

PREFACE

- This shop manual describes the technical feature and servicing procedures for the SANYANG NCA250.
- All information, illustrations, directions and specifications included in this publication are base on SANYANG NCA250.
- SANYANG reserves the right to make changes at any time without notice and without incurring any obligation whatever.

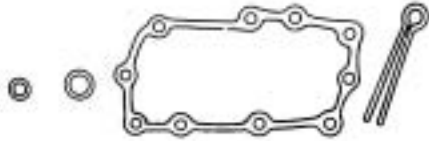


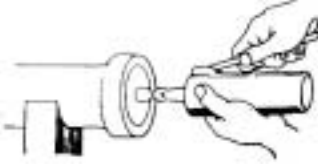




**SANYANG INDUSTRY CO.,LTD.
SERVICE DIVISION**

CONTENTS

GENERAL INFORMATION	1
INSPECTION/ADJUSTMENT	2
LUBRICATION SYSTEM.....	3
ENGINE REMOVAL/INSTALLATION	4
CYLINDER HEAD/VALVE.....	5
CYLINDER/PISTON.....	6
CLUTCH/OIL PUMP/GEAR SHIFT	7
A.C. GENERATOR	8
CRANK SHAFT/CRANK CASE/TRANSMISSION	9
CARBURETOR.....	10
HEADLIGHT/STEERING/FRONT WHEEL/FRONT FORK	11
REAR WHEEL/REAR SUSPENSION	12
BATTERY/CHARGING SYSTEM	13
IGNITION SYSTEM.....	14
SWITCHES/HORN.....	15
WIRING DIAGRAM.....	16

SERVICE RULES.....1-1	TORQUE VALUES 1-3
SPECIFICATIONS.....1-2	TROUBLE SHOOTING 1-4

SERVICE RULES:

<p>(1)Use new packings, gaskets,O-rings and cotter pins space and clips whenever reassembling.</p> 	<p>(5)Clean all removed parts in or with solvent, and lubricate their sliding surfaces upon disassembly.</p> 
<p>(2)When tightening bolts or nuts, begin on center or larger diameter bolts and tighten them in criss-cross pattern in two or more steps if necessary.</p> 	<p>(6)Coat or fill parts with specified grease where specified.</p> 
<p>(3)Use genuine SANYANG parts and lubricants or those equivalent. When parts are to be reused, they must be inspected carefully to make sure they are not damaged or deteriorated and in good usable condition.</p> 	<p>(7)Upon assembling, check every possible part for proper installation and movement or operation.</p> 
<p>(4)Use special tool when use of such a tool is specified.</p> 	<p>(8)Work safely and give your work your undivided attention. Exchange signals as frequently as possible when a work involves two or more workers. Do not run the engine unless the shop or working area is well ventilated.</p> 

Symbol Marks:



:Apply engine oil.



:Apply grease.

NOTE: Things must be noticed.

CAUTION: Things that could cause damage to the engine parts.

WARNING: Things that could cause damage to the person or partner.

ENGINE

TIGHTEN LOCATION	Q'TY	THREAD DIA(mm)	TORQUE(kgf . cm)
Oil plate pan screw	3	6	80~120
Crank shaft bolt	5	8	180~220
Crank shaft nut	1	7	70~110
Cylinder head nut	3	6	80~120
Cylinder head cover	2	6	80~120
Cam shaft sprocket bolt	2	7	80~120
Crank case bolt	10	6	80~120
L crank case cover bolt	7	6	80~120
Fly wheel bolt	1	10	400~500
A.C.G. socket bolt	3	5	50~70
Start motor bolt	4	6	80~120
R crank case cove bolt	10	6	80~120
Cam shaft holder nut	8	8	180~220
Primary drive gear nut	1	16	400~500
Oil pump flat bolt	3	6	80~120
Clutch lock nut	1	16	400~500
Shift durm stopper	1	6	80~120
Shift cam bolt	1	6	80~120
Cam chain adjuster screw	1	6	80~120
Drain oil bolt	1	12	150~250
Gear shift spindle bolt	1	8	100~150

FRAME

TIGHTEN LOCATION	Q'TY	THREAD DIA(mm)	TORQUE(kgf . cm)
Front wheel nut	1	14	600~800
Rear wheel nut	1	14	1000~1200
Rear fork pivot nut	1	14	800~1000
Engine hanger nut	3	10	450~550
Handle pipe upper holder bolt	4	8	180~ 250
Steering stem nut	1	22	600~900
Front fork nut	1	22	400~500
Rear shock absorber	4	10	300~400
Rear brake torque link	1	8	150~200
Front fork top bridge	2	7	100~140
Rear fork bottom bridge	2	8	240~300
Final drive sprocket	4	10	270~330
Seat bolt	2	8	200~250
Drive sprocket bolt	2	6	100~140

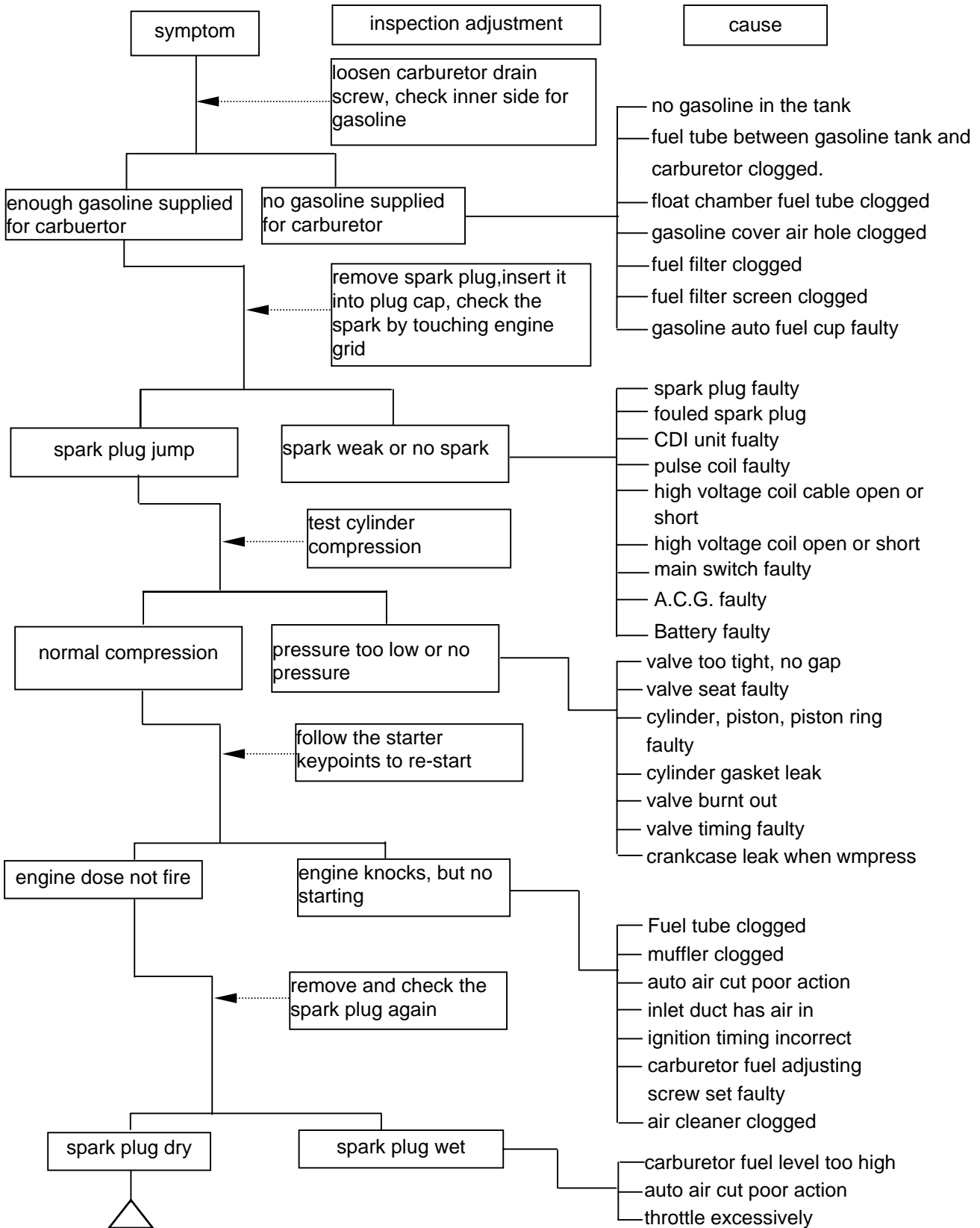
STANDARD TORQUE

TYPE	TORQUE(kgf.cm)	TYPE	TORQUE(kgf.cm)
5 mm bolt, nut	45~60	5 mm bolt	35~50
6 mm bolt, nut	80~120	6 mm bolt	70~110
8 mm bolt, nut	180~250	6 mm flange bolt, nut	100~140
10 mm bolt, nut	300~400	8 mm flange bolt, nut	240~300
12 mm bolt, nut	500~600	10 mm flange bolt, nut	350~450

Torque specifications listed below for respective locations.

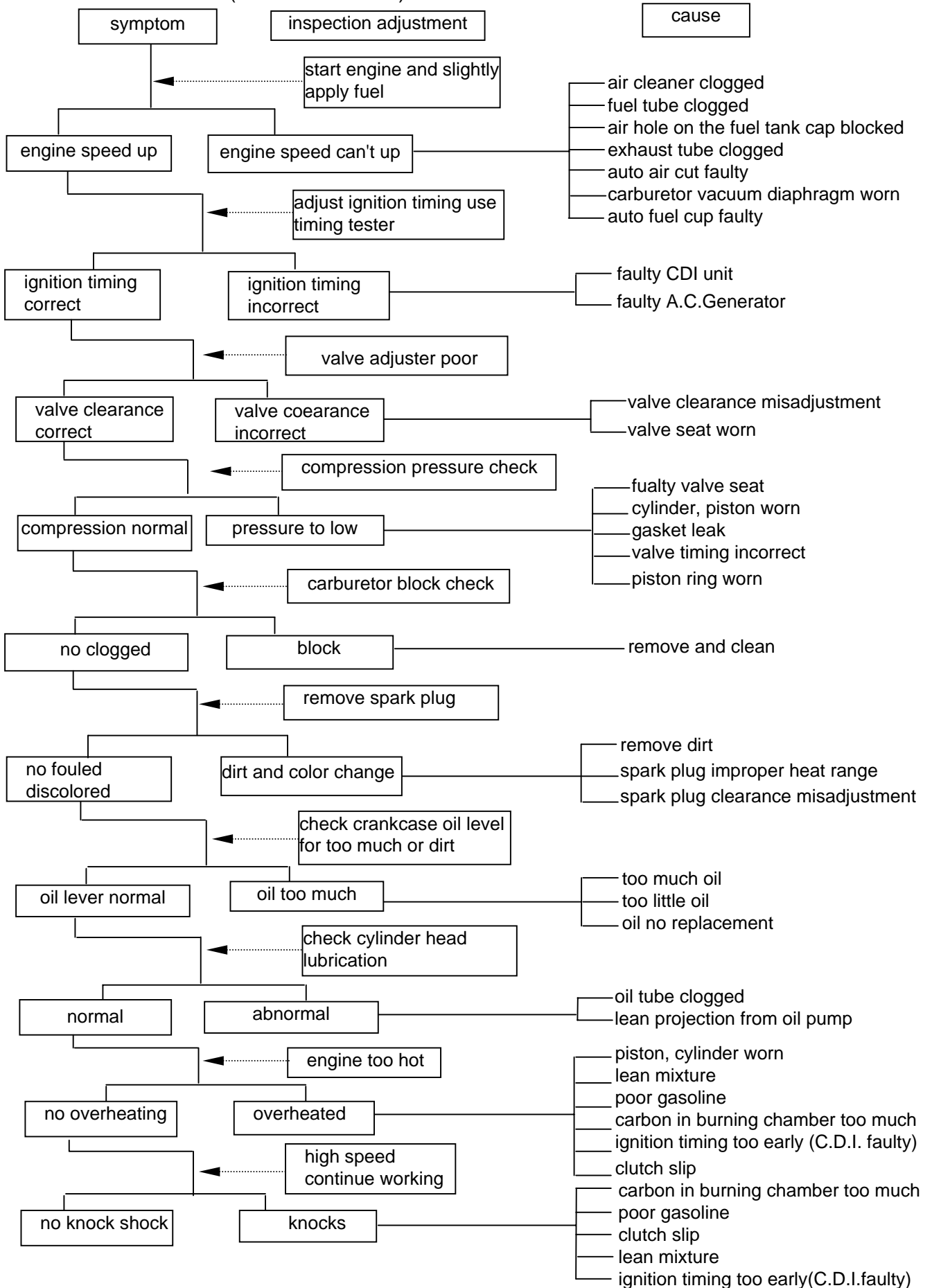
TROUBLE SHOOTING

A. HARD START OR CANNOT START

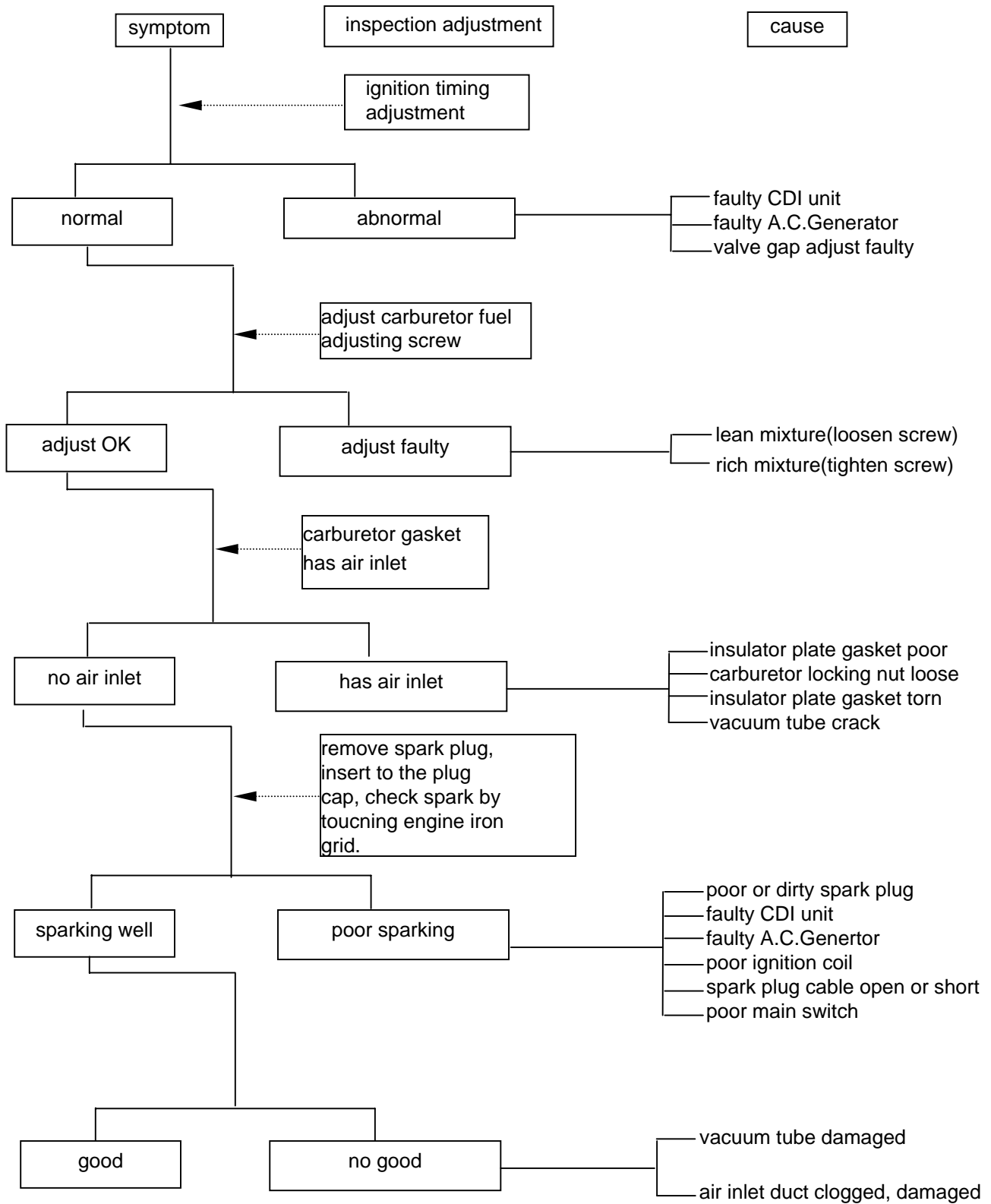


start engine with choke closed

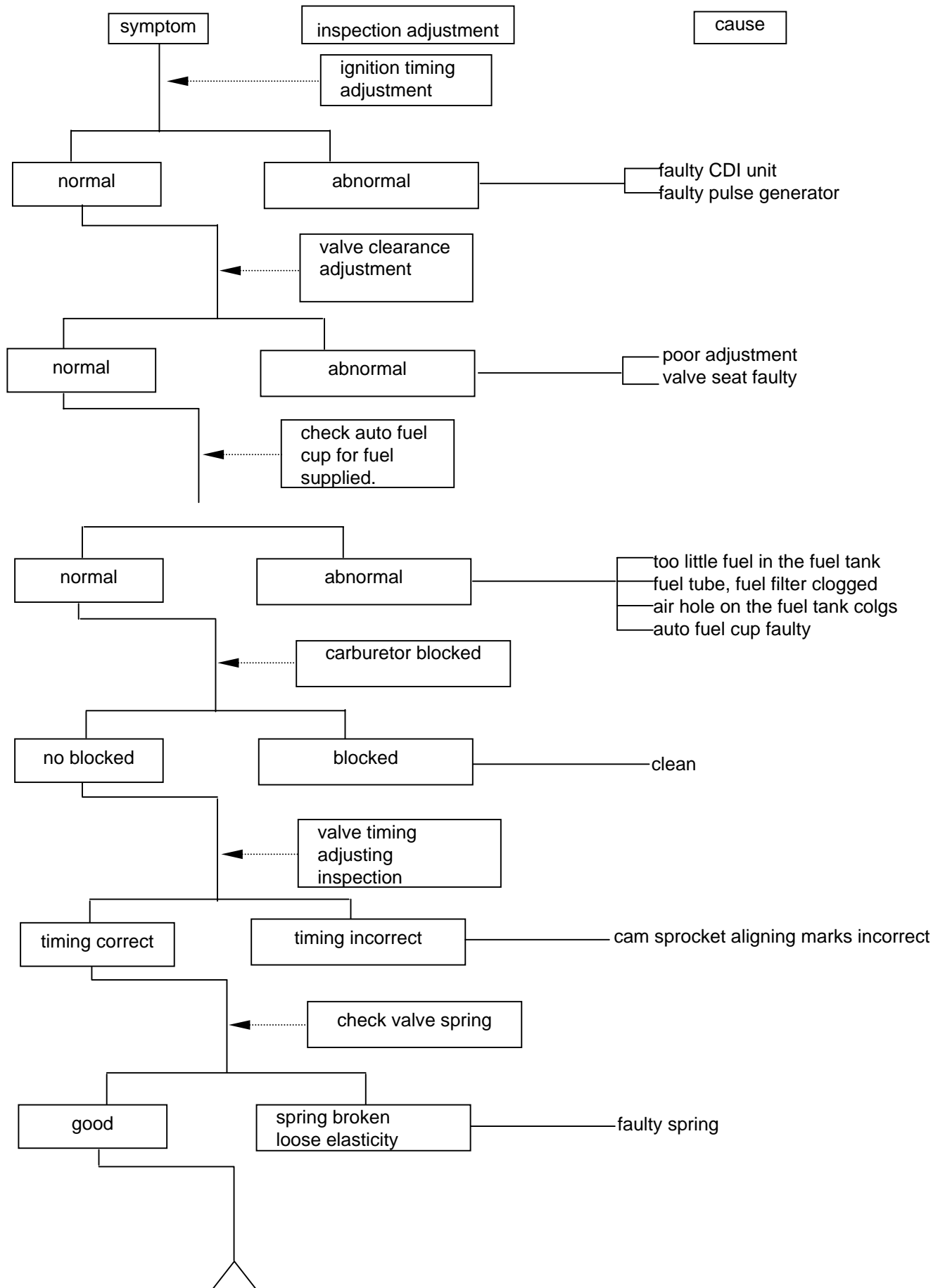
B. ROTATION ROUGH (LACKS POWER)



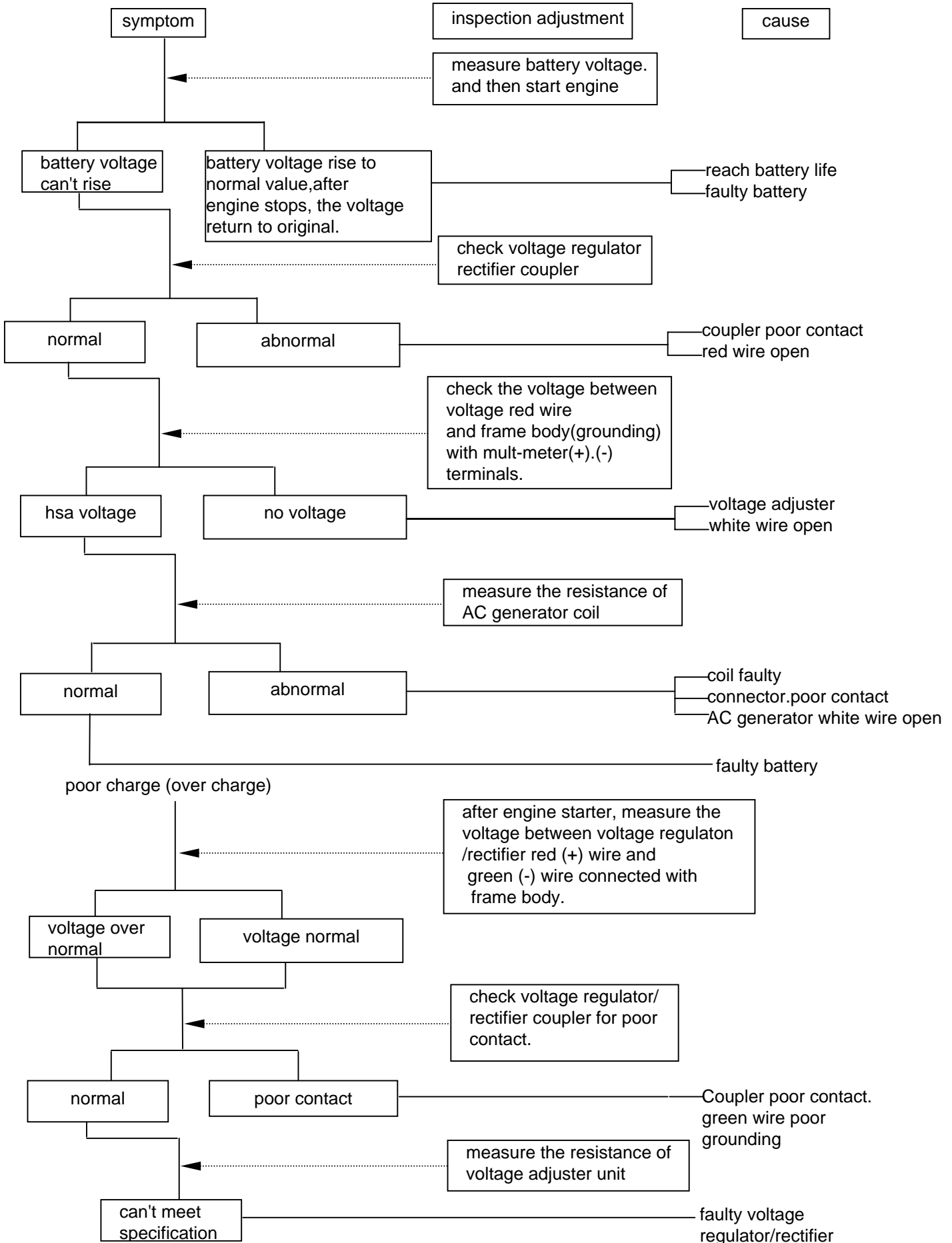
C. ROTATION ROUGH (ESPECIALLY IN THE LOW SPEED AND IDLE SPEED)



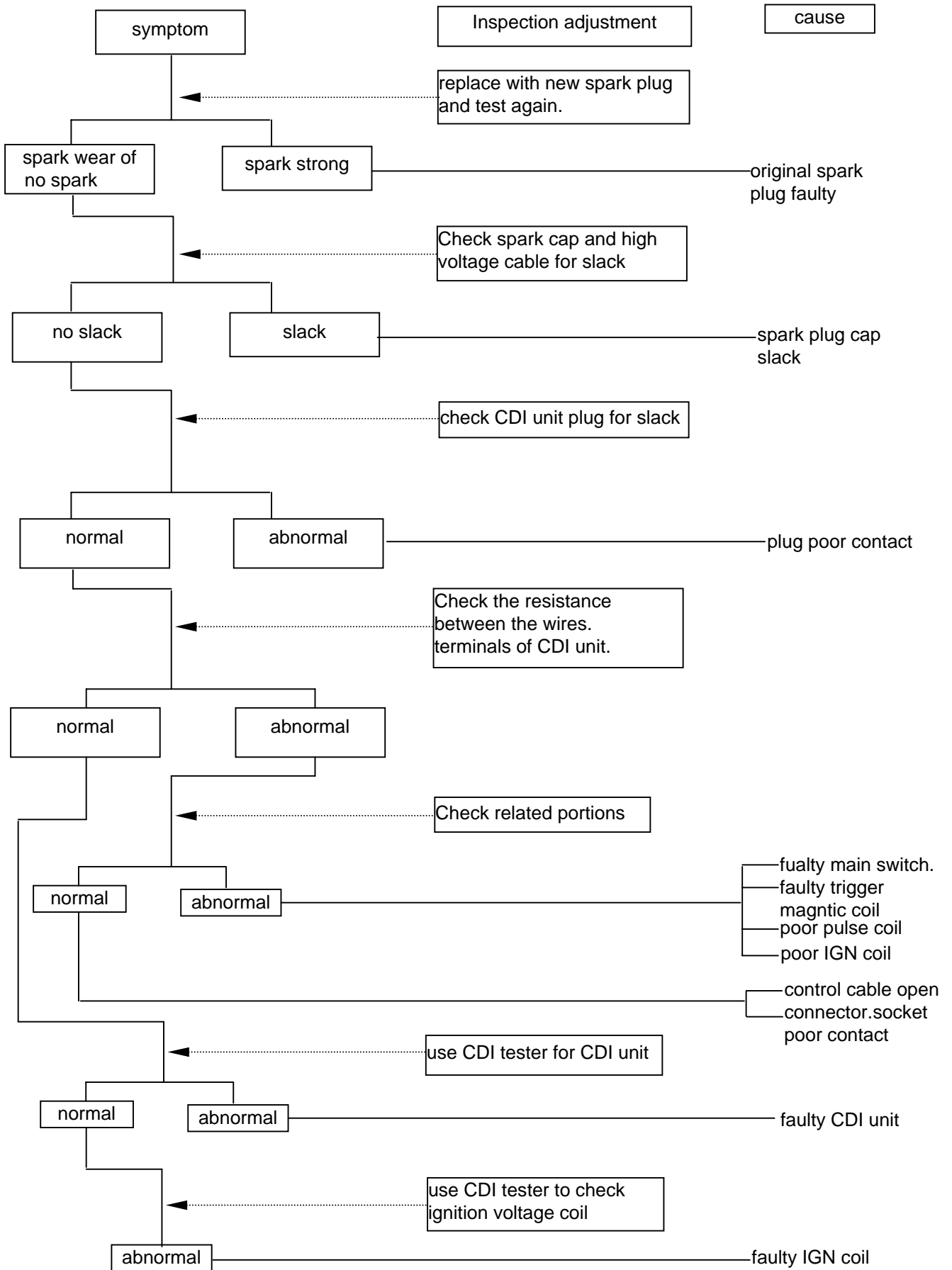
D. ROTATION ROUGH (HIGH SPEED)



E. POOR CHARGE (BATTERY OVER DISCHARGE OR OVER CHARGE)



F.SPARK PLUG NO SPARK



ENGINE	FRAME
MAINTENANCE SCHEDULE2-2	AIR CLEANER..... 2-12
SERVICE INFORMATION2-3	CLUTCH ADJUSTMENT 2-12
ENGINE OIL/OIL FILTER2-4	BRAKE ADJUSTMENT 2-13
SPARK PLUG2-5	DRIVE CHAIN ADJUSTMENT 2-14
COMPRESSION TEST.....2-6	WHEELS/RIM..... 2-15
VALVE CLEARANCE2-7	SUSPENSION 2-16
IGNITION TIMING2-8	STEERING 2-17
CAM CHAIN TENSION ADJUSTMENT2-9	BATTERY 2-17
THROTTLE GRIP ADJUSTMENT2-10	HEAD LIGHT AIM..... 2-18
IDLING SPEED ADJUSTMENT.....2-11	STOPLIGHT SWITCH..... 2-18

2.INSPECTION/ADJUSTMENT



MAINTENANCE SCHEDULE

Item	Check Items	Maintenance kilometer	300KM	Every 1000KM	Every 3000KM	Every 6000KM	Every 12000KM
		Maintenance Interval	NEW	1 Month	3 Months	6 Months	1 Year
1	Air cleaner		I	C			R
2	Gasoline filter		I			C	R
3	Oil filter		C	Replacement for every 5000KM R			
4	Oil filter screen		C	Cleaning for every 5000km C			
5	Engine Oil		R	Replacement for every 1000KM R			
6	Wheels tires		I	I			
7	Battery		I	I			
8	Brake and operation free play		I	I			
9	Steering stem bearing					I	
10	FR./RR. Cushion		I		I		
11	Screws/nuts		I	I			
12	Spark plug		I		R		
13	Clutch		I		I		
14	Frame of lubrication					L	
15	Exhaust muffler		I	I			
16	Carburetor		I	I			
17	Ignition timing		I	I			
18	Emission		I	I			
19	Idle speed		I	I			
20	Gasoline system		I		I		
21	Throttle cable		I		I		
22	Engine bolt torque		I		I		
23	Deposit of exhaust outlet						I
24	Cylinder head/cylinder Piston exhaust system deposit				I		
25	Cam chain		I		I		
26	Valve clearance		I	I			
27	Light/electrical appliance/Meter		I	I			
28	Side stand & Spring		I			I	

The table is referred to the driving distance about 1000km per month

I-inspection, cleaning, adjustment or replacement (if necessary)R-replacement C-leaning L-lubrication

REMARK: Ridden in unusually dusty areas, require more frequently air filter element cleaning.

SERVICE INFORMATION SPECIFICATLON

ENGINE

Oil capacity	1.1 ~ 1.5 liter
Spark plug gap	A6RTC
Spark plug gap	0.6-0.7mm
Valve clearance IN	0.08mm
EX	0.10mm
Cylinder compression	12.5kg/c m ² ±2kg/c m ²

Clutch lever free play	10-20mm
Drive chain slack	10-20mm
Front brake lever free play	10-20mm
Rear brake pedal free play	20-30mm
Throttle grip free play	2-6mm

FRAME

SPECIAL TOOL

Valve clearance adjuster

TORQUE VALVES

Right crankcase cover	80-120 kgf . cm
Front fork top bridge bolt	100-140 kgf . cm
Front fork bottom bridge bolt	200-250 kgf . cm
Rear wheel axle nut	400-550 kgf . cm
Rear shock absorber nut	300-400 kgf . cm
Rear fork pivot bolt	350-450 kgf . cm

OIL/OIL FILTER OIL LEVEL CHECK

Start and warm up the engine for few minutes,then stop the engine.

Check the oil level with oil level gauge after a few minutes.

If the oil level is near the lower mark,fill the crankcase to the upper level mark with the recommended grade oil.



OIL REPLACEMENT

NOTE:

Drain the engine oil while the engine is warm.

Remove the drain bolt, and drain the engine oil.

NOTE :

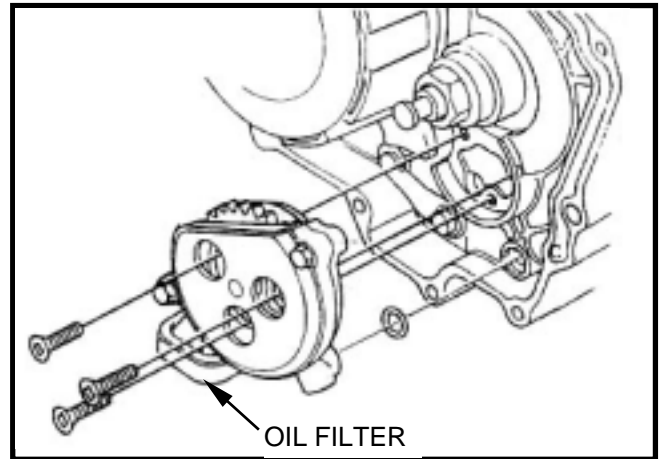
Make sure that the drain bolt washer is in good condition.

Fill the crankcase up to the upper level mark on the oil level gauge with the recommended oil:15W-40 API:SH/CD



OIL FILTER SCREEN CLEANING

Remove the drain bolt, and drain the engine oil.
Remove the right crankcase cover.
Remove the pump.
Clean the oil filter screen with compressed air.
Assemble the filter screen in reverse order of disassemble.

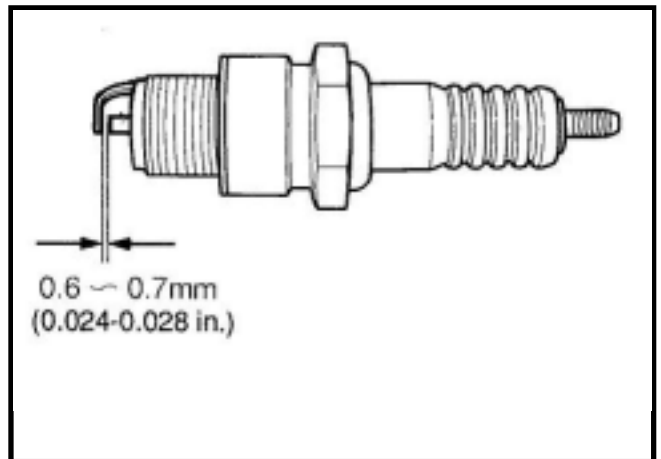


SPARK PLUG

Disconnect the spark plug cap and remove the spark plug .
Visually inspect the spark plug electrodes for wear.
The center electrode should have square edges and side electrode should have a constant thickness.
Discard the spark plug if there is apparent wear or if the insulator is cracked and/or chipped .If the spark plug deposits can be removed by sandblasting or wire brushing,the spark plug can be reused.
Inspect the gap with a feeler gauge and adjust by bending the side electrode.
Standard gap:0.6-0.7mm

NOTE:

To install turn finger tight then tighten with a spark plug wrench.



COMPRESSION TEST

Warm up the engine.

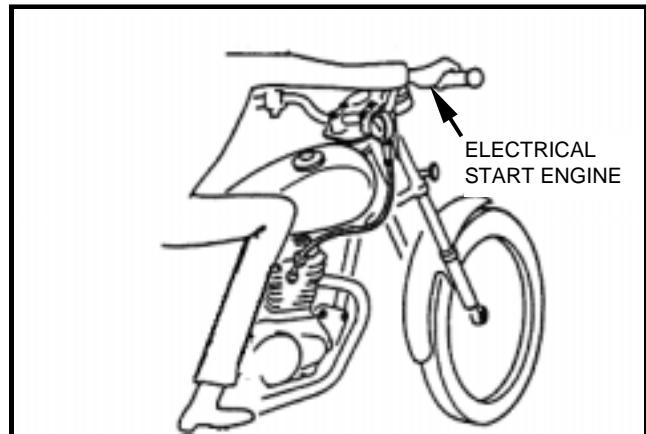
Stop the engine .Remove spark plug .Insert the compression gauge.

Push in the choke lever .Open the throttle grip fully.

Electrical start engine several times.

NOTE:

- Watch for compression leaking at the gauge connection.
- Crank the engine until the gauge reading stops rising .The maximum reading is usually reached in several times.



Compression: $9.5\text{kg/c m}^2 \pm 1\text{kg/c m}^2$

Low compression can be caused by:

- Improper calve adjustment.
- Valve leakage .
- Blown cylinder head gasket.
- Worn piston rings or cylinder.
- Worn piston.

High compression can be caused by:

- Carbon deposits in combustion chamber or on piston head.

VALVE CLEARANCE

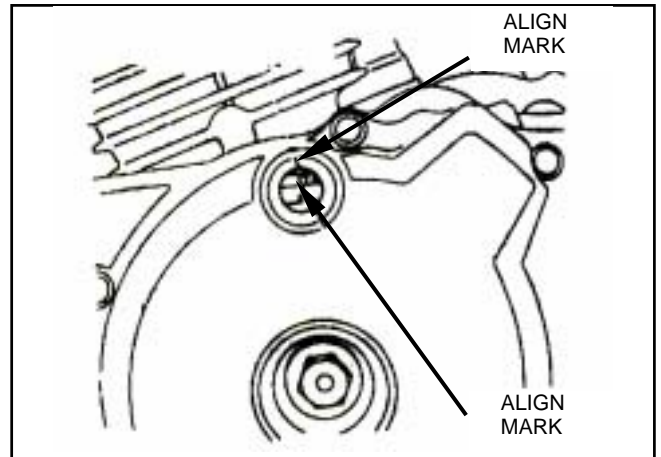
NOTE:

Inspect and adjust the valve clearance while the engine is cold.

Remove the timing inspection hole cap and crankshaft hole cap.

Rotate the generator rotor counterclockwise and align the "T" mark on the generator rotor with the index mark in the left crankcase

(piston must be at T.D.C.of the compression stroke).



Inspect the intake and exhaust valve clearance by inserting a feeler gauge between the adjusting screw and valve stem, valve clearance:

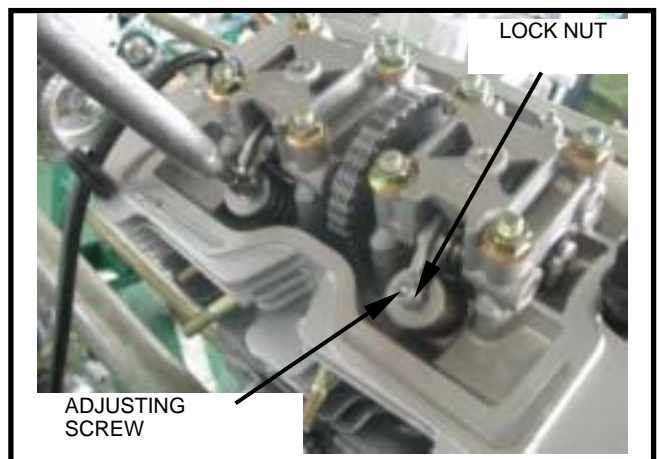
Intake: 0.08mm

Exhaust: 0.10mm

Adjust by loosening the lock nut and turning the adjusting screw until there is a slight drag in the feeler gauge.

NOTE:

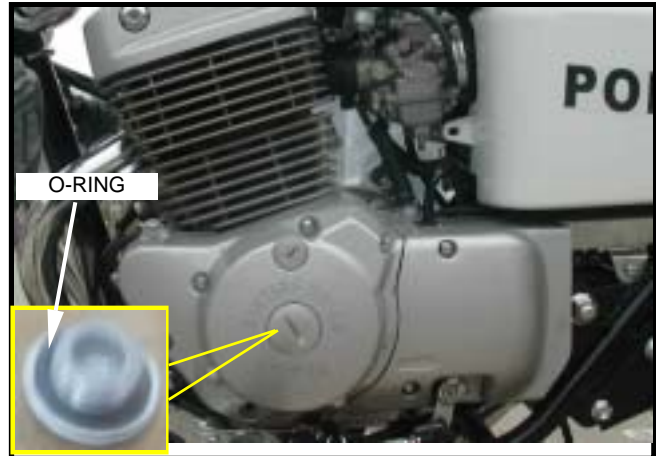
Inspect the valve clearance again after tightened the lock nut.



Install the valve adjuster caps and generator cap.

NOTE:

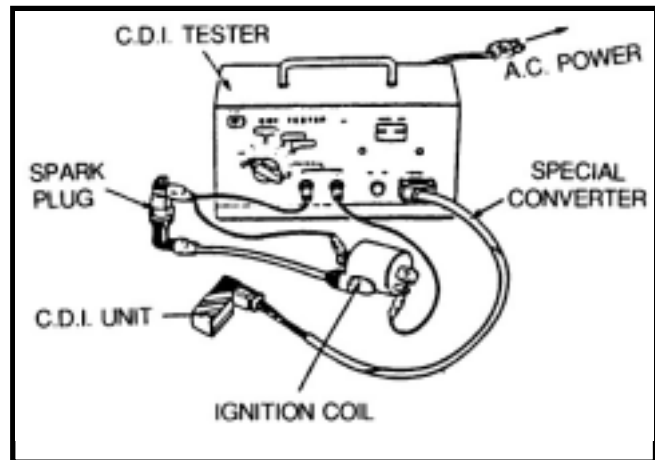
Check the O-ring for damage and spread oil before installing the caps.



IGNITION TIMING

The C.D.I.ignition timing is not adjustable.
If the ignition timing is not correct ,check the C.D.I.unit and A.C.generator and replace any faulty parts.

Use the standard tester to check the ignition timing.
Spark plug inspection and adjustment.
Replace the coil if there is no sparks at plug.



IGNITION TIMING INSPECTION

Remove the generator cover and check the ignition timing with a timing light.

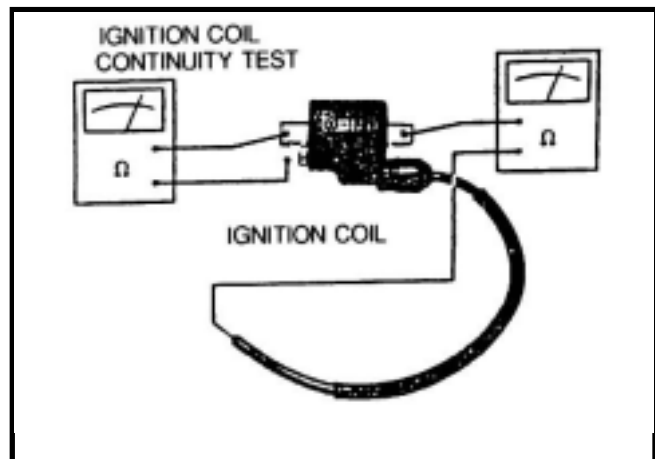
Timing is correct if the index mark aligns with the "F" mark within $\pm 3^\circ$ at 1500rpm.

Ignition timing : 10° BTDC/1500rpm.

Ignition coil continuity test :

Check the resistance of the primary coil and secondary coil.

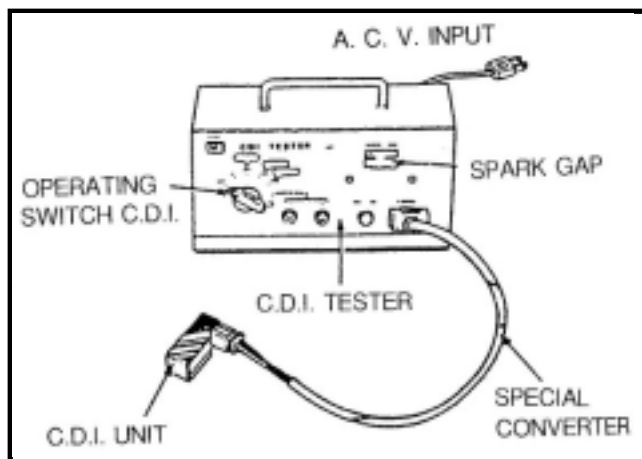
1.Primary coil	0.31 ± 0.03
2.Secondary coil	$4.0 \pm 0.4k$



2.INSPECTION/ADJUSTMENT

Inspect the C.D.I unit with C.D.I tester.
 Replace the faulty C.D.I unit.

SWITCH	C.D.I. normal	C.D.I faulty
1. OFF	no sparks	-----
2. P	no sparks	-----
3. EXT	no sparks	sparks
4. ONI	sparks	no sparks
5. ONZ	sparks	no sparks



CAM CHAIN TENSIONER ADJUESTER

The cam chain tension is kept by the tensioner push rod that is compressed by the spring.

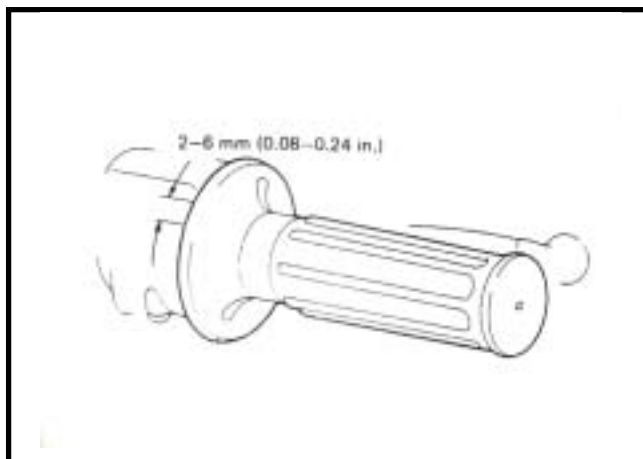
CAUTION:

If remove any parts that is related with the cam chain ,remove the cam chain tensioner adjuester first.



CARBURETOR THROTTLE GRIP FREE PLAY

Check throttle grip free play.
Free play:2-6mm



THROTTLE GRIP ADJUSTMENT

Loosen the lock nut and turn the adjuster to adjust.



IDLING SPEED ADJUSTMENT

Warm up the engine.

Turn the stop screw to obtain the idling speed of 1100rpm.

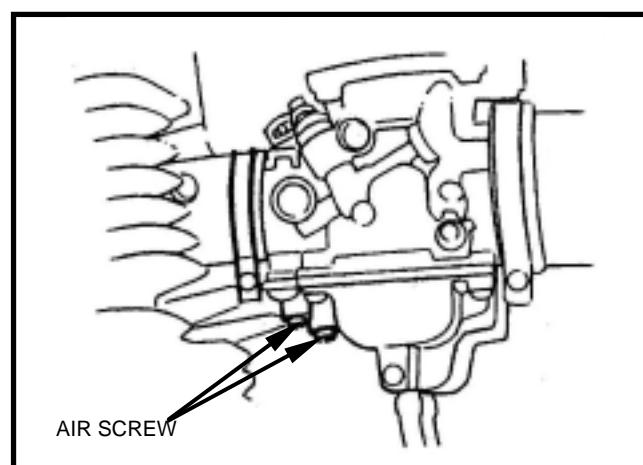
Turn the air screw to the maximum speed, then turn the stop screw to obtain the specified idling speed.

Idling speed: 1500 ± 100 rpm

NOTE:

Turn the air screw clockwise for making fuel –air mixture lean.

Turn counterclockwise for rich.

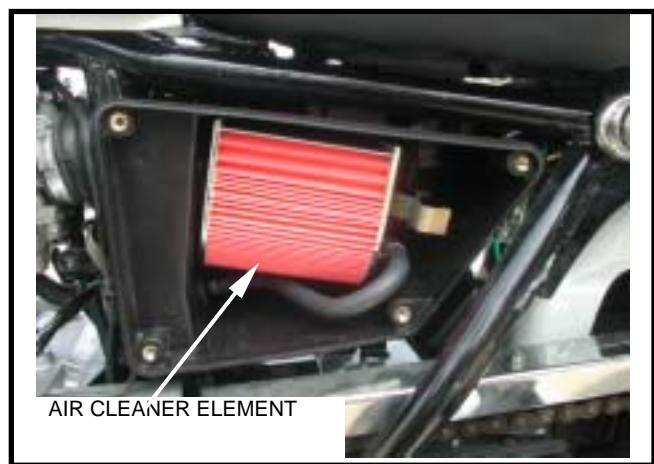
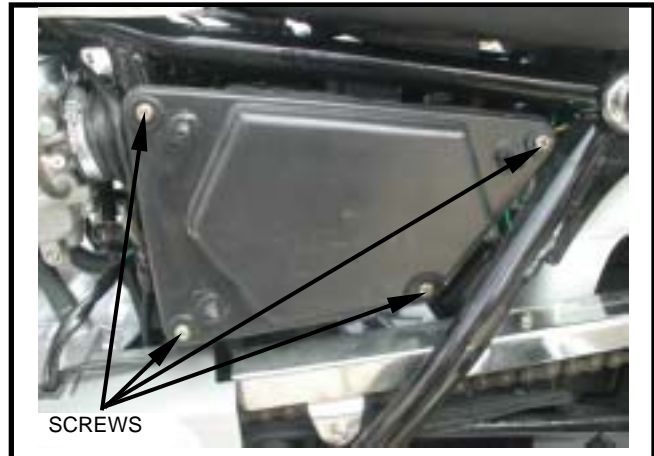


AIR CLEANER

Remove the left side cover.
Remove the air cleaner cover.
Remove the air cleaner element.

NOTE:

Clean the cleaner element periodically.(Refer to maintenance schedule.)



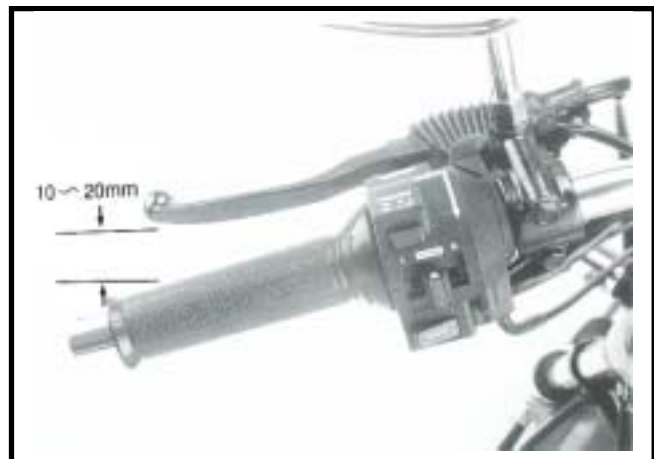
Assemble air cleaner element in reverse order of disassemble.

CLUTCH ADJUSTMENT

CLUTCH LEVER FREE PLAY

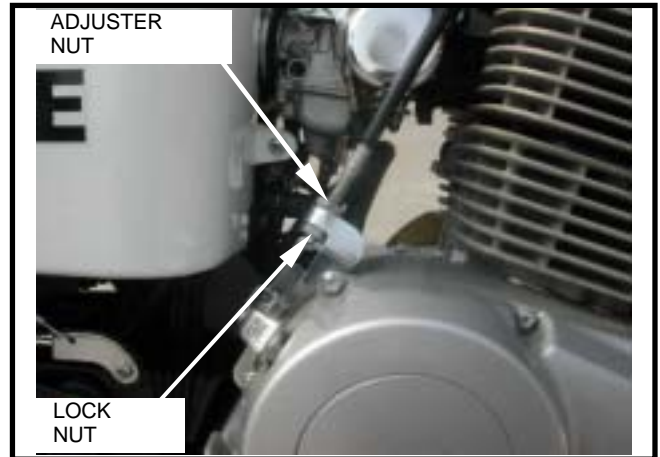
Measure the clutch free play at the tip of the clutch lever.

Free play :10-20mm

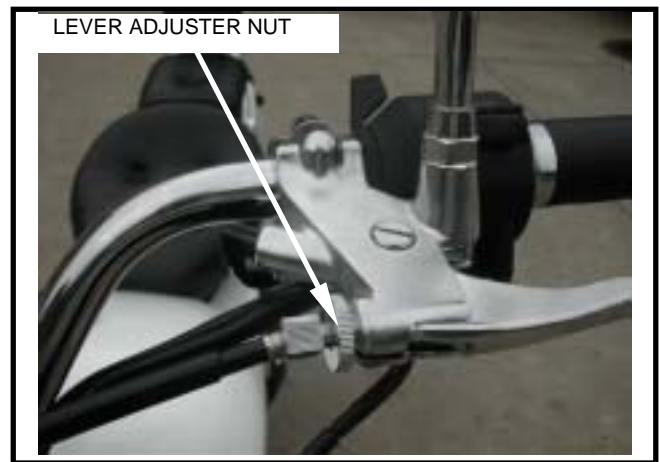


FREE PLAY ADJUSTMENT

Loosen the lock nut and turn the adjuster.
Turn the adjuster ,clockwise for decreasing the free play ,counterclockwise for increasing the free play.



Or adjust clutch lever adjuster nut.

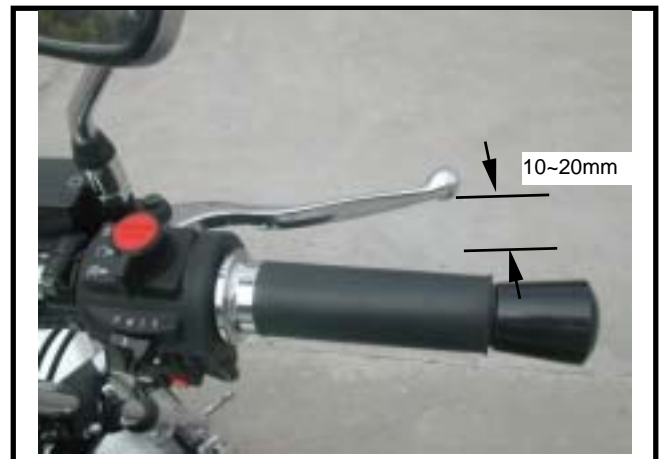


BRAKE ADJUSTMENT

FRONT BRAKE LEVER FREE PLAY

Measure the brake free play at the tip of the brake lever.

Free play:10-20mm



BRAKE PAD WEAR INSPECTION

Check for brake pad wear by operating the brake lever.
Check the brake pads for wear by looking through the slot indicated by the arrow cast on the caliper assembly.

Replace the brake pads if the wear line on the pads reaches the edge of the brake disc.



REAR BRAKE PEDAL FREE PLAY

Measure the brake pedal free play before the brake start to engage.

Free play :20-30mm



REAR BRAKE PEDAL ADJUSTMENT

Turn the adjuster clockwise for decreasing the clearance ,counterclockwise for increasing the clearance.

CAUTION:

Keep the adjuster at the right position.



DRIVE CHAIN ADJUSTMENT

Place the motorcycle on its side stand and shift the transmission into neutral.

Remove chain cap and check the drive chain slack by moving up and down with the fingers.

Chain slack:10-20mm



2.INSPECTION/ADJUSTMENT



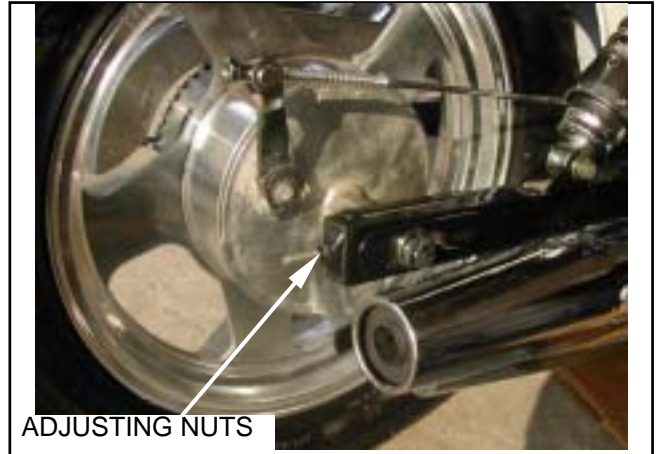
Loose the rear wheel axle nut for adjusting.
Turn the adjusting nuts on both adjusters as necessary.

CAUTION:

Tighten the axle nut.

TORQUE:1000-1200 kgf . cm

Recheck the drive chain slack and free wheel rotation.
Lubricate the drive chain with chain lubricant.



WHEEL/RIM

Stand the motorcycle,check the tires for cuts,imbedded nails,or other sharp objects.
Check the tire pressure.

Cold tire	One rider	Front 2.25 kg/c m ² Rear 2.50 kg/c m ²
	Two riders pressure	Front 2.50 kg/c m ² Rear 2.50 kg/c m ²
Max.load		120kg
Tire size		Front 90/90-18 Rear 130/90-15
Min. depth of tread		Front 1.5mm Rear 2.0mm

SUSPENSION

FRONT SUSPENSION

Check the action of the front forks by compressing them several times with the front brake applied .
If there are abnormal noises or rattles ,check all the fasteners and tighten them to the specified torque.

TORQUE:

Front fork top bridge bolt :100-140 kgf . cm

Frint fork bottom bridge bolt :240-300 kgf . cm

Axle nut:600-800 kgf . cm



REAR SUSPENSION

Check for abnormal noises and leaks by compressing the rear suspension several times.

Check the rear suspension nut for loosing

Torque:300-400 kgf . cm

Move the rear wheel side ways with force to see if the swing arm bushings are worn.

Rear fork torque:800-1000 kgf . cm



STEERING

Raise the front wheel off the ground and check that the handlebar rotates freely.If the handlebar moves unevenly ,binds or has vertical movement,adjust the steering head nut.



BATTERY

Inspect the battery fluid level ,if the fluid level nears the lower level mark,fill with distilled water to the upper level mark .

Clean the battery terminals with warm water.

Check the specific gravity of the battery electrolyte.(13-3)

NOTE :

Do not overfill. Add only distilled water.
Tap water will shorten the service life of the battery.

WARNING:

Keep the electrolyte away from eyes ,skin and clothes. If touched it ,wash them with clean water quickly.



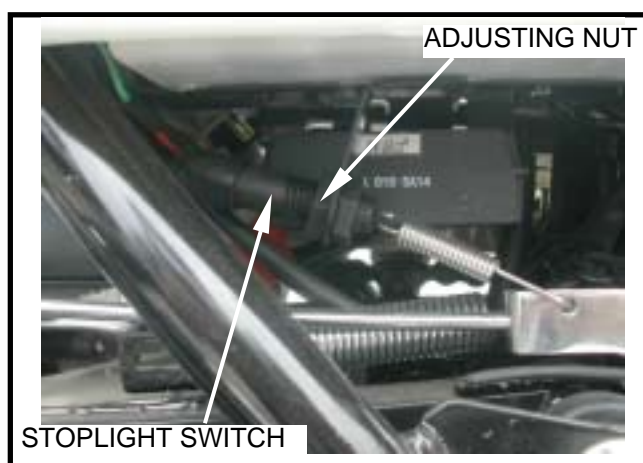
HEADLIGHT AIM

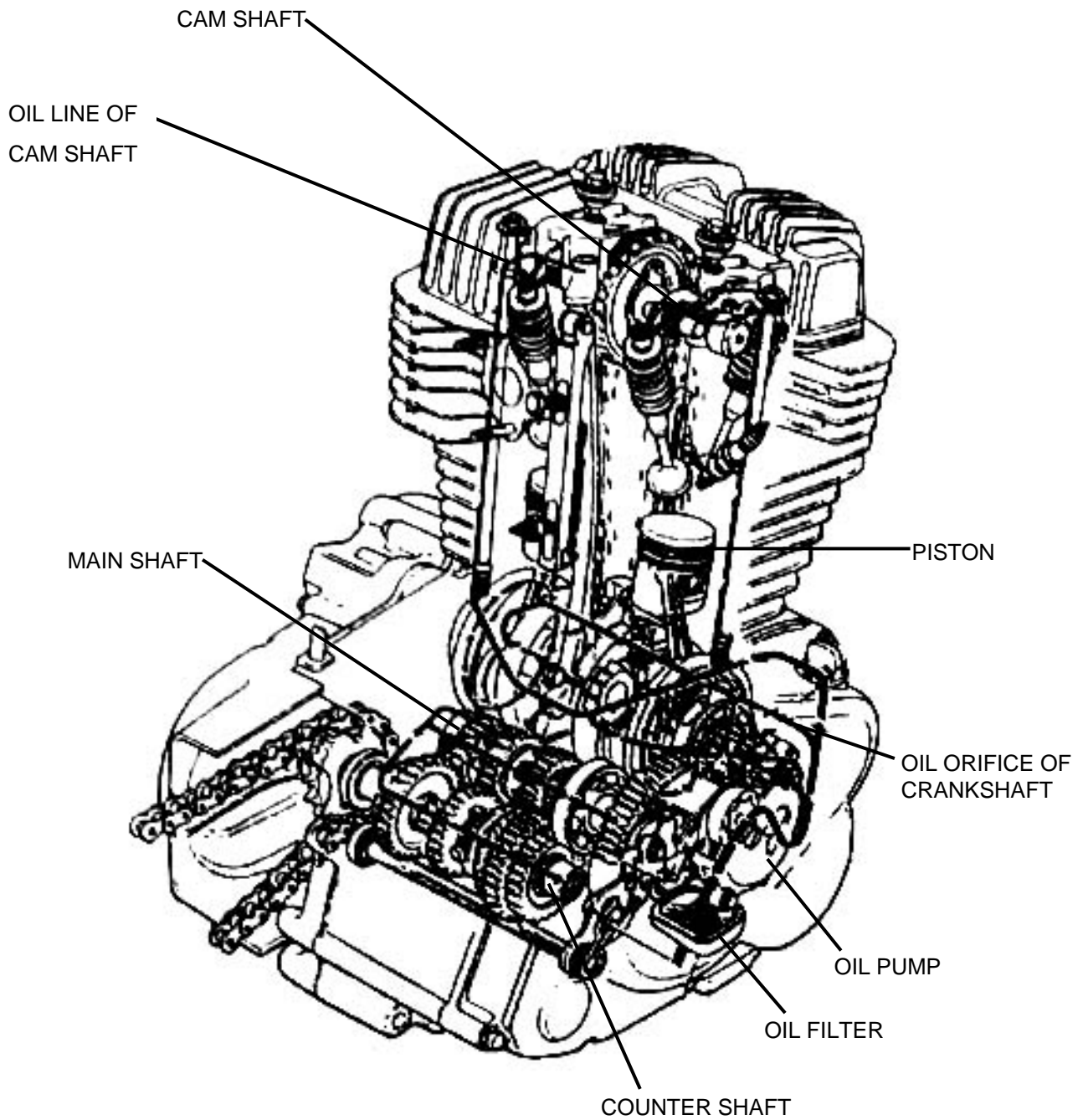
Adjust vertically by turning headlight up and down with the headlight bolts loosening.
Fasten the bolts after adjustment.



STOPLIGHT SWITCH

The stoplight should come on when the brake pedal is depressed 20mm from the standard pedal position. If the action is abnormal, adjust by turning the stoplight switch adjusting nut.





TROUBLE SHOOTING 3-1	SERVICE INFORMATION 3-1
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TROUBLE SHOOTING

OIL LEVEL TOO LOW

1. Natural consumption
2. Oil leaks
3. Worn piston rings

OIL CONTAMINATION

1. Oil not changed often enough
2. Faulty cylinder head gasket

OIL PRESSURE TOO LOW

1. Oil filter clogged
2. Oil pump damaged

OIL PRESSURE TOO HIGH

1. Oil filter or line clogged
2. Oil not recommended

NO OIL PRESSURE

1. Oil level too low
2. Oil pump damaged

SERVICE INFORMATION

NOTICE:

Inspection and service of oil pump can be serviced with the engine installed on the frame.

Oil pump service --- 7-9

Oil filter cleaning --- 2-4 ~ 2-5

SPECIFICATIONS

Oil capacity	1.1~1.5 liter
Oil recommended	SAE 15W-40 API:SH/CD
Oil pump delivery	3.5 liter above / min. / 4600rpm

SERVICE INFORMATION4-1	ENGINE INSTALLATION 4-5
ENGINE REMOVAL4-2	

SERVICE INFORMATION

GENERAL INSTRUCTIONS

The following parts can be serviced with the engine installed on the frame:

- Generator
- Clutch
- Oil pump
- Cam shaft / Rocker arm
- Shift spindle
- Cam chain tensioner

The following parts must be serviced with the engine removed off the frame:

- Cylinder head
- Cylinder
- Piston
- Crankshaft
- Transmission

During removal and installation, jack or adjustable support is required to maneuver the engine.

TORQUE VALUES

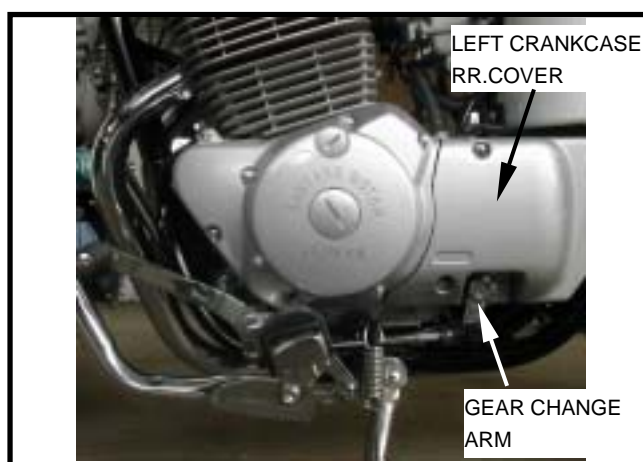
Engine hanger 10mm bolt / nut	450-550 kgf · cm
Drain bolt	300-500 kgf · cm
Gearshift pedal bolt	80-120 kgf · cm

ENGINE REMOVAL

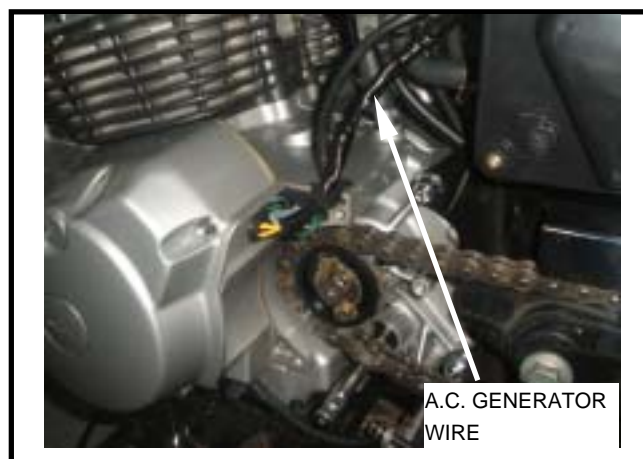
Drain the engine oil.
Disconnect the fuel tubes and all connect tubes.
Remove the right and left side covers.



Remove the gear change pedal and left crank case rear cover.



Disconnect the A.C. generator wire of the connector and remove the generator wire.



4.ENGINE REMOVAL/INSTALLATION



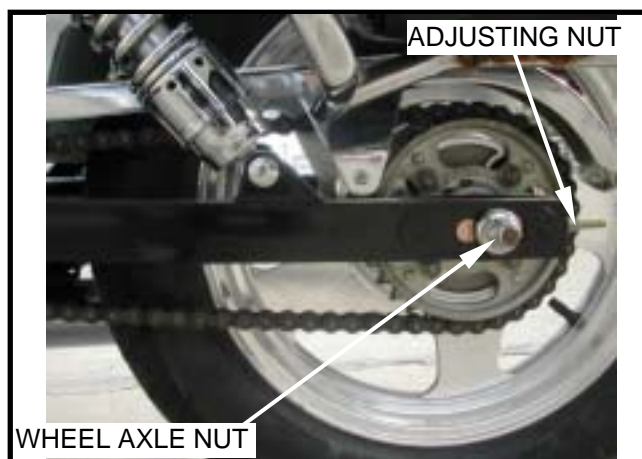
Remove the clutch cable.
Remove the spark plug cap.
Remove the muffler.



Loosen carburetor clip.
Separate the carburetor pipe and the cylinder head by removing the attaching bolts.
Remove the crankcase breather tube.



Loosen the rear wheel axle nut.
Loosen the drive chain adjusting nut and push the rear wheel forward.
Remove the drive chain clip, and remove the drive chain.



4.ENGINE REMOVAL/INSTALLATION

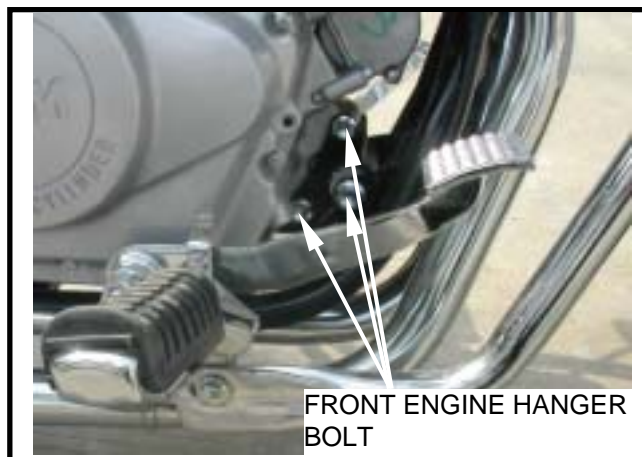


Remove the front engine hanger bolt.

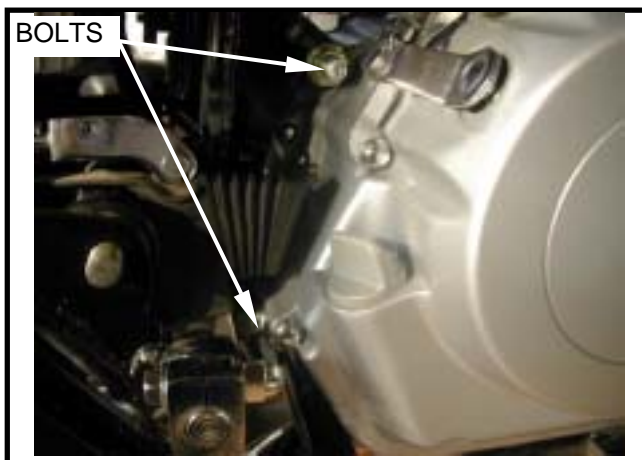
NOTE:

Places jack or padded block under the engine before removing the front engine hanger.

Disconnect the starter motor wire.



Remove the 10mm bolts of the rear engine hanger.



Remove the engine.

NOTE:

Prevent damage to wire harnesses and cables during operation.



ENGINE INSTALLATION

Follow the reverse procedure of removal to install the engine.

Notice the following items during installation:

- Route all wire harnesses and cables properly.
- Adjust the throttle grip free play (P2-10)
- Adjust the clutch lever free play (P2-12)
- Adjust the drive chain slack (P2-14)
- Fill the crankcase with the recommended grade oil to the proper level.

SAE 15W-40 API: SH / CD



TROUBLE SHOOTING.....5-1	VALVE GUIDE REPLACEMENT 5-8
SERVICE INFORMATION.....5-2	VALVE SEAT INSPECTION/REFACING ... 5-9
CAM SHAFT REMOVAL5-3	VALVE SEAT GRINDING.....5-10
CYLINDER HEAD/ROCKER ARM REMOVAL5-4	CYLINDER HEAD ASSEMBLY 5-13
CYLINDER HEAD DISASSEMBLY5-6	CYLINDER HEAD INSTALLATION ...5-14
VALVE/VALVE GUIDE INSPECTION.....5-7	CAM SHAFT INSTALLATION 5-15

TROUBLE SHOOTING

LOW COMPRESSION

1. Valve

- Incorrect valve clearance
- Burned or bent valves
- Incorrect valve timing
- Broken valve spring

2. Cylinder head

- Leaking or damaged head gasket
- Warped or cranked cylinder head

HIGH COMPRESSION

- Excessive carbon buildup on piston or combustion chamber.

ABNORMAL NOISE

- Incorrect valve clearance
- Broken valve spring
- Worn rocker arm or camshaft
- Loose or worn cam chain
- Worn cam chain tensioner
- Worn cam sprocket teeth

SERVICE INFORMATION

GENERAL INSTRUCTIONS

Camshaft, rocker arm shaft and rocker arm can be serviced with the engine installed on the frame.

Camshaft lubrication oil is fed to the cylinder head through an oil control orifice in the engine case.

Be sure this orifice is not clogged and the O-ring and dowel pins are in place before installing the cylinder head.

During assembly, apply molybdenum disulfide grease to the camshaft bearings, and pour clean engine oil into the cylinder head.

TORQUE VALUES

Cylinder head bolt	280-300 kgf . cm
Cylinder 6mm bolt	140 -180 kgf . cm
Cam sprocket	80-120 kgf . cm

SPECIFICATIONS

ITEM			STANDARD SERVICE	LIMIT
Camshaft	Cam lift	IN	32.382mm	31.25mm below
		EX	31.987mm	30.87mm below
	Runout			0.02mm
Rocker arm I.D.		I.D.	10.000 ~ 10.015mm	10.015mm above
Rocker arm shaft		O.D.	9.978 ~ 9.987 mm	9.978mm below
Valve spring	Free length	Outer	35.7 ~ 36.3mm	35mm below
		Inner	29.7 ~ 30.3mm	28mm below
	Stall length	Outer	29.65mm 130.5 ± 6.5N 23.45mm 330.0 ± 16N	
		Inner	26.65mm 69.0 ± 5.52N 20.45mm 236.0 ± 11.8N	
Valve clearance			(IN)0.06 ± 0.02mm (EX)0.10 ± 0.02mm	
Valve guide	O.D.	IN	5.450 ~ 5.465mm	5.42mm
		EX	5.430 ~ 5.455mm	5.40mm
	Guide I.D.	IN	5.475 ~ 5.485mm	5.50mm
		EX	5.475 ~ 5.485mm	5.50mm
	Stem to guide Clearance	IN	0.010 ~ 0.035mm	0.08mm
		EX	0.03 ~ 0.055mm	0.10mm
Valve seat width			1.45 ~ 1.15mm	1.6mm

CAMSHAFT REMOVAL

NOTE:

The camshaft, rocker arm and rocker arm shaft can be serviced with the engine installed on the frame.

Remove the 6mm special bolts.

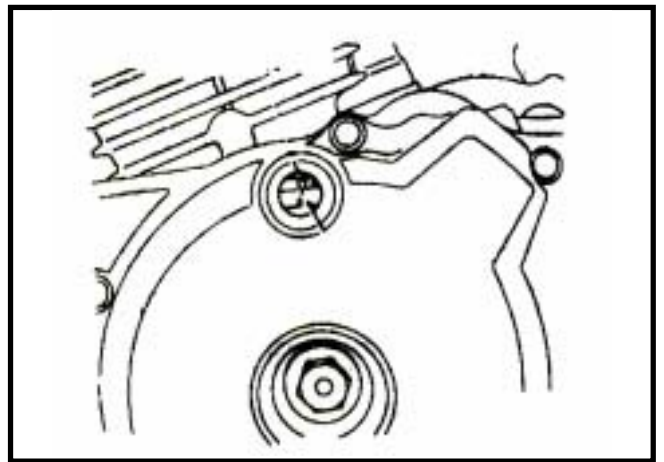
Remove the R/L cylinder head side cover and cylinder head side.

Remove the cylinder head cover.



Remove the crankshaft hole cap and the timing inspection hole cap. Rotate the generator rotor counterclockwise and locate the piston at the T.D.C. of the compressing stroke.

Remove the cam chain adjuster screw.



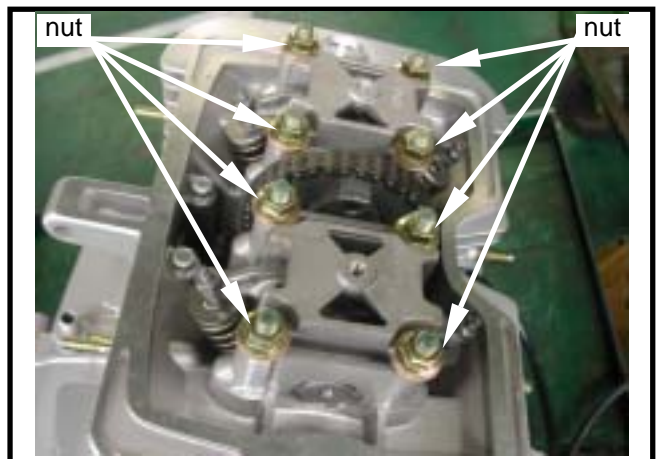
Remove the four holder nuts.

Remove the holder.

Remove the camshaft.

CAUTION:

Support the cam chain to keep it from falling into the crankcase.



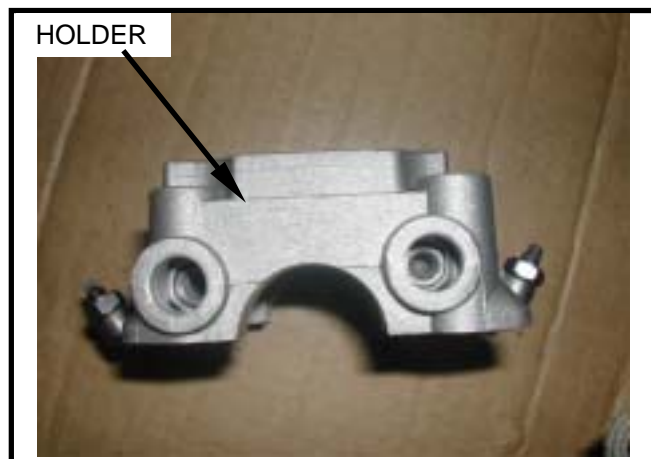
CYLINDER HEAD

REMOVAL

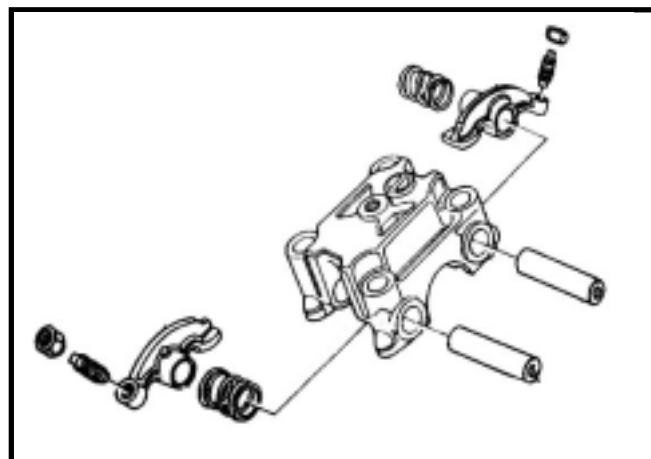
- Remove the 6mm bolts.
- Remove the dowel pins.
- Remove cam chain tensioner.
- Remove the cylinder head.



Remove the rocker arm shaft.



Remove the rocker arms.



CAMSHAFT INSPECTION

Inspect the cams of the camshaft for wear.

Service limit:

Inlet: 31.25mm
Exhaust: 30.87mm

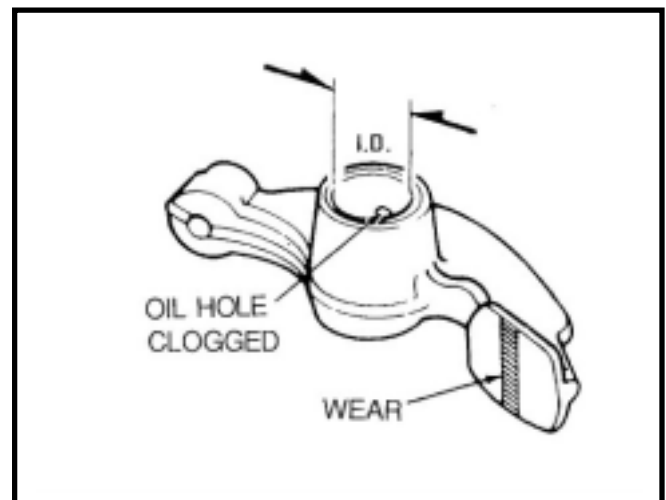


ROCKER ARM INSPECTION

Inspect the rocker arm I.D. and the rocker arm for wear, damage or clogged oil holes.

Rocker arm I.D.

Service limit: 10.1mm

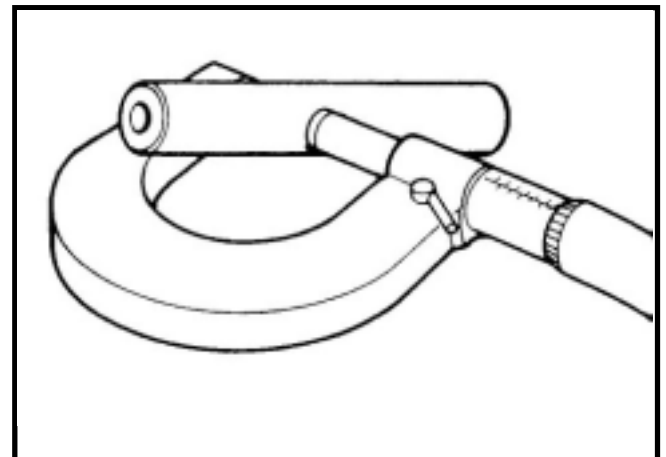


ROCKER ARM SHAFT INSPECTION

Inspect rocker arm shaft for wear or damage.

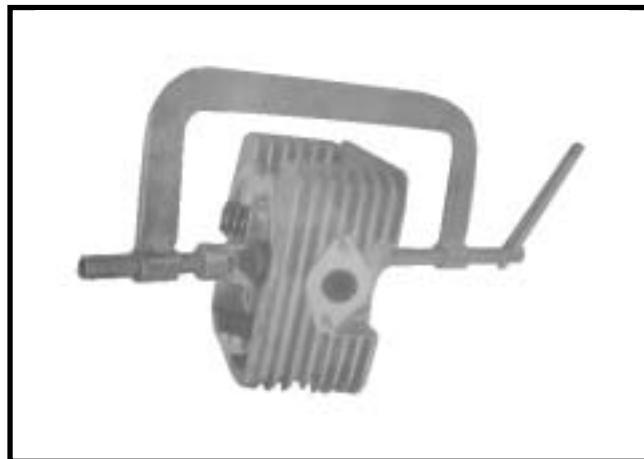
Rocker arm shaft O.D.

Service limit : 10.9mm



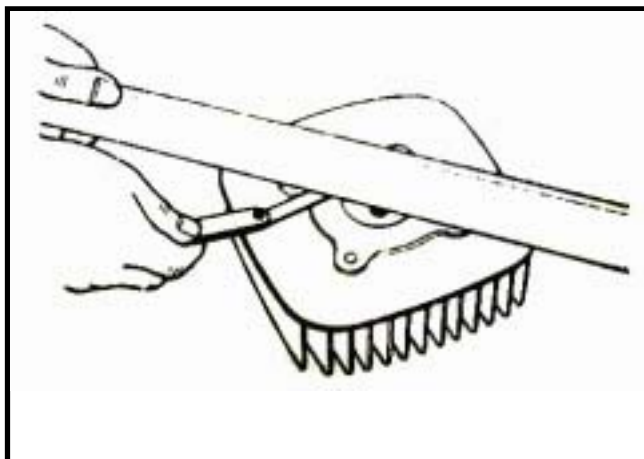
CYLINDER HEAD DISASSEMBLY

Remove carbon deposits from the combustion chamber. Remove valve spring and valve spring and valve with a valve spring compressor.



CYLINDER HEAD INSPECTION

Remove gasket from cylinder head with a scraper.
Check the cylinder head for crack.
Check the cylinder head for warpage with a straight edge and a feeler gauge.
Service limit: 0.10mm



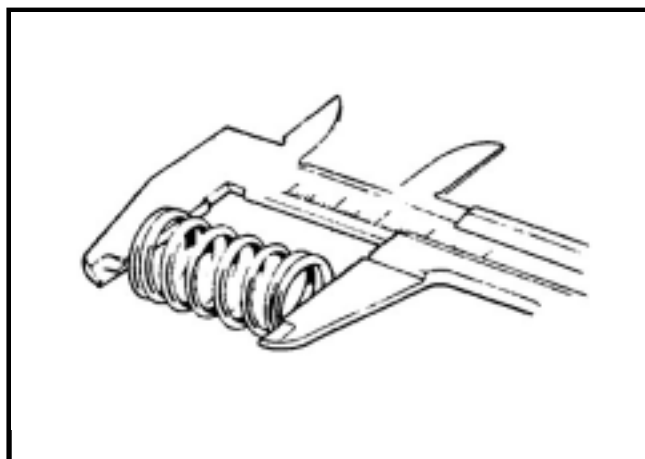
VALVE SPRING INSPECTION

Measure the free length of the inner and outer valve spring.

Service limit:

Outer: 35mm

Inner : 28mm



VALVE/VALVE GUIDE

INSPECTION

Inspect valves for scratches, burning or wear.

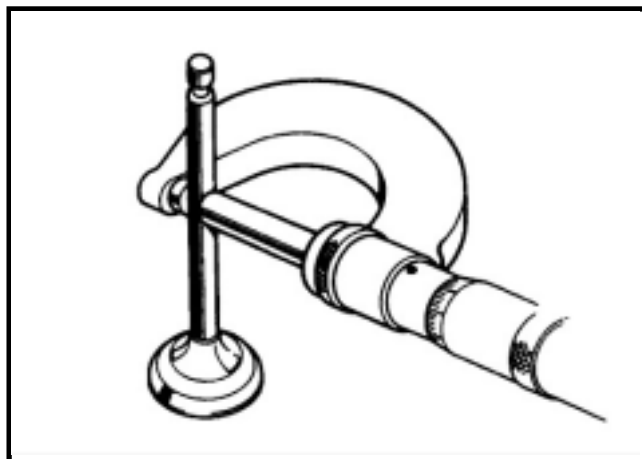
Check the valve movement in the guide.

Measure the valve stem O.D.

Service limit:

Intake: 5.42mm

Exhaust: 5.40mm



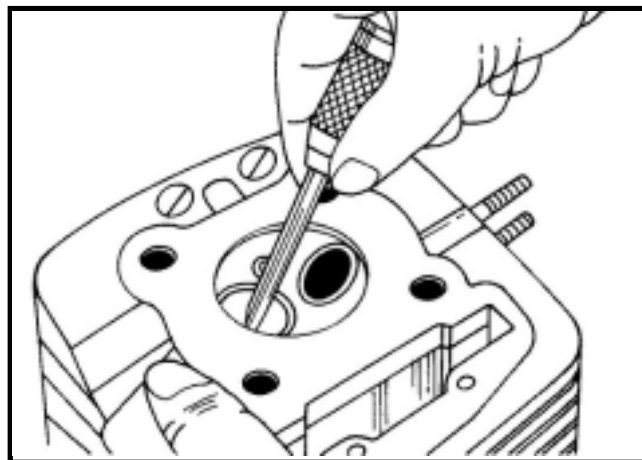
NOTE:

Remove any carbon buildup before checking the valve guide I.D.

Guide I.D. service limit

Intake: 5.50mm

Exhaust: 5.50mm



Measure the valve guide I.D. and calculate the stem to guide clearance.

Service limit:

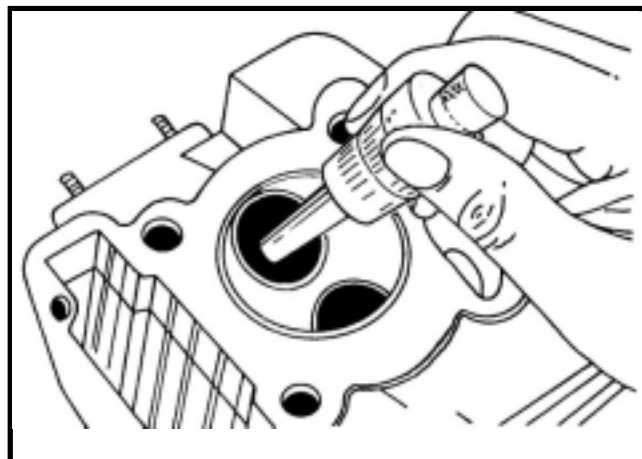
Intake: 0.08mm

Exhaust: 0.10mm

If the stem to guide clearance exceeds the service limit, replace the valve or guide to fit.

NOTE:

The guide must be reamed when replacing a new one.

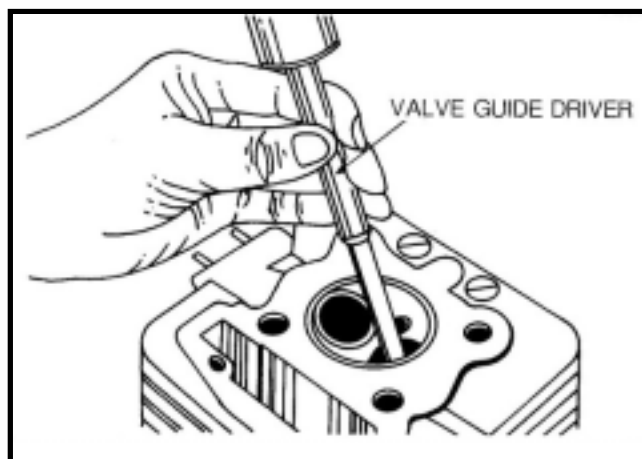


VALVE GUIDE REPLACEMENT

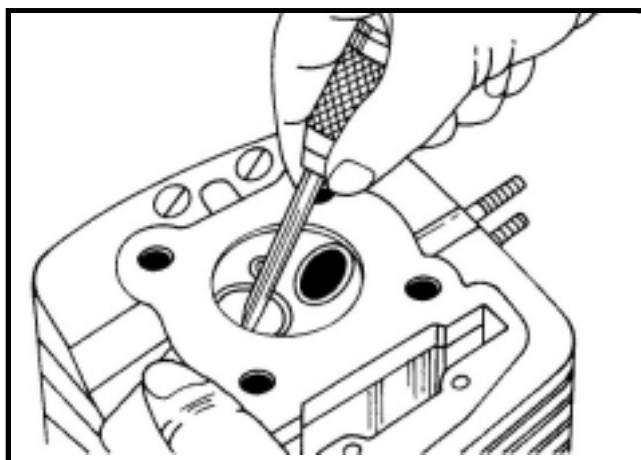
Drive out the valve guide from the combustion chamber side with a 5mm valve guide remover.

NOTE:

When driving out the valve guide, do not damage the cylinder head.



Install the new valve guide from the top of the cylinder head, and ream it with a reamer, then clean the cylinder head.



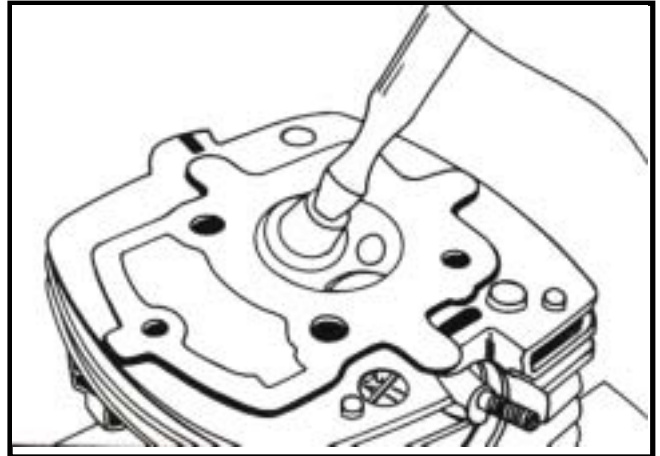
5. CYLINDER HEAD/VALVE

VALVE SEAT INSPECTION/ REFACING

Clean intake and exhaust valves to remove carbon deposits.

Apply a light coating of prussian blue to each valve face.

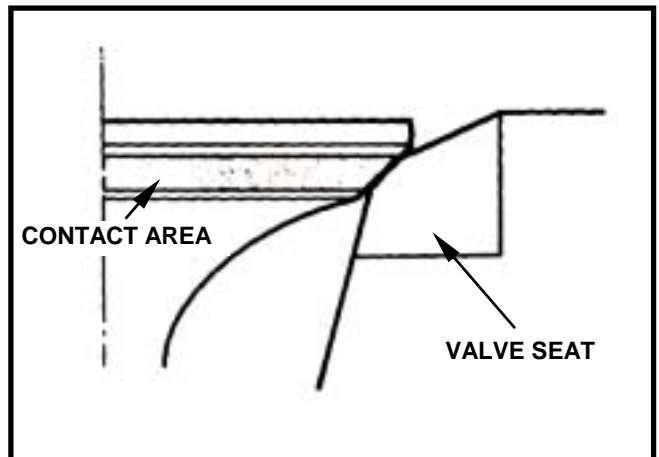
Insert each valve into the guide and rotate them two cycles.



Remove the valve and inspect the face.

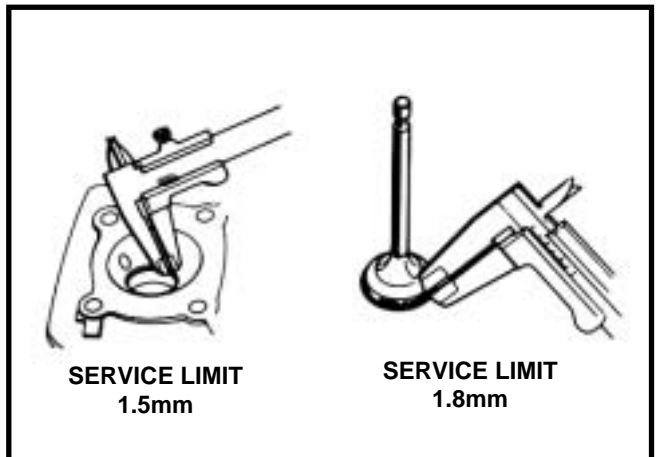
CAUTION:

If the valve face is burned or damaged or unevenly, replace the valve.



Inspect the valve seat.

If the seat is too wide or too narrow, the seat must be refinished.



VALVE SEAT GRINDING

NOTE:

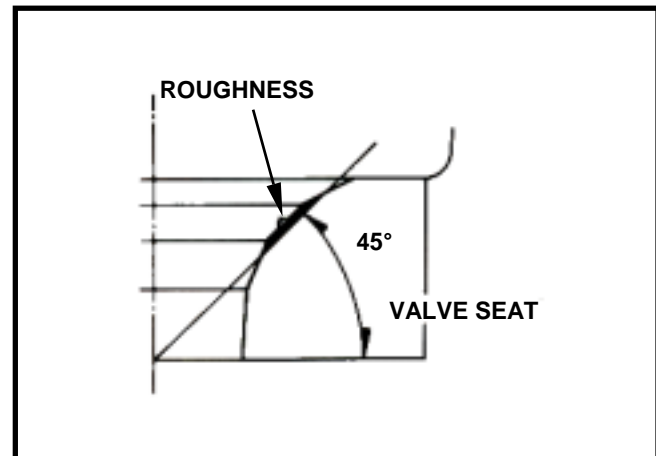
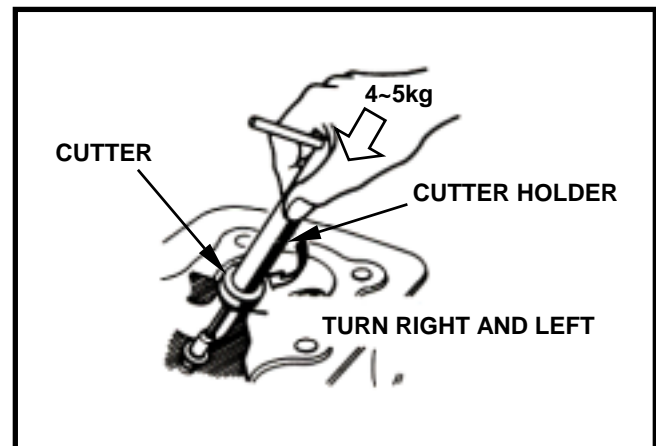
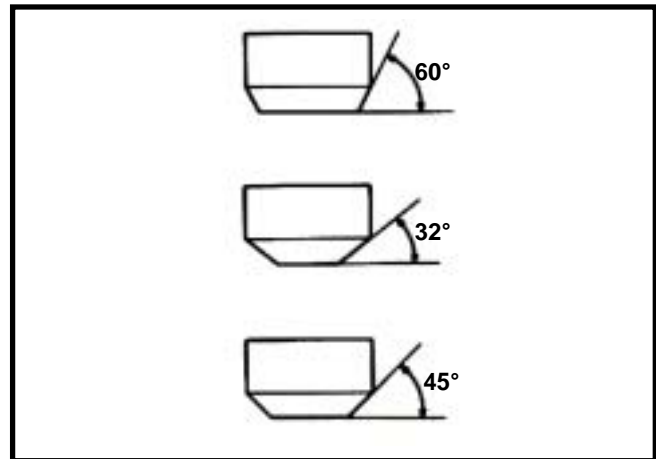
Follow the instructions described in the cutter instruction manual.

Remove any roughness from the seat by applying 4~5 kg pressure, turning the cutter left and right.

NOTE:

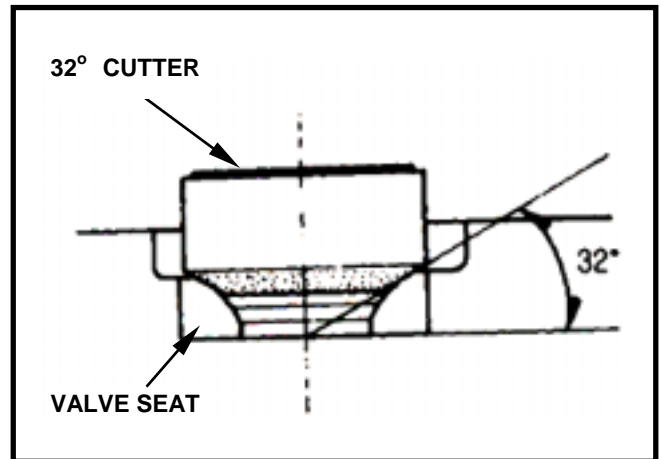
Add engine oil to the face when operating.

Using a 45 degree cutter,remove any roughness from the seat.

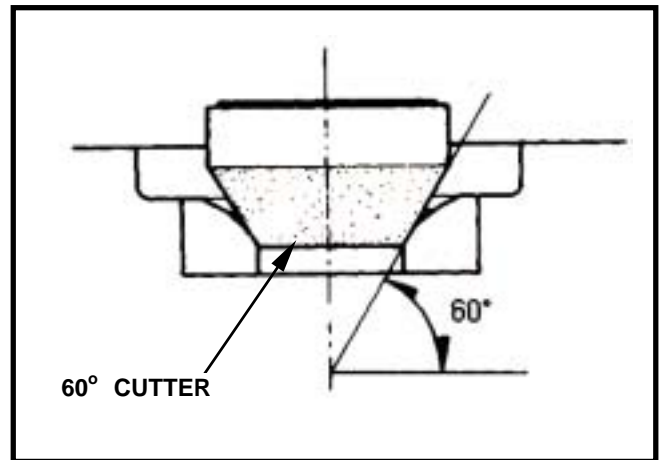


5. CYLINDER HEAD/VALVE

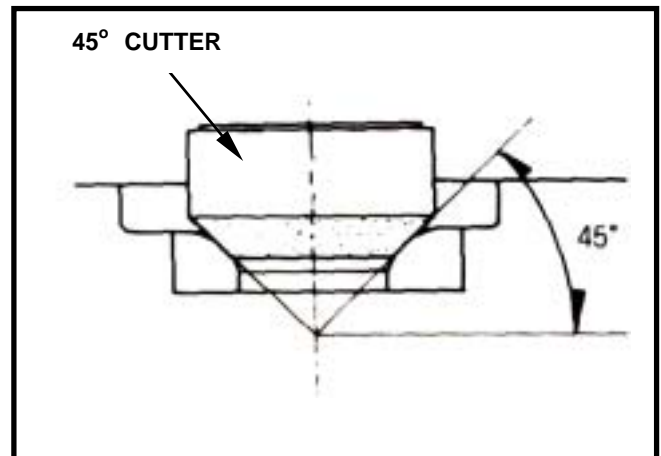
Using a 32 degree cutter, remove 1/4 of the existing valve seat material.



Remove the bottom 1/4 of the old seat by using a 60 degree cutter.



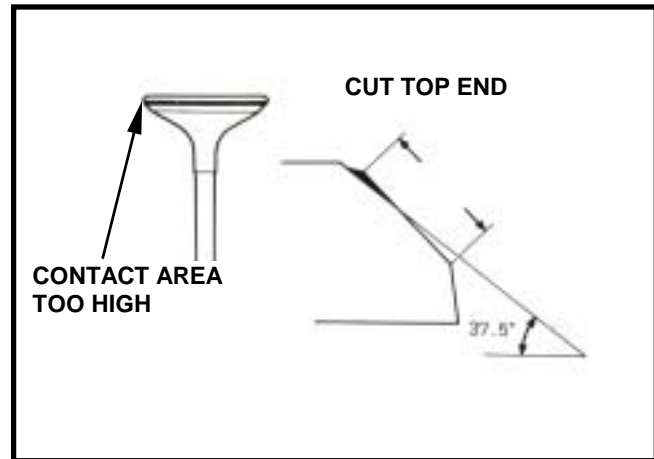
Finish the seat to the proper width by using a 45 degree cutter.



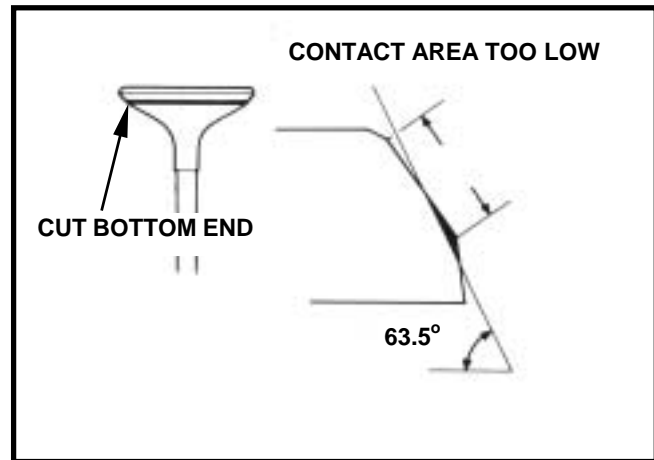
5.INSPECTION/ADJUSTMENT



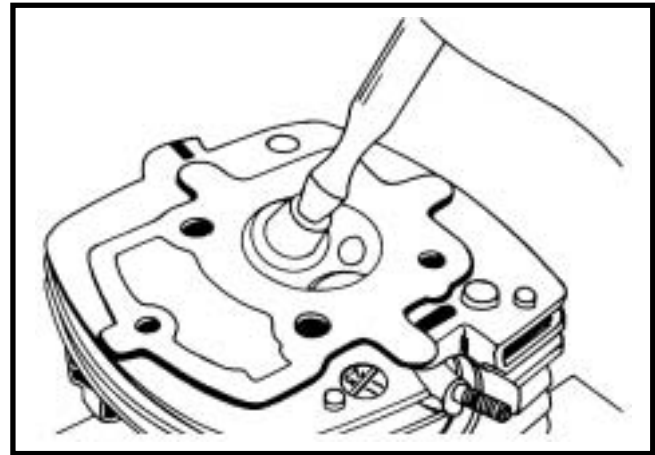
If the contact area is too high on the valve, the seat must be lowered using a 37.5 degree cutter, then finish with a 45 degree cutter.



If the contact area is too low on the valve, the seat must be raised using a 63.5 degree cutter, then finish with a 45 degree cutter.



After cutting the seat, apply lapping compound to the valve face, and lap the valve using light pressure.



5. CYLINDER HEAD/VALVE

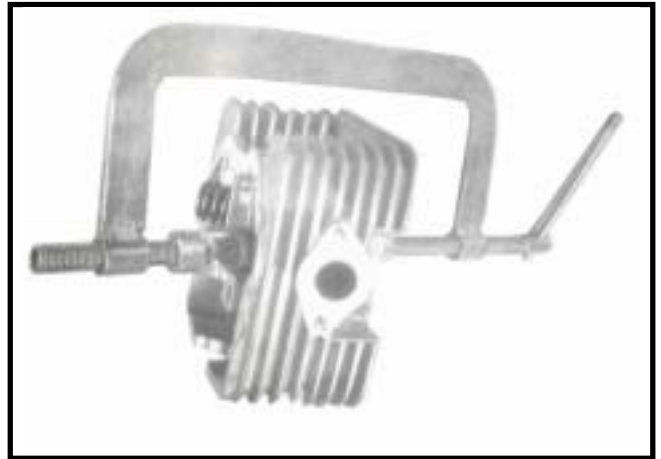


CYLINDER HEAD ASSEMBLY

Compress the valve springs with a valve spring compressor and install the valve cotters into the valve retainer.

CAUTION:

Do not compress the valve spring more than necessary.



NOTE:

Install a new valve stem seal when assembling.

Lubricate each valve stem with the engine oil then insert them into the guides.

Install the valve spring and retainers.

NOTE:

Install the valve springs with the tightly wound coils facing the cylinder head.



Tap the valve stems gently with a plastic hammer to firmly seat the cotters.



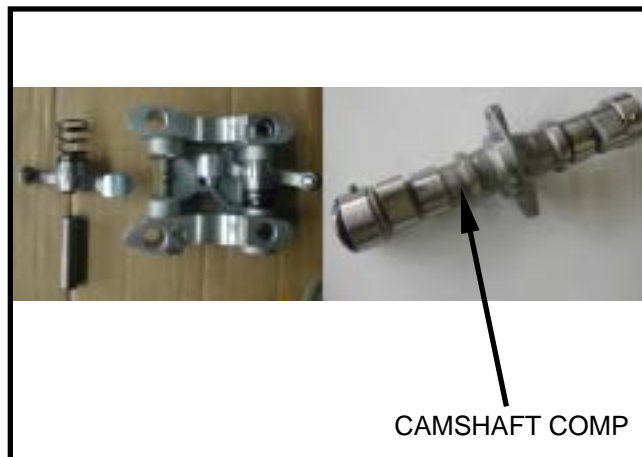
5.INSPECTION/ADJUSTMENT



CYLINDER HEAD INSTALLATION CAMSHAFT AND CAMSPROCKET ASSEMBLY

NOTE:

Rocker arms must be installed at the right position.



Clean the cylinder head gasket surface of any gasket material.

Install the new gasket, O-ring and dowel pins and chain guide.

NOTE:

Do not allow dust and dirt to enter the cylinder.



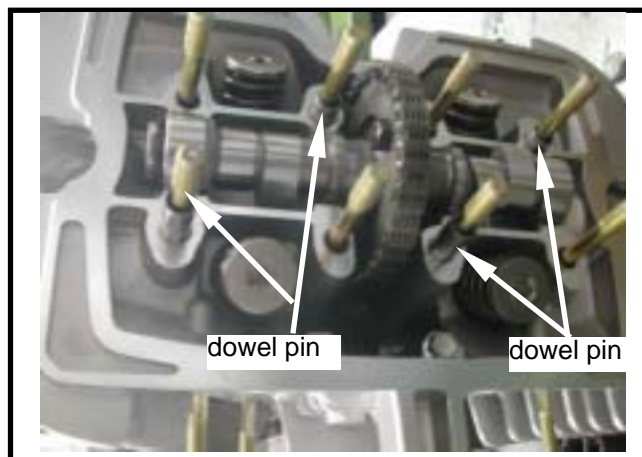
Install the cylinder head.

NOTE:

Support the cam chain to keep it from falling into the crankcase.

Install the cam chain tensioner set and bolt and washer.

Install dowel pins.



5. CYLINDER HEAD/VALVE



CAM SPROCKET

INSTALLATION

Rotate the generator rotor and align the "T" mark with the index mark.

Install the camshaft comp.

When installing camshaft set, please take care that the line on the cam sprocket should be in parallel with the surface of cylinder head. (The IN/EX cam should be faced down).

Install the camshaft holder.

Install the cylinder head nuts.

TORQUE: 280 ~ 300 kgf.cm

CAUTION:

The cap nut of the four holder nuts must be installed at the left-front side.

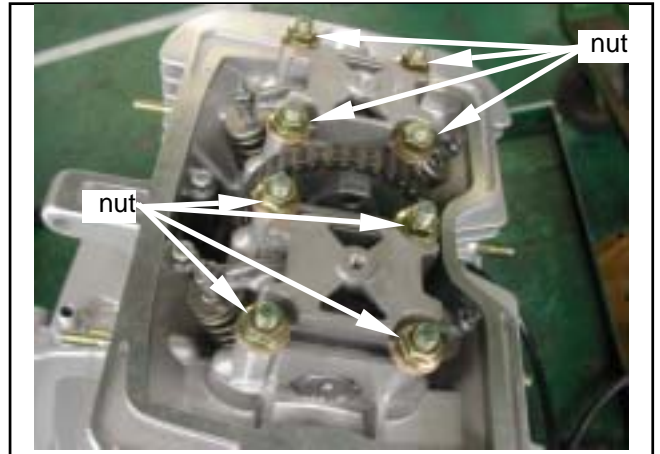
Install the 6mm bolts.

Install the cam chain chain tensioner.

Install the auto-tensioner. (Lock the spring cap bolt first.)

Release the auto-tensioner lock bolt.

Adjust the valve clearance. (2-7)



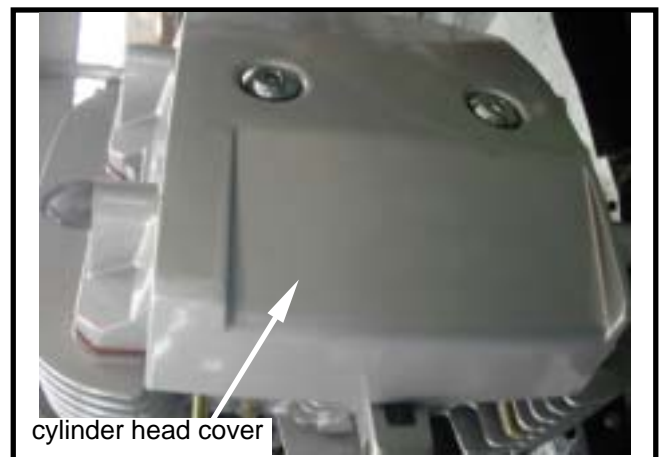
Install the cylinder head cover.

Install the R/L cylinder head side cover.

Install the 6mm special bolts.

NOTE:

If the cylinder head side cover gasket is damaged or broken, replace with a new one.



TROUBLE SHOOTING.....6-1	PISTON/PISTON RING INSPECTION 6-5
SERVICE INFORMATION.....6-2	PISTON RING INSTALLATION..... 6-7
CYLINDER REMOVAL6-3	PISTON INSTALLATION6-9
PISTON REMOVAL6-4	CYLINDER INSTALLATION 6-10

TROUBLE SHOOTING**LOW COMPRESSION**

1. Worn cylinder or piston rings.

EXCESSIVE SMOKE

1. Worn cylinder, piston or piston rings.
2. Improper installation of piston rings.
3. Scored or scratched piston or cylinder wall.

OVERHEATING

1. Excessive carbon build-up on piston or combustion chamber wall.

KNOCKING OR ABNORMAL NOISE

1. Worn piston or cylinder.
2. Excessive carbon build-up

SERVICE INFORMATION GENERAL STRUCTIONS

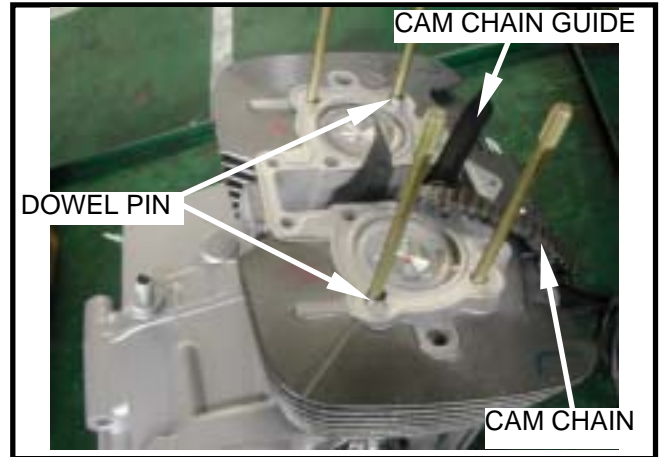
ITEM		NCA250		
		STANDARD SERVICE	LIMIT	
Cylinder	Cylinder I.D.	53.005 ~ 53.015mm	53.015mm	
	Runout		0.05mm	
	Taper		0.05mm	
Piston rings groove clearance	Piston ring to ring groove clearance	Top	0.025 ~ 0.055mm	0.13mm
		Second	0.015 ~ 0.040mm	0.12mm
	Piston ring End gap	Top	0.10 ~ 0.25mm	0.5mm
		Second	0.25 ~ 0.40mm	0.5mm
		Oil ring	0.20 ~ 0.70mm	
	Piston O.D.		52.55 ~ 52.60mm	52.55mm
	Piston pin bore		15.002 ~ 15.008mm	15.05mm
	Connecting rod small end I.D.		15.016 ~ 15.034mm	15.07mm
	Piston pin O.D.		14.994 ~ 15.000mm	14.85mm
	Piston ring thickness	Top	0.97 ~ 0.99mm	1.460mm
		Second	0.97 ~ 0.99mm	1.460mm
	Cylinder to piston clearnace		0.005 ~ 0.015mm	0.11mm

CYLINDER REMOVAL

Remove the cylinder head.
Remove the dowel pins and gasket.
Remove the cam chain guide.
Remove the cylinder.

NOTE:

Avoid the chain falling into the crankcase during removing the cylinder.



Remove the dowel pins and gasket.



Clean the cylinder gasket surface of any gasket material.

NOTE:

Avoid damaging the cylinder gasket surface during this operation.



CYLINDER INSPECTION

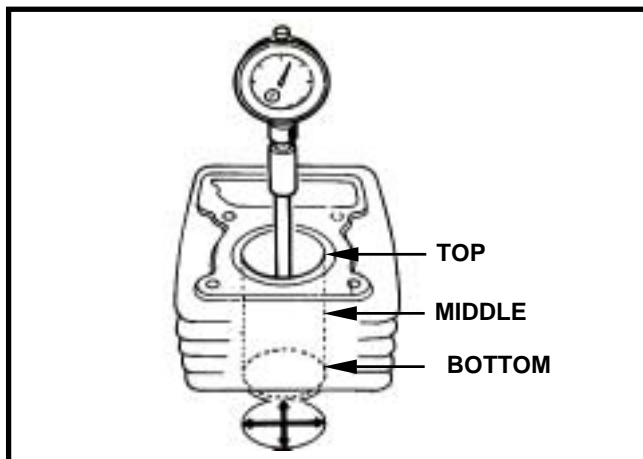
Inspect the cylinder bore for wear or damage.
Measure the cylinder I.D.

NOTE:

According to the right picture measure the cylinder runout.

Service limit:

ITEM	NCA250
Runout	0.05mm
Taper	0.05mm
I.D.	53.015mm

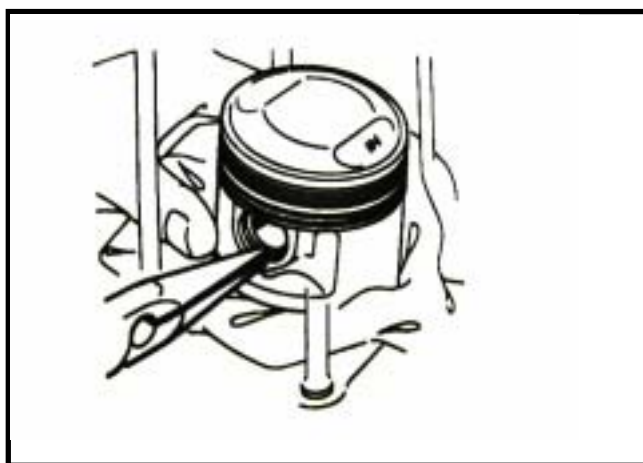


PISTON REMOVAL

Remove the piston pin clip with pliers.
Press the piston pin out of piston, remove the piston.

NOTE:

Avoid the clip falling into the crankcase.

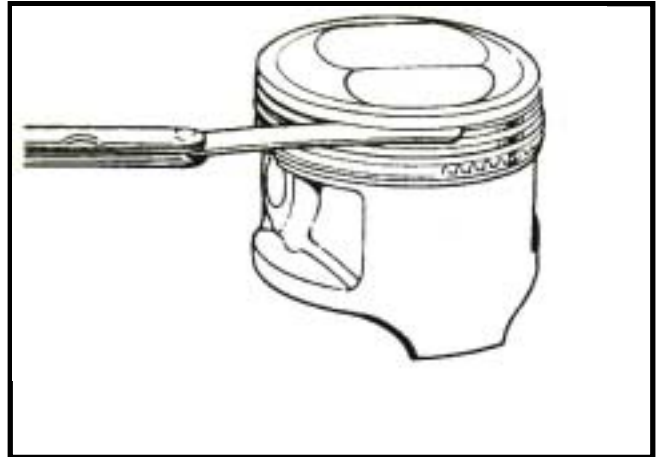


PISTON / PISTON RING

INSPECTION

Measure the piston ring-to-ring groove clearance.
Service limit .

Top ring: 0.13mm
Second ring: 0.12mm

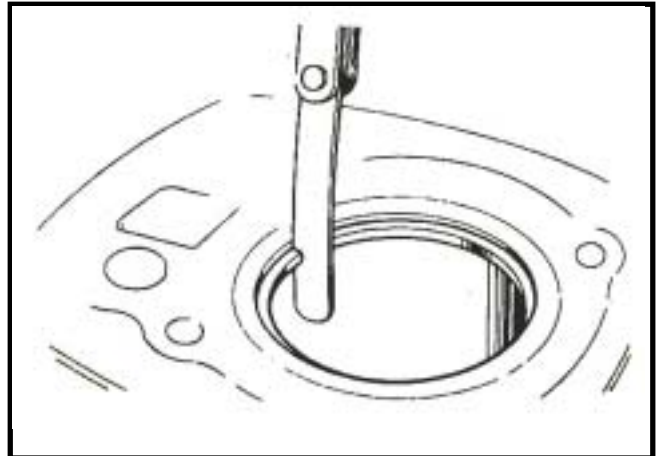


Remove the piston rings.
Inspect the piston for damage or cracks.
Inspect the piston groove for wear.



Insert each piston ring into the cylinder and measure the ring end gap.

Top / Second ring : -0.5mm



6.CYLINDER/PISTON

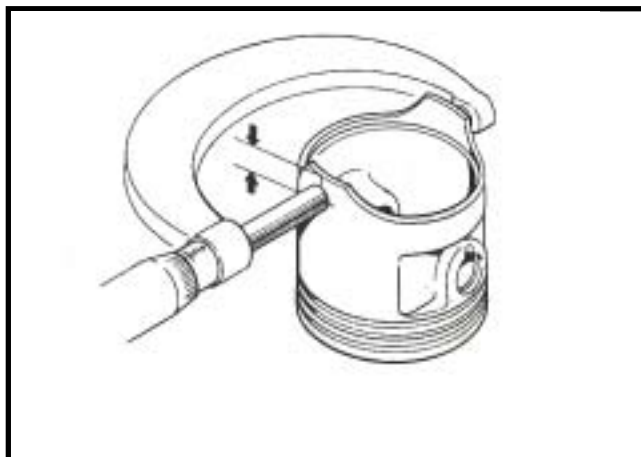


Measure the piston O.D. at the skirt.
Service limit: 52.55mm

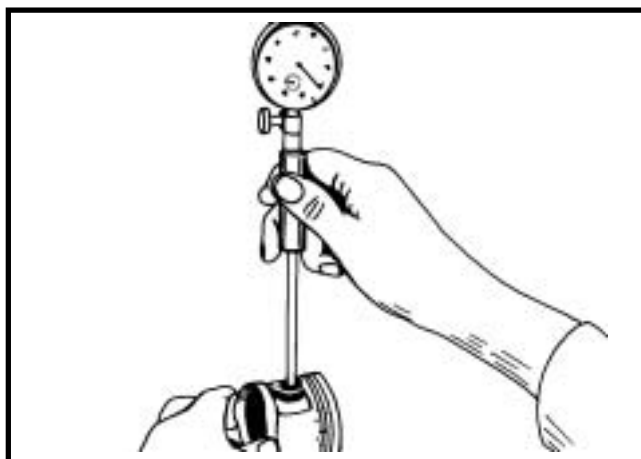
NOTE:

Measure the piston O.D. at a point from the bottom.

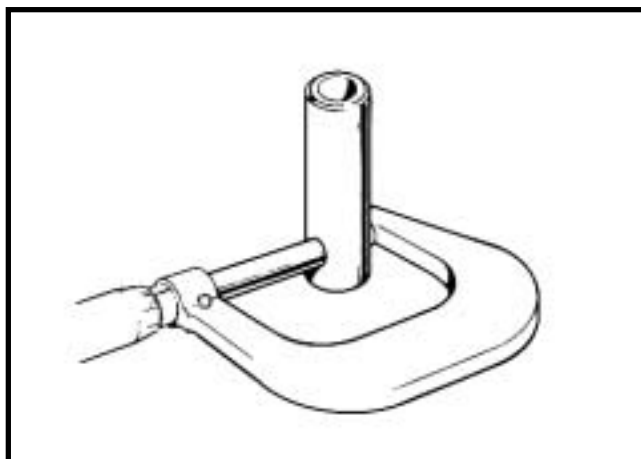
Calculate the piston-to-cylinder clearance.
Service limit:0.11mm



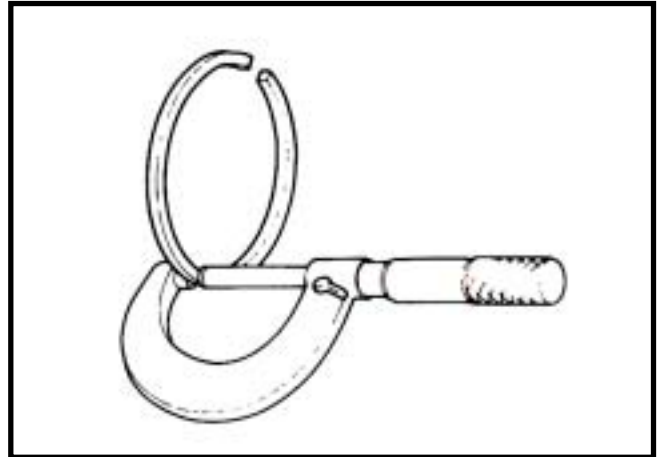
Measure the piston pin bore I.D.
Service limit:15.07mm



Measure the piston pin O.D.
Service limit:14.85mm



Measure the top/second ring thickness.
Service limit: 1.460mm

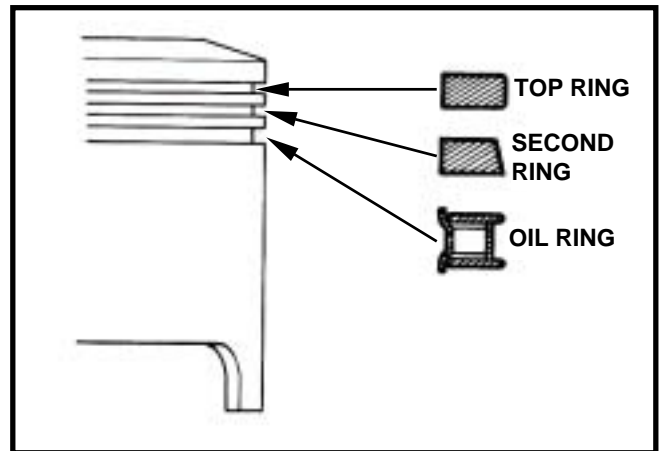


PISTON RING INSTALLATION

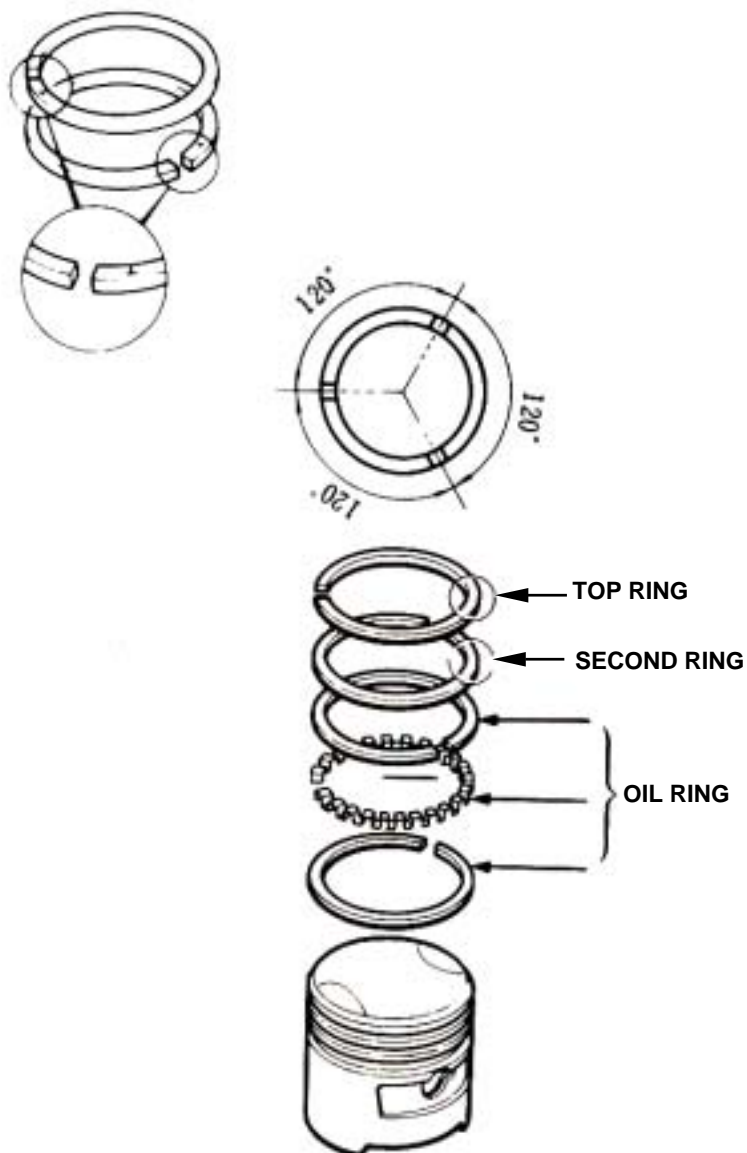
Install the piston rings.

NOTE:

- Avoid piston and piston ring damage during installation.
- All rings should be installed with the markings facing up.
- After installation, the piston rings should be free to rotate in the grooves.



Space the piston ring end gaps 120 degree apart.

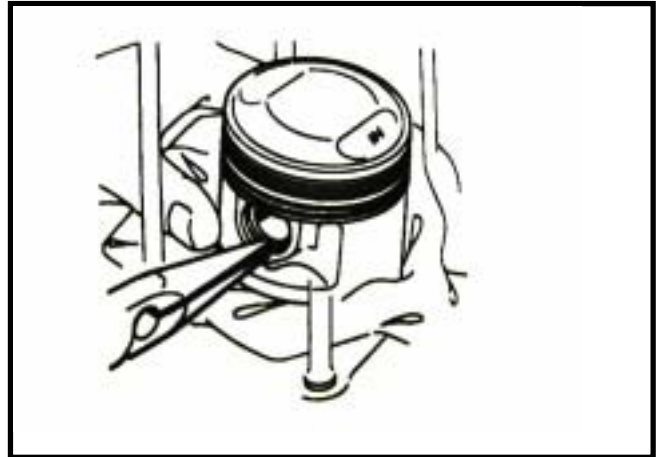


PISTON INSTALLATION

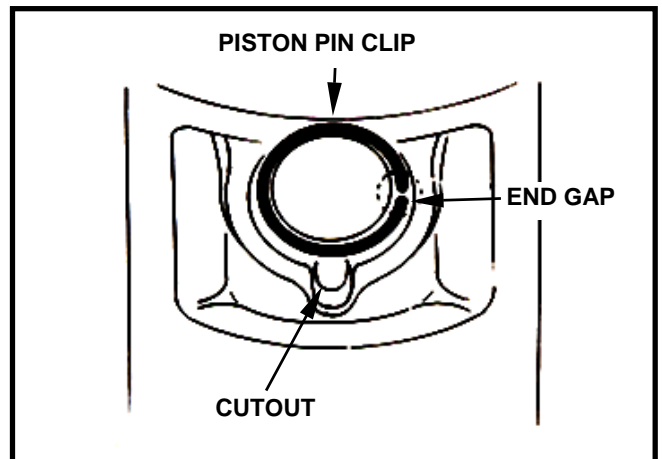
Install the piston, piston pin and piston pin clip.

NOTE:

- Position the "IN" mark on the piston to the carburetor side.
- Do not let the piston pin clip fall into the crankcase.

**NOTE:**

- Use new piston pin clip whenever disassembling.
- Do not align the piston pin clip end gap with the piston cutout.



CYLINDER INSTALLATION

Install the cylinder gasket and dowel pins.
Clean the cylinder gasket surface of any gasket material.

NOTE:

Avoid damaging the cylinder gasket surface during this operation.



Install the cylinder.

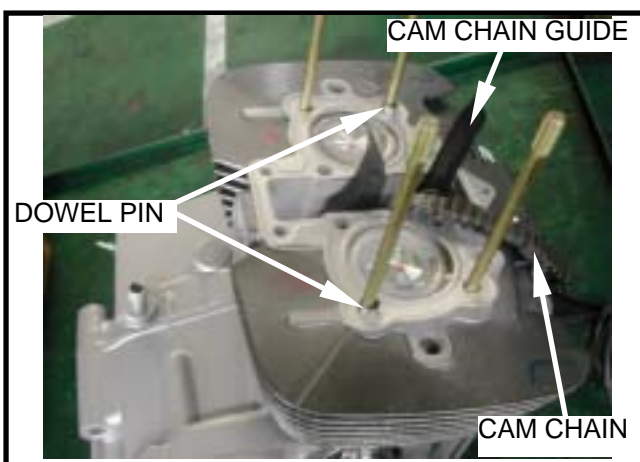
NOTE:

Avoid piston and piston rings damage during installation.

Install the cam chain guide plate.
Install the cylinder gasket and dowel pins.
Install the cylinder head.(5-14)

NOTE:

Coat the cylinder and piston with the engine oil before installing the cylinder.



TROUBLE SHOOTING.....7-1	OIL PUMP 7-7
SERVICE INFORMATION7-2	GEARSHIFT LINKAGE 7-10
RIGHT CRANKCASE COVER REMOVAL .7-3	RIGHT CRANKCASE INSTALLATION 7-12
CLUTCH7-3	

TROUBLE SHOOTING

Faulty clutch operation can be corrected by adjusting the clutch lever free play.

CLUTCH SPINS WHEN ACCELERATING

1. No free play
2. Discs worn
3. Spring weak

CLUTCH DISENGAGED (MOTORCYCLE CREEPS)

1. Too much free play
2. Plates warped

EXCESSIVE LEVER PRESSURE

1. Clutch cable kicked, damaged or dirty
2. Lifter mechanism damaged

HARD SHIFTING

1. Stopper plate bent
2. Improper clutch adjustment

GEARSHIFT PEDAL WON'T RETURN

1. Return spring broken or weak
2. Shift spindle bent

JUMPS OUT OF GEAR

1. Stopper arm spring broken

LOW OIL PRESSURE

1. Oil pump drive gear worn
2. Faulty oil pump

SERVICE INFORMATION

GENERAL INSTRUCTION

This section covers removal, installation and servicing of the clutch, oil pump, filter and gearshift linkage. All these operations can be accomplished with the engine in the frame.

COMMON TOOLS

22mm wrench socket

Air wrench

TORQUE VALUES

Right crankcase cover

80 ~ 120 kgf . cm

Clutch lock nut 16mm

500 ~ 600 kgf . cm

Step bar

180 ~ 200 kgf . cm

SPECIFICATIONS

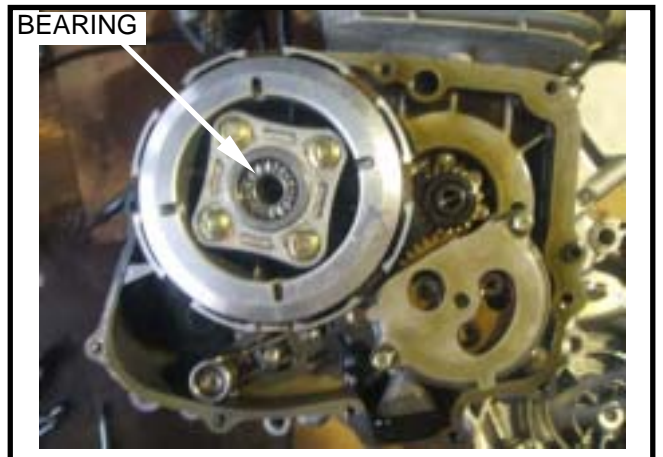
ITEM		STANDARD SERVICE	LIMIT
Clutch	Leve Free play	10~20mm	-----
	Spring free length	30.6mm	27.9mm
	Friction plate thickness	3.0mm	2.5mm
	Clutch plate warpage	-----	0.2mm
Oil pump	Tip clearance	0.30mm	0.35mm
	Rotor-to-body clearance	0.30~0.36mm	0.40mm
	End clearance	0~0.06mm	0.11mm

**RIGHT CRANKCASE COVER
REMOVAL**

Drain oil from the engine.
Disconnect the clutch cable.
Remove the right crankcase cover.

**CLUTCH
CLUTCH REMOVAL**

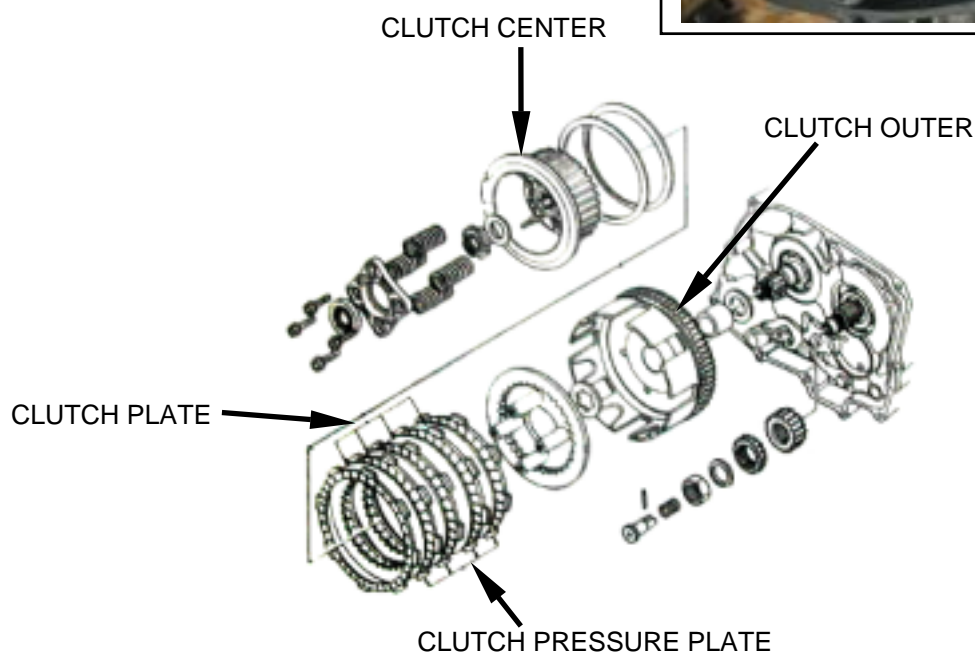
Remove the clutch bearing.



Remove the 16mm lock nut with the wrench socket
and air wrench.
Remove the clutch and drive gear.



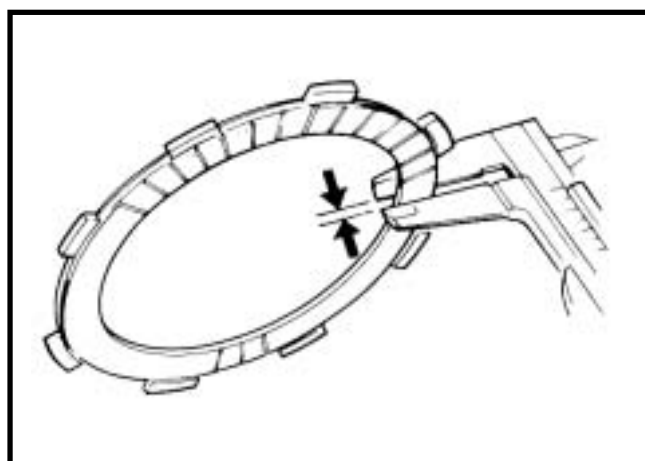
Remove the clutch center, friction disc, clutch plate and pressure plate.



CLUTCH FRICTION DISC INSPECTION

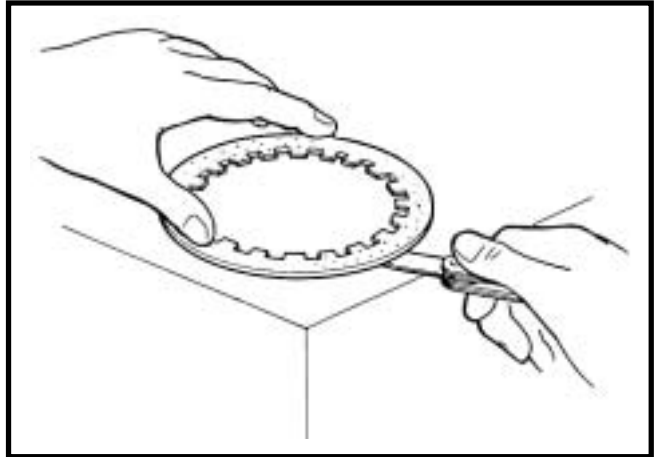
Measure the friction discs, replacing them if they are discolored or worn.

Service limit: 2.5mm

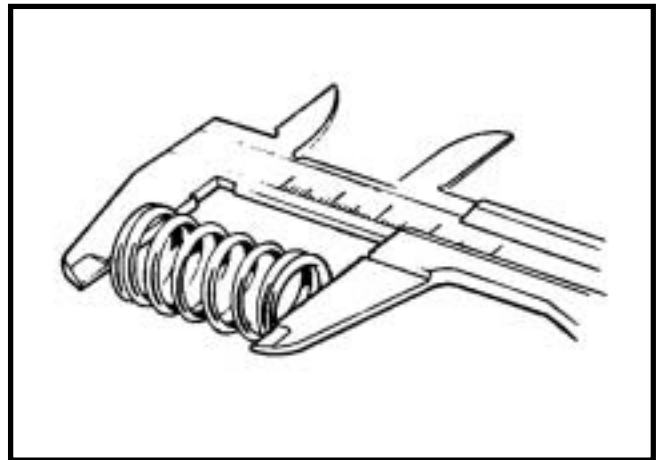


CLUTCH PLATE INSPECTION

Check the plates for warpage on a surface plate using a feeler gauge.
Service limit: 0.2mm

**CLUTCH SPRING INSPECTION**

Measure the clutch springs free length.
Service limit: 27.9mm

**CLUTCH OUTER INSPECTION**

Check the clutch outer for cracks or indentation.

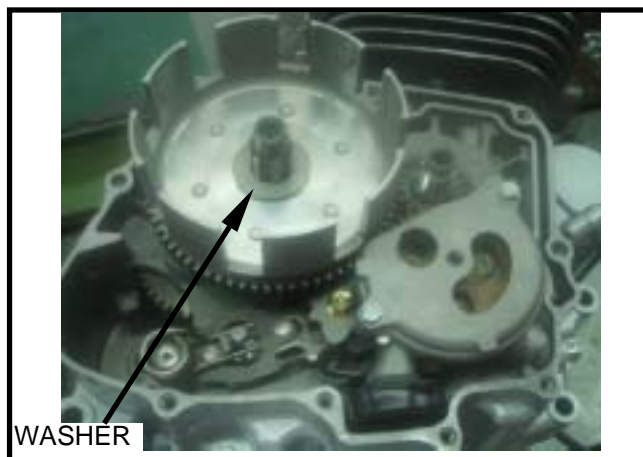


CLUTCH OUTER INSTALLATION

Install the clutch outer, 20mm washer.

NOTE:

When installing the washer, it should fit with the main shaft groove.



Install the clutch pressure plate, friction discs, clutch plates and clutch center.



Install and tighten the 16mm lock nut.
TORQUE: 500 ~ 600 kgf.cm

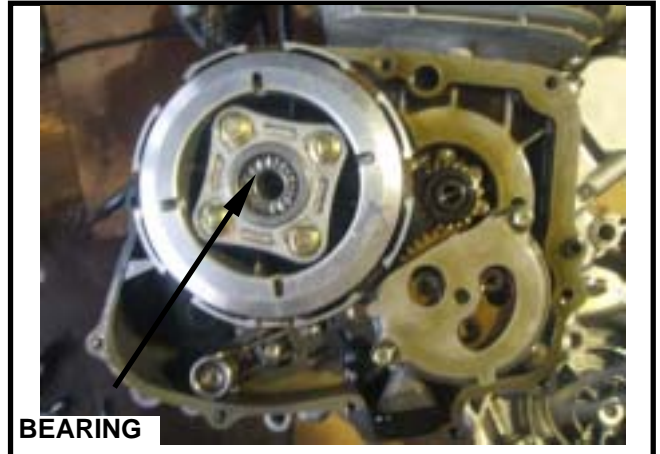


Install the clutch springs, lifter plate and tighten the bolts.
Install the bearing.

NOTE:

Tighten the bolts in a crisscross pattern in two or three steps.

TORQUE :500-700 kgf .cm



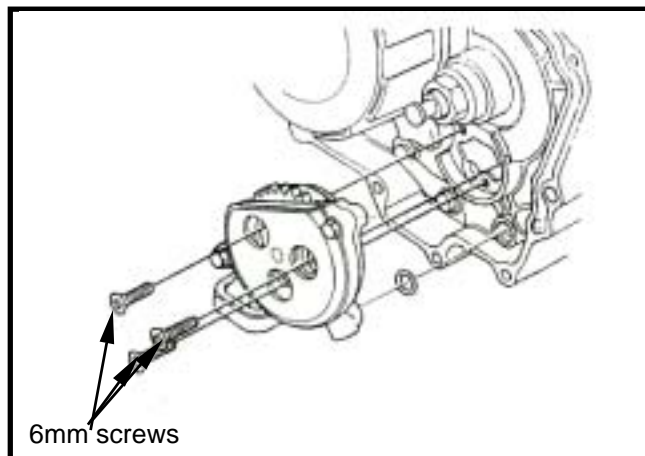
Install the dowel pins and gasket.
Install the right crankcase cover.
Connect the clutch cable.
Fill the crankcase with the recommended oil.
Adjust the clutch lever free play (2-14) .

**OIL PUMP****OIL PUMP REMOVAL**

Remove the right crankcase cover (7-3).



Remove the 6mm screws, remove the oil pump.



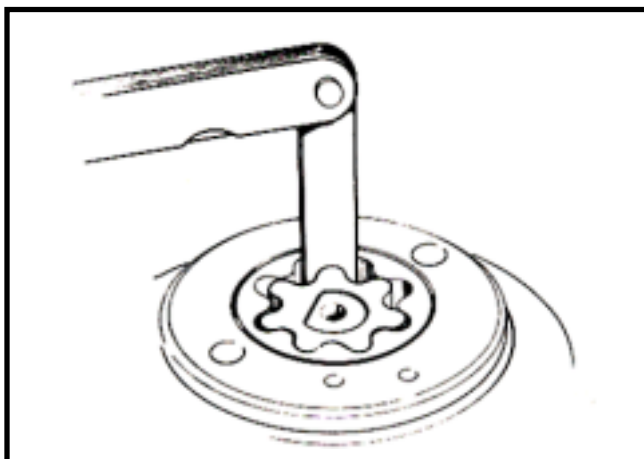
OIL PUMP DISASSEMBLY

Remove the oil pump drive gear.
Remove the oil pump drive gear and oil pump plate.

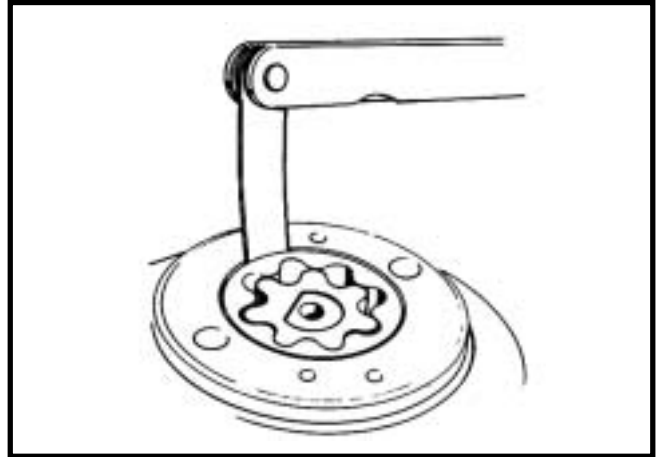


OIL PUMP INSPECTION

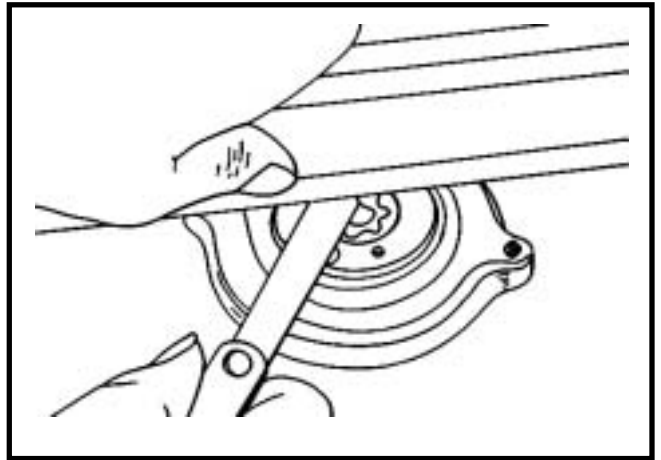
Measure the inner-to-outer rotor clearance of the oil pump.
Service limit: 0.35mm



Measure the outer rotor to oil pump body clearance.
Service limit: 0.40mm



Measure the oil pump upper clearance.
Service limit: 0.11mm



OIL PUMP ASSEMBLY

Install the inner and outer rotors into the oil pump body.
Install the oil pump drive shaft.
Install the oil pump drive gear.
Install the oil pump cover.

NOTE:

Align the cutout in inner rotor with the cutout on the shaft.



Check the oil pump for rotating freely.



OIL PUMP INSTALLATION

Install a O-rings.

Install the oil pump to the right crankcase.



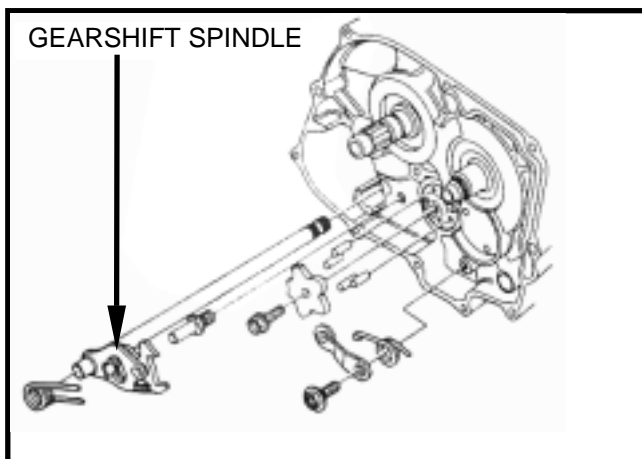
GEARSHIFT LINKAGE

GEARSHIFT LINKAGE DISASSEMBLY

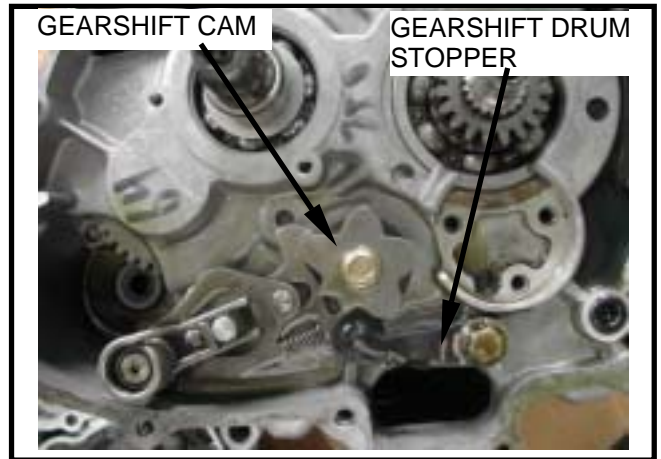
Remove the clutch (7-3).

Remove the gearshift pedal.

Remove the gearshift spindle.

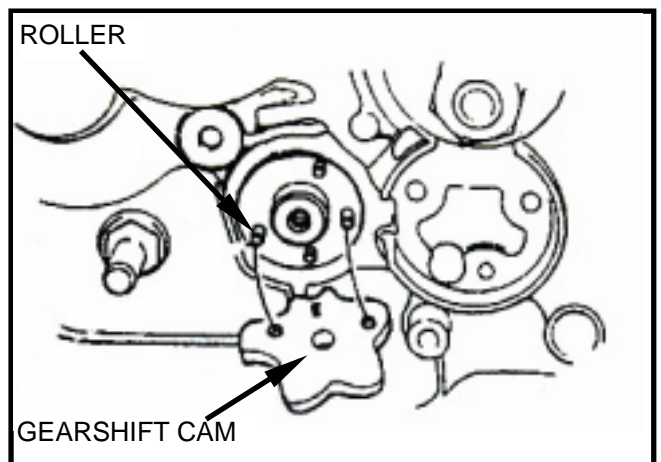


Remove the gearshift drum stopper.
 Remove the gearshift cam.
 Check each part for wear or damage.



GEARSHIFT LINKAGE ASSEMBLY

Install the four 10mm rollers.
 Align the hole of the gearshift cam with the roller, then
 install the gearshift cam.



Install the gearshift drum stopper.

NOTE

After installation, check the drum stopper
 operation.



7.CLUTCH/OIL PUMP/GEAR SHIFT

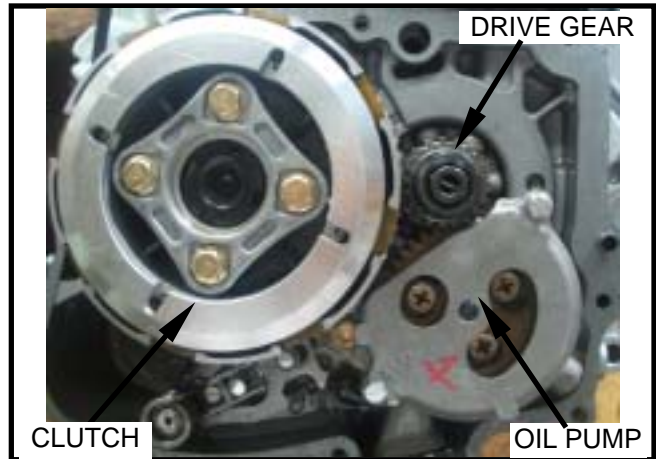


Install the gearshift spindle.

NOTE :

Hook the gearshift return spring on the crankcase abutment.

Install the clutch.
Install the primary drive gear.
Install the oil pump drive gear.
Install the drive gear.
Install the oil through pin.
Install the oil pump.



RIGHT CRANKCASE COVER INSTALLATION

Install the right crankcase cover.
Connect the clutch cable.
Fill the crankcase with recommended oil.
Adjust the clutch free play.



TROUBLE SHOOTING8-1	LEFT CRANKCASE COVER INSTALLATION 8-4
LEFT CRANKCASE COVER REMOVAL.....8-2	STARTER MOTOR REMOVAL 8-4
GENERATOR ROTOR REMOVAL8-2	STARTER MOTOR GEAR SET 8-5
GENERATOR ROTOR INSTALLATION.....8-3	

8. A.C.GENERATOR



LEFT CRANKCASE COVER REMOVAL

Remove the gearshift pedal.
Remove the left crankcase rear cover.

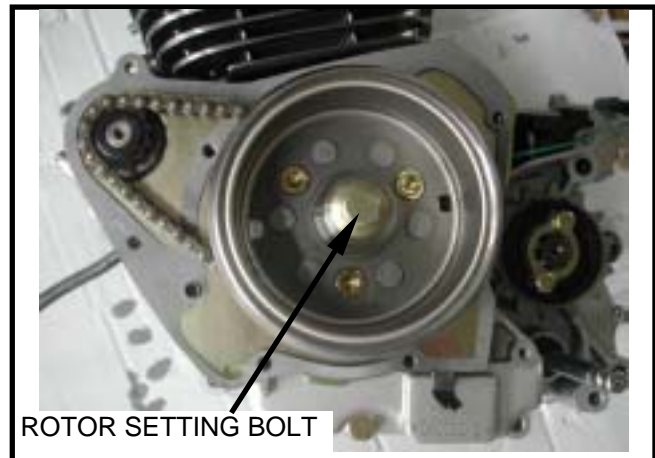
NOTE:

Generator stator is in the left crankcase cover, it can be removed by removing the attaching screws.



GENERATOR ROTOR REMOVAL

Remove the left crankcase cover.
Remove the rotor bolt.



Remove the generator rotor.
Remove the generator stator.



STATOR INSPECTION

Check the stator for continuity.

**GENERATOR ROTOR
INSTALLATION**

Reverse the procedure of removal to assembly.

NOTE :

- Check wire for security in its place.
- Do not interfere the wire with the rotor.

Install and tighten the rotor.

TORQUE: 400~500 kgf. cm



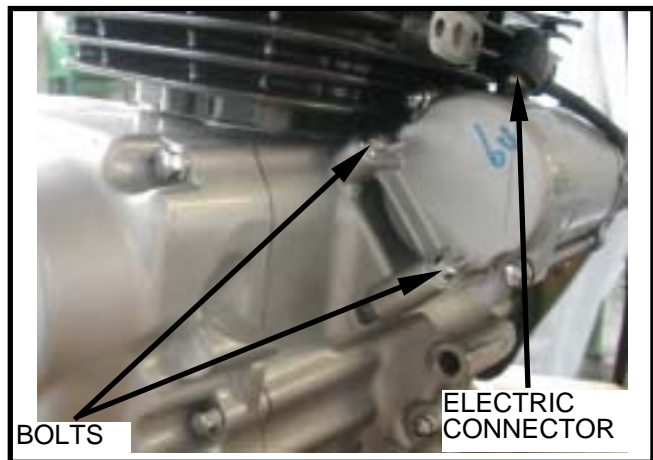
LEFT CRANKCASE COVER INSTALLATION

Install the left crankcase cover (with stator coil)
Connect the generator wire connectors.
Route the neutral switch wire through the groove in the
left crankcase cover.
Install the left crankcase rear cover.
Install the gearshift pedal.



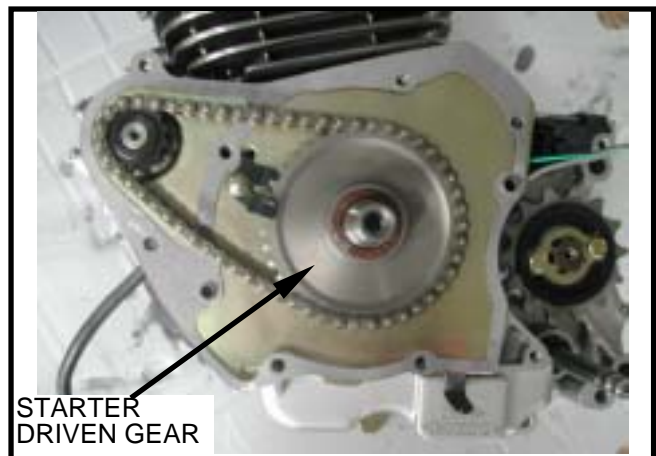
STARTER MOTOR REMOVAL

Disconnect the starter motor wire connector.
Remove the starter motor attaching bolts.
Remove the starter motor.



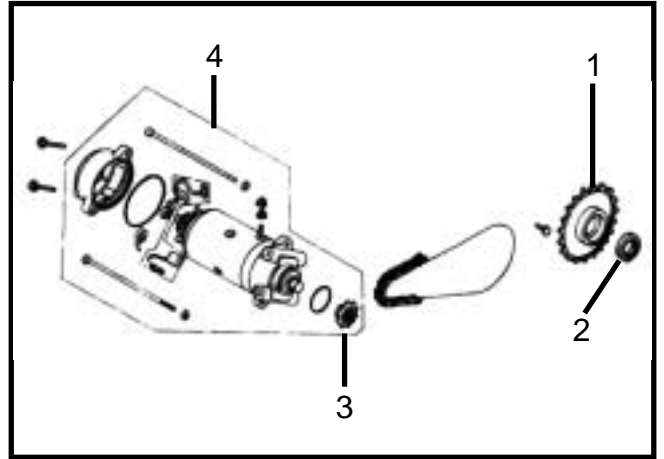
STARTER DRIVEN GEAR REMOVAL

Remove the left crankcase cover (8-2).
Remove the generator rotor. (8-2)
Remove the starter driven gear.



STARTER MOTOR GEAR SET

1. Starter driven gear
2. Washer
3. Starter reduce gear
4. Starter motor



TRUBLE SHOOTING.....9-1	TRANSMISSION DISASSEMBLY 9-6
SERVICE INFORMATION9-2	TRANSMISSION ASSEMBLY..... 9-9
CRANKCASE SEPARATION9-3	CRANKSHAFT INSTALLATION..... 9-11
CRANKSHAFT REMOVAL.....9-4	CRANKCASE ASSEMBLY 9-11

TRUBLE SHOOTING

HARD TO SHIFT

1. Shift fork bent
2. Shift fork shaft bent

TRANSMISSION JUMPS OUT OF GEAR

1. Gear dogs worn
2. Shift fork bent or damaged
3. Shift fork shaft bent

CRANKSHAFT NOISE

1. Worn connecting rod big end bearing
2. Bent connecting rod
3. Worn crankshaft bearing

GEAR NOISE

1. Worn transmission gears
2. Worn spline shafts

SERVICE INFORMATION

GENERAL INSTRUCTION

Transmission and crankshaft repairs require crankcase separation.

Remove the following parts before separating the crankcase:

Engine removal	4-2
Cam shaft removal	5-2
Cylinder / Piston removal	6-3
Clutch / oil pump / Gearshift linkage removal	7-3
Left crankcase cover removal	8-2

SPECIAL TOOLS

Bearing driver

Bearing driver pilot

SPECIFICATIONS

ITEM		STANDARD SERVICE	LIMIT	
Gearshift fork	I.D.	12.000 ~ 12.018mm	12.02mm	
	Claw thickness	4.925 ~ 5.000mm	4.8mm	
Shift fork shaft	O.D.	11.976 ~ 11.994mm	11.9mm	
Crankshaft	Runout		0.01mm	
	Connecting rod small End I.D.	15.016 ~ 15.034mm	15.08mm	
	Connecting rod big End side clearance	Axial	0.10 ~ 0.35mm	0.6mm
		radial	0.004 ~ 0.012mm	0.05mm

CRANKCASE SEPARATION

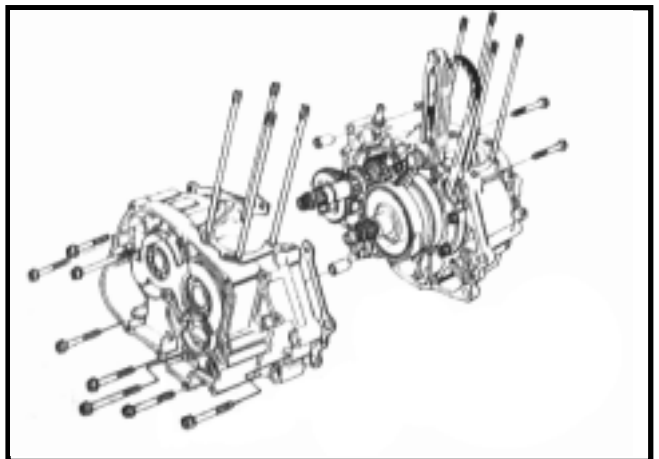
Remove the right crankcover and internal parts.
(7-3~ 7-13)



Remove left cover and internal parts.

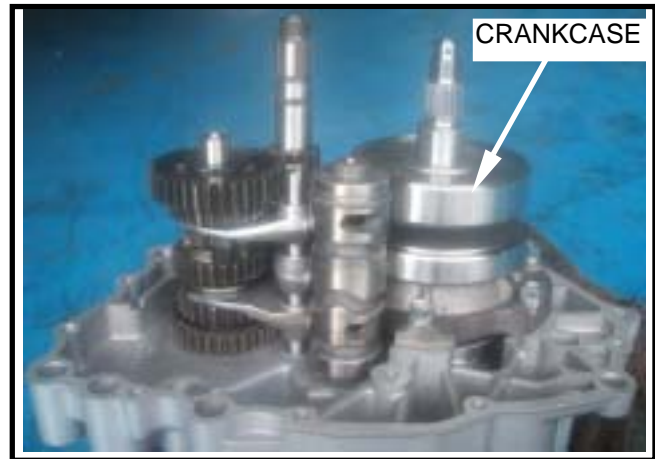


Remove the left crankcover all 6mm attaching bolts.
Separate the left crankcase from the right crankcase.
Remove the gasket and dowel pins.



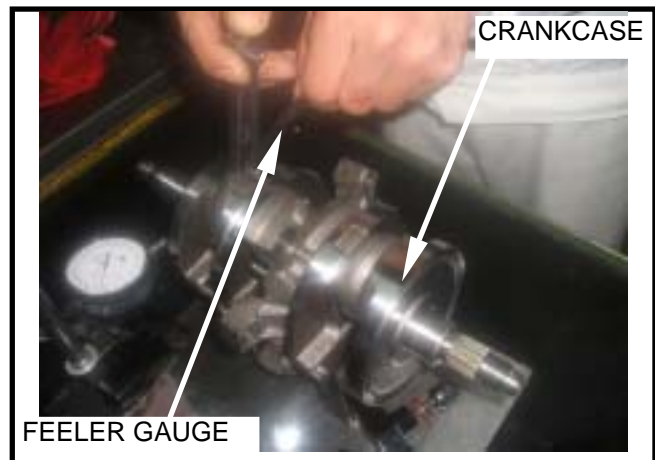
CRANKSHAFT REMOVAL

Remove the left crankcase.
Remove the crankshaft.

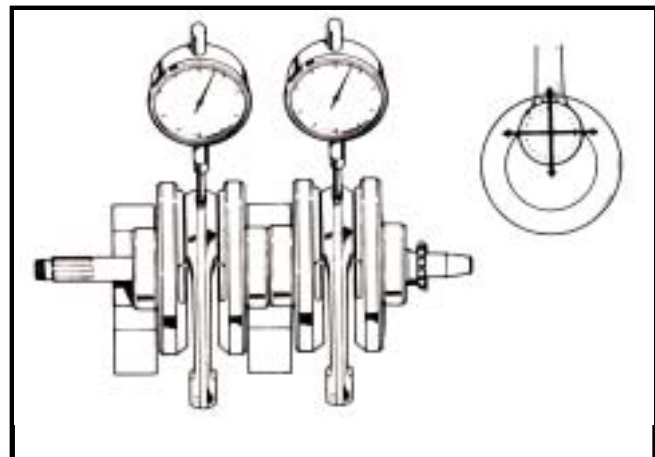


CRANKSHAFT INSPECTION

Measure the connecting rod big end side clearance with a feeler gauge.
Service limit: 0.60mm



Follow the arrow indicated direction to measure the connecting rod big end radial clearance.
Service limit:0.05mm

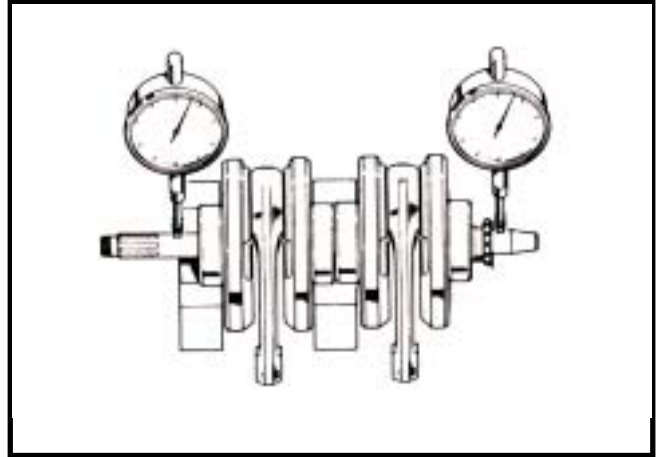


Place the crankshaft on a V-block and measure the runout using a gauge.

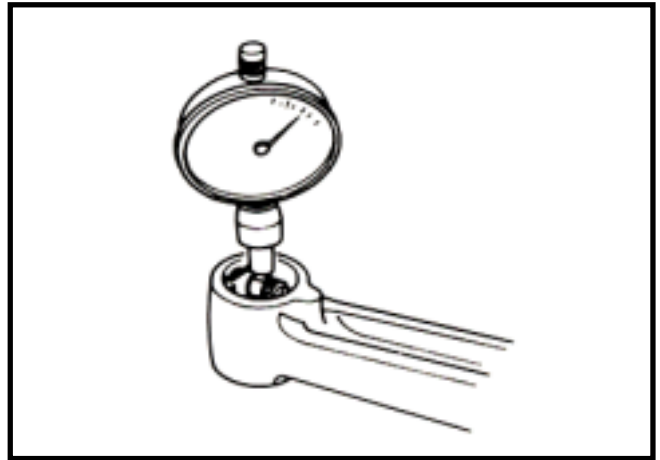
NOTE:

Coat the bearing and connecting rod big end with engine oil before installation.

Runout
Service limit: 0.01mm

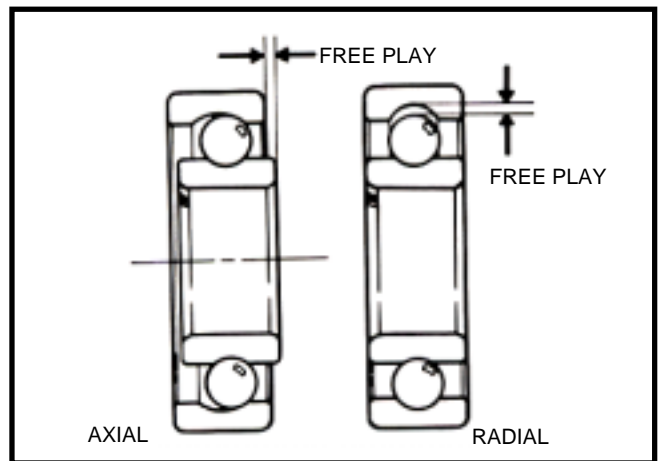


Measure the connecting rod small end I.D.
Connecting rod small end I.D.
Service limit: 15.08mm



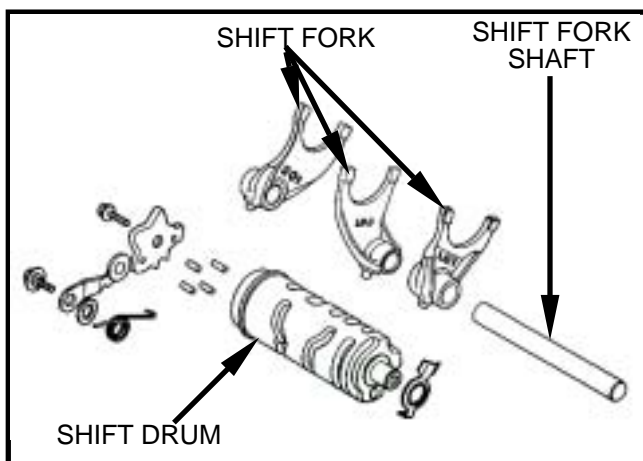
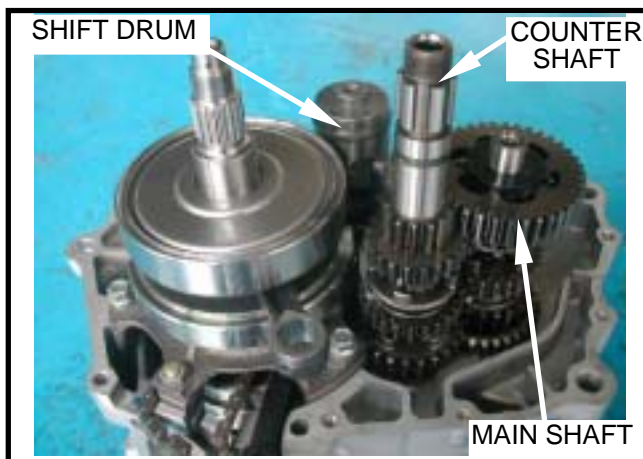
CRANKSHAFT BEARING INSPECTION

Spin the crankshaft bearing by hand and check for play. The bearing must be replaced if it is noisy or has excessive play.



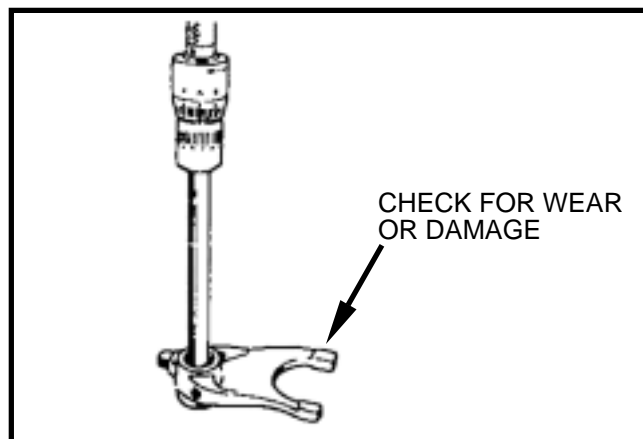
TRANSMISSION DISASSEMBLY

- Remove the crankshaft.
- Remove the shift fork shaft.
- Remove the shift drum.
- Remove the shift forks.

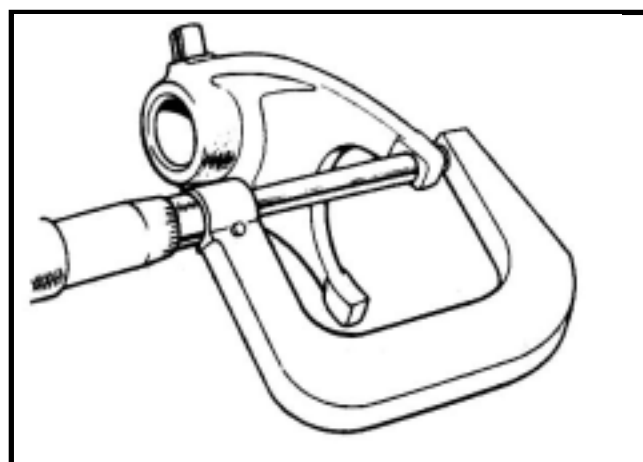


SHIFT FORK AND SHIFT FORK SHAFT INSPECTION

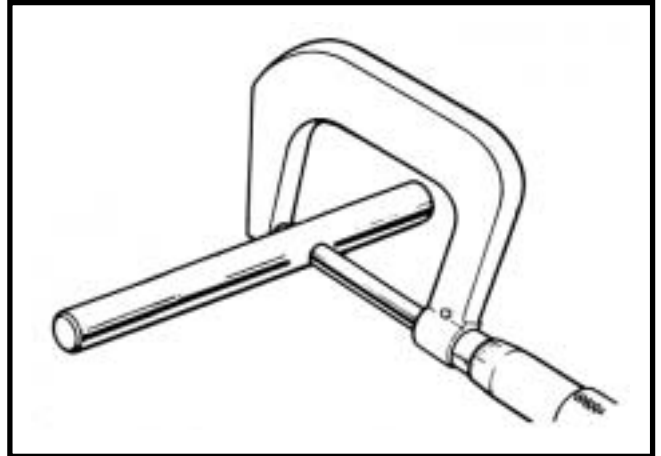
- Check the shift fork for wear, bending or damage.
- Measure the shift fork I.D.
- Service limit: 12.02mm



- Measure each shift fork claw thickness.
- Service limit: 4.80mm



Measure the shift fork shaft O.D.
Service limit: 11.976mm

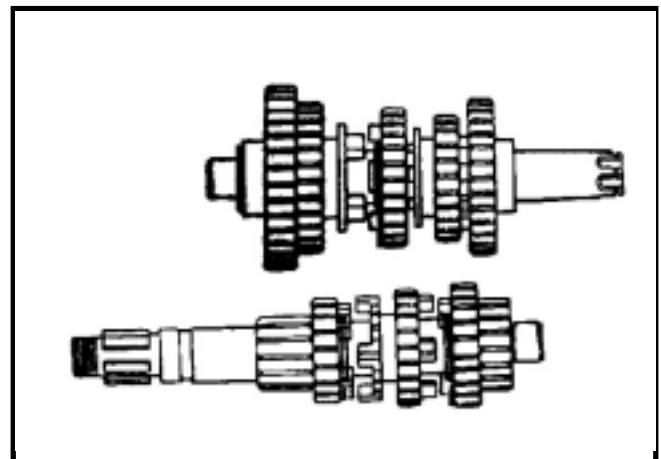


SHIFT DRUM INSPECTION

Check the gearshift drum for wear or damage.



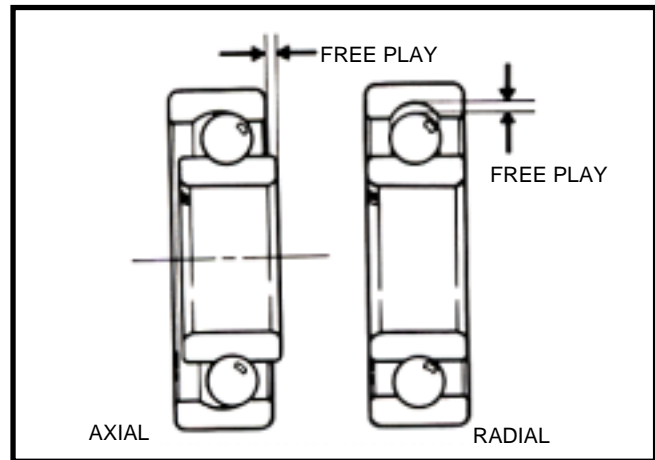
Disassemble the transmission gears.
Check each gear for wear or damage and replace if necessary.



Check the crankcase oil orifice for clogged, blowing through with compressing air if necessary.



Check the crankcase bearings, replace them if they have excessive free play or noisy.

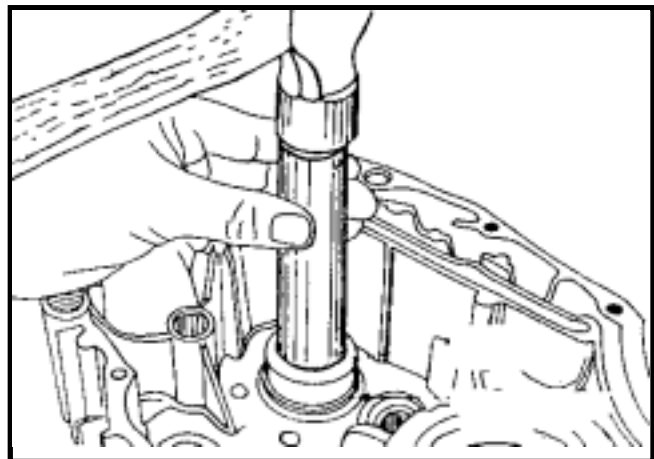


BEARING INSTALLATION

Install the bearings into the left, right crankcase with special tools.

NOTE:

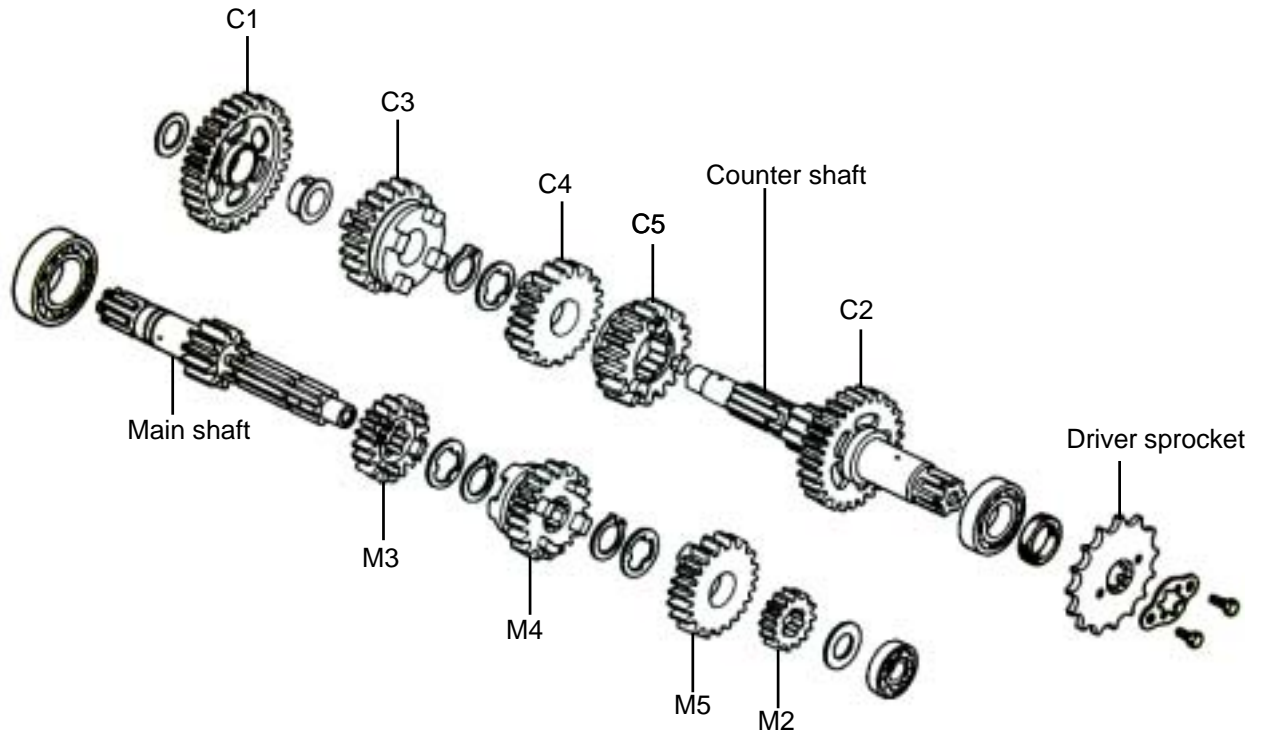
Install the bearing horizontally, to prevent bearing damage.



TRANSMISSION ASSEMBLY

NOTE:

Before assembling, coat each gears with engine oil.



Assemble the gears of the countershaft and mainshaft.

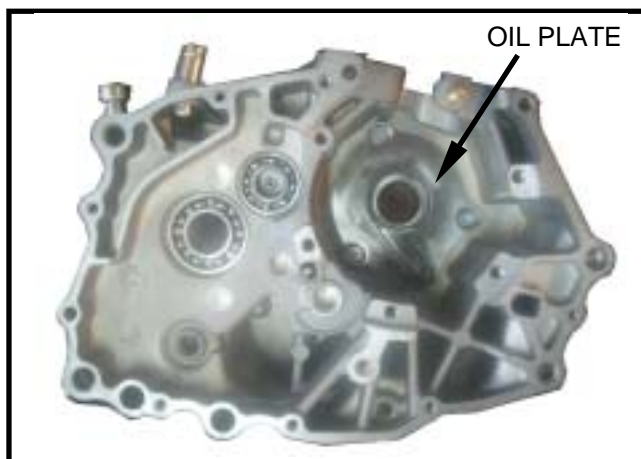
NOTE:

Seat the snap ring in the ring groove properly.

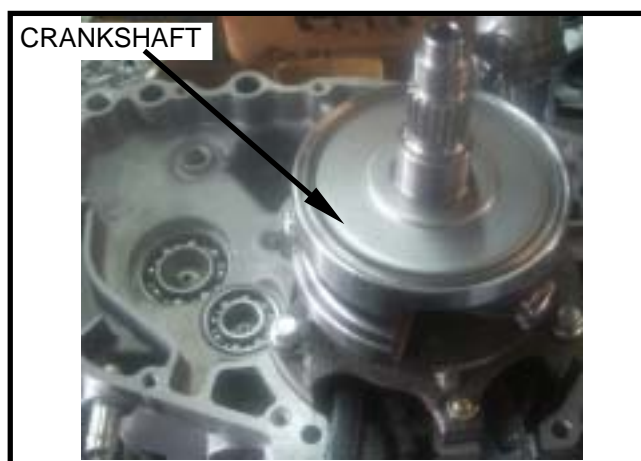
9. CRANKSHAFT/CRANKCASE/TRANSMISSION



Install the oil plate comp in the right crankcase.



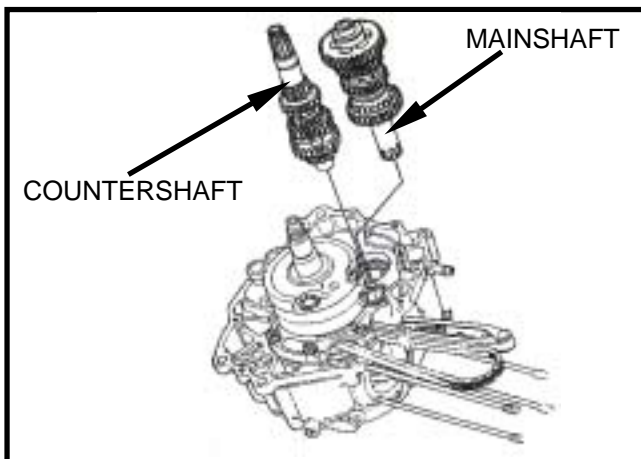
Install the crankshaft assemblies in the right crankcase.



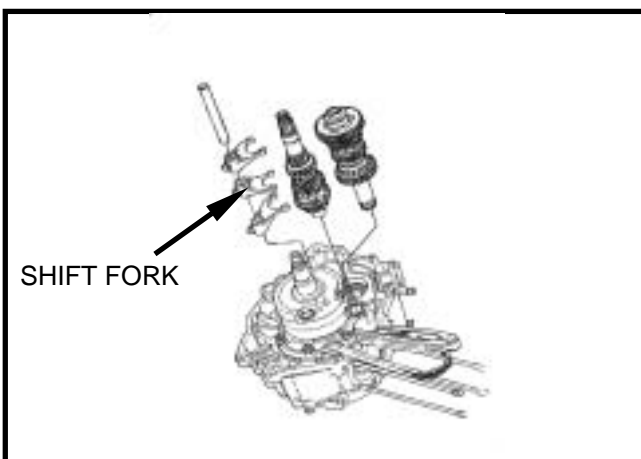
Install the mainshaft and countershaft assemblies in the right crankcase.

NOTE:

Keep the thrust washers in place during installation.



Install the mainshaft, countershaft and shift forks.

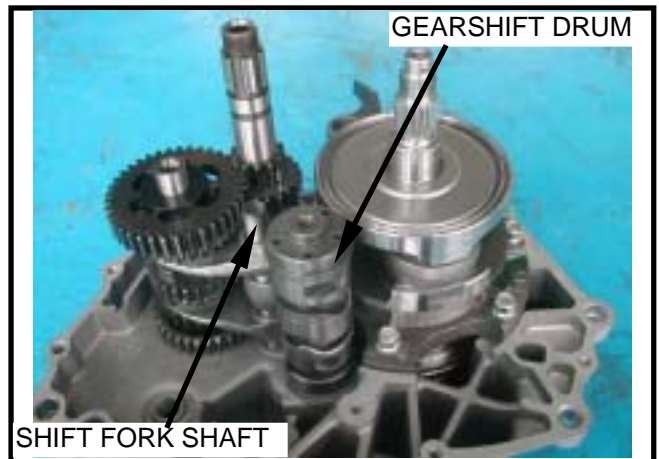


Install the gearshift drum.

Install the shift fork shaft.

NOTE:

Engage the shift fork guide pin with the drum groove by raising the shift fork.
After assembling, check each part for moving freely.



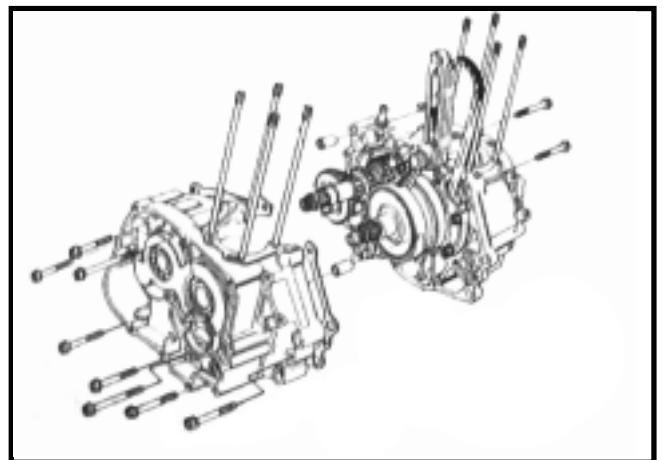
CRANK CASE ASSEMBLY

Install the gasket and dowel pins.

Install the left crankcase on the right crankcase.

NOTE:

Make sure that the gasket is in place.



TROUBLE SHOOTING.....	10-2	FLOAT/FLOAT VALVE/JETS ASSEMBLY	10-6
SERVICE INFORMATION	10-2	FLOAT/LEVEL ADJUSTMENT	10-6
CARBURETOR REMOVAL	10-3	THROTTLE VALVE ASSEMBLY.....	10-6
THROTTLE VALVE DISASSEMBLY ..	10-3	CARBURETOR INSTALLATION.....	10-7
FLOAT/FLOAT VALVE/JETS DISASSEMBLY	10-4		

TROUBLE SHOOTING

ENGINE CRANKS BUT NOT START

1. No fuel in the fuel tank
2. No fuel in the carburetor
3. Too much fuel in the combustion chamber
4. No spark at the spark plug (ignition malfunction)
5. Air cleaner clogged

ENGINE IDLE ROUGHLY

1. Idling speed incorrect
2. Ignition malfunction
3. Low compression
4. Rich mixture
5. Lean mixture
6. Air cleaner clogged
7. Air leaking into intake pipe
8. Fuel contaminated

LEAN MIXTURE

1. Carburetor jets clogged
2. Float chamber vent clogged
3. Fuel filter clogged
4. Fuel line restricted
5. Float level too low
6. Float valve faulty

RICH MIXTURE

1. Choke stuck closed
2. Float valve faulty
3. Float level too high

SERVICE INFORMATION

GENERAL INSTRUCTIONS

Take cautions when dealing this operation.
Always work in a well-ventilated area and away from sparks or open flames. When assembling, note the locations of the jets and place them individually.

SPECIAL TOOL

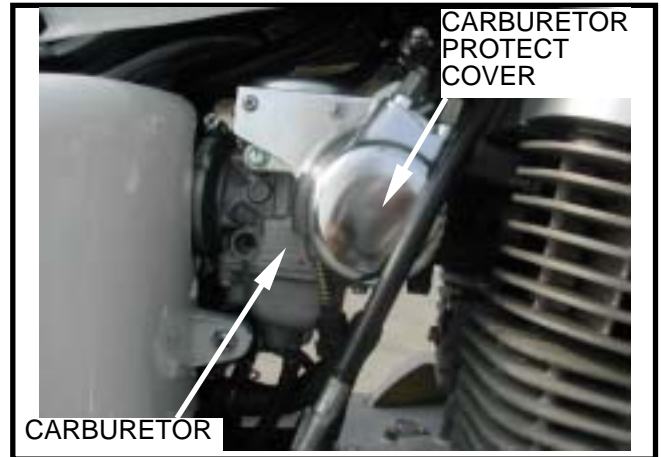
Float gauge

CARBURETOR REMOVAL

Disconnect the fuel line.
Disconnect the all connect tubes.
Drain fuel from the carburetor.

WARNING:

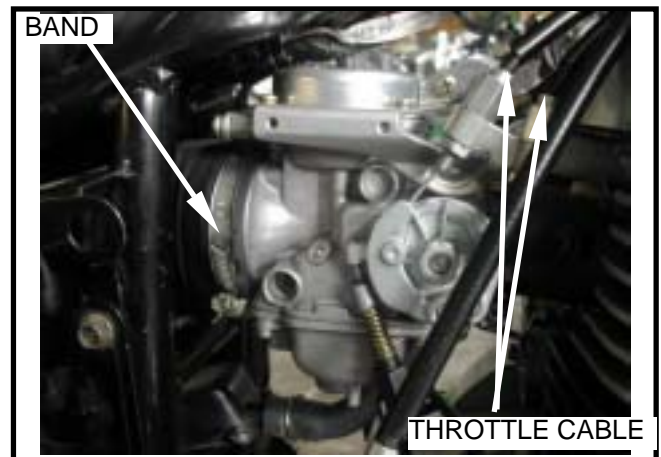
Keep away from flames or sparks. Wipe up spilled gasoline at once.



Loosen the carburetor band.

**THROTTLE VALVE DISASSEMBLY**

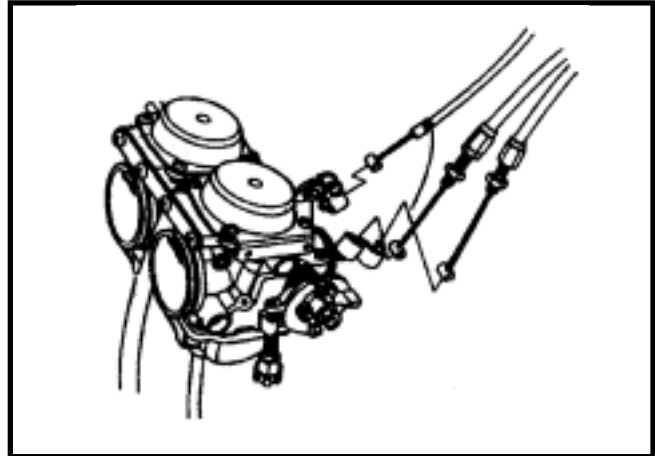
Disconnect the throttle cable.



10. CARBURETOR



Remove the carburetor assembly.

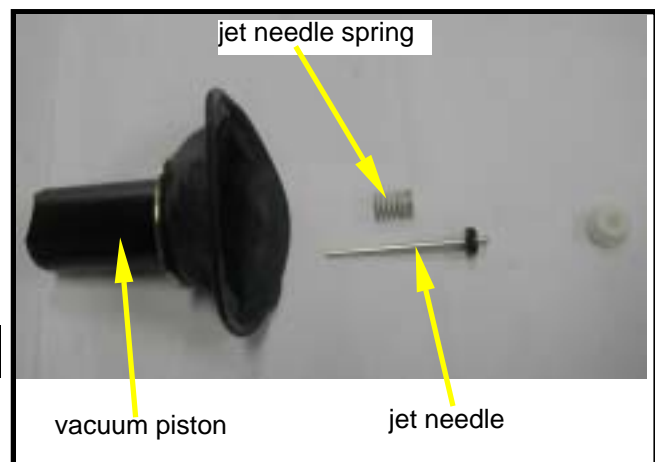


VACUUM CHAMBER DISASSEMBLE

Remove the two screws and remove the vacuum chamber cover.
Remove the piston spring.
Remove the needle holder, jet needle spring, jet needle and vacuum piston.

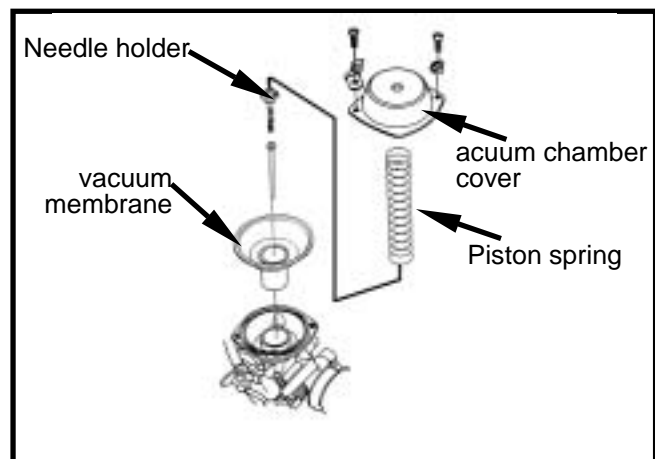
WARNING:

Avoid damage to the vacuum membrane.



INSPECTION

Inspect the jet needle for wear or damage.
Inspect the vacuum piston for damage.
Inspect the vacuum membrane for damage.



ASSEMBLY

Install the vacuum piston ,vacuum membrane, jet needle, needle holder, piston spring on the carburetor body.

NOTE:

Avoid damage to the vacuum membrane.

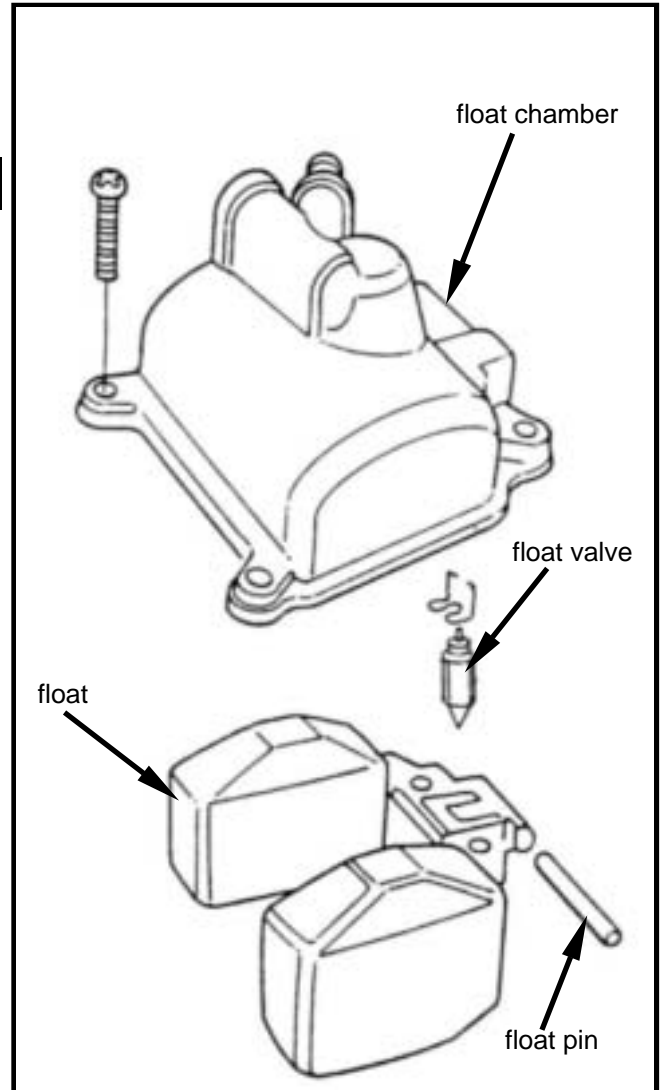
**FLOAT/FLOAT VALVE/JETS
DISASSEMBLE**

Remove the float chamber body.

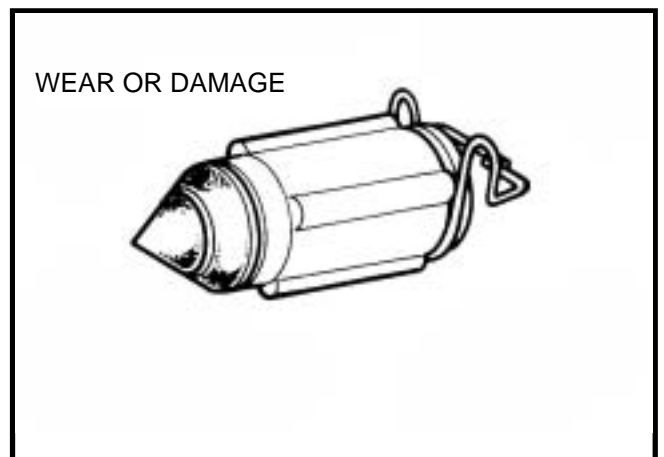
WARNING:

Pour the float chamber gasoline into the tank.

Pull out the float pin, remove the float and float valve.

**FLOAT VALVE INSPECTION**

Inspect the float valve surface for wear or damage.

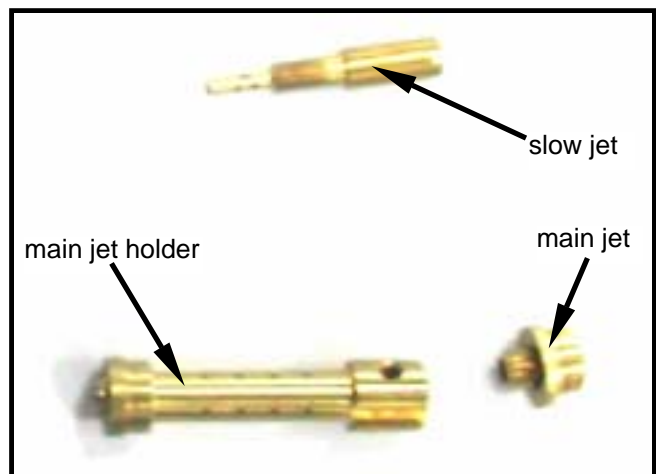


10. CARBURETOR

Remove the main jet, main jet holder and slow jet.

NOTE:

Avoid damage to the jets.



Remove the air screw.

NOTE:

Before removing air screw, record the number of relations until it rests lightly, so it can be returned to its original position.



Check each part for damage.

Blow open all body openings with compressed air.

FLOAT/FLOAT VALVE/JETS ASSEMBLY

Install the stop screw, the main jet, main jet holder and slow jet.

NOTE:

Do not damage jets at the time of assembly.

**FLOAT LEVEL ADJUSTMENT**

If the float level is too high or too low, bend the float arm for adjusting.

Float level: 24mm



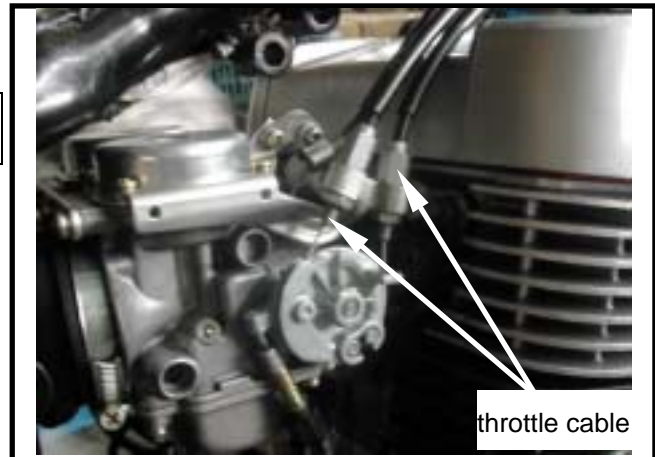
10. CARBURETOR



Connect the throttle cable.

NOTE:

- Make sure that the throttle cable is pulled tightly.



CARBURETOR INSTALLATION

Reverse the procedure of removal to install the carburetor.

Then adjust the followings:

Throttle grip free play (2-10).

Idling speed (2-11).



<p>TRUBLE SHOOTING..... 14-1</p> <p>SERVICE INFORMATION..... 14-2</p>	<p>IGNITION COIL 14-3</p>
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TRUBLE SHOOTING

ENGINE CRANKS BUT NOT START

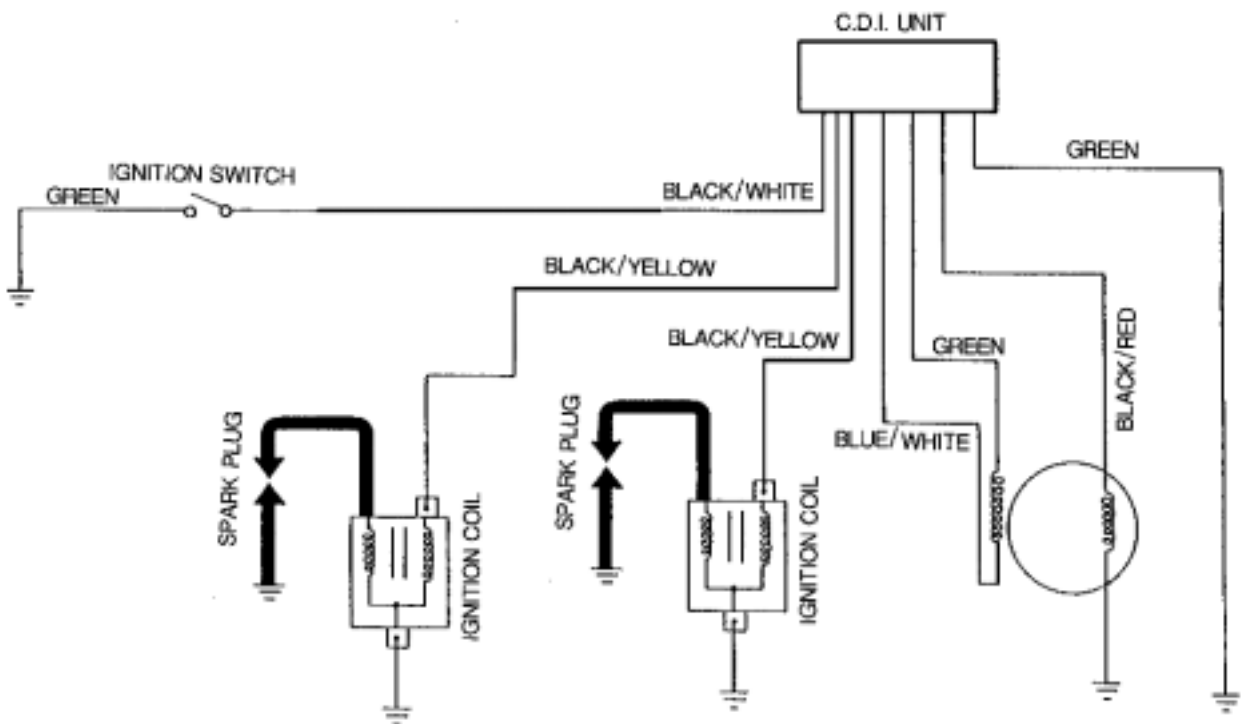
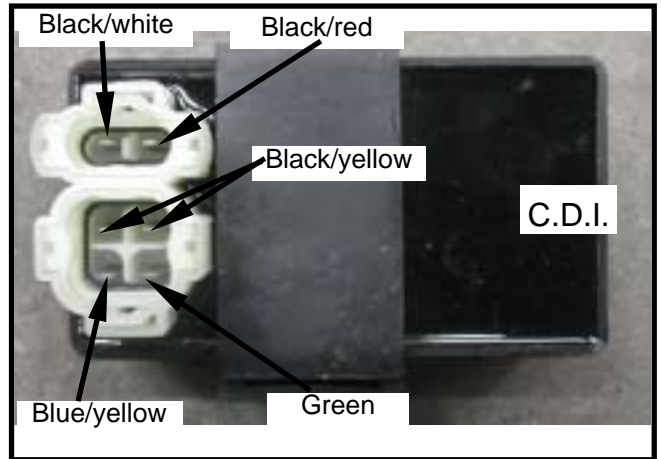
1. No sparks at the spark plug
2. Improper ignition timing
3. Faulty plug

NO SPARKS AT THE SPARK PLUG

1. No current in primary circuit
2. High tension cord broken
3. Faulty ignition coil
4. Faulty A.C. generator
5. Faulty C.D.I. unit

ENGINE RUNS BUT ROUGHLY

1. Primary circuit
 - C.D.I. unit failure
 - Faulty A.C. generator
 - Faulty ignition coil
 - Loose wires
 - Poorly contacted switch terminals
2. Secondary circuit
 - Faulty,spark plug
 - Faulty high tension cord
 - Faulty ignition coil
3. Ignition timing
 - Faulty A.C. generator
 - Faulty C.D.I. unit



SERVICE INFORMATION

GENERAL INSTRUCTION

This section contains the ignition system.

Be sure that the battery is fully charged before diagnosing troubles in the ignition system.

Also refer to the following pages:

Spark plug	2-5
Ignition timing adjustment	2-8

SPECIFICATIONS

Spark plug:	A6RTC
Spark plug gap:	0.6~0.7mm(0.024-0.028in)
Ignition timing :	15° ± 2°/1500rpm 29.5° ± 2° /4000rpm

IGNITION COIL

IGNITION COIL REMOVAL

- Remove the seat.
- Remove the fuel tank.
- Disconnect all wires to the ignition coil.
- Remove the ignition coil.

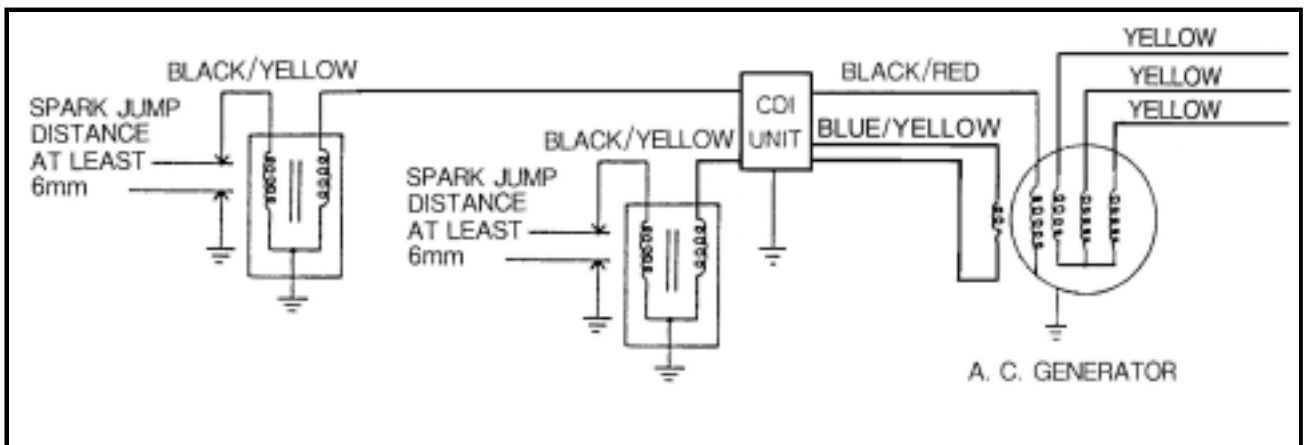


IGNITION COIL TEST

Check the ignition coil output using a tripolar tester.

NOTE:

Follow the instructions described in the user manual.



Check the primary circuit, it is normal if there is conductivity when connecting a ohmmeter.

PRIMARY COIL	$0.31 \pm 0.03K$
SECONDARY COIL	$4.0 \pm 0.4K$

