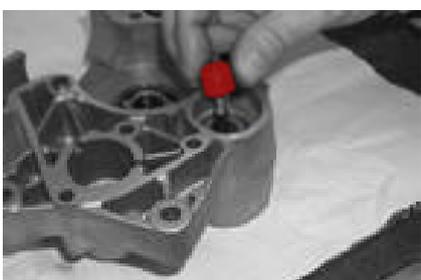
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Remove the cylinder <b>STUD BOLTS</b> if necessary		<b>BLOCKED WITH LOXEAL</b>
	Remove the 8 <b>CRANKCASE BOLTS</b>		
	Open the <b>CRANKCASE</b>	143162	<b>THE CRANKSHAFT IS DRIVEN ONTO THE BEARINGS. OPEN THE CRANKCASE FROM FLYWHEEL SIDE USING THE PULLER TOOL</b>
	Remove the <b>DOWEL PINS</b> and the <b>CRANKCASE GASKET</b> . Remove the crankshaft if necessary		

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Remove the <b>OUTPUT SHAFT SNAP RING</b>		
	Remove the <b>OUTPUT SHAFT</b>		
	Inspect the <b>OUTPUT SHAFT BEARING</b> for abnormal play and noise. Replace the bearing if anything unusual occurs.  Remove the <b>SNAP RING</b>		
	Remove the <b>BEARING</b> by using a standard bearing remover set.  To replace the <b>CRANKSHAFT BEARING</b> and the <b>OUTPUT SHAFT ROLLER CAGE</b> (flywheel side) follow the same procedure as described above.		<b>THE BEARING IS DRIVEN INTO THE BEARING HOUSING</b>



## ENGINE REASSEMBLY

### WATER PUMP PREASSEMBLY

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Preassemble the <b>WATER PUMP SHAFT UNIT</b> by mounting the components in the following order: snap ring + bearing + spacer + bearing and secure with the snap ring.</p> <p>Insert the complete unit in the <b>HALF CRANKCASE FLYWHEEL SIDE</b></p>		
	Insert the <b>SPACER RING</b>		
	Insert the <b>SPECIAL SNAP RING</b>		
	Insert the <b>SEAL RING</b>	<b>143155</b>	<b>THE SEAL RING MUST ALWAYS BE REPLACED WITH A NEW ONE</b>
	Reassemble the <b>WATER PUMP ROTOR</b>		<b>Tightening torque 5 - 6 Nm + Loxal 83 - 54</b>

**CRANKCASE PREASSEMBLY**

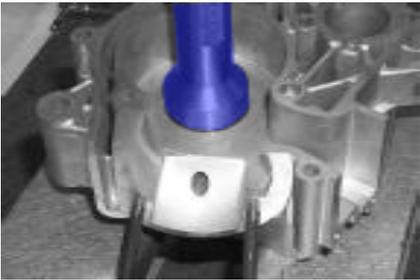
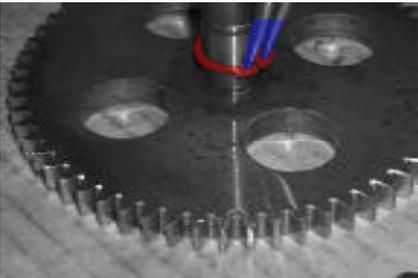
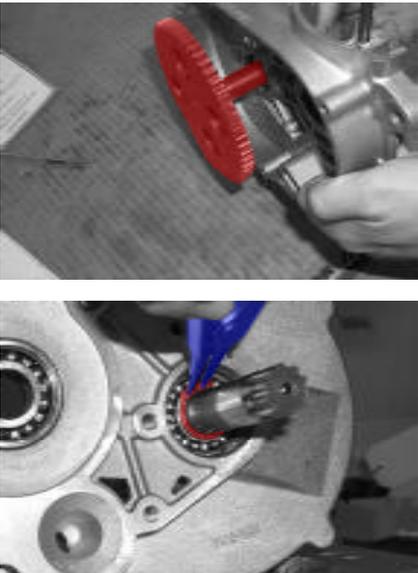
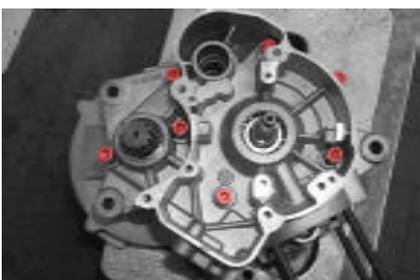
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
 	Drive the <b>OUTPUT SHAFT BEARING</b> into the half crankcase clutch side and secure with the snap ring	143176	<b>LUBRICATE THE HOUSING</b>  <b>LEAVE THE PRINT ON THE BEARING VISIBLE</b>
 	Drive the <b>CRANKSHAFT BEARINGS</b> into the half crankcase clutch side and into the half crankcase flywheel side.	143154	<b>LUBRICATE THE HOUSING</b>  <b>LEAVE THE PRINT ON THE BEARING VISIBLE</b>
	Drive the <b>ROLLER CAGE OUTPUT SHAFT</b> into the half crankcase flywheel side.	143156	<b>LUBRICATE THE HOUSING</b>  <b>LEAVE THE PRINT ON THE BEARING VISIBLE</b>

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Insert the <b>DRIVE SHAFT</b> in the half crankcase clutch side		
	Insert the <b>SNAP RING</b> onto the second output shaft slot (near transmission gear)		
	Insert the <b>OUTPUT SHAFT</b> into the half crankcase clutch side and secure with <b>SNAP RING</b>		

**CRANKCASE “CLOSING”**

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Insert the <b>DOWEL PINS</b>		

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Lubricate the <b>CRANKCASE GASKET</b> on both sides.</p> <p>Apply the <b>CRANKCASE GASKET</b> on the half crankcase clutch side using the 2 dowel pins for centering.</p>		
	<p>Assembly the <b>HALF CRANKCASES</b></p>		
	<p>Fix 1 x <b>BOLT M6X60</b> in the position between the stud bolts and the reed valve zone.</p>		<p><b>DO NOT TIGHTEN</b></p>
	<p>Fix the remaining <b>7 X BOLTS M6X50</b>. <u><b>Cross-tighten the bolts using a tightening torque of 10-12 Nm.</b></u> <u><b>Check to make sure that the crankshaft and output shaft rotate smoothly.</b></u></p>		
	<p><u><b>Grease the oil seal housing and the oil seal lip carefully.</b></u></p> <p>Install the <b>CRANKSHAFT OIL SEAL RINGS</b> and the <b>OUTPUT SHAFT OIL SEAL RING</b>.</p> <p><u><b>Trim the crankcase gasket (cylinder zone and carburetor zone.)</b></u></p>	<p>143179 143180 143181</p>	<p><b>GREASE TYPE GR/SM2</b></p>

**FLYWHEEL SIDE**

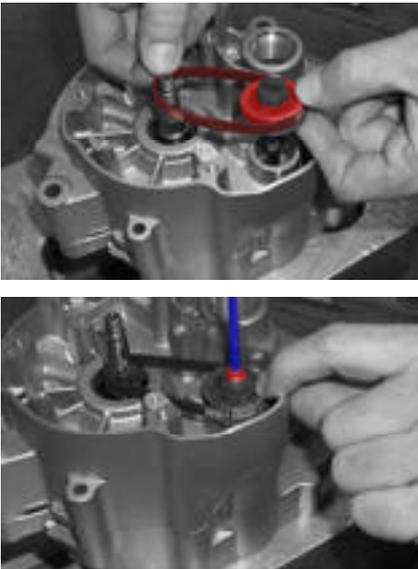
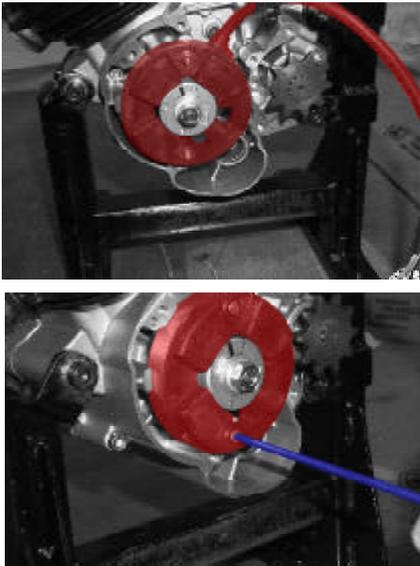
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Mount the <b>DRIVEN PULLEY</b> on the water pump shaft and position the <b>PUMP DRIVE BELT</b> on the splined section of the crankshaft.</p> <p>Secure the pulley with bolt M4x14</p>		<p>Tightening torque 3 - 4 Nm + Loxeal 83- 54</p>
	<p>Mount the <b>SPROCKET</b> and secure with the <b>SNAP RING</b></p>		
	<p>Place the <b>UNDER ROTOR SPACER</b> on the crankshaft.</p> <p>Caulk the key seat on the crankshaft and insert the <b>FLYWHEEL KEY</b>.</p>		
	<p>Mount the <b>FLYWHEEL ROTOR</b> with the black side facing the crankcase.</p>	143151	<p>Tightening torque 8 - 10 Nm + Loxeal 83 - 54</p>

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Install the <b>FLYWHEEL STATOR</b> with the output cable facing the crankcase.</p> <p>Secure the flywheel stator with <b>2 BOLTS M4 x 18</b></p>		<p><b>Tightening torque 3 - 4 Nm</b></p>
	<p>Drive in the 2 elastic dowel pins in the cover. and make sure that they do <b>NOT INTERFERE</b> with the bracket mounting face.</p> <p>Assemble the <b>BRACKET</b> on the flywheel cover.</p>		
	<p>Assemble the <b>FLYWHEEL COVER</b> placing the rubber fairleads in their proper seats on the cover.</p>		
	<p>Secure the <b>FLYWHEEL COVER</b> using:</p> <p><b>3 SCREWS M5X50 + WASHER.</b> <b>1 SCREW M5X20 + WASHER.</b></p>		<p><b>Tightening torque 3-4 N.m.</b></p>

**CYLINDER - PISTON - HEAD UNIT**

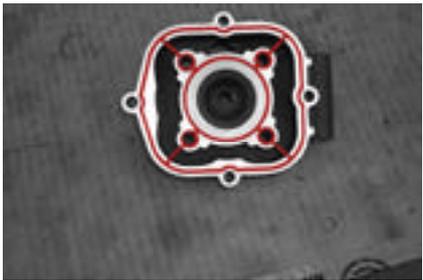
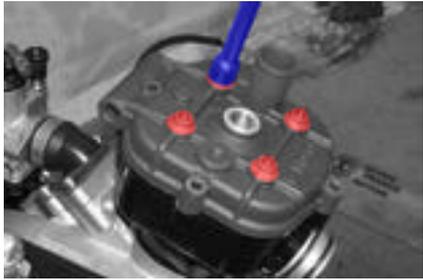
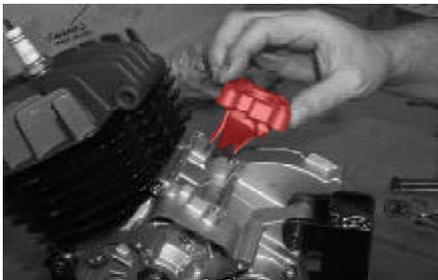
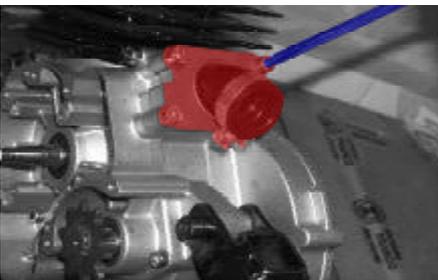
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Assemble the <b>ROLLER CAGE</b> , <b>PISTON</b> and <b>PISTON PIN</b> and secure with <b>CIRCLIPS</b> .  <u><b>OIL THE PISTON</b></u>		<b>WHEN INSTALLING THE PISTON TURN THE ARROW MARK ON THE HEAD OF THE PISTON TO THE EXHAUST SIDE</b>
	Insert the <b>CYLINDER BASE GASKET</b> and mount the <b>CYLINDER</b>		
	Insert the <b>CYLINDER HEAD DOWEL PINS</b>		
	Apply the <b>O-RING SEAL</b> on the <b>CYLINDER HEAD</b>		
	Install the <b>CYLINDER HEAD</b> on the <b>CYLINDER</b> using the dowel pins as centering reference		

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Fit the <b>4 CYLINDER HEAD NUTS</b> on the stud bolts and tighten		<b>(Cross tighten) Tightening torque 12 - 14 Nm.</b>
	Fit the <b>4 CYLINDER HEAD BOLTS</b> and tighten		<b>(Cross tighten) Tightening torque 10 - 12 Nm.</b>
	Install the <b>SPARK PLUG</b> and tighten		<b>Tightening torque 20 - 25 Nm.</b>

**CARBURETOR UNIT**

DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Insert the <b>CARBURETOR MANIFOLD BASE</b> including the <b>REED VALVE</b> .		
	Assemble the <b>CARBURETOR MANIFOLD</b> on the base and secure with <b>4 BOLTS M6X25</b> .		Check the angle position of the <b>MANIFOLD</b> before tightening the bolts.  Tightening torque <b>9 - 10 Nm.</b>
	Assemble the <b>CARBURETOR</b> and tighten the <b>CLAMP SCREW</b> .		Tightening torque <b>3 - 4 Nm.</b>

**CLUTCH COVER**

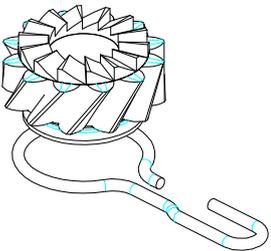
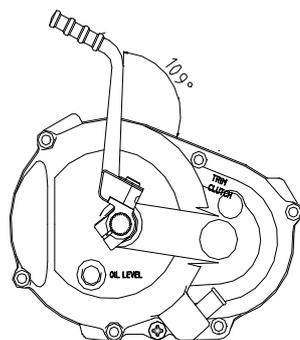
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Drive the <b>WATER CIRCUIT DELIVERY PIPE</b> into place		
	Assemble the <b>SPRING</b> on the sliding gear as shown on the figure.  Lubricate the inside of the spring using <b>GR MU/3</b> grease.	143167	
	Assemble the <b>SLIDING GEAR</b> on the cover and secure the <b>SPRING</b> between the two stops.		
	Assemble the <b>SPACER RING</b> and <b>O-RING</b> on the <b>KICK STARTER SHAFT</b> .  Lubricate the <b>O-ring area</b> using <b>GR MU/3</b> grease.		
	Lubricate the <b>KICK STARTER SHAFT</b> in the clutch cover operating zone using grease type <b>MOLYCOTE</b> . Install <b>KICK STARTER SHAFT</b> in the clutch cover and make sure that the gear section is engaged properly with the sliding gear. After assembly check that the spring of the sliding gear is correctly positioned between the two stops.		

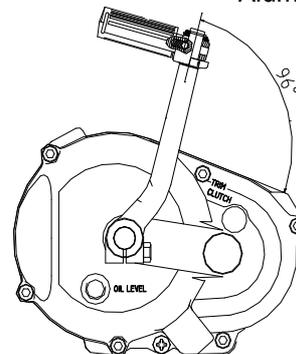
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Install and load the <b>RETURN SPRING</b> on the kick starter shaft.</p> <p>Secure the spring on the <b>backstop</b> in the clutch cover.</p>		
	<p>Assemble the <b>SPRING WASHER</b> and secure with the <b>SNAP RING</b>.</p>		
	<p>Place the <b>SPACER</b> on the kick starter shaft and secure with the snap ring.</p>		
	<p>Assemble the <b>KICK STARTER LEVER</b> and fasten by using the bolt <b>M7x25</b>.</p> <p><b>KICK STARTER LEVER POSITION</b>  <u>*Steel lever = 109°</u>  <u>*Aluminium lever = 96°</u></p> <p><u>Check axial clearance: 0.1 - 0.3 mm</u></p>		<p><b>Tightening torque</b> <b>8-10 N.m.</b></p>

**KICK STARTER LEVER POSITION**

\*Steel lever = 109°



\*Aluminium lever = 96°



**CLUTCH SIDE**

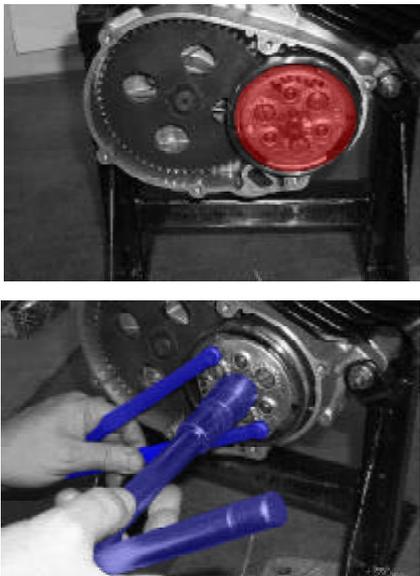
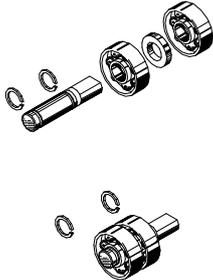
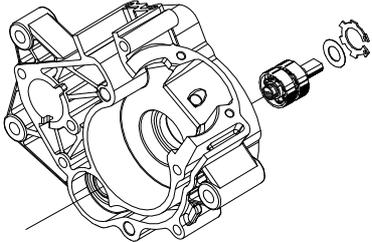
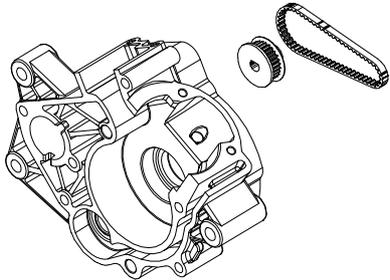
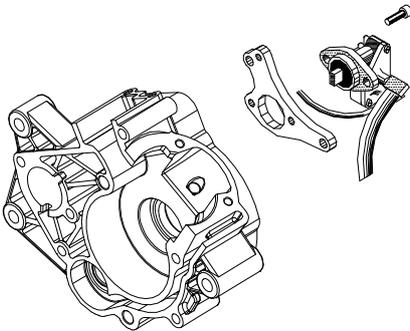
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p><u>Insert the 0.8mm SPACER RING on the crankshaft clutch side.</u></p> <p>Lubricate the clutch bell operating zone of the crankshaft using the grease type <b>ROCOL ASP MOLYCOTE</b>.</p> <p>Install the <b>CLUTCH BELL</b></p>		
	<p>Insert the 2.5 mm <b>SPACER RING</b></p>		
	<p>Install the <b>CLUTCH ON THE CRANKSHAFT, INSERT THE BELLEVILLE WASHER</b> and clamp the clutch using the <b>SPECIAL FRONT-CLUTCH NUT. (LEFT HAND THREAD)</b></p> <p><u>Add LOXEAL 83-54 to the clutch nut and tighten</u></p> <p><u>Tightening torque 50-55 N.m.</u></p> <p><u>Check the axial clearance of the clutch bell: 0.3 - 0.5 mm</u></p> <p>Assemble the clutch cover gasket.</p>	<p>Compass tool</p>	<p><b>CAUTION</b></p> <p>In order to avoid any clutch hub jamming on the spline shaft and to ensure any future disassembly operation of the clutch unit, make sure to apply <b>LOXEAL 83-54</b> exclusively on the clutch nut and <b>NOT</b> on shaft end.</p>

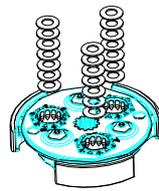
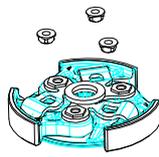
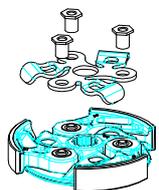
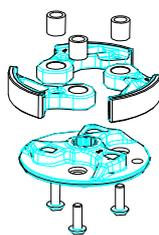
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	Mount the clutch cover and secure with <b>6 BOLTS M6 x 30</b> .		<b>Tightening torque 10-12 N.m.</b>
	Insert the <b>OIL DRAIN PLUG + WASHER</b> and tighten.		<b>Tightening torque 8-10 N.m.</b>
	Pour <b>250 cc</b> of oil type <b>AGIP RADULA 68 SAE 20W</b> and fit the <b>OIL FILLER CAP + GASKET</b> .  <b>AFTER COMPLETED ASSEMBLY CHECK THAT THE ENGINE ROTATES SMOOTHLY</b>		<b>Recommended Oil type:  AGIP RADULA 68 SAE 20W</b>

**S6 OIL MIXER PUMP**

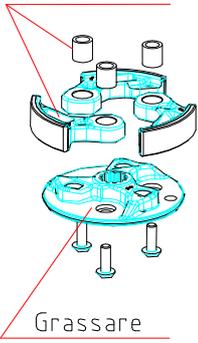
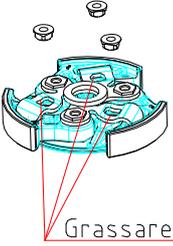
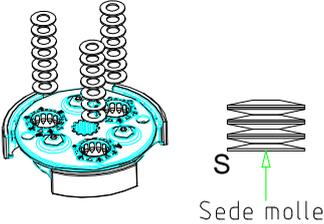
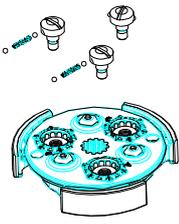
DIAGRAM	DESCRIPTION	TOOL CODE	NOTES
	<p>Preassemble the <b>2 BEARINGS</b> and <b>SPACER</b> on the <b>OIL MIXER PUMP DRIVE SHAFT</b> and secure with <b>2 SNAP RINGS</b>.</p> <p>The print on the bearings should face the drive end of the shaft.</p>		
	<p>Lubricate the bearing housing. Drive the <b>OIL MIXER PUMP DRIVE SHAFT UNIT</b> into the half crankcase flywheel side.</p>	143155	
	<p>Insert the <b>CLEARANCE SPACER</b>. Assemble the <b>BEARING SNAP RING</b>.</p>	143342	
	<p>Insert the <b>DRIVE BELT</b> onto the <b>DRIVEN PULLEY</b>.</p> <p>Install the pulley on the oil mixer pump shaft and the drive belt onto the splined part of the crankshaft.</p>		
	<p>Assemble the oil mixer pump on the support bracket and tighten the screw <b>M5x12</b>.</p> <p>In order to simplify the assembly operation of the oil mixer pump, make sure that the timing of the <b>driven pulley</b> and the <b>oil mixer pump shaft</b> do match.</p> <p>Install the <b>BRACKET</b> with <b>OIL MIXER PUMP</b> into the housing of the half crankcase flywheel side.</p>		<p><b>Tightening torque 5 - 6 Nm</b></p>

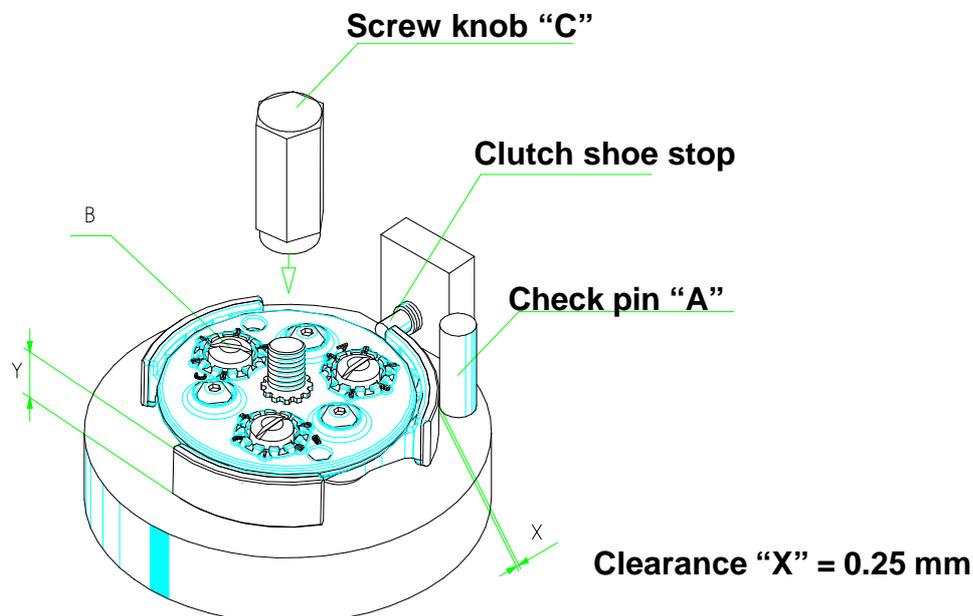
**SPECIAL 3-SHOE CLUTCH**

**DISASSEMBLY**

	<p>Remove the 3 special clutch adjusting screws.</p> <p><b>ATTENTION</b> Each screw contains 1 spring an 2 balls.</p>
	<p>Remove the <b>21 Belleville washers</b>.</p> <p><b>Take note of the assembly configuration.</b></p>
	<p>Remove the screw couplings.</p>
	<p>Unscrew the clutch shoe retainer pawls and remove the flat spring.</p>
	<p>Disassemble the clutch shoes, the bushings and the 3 clutch shoe socket screws M4x14.</p>

**SPECIAL 3-SHOE CLUTCH REASSEMBLY**

	<p><b>Grassare = Lubricate</b></p> <p>Apply a thin film of molycote grease on the shoe-holder plate. Insert the clutch shoe socket screws.</p> <p>Lubricate the outer diameter working zone of the 3 bushings with molycote grease. Insert the bushings in the clutch shoe fulcrums.</p> <p>Position and install the clutch shoes on the shoe-holder plate using the bushings as centering references. Apply a thin film of molycote grease on the working area of the flat spring.</p>
	<p>Assemble the flat spring on the clutch with the 3 clutch shoe retainer pawls and tighten.</p> <p><b>Tightening torque 5.8 - 6.8 Nm</b></p>
	<p>Lubricate the square holes in the flat spring and insert the 3 screw coupling.</p> <p><b>Grassare = Lubricate</b></p>
	<p>Insert 7 Belleville washers in each hole maintaining the correct assembly configuration. See figure.</p> <p><b>Sede molle = Spring seat.</b></p>
	<p>Place 2 balls and 1 spring in each of the 3 special clutch adjusting screws.</p> <p>Install the 3 adjusting screws making sure that the balls and the the springs remain positioned correctly in the screw housings.</p>

**SPECIAL 3-SHOE CLUTCH ADJUSTMENT PROCEDURE**

Place the clutch on the special tool code 143294 and block it using the screw knob "C". Position the clutch with one of the shoes blocked against the tool clutch shoe stop. Mount the main tool screw knob "C" and apply a constant torque of 8,5 Nm by using a dynamometric spanner tool with direct torque reading.

When keeping the torque constant, check the clearance "X" between the shoe and the check pin "A" using a thickness gauge.

**CAUTION**

The thickness gauge must make minimal friction against the parts: it should not pass freely and should not stick between the clutch shoe and the check pin.

Make sure that the thickness gauge do pass along the entire thickness "Y" of the shoes.

**ADJUSTMENT PROCEDURE (1 clutch shoe at a time)**

1/Unload the dynamometric spanner tool.

2/To increase the clearance "X" turn the screw "B" clockwise.

3/To decrease the clearance "X" turn the screw "B" anti clockwise.

4/Repeat the procedure for each clutch shoe.

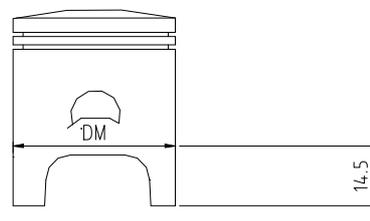
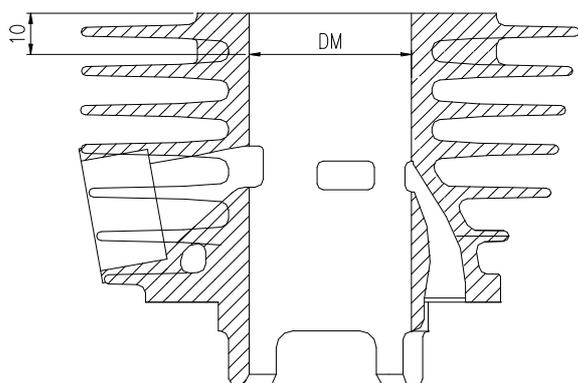


**ENGINE COMPONENT INSPECTION AND SERVICE****CYLINDER - PISTON TABLE**

<b>Part</b>	<b>Value (mm)</b>
	<b>50cc</b>
Cylinder	Ø 39
Piston	Ø 39
Piston rings :	
1)Piston ring 1st slot	Ø 39 x 2 - 0.01 - 0.025
2)Piston ring 2nd slot	Ø 39 x 1.25 - 0.01 - 0.025

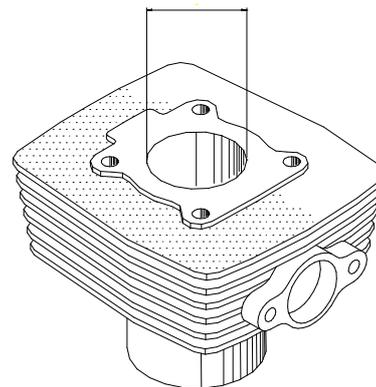
**CYLINDER - PISTON  
ASSEMBLY SELECTION TABLE**

SIZE CODE (stamped on part)	CYLINDER - PISTON DIMENSIONS mm		ASSEMBLY CLEARANCE
	CYLINDER	PISTON	
A	$\varnothing 39 \begin{smallmatrix} +0,010 \\ +0,005 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0,025 \\ -0,030 \end{smallmatrix}$	0.030 - 0.040 mm
B	$\varnothing 39 \begin{smallmatrix} +0,015 \\ +0,010 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0,020 \\ -0,025 \end{smallmatrix}$	
C	$\varnothing 39 \begin{smallmatrix} +0,020 \\ +0,015 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0,015 \\ -0,020 \end{smallmatrix}$	
D	$\varnothing 39 \begin{smallmatrix} +0,025 \\ +0,020 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0,010 \\ -0,015 \end{smallmatrix}$	
E	$\varnothing 39 \begin{smallmatrix} +0,030 \\ +0,025 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0,005 \\ -0,010 \end{smallmatrix}$	
F	$\varnothing 39 \begin{smallmatrix} +0,035 \\ +0,030 \end{smallmatrix}$	$\varnothing 39 \begin{smallmatrix} -0 \\ -0,005 \end{smallmatrix}$	

**CHECK POSITION  
For correct dimension control**


### CYLINDER CHECK

- Check the internal surface of the cylinder for signs of seizure or abnormal wear.
- Measure the internal diameter of the cylinder using a bore gauge.
- Wear limit: Minimum indicated cylinder selection diameter + 0.03mm.**
- Take measurements in three different positions along the axis of the cylinder.
- In each position take two measurements, one parallel with and the other perpendicular to the crankshaft axis.



### PISTON CHECK

- Remove the piston rings and check the piston for abnormal signs and wear.

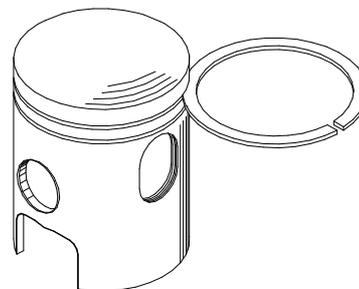
**N.B.**

The piston rings are fragile, handle with care.



### RING-TO-GROOVE MEASUREMENT.

**Wear limit: 0,08 mm max.**



### PISTON BORE MEASUREMENT.

- Maximum permitted diameter:  $12 + 0,18$  mm
- Measure the piston outside diameter in the direction perpendicular to the piston axis at **14,5 mm** from the skirt.

